THE STRUCTURE

OF THE

AMERICAN ECONOMY

PART I. BASIC CHARACTERISTICS

A REPORT
PREPARED BY THE INDUSTRIAL SECTION
UNDER THE DIRECTION OF
GARDINER C. MEANS

JUNE 1939

NATIONAL RESOURCES COMMITTEE

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NATIONAL RESOURCES COMMITTEE

NORTH INTERIOR BUILDING

WASHINGTON

June 9, 1939.

THE PRESIDENT,

The White House.

MY DEAR MR. PRESIDENT: We have the honor to transmit herewith a report on "The Structure of the American Economy", prepared under the direction of our Industrial Committee by Dr. Gardiner C. Means and his staff. This document is the first major attempt to show the inter-relation of the economic forces which determine the use of our national resources. It indicates some of the problems which must be faced and solved if we are to have reasonable use of our resources and full employment.

The members of the National Resources Committee wish to indicate their belief in the importance and value of this report as a stimulant to public discussion, and to further efforts for solution of the problems presented.

Sincerely yours,

HAROLD L. ICKES
Secretary of the Interior, Chairman

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Secretary of War

HENRY A. WALLACE
Secretary of Agriculture

HARRY L. HOPKINS
Secretary of Commerce

FRANCES PERKINS
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PREFACE

Earlier reports of the National Resources Committee and its predecessors have examined the Nation's material resources of land, water, and minerals; the changing character of the population which seeks to utilize these resources; and the improving engineering techniques whereby resources are used to serve human wants. In each of these reports a major aspect of the national household has been sketched in with a greater or less degree of detail in order to give a background for the development of major national policies and to provide a larger frame of reference within which specific problems in specific fields could be more intensively analyzed.

In this report on the Structure of the American Economy an effort is made to bring the major aspects of the national economy into focus so as to emphasize the organic character of the process whereby the Nation's resources are employed to provide useful commodities and services. This emphasis on organization requires that the national community be treated as a single functioning whole and in such a way that every phase of human activity is covered insofar as it involves the use of resources. Only by bringing all the different aspects of the national economy into a single frame of reference can a basis be laid for developing effective policies in respect to particular aspects.

This frame of reference is so broad in scope that it has been necessary to introduce certain limitations in order to keep the report within manageable proportions. The first of these is the concentration of the report on what have been called the structural characteristics of the national economy—those characteristics which show a high degree of continuity—changing only gradually or not at all and giving to the American economy its particular character. The second limitation is introduced by seeking out only what are believed to be the main structural characteristics, especially those which appear to be of major significance for the problem of obtaining more effective use of national resources. A third limitation has developed inadvertently. Certain major structural characteristics are not covered or are only very inadequately covered in the report. On some of these such as the trend of consumer savings, data are so completely lacking that they could not be included. Others were to be included according to the original plans for the report but the investigations necessary to their inclusion were incomplete or inadequate to allow their inclusion without unwarranted delay in publication. The most serious omission of this sort is an analysis of the debt and ownership structure and the structural aspects of interest rates. Such gaps are indicated at the appropriate points in the text. In spite of its shortcomings, the report is presented in the hope that it can give added background for the development of national policies respecting the use resources.

NATIONAL RESOURCES COMMITTEE

NORTH INTERIOR BUILDING

WASHINGTON

May 18, 1939.

MR. FREDERIC A. DELANO,
Chairman, Advisory Committee,
National Resources Committee,
Washington, D. C.

DEAR MR. DELANO:

We have the honor to transmit herewith the report on the Structure of the American Economy requested by the Advisory Committee as background to an understanding of the basic national problem of unemployed resources.

The report has been prepared by a staff under the direction of Dr. Gardiner C. Means, who takes primary responsibility for the material presented and its detailed organization.

We wish to emphasize the central importance of insuring reasonably full use of resources. We believe that this report should help to clarify the character of this basic national problem.

Sincerely yours,

THOMAS C. BLAISDELL, JR., *Chairman*

LAUCHLIN CURRIE	MORDECAI EZEKIEL	GARDINER C. MEANS
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CHAPTER I.—INTRODUCTION

The American economy is the organized activity through which the 130 million people in this country obtain their daily living. Farmers raising food and fiber, miners extracting ore and coal, industrial workers fabricating raw materials into finished products, wholesale and retail distributors making goods available to consumers, and a host of workers performing the other countless tasks required by modern living, all of these are combined in a huge and highly complex producing organization which constitutes the national economy. Through this complex organization the Nation's resources of manpower and materials are used to satisfy human wants.

The Complexity of Economic Organization

The complexity of this organization is apparent when a single activity such as the provisioning of New York City is examined. It is estimated that in the metropolitan area of New York there is seldom more than 60 days food supply on hand.[1] The meeting of this most basic need of the community requires a tremendously complex organization of farms and farmers, dealers and shippers, truckers and railroads, warehousemen and distributors, telegraph operators and traffic officers, financial institutions and inspection bureaus. To feed New York's 8 million people there is required an organization of manpower and material resources so complex as to be hard to visualize, yet running so smoothly that one is seldom conscious of its complexity or of the fact that it constitutes a single organization of activity, however independent the separate elements in that organization may appear to be. Occasionally a flood, storm or financial panic, or a social or technical break-down in a basic service disrupts this organization and its complexity becomes apparent as mayor or governor or private citizen attempts to readjust the organization of resources to meet the new conditions.

Similarly, for the Nation as a whole, the manpower and material resources are organized in a highly complex, highly interrelated manner. New Yorkers make clothing worn in Dakota; the Dakota wheat farmer supplies California with the materials for bread; transient labor in California picks oranges eaten in Texas; a Texan drills for oil which will operate automobiles in Maine; and a Maine farmer raises potatoes which feed men in New York. It is through such interrelated activity in many areas and many industries that the American community obtains its livelihood.

[1] See appendix 18, p. 370.

This highly complex organization, built up over a long period of years with constant readjustment to meet new conditions, is altogether too complex for any individual or small group to grasp in all its ramifications and in every detail. Yet it ties together, into an integral whole, individuals and corporations and governments, each of which performs functions that are necessary if the resources of the Nation are to yield a satisfying standard of living to the national household of 130 million people.

Failure to Use Resources Effectively

It is inevitable that such a complex organization of human activity should fail to function perfectly. Resources are wasted or used ineffectively as parts of the organization get out of adjustment with each other, or as the organization fails to adjust to new conditions; as individuals fail to find, or are prevented from finding, the most useful field of activity; as material resources are unused, or as their effective use is impeded by human barriers; and as the most effective technology is not used or its use is prevented.

The waste of natural resources through misuse, or ruthless exploitation, is thoroughly familiar. The cutting of forests in a manner which delays or prevents reforestation, the farming of lands by methods which mine the soil of its fertility and encourage soil erosion, the extraction of petroleum by methods which blow into the air billions of cubic feet of natural gas daily,[2] these are specific resource wastes to which attention has already turned and which reflect inadequacies in our organization of resources.

Equally important, but less often thought of as a waste of resources, is the idleness of men and machines that could be productively employed. The power of individuals to produce is a resource like unharnessed water power. It is gone if it is not employed. It cannot be stored. If 10 million men are able and willing to work, but are forced to be idle for a year by lack of jobs, the community has wasted the valuable resources of manpower. And because of idleness, the individuals are likely to suffer a loss of skill and a breakdown of morale. The Nation is poorer both by the goods that could have been produced and by the frustration and loss of morale of the unemployed individual.

Idle machinery may also involve a waste of resources. When machinery is idle and accumulating rust or losing

[2] See *Report of National Resources Board*, December 1, 1934, p. 406.

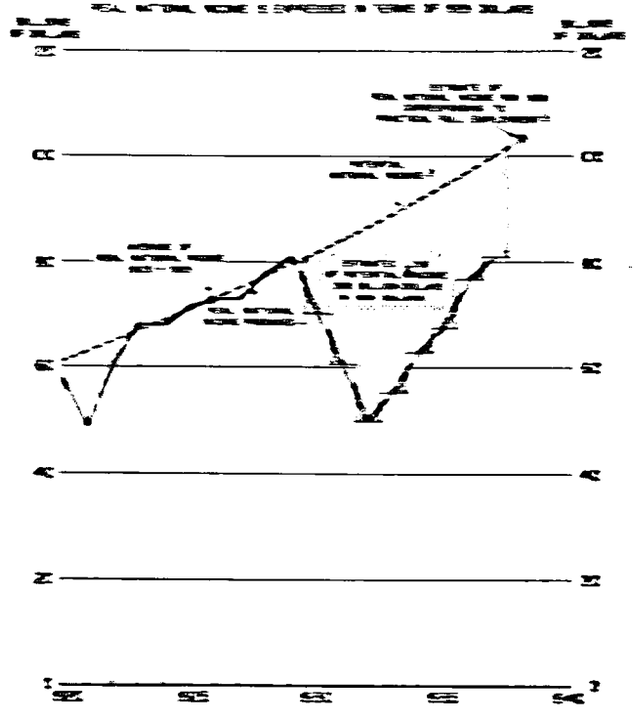
usefulness through becoming obsolete, when idle men are available to operate it and when its product would be useful to the community, its idleness is likely to constitute ineffective use of resources.[1] Digging a large building foundation with pick and hand shovel and leaving an available steam shovel idle may not be as wasteful of resources as keeping both men and shovel idle, but it nevertheless involves waste. Waste is also involved when obsolete equipment uses more manpower and materials in doing a particular job than would be required if improved techniques were employed, or when production is divided among so many plants in an industry that no plant can have enough volume to run efficiently. In all of these cases, failure to use the best-known technology consumes manpower or materials that might be released to be used elsewhere.

[1] Consider, for example, the case of a man who is employed operating a steam shovel. Let it be assumed that if a machine will be in good working condition at the end of a year, or any period of time, regardless of whether it is used or not, then a year's use of the machine is worth its depreciation. Only when the machine will be inoperable by being obsolete or by being worn out to the point where there is no use that can be had out of the machine. Likewise, when the machine will be inoperable more rapidly if used than if not, the wear caused thereby may be more than the mere passage of time. It should also be noted that an obsolete machine may be worth a certain amount even when the cost of operation is greater than the value of what is made. For example, machine A may be worth $1,000 although its operation costs $1,000 more than the operation of a machine B which is more efficient. Machine B may be worth $2,000.

CHART I

LOSS IN POTENTIAL REAL NATIONAL INCOME DUE TO DEPRESSION UNEMPLOYMENT OF MEN AND MACHINES

1929–37



Source: See appendix B, note 1.

[1] Data underlying chart 1 of the National Income published as a statement by the National Bureau of Economic Research and the Department of Commerce, reduced by an index of gross private investment by the National Bureau and representing both capital and maintenance gross plants.

[2] See appendix B, note 2.

[3] Derived by connecting the average of real national income, 1923–29, with the estimate of real national income for 1935 corresponding to potential full employment with a conjectural connecting curve. For the purpose of the chart potential full employment was assumed to involve a minimum unemployment of 2 millions. See Appendix B, note 3.

Magnitude of Wastes

The waste of resources from these three sources, ruthless exploitation, idleness of men and machinery, and failure to use the most effective known techniques, all combine to give a tremendous total of wasted resources. How great this waste is in its impossible to estimate, but some suggestion of its magnitude can be given by estimating a single item: the depression loss in income through idleness of men and machines during the last 9 years. Chart I shows the estimated real income of the United States from 1923 to 1937, stated in 1929 dollars. The dashed line gives a crude estimate of what the real income would have been in the years after 1929 if there had been no depression following that year and economic activity had expanded to absorb the increased labor force which became available. This line is obtained by drawing a smooth curve between the point on the chart representing the average real income from 1923 to 1929 and the point representing the estimated real income which would have been produced in 1935 if all but 2 millions of the available labor force had been employed.[2] The shaded area indicates the discrepancy between the national income actually produced from 1929 to 1937, and the income which would have been produced if production had continued to increase at a rate sufficient to absorb the increase in the real labor force. While no calculation can give a precise figure for the depression loss in income due to the idleness of men and machines, the figures do suggest that this loss through nonproduction was in the magnitude of 200 billion dollars worth of goods and services. Most of this represents sheer waste, though to some extent it reflects a smaller depletion of natural resources.

The significance of this figure of 200 billion dollars is hard to grasp, but some idea can be obtained by considering what 200 billion dollars would mean in terms of current goods. If all the idle men and machines could have been employed in making houses,

[1] Based on an estimate made in Federal Income Tax, National Resources Committee, 1938. See appendix B, p. 82.

The annual rate of growth in potential national income indicated above is somewhat higher than the rate of growth in the real national income during the decade 1929 to 1939, as shown in chapter V, chart 1, was approximately 1.5 percent a year. The latter figure is consistent with the conventional method of estimating the rate of growth in real national income from 1929 to 1939 at 1.7 percent. A. F. Burns and P. A. Peterson estimated the annual rate of growth in total national production from 1919 to 1929 at 2.7 percent. A. F. Burns and P. A. Peterson estimated the annual rate of growth in the same period. Arthur F. Burns, International Basis for Estimates of a significant comparison of the rate of growth from 1919 to 1929. See A. F. Burns, Production Trends in the United States Since 1870, N. Y., pp. 35, 290. This index 1 percent per year since 1929 necessarily understates.

the extra income would have been enough to provide a new $6,000 house for every family in the country. If instead, the lost income had been used to build railroads, the entire railroad system of the country could have been scrapped and rebuilt at least five times over. Of such is the magnitude of the depression loss in income through failure to use available resources. It meant a lower standard of living for practically every group in the community.

Even in the nondepression years there was extensive idleness of men and machines which could have been used had there been adequate organization. The Brookings Institution has estimated that in the peak year 1929 both production and national income could have been increased 19 percent by merely putting to work the men and machines that were idle in that year even without the introduction of improved techniques of production.[5] While it is not possible to establish such a figure with perfect accuracy, its magnitude suggests a very real waste of resources.

Wastes through the failure to use the best techniques of production and through faulty exploitation of natural resources likewise contribute their quota to the total waste. Few have attempted to make estimates in this highly uncertain field, but there can be little question of the magnitude of resource waste through using less than the best techniques and through faulty use of natural resources.

The Impact of Waste

The full meaning of this failure to use resources effectively can only be realized by considering its impact upon individuals. Practically every individual in the community suffers as a result of these wastes. When the national income is 60 billion instead of 90 billion dollars, the worker suffers a lower income through unemployment or partial employment or through wage rates lower than resources make possible; the farmer receives a lower income because of a reduced home market; the return on capital is reduced as a result of the partial use of equipment and the resulting increase in unit costs. For each group in the community this waste of resources means a lower standard of living than would clearly be possible.

Even more basically significant is the individual frustration resulting from the inability to find an effective use for one's skills. Without the satisfaction of useful activity, without the sense of security in a job well done, most men lose some of their self-reliance and some of their ability to be productive.

Moreover, as people become increasingly aware of the discrepancy between rich resources and poor results in living and as the ineffectiveness in the organization of resources becomes more clear, a sense of social frustration must develop and be reflected in justified social unrest and unavoidable friction. Individual frustration builds into social frustration. And social frustration is quite as likely to work itself out in socially destructive as in socially constructive ways.

The Opportunity

At the same time this waste of resources presents a tremendous opportunity. Such resources hold the promise of a much higher standard of living than is now being obtained and present a challenge to this country, as a national household, to work out their effective use. It is a surprising comment on a Nation that prides itself on its skill in organization, in administration, and in management that such tremendous waste of resources can occur. The abundance of natural resources and the continental pioneering that has been necessary for their development may in part account for the past waste. With the continent spanned, the frontier shifts from the bringing of new resources into control to the more effective use of the resources already controlled. Here is the great challenge of today.

How long this opportunity will be open to the American democracy involves a serious question. The opportunity for a higher standard of living is so great, the social frustration from the failure to obtain it is so real, that other means will undoubtedly be sought if a democratic solution is not worked out. The time for finding such a solution is not unlimited.

Stating the Problem

This problem, the basic problem facing economic statesmanship today, can be stated as follows: How can we get effective use of our resources, yet, at the same time preserve the underlying values in our tradition of liberty and democracy? How can we employ our unemployed, how can we use our plant and equipment to the full, how can we take advantage of the best modern technology, yet in all this make the individual the source of value and individual fulfillment in society the basic objective? How can we obtain effective organization of resources yet at the same time retain the maximum freedom of individual action? This is a problem so large that no solution is likely to be arrived at except over a period of years and through the efforts of many people.

Nature of this Report

This report attempts to delineate the essential structural characteristics of the American economy. Its aim is to clarify the problem of achieving effective use of resources, not to offer any solution. It seeks to provide a background for attempts at solution and to call

[5] *America's Capacity to Produce*, Brookings Institution, p. 422.

attention to certain implications of the structure of the economy in a direction which efforts at solution might take.

Knowledge of structure becomes imperative when any organization or machine fails to run properly. The characteristics of any machine can be roughly grouped into its structural characteristics and its operating characteristics. So long as a machine runs well, its operating characteristics are all important, and its structure can be largely taken for granted. In order to drive an automobile it is enough to know how to manipulate the operating controls such as the starter, throttle, clutch, steering wheel, and brake. But when the machine fails to operate properly a knowledge of its essential structure is necessary in order to make the appropriate adjustments.

So also with the national economy; as long as it runs reasonably well, a knowledge of its structure is of secondary importance. Individuals, enterprises, and governments can continue to adopt the operating policies that have been found to work successfully in the past. But when it fails to run well, knowledge of its structure becomes of vital importance. Only as both its structure and the operating policies being adopted are clearly understood can faulty functioning be corrected.

Yet to talk of the characteristics of the national economy in terms of an analogy to a machine is to lose sight of the dynamic characteristics of both the economic structure and the multitude of separate decisions which together make up operating policy. The economic structure is constantly changing, sometimes gradually as consumer wants gradually shift or as new inventions are gradually developed and put into use, and, like the automobile or radio, call for new production arrangements; sometimes rapidly as a wave of mergers rapidly alters the industrial scene or as a new impetus is given to labor organization by a shift in public policy. Likewise operating policies are subject to constant modification as new conditions and opportunities develop. Both structure and operating policies interact on each other and each to some extent conditions the other. Often they cannot be clearly separated from each other. Yet their separation is important because, as a result of their dynamic character, they can develop in such a way that the operating policies and the structure are not compatible with each other. Just as the operating policies which are effective with a horse and buggy are not effective when the latter is replaced by the automobile, so the operating policies appropriate to one economic structure may not be effective when that structure has become significantly altered. The faulty functioning of the American economy necessarily raises the question of whether the present operating policies and the present economic structure are compatible with each other. A clear delineation of the essential structure of the American economy is a first step toward answering this question.

Such an analysis of the economic structure is not only made necessary by the depression in economic activity which followed 1929 but is greatly aided by that depression. The rapid drop in national production from a value of over 80 billion in 1929 to under 50 billion[6] 3 years later, and the very considerable recovery since that time, give the economic analyst what is almost equivalent to a laboratory experiment on the basis of which many structural characteristics may be observed. The violence of the change, and the fact that production was almost as high at the end as at the beginning of the period, make certain structural characteristics stand out, just as a high wind brings out the structural difference not evident on a windless day between the tree that bends to the wind and that which stands unbending. Without the data of the depression years it would be much more difficult to recognize the structural characteristics of the national economy.

In order to be effective, an analysis of the economic structure must treat the American economy as an integral whole—as a going concern. To treat only certain activities is to lose the essential unity of all the separate and interrelated activities which make up the whole. Yet the American economy in all its structural aspects involves such a complex and ever-changing system of relationships that it could not be set forth in detail in a single report, however extensive that report might be. The most that can be done in treating the structure of the American economy in a single report is to set forth the structure only in its broadest outlines, emphasizing those elements of structure which appear most significant to the effective functioning of the whole economy.

Even when approached in the broadest terms, reliable data with which to block in the economic structure are missing at many points. Because completeness of the outline has seemed more important than a high degree of precision, crude estimates such as that for the total national wealth sometimes have been used where they are derived from the best data available. In such cases the reader has been warned of their crudity. At a few points even the basis for making crude estimates is lacking and a significant gap appears in the outline of the structure. The lack of adequate data means that at many points the outline of the economic structure in this report is only approximate, leaving to future analysis the task of bringing greater precision.

In this report the structure of the American economy will be examined under three main heads. First, the economic bases for production will be considered—the wants calling for satisfaction and the resources available

[6] Both expressed in 1929 dollars.

for use in filling wants. Second, the structure of production through which resources are used to fill wants will be discussed in its geographical, its functional, and its financial aspects. Third, the influences which give organization to the activity of the millions of separate individuals composing the American economy will be considered with particular emphasis on the market mechanism and administration.

For purposes of presentation it is necessary to make some such break-down as this. It should be remembered, however, that the structure of the economy is a single entity. Each chapter involves an examination of one *aspect* of this whole rather than a *part* of the whole. The report is not made up of a series of pieces which fit together like a puzzle but of a series of *different points of view* from which to consider one thing, the structure of the economy. In spite of a certain amount of inevitable repetition, this is the only way in which it is possible to view the structure of the whole economy as a going concern.

CHAPTER II.—THE STRUCTURE OF WANTS

Basic to the structure of the American economy are the wants of consumers. Food, clothing, shelter, education, transportation, and a host of other items are sought by consumers. To the extent that consumers have the power to make their wants effective, these wants are reflected in economic activity. The character and proportioning of these wants influences production and contributes to the structure of the whole economy.

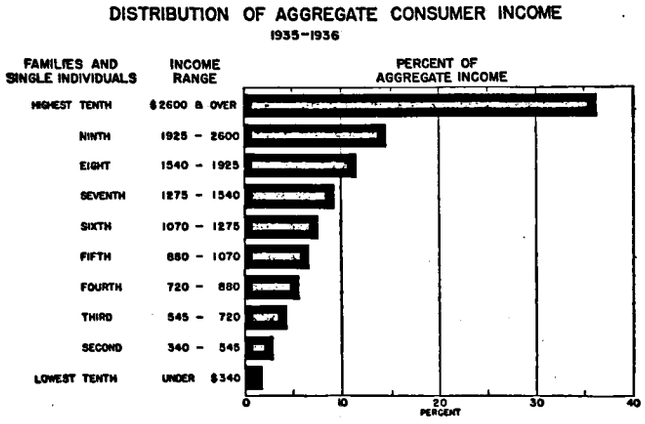
Consumer Wants

The main characteristics of consumer wants are reflected in the way consumers apportion their expenditures. If consumers have the same amount of money to spend at one time as at another, but spend more on automobiles and less on food and shelter, this may reflect a shift in consumer wants. When consumers have less to spend the items which they forego are presumably those which they want less strongly. Thus, by examining the pattern of consumer expenditure in the past and the consumption from year to year of certain types of goods it is possible to discover the outline of what might be called the "structure of wants."

The pattern of consumer wants is not, of course, fixed and immutable, but is continually changing under the impact of fashion, advertising, education and new goods coming into use. Within limited periods of time, however, changes in the pattern of wants are largely changes in detail, not in the basic structure of wants as they relate to major categories of activity.

While consumer expenditure is the most important channel through which consumer wants influence production, it is not the only one, and some account must be taken of the wants reflected through other channels. The three most important cases of this sort occur in (1) production at home for home use, (2) Government services supplied without any direct charge but financed for the most part out of taxes and (3) group expenditure by consumers combined in such bodies as churches, hospitals, and similar consumer institutions. By placing money values on food raised for home consumption and on shelter obtained from owned homes, these, the two most important items of home production, can be combined with purchased goods in analyzing consumer wants. The services rendered free by Government and by consumer institutions cannot be converted into the equivalent of private expenditure and can best be treated as reflecting wants which are met through social expenditure. These social expenditures are relatively small in comparison with all expenditures, so that the main elements of the structure of wants are to be found in the analysis of private expenditures.

CHART I



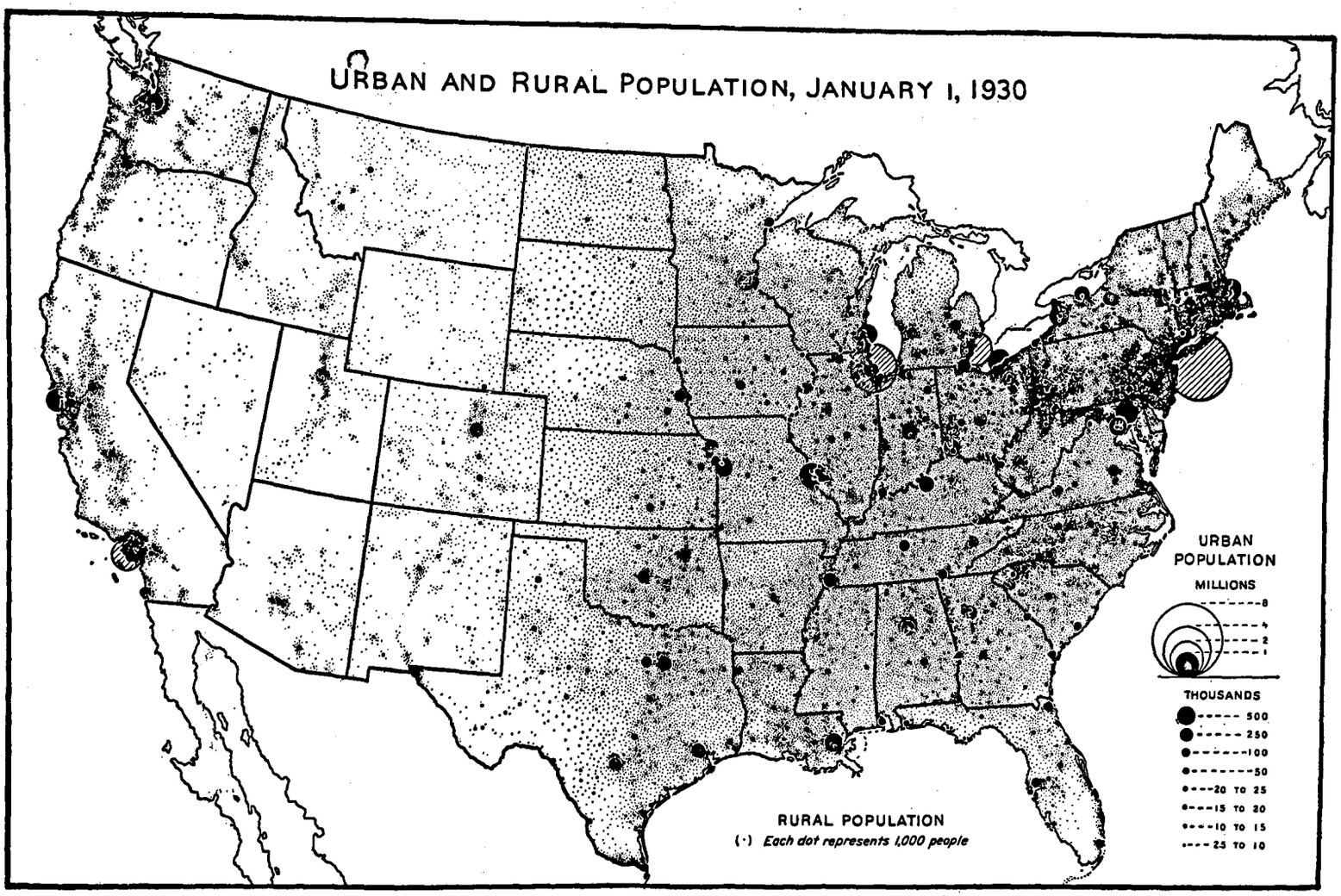
Source: *Consumer Expenditures in the United States*, National Resources Committee.

All consumers are, of course, not equally able to express their wants in the market. Significant differences between different groups of consumers can be brought out in two related maps. Map 1 shows the distribution of all consumers, regardless of their ability to make their wants effective. In map 2 these same consumers are weighted by their purchasing power—by their ability to express their wants in terms which affect the direction of economic activity. From this map it will be seen that urban consumers are on the whole more economically articulate than rural ones[1] and in particular that the wants of consumers living in the northeast section of the country and on the west coast are more effectively expressed in purchasing power than are the wants of consumers in some parts of the South.

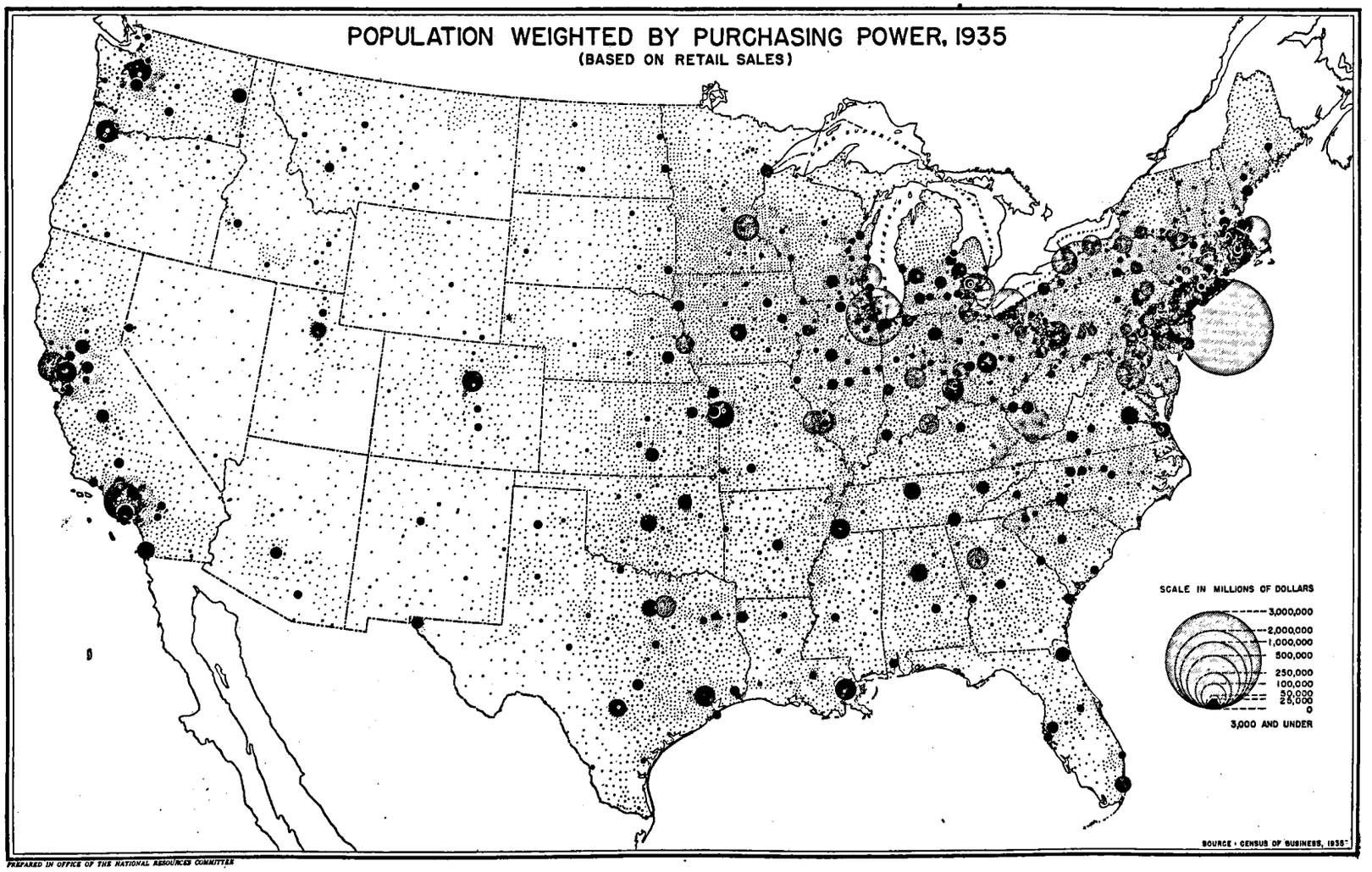
The distribution of the total consumer income in 1935–36 is shown by tenths in chart I, from the highest tenth with incomes of $2,600 and over a year, to the lowest tenth with incomes under $340. Obviously, the wants of consumers at the upper income levels can be more effectively expressed than the wants of those at the lower level.

The actual expenditures which direct production, however, reflect primarily the wants of families and individuals with relatively small incomes. In chart II,

[1] The map exaggerates this difference by showing as urban the purchases made by rural people in neighboring cities.



MAP 1.—Distribution of Population, United States, 1930



MAP 2.—Population Weighted by Purchasing Power, 1935

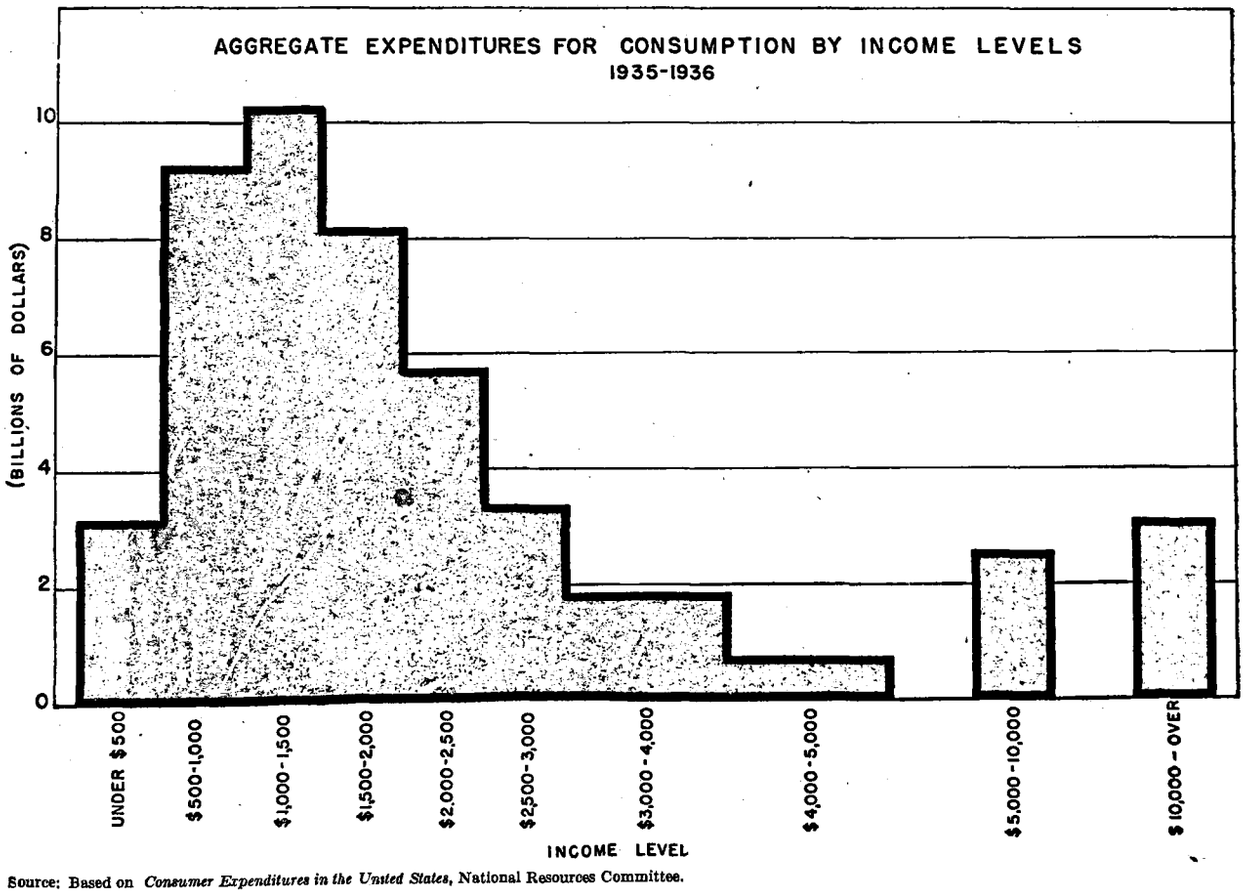
the aggregate expenditure for consumption by consumers at each income level is shown.[2] More than half of the total expenditure, including home produced food and rental value of owned homes, was made by families and individuals having incomes between $500 and $2,000, and over 85 percent was made by consumers with incomes under $4,000 a year. Only 6 percent of the total consumer expenditure was derived from incomes over $10,000. Thus, in considering the structure of wants as reflected in actual expenditure, it must be kept in mind that one is dealing primarily with wants as they are made effective out of relatively small incomes.

The reason why small-income consumers dominate the pattern of expenditure is partly to be seen in chart I, which shows that nearly two-thirds of the total consumer income went to the receivers of incomes under $2,600, who made up nine-tenths of all consumers. It is partly to be seen in chart III, which indicates the proportion of incomes that are saved at different levels. Consumers with incomes of $1,500 spent very nearly all of their income, and those below $1,250 spent, on the average, more than their total income. On the other hand, consumers with larger incomes saved a very substantial proportion, amounting to approximately 30 percent of the 5 to 10 thousand dollar incomes. Above the $10,000 level, the proportion saved increases markedly.

This tendency to save a larger proportion of income at the higher income levels is of major significance for the structure of the American economy. It will be discussed in some detail in chapter VI, along with the factors which make for a larger or smaller volume of total expenditures on consumption. In this chapter discussion will be focused on the structure of wants as they are reflected in expenditures on consumption. The

[2] These data and the data in the following section are all expressed in 1935–36 dollars. They were drawn from the report of the National Resources Committee, *Consumer Expenditures in the United States*. The estimates apply to the 12-month period from July 1935 through June 1936. They were based primarily on the data from the Study of Consumer Purchases, a Works Progress Administration project, conducted by the United States Bureau of Home Economics and the United States Bureau of Labor Statistics in cooperation with the National Resources Committee and the Central Statistical Board.

CHART II



Source: Based on *Consumer Expenditures in the United States*, National Resources Committee.

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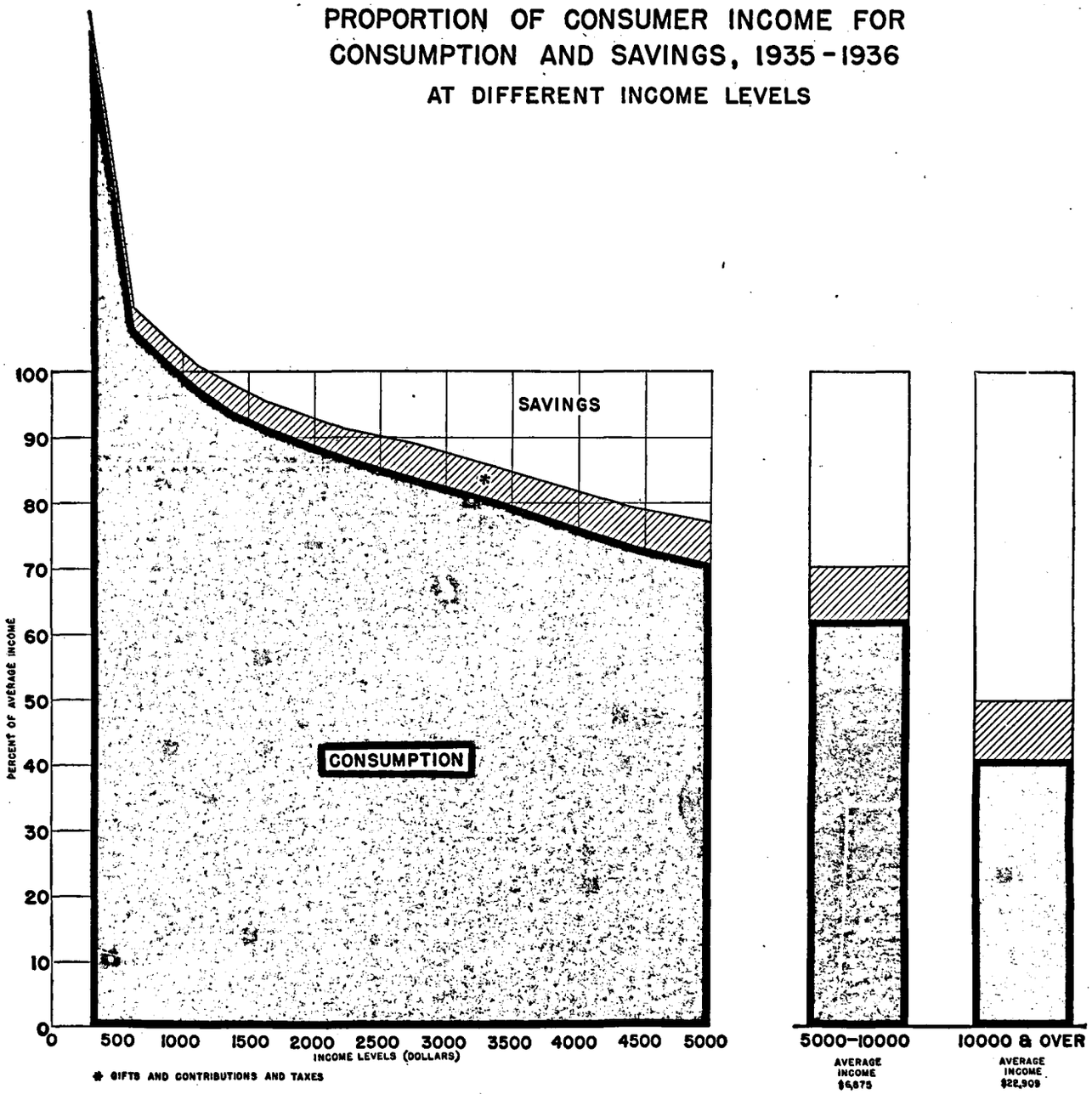
size and distribution of consumer income enter only incidentally as they appear to influence the direction of consumer expenditure.

Major Items of Consumer Expenditure

In delineating the structure of wants as reflected in consumer expenditure, there are several main aspects which require attention. (1) What is the relative importance of wants? (2) How does the direction of expenditures differ for individuals and families at different income levels? (3) How does the distribution of income affect the direction of expenditure? (4) What is the influence on the direction of expenditures of (a) the level of total national expenditure, and (b) a change in the level? (5) How do price relationships affect the direction of expenditure? And, (6) what are

CHART III

PROPORTION OF CONSUMER INCOME FOR CONSUMPTION AND SAVINGS, 1935-1936
AT DIFFERENT INCOME LEVELS



Source: Based on *Consumer Expenditures in the United States*, National Resources Committee.

the trends of change in the direction of expenditures reflecting changes in wants through time? If each of these aspects of the structure of wants could be set forth, they would provide a fairly clear indication of what the national economy would probably be called on to produce under different possible conditions.[3]

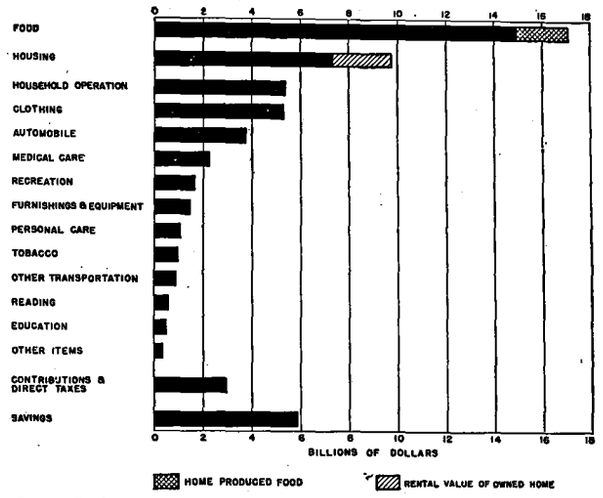
The total consumer expenditure of American families and individuals in 1935–36 was approximately 50 billion dollars.[4] The proportioning of this expenditure among the major types of expenditure is indicated in chart IV. Outstanding in the structure of wants as reflected in the relative expenditure is the dominant role played by the basic essentials, food, clothing, and housing. These three items together accounted for 63 percent of the total of consumer expenditure. Operation and upkeep of the home (light, fuel, furniture, and similar items) and automobile expenditure account for another 21 percent, leaving only 16 percent to go for private expenditure on medical and personal care, education and reading, recreation, and other items.

A significant light can be thrown on the structure of wants by comparing the way money expended on consumption is apportioned among items by consumers with different levels of income. Chart V shows the average amount spent in 1935–36 by consumers in each income group on each major item of expenditure, while chart VI shows the proportionate distribution of these average expenditures among major items. The latter chart indicates that at higher incomes a much smaller proportion of consumer expenditure goes into food and a larger proportion into clothing, automobiles, and education, while about the same proportion goes into housing, household equipment, personal and medical care, reading, and other items, no matter what the level of income. More detailed figures show some increase in proportionate expenditure for household operation and recreation, and some decrease in that for tobacco. One item, transportation other than automobile, shows little change in the proportion of expenditure devoted to it except for the group with incomes over $10,000 where the proportion increases, presumably reflecting greater expenditure on travel.

The difference in the way money is spent at different levels of income is strikingly shown in table I which compares the allocation of the expenditure of a million dollars if spent by 1,414 families having incomes between $500 and $750 with the allocation of the same amount by 145 families falling into the $5,000 to

CHART IV

EXPENDITURES OF AMERICAN CONSUMERS
1935-1936



Source: Based on *Consumer Expenditures in the United States*, National Resources Committee.

$10,000 income group.[5] These figures clearly indicate the shift in the emphasis of expenditure as the power to spend is expanded.

The changes here shown in the relative emphasis on particular wants as the power to satisfy wants is expanded gives one dimension to the structure of wants. As more detailed information becomes available from the study of consumer expenditures it will be possible to indicate the influence of buying power on different items within those large categories. From these data, for instance, it will be possible to measure the lesser importance of bread, cornpone, and potatoes in the

TABLE I.—*Effect of size of income on direction of expenditure—Comparison of expenditure of 1 million dollars by consumers at 2 different levels of income*

	If spent by 1,414 consumers with $500–$750 income	If spent by 145 consumers with $5,000–$10,000 income	Absolute difference	Percentage difference
Food	$438,000	$233,000	−$205,000	−47
Tobacco	20,000	14,000	−6,000	−30
Housing	177,000	176,000	−1,000	−0.6
Personal care	20,000	20,000	0	0
Reading	8,000	9,000	+1,000	+12
Other items	7,000	8,000	+1,000	+14
Transportation, other than automobile	7,000	11,000	+4,000	+57
Household operation	120,000	131,000	+11,000	+9
Furniture and equipment	23,000	35,000	+12,000	+52
Medical care	41,000	56,000	+15,000	+36
School supplies and private education	4,000	19,000	+15,000	+375
Recreation	16,000	46,000	+30,000	+188
Clothing	79,000	125,000	+46,000	+58
Automobile	40,000	117,000	+77,000	+192
Total	1,000,000	1,000,000		

Source: Based on *Consumer Expenditures in the United States*, National Resources Committee.

[3] See *Consumer Expenditures in the United States*, National Resources Committee, for detailed discussion of certain aspects of the structure of wants in addition to those here enumerated, including the effect on the structure of wants of family size, degree of urbanization, and geographical location.

[4] Of this 50 billion dollars, 4½ billion, or 9 percent, represented the value of home-produced food and the rental value of owned homes.

[5] The extreme categories, under $500 and over $10,000, are not used in this comparison because the figures are believed to be less reliable than those for the less extreme categories.

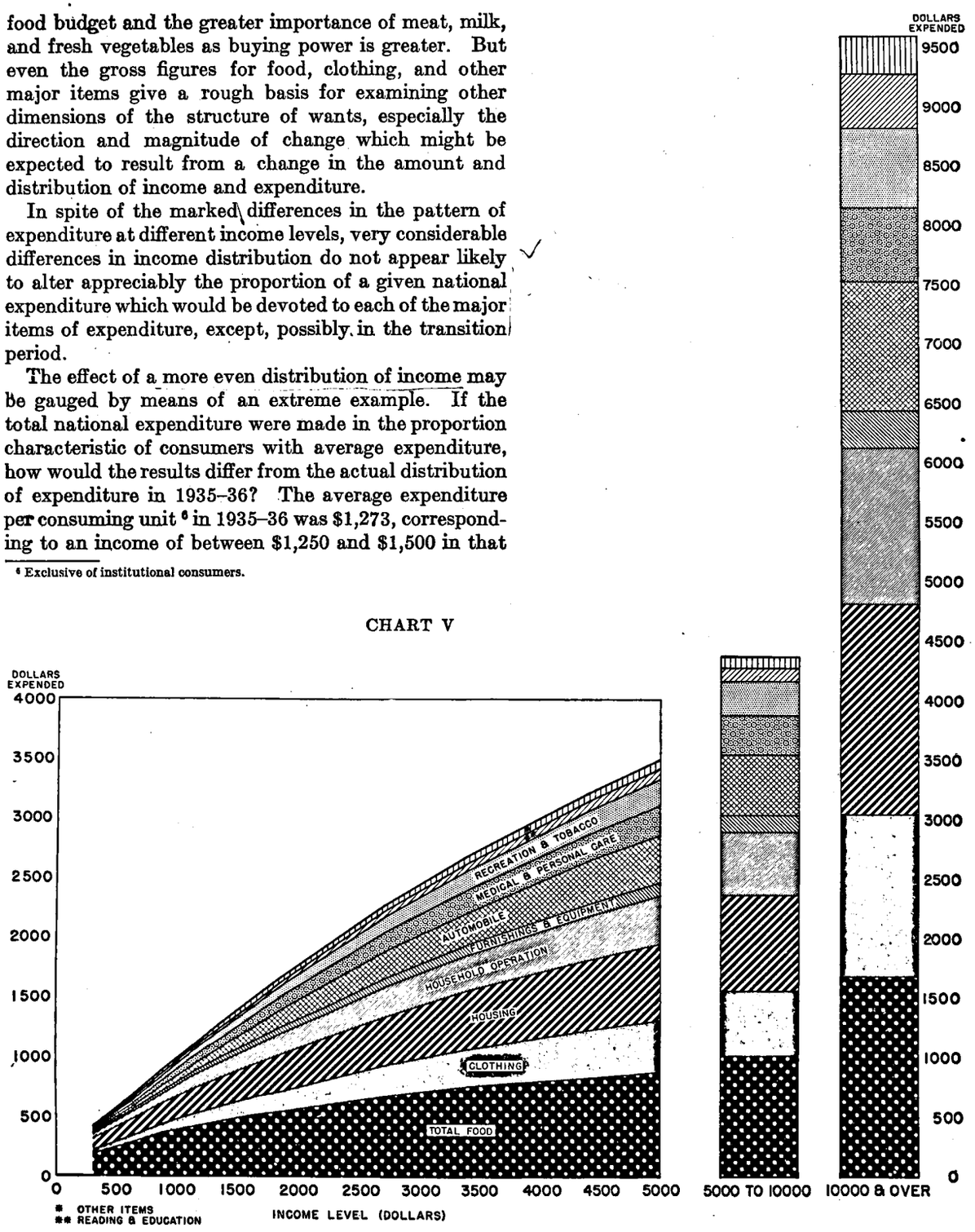
food budget and the greater importance of meat, milk, and fresh vegetables as buying power is greater. But even the gross figures for food, clothing, and other major items give a rough basis for examining other dimensions of the structure of wants, especially the direction and magnitude of change which might be expected to result from a change in the amount and distribution of income and expenditure.

In spite of the marked differences in the pattern of expenditure at different income levels, very considerable differences in income distribution do not appear likely to alter appreciably the proportion of a given national expenditure which would be devoted to each of the major items of expenditure, except, possibly, in the transition period.

The effect of a more even distribution of income may be gauged by means of an extreme example. If the total national expenditure were made in the proportion characteristic of consumers with average expenditure, how would the results differ from the actual distribution of expenditure in 1935–36? The average expenditure per consuming unit [6] in 1935–36 was $1,273, corresponding to an income of between $1,250 and $1,500 in that

[6] Exclusive of institutional consumers.

CHART V



AVERAGE EXPENDITURES FOR CONSUMPTION AT DIFFERENT INCOME LEVELS 1935-1936

Source: Based on *Consumer Expenditures in the United States*, National Resources Committee.

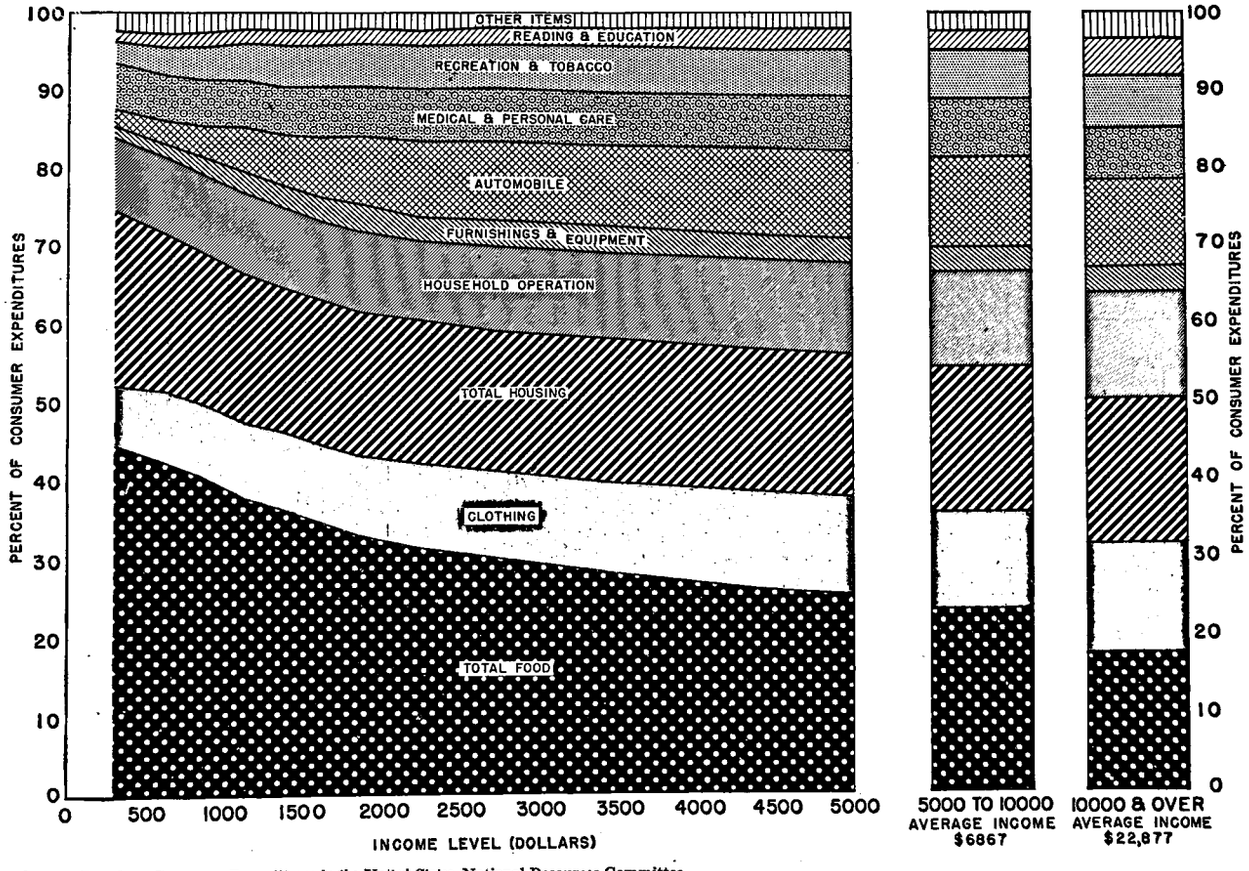
year.[7] If consumer income had been so evenly distributed that the whole of the 50 billion dollars spent on consumption in 1935–36 had been spent by families or individuals with incomes in this range, and if their expenditure followed the same proportions as the expenditure actually made by such families, the expenditure on the major items would have been that given in table II. The expenditure of all families and individuals in 1935–36 is also given for comparison.

Although the figures in table II are based on the extreme assumption of an equal distribution of income compared with the unequal distribution existing in 1935–36, the differences in the direction of expenditure are not of great magnitude. The largest absolute difference in expenditure shown is that for food, 1,363 million dollars or 8.1 percent more being spent on food with an equal distribution of income than with the unequal distribution of 1935–36. The largest percentage increase is that of tobacco, showing 19.5 percent more spent on tobacco with equal distribution though involving an absolute increase of only 189 million dollars. Since any difference in income distribution arising in the near future is likely to be very much smaller than that assumed above, the differences shown are very much greater than any likely to arise from differences in income distribution. Thus, while the structure of the wants of individuals is such that greater buying power brings marked shifts in proportionate expenditure, a shift in income distribution of the magnitude likely to occur in practice would not bring a significant shift in the proportioning of expenditure among the major categories of goods, provided the same total amount was expended. The

[7] The average expenditure for the $1,250–$1,500 income group was $1,285. The average income of all consumers was $1,502. The average expenditure corresponds to a less than average income, owing to the greater proportion saved at higher income levels.

CHART VI

PROPORTIONATE DISTRIBUTION OF AVERAGE EXPENDITURES FOR CONSUMPTION AT DIFFERENT INCOME LEVELS 1935-1936



Source: Based on *Consumer Expenditures in the United States*, National Resources Committee.

TABLE II.—*Effect of income distribution on direction of expenditure.—Distribution of national expenditure of 50 billion dollars as spent in 1935–36, and as it would be spent with equal distribution of income*

	Unequal distribution of income—estimated expenditure in 1935–36 (millions of dollars)	Equal distribution of income—calculated expenditure if all income were between $1,250 and $1,500 [1] (millions of dollars)	Absolute difference (millions of dollars)	Percentage difference
Tobacco	966	1,155	+189	+19.5
Reading	551	603	+52	+9.4
Food	16,865	18,228	+1,363	+8.1
Furnishings and equipment	1,422	1,456	+34	+2.4
Personal care	1,032	1,054	+22	+2.1
Other items	307	301	−6	−2.0
Housing	9,506	9,239	−267	−2.8
Household operation	5,285	5,122	−163	−3.1
Transportation, other than automobile	884	854	−30	−3.4
Clothing	5,261	5,021	−240	−4.6
Medical care	2,205	2,059	−146	−6.6
Recreation	1,643	1,506	−137	−8.3
Automobile expense	3,781	3,264	−517	−13.6
Private education	506	352	−154	−30.4
Total expenditure	50,214	50,214		
Corresponding consumer income	59,259	53,400		

Source: Based on National Resources Committee report, *Consumer Expenditures in the United States.*

[1] The distribution of expenditures is based upon the percentage distribution of the average expenditures of families and single individuals in the $1,250 to $1,500 income group. The average expenditure for this group was $1,285 compared with an average expenditure for all groups of $1,273.

greatest significance of differences in income distribution for the structure of wants lies in the proportion of consumer incomes which is saved, and possibly also in the more detailed categories of consumption on which data are not yet available.

Differences in patterns of expenditure of greater practical significance appear to grow out of variations in the total amount expended on consumption. In practice, variations in total expenditure are accompanied by changes in price relationships and by influences growing out of the transition from one level to another. The data on consumer expenditure at different income levels make it possible to calculate differences in total expenditure that could be expected to arise solely from differences in level of expenditure apart from the factors of price change and transition. With a higher level of total consumer expenditure, a larger expenditure in each major category could be expected, but each branch of expenditure would not be likely to be greater in the same degree. A rough indication of the direction and magnitude of change can be obtained by a recombination of the data on expenditures at each level of income to indicate the way different total expenditures would be divided between different items. Thus, it is possible to calculate how a total expenditure corresponding to a national income of 40, 60, or 80 billion dollars would have been spent if consumer income had been distributed in exactly the same proportion as in 1935–36 and if price relationships had remained unchanged, but each income group had received a different income and had adopted the expenditure patterns of the corresponding income group. Such a calculation does not take into account any of the changes in expenditure resulting from the transition from one level to another but only reflects the differences in expenditure at the different levels after adjustment had been made to the new level. The patterns of expenditure calculated on this basis for an expenditure of 38 billion dollars, corresponding to a consumer income of 40 billion dollars, for 51 billion dollars corresponding to a consumer income of 60 billion dollars, and also for 63 billion dollars, corresponding to a consumer income of 80 billion dollars, are given in table III,

TABLE III.—*Effect of level of consumer expenditures on the direction of expenditures*

	Expenditure of $37,869 million corresponding with $40 billion income (millions of dollars)	Expenditure of $50,784 million corresponding with $60 billion income (millions of dollars)	Expenditure of $63,494 million corresponding with $80 billion income (millions of dollars)	Absolute difference (millions of dollars)			Percentage difference			Percent distribution of expenditures		
				$40 to $60 billion income	$60 to $80 billion income	$40 to $80 billion income	$40 to $60 billion income	$60 to $80 billion income	$40 to $80 billion income	$37,869 million	$50,784 million	$63,494 million
Food	13,771	17,013	19,874	3,242	2,861	6,103	23.5	16.8	44.3	36.3	33.5	31.3
Housing	7,560	9,597	11,876	2,037	2,279	4,316	26.9	23.7	57.1	19.9	18.7	18.7
Transportation, other than automobiles	672	888	1,079	216	191	407	32.1	21.5	60.6	1.8	1.7	1.7
Personal care	778	1,044	1,289	266	245	511	34.2	23.5	65.7	2.1	2.1	2.0
Reading	405	555	675	150	120	270	37.0	21.6	66.7	1.1	1.1	1.1
Tobacco	713	982	1,189	269	270	476	37.7	21.1	66.8	1.9	1.9	1.9
Household operation	3,936	5,355	6,822	1,419	1,467	2,886	36.1	27.4	73.3	10.4	10.5	10.8
Other items	225	307	402	82	95	177	36.4	30.9	78.7	.6	.6	.6
Clothing	3,696	5,327	6,949	1,631	1,622	3,253	44.1	30.4	88.0	9.8	10.5	10.9
Medical care	1,552	2,242	2,919	690	677	1,367	44.5	30.2	88.1	4.1	4.4	4.6
Furnishings	945	1,447	1,916	502	469	971	53.1	32.4	102.8	2.5	2.8	3.0
Recreation	1,041	1,668	2,311	627	643	1,270	60.2	38.5	122.0	2.7	3.3	3.6
Education	319	512	746	193	234	427	60.5	45.7	133.8	.8	1.0	1.2
Automobiles	2,256	3,847	5,447	1,591	1,600	3,191	70.5	41.6	141.4	6.0	7.6	8.6
Total expenditures	37,869	50,784	63,494	12,915	12,710	25,625	34.1	25.0	67.6	100.0	100.0	100.0
Corresponding income	40,000	60,000	80,000	20,000	20,000	40,000	50.0	33.3	100.0			

Source: Based on National Resources Committee report, *Consumer Expenditures in the United States.*

along with the percentage differences. In 1935 prices, these incomes would be approximately 20 billion dollars smaller, the same as, and 20 billion dollars greater than, the consumer income level of 1935–36.

The most striking feature of table III is the apparent lack of any indication of a limit to any of the wants reflected in the items. At the highest level of expenditure, for every one of the separate items there would be a great increase in expenditure over the lowest. The expenditure for food, the item showing the smallest rate of increase, would be 44 percent greater with the two-thirds greater level of total expenditure.[8] This 44 percent increase in expenditure on food is particularly significant since it is so often stated that the demand for food is limited. Undoubtedly part of the increased food expenditure would go into an improvement in quality—more milk, meat, and fresh vegetables—and only part into an increase in quantity, but in either case it would call for greater farm production for domestic consumption. For each major category of consumption, the structure of wants appears to be such that a big lift in consumer expenditures would create a greatly increased domestic market for every broad class of products.

From a study of this table it is also possible to add a new dimension to the structure of wants. While the demand for all broad classes of foods and services expands with larger national income, it is not a uniform expansion. Greater buying power, with price and other market conditions not significantly changed, is likely to produce a smaller than proportionate expansion in food and housing expenditures and transportation other than automobile. The largest proportionate increase indicated is in expenditures for automobiles and for education. Furnishings, clothing, medical care, recreation, and other miscellaneous items also show a much more than proportionate increase. Increases in the remainder of the items listed would be more nearly proportionate to the increase in total expenditure.

As in the case of individual differences in buying power, the greater the total buying power the less the proportionate emphasis on expenditure for the basic necessities and the greater the emphasis on expenditure for better clothing, automobiles, recreation, and private education.

An actual change in the level of national expenditure would be unlikely to be reflected in just the proportions shown above, because of the adjustments in expenditure habits involved in the transition from one level to another. There is little specific data on the transitional effect of a change in income on the direction of current expenditure. Probably its most important effect would be on the purchase of durable and semidurable goods, whose purchase can so often be postponed. When the income of a family that has become adjusted to a $2,000 level of spending is suddenly reduced, the family is likely to carry over reserves of durable and semidurable goods which can contribute for a time to the family living without involving current expense. Clothing will be worn longer and the family automobile will be tinkered with and repaired instead of being replaced by a later model. Gradually as this extra reserve of durable and semidurable goods is used up, the family will have to adapt its living more nearly to a balanced pattern of expenditures. But in the transition period, a smaller proportion of its expenditure is likely to go into durable and semidurable goods than either before the change in income level or after adjustment has been made to the lower level.

Similarly, an increase in income, that represents a return to levels to which a family was accustomed at some earlier date, is likely to involve a greater than balanced expenditure on durable and semidurable goods. Even a sudden expansion of income to unaccustomed levels appears likely to lead to the sudden acquisition of durable goods to correspond with the higher level of living made possible by the increased income. Data are not available to show the nature and magnitude of these transition changes in the pattern of expenditure, but they are likely to be of sufficient importance to the structure of wants to warrant further research. The evidence of the actual changes in consumption of durable and nondurable goods from 1929 to 1932 point in the direction indicated above.

Two other major dimensions of the structure of wants require exploration—the effect of price relationships on the structure of wants and the trend of change as wants shift through time. On neither of these points are data available for the major categories of consumer expenditure. Pioneer work has been done on specific price relationships in relation to consumption, especially for agricultural products,[9] and on the trend in consumption for a number of specific items. With respect to both these aspects the data are insufficient, and the delineation of these dimensions of the structure of wants must wait upon future research.

The main aspects of the structure of wants can now be summarized in terms of the major items of expenditure as follows: Food, clothing, and shelter are wants finding expression in the largest body of consumer expenditure, accounting for nearly two-thirds of the total.

[8] With the actual variation in consumer income experienced in recent years this expansibility in the demand for food is not apparent, as farm production has been maintained at a relatively constant level, and food prices have dropped markedly, in relation to other prices, with declines in consumer income. This has allowed consumption to be maintained at a relatively constant level.

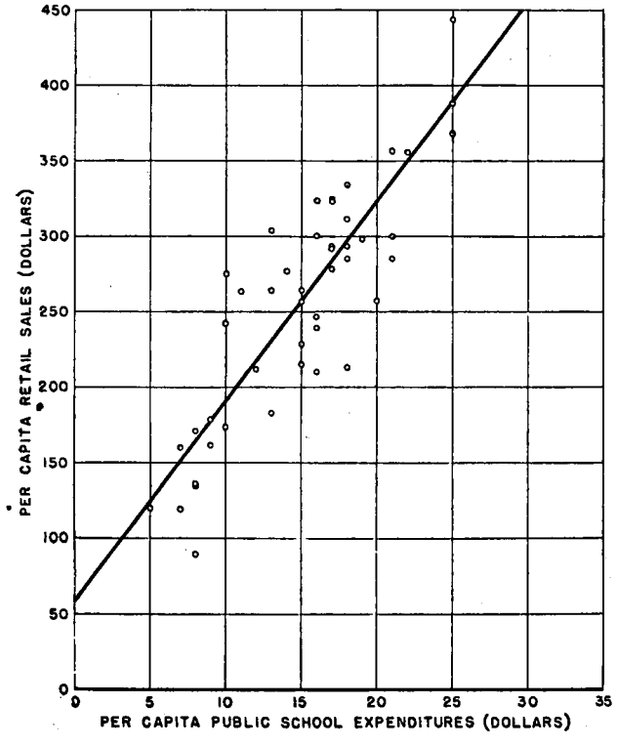
[9] See Bureau of Agricultural Economics, *Agricultural Economics Bibliography No. 58*, October 1935; *The Theory and Measurement of Demand*, by Henry Schultz, Chicago, 1938.

At lower income levels the want for food requires a larger proportion of expenditure while at higher income levels food expenditure is relatively smaller, and expenditure on clothing, travel (including automobile), recreation, and private education play a larger role. Changes in the distribution of income appear unlikely to produce important changes in the direction of expenditure among the major items, provided the total expenditure remains the same. On the other hand, changes in the level of the total consumer expenditure appear likely to produce considerable changes in the direction of expenditure, reflecting the shift in expenditure as the buying power of each income group is shifted upward or downward. A higher national expenditure would involve a somewhat smaller proportion spent on food and a larger proportion spent on clothing, travel, recreation, and private education. Few data are available on the effect on expenditure of the transition from one level of consumer income to another, but it seems likely that a transition to a lower level of expenditure would decrease the proportion of expenditure going to more durable goods and a transition to a higher level would increase the proportion going to such goods. The influences of likely changes in price relationships on the direction of expenditure and trends of change still remain to be worked out. When these are determined the main aspects of the structure of wants will have been covered for the major items of consumer expenditure.

CHART VII

PER CAPITA RETAIL SALES AND PER CAPITA EXPENDITURES FOR PUBLIC EDUCATION, BY STATES

1935



Source: Based on data from the *Census of Business*, 1935; and United States Office of Education, 1935–36.

Major Items of Social Expenditure

In addition to the wants of consumers expressed through private expenditure, there are many wants, such as those for education, sanitation, highways, church services, and hospital care, which find expression largely through social expenditure. A rough estimate of the principal items of social expenditure indicates that the total social expenditure amounted to at least 5 billion dollars in 1935–36. If this figure is added to the 51 billions of direct consumer expenditure, it gives a total expenditure on consumption of 56 billion dollars, of which at least 9 percent was social expenditure. In addition, consumption by institutional residents amounted to approximately 200 million dollars, and by quasi-institutional groups, such as army, navy, and civilian conservation corps, to 500 million dollars.

The principal items obtained through social expenditure are shown in table IV. Some of these items are supplied only on a social basis, such as roads. Others are partly furnished socially, and partly out of individual expenditures. The total of individual expenditures for the roughly corresponding items is placed beside the social expenditure.

TABLE IV.—*Major items of social expenditures 1935–36*
(millions of dollars)

	Social expenditures [1]					Individual expenditures [2]
	Governmental			Non-governmental	Total	
	Federal	State	Local			
Education	47	99	2,015	60	2,221	506
Health and sanitation	50	42	227		319	2,205
Recreation	122	9	79		210	1,643
Reading	3	2	37	3	45	551
Highways	306	233	517		1,056	
Charities, hospitals and corrections	135	56	101	119	357	
Churches				821	821	
Interest on debt	[3] 857	129	859			

[1] Source: See Appendix 18, sec. 3 for derivation of these items. The following governmental expenditures are not included:

	Millions
General government	833
Protection to person and property	1,081
Development and conservation of natural resources	940
Operation and maintenance of public service enterprises	999
Capital expenditures	1,845

Some items included within these categories might properly be included as items of social consumption, e. g., that part of expenditures for police and fire departments which goes to the protection of homes. Some parts of the items included in the table should not be included, e. g., the part of expenditure for highways which should be allocated to business rather than to consumption. The whole field of social expenditure is one upon which much work needs to be done before even a roughly adequate analysis can be made.

[2] *Consumer Expenditures in the United States*, National Resources Committee.

[3] Nearly half of this amount represents interest on Federal debt incurred through loans made to Allies during the World War. This should not be considered as an expenditure for social consumption.

The amount and character of social expenditure is, in large measure, a reflection of the wants of consumers, although it does not involve direct purchase by them. Contributions in the form of taxes and gifts to governments and institutions for purposes of social expenditure are part of the expenditure patterns of individuals. The wants of consumers, and the ability to make those wants effective, are reflected in large expenditures for public education in a wealthy community, or in one sufficiently eager for education to sacrifice direct private expenditures in favor of indirect expenditures via taxes, and large expenditures for religion in a wealthy or especially pious parish. The variation in social expenditure for public education in relation to differences in per capita retail sales, shown in chart VII, emphasizes this close relation between individual and social expenditure.

Durability and Consumer Wants

So far both consumer and social expenditure have been considered primarily in terms of the types of wants which they are aimed to satisfy. An equally important grouping of consumer wants would be one that took account of the durability of the goods which are purchased to satisfy them. As will become apparent as the structure of the American economy is further examined, important structural characteristics revolve around the factor of durability.

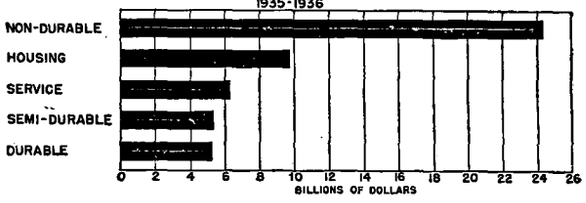
For purposes of analysis, all consumer goods can be grouped into four degrees of durability: durable commodities, semidurable commodities, nondurable commodities, and services. Automobiles and furniture would fall into the durable group since they usually render a series of services over a considerable period of years. Clothing and automobile tires fall into the semidurable group, yielding a series of services but not usually lasting more than a year or so. Food and gasoline fall into the nondurable category since they are usually consumed in what is, for practical purposes, a single operation instead of rendering a series of services during a period of time.[10] Services include the items which do not take an intermediate physical form but are rendered directly to consumers, such as education, music, medical service, and personal service.

The data on consumer expenditure are not yet available in a sufficiently detailed form to make possible an accurate estimate of the proportion of consumer expenditures falling into each class of durability. In chart VIII and in table V, the major items of expenditure are grouped on the basis of the durability categories into

[10] Durability in the sense of rendering a series of services should not be confused with non-perishability. Commodities like salt or wine may be capable of being stored for long periods yet are usually classed as nondurable if they are customarily consumed in a single use.

CHART VIII

AGGREGATE EXPENDITURES FOR CONSUMPTION BY DEGREE OF DURABILITY
1935-1936



Source: Based on data from the report, *Consumer Expenditures in the United States*, National Resources Committee.

which they most nearly fall. These groupings reflect degrees of durability only roughly, since the available expenditure categories are, in many cases, combinations of goods of varying degrees of durability. Only half of the total automobile expenditures in 1935–36 went for the purchase of automobiles, and half went for semi- and nondurable goods, such as tires, oil and gas, or for garage and similar services. Expenditures for household furnishings are classed as dominantly durable because they consist to such a large extent of furniture, but they contain such semidurable goods as dish towels and sheets. Recreation, classed as dominantly nondurable, includes the purchase of radios. Housing is separately listed since expenditure for rent constitutes payment for a service provided by a durable good and does not fall clearly into the four categories of durability.

In spite of the mixed character of the data, it is apparent from chart VIII that the bulk of consumer expenditure in 1935–36 was directed to the purchase of goods which were not of a durable or semidurable character. Over 60 percent of expenditure went into categories dominated by nondurable commodities and services and nearly 20 percent into housing. Only approximately one-tenth each went to categories dominated by semidurable and durable consumers goods.[11]

The importance of the distribution between durable and nondurable commodities for the structure of wants lies in the greater sensitivity of expenditure on consumer durable goods to variations in consumer income. As in the case of the major items of consumer expenditure, a shift in the distribution of consumer income would produce little alteration in the proportion of a given expenditure going to durable as against nondurable goods.[12] However, a variation in the level of total expenditure could be expected to make a significant difference, the

[11] It is probable that the grouping of items here used throws more nondurable items into the durable category than vice versa, and tends to minimize rather than to exaggerate the predominance of expenditure for nondurable items.

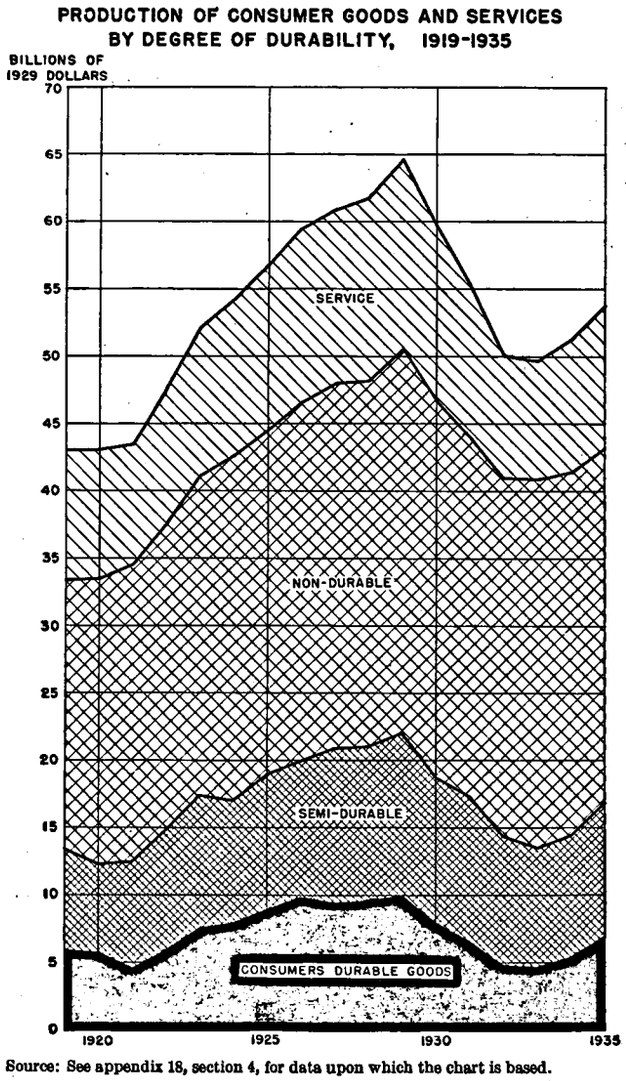
[12] If the whole of the 50 billion dollars expended by consumers in 1935-36 had been spent according to the expenditure pattern of consumers with incomes between $1,250 and $1,500, 0.8 percent less would have been spent on the items grouped into the durable goods category, 0.6 percent less on semidurable, 0.7 percent less on housing, and 2.1 percent more on goods and services in the nondurable category.

TABLE V.—*Effect of level of expenditure on direction of expenditure by durability (millions of dollars)*

	37,869 million dollars expended, 40 billion dollar income	50,784 million dollars expended, 60 billion dollar income	63,494 million dollars expended, 80 billion dollar income	Absolute increase (millions of dollars)			Percent increase		
				40 to 60 billion dollar income	60 to 80 billion dollar income	40 to 80 billion dollar income	40 to 60 billion dollar income	60 to 80 billion dollar income	40 to 80 billion dollar income
Furnishings and equipment, and automobiles	3,201	5,294	7,363	2,093	2,069	4,162	65.4	39.1	130.0
Clothing	3,696	5,327	6,949	1,631	1,622	3,253	44.1	30.4	88.0
Food, household operation, tobacco, and reading	18,825	23,905	28,560	5,080	4,655	9,735	27.0	19.5	51.7
Personal care, medical care, recreation, education, transportation, and other items	4,587	6,661	8,746	2,074	2,085	4,159	45.2	31.3	90.7
Housing	7,560	9,597	11,876	2,037	2,279	4,316	26.9	23.7	57.1

Source: Based on National Resources Committee report, *Consumer Expenditures in the United States.*

CHART IX



Source: See appendix 18, section 4, for data upon which the chart is based.

expenditure on nondurable goods and housing being most stable and that for durable goods being least stable. This is suggested by table V below in which a consumer expenditure of 37,869 million dollars corresponding to an income of 40 billion dollars is compared with that of 63,198 million dollars corresponding to an income of 80 billion dollars, and both are compared to the 1935–36 expenditure corresponding to approximately 60 billion dollars. Each expenditure is calculated on the assumption that prices and proportionate income distribution were the same as in 1935–36 and that consumers followed the patterns of consumption at the different income levels already indicated in chart V. Such calculations take account of the difference in level of expenditure but, of course, take no account of the transitional changes in expenditure.

In practice, rapid changes in the total of consumer expenditure are usually accompanied by significant transitional and price changes so that the expenditure on consumer durable goods is more sensitive to variations in consumer expenditure than these figures would indicate. In chart IX below the consumer expenditure on durable, semidurable, and nondurable goods and for services is indicated for recent years. For each series the estimates of dollar expenditure have been deflated by a price index for the particular category so as to give a quasi-physical measure of quantity of production stated in 1929 dollars. (The greater sensitivity of durable goods expenditure to variation in total expenditure is at once apparent in the data for the depression period. The quantity of durable goods purchased dropped 52 percent from 1929 to 1932, whereas the semidurable goods purchased dropped only 20 percent and the nondurable dropped 8 percent. The purchase of services, represented by a less reliable figure, appears to have dropped approximately 33 percent.) If the drop in total expenditure had been simply one of level without significant transitional or price changes and had followed the 1935–36 pattern for the separate income groups, the percentage drops would not have corresponded to those given above.

Until it is possible to disentangle the influence of prices from that of the transition from one level to another it is not possible to delineate that dimension of the structure of wants which has to do with the influence of prices on the relative expenditures on durable and nondurable goods. Likewise the trends

of change in the proportion of expenditure going into items of different degrees of durability must wait on further research.

(In summarizing the structure of wants from the point of view of durability, the outstanding characteristic is the greater sensitivity to changes in expenditure with greater degrees of durability. This appears to be due both to greater expenditure on durable goods at higher levels of total expenditure and to greater expenditure with a transition from a lower to a higher level of expenditure. In the recent depression, the proportionate decline in the volume of consumer durable goods purchased appears to have been due not only to a lower and declining level of total expenditure but also to the relative inflexibility of the prices of more durable goods.[13])

Specific Items of Consumer Expenditure

Further light on the structure of wants can be found by analyzing the purchase of specific items. In a recent report of the National Resources Committee[14] the production of each major segment of the national economy has been analyzed with particular reference to its sensitivity to changes in consumer income and to its trend of change through time. Since the production of an industry supplying consumer goods tends to parallel its sale to consumers, these analyses can be used as a rough guide to the behavior of consumer expenditure. In table VI below data are given for 39 items of consumer expenditure. The items are arranged approximately in the order of their sensitivity to variations in consumer income. (As is to be expected, the durable items—automobiles, pottery, and furniture—are the most sensitive. Next come the semidurable, then the nondurable, and, with some exceptions, the services.) Railroad passenger traffic, telegraph, telephone, and postal service, and bituminous coal are only partly used by consumers, being partly used by business and government. (Presumably the consumer uses are on the whole less sensitive than the producer uses, so that, insofar as production for use by consumer is concerned, the items should show less sensitivity than they do in the table.) To the extent that knit goods are made up of stockings they are of comparatively short life and partake of some of the characteristics of nondurable goods. This differential sensitivity closely parallels that already shown for the durable, semi- and nondurable goods but by its detail it gives greater precision to this particular dimension of the structure of wants.

One other dimension of the structure of wants can be sketched in from these same data, namely, the trend of change in consumer wants. Chart X below shows the trends of change in the purchases of particular items as they would arise if there were no variation in consumer income but consumers had the same income to dispose of year after year. Chart X gives a more significant indication of the structure of wants than would unadjusted trends of change which reflected variations in income as well as changes in wants. The chart shows the percent change in the amount of each

[13] See chapter VIII, p. 130.

[14] *Patterns of Resource Use.*

TABLE VI.—*The sensitivity of consumer goods to changes in consumer income*

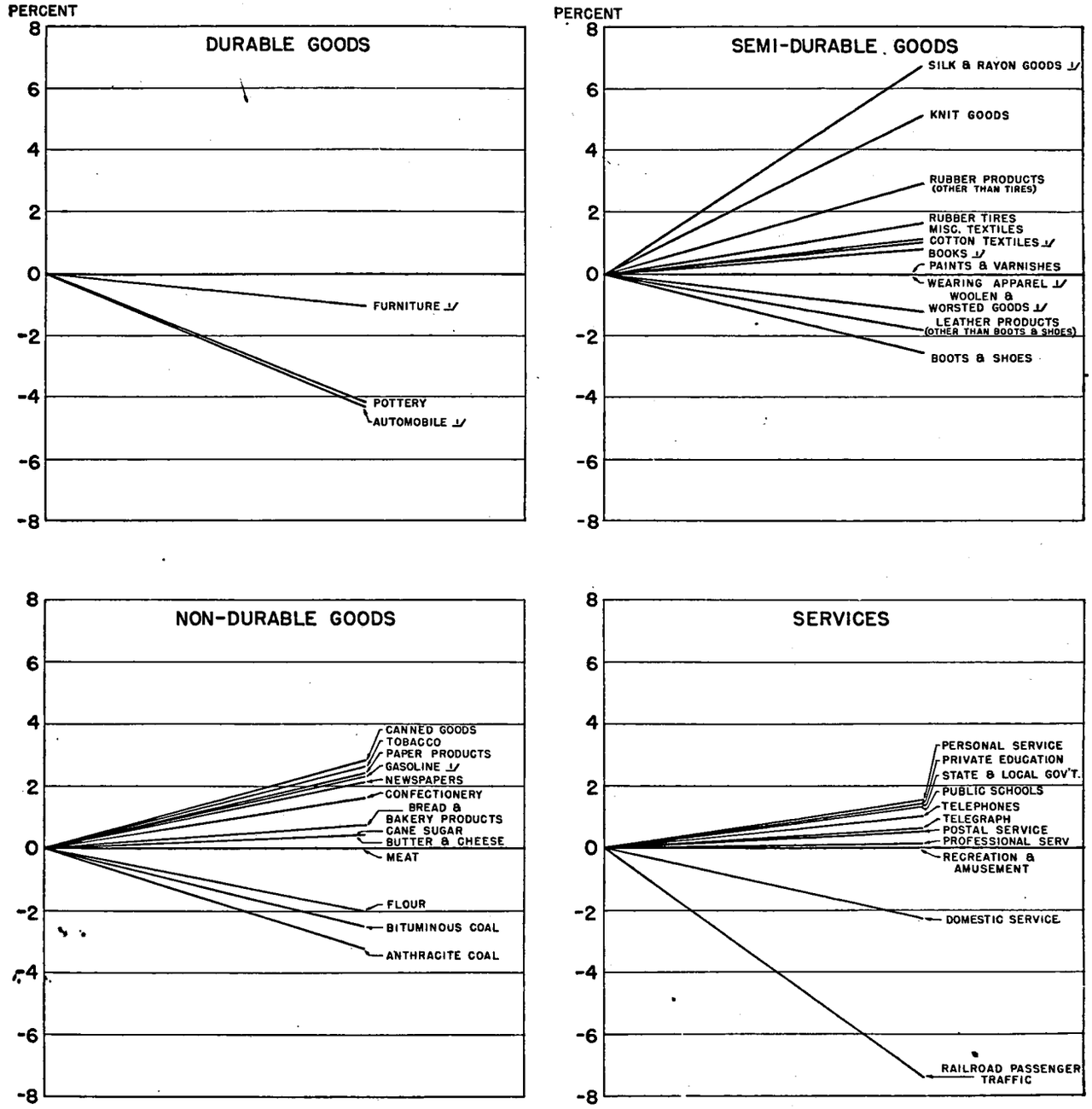
Index of sensitivity [1]	Services	Nondurable	Semidurable	Durable
0–5.	State and local government. Professional service. Private schools. Public schools.	Flour.		
5–10.	Personal service. Telephone. Postal service.	Cane sugar. Bread and baking. Butter and cheese. Meat.	Knit goods.	
10–15.		Gasoline. Newspapers. Anthracite coal. Tobacco.		
15–20.	Recreation and amusements. Domestic service. Telegraph.	Confectionery and chocolate. Canning and preserving.	Book printing and publishing. Boots and shoes. Wearing apparel.	
20–30.		Bituminous coal. Paper products.	Miscellaneous textiles. Silk and rayon goods. Rubber tires. Woolen and worsted goods. Cotton textiles.	
30–40.	Railroad passenger traffic.		Paints and varnishes. Leather products other than shoes. Rubber products other than tires.	
40–100.				Pottery. Furniture.
Over 40.				Automobiles.
Over 100.				

[1] The percent increase in sales which could be expected with a 20-percent increase in consumer income, e. g., from 65 to 78 billion dollars. Based on table II of the report, *Patterns of Resource Use*, National Resources Committee.

CHART X

TRENDS OF CHANGE IN CONSUMER WANTS

AVERAGE ANNUAL RATE OF CHANGE*



*AFTER ADJUSTMENT FOR DEPRESSION.

⅄ DATA FOR THESE PRODUCTS LESS RELIABLE THAN FOR OTHERS

Source: Based on the formulas shown in the respective summaries of the report, *Patterns of Resource Use*, National Resources Committee. The rate of change is computed from the net relationship with time shown in each formula when the other factors are held constant.

item purchased which would be expected between successive years if consumer incomes remained constant. There is no clear evidence that trends of change in wants are significantly affected by the factor of durability. The more significant downward trends are the trends away from pottery, leather boots and shoes, anthracite and bituminous coal, and domestic service.[15] Even more marked is the trend away from railroad travel as the automobile and bus play a larger role. The more important upward trends are those in silk and rayon, knit goods, rubber goods other than automobile tires, canning and preserving, tobacco, paper products, and gasoline. These trends reflect a definite shift in the goods purchased. They may reflect changes in prices, particularly in the case of silk and rayon, the introduction of substitute items as the automobile displaces railroad travel, a change in tastes as in the case of tobacco or a variety of other factors, such as changes in the quality of product or in current conceptions of a balanced diet. (Whatever the cause of the trends of change, they reflect the constantly changing, nonstatic character of consumer demands and give some indication of the dynamic character of the structure of consumer wants to which the resources of the Nation must be geared in productive activity.)

In the foregoing, an effort has been made to sketch in the main characteristics of the structure of consumer wants. Wants are important for economic activity because if there are no wants to be filled there is no basis for such activity. As long as there are wants to be filled and resources available to fill them, the basic essentials for economic activity are present. Analysis of the structure of wants has disclosed the dominant role played by the desire for food, clothing, and shelter, more than 65 percent of consumer expenditure in 1935–36 going to fill these wants. Moreover, it has shown the tremendous residue of unfilled wants which would find expression in the purchase of goods if consumer incomes were sufficiently increased. The increased expenditure with higher incomes would be distributed over all of the major categories, showing that in none of them is there an immediate limit to the wants to be filled. The indications are clear that American consumers, if they had sufficient money income, would constitute a market sufficient to absorb all the production which American industry has the resources to turn out. It is not for lack of wants to be filled that economic activity is carried on at the low level of recent years.

[15] The declining trend in bituminous coal may be accounted for primarily by a declining trend in business use.

CHAPTER III.—THE STRUCTURE OF RESOURCES

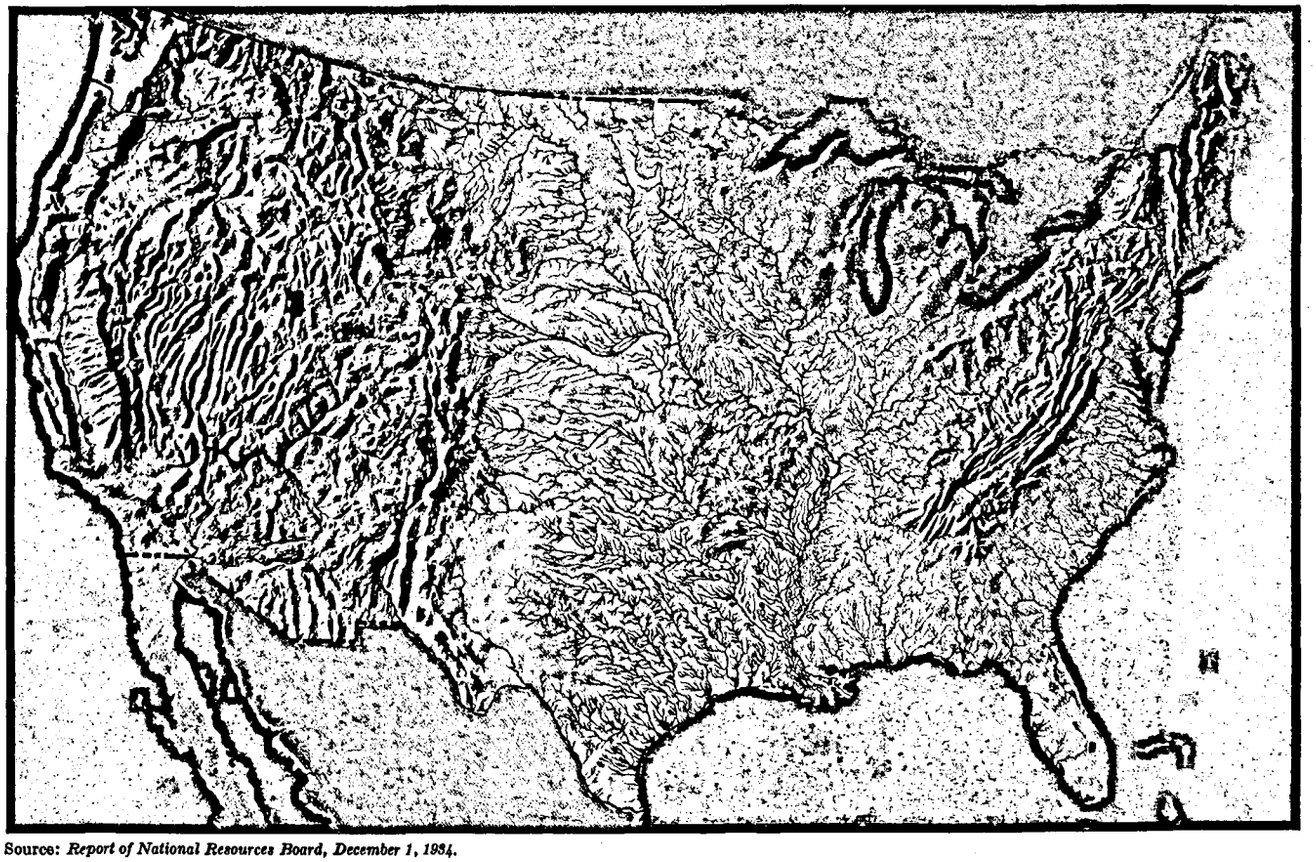
The resources of the country provide the second major element in the structure of the economy. Wants and resources constitute the two poles of the economic process. It is the function of that whole process to use the resources in satisfying wants.

National Resources

The most concrete resources of the Nation are its natural resources—soil and minerals, forests and streams. Equally concrete is the plant developed by men—the homes and factories, dams and powerhouses, machinery and equipment, farm improvements and irrigated areas—all the man-made physical improvements. These natural resources and man-made improvements provide the physical resources available for further production and contribute to the structure of the American economy, particularly in respect to its geographical characteristics.

Of greater significance as a resource is the manpower of the Nation. Without the skills and the activity of men and women, physical resources would be of no avail. Skilled farmers and workers, skilled craftsmen and technicians, skilled scientists, business men, politicians, artists, and homemakers—these and other productive workers constitute the Nation's greatest resource. The characteristics of the available manpower make up an element in the structure of the whole economy.

In addition to the natural resources, plant, and manpower which are available to be employed in satisfying consumer wants, there are other types of resources which condition the process of production even though they are not themselves consumed. These resources are (1) the climate and topography which condition the physical environment of production, (2) the techniques of production, developed in the past, upon which current activity rests, and (3) the social institutions which provide the social framework without which organized production could not take place. An equable climate, complex institutions, and modern techniques constitute



Source: *Report of National Resources Board, December 1, 1934.*

MAP 1.—RELIEF MAP OF THE UNITED STATES

national resources no less than the natural resources, plant, and manpower.

These resources, the natural resources, plant, and manpower which can be used to satisfy wants, and the climate, institutions, and techniques which condition this use, constitute the basis of national well-being. The quantity and quality of national resources largely determine the degree to which wants of American consumers can be satisfied directly out of American resources. The location of both natural resources and man-made plants give to the economy much of its geographical structure. The organizational structure by which resources and wants are brought into relation to each other determines the extent to which these resources yield a high level of living or economic and social waste.

Natural Resources

As compared with other nations, the United States is richly supplied with cropland, forest, the basic mineral resources necessary for peacetime activity, and the strategic minerals upon which war industries depend. The soil and climate of the United States will permit the production of all of the major crops with the exception of such tropical products as rubber, tea, and coffee. Most of the industrially important minerals are available in the continental United States. Power is available in great quantities direct from the rivers and streams and generated from ample supplies of fuel. Since the country is waterbound on both the east and west, the resources of both oceans are available. Codfish of the east and salmon of the west as well as the other fisheries from oceans and lakes provide a significant food resource. In natural resources, the country is indeed rich.

The most significant structural aspect of the country's natural resources can be portrayed in a series of maps. Map 1 shows in relief the physical features of the continental United States, indicating the basic relationships of distance and accessibility which in a measure control the manner in which physical resources can be used. Maps 2, 3, and 4 show the forests still available, the land suitable for crops, and the land suitable for pasture but not for crops.

In map 5 the value of farm land is indicated. Comparison of maps 3 and 5 shows the greater value of farm land in some areas, reflecting not only the better resource, i. e., more fertile soil, but also more favorable location in relation to markets. This farm land is much the most valuable of the country's natural resources. In addition to the surface resources of soil and timber, subsurface mineral resources of coal and oil, iron ore, and a host of lesser minerals make up the remaining value of natural resources. The geographical location of coal, iron, and oil deposits is shown in chapter IV, maps 21 and 22, and appendix 16, map A–49, in connection with the location of industries working these minerals. The remaining minerals, minor in volume but of strategic importance, are scattered, primarily in the mountainous areas of the Rockies and to a lesser extent the Appalachians.

The richness of natural resources is emphasized by the small extent to which the economy draws on outside sources of supply. Although individual items of import are vitally important for specific purposes, the contribution of necessary imports to the whole economy is of minor proportions. As indicated in table I, approximately 43 percent of the total American imports in both 1929 and 1937 consisted of tropical products and the semitropical product, cane sugar. These items constituted 65 percent in 1929 and 79 percent in 1937 of the imports of all raw materials. Imports of minerals amounted to between 6 and 7 percent of the value of total imports. Together, imports of tropical products and minerals amounted to an insignificant figure in relation to the total national production, being equal to about 2 percent of national production in 1937. Even some of these imports, particularly sugar, did not result from lack of resources, but, like most other imports, were the result of the greater productivity of American workers and management in producing other things which could be exchanged for these products. Thus the dependence of this country on foreign natural resources is small in relation to total activity.

TABLE I.—*Imports of tropical and semitropical products into the United States, 1929–37* [1]

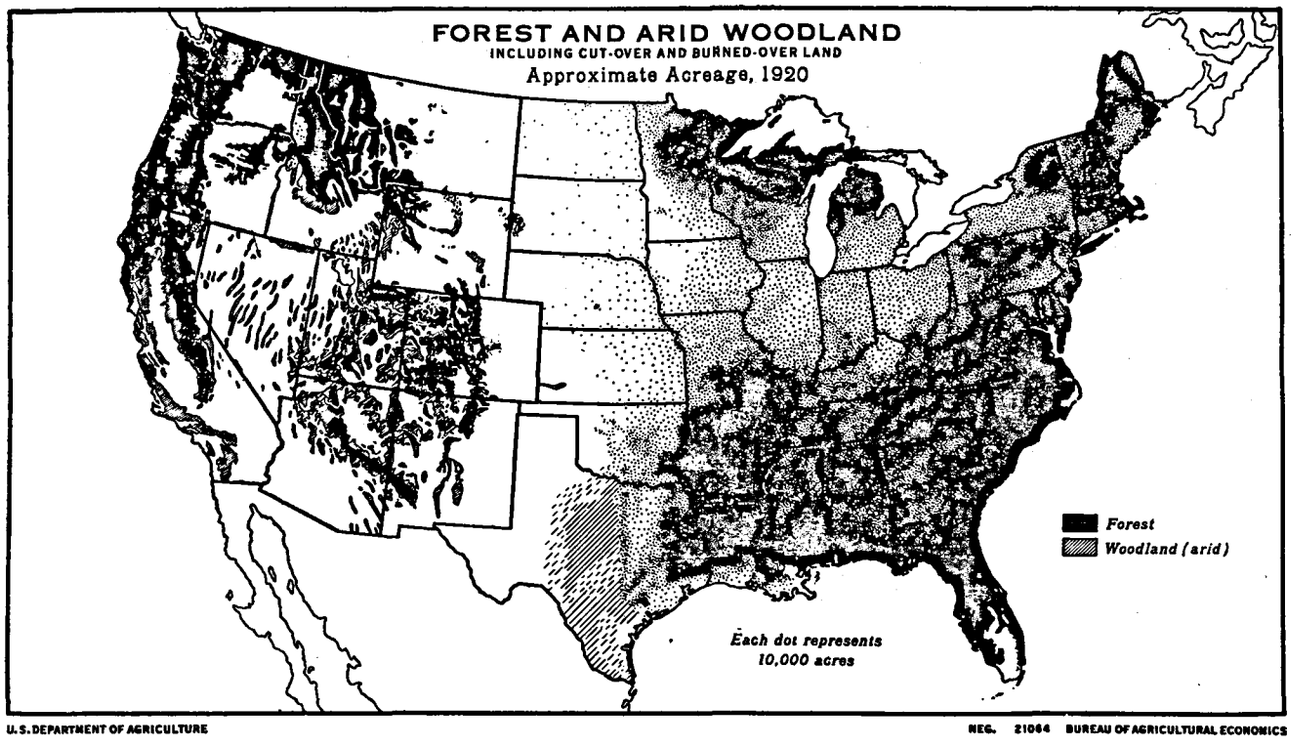
[Thousands of dollars]

	1929	1937	Percent change 1929-1937
Sugar	307,687	345,972	+12.4
Rubber and rubber substitutes	244,703	248,807	+1.7
Coffee	303,857	151,829	−50.0
Fruits and nuts	153,780	146,099	−5.0
Tea	25,866	21,366	−17.4
Other tropical products	959,409	493,551	−48.6
Total tropical products	1,995,302	1,407,624	−29.5
All imports, including Hawaii and Puerto Rico	4,579,149	3,241,015	−29.2
Ratio of tropical to all imports (percent)	43.6	43.4	
Raw tropical products	1,378,571	794,707	−42.4
All raw imports	2,117,113	1,009,042	−52.3
Ratio of raw tropical to all raw imports (percent)	65.1	78.6	
Note: Value of silk imports:			
Raw	432,340	108,500	−74.9
Manufactured	39,037	11,100	−71.6

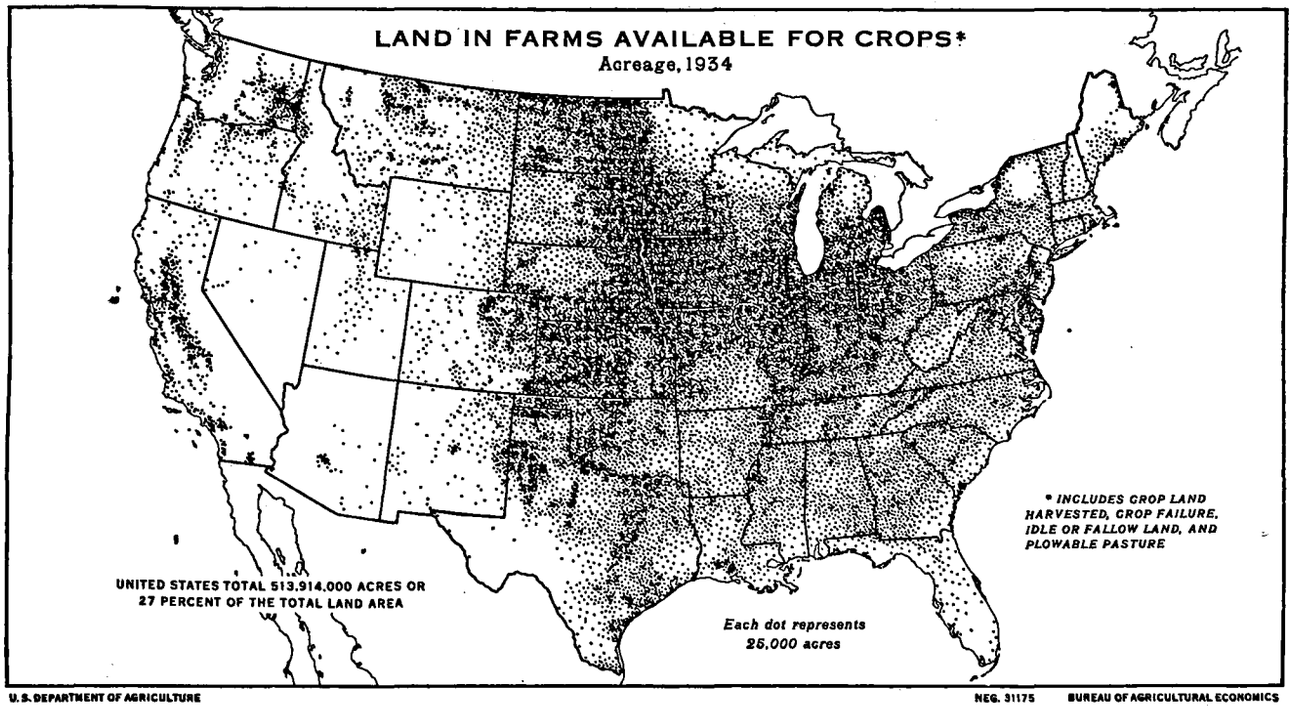
Source: Bureau of Foreign and Domestic Commerce, *Foreign Commerce and Navigation of the United States* and December issues of *Monthly Summary of Foreign Commerce of the United States* for the respective years.

[1] General imports in 1929; imports for consumption in 1937. Includes imports from Hawaii and Puerto Rico.

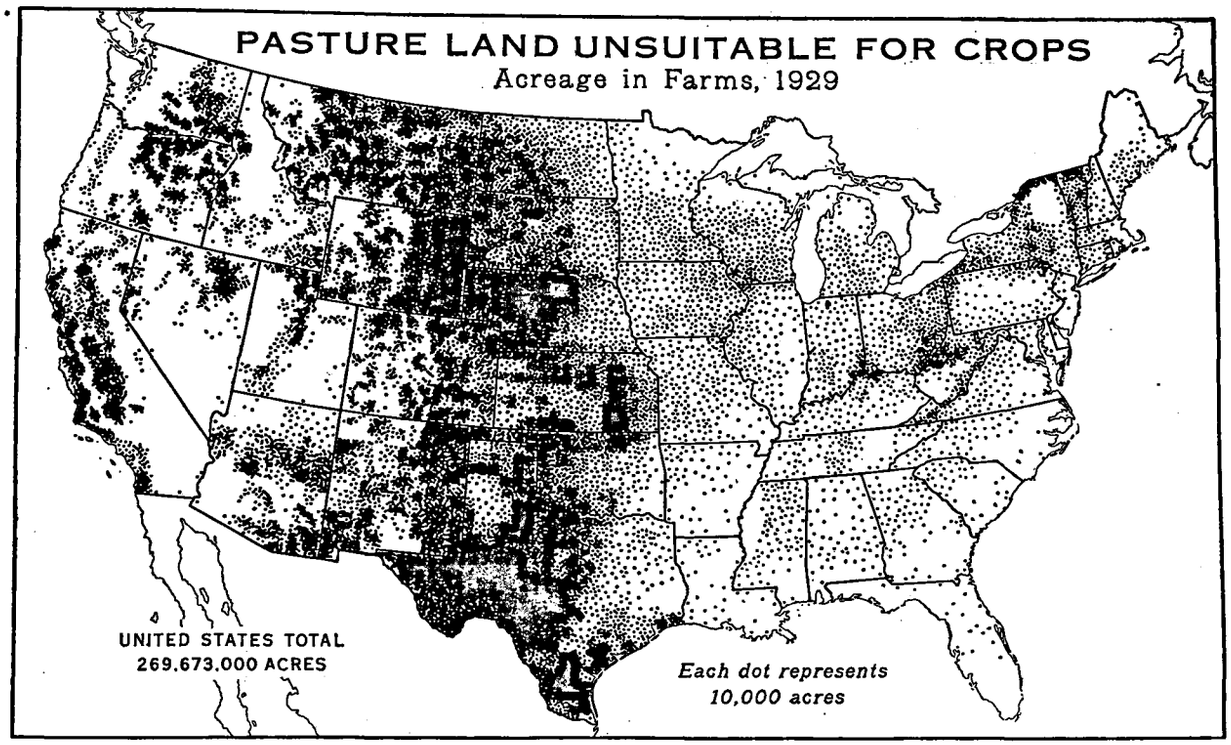
Likewise, with a few exceptions such as rubber and tin, foreign resources are not of strategic importance either in peacetime or in wartime. The strategic minerals are listed in table II showing the peacetime needs as reflected in the amounts imported in 1929 and 1937 and the estimated war requirements. Many of these minerals are essential to the making of high grade


FOREST AND ARID WOODLAND
INCLUDING CUT-OVER AND BURNED-OVER LAND
Approximate Acreage, 1920
Forest
Woodland (arid)
Each dot represents
10,000 acres
U. S. DEPARTMENT OF AGRICULTURE
NEG. 21064 BUREAU OF AGRICULTURAL ECONOMICS

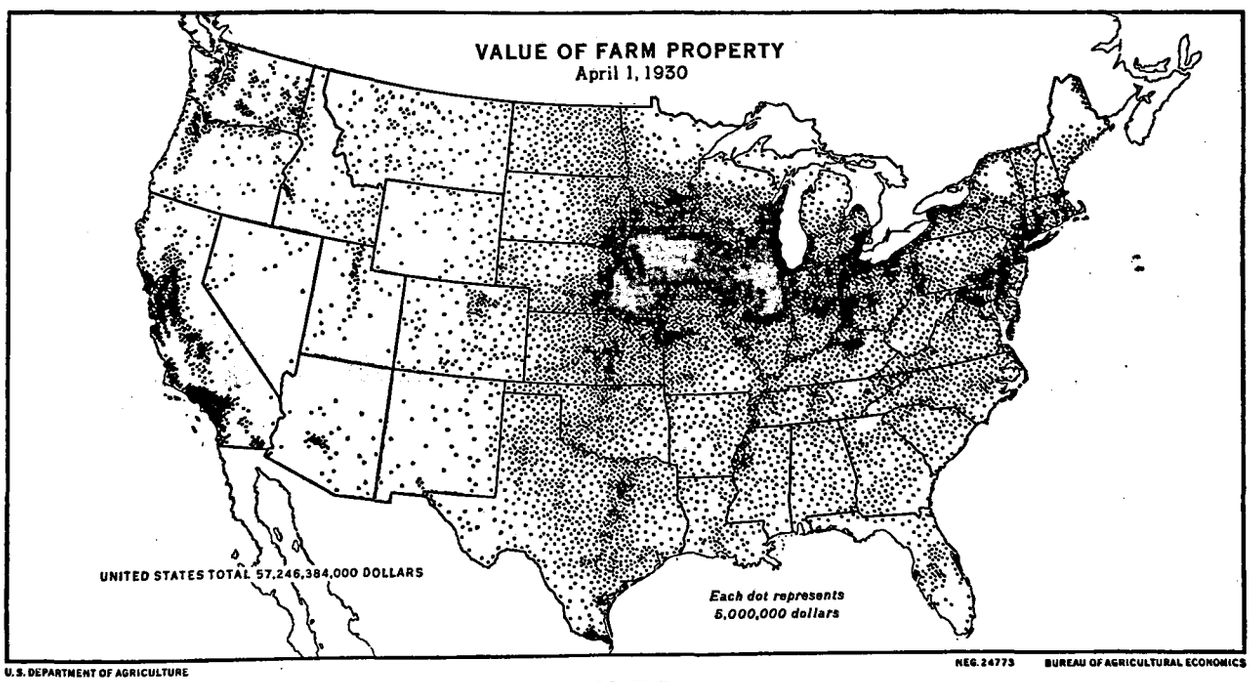
MAP 2


LAND IN FARMS AVAILABLE FOR CROPS*
Acreage, 1934
* INCLUDES CROP LAND HARVESTED, CROP FAILURE, IDLE OR FALLOW LAND, AND PLOWABLE PASTURE
UNITED STATES TOTAL 513,914,000 ACRES OR
27 PERCENT OF THE TOTAL LAND AREA
Each dot represents
25,000 acres
U. S. DEPARTMENT OF AGRICULTURE
NEG. 31175 BUREAU OF AGRICULTURAL ECONOMICS

MAP 3



MAP 4



MAP 5

79418°—39——3

TABLE II.—*Imports and domestic production of crude minerals*

[Imports, 1929, 1935, 1937; domestic production, 1935; and estimated war needs]

Commodity	Imports, 1929		Imports, 1935		Imports 1937 value in 000 s	1935 domestic production quantity in short tons	War needs for 2 years quantity in short tons
	Quantity (short tons)	Value (000 s)	Quantity (short tons)	Value (000 s)			
Tin, ore and bars, blocks, pigs, etc	97,725	$91,906	72,168	$69,921	$104,418	50	60,000
Nickel ore and pigs, bars, plates, sheets, etc	[1] 48,333	19,419	[1] 37,866	17,181	23,987	0	40,000
Manganese ores	362,225	8,451	211,969	4,208	10,711	[2] 29,599	1,000,000
Asbestos	262,426	11,153	166,586	5,125	10,470	9,415	
Chromite	355,746	2,666	290,151	3,604	7,324	493	300,000
Bauxite	426,509	1,754	223,954	1,449	3,609	261,981	
Tungsten, ore and concentrates [3]	2,987	1,704	446	384	2,940	2,395	10,000
Mica [3]	3,504	2,180	4,878	909	2,067	37,643	[4] 3,000
Antimony	1,804	231	4,587	545	1,775	3,616	35,000
Pyrites [3]	575,680	1,508	444,767	1,313	1,344	575,895	
Mercury or quicksilver [3]	543	1,447	297	382	1,228	666	950
Kaolin, china and paper clay [3]	279,912	2,699	125,963	960	1,211	523,656	
Magnesite [3]	53,182	819	26,164	467	858	255,641	
Graphite	23,961	1,065	18,361	526	752	[5]	
Talc and soapstone [3]	31,247	671	23,896	492	473	172,716	
Fluorspar [3]	54,345	481	16,340	179	402	123,741	
Barite [3]	85,279	284	47,047	246	327	218,075	
Other imported crude minerals		141,945		45,707	52,442		
Total imported crude minerals		290,383		153,598	226,338		

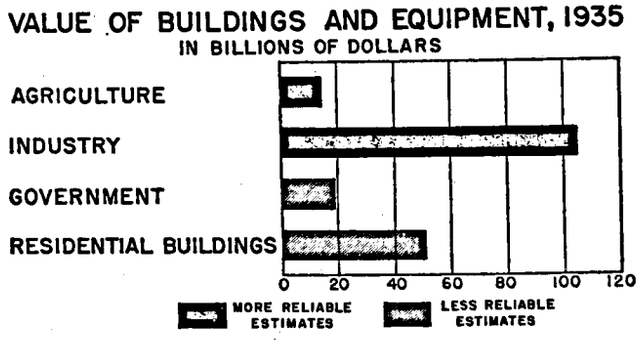
Sources: Bureau of Mines, *Minerals Yearbook*, 1937, for domestic production, Bureau of Foreign and Domestic Commerce, annual and monthly publications, for imports. *National Resources Board Report, 1934*, p. 446, for estimates of war needs.

[1] Exclusive of bars, plates, sheets, etc., which accounted for $354,000 and $53,000 of total value in 1929 and 1935, respectively.
[2] Gross imports reported as "ore content."
[3] Could be supplied from United States resources if foreign supply was cut off or price became high enough to induce American production.
[4] Sheets and splittings.
[5] Bureau of Mines not at liberty to publish figures.

NOTE.—General imports in 1929; imports for consumption in 1935 and 1937.

steel suitable for machine tools. These and others are essential in the production of war materials. Yet even for most of these strategic minerals the country is less dependent on foreign resources than the imports would indicate. In the case of the minerals italicized in the table there are deposits which could be worked if foreign supplies were cut off or became too expensive. Only in the case of the 8 items not italicized, of which the most important are nickel, tin and manganese, is the country dependent on foreign sources. A two year's war supply of these items, if they could be obtained at 1935 prices, would cost only approximately 114 million dollars, while a year's peace time requirement in 1937, measured by the imports of that year, was purchased for 163 million dollars. This essential independence of foreign resources means that the natural resources which primarily affect the structure of the American economy are the resources of the continental United States.

CHART I



Source: See appendix 18, section 5.

Productive Plant

Of secondary importance for longer periods, but of great importance for shorter periods, is the productive plant which men have developed. In the course of the centuries during which the continent has been inhabited, productive instruments for making use of natural resources have been developed and now exist in the form of the buildings, equipment, and improvements. This productive plant includes that employed in all the branches of economic activity, in agriculture, mining, manufacturing, trade, construction, government, the service industries, and residential housing.

The total value of this plant in 1935 was something like 190 billion dollars divided among major categories in the manner indicated in chart I. These figures represent the very crudest sort of estimates. In making the estimates, farm buildings and equipment have been included as agricultural plant, but land has been excluded on the ground of its being primarily a natural resource. Some part of the value of agricultural land is the result of man-made improvements such as drainage and irrigation but no data were available to make such an allocation. The structural significance of the specific categories will become apparent in the discussion of the structure of production in chapter V.

The structural significance of the productive plant as a resource is primarily a short-run matter of location and of industrial mobility. Manmade plant differs from natural resources in not being fixed and located by nature. A new plant can be built; a new mineral deposit can only be found. Plant location thus does not constitute the same fixed element in the structure

of the economy as does the location of natural resources. At the same time, existing plant, until it becomes obsolete or wears out, is like a fixed natural resource except to the extent that it can be dismantled and in part removed to a new location as some textile mills were moved from New England to the South. Thus, the national plant can be thought of as capable of a gradual change in location as particular buildings and equipment wear out or become obsolete and are replaced by new buildings and equipment in new locations, and as equipment is occasionally transferred from one region to another.

Existing plant represents an element of relative fixity in relation to type of industrial activity as well as of place. Many buildings and even some equipment may be put to various uses. But insofar as buildings and equipment are specialized, like a railway locomotive or a knitting frame, they give direction to activity until they are abandoned or replaced by plant designed for other uses.

The possible speed of this slow mobility of plant is suggested by the rate at which new plant and equipment is built.[1] In the period since 1919 new plant was built at a rate to duplicate the value of the total existing plant in approximately 15 years. A rough indication of the mobility of the major categories of plant are given in table III below:

TABLE III.—*Approximate years necessary to reproduce existing plant at the average annual rates of construction from 1919 to 1933*

	Years to replace plant
Residential housing	19.8
Industrial [1]	17.7
Agricultural	12.1
Government	7.4
Total	15.4

Source: For explanation, see appendix 18, sec. 5.

[1] Industrial includes manufacturing, mining, utility, trade, and construction and services other than government and residential housing.

The secondary importance of the existing plant can be seen by comparing its value with the annual production of the country. In 1929 and again in 1937 the national production amounted to approximately 66 billions of 1935 dollars. Since the productive plant amounted in 1935 to approximately 190 billion dollars the plant is only equal to the value of approximately three years of production at the levels of those years. If residential housing and government plant be excepted the value of the total agricultural and industrial plant would be equal to less than 2 years' production at that level. If the whole waste of the depression due to idle men and idle machines could have been used to build agricultural and industrial plant, the existing plant could have been completely rebuilt. Thus, in comparison with annual production or with the wastes of depression, existing plant is not of dominant long-run importance. It is mainly important for the structure of the economy as its character and location condition the structure of production in the immediate future.

[1] It must not be assumed that plant mobility depends only on the replacement rate. The presence of a skilled labor supply, ancillary industries, and established business relations tend to hold an industry in its old location even when new plants are being constructed.

Manpower

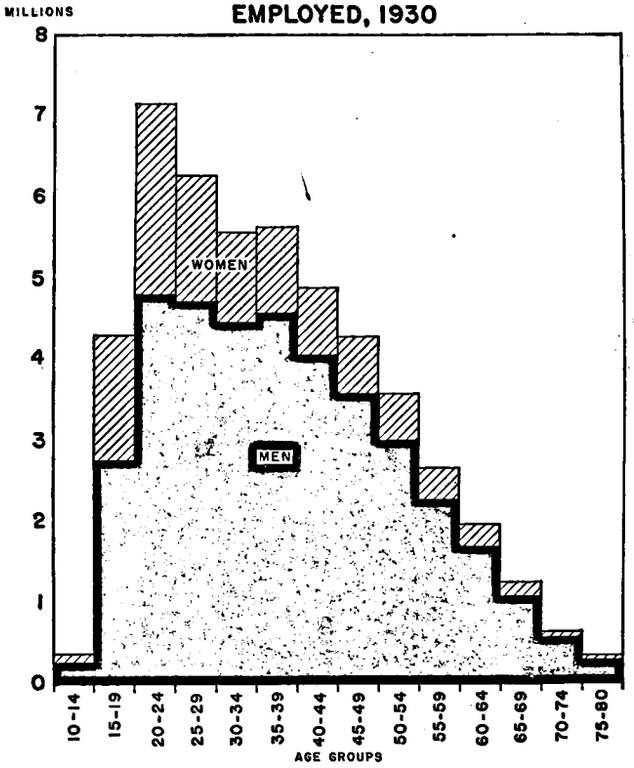
Manpower is by far the most important resource of the Nation and the resource likely to involve the largest waste. The millions of individual workers constitute the backbone of production, and their activity as skilled and unskilled workers, managers, artisans, farmers, teachers, doctors, or independent business men, provides the primary basis for the nation's standard of living. Correspondingly, if available workers are idle, production and level of living are lower than resources make possible. Manpower, potential work, is a perishable resource like water-power. Ten or fifteen million idle workers combined with idle machines can mean a tremendous loss in potential national income. In addition, the failure to use available manpower reduces the effectiveness of future production as idleness breeds frustration and loss of skills. The magnitude of losses from waste of manpower throw the wastes in the exploitation of natural resources into insignificance.

Just what constitutes the nation's available manpower is a question which cannot be easily answered. Much of the productive activity of the country is carried on within the homes as the housewife prepares meals, keeps house, nurses children, launders clothes, and carries on the numerous home activities. Yet the available statistics are geared to throw light only on manpower available for gainful activity, i. e., activity aimed to bring in money income. From the point of view of the structure of the whole economy this part of the total manpower is undoubtedly the more significant in that the organizational structure concerns primarily the relations among these gainfully employed.

An approximate idea of the manpower available for gainful employment can be obtained from the census of occupations. As of April 1, 1930, the date of the most recent occupational census, 48,829,920 persons, or 39.8 percent of the population reported themselves as "gainfully occupied." This figure includes not only wage and salaried workers but business and professional workers, farmers and unpaid family workers on farms. It includes people who were temporarily unemployed but does not include persons who were seeking employment but had not yet held a job. It probably includes

CHART II

NUMBER OF MEN AND WOMEN GAINFULLY EMPLOYED, 1930



Source: Based on *Fifteenth Census of the United States: 1930, Population*, volume V, page 115.

some persons who had retired but might be induced to take gainful employment if conditions made such employment desirable. Very probably it includes many persons who were unwilling to report that they had no gainful occupation. The figures for gainfully occupied taken from the occupational census can only give an indication of the magnitude of the available manpower and its characteristics and should not be regarded as precise.

An indication of the age and sex distribution of the gainfully occupied in 1930 is given in chart II. Approximately a quarter of the gainfully occupied were women and three-quarters were men. When the gainful workers are grouped by five-year age intervals the largest number of gainful workers fall in the 20–24 year age group; the bulk of workers fall between the ages of 20 and 55, 77 percent of the men and 76 percent of the women falling into this range.

The proportion of each age group reporting themselves as gainfully occupied throws further light on the characteristics of the available manpower. The percentages for men and women are indicated separately in chart III. For the men, the highest proportion gainfully occupied in any age group is in the group between 35 and 39, 98 percent of this group being occupied. For the women, the highest proportion occupied is in the 20–24 year group, 42 percent being gainfully occupied. Over 95 percent of the men between 20 and 55 reported themselves as gainfully occupied but only 27 percent of the women.

The figures given above may suggest that with any given population the available manpower is a fixed amount. (Actually, the number of workers available is not fixed, but varies with conditions.) For example, there is a clear relationship between the supply of labor and the level of real earnings. (The higher the level of earnings, the smaller the proportion of the population which will seek work. This does not mean that higher wage rates in a community will not draw in more workers.) Rather it reflects the fact that as the principal earner of a family gets higher earnings, either because of fuller employment or higher wage rates, there is less need for other members of the family to work. Children can be kept in school longer, the old folks can retire earlier, and the housewife can remain at home.

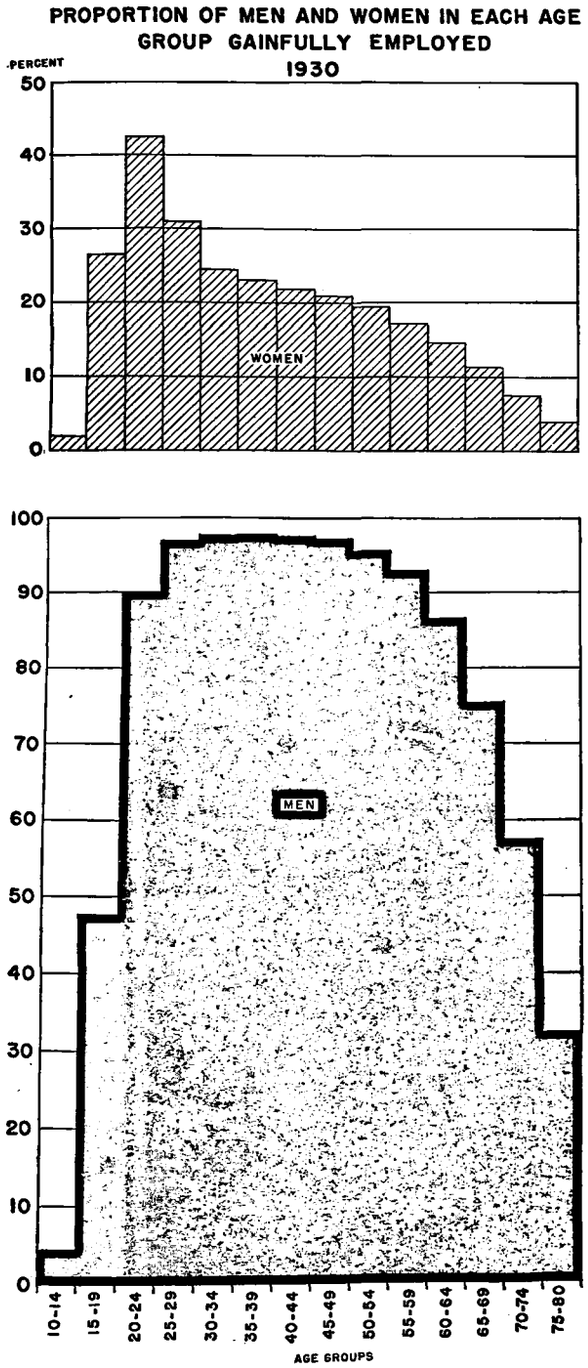
The influence of the level of earnings on the labor supply is appraised in a recently published analysis of the statistics of the gainfully occupied in cities with different levels of earnings.[2] The results of this analysis are summarized in chart IV which shows the correlation between average earnings in 37 cities and the number of persons over 10 years of age per thousand of population reporting themselves as gainfully occupied.[3] The line on the chart indicates the approximate relation between earnings and the proportion of the population seeking work. It suggests that if the earnings of adult male workers averaged $2,000 a year, and women's wages bore the customary relation to men's, roughly 44 percent of the urban population would be in the gainfully occupied class; whereas if the average earnings of adult male workers were $1,000 a year, women's earnings corresponding, over 48 percent of the population would be employed or seeking employment. There is thus evidence of some variation in the total manpower available as earnings themselves vary.

[2] "Studies in the Supply Curve of Labor; the Relation in 1929 between Average Earnings in American Cities and the Proportions Seeking Employment," by Erika H. Schoenburg and Paul H. Douglas, *Journal of Political Economy*, Vol. XIV, No. 1, February 1937.

[3] Adjusted for differences in age distribution in different cities, age distribution in Chicago being used as the base. This is sufficiently typical of the urban population of the country to make the statement above generally applicable. It is to be noted that a larger proportion of the urban population tends to be employed than the 39.8 percent for the country as a whole. This is undoubtedly due in large part to the drawing of persons from the country to the city as they come of working age so that rural areas have more nonworking children per unit of population than do urban areas.

Four cities out of the 41 cities used in the study are excluded from the chart because of evidences of abnormality—Washington, D. C.; Scranton, Pa.; Salt Lake City, Utah; and Fall River, Mass.

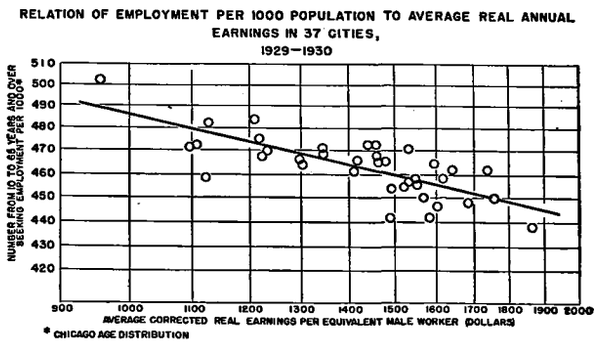
CHART III



Source: Based on *Fifteenth Census of the United States: 1930, Population*, volume V, page 115.

The main difference in available manpower due to a difference in the level of earnings occurs in the case of young people, old people, and women. If the data in

CHART IV

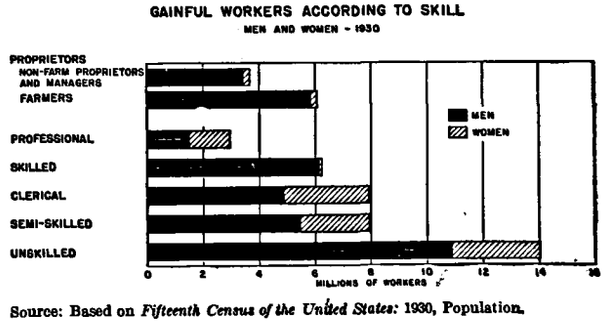


Source: "Studies in the Supply Curve of Labor; the Relation in 1929 Between Average Earnings in American Cities and the Proportion Seeking Employment," Erika H. Schoenberg and Paul H. Douglas, *Journal of Political Economy*, volume XIV, No. 1, February 1937, pages 77–79.

chart IV are considered for men and women separately, the number of women entering the labor market at the level of $1,000 of earnings per male then would be 80 percent greater than at the $2,000 level, whereas the number of men would be only 6 percent greater. Of the men, virtually all the additional workers would be between the ages of 14 and 18, although some additions would come from men over 65.

A third characteristic of the available manpower is the degree of skill. A very crude division of the total gainfully employed into groups according to skill is given in chart V. The chart shows those skills which, in 1930, were being used and takes no account of the fact that persons with professional equipment might be driving taxis or skilled carpenters might be running elevators. For the majority of male workers in 1930, the resulting distortion is probably slight, but for certain groups the distortion may be very considerable. Only certain types of jobs are ordinarily open to Negroes. No one knows how many persons with higher education and highly developed skills act as porters in railway stations and as elevator operators. Similarly, certain occupations are usually closed to women in spite of their training and equipment or are

CHART V



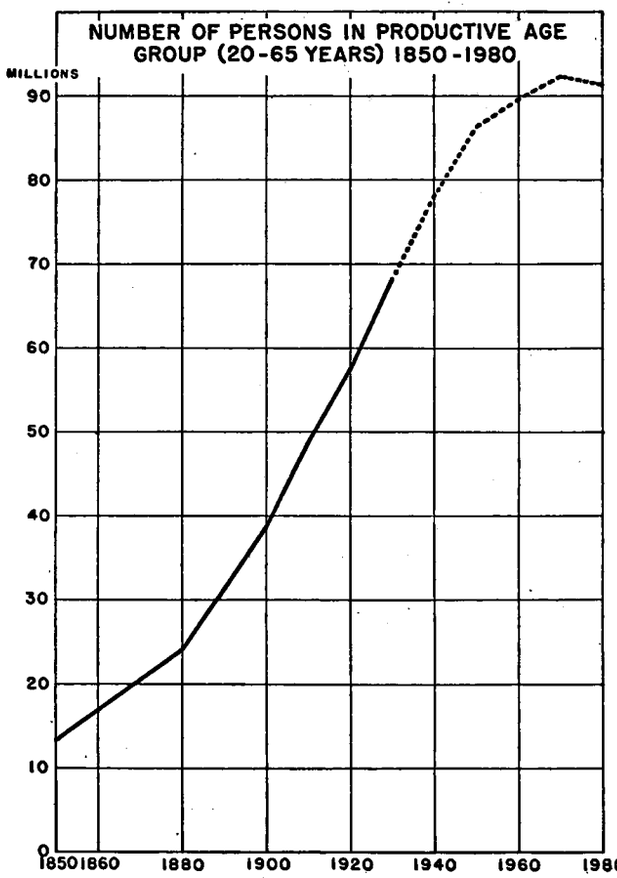
Source: Based on *Fifteenth Census of the United States:* 1930, Population.

available only to a limited number. In particular instances, prejudice or preference denies employment on grounds of sex, age, race or nationality, in spite of skill. Thus the chart may be somewhat misleading as to the degrees of skill which are actually available as a resource to be used. It is useful, however, as a rough guide to the characteristics of the available manpower in terms of skill.

So far the available manpower has been analyzed as of 1930. Actually it is changing through time with changes in the size and age distribution of the population and with the trends of social change. Chart VI shows the total number of persons between 20 and 65 years of age from 1850 to the present and estimates of the number of persons likely to be in this age bracket up to 1980. The estimates are based on the assumption of neither the highest probable nor the lowest probable birth and death rates but represent medium estimates.[4] Though the peak of population on the basis of the estimates used here would come in the 1970's, the peak of manpower in the more productive ages is likely to come in the 1960's. The changing composition of the population is shown in chart VII. From the point of view of production, the age composition of the population has been steadily improving, only 45 percent of the population being between 20 and 65 in 1850 and over 58 percent being in that age bracket now. Further decline in birth rates seems likely to increase the proportion slightly further, though the proportion of persons between 20 and 44 is likely to be declining, throwing a greater weight of production on persons between 45 and 64.

More important than the change in the size and age grouping of the population, are the trends of change in social attitude toward, and opportunities for, employment on the part of children, old people, and women. When Alexander Hamilton wrote his famous report on manufactures in 1791 he assured the Congress that manufactures could be developed without withdrawing men from agriculture because they could use the untapped labor resources of women and children. The first factories operated upon this principle. In 1814 a New England textile manufacturer advised that the most efficient mill construction provided one large room rather than several smaller ones because that made it possible to have only one adult in the plant—a single supervisor. Measured in terms of 125 years ago the manufacturing manpower of the nation was to a considerable extent the child power. Today child power is still a minor part of the manpower in agriculture but it no longer constitutes a significant part of the manpower in industry. In 1930 4½ per-

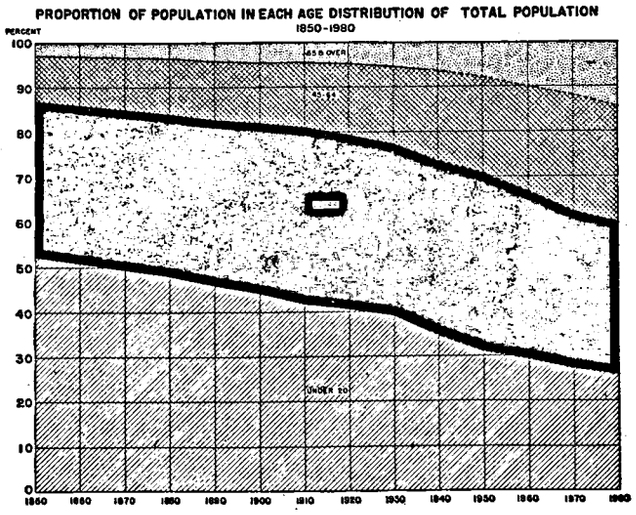
CHART VI



Source: Based on *Fifteenth Census of the United States: 1930, Population*, volume II, page 576; and *The Problems of a Changing Population*, 1938, National Resources Committee, page 25.

[4] National Resources Committee, *The Problems of a Changing Population*, 1938, p. 25.

CHART VII



Based on *Fifteenth Census of the United States: 1930, Population*, volume II, page 576; and *The Problems of a Changing Population*, 1938, National Resources Committee, page 25.

cent of workers in agriculture were under 16 years, whereas in no other line of work did child workers amount to as much as 1 percent of the labor force.

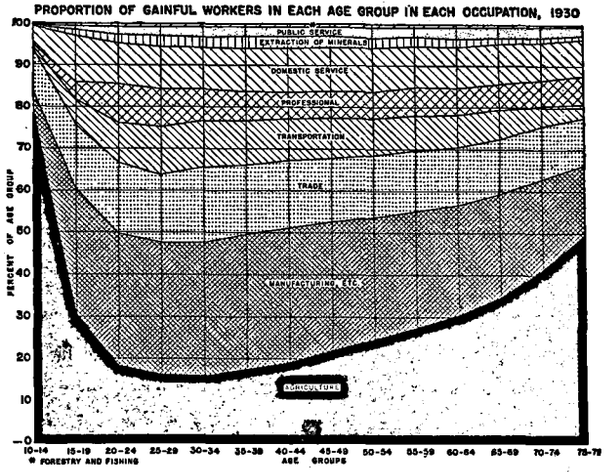
The tendency to eliminate child labor from industry and to retain it in agriculture is part and parcel of the process of industrial development which has drawn a sharp line between employment and lack of employment in industry where no such sharp line exists in agriculture. In agriculture the whole family has tasks to perform, running all the way from chores around the barnyard to a heavy day's work ploughing in the fields. This allows individuals to become fully productive through a gradual process of participating in the work of the farm, first in minor and then in major activities. A child worker on the family farm is not usually a full-time producer. On the other hand, in industry and in certain agricultural processes where hired labor is used, a child worker is usually a full-time employee.) In the highly organized processes of production outside the home there has ceased to exist the gradual process of inducting individuals into the productive system which characterizes agriculture.

At the opposite end of the age scale, industry and agriculture again differ in the ability to adjust to the capacities of older workers. On the farm an individual's work tapers off toward the end of his life just as it develops gradually in his early years. A farmer may continue to work around the farm after his son takes over the heaviest burden, or may employ a hired man to work under his management. The practice in different industries varies as to the age at which older workers are retired but the break from employment to unemployment is likely to be sharp.)

This difference between agriculture and industry is clearly brought out in chart VIII which indicates for each age group the proportion of the gainfully occupied attached to each major branch of industry. In this chart agriculture stands out in sharp contrast to other fields of activity in the occupation of persons under 20 while agriculture and the professional services stand out in the occupation of persons over 60. Although the bulk of employees in all fields are between 20 and 60 years of age, 28.5 percent of all the gainfully employed in agriculture were under 20 and over 60 as compared with 15.7 percent in manufacturing. More striking is the fact that the great bulk of employed persons in the very young and the very old age brackets are to be found in agriculture rather than in manufacturing and mining.

The increasing industrialization of economic activity, together with recognition that industry does not provide for a gradual induction into industry and gradual retirement, has brought strong social pressures against child labor and in favor of retirement pensions so that the age span from which manpower can be drawn is

CHART VIII



Source: Based on *Fifteenth Census of the United States: 1930, Population*, volume V, page 116.

gradually narrowing. The work of children in industry has been very largely eliminated, a development accelerated by the heavy unemployment of recent years, while the development of old age pensions and social insurance gives prospect of reducing the number of older persons forced to seek employment. In the railway industry, for example, where it has been the policy to retain older workers on a seniority basis, there were hundreds of men in the seventies running the trains and even some over 80 when the railroad retirement act went into effect.[5] In this case the introduction of a pension system for men over 65 permitted the withdrawal from industry of men who were too old to remain but who continued to work because of economic pressure. If these trends continue, the manpower of the country will more and more be restricted to those age groups well able to bear the burden of national production.

An estimate of the total available labor force, taking all these factors into account, is given in chart IX, together with the actual employment from 1920 through 1936. The difference between the labor force and the equivalent of full-time employment represents a crude approximation to the number of persons unemployed, indicating the extent to which the resource of manpower is not used.

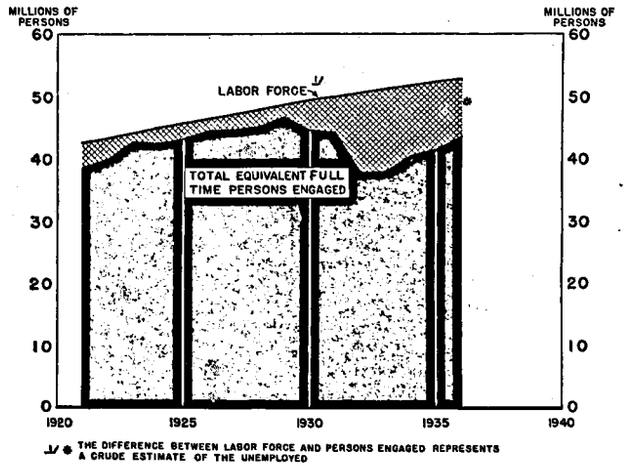
Nonconsumable Resources

With these three resources which are consumed in the process of satisfying wants—natural resources, plant, and manpower—there must also be considered the three great resources which condition production without being consumed in the process—physical environment, technology and social institutions.

[5] *Annual Report of Railroad Retirement Board*, 1938.

CHART IX

TOTAL PERSONS ENGAGED AND LABOR FORCE 1921-1936



Source: Total equivalent full-time persons engaged is based upon data of the National Bureau of Economic Research and the Department of Commerce. Total labor force is based on preliminary estimates furnished by the Works Progress Administration, National Research Project. For the actual data, see table I, of Appendix I, of the report of the National Resources Committee, *Patterns of Resource Use.*

Physical Environment

Physical environment as a resource conditioning production requires little discussion. The varying and on the whole favorable climate of the United States is in a very real sense one of its richest resources, with temperatures ranging from those necessary for the growing of cotton and citrus fruit to those suitable for spring wheat and fur-bearing animals, and a rainfall ranging from desert dryness to the heavy rainfall of the Pacific Northwest and the Atlantic Coast. The topography of the country, too, is on the whole favorable. Open land without insurmountable mountain ranges, open sea fronts with plentiful harbors, great lakes, and navigable streams provide a setting for the productive activity of the country's 50 million workers.

Technology

The second great resource conditioning production is the existing technology—the knowledge of ways to apply manpower to physical resources for meeting human wants. Modern technology is the product of centuries of trial and error, of selection and adaptation. Each effective technique, whether physical or social is a tried and effective way of doing something, of acting to attain a given end, of getting from here to there. As such, it is a resource no less than the physical materials to which it is applied and the human skill and energy which apply it. Personal skill alone does not insure productivity. Often unskilled use of the best technique is more productive than skilled use of an obsolete technique. Unskilled but intelligent use of a steam shovel can be more productive than the most skilled use of pick and shovel. Understanding of the best known way of doing things can make the difference between a high and a low level of living. The Indians on this continent had much the same natural resources as exist today and had great personal skills, but they did not have modern techniques.

By its very nature technology is a resource which cannot be measured. Whether a new technique is the result of the inventor's imagination or the recognition of a fortunate chance event, the time between the initial step and the adoption of a method as a common practice may be a matter of generations. At any given time, knowledge and skills, and their implementation in different fields, is at all stages from imagination or recognition to routine practice. It may be possible to trace for any particular technique the steps from the mind of the inventor or discoverer on. It is also possible to recognize, in the place held by science and the energy devoted to research, conditions favorable to the further development of techniques. But it is not possible to reduce to a common measure and express in meaningful terms the total technological resource of the country at a given time.

Yet modern technology is at the very heart of the basic economic problem of the day. Mass production, rapid transportation and communication, improved techniques of management, and mass financing are as characteristically modern as the automobile, the radio, and the talking movie. Both reflect modern techniques and typify modern production.

Social Institutions

Social institutions are a resource to which people are so accustomed that they seldom think of them in this light and often are unconscious even of their existence. Yet almost every productive act is conditioned by a complex of social institutions which have developed in the past. Without this complex of social institutions social living would be almost impossible.

In this chapter an attempt has been made to bring into focus the resources of the Nation. We have ample natural resources with no significant limitation except that involving tropical products; extensive plant, but plant which could be rapidly replaced if occasion arose; a labor force of over 50 million persons with varied skills and aptitudes only partly employed; an equable climate; effective techniques of production; and a complex of social institutions which bind the whole population into a functioning economy. It is not for lack of consumable resources that consumer wants are not more extensively satisfied. Nor is it due to unfavorable climate or to ineffective production techniques. The extent to which it arises from faulty organization of production will be considered in the third section of this report after the structure of production has itself been examined.

CHAPTER IV.—THE STRUCTURE OF PRODUCTION—GEOGRAPHICAL STRUCTURE

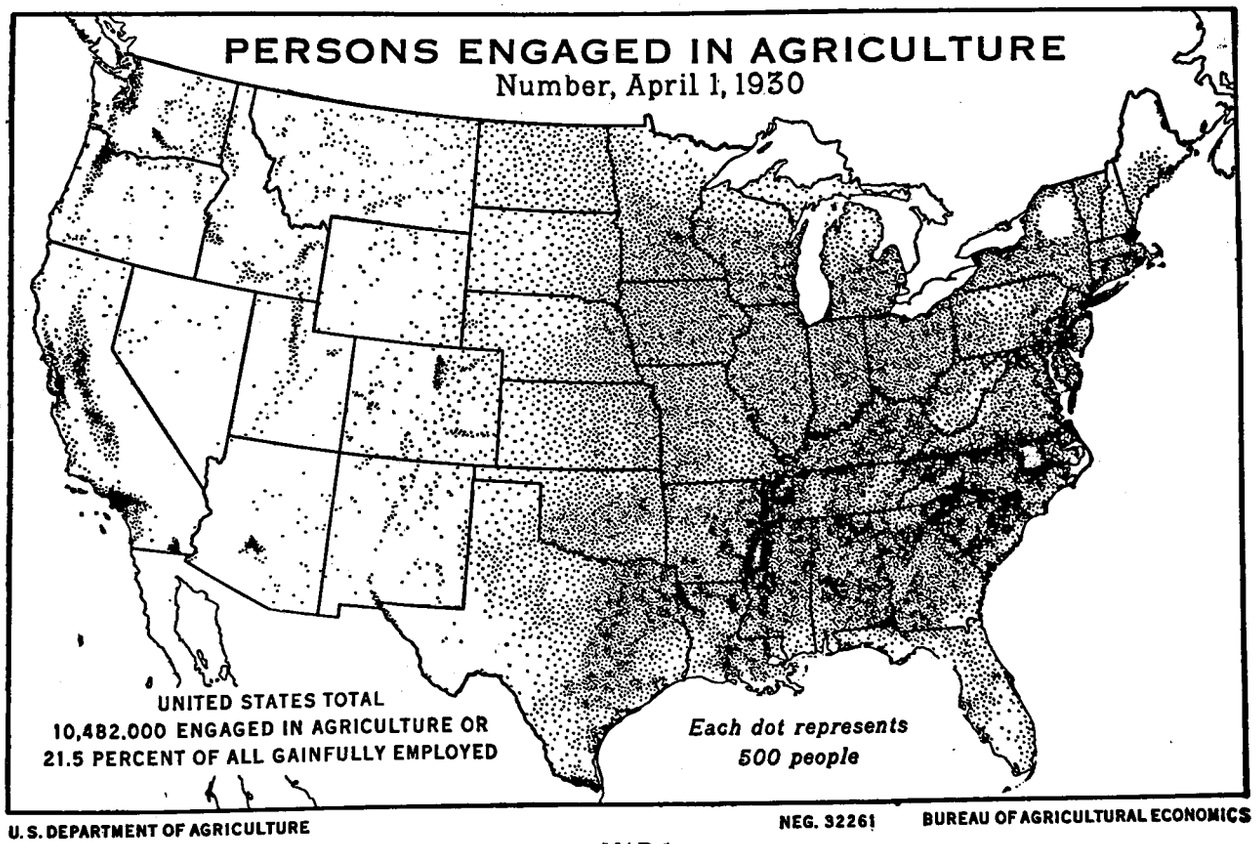
The two preceding chapters have sketched the structure of wants and of resources, the two elements basic to the process of production. In this and the following two chapters, the structure of production itself will be blocked in, first in terms of its geographical characteristics, then in terms of the functions performed, and finally in its financial aspects.

Location of Production in Relation to Resources and Consumers

The geographical structure of the American economy reflects three factors: The location of resources, the location of consumers, and the historical process by which economic activity has been carried on in the past. If there were complete mobility of people and capital, the location of resources might be the major, if not the sole, geographic factor giving structure to the economy. But neither labor nor capital has ever been completely mobile and the inertia of both exerts a major force in giving to economic activity its geographic form. The net result of these factors, operating in the past and the present, appears in the distribution of population and more particularly in the distribution of purchasing power shown in chapter II, maps 1 and 2. The fact that consumers are distributed according to a geographical pattern of their own, at least partially independent of the distribution of natural resources, produces a situation in which they, equally with natural resources, constitute a basic element underlying the geographical structure of economic activity.

The geographical distribution of the principal lines of economic activity is shown in maps 1–5. Farming and mining are necessarily attached to the natural resources which they exploit. The distribution of land suitable for crops and for pasture [1] was a major determinant

[1] See ch. III, maps 3, 4, and 5.



MAP 1

of the location of all economic activity in the days when the country was predominantly agricultural, although even then physical barriers to population movement and the historic process of settlement had produced a pattern of economic activity which by no means exactly followed the distribution of land resources. Today the soil remains the resource to which are attached the largest single blocks of population and of economic activity. An examination of map 1, however, and especially a comparison of the distribution of agricultural population shown there with the distribution of crop land shown in chapter III, maps 3–5, indicates that the distribution of agricultural population does not correspond closely to the distribution of valuable agricultural land. Rather, the heaviest concentration of agricultural population is in the southern areas where land resources are less adequate than in the Middle West. A secondary concentration of persons engaged in agriculture appears in the Middle Atlantic and the northeastern areas where intensive use of the land for truck farming, dairying, and poultry raising is induced by the presence of city populations and city markets. In the distribution of agricultural activity there is thus reflected not only the distribution of natural agricultural resources but the distribution of consumers and the historical process which has produced a relatively immobile population [2] densely located on the limited agricultural resources of the South.

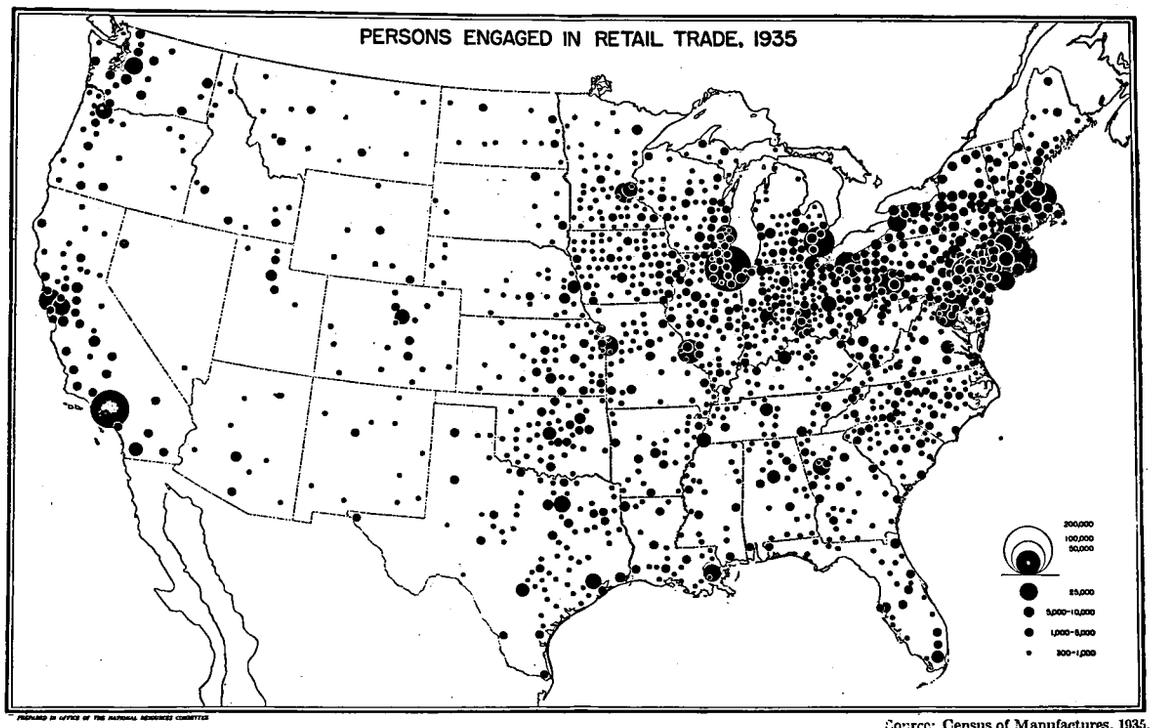
In contrast to farming which is attached to the land, retail trade follows the location of consumers. A comparison of map 3 with the population maps in chapter II (maps 1 and 2) brings out the fact that it is effective consumers, those with purchasing power, who determine the location of trade and other consumer-located activities. The relatively thin employment in retail trade in the South corresponds more closely to the low level of purchasing power in that area shown in chapter II, map 2, than to the high density of population shown in chapter II, map 1.

Manufacturing and wholesale distribution, maps 2 and 4, are not tied directly either to resources or to consumers, but tend to be highly localized in the urban centers, primarily in the northeast section of the country. The degree of such geographical concen-

[2] Although southern farms have been supplying workers to northern and southern industries for decades.

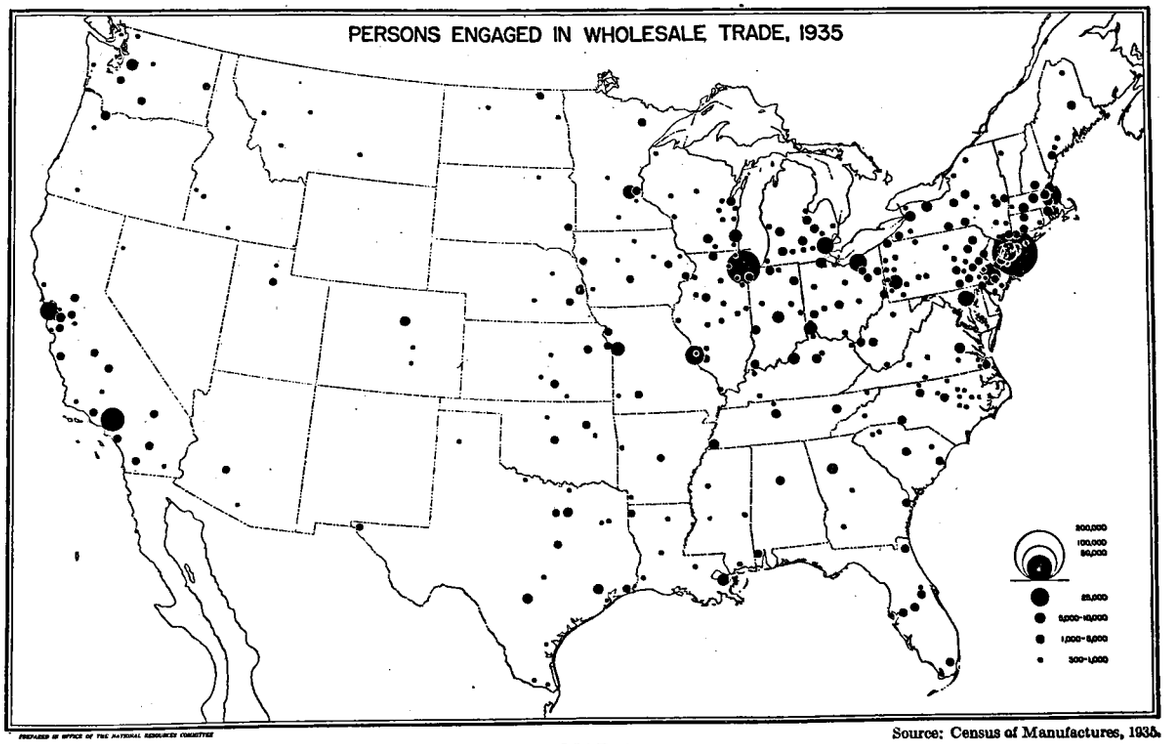


MAP 2



MAP 3

Source: Census of Manufactures, 1935.



MAP 4

Source: Census of Manufactures, 1935.

TABLE I.—*Location of persons employed in relation to resources and consumers, 1935*

	Number of Persons (thousands)
Located close to resources:	
Agriculture	9, 925
Fishing	65
Mining	745
Manufacturing [1]	743
Total	11, 478
Located close to consumer:	
Services to consumer	6, 563
Services to the economy [2]	6, 346
Services to business	252
Retail trade	4, 970
Construction	719
Manufacturing	887
Total	19, 737
Relatively footloose:	
Wholesale trade	1, 350
Manufacturing	6, 881
Miscellaneous	1, 965
Total	10, 196
Total	41, 411

[1] Including sawmill and timber workers.

[2] Including Federal, State and local Governments. Federal Government employees located in Washington and some State employees in State capitals are not located close to consumer.

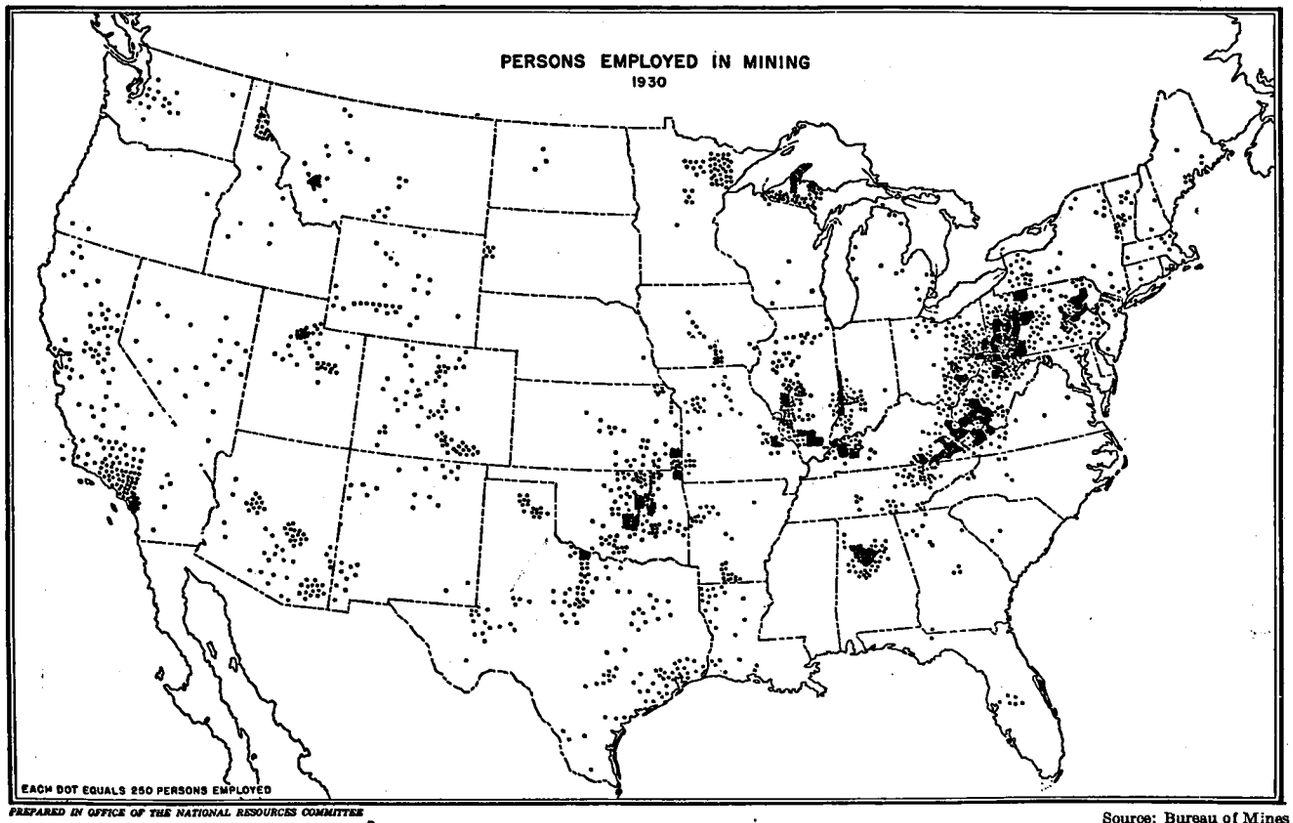
tration is emphasized in map 6 which shows the manufacturing population of the 200 counties in which 75 percent of all manufacturing activity is carried on.

The approximate proportions of persons engaged in the various activities whose location is primarily determined by resources, consumers, or neither, are indicated in table I. Approximately 28 percent were located close to resources, 48 percent close to consumers, and 24 percent were relatively footloose.

The above series of maps covers 61.6 percent of the persons employed in all types of activity. Satisfactory maps for construction and service could not be obtained. The latter would closely approximate the distribution of population and of purchasing power shown in chapter II, since services must of necessity be carried on close to the consumer.

In maps 7 and 8 the flow of goods from points of production to points of consumption is indicated in terms of the railroad freight traffic passing from one

Source: *Patterns of Resource Use*, National Resources Committee, tables 1 and 2. For the classification of manufacturing industries, see appendix 8, table I.



MAP. 5

Source: Bureau of Mines

freight area to another on a given day. This represents only about a third of all freight shipments, for the bulk of freight, as indicated in table II, passed between points within these areas; motor transport of goods also involved mainly short hauls. Water transport also accounts for important flows, particularly of ore and wheat. The flows shown are between the freight areas indicated by the dotted lines, not between the points where the arrows originate or terminate. Interregional shipments of freight, however, indicate roughly the direction and magnitude of the long-distance flows of goods.

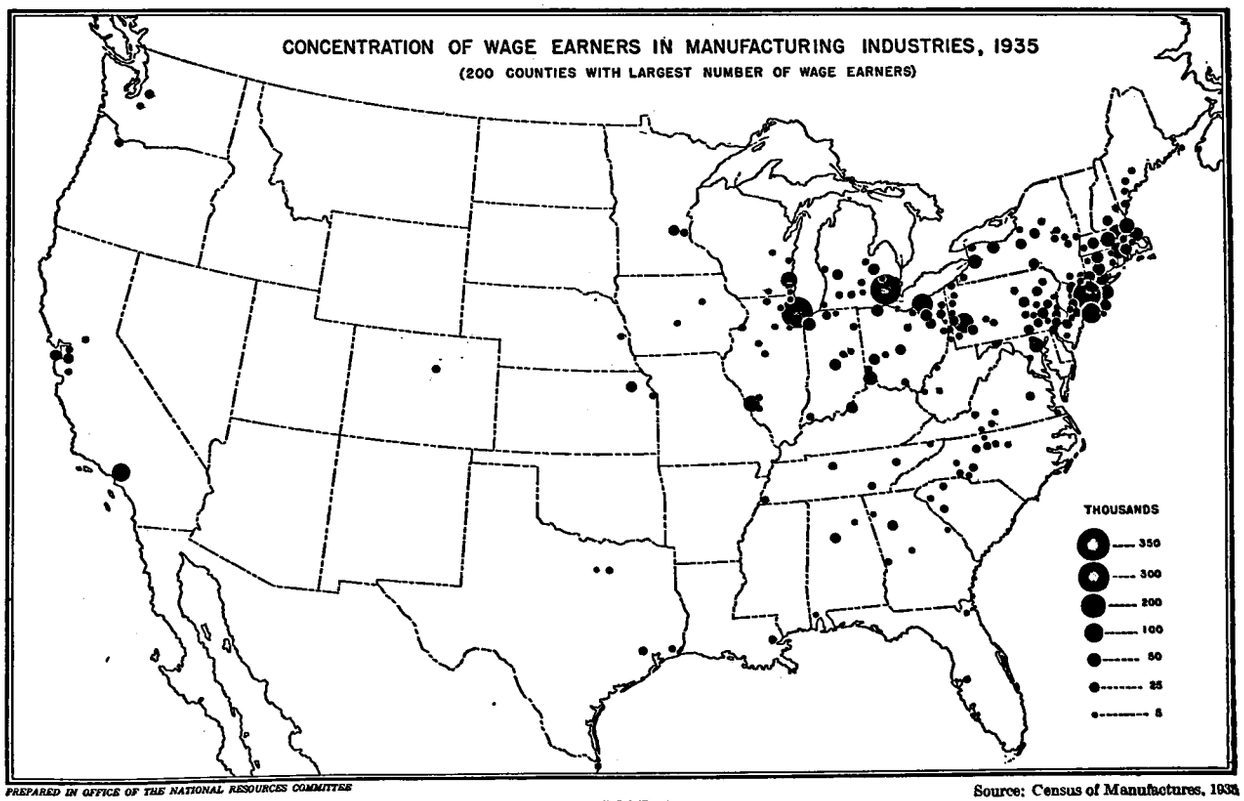
The major elements that enter into the pattern of industrial location are typified in the four examples of manufacturing activity shown in maps 9 to 12. In each of these examples, the principal influence determining location is different. Certain types of industrial activity, as well as the extractive processes, must be located close to the natural resources. Map 9, showing the location of cottonseed oil manufacture, illustrates this type of activity. The processing of products extracted from soil or mines tends in general to take place close to the resources themselves, especially where the product is perishable, e. g., in the canning of fresh vegetables and quick freezing of berries and fruits, and where the product is bulky and is reduced in bulk or weight by the fabricating process, e. g., lumber mills which reduce the weight and bulk of timber by the amount of waste and sawdust.[3]

TABLE II.—*Proportion of freight carload traffic for intraterritorial and interterritorial shipments, Dec. 13, 1933*

Origin territory	Total	Intraterritorial	Interterritorial	
			Western flow	Eastern flow
New England	100	74.8	25.2	
Trunk line	100	77.2	15.9	6.9
Central freight	100	66.9	17.0	16.1
Pocahontas	100	35.0	33.6	21.4
Southern	100	68.2	5.7	26.1
Western	100	63.5	6.4	30.1
Southwestern	100	62.3	17.3	20.4
Pacific northwest	100	61.6		38.4
Pacific southwest	100	65.7		34.3
Total	100	65.9	15.5	18.6

Source: Interstate Commerce Commission, Freight Traffic Report, Dec. 13, 1933.

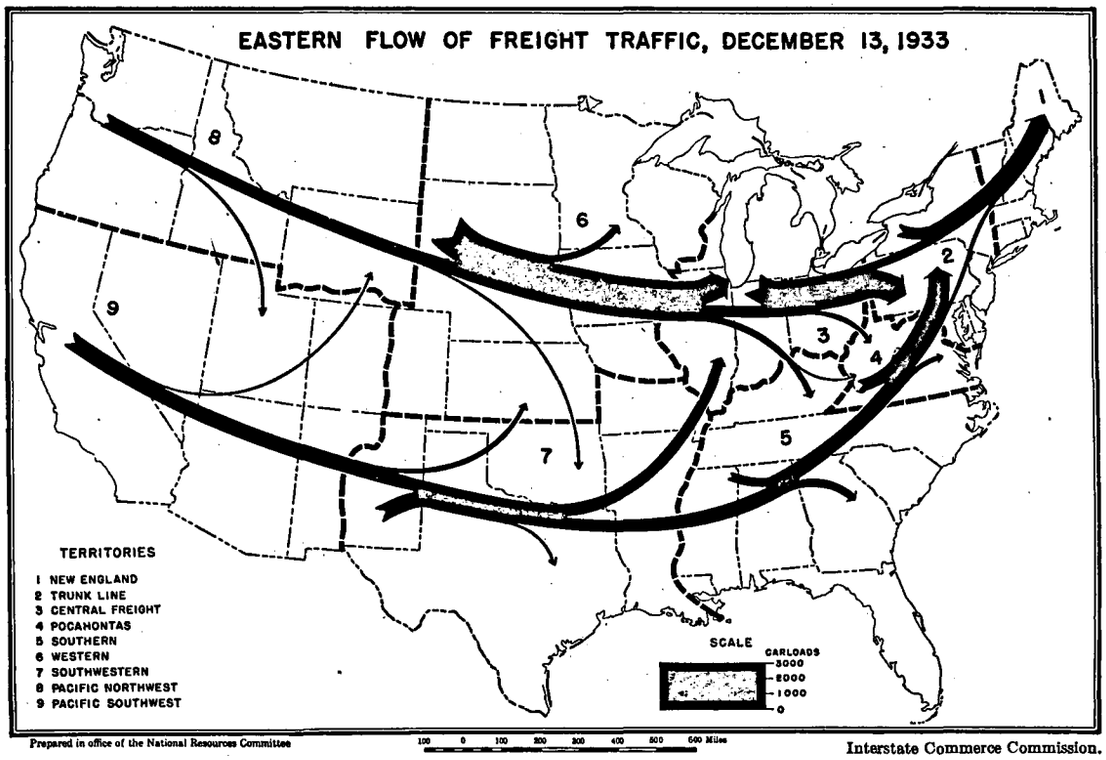
[3] See appendix 16, maps A-15, A-40, A-42. All bulky or heavy products are not necessarily processed close to the resource, for it is the difference in transportability of the unprocessed and processed product which is involved since the processed product has to travel on to the consumer. The tendency to locate automobile assembly plants in consumer centers reflects a situation in which the product becomes more bulky in the process of fabrication and transportation is easier prior to the fabrication of the finished product than it is subsequently.



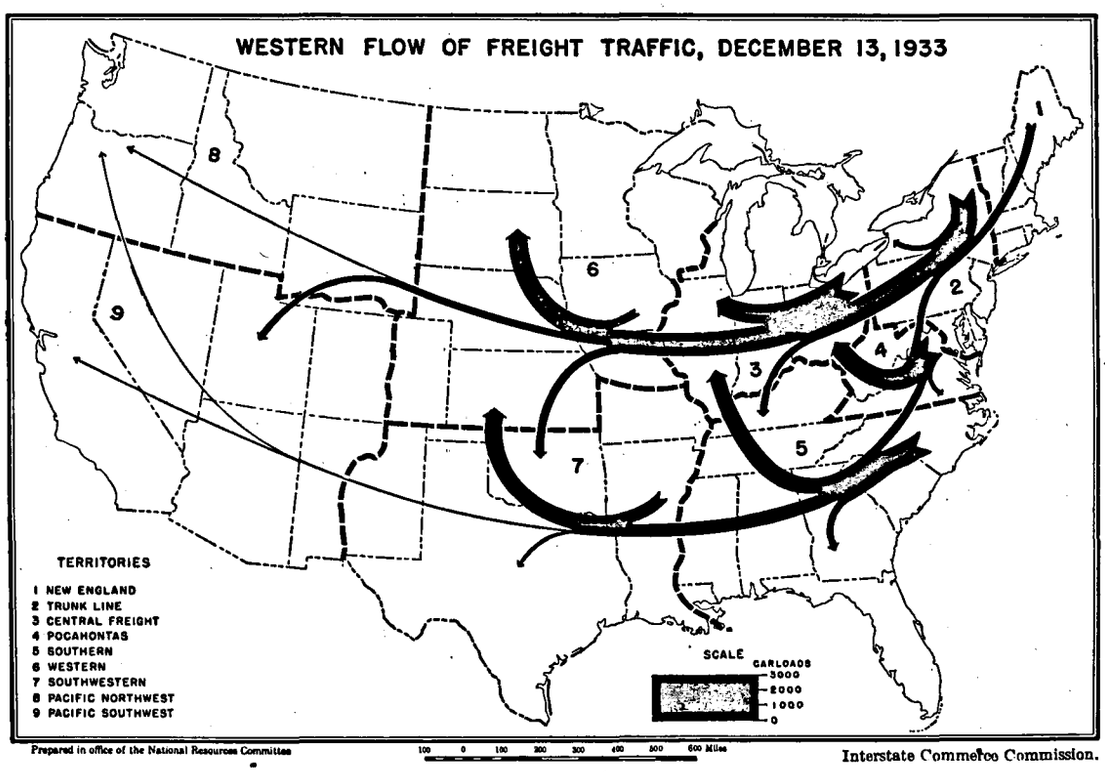
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Source: Census of Manufactures, 1935

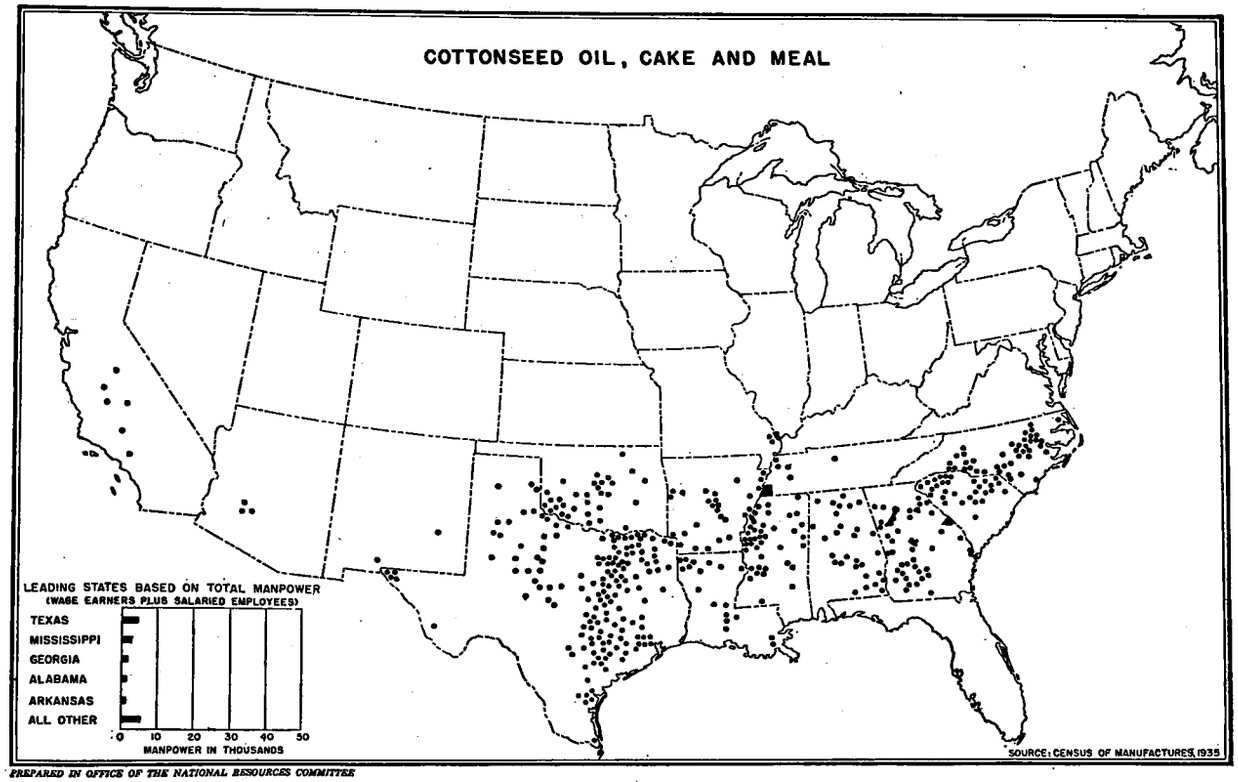
MAP 6


EASTERN FLOW OF FREIGHT TRAFFIC, DECEMBER 13, 1933
TERRITORIES
1 NEW ENGLAND
2 TRUNK LINE
3 CENTRAL FREIGHT
4 POCAHONTAS
5 SOUTHERN
6 WESTERN
7 SOUTHWESTERN
8 PACIFIC NORTHWEST
9 PACIFIC SOUTHWEST
SCALE
CARLOADS
3000
2000
1000
0
Prepared in office of the National Resources Committee
100 0 100 200 300 400 500 600 Miles
Interstate Commerce Commission.

MAP 7

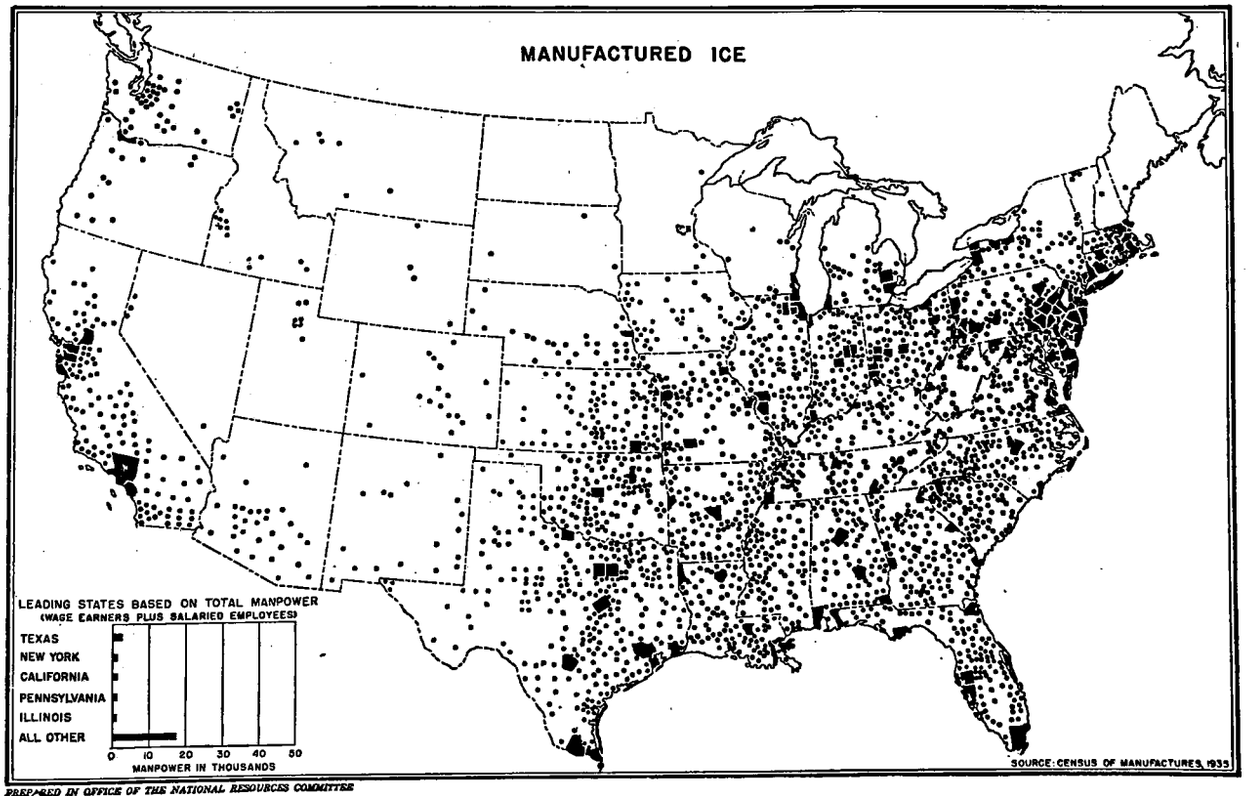

WESTERN FLOW OF FREIGHT TRAFFIC, DECEMBER 13, 1933
TERRITORIES
1 NEW ENGLAND
2 TRUNK LINE
3 CENTRAL FREIGHT
4 POCAHONTAS
5 SOUTHERN
6 WESTERN
7 SOUTHWESTERN
8 PACIFIC NORTHWEST
9 PACIFIC SOUTHWEST
SCALE
CARLOADS
3000
2000
1000
0
Prepared in office of the National Resources Committee
100 0 100 200 300 400 500 600 Miles
Interstate Commerce Commission.

MAP 8



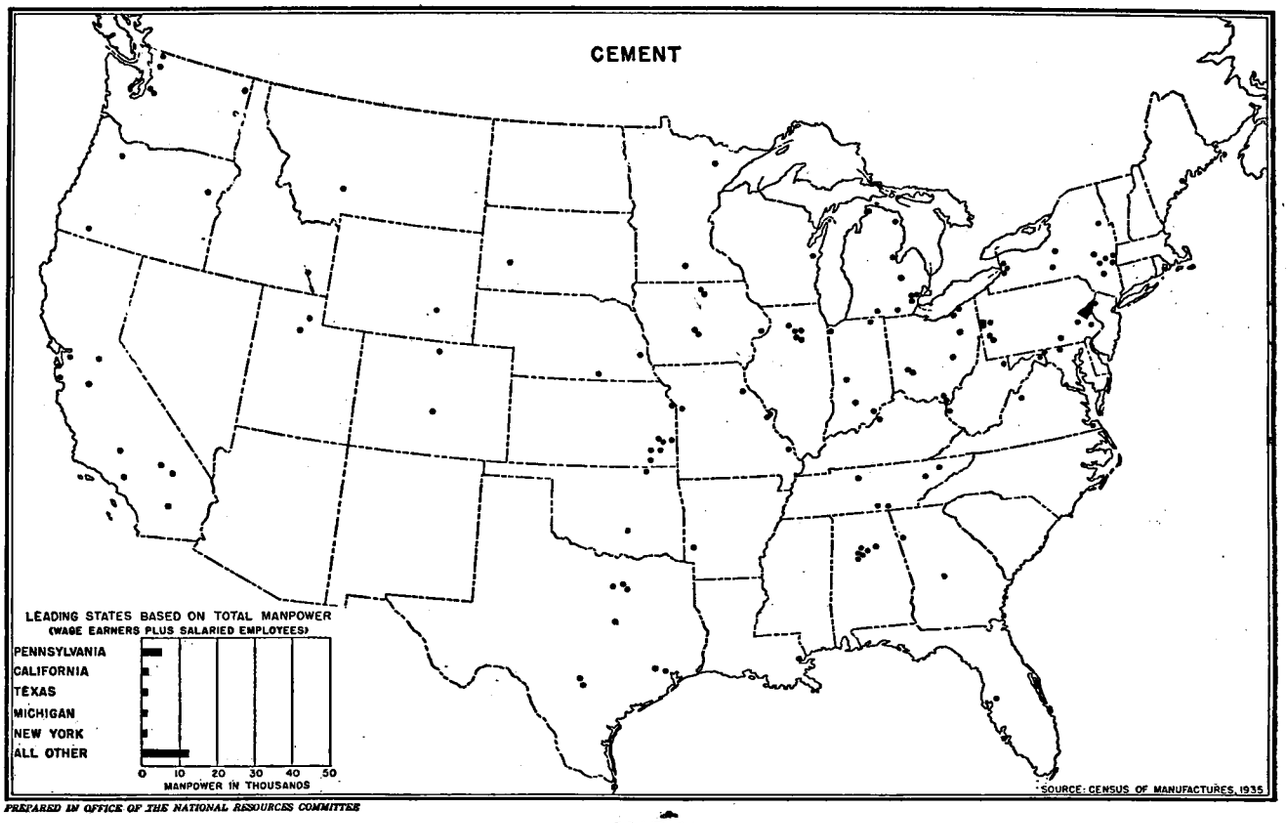
PREPARED IN OFFICE OF THE NATIONAL RESOURCES COMMITTEE

MAP 9



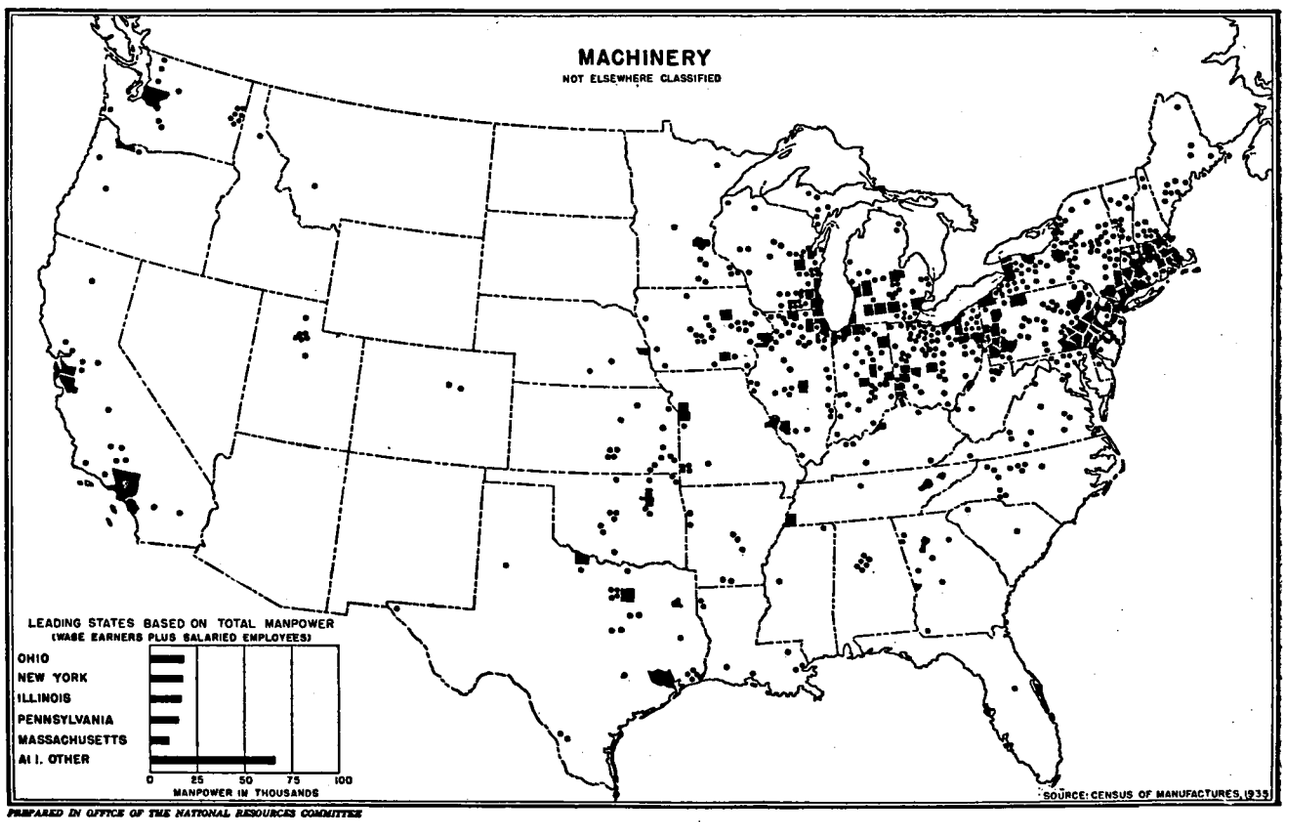
PREPARED IN OFFICE OF THE NATIONAL RESOURCES COMMITTEE

MAP 10



PREPARED IN OFFICE OF THE NATIONAL RESOURCES COMMITTEE

MAP 11



PREPARED IN OFFICE OF THE NATIONAL RESOURCES COMMITTEE

MAP 12

At the opposite extreme from industries which are tied to the resources which they use are those which are tied to the consumer. Map 10, showing the location of commercial ice manufacture, gives an example of this type of activity. (Direct services to the consumer and retail trade are necessarily most closely tied to the individuals who are served.)

(A third type of geographical distribution is represented by those industries whose resource material is widely distributed, whose bulk is great and whose destination is the ultimate consumer. Map 11, showing the distribution of cement plants, indicates the type of regional distribution characteristic of this sort of activity. The materials out of which cement is produced are widely distributed. Cement plants exploit these resources largely in relation to the regional market to which the cement is to be shipped. Building bricks are perhaps an even better illustration of this type of geographical distribution.) Map A–53 in Appendix 16, showing the distribution of clay products, includes the distribution of brick kilns. Unfortunately the brick industry is not separately reported and its regionality cannot thus be clearly shown.

(The great bulk of manufacturing activity is intermediate between resources and consumers and follows a pattern of location which is determined by a number of factors in addition to those discussed above. Between the resource and the consumer lie successive steps in fabrication. To a considerable degree, the geographical structure of manufacturing follows the flow of goods from the location of natural resources where extraction takes place through preliminary processing, frequently close to the resource, through successive stages of processing, until a final stage takes place close to the consumer.) But historically there has developed the definite manufacturing area of the northeast shown in maps 2 and 5. (The manufacture of machinery, shown in map 12, is representative of the types of industry located for the most part within this industrial area.) The manufacturing activity carried on in the 2,801 counties outside of this area is very largely of the types illustrated in maps 9–11.

(The location of an industry brings with itself the location of industries subsidiary to it.) The manufacture of heels and shoe findings clings to the shoe industry, wherever it may be; the manufacture of machinery is closely related to the use of machinery; textile machinery, localized in New England when the cotton textile industry centered there, is now also produced in the North Carolina piedmont in close proximity to the newer textile mills. (Where industry is located, there population congregates, and there drift industries which serve the consumer directly, contributing to the further industrialization of already industrialized areas.)

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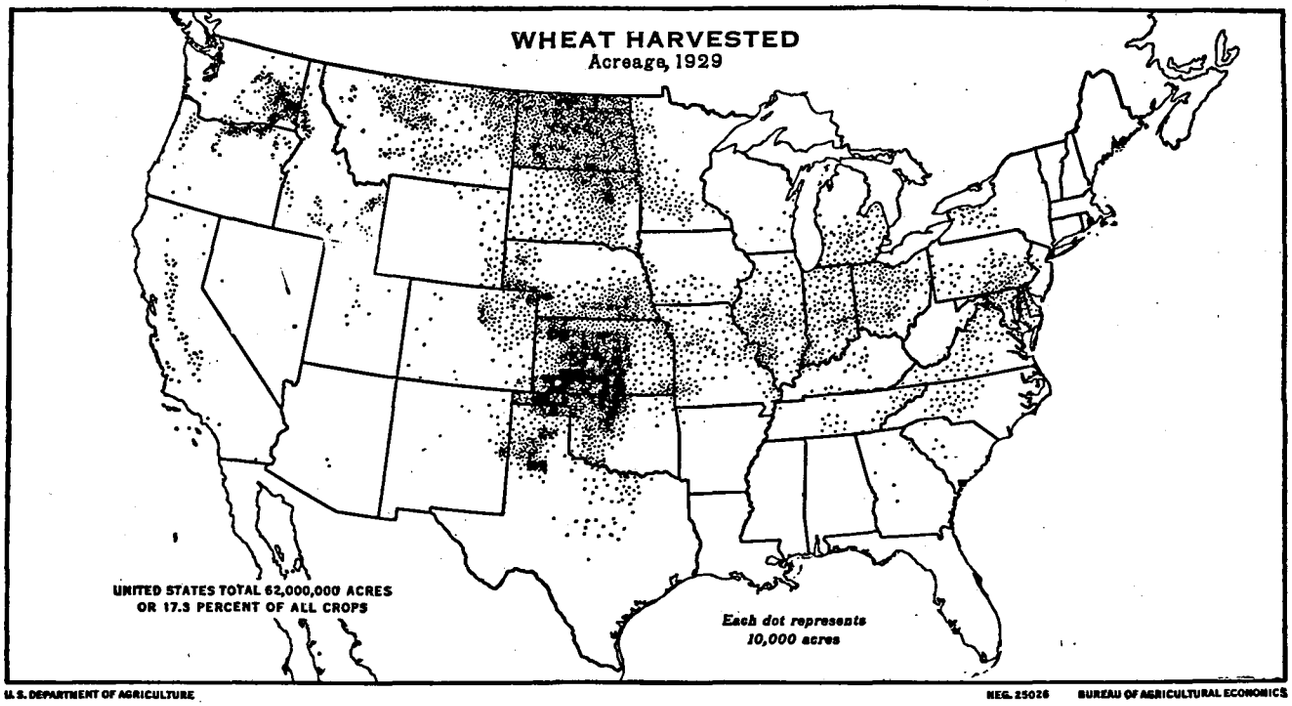
Flow of Goods from Resources to Consumers

When the flow from resource to consumers in each industry is traced in detail, there emerges a vivid picture of the dynamic aspect of the geographical structure. This flow through successive processing and fabricating stages to the final consumer is shown for selected groups of products in the series of maps which follow. Additional industries are mapped in the same fashion in Appendix 16. These maps show the location of industry, county by county, only on the basis of plant location. The solid areas indicate five or more plants in each of the counties covered. The use of plants as a basis for mapping distorts the picture, for a tiny plant employing half a dozen people is represented in the same manner as one employing 10,000. In order to correct, in part, the misleading impression resulting from this method the five leading States with the number of persons employed are shown on each map.

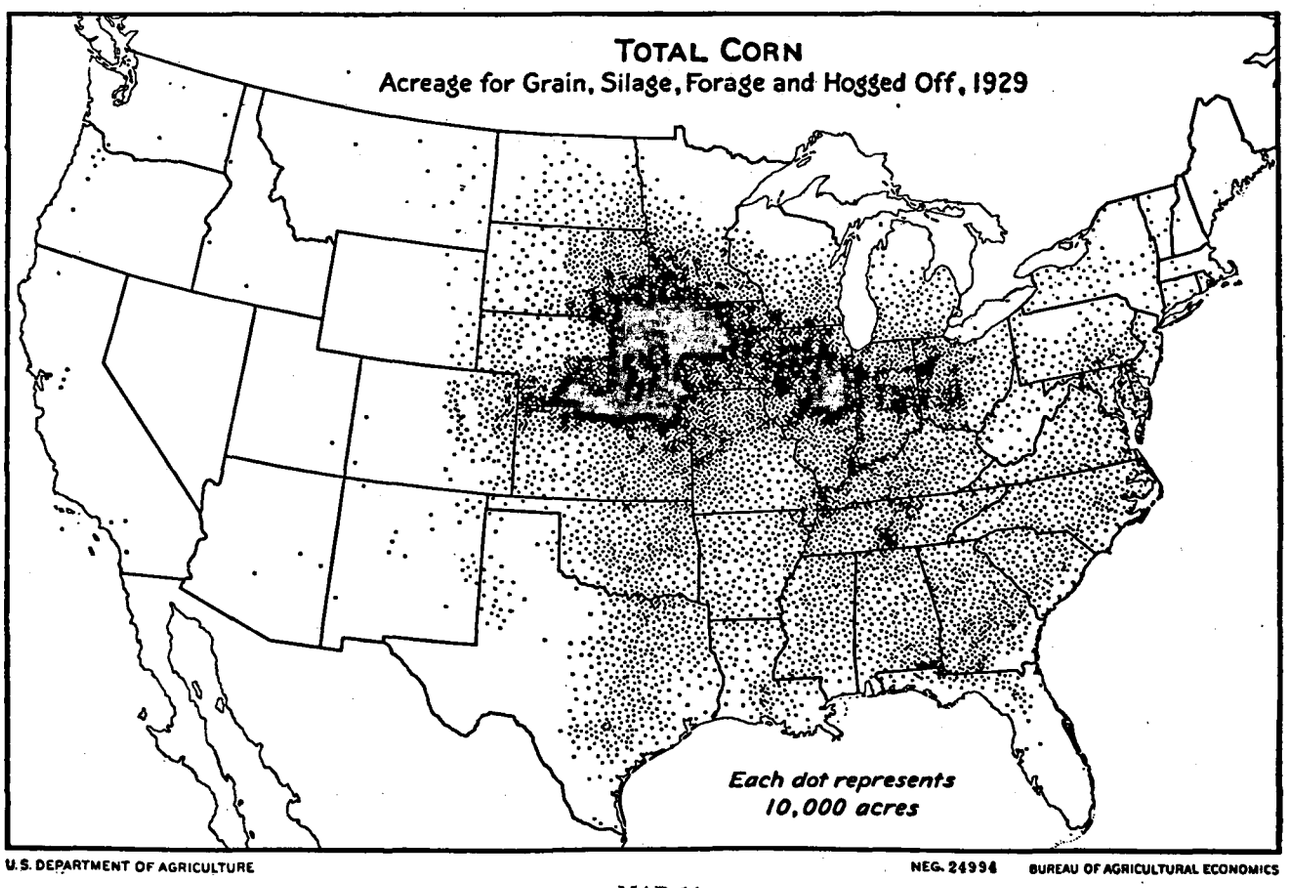
Agricultural Products

The flow of agricultural products from farmer to consumer is illustrated by maps 13–16, showing the distribution of wheat, corn, flour milling and baking. The major wheat and corn areas stand out in maps 13 and 14. Map 15 shows the processing of these and other grains. The distribution of flour mills close to the wheat-raising areas and of mills scattered through corn-growing regions may here be seen. Flour milling as shown on this map not only represents the processing of two separate products, wheat and corn, but it also represents two separate types of industry, the large commercial flour mill supplying the national market and the local gristmill grinding local grain for local consumption. The many mills scattered through the mountain and piedmont areas of Virginia, North Carolina, and Tennessee are almost entirely of this latter type. The bulk of the employment in the industry and of the value of the product is represented by the States of the Middle Western area and western New York. Bread manufacture, shown in map 16, is distributed through the centers of population. If this map is compared with the population map shown in chapter II, the two appear almost identical with respect to urban areas. Even in the rural areas, moreover, bread manufacture is represented, but here it follows the pattern of rural purchasing power rather than rural population. Commercial bakeries are well represented in the farming section of the West, but in poorer rural areas, especially in the South, baking remains a home industry.

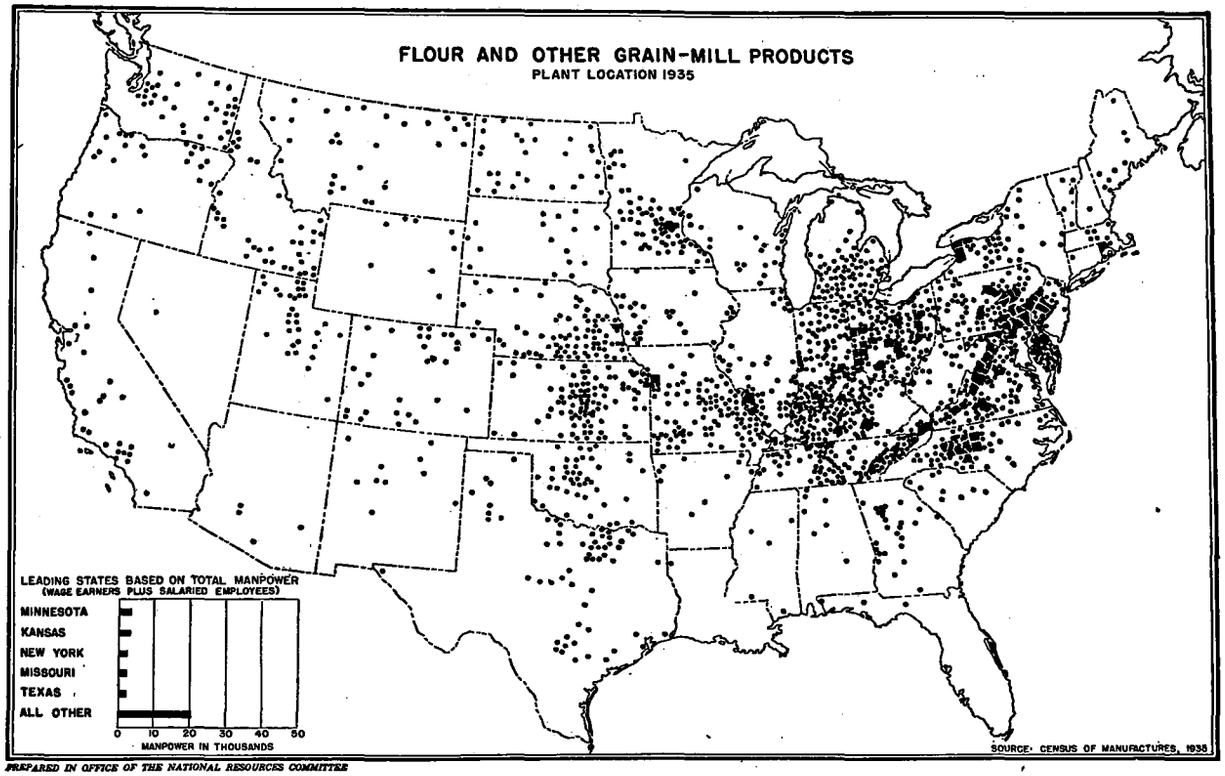
The flows of other agricultural products are shown in the several series for livestock, grains, fruits and vegetables, and tobacco in appendix 16, maps A–1 to A–20.


WHEAT HARVESTED
Acreage, 1929
UNITED STATES TOTAL 62,000,000 ACRES
OR 17.3 PERCENT OF ALL CROPS
Each dot represents
10,000 acres
U. S. DEPARTMENT OF AGRICULTURE
NEG. 25026
BUREAU OF AGRICULTURAL ECONOMICS

MAP 13

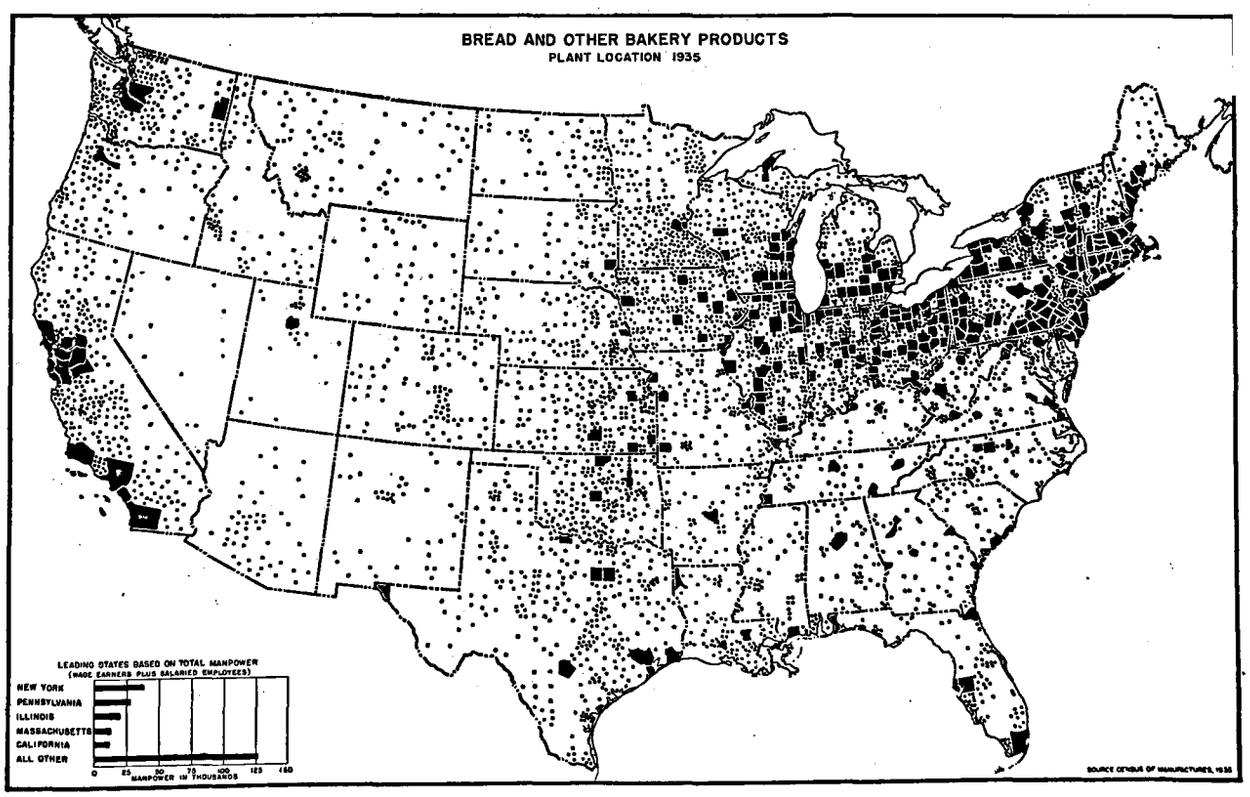

TOTAL CORN
Acreage for Grain, Silage, Forage and Hogged Off, 1929
Each dot represents
10,000 acres
U.S. DEPARTMENT OF AGRICULTURE
NEG. 24994
BUREAU OF AGRICULTURAL ECONOMICS

MAP 14



PREPARED IN OFFICE OF THE NATIONAL RESOURCES COMMITTEE

MAP 15



MAP 16

Textiles

The distribution of the textile industry, illustrated by cotton textiles shown in maps 17–20, bears only a secondary relationship to the location of resources. Only a scattering of cotton textile plants is to be found in the vicinity of the centers of cotton production. Although the piedmont mills are near to an old cotton raising area, the location of the cotton textile industry primarily reflects the historical development of the industry in New England and its migration to the southern piedmont in quest of a cheap labor supply. Its locational pattern is that of a relatively foot-loose industry bound neither to resources nor to consumers nor yet lying directly along the line of flow from one to the other. Textiles reach their finished stage, for the most part, in clothing. The two main types using cotton cloth are shown in maps 19 and 20. The manufacture of men's cotton garments is very widely dispersed, with plants located in almost every city. Women's clothing, on the other hand, is strongly concentrated in New York. The chart with map 20 showing the States leading the industry in employment brings out the localization of this industry even more clearly than does the map of plant location. A major contributing factor in this instance is the fact that New York has been the style capital of the United States. In these two contrasting garment industries, men's cotton garments and women's cotton clothing, textiles manufactured and finished in the industrial area of New England and the southern piedmont move in the first instance into widely scattered industrial and consumer centers and in the second instance into New York and certain other cities.

Flows through other branches of the textile industry, wool, silk, rayon and their products, may be traced in appendix 16, maps A-21 to A-28. Taken as a whole the textile and clothing industries shown in this series of maps include 21.3 percent of all persons engaged in manufacturing. They account for a much larger proportion of the manufacturing population in the New England area, in the metropolitan area of New York and Philadelphia and especially in the southern States, where they represent 32, 36, and 38 percent respectively of the manufacturing population. To only a very minor degree are they to be found in that part of the industrial area which falls in the Great Lakes States.

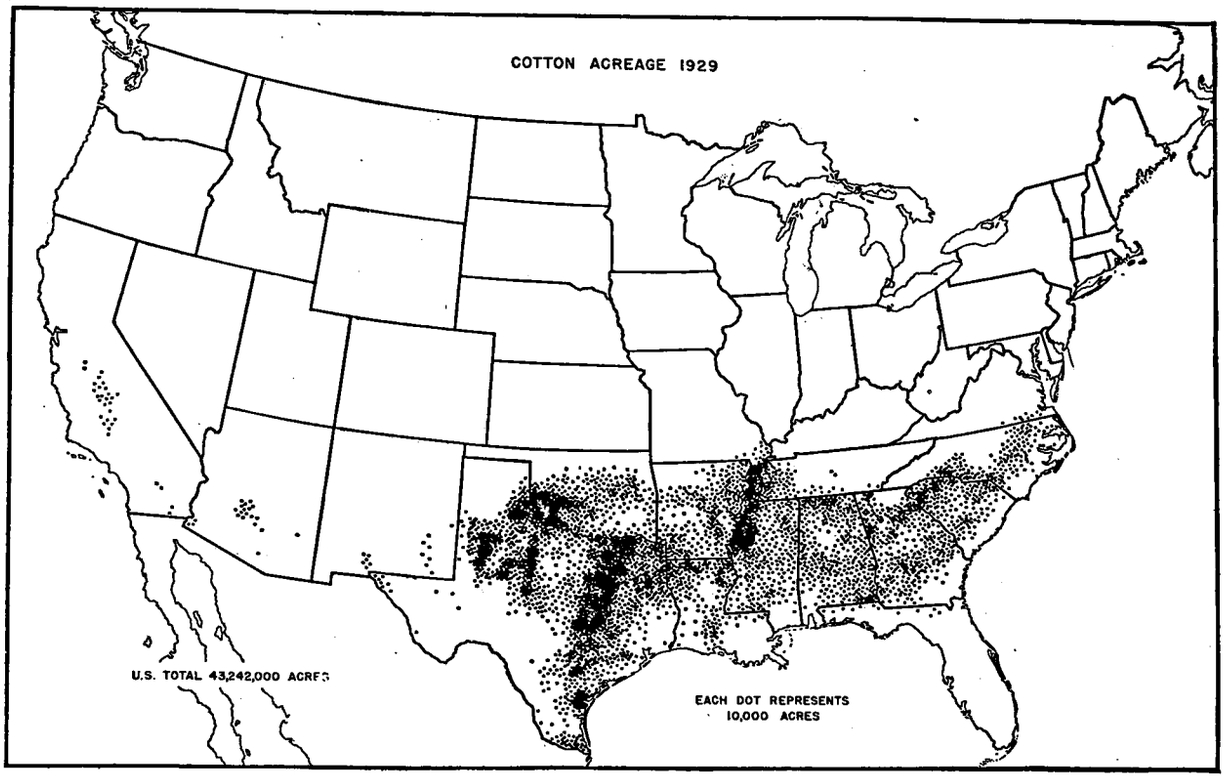
Iron and Steel

Industries producing iron and steel account for 30 percent of the gainfully employed in manufactures. In the various ramifications shown in maps 21–32, this major industry exemplifies virtually all elements in the geographical structure of American manufactures. In its first stage of mineral extraction and processing it is closely tied to its resource base of iron and coal. Map 24 shows the location of blast furnaces either in the center of the coal and iron fields of Pittsburgh and Birmingham, respectively, or at the points on water routes where coal and iron may be combined in the South Chicago and Gary region, Youngstown, Cleveland, and Buffalo. The remaining blast furnaces shown on the map represent either the remainder of the old forges which used to dot the countryside wherever the many small deposits of iron ore were located, or those that are located in the iron fields of Minnesota and Michigan or the coal fields of Colorado, or near the eastern seaboard and the sources of imported ore.

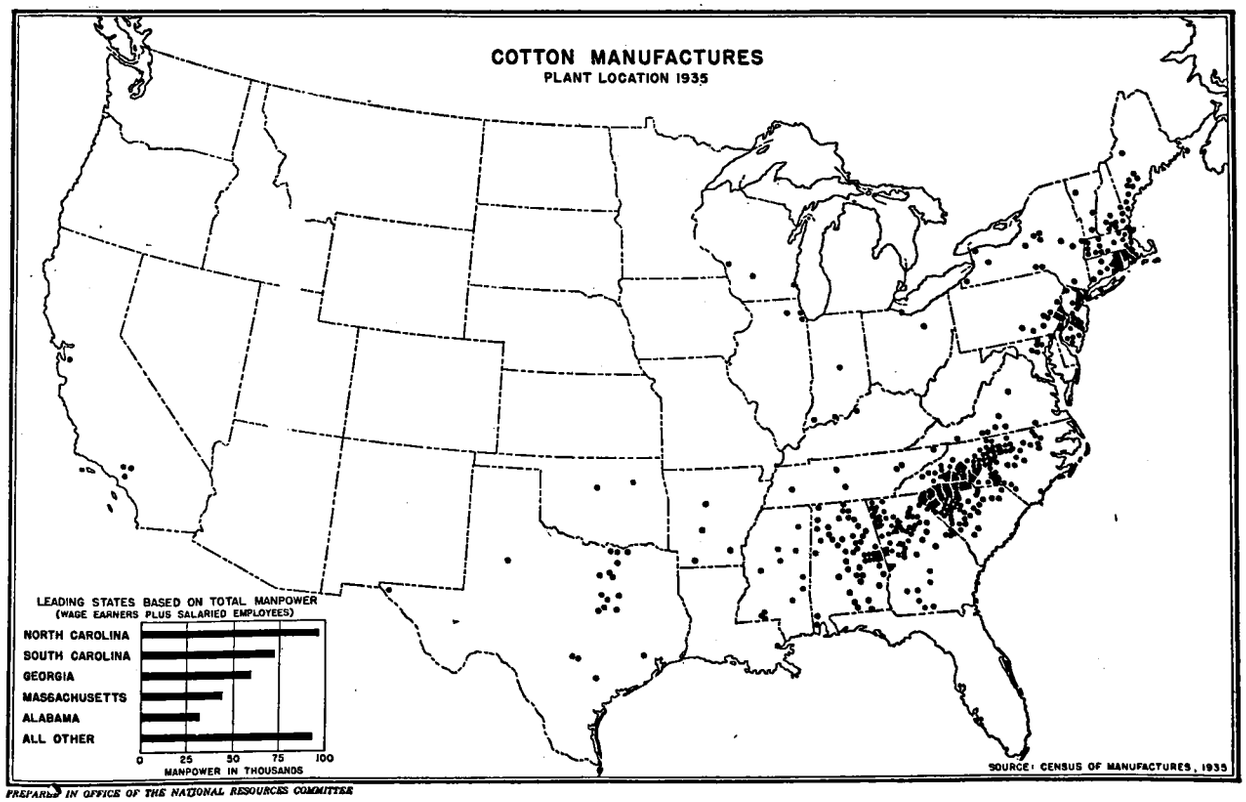
Blast furnace products move by successive stages toward consumers. Steel works and rolling mills shown in map 25 spread out around the blast-furnace centers. In addition they are to be found closer to the industrial centers of the northeast and scatteredly in the cities which lie along the eastern edge of the Great Plains from Fort Worth and Houston to Minneapolis and St. Paul. The next stage of fabrication represented by stamped and pressed metal products shows industry moving away from the blast furnace centers and spreading out through the industrial counties. At this stage the industry has moved away altogether from the Birmingham center. It has established marked concentration in New England and is strongly represented in the Great Lakes States. The maps of later stages present a very different picture. Sheet-metal works and especially machine shops represent the iron and steel industry in the final processes which are carried on of necessity close to the consumer. To a large extent those branches of the iron and steel industry involve the production of specialty articles on order and the fabrication of iron and steel to meet the particular needs of consumers.

Whereas a large part of the products of blast furnaces and rolling mills moves by successive stages out from the centers localized by the resources toward activity localized by the consumers, a substantial proportion of the industry's products goes into the type of manufacture which characterizes the industrial area. In fact it is very largely the industries fabricating steel which constitute the main industrial area, especially the Great Lakes region. Here is to be found the automobile industry,[4] map 29, and the manufacture of a wide variety of machinery, equipment, and other steel products. In particular, here are located those industries which serve industry itself, notably machine tools, shown in map 30. The other principal steel fabricating industries located in the industrial area are shown in appendix 16, maps A–29 to A–40. Other industries of

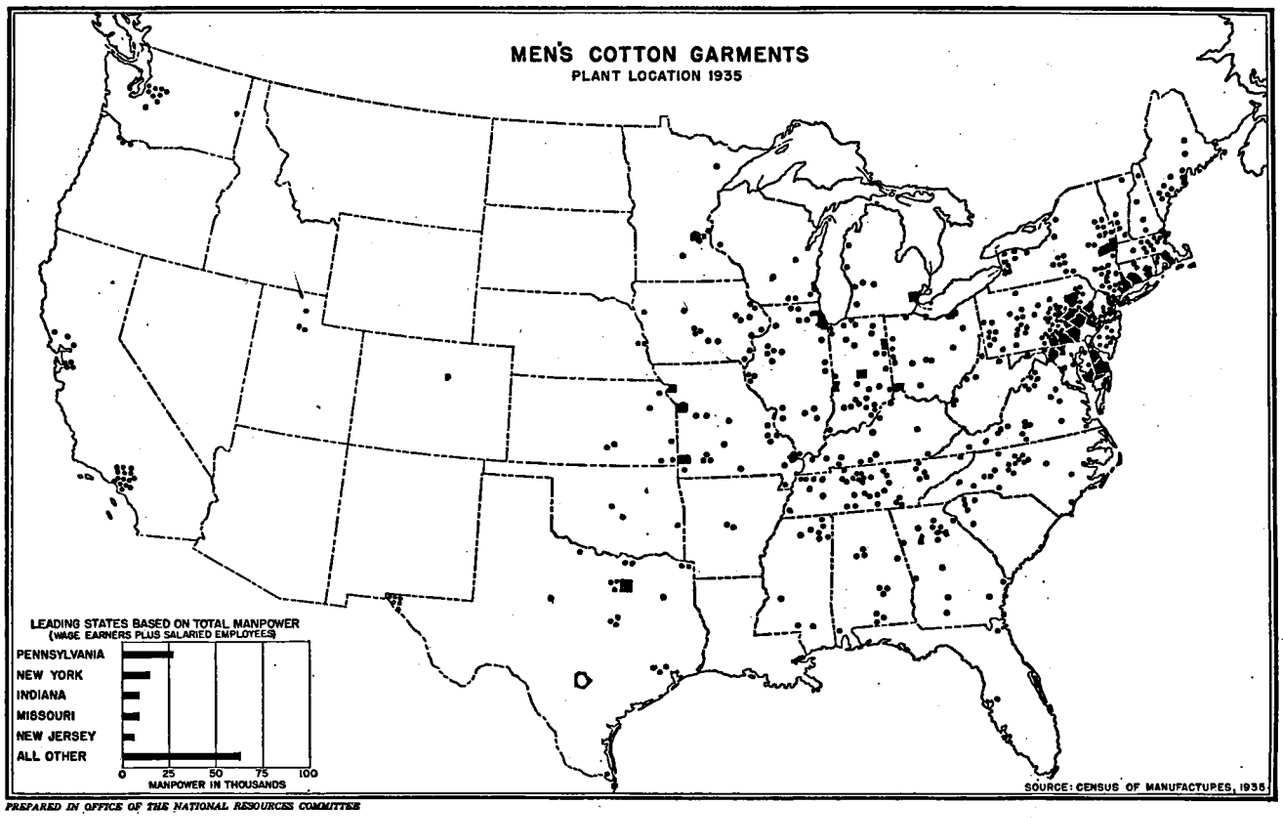
[4] Though the map shows a wide scattering of plants, those lying outside of the East North Central and Middle Atlantic States account for only 5 percent of the employment in the industry.



MAP 17 Source: Department of Agriculture

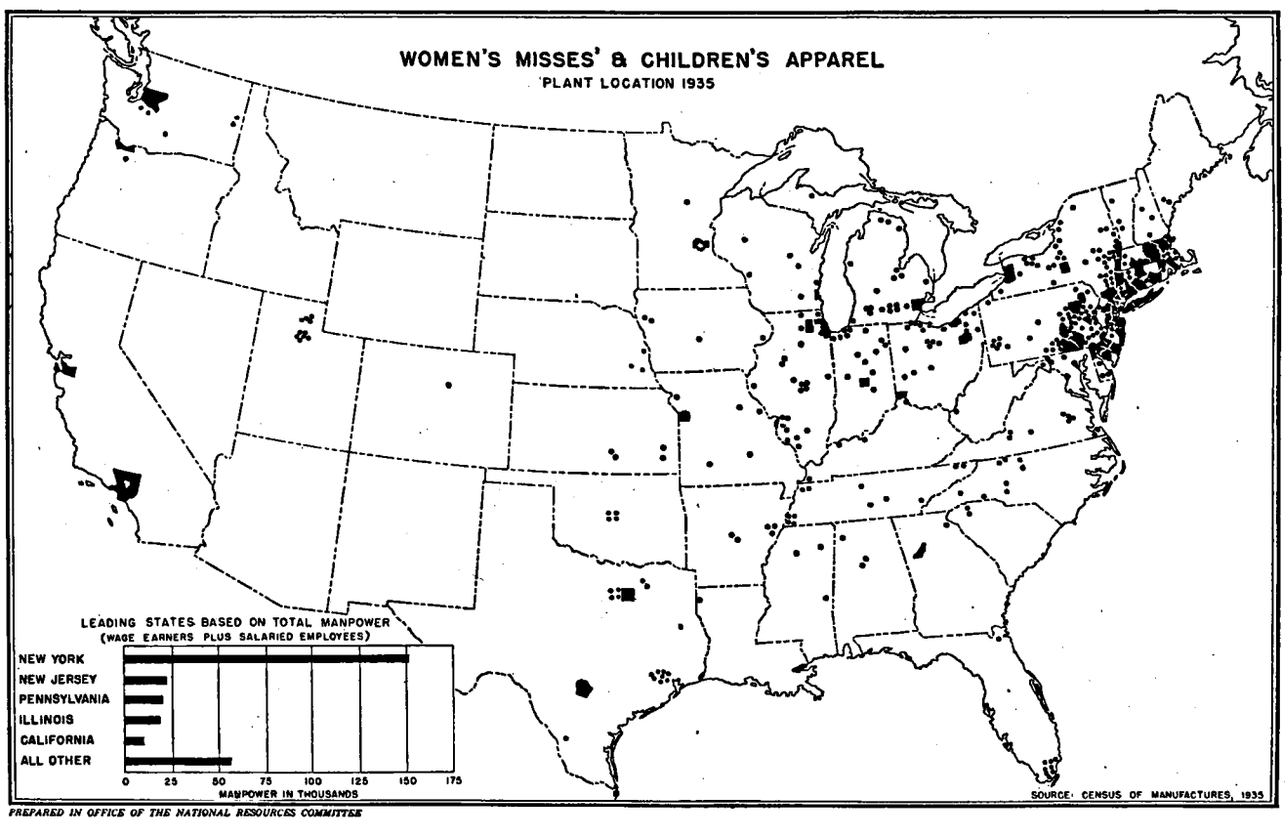


MAP 18



PREPARED IN OFFICE OF THE NATIONAL RESOURCES COMMITTEE

MAP 19



PREPARED IN OFFICE OF THE NATIONAL RESOURCES COMMITTEE

MAP 20

similar character are pulled out of the industrial area at least in part by the other activity with which they are associated. Two examples appear in maps 31 and 32. The textile machinery industry lies almost wholly outside of the area where most machinery is made, and is closely tied up with the location of textile factories in New England, New Jersey, and the South. Ship and boat building must perforce be carried on in proximity to oceans and waterways.

The iron and steel industry thus has a geographical structure which includes the exploitation or preliminary fabrication of bulky and heavy resources; successive stages in fabrication carried on largely within the industrial area but moving toward the consumers in later stages of fabrication; and branches of the industry involving special fabrication located close to the consumers. In addition there are the major machine producing industries which use steel and largely constitute the industrial area, automobiles, electrical appliances, engines, etc., together with the industrial service industries, notably machine tools. Finally, there are a series of industries fabricating steel in various stages which are mainly or partially located in the industrial area but which have been partly pulled out of that area by the fact that they serve agriculture, serve a particular industry such as textiles, have advantages to gain by proximity to the consumer, or are dominated by some other special factor.

Forest Products

The several branches of industry utilizing forest products present perhaps the clearest case of the flow from resource to consumer. One branch, the production and utilization of pulp, paper, and newsprint, is presented for illustration in maps 33–36.

The first process, that of converting wood into pulp, tends to occur close to the resource for this is a process which converts a bulky product into one easily transported. Map 33 shows the location of pulp mills in juxtaposition to those types of timber products which are suitable for this use. The manufacture of paper shown in map 34 to a slight extent follows the pattern of pulp mills but mainly moves into the industrial centers and toward the centers of population where paper products are used. Map 35 and especially map 36, showing the use of paper for printing and publishing, repeat the map of consumer distribution. As would be expected the printing and publishing of books shows a greater concentration in the cities than does the printing and publishing of newspapers and periodicals. The latter is hardly distinguishable from the map of consumer distribution. Other wood-using industries and supplementary paper-using industries are shown in appendix 16, maps A–41 to A–48.

These sample series for selected agricultural, textile, iron and steel, and forest products industries give a representative picture of the characteristics of industrial location. The more extensive series in appendix 16 give a much more complete picture but not one which differs significantly from that which emerges from the industries selected for illustration.

Major Industrial Areas

The concentration of industrial activity shown in map 6 has been emphasized by the pattern of industrial location which stands out in the map series for individual industries and in the maps contained in appendix 16. The areas of concentration comprise the 33 industrial cities with the metropolitan areas surrounding them, designated by the Census of 1930 as "industrial areas," and 100 additional industrial counties.[5] A closer examination of these areas reveals their central importance in the geographical structure of the economy.

The proportion of the total population living in these areas has grown steadily, as industry has played an increasingly important role. In 1870, 23 percent of the population of the United States was living within the 33 census areas. In 1930, the proportion was 35 percent. Figures are not available with which to show the roughly corresponding increase in the proportion of all gainfully employed located in these areas. The location of manufacturing wage earners, however, shows clearly that the proportionate growth in population in these areas was a reflection of the shift from agriculture to industry. Almost as large a proportion of the manufacturing wage earners were located in these areas in 1870 as at present, 53.3 percent in 1870 as compared with 55.5 percent in 1935.[6]

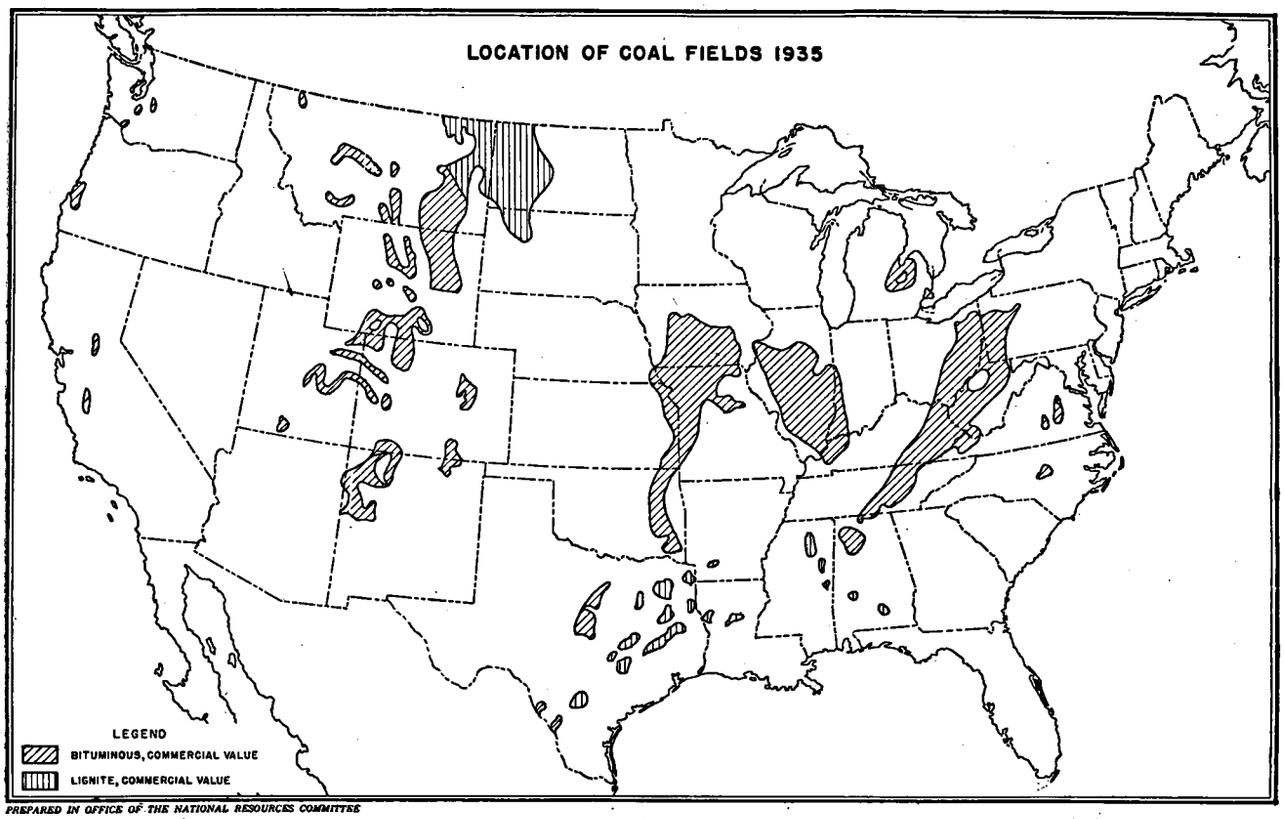
The pattern of manufacturing activity had already largely assumed its present form by the latter half of the nineteenth century. The above evidence of the proportionate stability of wage jobs in the 33 census areas is confirmed by data for the 200 industrial counties. In 1899, the earliest year for which data on these 200 counties are available, 73.2 percent of all manufacturing wage jobs were located in these counties. In 1935, the proportion was 74.4[7] percent. Chart I shows for 13 of the largest industrial areas, for the 33 industrial areas, and for the 200 industrial counties the proportion of all manufacturing wage earners since 1870.

The development of the major industrial area of the northeast, and the secondary areas of the southern Piedmont and the west coast, has been largely the product of history, conditioned by the location of resources.

[5] The 33 areas include 100 of the 200 counties shown on map 6, plus 11 small counties included in metropolitan areas which are not included in the 200 industrial counties.

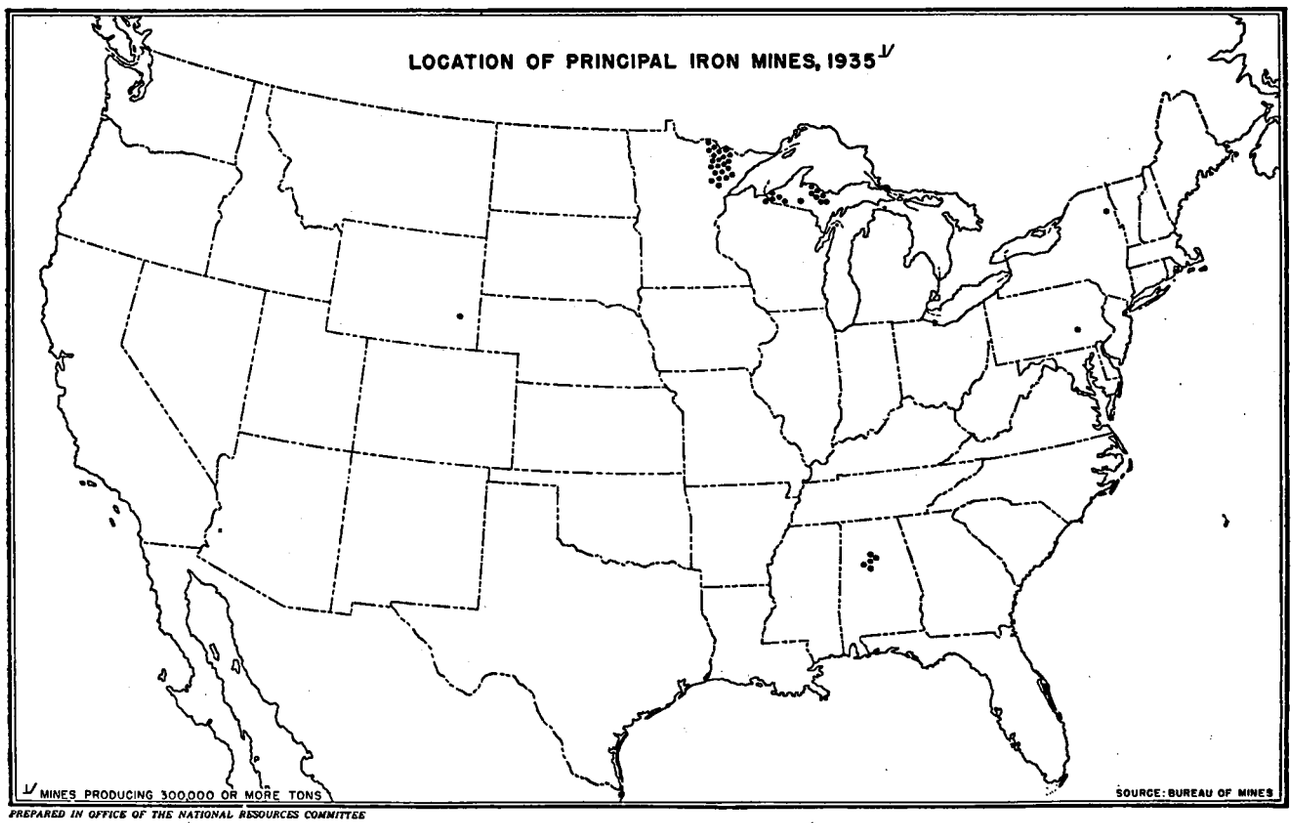
[6] *Growth of American Manufacturing Areas*, Glenn E. McLaughlin, Philadelphia, 1938.

[7] *Is Industry Decentralizing*, Daniel B. Craemer, Philadelphia, 1935.

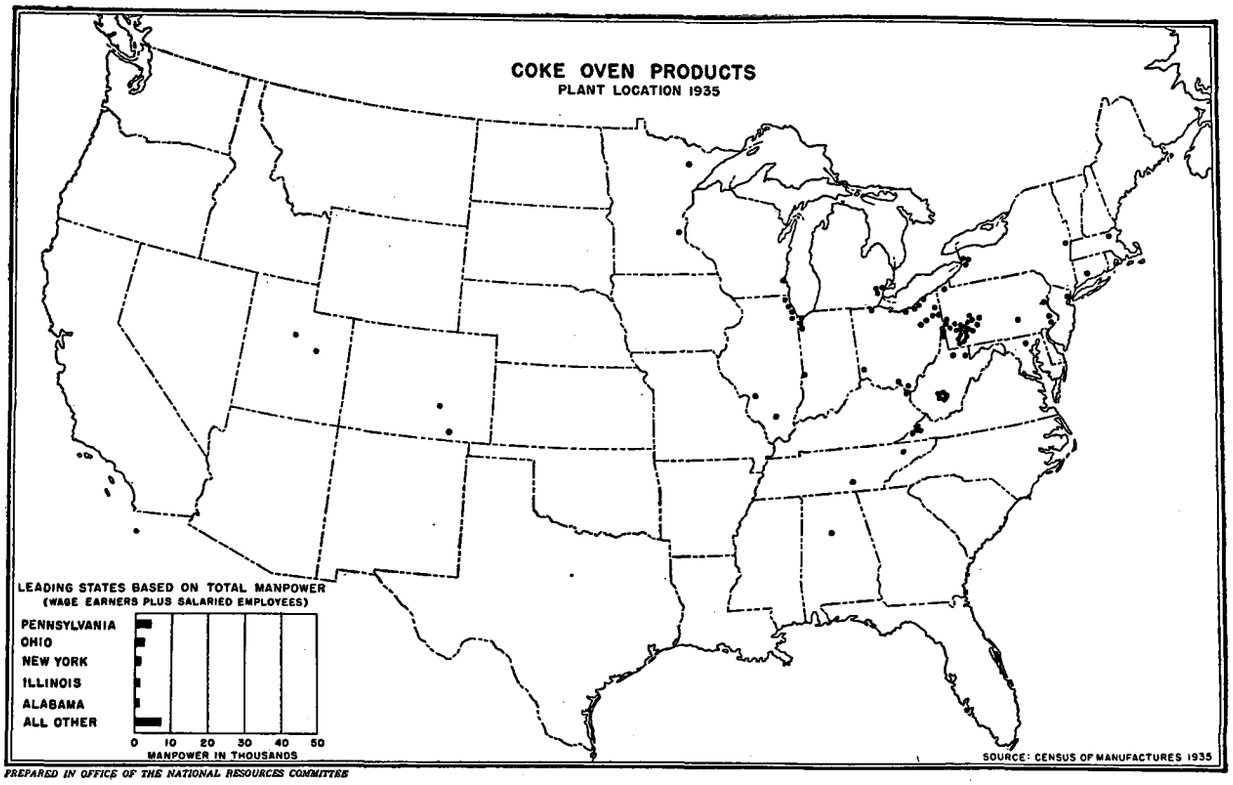


MAP 21

Source: Bureau of Mines.

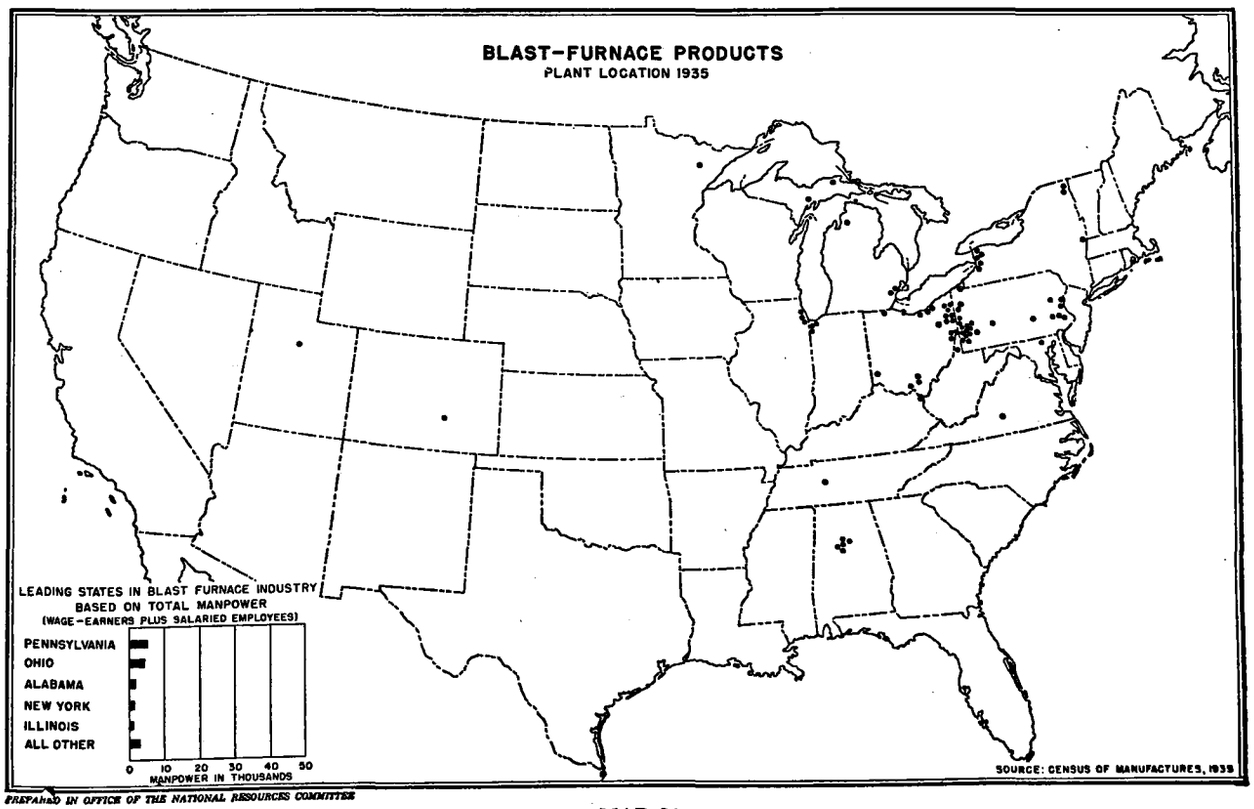


MAP 22



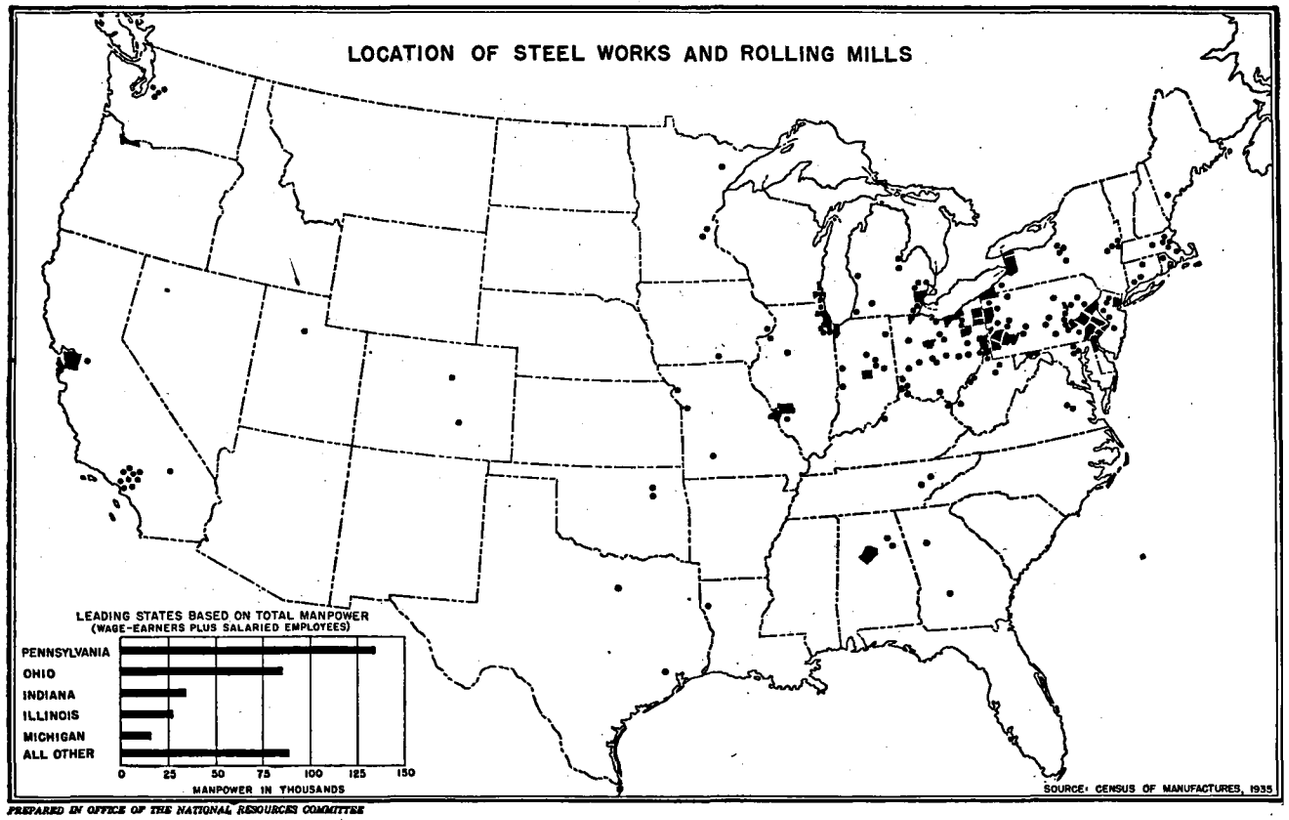
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MAP 23

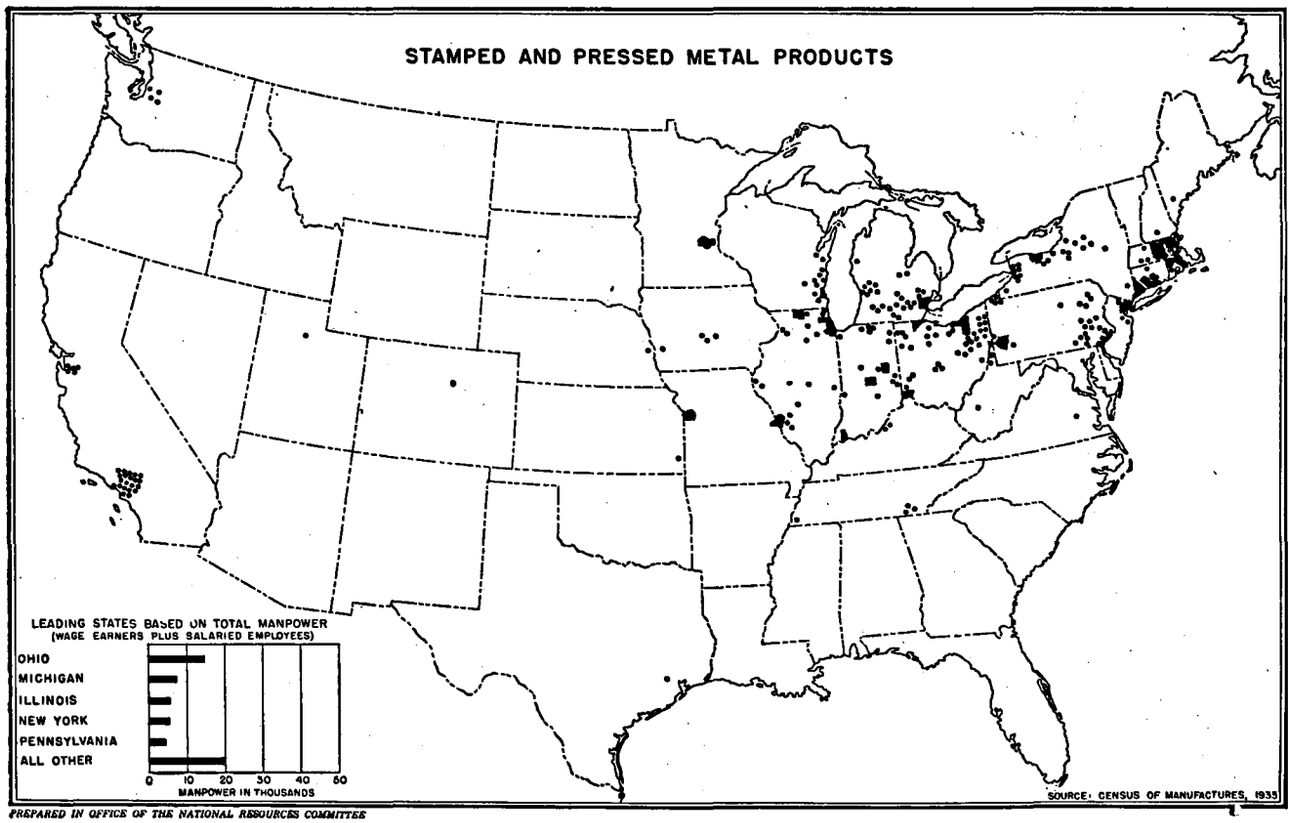


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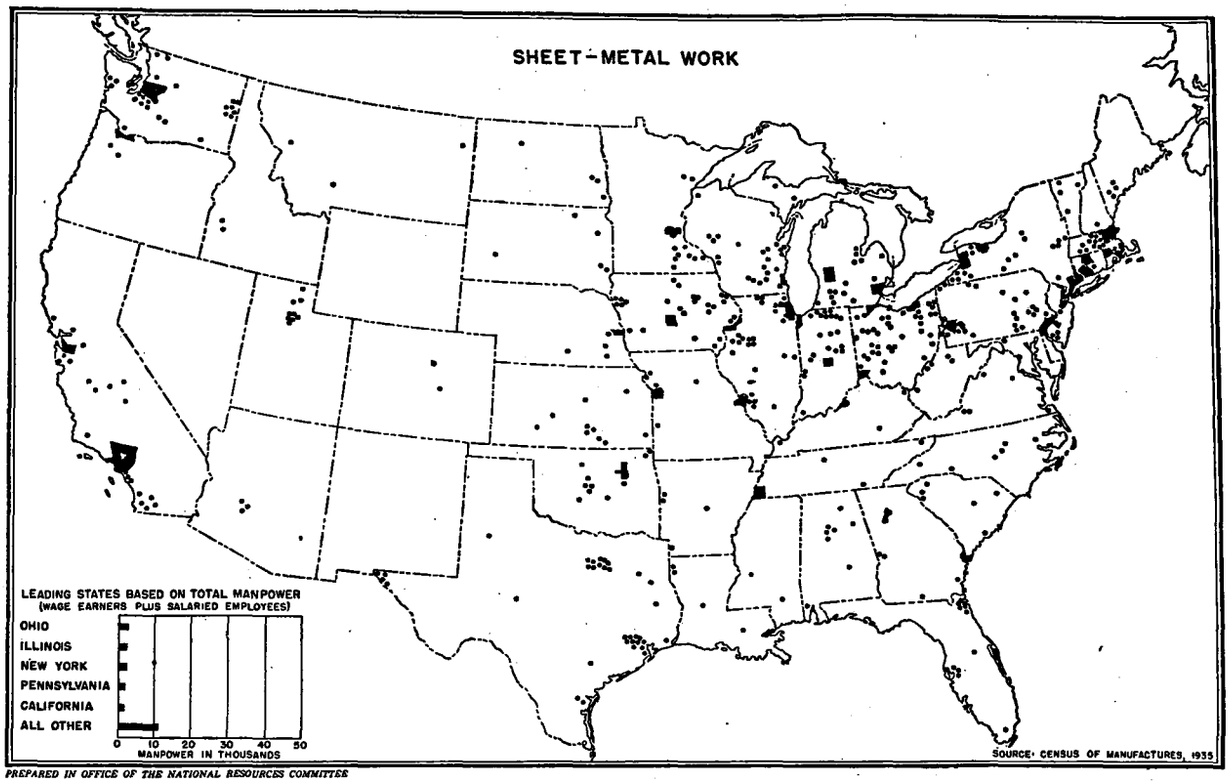
MAP 24


LOCATION OF STEEL WORKS AND ROLLING MILLS
LEADING STATES BASED ON TOTAL MANPOWER
(WAGE-EARNERS PLUS SALARIED EMPLOYEES)
PENNSYLVANIA
OHIO
INDIANA
ILLINOIS
MICHIGAN
ALL OTHER
0 25 50 75 100 125 150
MANPOWER IN THOUSANDS
SOURCE: CENSUS OF MANUFACTURES, 1935
PREPARED IN OFFICE OF THE NATIONAL RESOURCES COMMITTEE

MAP 25

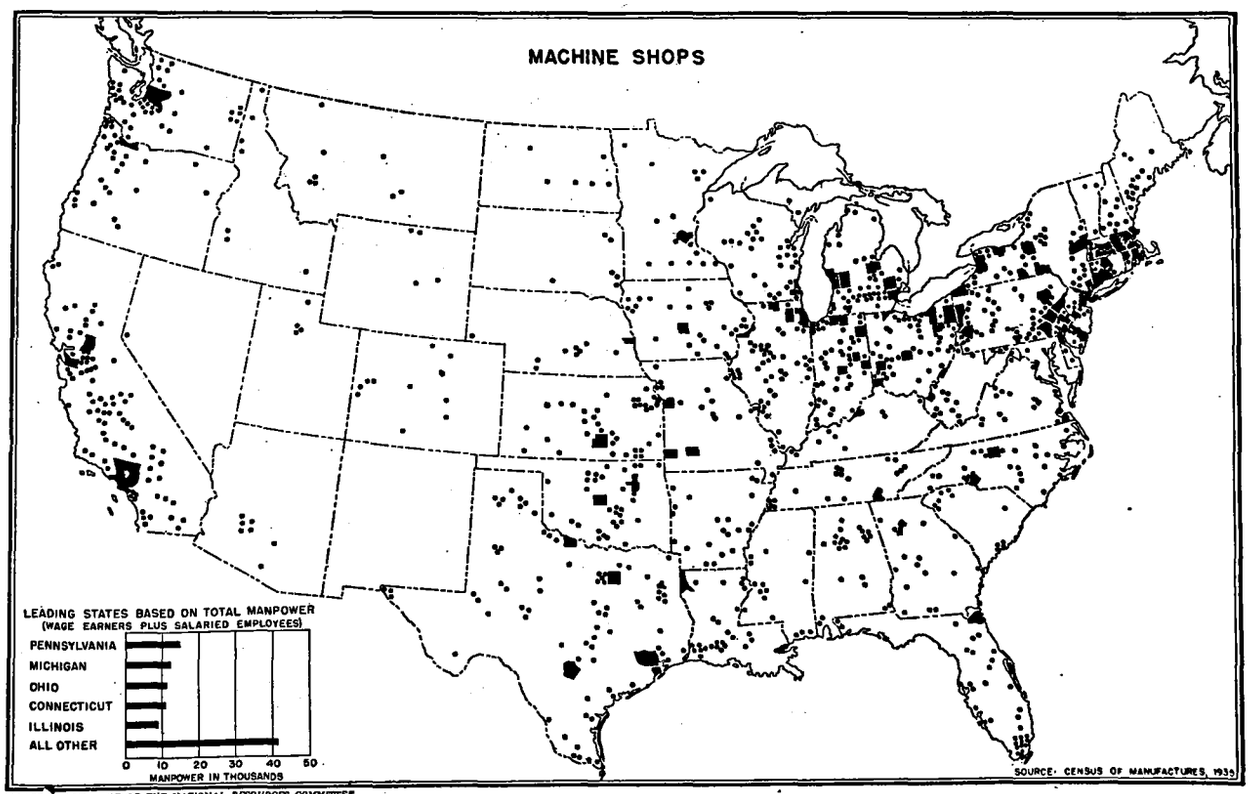

STAMPED AND PRESSED METAL PRODUCTS
LEADING STATES BASED ON TOTAL MANPOWER
(WAGE EARNERS PLUS SALARIED EMPLOYEES)
OHIO
MICHIGAN
ILLINOIS
NEW YORK
PENNSYLVANIA
ALL OTHER
0 10 20 30 40 50
MANPOWER IN THOUSANDS
SOURCE: CENSUS OF MANUFACTURES, 1935
PREPARED IN OFFICE OF THE NATIONAL RESOURCES COMMITTEE

MAP 26



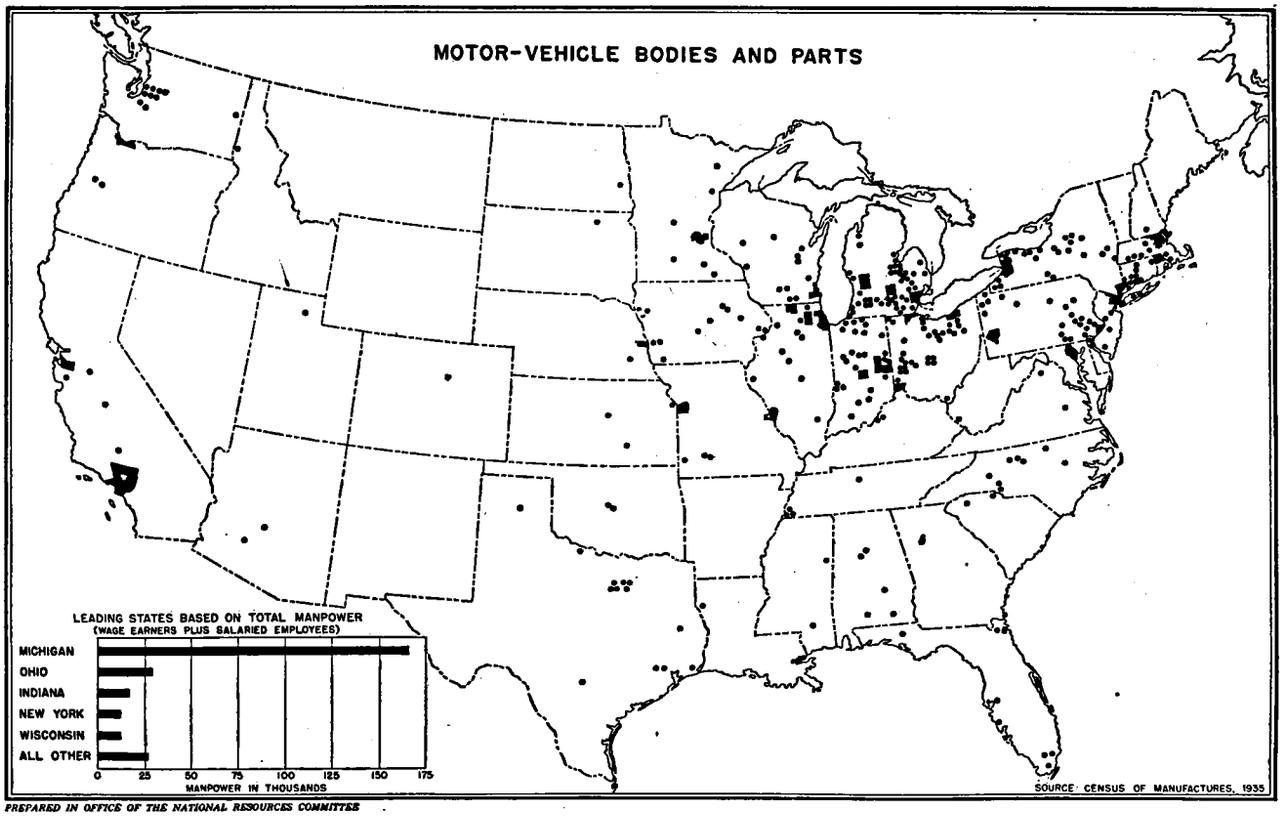
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MAP 27

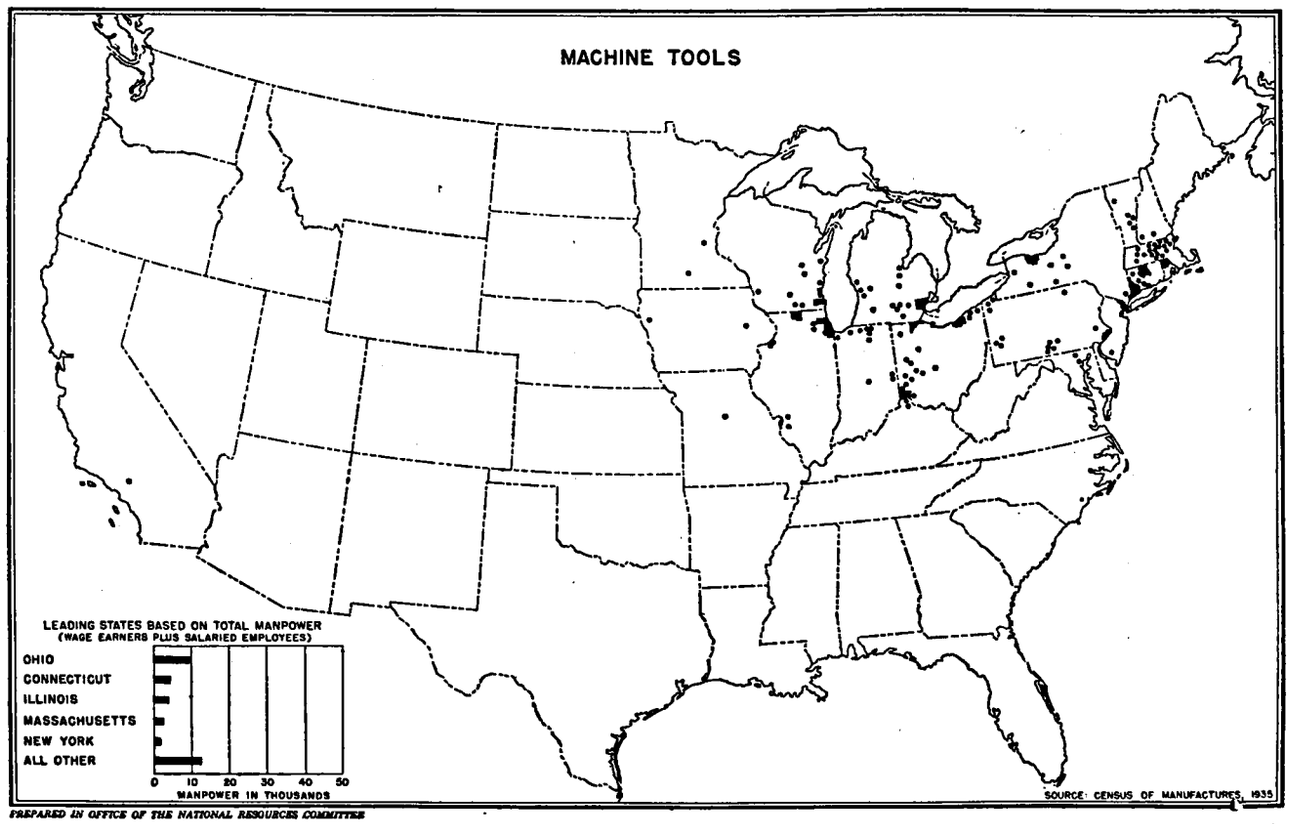


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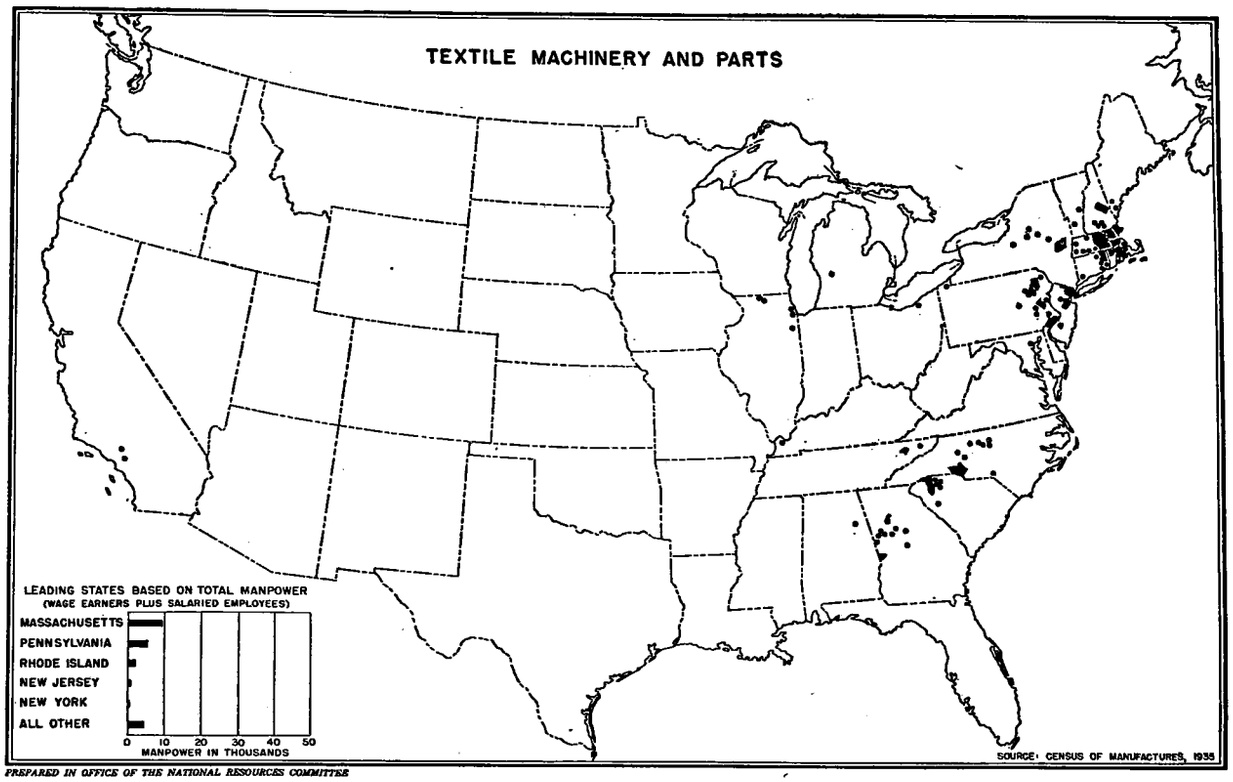
MAP 28


MOTOR-VEHICLE BODIES AND PARTS
LEADING STATES BASED ON TOTAL MANPOWER
(WAGE EARNERS PLUS SALARIED EMPLOYEES)
MICHIGAN
OHIO
INDIANA
NEW YORK
WISCONSIN
ALL OTHER
0 25 50 75 100 125 150 175
MANPOWER IN THOUSANDS
SOURCE: CENSUS OF MANUFACTURES, 1935
PREPARED IN OFFICE OF THE NATIONAL RESOURCES COMMITTEE

MAP 29

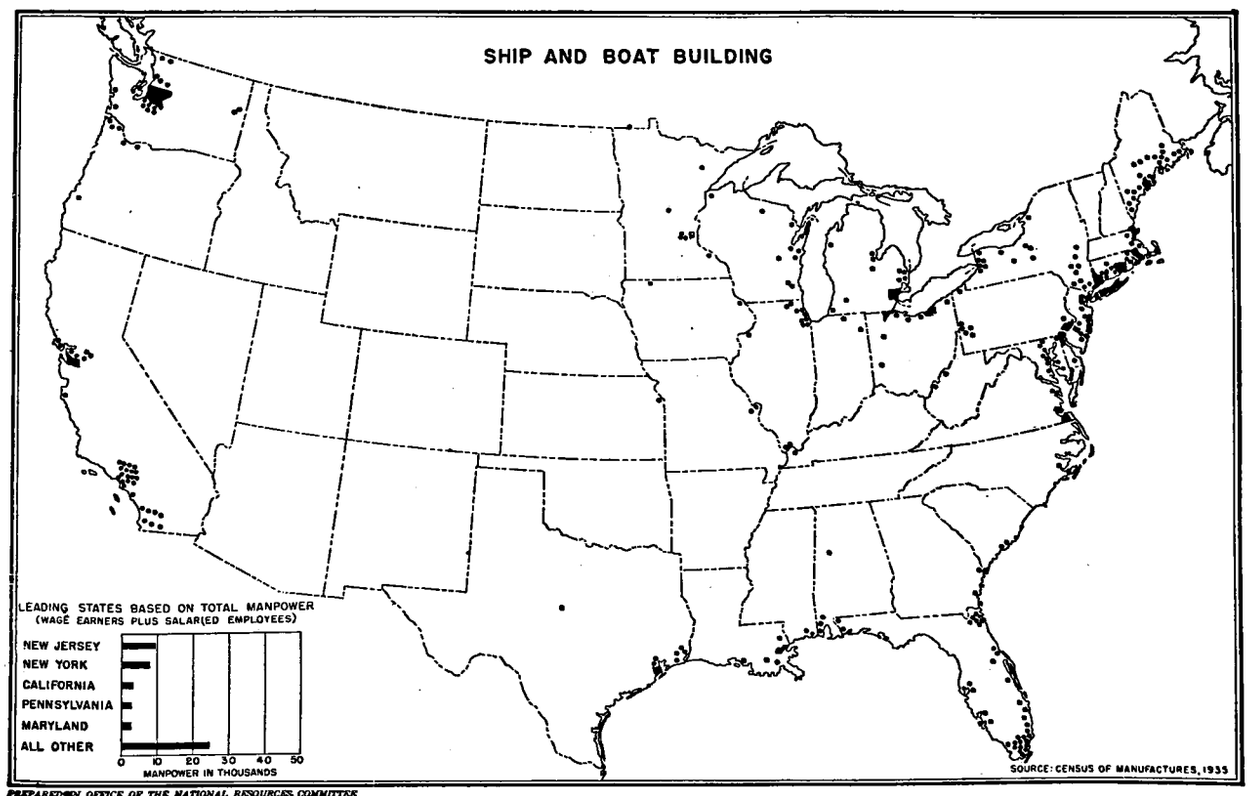

MACHINE TOOLS
LEADING STATES BASED ON TOTAL MANPOWER
(WAGE EARNERS PLUS SALARIED EMPLOYEES)
OHIO
CONNECTICUT
ILLINOIS
MASSACHUSETTS
NEW YORK
ALL OTHER
0 10 20 30 40 50
MANPOWER IN THOUSANDS
SOURCE: CENSUS OF MANUFACTURES, 1935
PREPARED IN OFFICE OF THE NATIONAL RESOURCES COMMITTEE

MAP 30



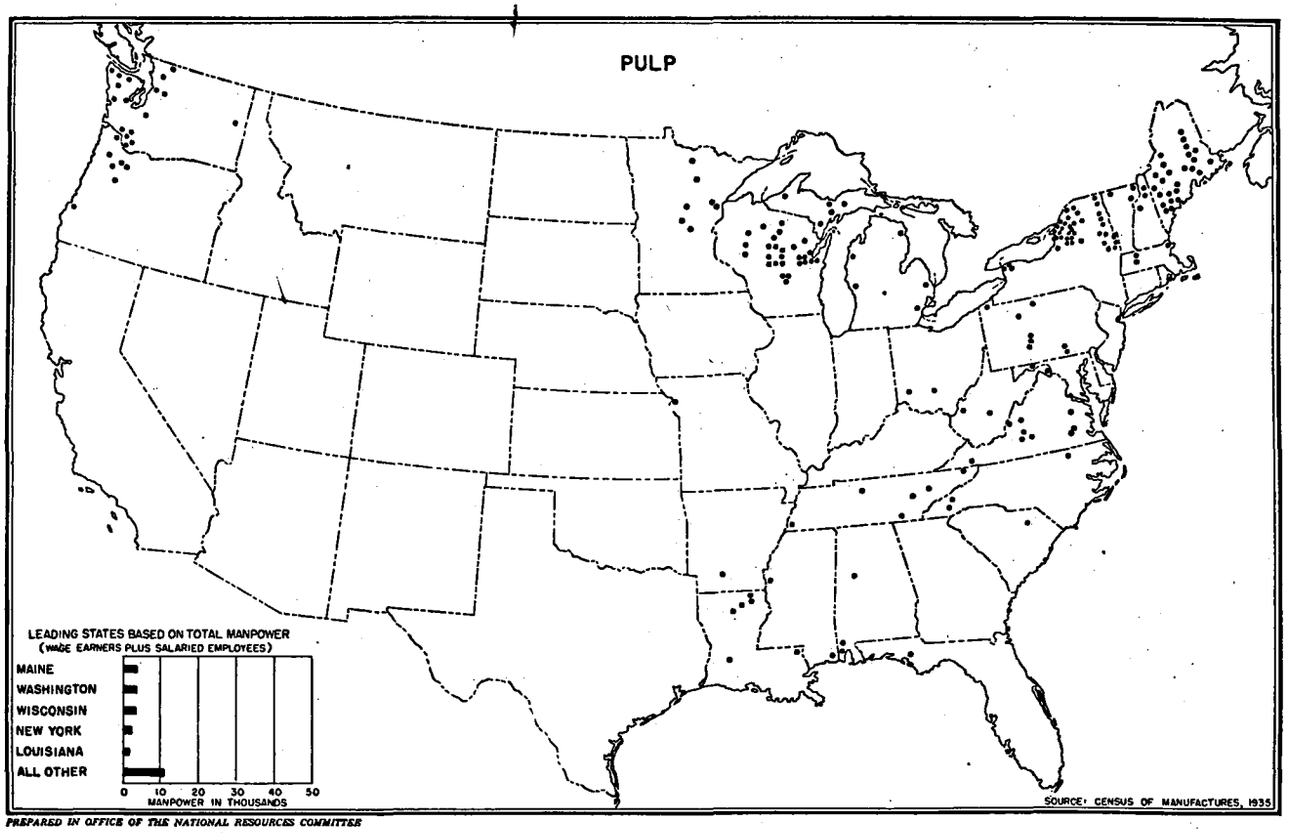
PREPARED IN OFFICE OF THE NATIONAL RESOURCES COMMITTEE

MAP 31



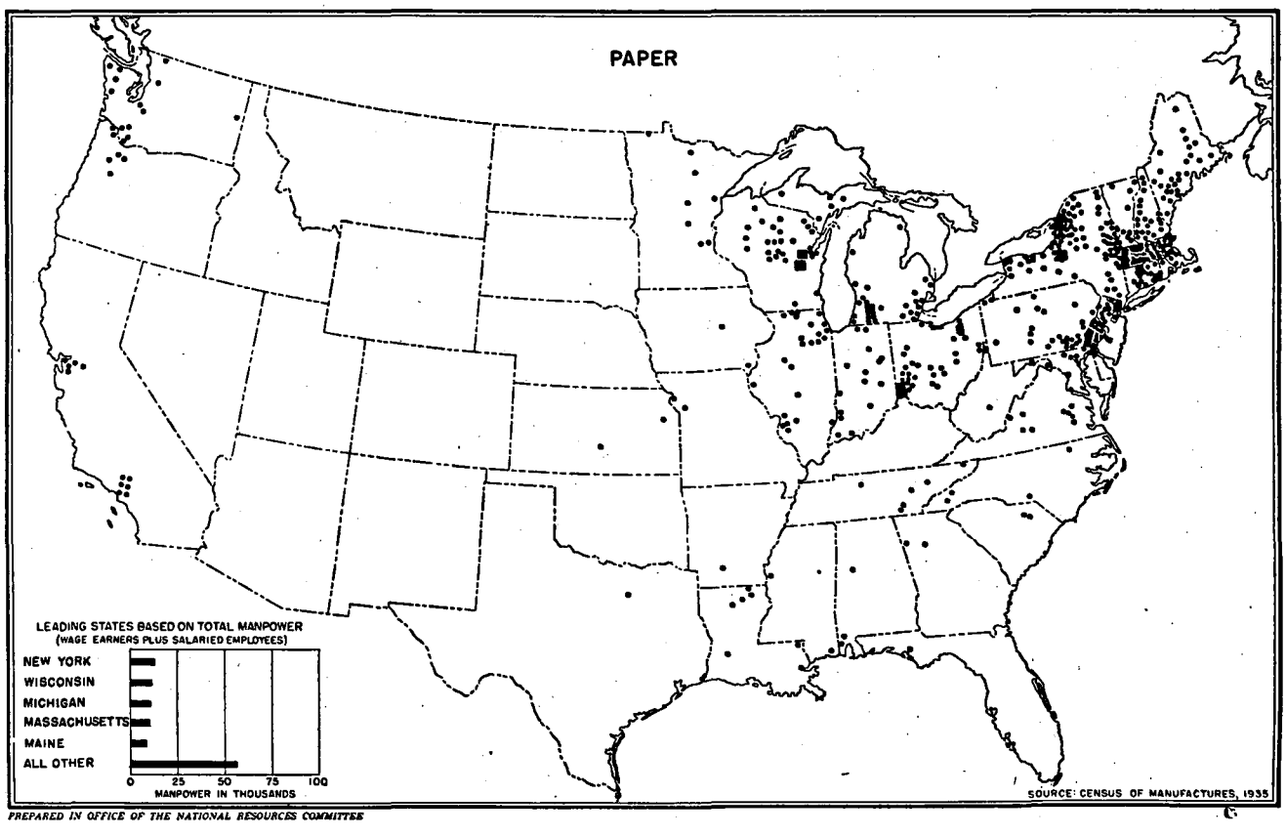
PREPARED IN OFFICE OF THE NATIONAL RESOURCES COMMITTEE

MAP 32



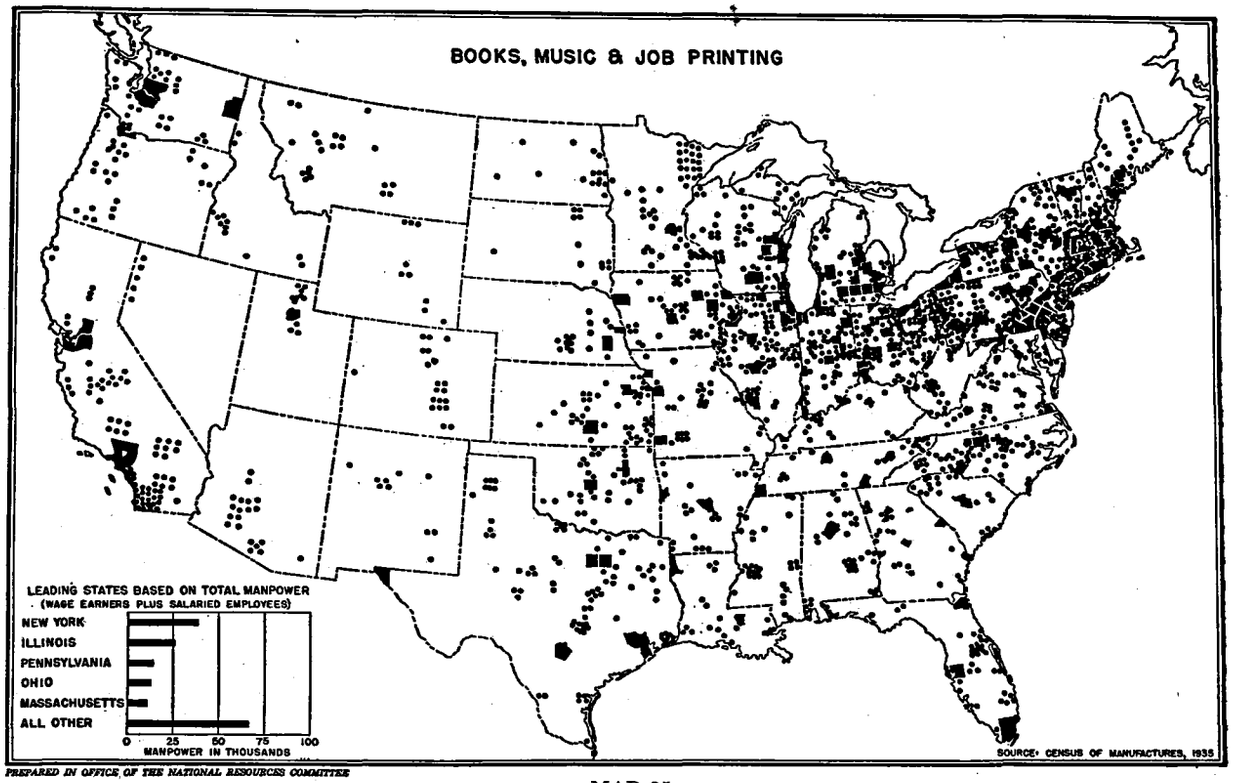
PREPARED IN OFFICE OF THE NATIONAL RESOURCES COMMITTEE

MAP 33

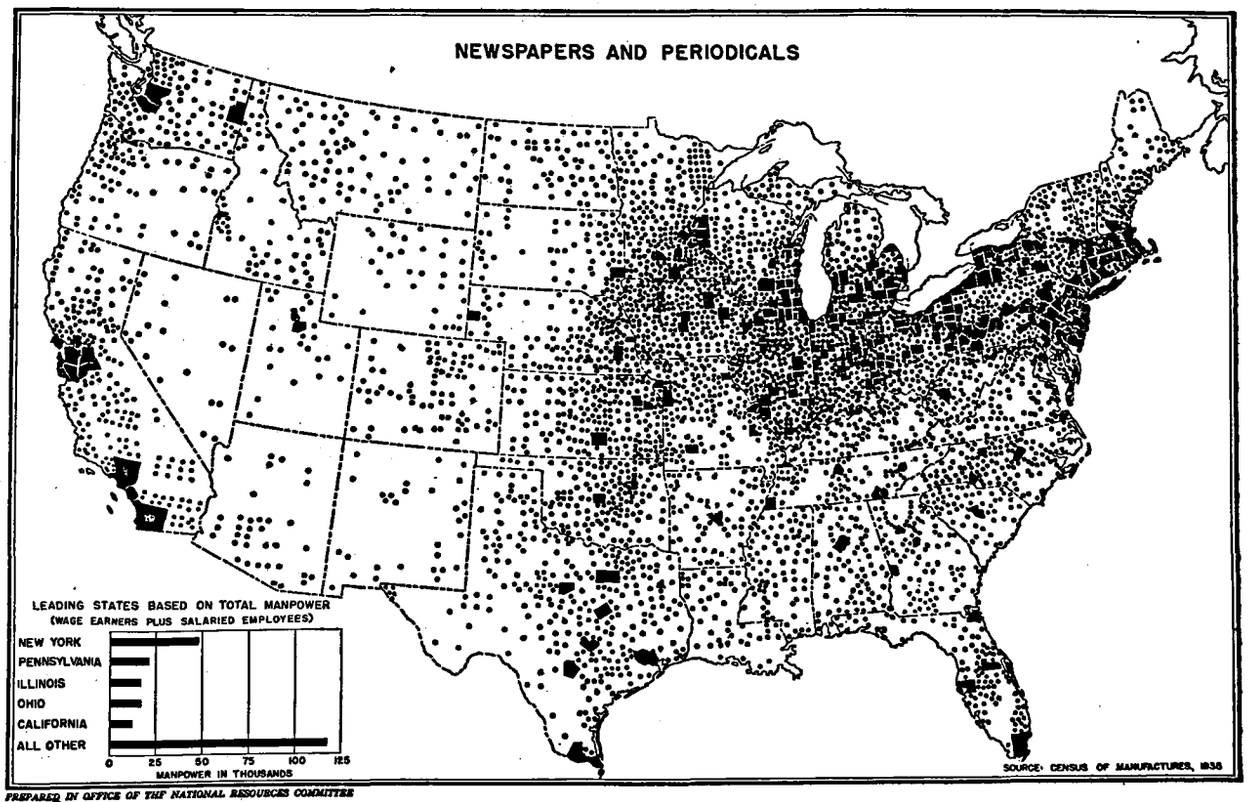


PREPARED IN OFFICE OF THE NATIONAL RESOURCES COMMITTEE

MAP 34


BOOKS, MUSIC & JOB PRINTING
LEADING STATES BASED ON TOTAL MANPOWER
(WAGE EARNERS PLUS SALARIED EMPLOYEES)
NEW YORK
ILLINOIS
PENNSYLVANIA
OHIO
MASSACHUSETTS
ALL OTHER
0 25 50 75 100
MANPOWER IN THOUSANDS
SOURCE: CENSUS OF MANUFACTURES, 1935
PREPARED IN OFFICE OF THE NATIONAL RESOURCES COMMITTEE

MAP 35


NEWSPAPERS AND PERIODICALS
LEADING STATES BASED ON TOTAL MANPOWER
(WAGE EARNERS PLUS SALARIED EMPLOYEES)
NEW YORK
PENNSYLVANIA
ILLINOIS
OHIO
CALIFORNIA
ALL OTHER
0 25 50 75 100 125
MANPOWER IN THOUSANDS
SOURCE: CENSUS OF MANUFACTURES, 1935
PREPARED IN OFFICE OF THE NATIONAL RESOURCES COMMITTEE

MAP 36

The location of water power in New England, of population in commercial centers on the coast, of coal and iron resources in the Pittsburgh and Great Lakes area, and, more recently, of available manpower and electricity in the southern region, have contributed to the development of these manufacturing areas. Commercial cities located at strategic points along routes of transportation have constituted nuclei for the development of industries serving the consumer and, to a certain extent, of more footloose industries directly tied neither to resources nor to markets.

Development of these industrial areas has been a cumulative process. Within these areas are to be found industries, such as the furniture industry in Michigan, whose original location was largely determined by the resource used for raw material but which has remained in its old location though Michigan forests no longer constitute its main supply of wood. Skilled workers, a marketing system in the locality, heavy investment in plant and equipment, the presence of subsidiary industries, all contribute to hold such an industry in its historical abode though its source of raw materials may shift. The automobile industry owes its extreme localization in the Detroit area largely to the fact that it is the successor to an industry, carriage making, whose location, like that of furniture, rested on proximity to the Michigan forest resources. Other industries, such as the rubber industry in Akron, Ohio, or the glove industry in Gloversville, N. Y., are more clearly the result of the sheer accident that the inventor or promoter happened to be located at the place in question.

The distinctive characteristics of individual industrial areas and their relative rates of growth depend in part on the kinds of industries which are located there.[8] When particular areas are considered, their growth, even within the same general region, shows conspicuous differences, e. g., the contrast between the Cincinnati and Akron areas, between Detroit and Buffalo, or between Worcester and Hartford. Areas which have grown rapidly have tended to be those dominated by new industries, while wide diversification has tended to accompany lower rates of growth.

Consumers' goods, especially nonessential goods, have shown more rapid and conspicuous rates of growth than producers' goods and the areas which are primarily consumers' goods areas have grown correspondingly. Areas dominated by producers' goods have shown a slower and more even development. The rate of growth of nondurable consumer goods appears to be related primarily to the growth of population, and to some extent to the transfer of industries from the home. The rate of growth of consumers' durable goods has been more rapid and less dependent on such a slow and stable factor as population growth. Shifts in consumer demand, particularly for nonessential and durable goods, have contributed markedly to the growth of particular areas, e. g., the Rochester area in which the popularity of photography has contributed to the growth of that industrial area.

Other factors appear to condition both the rate of growth and the possible ultimate size. Whereas the natural advantages of an area may provide an ultimate limit to the size of the area, changes in methods of exploiting natural resources and stages in the exploitation of particular resources make a difference in rate of growth. The market area served by an industrial area may be of major importance in setting a limit to the possible development of industries which must be near consumers, but for industries serving a national market the whole nation constitutes the market area. Differences in cost among areas are unstable as the increasing use of power tends to make differences in cost of power more important relative to differences in other costs, and as changes in methods of production shift the relative importance of other items such as wages and materials. Transportation costs have always been of major importance. It is notable that areas of most rapid industrial growth have been on the periphery of the country, the Atlantic and Pacific coasts, the Great Lakes region and the Gulf.

Distinctive development of different industrial areas, moreover, may reflect the intangible factors of leadership, inventive effort, promotional activity, and management. Areas which are administered from the outside, such as the Johnstown steel district, are poorly adapted to develop the kind of leadership likely to contribute to growth. The extent to which the financial supremacy of New York influences the various industrial areas in the country may contribute importantly to differential developments in those areas. Similarly the presence of a tradition of invention, e. g., in New England and certain of the northeastern areas, provides a more rather than a less favorable field for the development of new industries. Some areas, most conspicuously Los Angeles, owe their development substantially to their promotional activity. There may, moreover, be very considerable differences in management. In the newer areas, young men with drive and imagination tend to be the most conspicuous type. In the older areas, men who have been trained as junior executives in large corporations hold corresponding positions. The type of development to be expected from the one and the other of these types of managers may differ markedly.

It is clear that the major shifts in industrial location have not been away from the areas which developed industrially more than 50 years ago. They have,

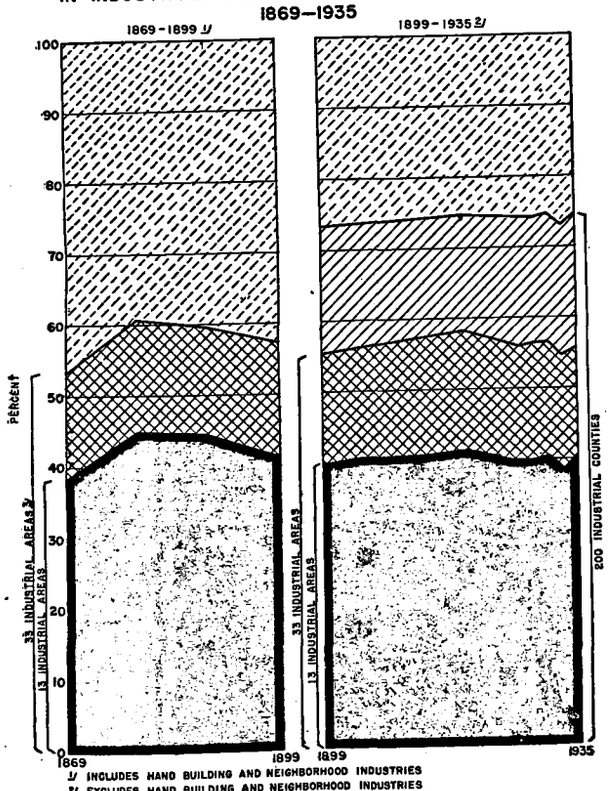
[8] The following analysis is summarized from *Growth of American Manufacturing Areas* by Glenn E. McLaughlin, Philadelphia, 1938.

rather, been in two directions: first, for each of these areas a shift has taken place from the central city to the surrounding region; secondly, there have been shifts in the relative position of one or another of these industrial areas as the rate of growth of older areas or areas characterized by relatively stable or declining industries has become slower while newer areas and newer industries have leaped ahead.

The tendency for industry to leave the central cities and seek the industrial suburbs and adjoining counties is apparent in each of the major areas and in the industrial counties taken together. In each of the 13 large metropolitan areas included in chart I, the proportion of the manufacturing wage earners located in the central city of the area dropped steadily, or almost steadily, from 1870 to 1935. This was true of cities such as Cleveland which in 1870 contained 91.6 percent of the manufacturing wage earners in the Cleveland area but only 81.5 by 1930, and of cities such as Boston which contained only 29.7 percent of the wage earners in its area in 1870 and only 22.7 percent in 1930. For the 13 areas taken together, the proportion of wage earners located in the central cities dropped from 69 percent in 1870 to 59 percent in 1935. Within the 200 industrial counties, similarly, 54 percent of manufacturing wage jobs were located in the principal cities in 1899 and 44.6 percent in 1935.

CHART I

PROPORTION OF MANUFACTURING WAGE EARNERS IN INDUSTRIAL AREAS AND INDUSTRIAL COUNTIES 1869—1935



1/ INCLUDES HAND BUILDING AND NEIGHBORHOOD INDUSTRIES
2/ EXCLUDES HAND BUILDING AND NEIGHBORHOOD INDUSTRIES
3/ 33 AREAS CONTAIN 100 OF 200 COUNTIES AND 11 COUNTIES NOT INCLUDED IN 200

Source: *Is Industry Decentralizing?* Daniel B. Creamer, Philadelphia, 1935; and *Growth of American Manufacturing Areas*, Glenn E. McLaughlin, Philadelphia, 1938, p. 100.

Examination of the trends within the 200 industrial counties from 1899 to 1935 (using the industrial counties as bounded in 1930 as a basis) reveals that counties in certain parts of the area have been losing their proportion of wage earners steadily while others have been increasing their proportion. As one would expect, the counties lying within Massachusetts and Rhode Island and in New York, Pennsylvania, and Delaware declined in relative importance. On the other hand the counties which have consistently shown an increase in the proportion of industrial-county wage earners within their borders fall in three distinct areas, the State of Michigan, the Southern States of West Virginia, North Carolina, Tennessee, and Texas and the State of California. The trend within the area is even more clearly to be seen from the times at which counties within each State contained the largest proportion of industrial-county wage earners that they did at any time. States whose industrial counties were at their highest relative position in 1899 include not only the New England and Middle Atlantic States but those containing industrial counties located along the line of the Ohio-Mississippi River traffic, Louisville, St. Louis, New Orleans, Minneapolis, and St. Paul, and also the mining area around Denver, Colorado.

In contrast to these are the counties in the Middle Western States whose proportionate peak was reached in 1929, namely counties in Ohio, Indiana, Illinois, and Wisconsin. The relative position of the counties in all the Southern States was strongest at the bottom of the depression in 1933. In 1935 Michigan and California occupied the highest relative position which they had at any time.

TABLE II.—*Percentage distribution of manufacturing wage jobs within 200 industrial counties, 1899, 1929, 1935*

Industrial counties in—	1899 *percent*	1929 *percent*	1935 *percent*
New England	20.68	14.77	14.54
Middle Atlantic	43.90	37.06	36.40
East North Central	22.03	31.17	31.10
Northeast	86.61	83.00	82.04
South Atlantic	3.40	4.86	6.17
East South Central	2.57	2.83	2.91
West South Central	.29	.90	.94
South	6.26	8.59	10.02
West North Central	4.50	3.80	3.43
Mountain	.28	.25	.21
Pacific	2.35	4.36	4.30
West	7.13	8.41	7.94
Total 200 industrial counties	100.0	100.0	100.0

Source: *Is Industry Decentralizing?* Daniel B. Creamer, Philadelphia, 1935; and *Growth of American Manufacturing Areas*, Glenn E. McLaughlin, Philadelphia, 1938, p. 100.

Although the older areas have declined in relative importance they remain the main centers of manufacturing. Table II shows the regional distribution of wage earners within industrial counties in 1899, 1929, and in 1935. New England, the Middle Atlantic, and the East North Central regions combined, i. e., the northeast industrial area, accounted for 86 percent of industrial area jobs in 1899 and still accounted for 82 percent in 1935. Although the proportion of the South increased markedly it still accounted for only 10 percent of industrial area employment in 1935.

The migration of industry has been a contributing factor affecting the relative industrial importance of different regions and localities. For the most part, such "migration" does not involve the physical transfer of machinery and workers, or even, often, of business management from one place to another, but rather the tendency for new plants in an industry to seek the more rather than the less favorable location until the center of the industry's activity has shifted.

The major industries which have shifted their location have been lumber, cotton textiles and industries subsidiary thereto, the shoe industry, hosiery, iron and steel, rubber tires, and, to a lesser extent, furniture and clothing. Although very marked shifts have characterized some of these industries, only lumber and cotton textiles involved a significant decline in the volume of employment in the older centers prior to the drop in all employment after 1929.[9]

The lumber industry's successive jumps from Maine to Michigan to Wisconsin, to the South and to the Pacific Northwest have reflected the search for virgin timber stimulated by the wasteful technology which has characterized the industry. Cut-over areas and stranded populations have been left behind at each stage.

The cotton textile industry moved south primarily in search of cheap labor and cheap power, just as it had originally located in New England when labor and power supplies were most available there. Though the growth of the cotton industry in the South was well under way before the end of the nineteenth century, 50 percent of cotton textile workers were still to be found in the New England area in 1909. By 1935 the proportion had dropped to 22 percent, while the southern area had risen from 35 percent in 1909 to 63 percent in 1935. Dyeing and finishing followed the movement of textile mills somewhat later. In 1909, less than 2 percent of dyeing and finishing was done in the South, although 35 percent of cotton goods were already being made in that area. By 1935, 22 percent of the dyeing and finishing employees were located in the South, while the proportion in New England had dropped from 49 percent to 31 percent.

[9] Data on migration from *Census of Manufactures.*

The hosiery industry is now following textiles into the Piedmont area. Though the center of the industry is still in Pennsylvania, the proportion in North Carolina and Tennessee has increased from 6.4 percent in 1909 to 23 percent in 1935.

In both of these industries the portion of the industry calling for least skill moved first, followed by the finer processes, as the latter became more mechanized and as skill was developed in the new location. Fine textiles have followed coarse from Massachusetts to the Carolinas; full-fashioned hosiery is following seamless hosiery from Philadelphia to North Carolina and Tennessee. To these industries which have been attracted by a cheap and plentiful labor supply, the possibility of further migration to other industrially undeveloped areas constantly presents itself. The textile manufacturers of the Piedmont are now concerned lest their region suffer the fate of New England and they lose their mills to the deeper South. As yet, however, such migration to Alabama and Mississippi has not amounted to significant proportions.

The furniture industry, too, has shown a tendency to grow in the southern area. The proportion of the industry in North Carolina has increased from 4.5 percent in 1909 to 10.4 percent in 1935. In spite of this tendency, however, the factor of skill still keeps the industry centered in its northeastern location and its custom branches remain in centers of population.

Although the industrial shifts that have attracted most attention have been these movements to the South, the movement westward has been more general and at least equally significant. Agricultural activity has, of course, moved westward with the opening up of new lands and the withdrawal of old lands from cultivation in the eastern areas. The cultivation of specific crops, such as cotton, in particular, has moved west to take advantage of rich and fresh soil, reducing older cotton areas to a competitive disadvantage. Industries serving the consumer have followed the population westward. The shoe industry moved from Massachusetts to New York, Illinois, and Missouri to gain the combined advantage of nearness to markets and nearness to raw material. Originally almost wholly localized in Massachusetts, the proportion of the shoe workers in that State had already dropped to 40.3 percent by 1909 and was down to 21.7 percent in 1935. The shift of iron and steel westward from Pennsylvania into Ohio and the Chicago area has reflected a combination of factors, the declining proportion of the industry controlled by the United States Steel Corporation and the relative growth of the companies operating in Ohio and Indiana, and also the shift by the United States Steel Corporation of its operations from its Pittsburgh plants to its newer Lake Michigan

units, favorably situated to utilize the Lake Superior ores.

The concentration of the rubber tire industry in Ohio reflects the absorption of the industry by a few large companies and the geographical consolidation of their operations. In 1909, the manufacture of rubber tires was scattered through New Jersey, Pennsylvania, Connecticut, New York, and Indiana, as well as Ohio which then accounted for only 39 percent of employment. In 1935, 68 percent of rubber tire employees were located in Ohio. The process of concentration is particularly striking in this industry in view of the fact that the raw material is imported and that the location in Ohio has no relation to the sources of raw material. This is a characteristically foot-loose industry, able to locate virtually anywhere. At the present time there are signs that the industry may again become more dispersed as certain of the large rubber concerns have erected plants in the South and in California.

Women's clothing, also a foot-loose industry, has shown the opposite tendency. In 1909, two-thirds of the women's and children's clothing was produced in New York State and 62 percent in New York City itself. In 1935 only half was produced in New York State, and still less in New York City. This movement out of New York has meant a shift of the industry westward with population, the beginning of a challenge by Hollywood to the style supremacy of Broadway, and dispersion out from the metropolitan center to the peripheral regions of New Jersey and Connecticut in search of lower rents and freedom from labor organization.

It is difficult to appraise the net results of these industrial shifts beyond the rough picture of the regional distribution of employment within the industrial counties given in table II and the evidence of stability in chart I. There is no doubt that the Great Lakes, Southern Piedmont, and Pacific areas have grown in proportion to the older regions of New England and the Middle Atlantic States. But the gross pattern of industrial location was already established 50 years ago. The developments of these years have modified but in no substantial way reshaped this pattern.

In this chapter only the bare outlines of the geographical structure of production have been sketched. Almost no attention has been given to the more detailed characteristics of the geographical structure, to the multitude of factors which combine to determine geographical location in particular cases, to the degree of balance in the use of resources between regions or the influences of transportation and freight rates on geographical location. Each of these would constitute a special study in itself. Instead, the chapter has been almost wholly concerned with indicating in a very rough fashion the extent to which the geographical structure of production is conditioned by the necessity of carrying on some activities close to particular resources and other activities in close proximity to the consumers; the influence of historical factors in determining the location of the activity not directly controlled by the location of resources or consumers; the geographical flow of goods through the successive steps of production; and the relative stability in the location of industry, particularly its continued concentration in the leading industrial counties.

This sketch of the geographical structure of production should serve to make more concrete the manifold activity of the millions of persons who compose the American economy. It indicates the regional specialization and the geographical flow of goods which are involved in the highly organized use of resources. It is partly because of the variety of resources making possible specialization of production, one region providing cotton, another wheat, another cattle, each concentrating on the activity appropriate to its natural resources, that a high level of living could be developed in all parts of the country. In the face of the complexity of organization involved in the interchange of goods between regions, and the failure to deal with the problems it introduces, the actual level of living falls short of the potential. Only as this geographical complexity is kept constantly in mind can the structure of production be envisaged in all its main aspects.

CHAPTER V.—THE STRUCTURE OF PRODUCTION—FUNCTIONAL

The geographical structure discussed in the preceding chapter gives only one dimension of the structure of production. The functions performed and the interrelationships among them are central to the structure of physical production.

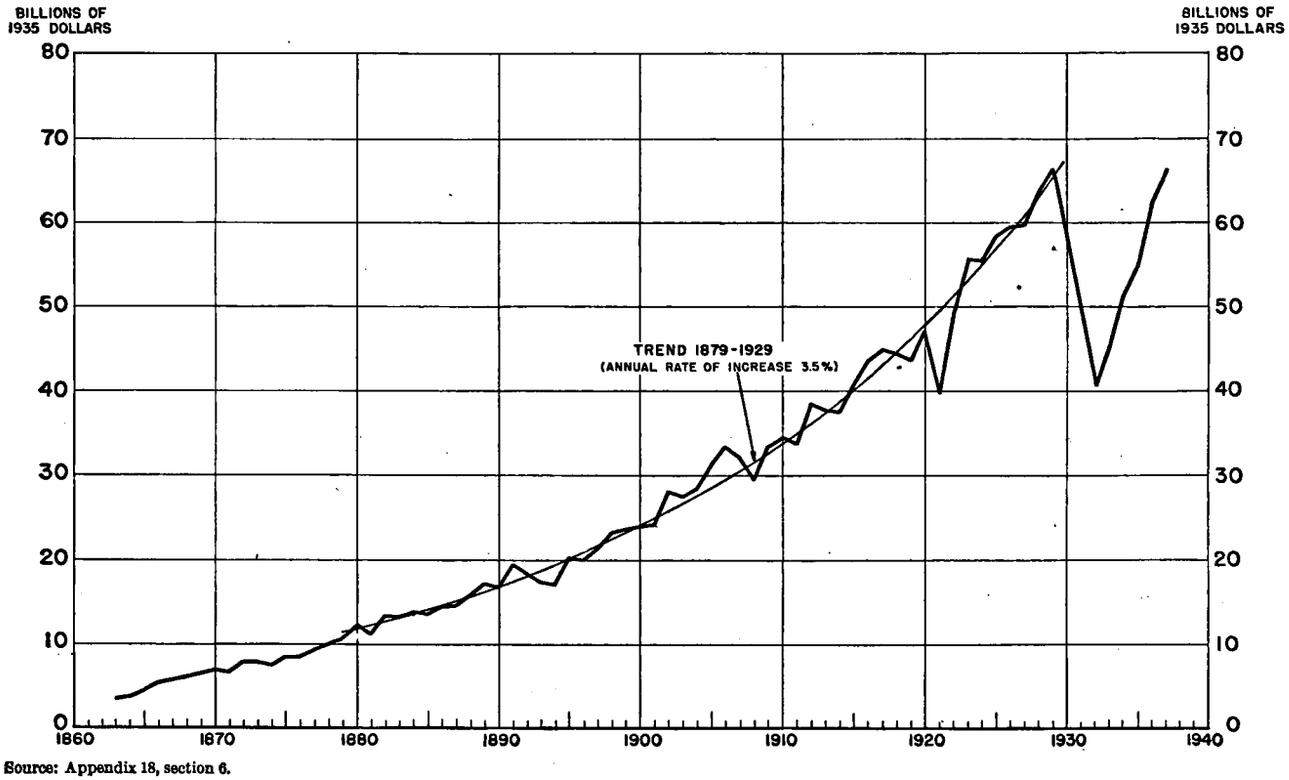
National productive activity in 1935 was carried on by the equivalent of 41 million full-time persons and made use of nearly 365 billion dollars[1] worth of land, buildings, equipment and inventory and resulted in production with a value of approximately 55 billions of 1935 dollars. Measured in 1935 prices, national production has grown from less than 5 billion dollars annually in the 1860's to 66 billion dollars in 1929. This is shown in chart I, all figures being stated in 1935 dollars. The long-time growth is broken at intervals by depressions of which that in 1921 and that beginning in 1929 are of greatest magnitude. The 1935 figures, falling in the latter depression, represent very much less than full employment of the available resources, though a considerable increase over the 1932 low. It is the structural characteristics of this production, analyzed in terms of function, with which this chapter is concerned.

In this analysis of the structure of production the main objective will be to set forth (1) the proportionality of different activities, (2) the post-war trends of change, (3) the sensitivity of different types of activity to depression, and (4) an indication of the relation of actual production to potential production. For purposes of analysis, total production will be broken down along two lines; first, according to the major types of activity such as agriculture, manufacturing, and trade and their subdivisions, and secondly according to durability of product. For the first set of categories, the manpower employed and, where possible, the capital employed will be shown. For the varying degrees of

[1] See Appendix 18, section 5.

CHART I

TOTAL PRODUCTION IN THE UNITED STATES 1863-1937



Source: Appendix 18, section 6.

durability, no statistical basis has yet been laid for showing manpower and capital employed and this analysis will consequently have to be in terms of output.

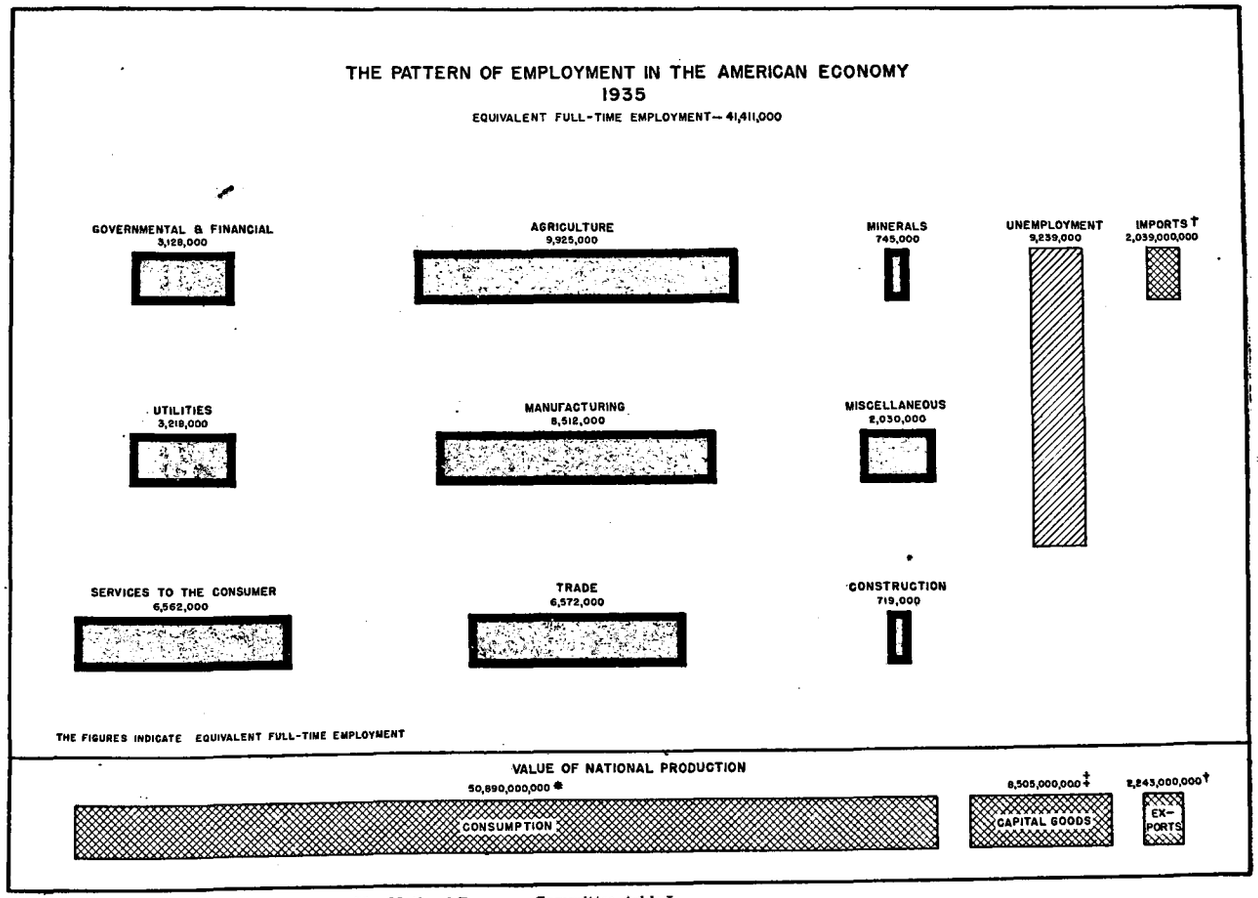
Major Types of Productive Activity

The proportionality of different types of activity is clearly indicated in chart II. This chart shows the total manpower employed in 1935 divided into nine main segments.) The black areas on the chart represent the amount of manpower employed in each segment, stated in terms of equivalent full-time employment, part-time employment being reduced to the equivalent full-time.[2] The chart is not aimed to distinguish between Government activity and corporate or private activity but rather to indicate the magnitude of different functions of production regardless of who carries them on. For this reason Government and finance are grouped together, both being to a considerable extent concerned with the facilitating of production, while the Postal Service has been grouped among the utilities with other forms of communication, and public education has been grouped with private education as a service to the consumer. Undoubtedly, some further regrouping of government data would be desirable, such as combining road building with other transportation service and municipal power plants with other utilities, but data are not available to make a complete allocation of governmental activities to the functions performed, and such allocations would not alter the general picture significantly.

The material in chart II is so arranged as to place at the top the activities which are, on the whole, furthest from the ultimate consumer and at the bottom those closest to ultimate consumption. At the right of the chart is a vertical bar reflecting the magnitude of unemployment in 1935. A study of this chart corrects the impression, so frequently held, that the bulk of

[2] The exact meaning of "full-time" used in these estimates varies somewhat, but as nearly as the statistical data allow it is the total number of man-hours worked in an industry divided by the number of hours which would be worked by a person working full-time for a year at the hours prevailing in the particular industry.

CHART II

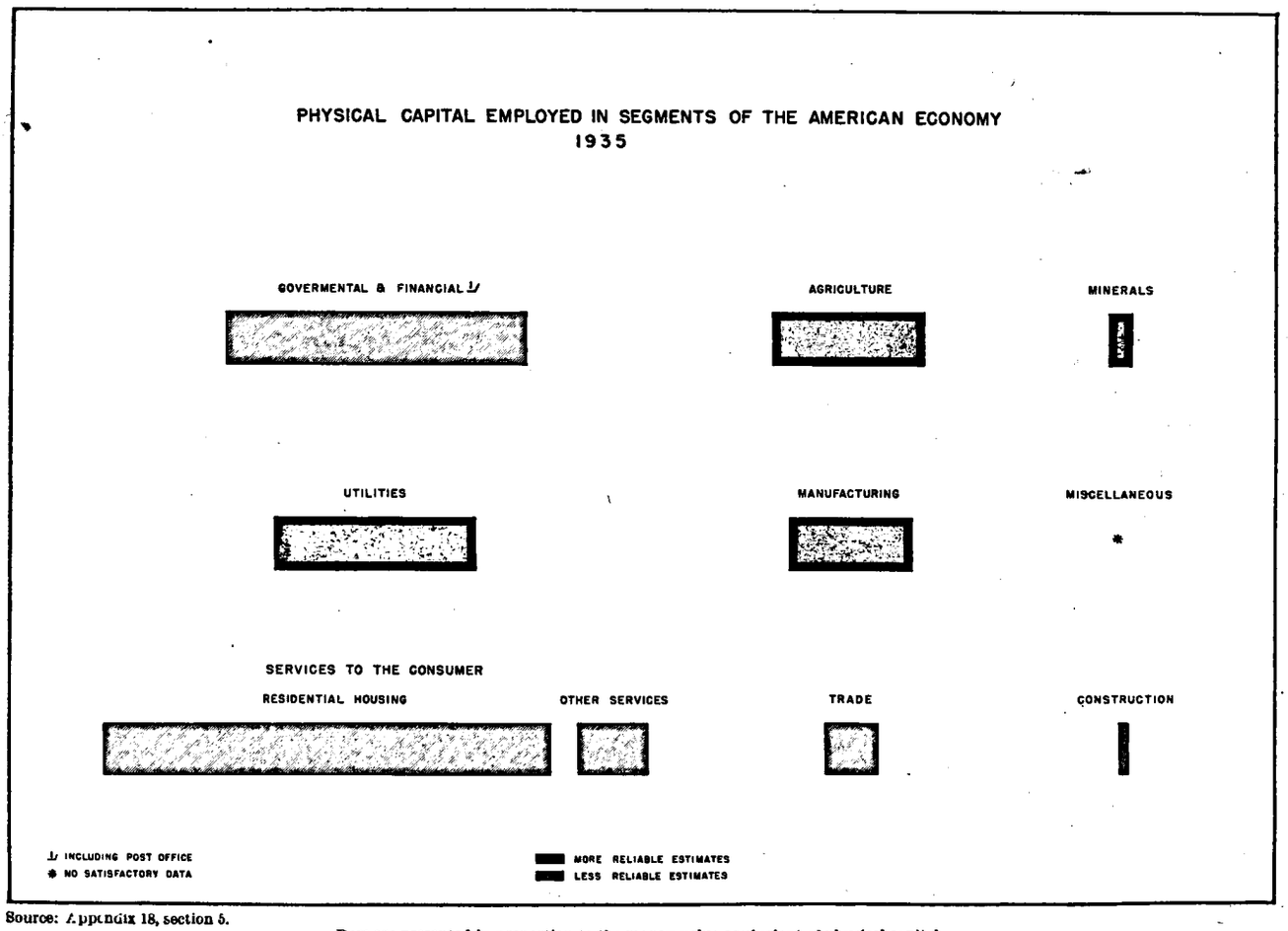


Source: Employment from *Patterns of Resource Use*, National Resources Committee, table I.
† Department of Commerce, Bureau of Foreign Commerce, values in dollars.
‡ Simon Kuznets, *Community Flow and Capital Formation*, table vii-2; includes producers' durable, business and public construction and repairs and servicing, the last being derived from *Census of Manufactures, 1935:* values in dollars.
* *Consumer Expenditures in the United States*, National Resources Committee, preliminary; figures in dollars.

economic activity is manufacturing. This segment employed a little over 20 percent of the total manpower which was employed in 1935. More manpower was engaged in agriculture than in manufacturing, and nearly as much in wholesale and retail trade, and also in such services to the consumer as education, professional, personal, and domestic services, recreation, and amusement. The small amount of employment in construction reflects very much lower than average activity in that field in the particular year. On the whole, this picture of manpower employed in the different segments of the economy is the best single guide to the role of each segment in the national economy.

A further guide is provided by the volume of physical capital employed in each segment. A very crude estimate of the value of the land, buildings, equipment, and inventories employed in each segment is given in chart III. Estimates are hard to make in this field, partly because of inadequate data but more especially because of the subjective character of the whole process of valuation. For agriculture, the estimates are those of the census of 1935, while for utilities and manufacturing estimates have been made from income tax returns based on the book values reported by corporations. Estimates for the other segments are only crude approximations. The classification of industries is identical with that in the preceding chart, and the blocks of manpower and physical capital are roughly comparable except for Government, services to the consumer, and, construction. In the case of the first, an important proportion of the physical capital is made up of the public domain and the public highways. These bear little relation to the manpower currently active in the production of government-rendered services. In the case of services to the consumer, residential housing accounts for the bulk of the capital values in this segment and renders services to the consumer with relatively little manpower currently employed, while the manpower engaged in serving the consumer in professional, personal and domestic services, education, and recrea-

CHART III



Source: Appendix 18, section 5.

Bars are presented in proportion to the money value equivalent of physical capital.

tion uses relatively little associated physical capital. The estimate of physical capital in the construction industry is very unreliable.

Table I shows the value of the physical capital per equivalent full-time worker for the six segments where the basic figures are sufficiently accurate for the ratio to have significance. The table should be regarded as only suggestive partly because of the crudity of the estimates of physical capital and partly because the proportion of the physical capital which was actually in operation in 1935 is not known. It does indicate the larger physical investment per worker in the transportation, communication, and power fields, the relatively small investment in lands, buildings, and equipment per worker in trade and consumer services, and the relatively similar investment per worker in agriculture and manufacturing.

A third guide in giving the picture of productive activity is the contribution to production made by each segment of the economy. Chart IV gives for each segment an estimate of the income produced by that segment. The proportionality is approximately the same as that of manpower in the different industries except that the value of the agricultural contribution was smaller and the contribution of government and of the utilities was greater than the corresponding manpower ratio.

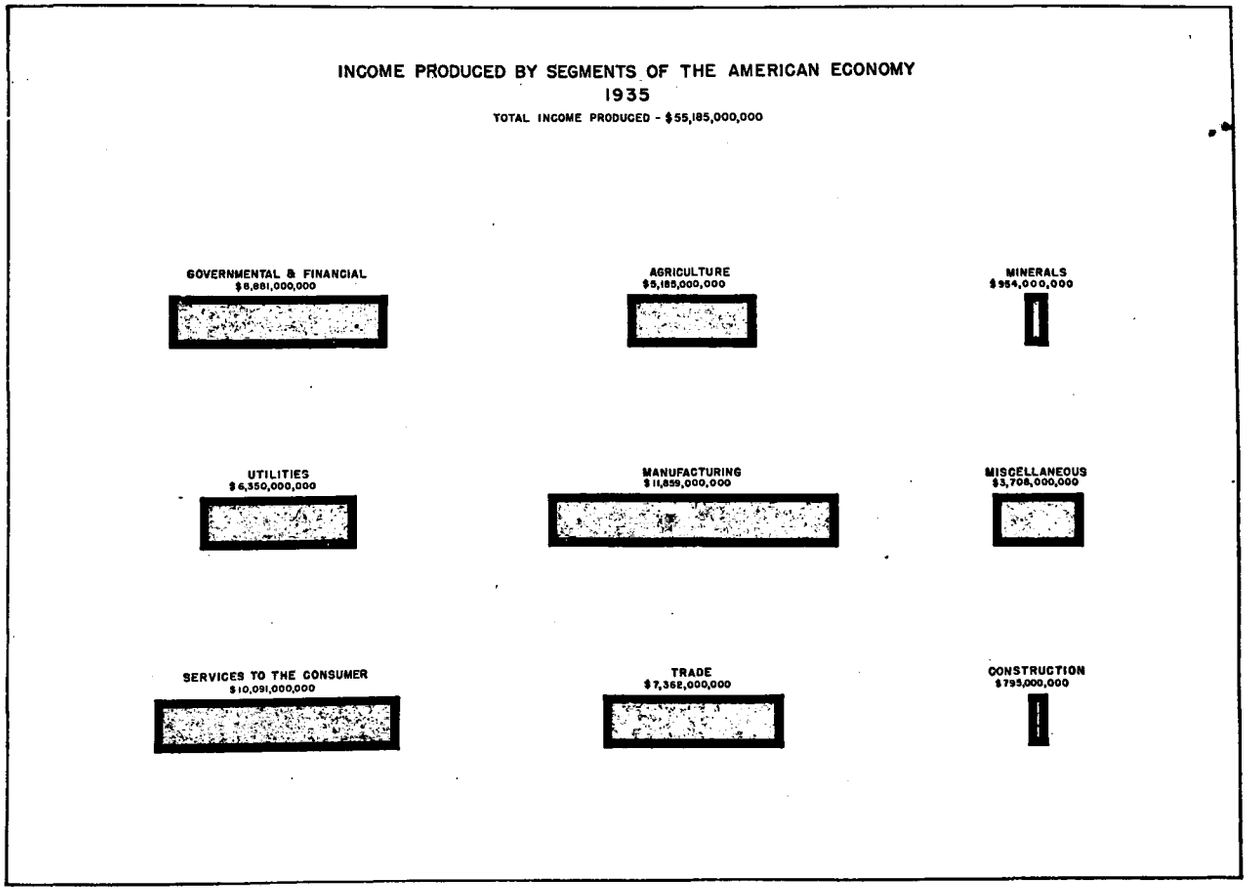
TABLE I.—*Value of Land, Buildings, Equipment and Inventories per Equivalent Full-Time Worker, 1935*

Public Utilities	$11,900
Mining	8,700
Agriculture	3,900
Manufacturing	3,700
Services to the consumer [1]	3,700
Trade	2,000
Crude average for whole economy	4,600

Source: See appendix 18, section 5.

[1] Exclusive of residential housing and education.

CHART IV

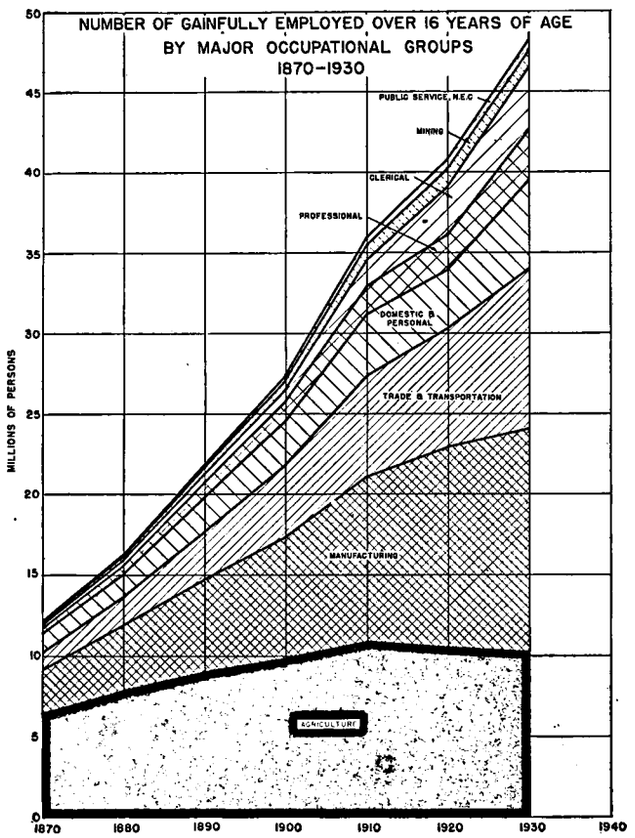


Source: Appendix 18, section 7.

The three charts above give a very clear picture of the proportionality of the different types of economic activity as they were carried on in 1935. The real structural characteristics of production, however, are only to be found by examining economic activity through time. A first crude picture of the changing relative importance of different segments can be obtained from Charts V and VI which are derived from the *Census of Occupations*. The first shows for each census year the absolute number of persons reporting themselves as gainfully employed in each of the main types of activity while the second indicates the proportion of the total in each segment.

The most striking indication of the charts is the relative decline of the role of agriculture in the national economy. While the number of persons gainfully employed in agriculture increased gradually from 1870 to 1910, in the 60 years from 1870 to 1930 agriculture dropped from 53 percent of the total gainfully occupied to little more than 21 percent. The great increases have come in trade and transportation and manufacturing and clerical so that their proportion of the total has increased from 32 percent in 1870 to 57 percent in 1930. Thus from 1870 to the present time the national economy has shifted from an economy which had been dominantly agricultural and in which more than half the workers were agricultural to one which is predominantly industrial. This has shifted the whole character of the productive structure away from that associated with agricultural production and toward that associated with industry.

CHART V



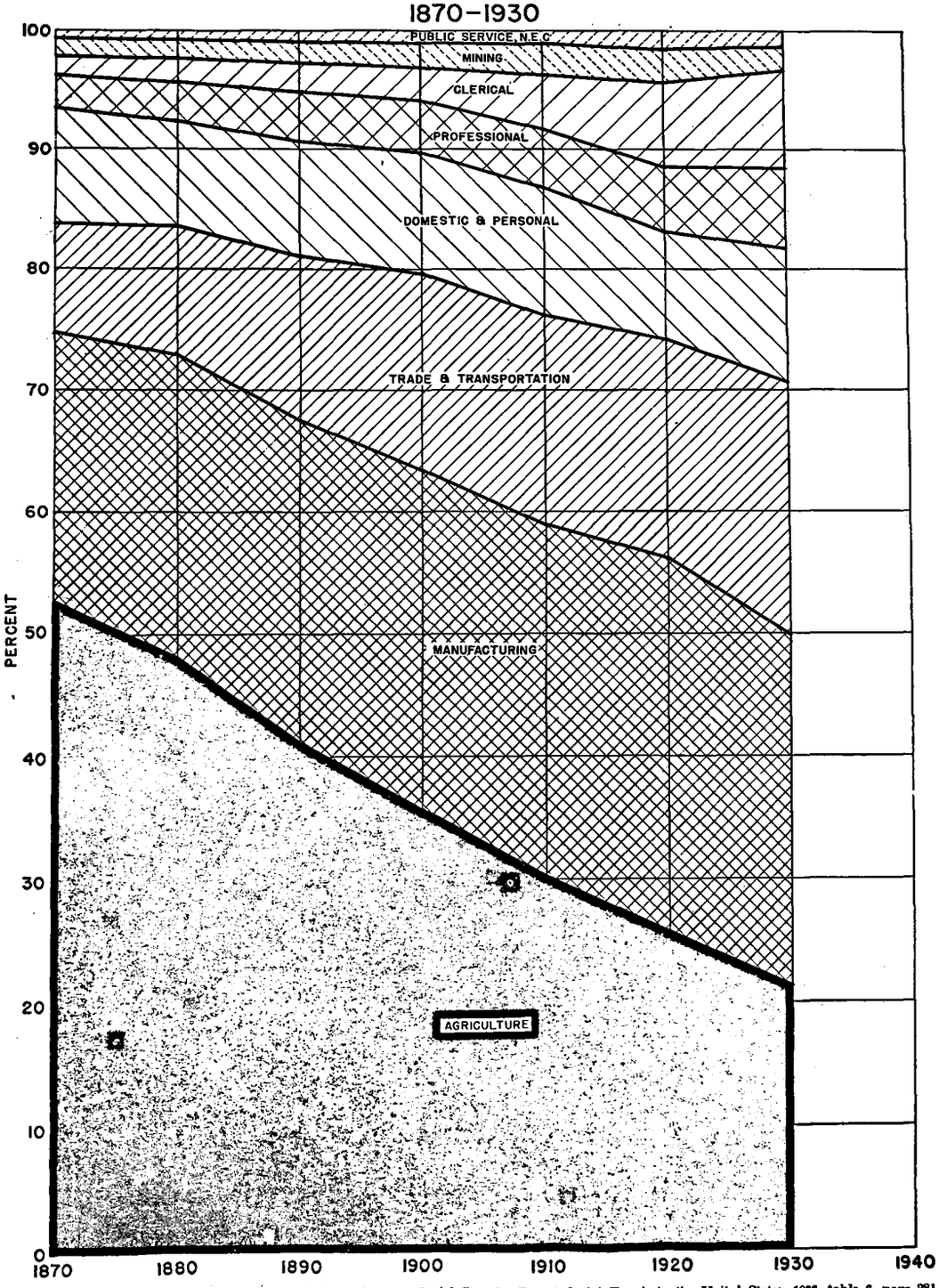
Source: Report of the President's Research Committee on Social Trends, *Recent Social Trends in the United States, 1933*, table 6, page 281. Figures differ slightly from those in Census reports; adjustments have been made to obtain comparable figures.

Estimates of employment and the trends of activity since the World War are shown in terms of employment for each segment in chart VII. The trends are adjusted for depression activity and represent the trends of change in the manpower employed in each segment which could have been expected if reasonably full economic activity had been maintained. The two extractive segments, agriculture and mining, show a gradually declining trend of employment even after adjustment for depression, while manufacturing and the utilities show only a slightly rising trend in the post-war period. The areas of expanding employment have been in the rendering of direct services to consumers, in the field of trade, and in the fields of government and finance. No trend can be drawn for employment in construction for reasons which will become apparent in the discussion of production in relation to durability. Leaving construction out of account, it is apparent that the recent trends of employment have shifted the relative emphasis in productive activity away from the extractive and manufacturing industries and have increased the proportion of the available manpower engaged in rendering services either to the consumer or to the whole economy.

To the structure of production indicated here through time, another dimension must be added, the pattern of sensitivity to changes in consumer income and in the level of productive activity. In Table II below, the segments are arranged in order of the increasing sensitivity of their production to depression as revealed by the sensitivity of their employment. Agriculture and government, the least sensitive, are at the top; construction and mining, the most sensitive, are at the bottom. A rough measure of sensitivity can be obtained by comparing the level to which employment had fallen in 1932 with the level of employment called for in that year by the post-war trend. In Table II the ratio of actual employment to the level called for by the post-war trend is given for each segment. Here the essential stability of agriculture and government and the great instability of construction, manufacturing, and mining are clear.

CHART VI

PROPORTION OF GAINFULLY EMPLOYED OVER 16 YEARS OF AGE BY MAJOR OCCUPATIONAL GROUPS 1870–1930

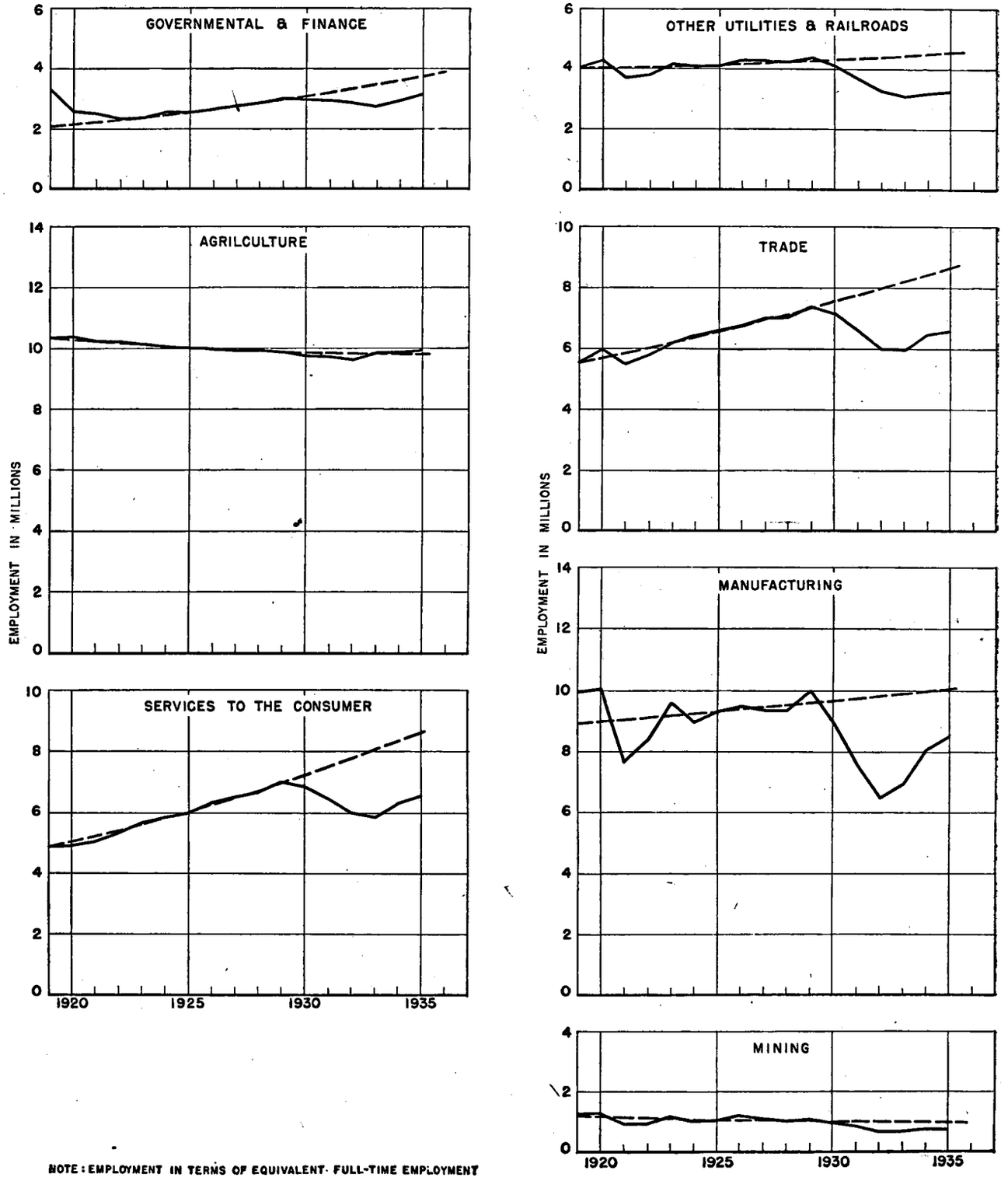


Source: Report of the President's Research Committee on Social Trends, *Recent Social Trends in the United States, 1933*, table 6, page 281. Figures differ slightly from those in Census reports; adjustments have been made to obtain comparable figures.

CHART VII

TREND OF EMPLOYMENT FOR SEGMENTS OF THE AMERICAN ECONOMY

1919 - 1935



NOTE: EMPLOYMENT IN TERMS OF EQUIVALENT FULL-TIME EMPLOYMENT

Source: *Patterns of Resource Use*, National Resources Committee. The trend for each segment is computed from the data for the years 1923-29, by using a curve representing a compound interest rate of growth.

TABLE II.—*Sensitivity to depression of employment in segments of the American Economy*

Segment	Proportion of employment indicated by trend line which is represented by actual employment in 1932 [1]	Segment	Proportion of employment indicated by trend line which is represented by actual employment in 1932 [1]
	Percent		*Percent*
Agriculture	97.8	Trade	75.2
Federal, State, and local government and banking and finance	84.4	Manufacturing	65.5
Services to consumer	77.2	Mining	59.5
Utilities including railroads	73.9	Construction	59.1
		Total economy	73.2

Source: Based on *Patterns of Resource Use*, National Resources Committee. The trend for each segment is computed from the data for the years 1922–1929 by using a curve representing a compound interest rate of growth.

[1] Ratio of actual to trend values.

More light on the structure of production can be obtained by breaking down each major segment into greater detail and by tracing through the flow of goods from resources to the consumer. The flow of physical goods toward the consumer and of money from the consumer back to those who contribute to production is typified by the two examples shown in charts VIII and IX. In chart VIII the physical flow of ore, coal, limestone, entering the iron and steel industry is traced through and the proportionate disposal is shown at each stage of processing and in the final disposal to the fabricating industries. In chart IX the consumer food dollar is traced back to show what proportion went to each of the productive processes involved. Of this dollar, 25 cents went to the retailer, 9 cents to the wholesaler, 20 cents to the processor, and 41 cents to the farmer. The remaining 5 cents paid for transportation at each of the various steps. The proportions shown in these charts for physical volume and for dollar expenditure are not necessarily representative of other physical products or of dollars of expenditure for other types of goods. They serve merely as examples of proportionality in one specific type of flow and one specific category of expenditure.

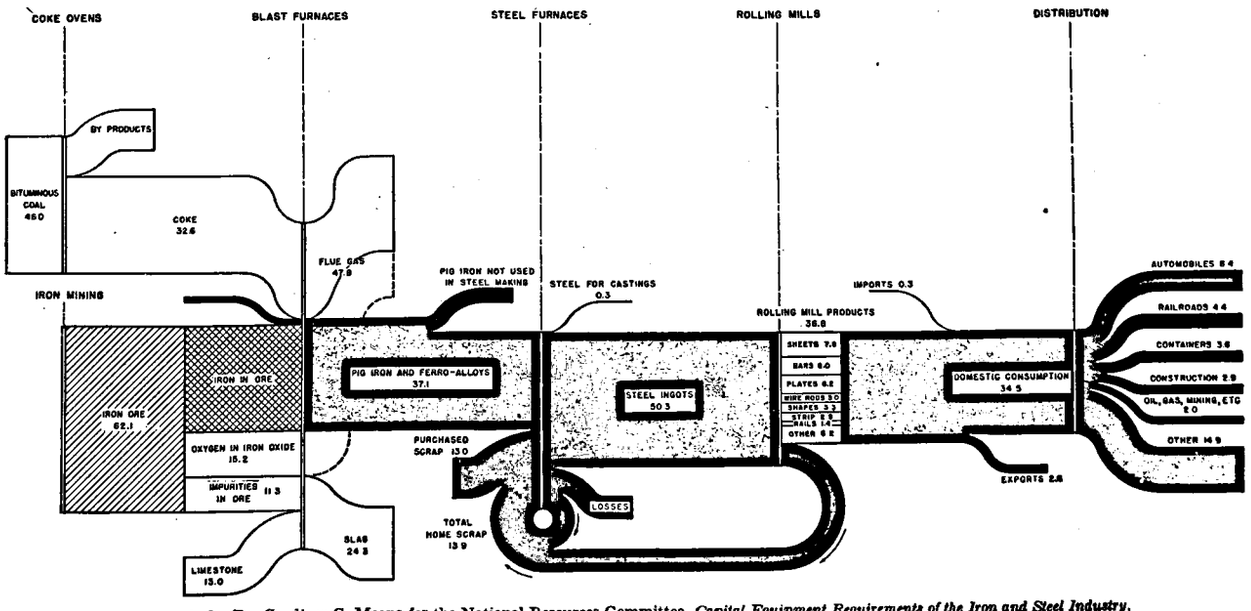
For the whole economy, the proportionate activity at the several stages in the flow from resources to consumers is shown in some detail in chart X. Here the various stages of extracting, processing, fabrication, and distribution are shown in the successive rows of the chart. The manpower employed in raising basic agricultural products and in mining is shown in the top row, that in processing these basic products, and further steps in manufacturing in the next two rows, wholesale distribution in the next and finally retail trade and

CHART VIII

PHYSICAL FLOW FROM RAW MATERIALS TO FINISHED PRODUCTS

IN THE IRON AND STEEL INDUSTRY 1937

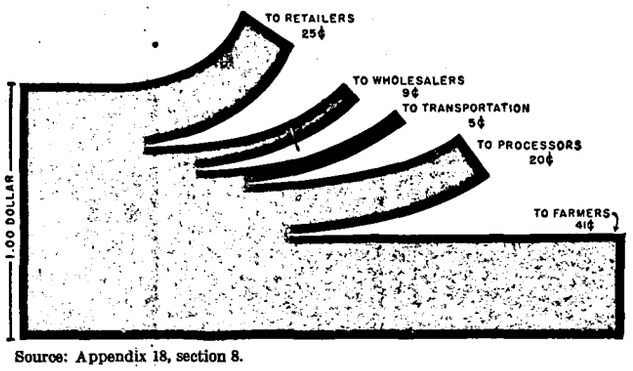
(ALL FIGURES IN MILLIONS OF GROSS TONS)



Source: Unpublished study by Dr. Gardiner C. Means for the National Resources Committee, *Capital Equipment Requirements of the Iron and Steel Industry.*

'CHART IX

DISTRIBUTION OF CONSUMER FOOD DOLLAR
1935



Source: Appendix 18, section 8.

service to the consumer at the bottom. The preceding chapter has already shown that these successive steps follow roughly a geographical pattern from the location of natural resources to the location of consumers. From this chart it is possible to trace through the various steps, seeing the proportionate volume of manpower used at each stage. Thus, it is possible to compare the man-power engaged in raising cattle and hogs with that engaged in meat packing, in tanning leather, and in the manufacture of shoes and other leather products. Forest products move in two different directions, some into paper and pulp thence to other paper products and into books and newspapers, others into lumber mills and thence to furniture and into the construction industry. Minerals too may be traced through, coal and iron ore into iron and steel and thence to iron and steel products and to their final fabrication largely in automobiles and various types of machinery. The bulk of these products then travel through the channels of trade to the ultimate consumers. At the left of the chart the services to the economy are indicated, public services of the Federal, State, and local governments, banking and finance, the transportation and communication services, and electric power. The proportionate distribution of manpower employed in the various services to the consumer is shown at the bottom.

Of course, the functional structure of the economy does not follow so neat a pattern of successive levels of activity as this chart would indicate. The basic resources do indeed have to pass through successive stages but some travel much more directly to the consumer in a relatively unprocessed state such as fresh fruit and vegetables, fluid milk, and household coal, while others such as cotton fibers and iron ore have to pass through a series of processes. For some items, particularly machinery, there is a back flow as fabricated products are used in stages of production closer to the natural resources. On the other hand, those things

TABLE III.—*Trends of employment for 81 segments, stated in terms of 1929 employment* [1]

Code No.[2]	Industry	Percent annual increase [3]	Absolute annual increase
116	Rayon yarn	14.8	5,800
7	Electric power	8.4	22,800
1	*Federal Government, excluding Post Office*	*6.9*	*40,000*
607	Miscellaneous service	6.6	20,400
302	Business service	6.1	15,900
104	*Canning and preserving*	*5.3*	*6,000*
3	Banking and finance	4.2	50,000
606	*Recreation and amusement*	*4.1*	*10,100*
141	*Automobiles*	*4.0*	*17,700*
120	Dyeing and finishing	3.8	3,000
603	Professional service	3.8	48,000
604	Personal service	3.7	60,000
602	Private education	3.5	7,300
129.1	Paints and varnishes	3.4	1,000
500	Construction	3.0	4,600
108	Bread and other bakery products	2.9	5,800
601	Public education	2.8	32,000
401	Retail trade	2.7	147,000
5	*Telephone*	*2.6*	*11,100*
2	State and local governments	2.4	30,000
120.1	Other textiles	2.3	4,200
10	Auto transportation	2.2	16,200
131	*Petroleum refining*	*2.2*	*1,800*
144	Electrical machinery	2.2	6,100
124	Furniture and related products	2.1	4,100
605	Domestic service	2.1	48,000
137	*Iron and steel*	*2.0*	*8,400*
126.2	Printing and publishing (allied industries)	1.9	1,500
800	*Miscellaneous industries*	*1.8*	*44,000*
127	Rubber tires and tubes	1.7	1,400
128	*Rubber products (other than tires and tubes)*	*1.7*	*1,100*
134.1	Pottery	1.7	600
134.2	Marble, granite, and other glass products	1.7	1,700
6	*Telegraph*	*1.6*	*1,500*
123	*Converted paper products*	*1.6*	*1,700*
125	*Miscellaneous lumber products*	*1.6*	*2,400*
118	*Knit goods*	*1.5*	*3,100*
133	*Cement*	*1.5*	*500*
8	Manufactured gas	1.4	900
138	*Nonferrous metals (other than copper)*	*1.4*	*300*
138.1	Copper, smelting, and refining	1.4	200
139	Iron and steel products	1.4	6,500
801	*Nonwage earners, manufacturing and mining*	*1.4*	*22,000*
121	*Paper and pulp*	*1.3*	*1,600*
301	Wholesale trade	1.3	21,000
4	*Post office*	*1.2*	*3,500*
126	*Printing and publishing (newspapers and periodicals)*	*1.2*	*1,500*
126.1	*Printing and publishing (book, music and job)*	*1.2*	*1,500*
109	*Other foods*	*1.0*	*1,300*
140	*Nonferrous metal products*	*1.0*	*2,700*
145	Machinery (excluding electrical)	1.0	7,900
900	Agriculture	.9	90,000
112	*Leather products, other than leather and boots and shoes*	*.8*	*500*
119	*Wearing apparel*	*.7*	*3,700*
134	Clay products, other than pottery	.7	700
146	Miscellaneous manufacturing industries	.5	1,500
201	*Crude petroleum*	*.5*	*400*
205–206	Iron ore	.5	600
115	*Rayon and silk*	*.4*	*500*
111	*Boots and shoes*	*.2*	*500*
204	Mining (nonmetallic)	.2	200
101	*Butter, cheese, condensed milk, and ice cream*	−.2	−100
106.1	*Sugar refining*	−.2	−100
114	*Cotton textiles*	−.2	−1,000
132	*Glass*	−.3	−200
135	*Fertilizer*	−.5	−100
129	*Chemicals*	−.6	−1,200
203	*Anthracite*	−.6	−900
102	*Meat packing*	−1.1	−1,300
110	*Confectionery and chocolate*	−1.3	−900
136	*Coke*	−1.4	−300
202	Bituminous coal	−1.4	−6,600
11	Other transportation	−1.5	−9,100
113	*Woolen and worsted*	−1.5	−2,200
122	Lumber and millwork	−1.5	−7,800
107	*Leather (tanning and finishing)*	−1.6	−800
9	Rail transportation	−2.1	−38,000
105	Tobacco	−3.1	−3,600
103	Flour milling	−3.7	−1,000
143	*Transportation equipment other than automobiles*	*−9.5*	*−12,900*

Segments which are italicized are considered to be less reliable; i. e., the index of correlation is less than 0.90.

[1] The employment data are taken from the report, *Patterns of Resource Use*, National Resources Committee, and the industries defined as in that report. The long-time trend is derived from a linear logarithmic regression obtained by relating employment to consumer income and time, using the data from 1919 to 1935. The 1929 employment is calculated from the regression by substituting the value of 64.7 billions of 1936 dollars for consumer income, this being the value of the long-time trend in consumer income when projected to 1929; the 1930 employment is obtained by substituting the value of 66.8 billions of 1936 dollars of consumer income. Agricultural employment was calculated from a linear regression relating employment to consumer income and time, using the data from 1929 to 1936. Federal Government in 1930 was calculated from a trend based on employment data for the years 1933 to 1936.

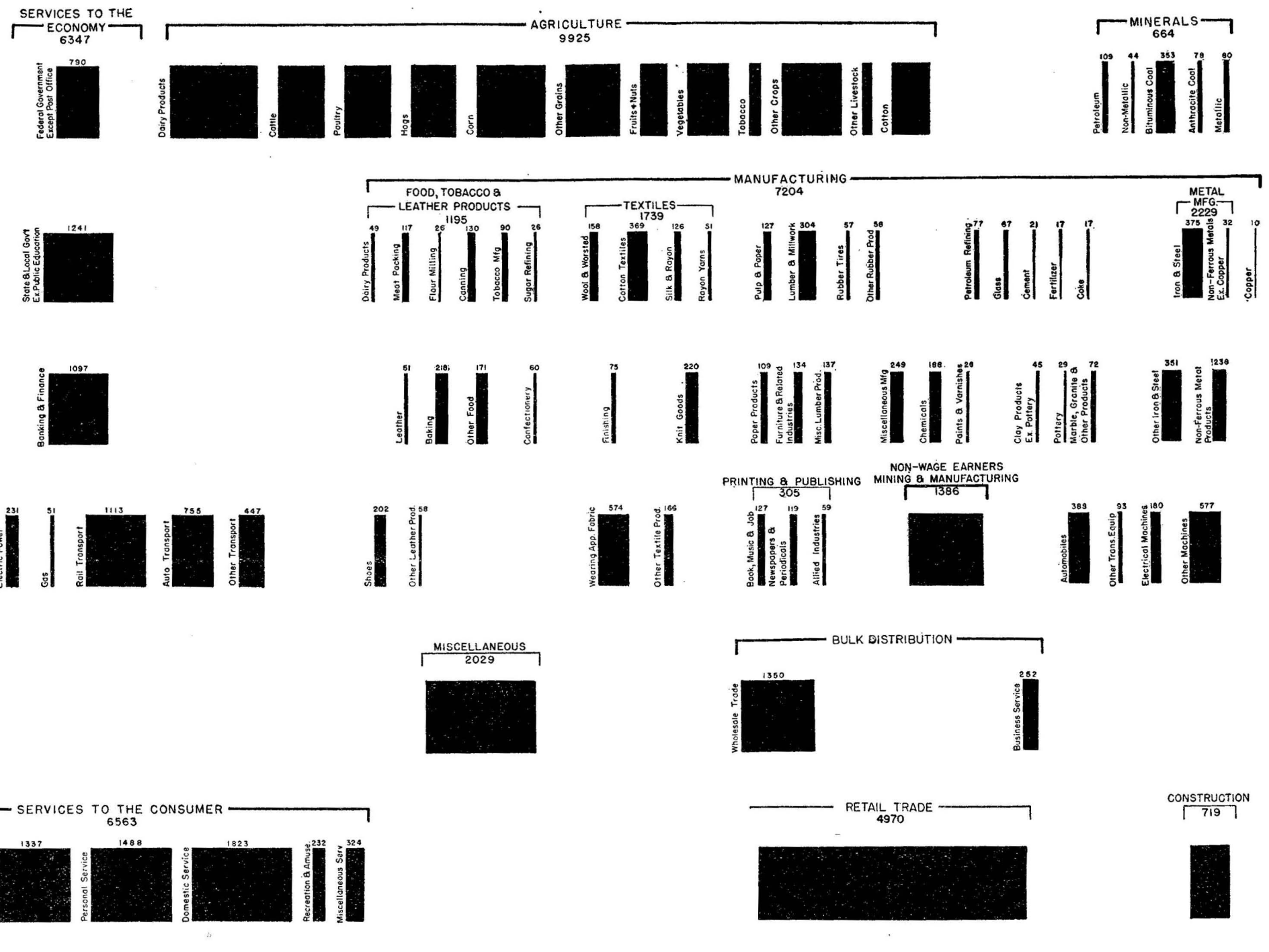
[2] Code number used in *Patterns of Resource Use*, National Resources Committee.

[3] This is the ratio of the difference in the long-time trend values of employment in 1930 and 1929 to the actual employment in 1929.

THE AMERICAN ECONOMY

1935

EQUIVALENT FULL TIME EMPLOYMENT – 41,411,000



which reach the consumer in the form of services usually originate closer to their final point of consumption. In spite of the actual complexity of the production flows, this chart covering the total manpower used in 1935 does give a rough picture not only of the segments of production in which this manpower was engaged but also the flow relationship from resource to the consumer.

For each of the separate activities presented in chart X it is possible to derive trends similar to those already given for the major segments. In Table III the annual change in manpower engaged in each of 81 lines of activity is given and is stated as a percent of actual employment in 1929. As in the case of the major segments, the figures represent the annual change in employment which could be expected if there were no depression. The industries with growing employment are shown first, then those having little change in manpower engaged and finally those with declining employment.

In order to bring out the significance of these trends, a second figure is given for each line of activity, the number of additional workers that, it is estimated, would have been called for each year, figured on the basis of the workers actually employed in 1929.

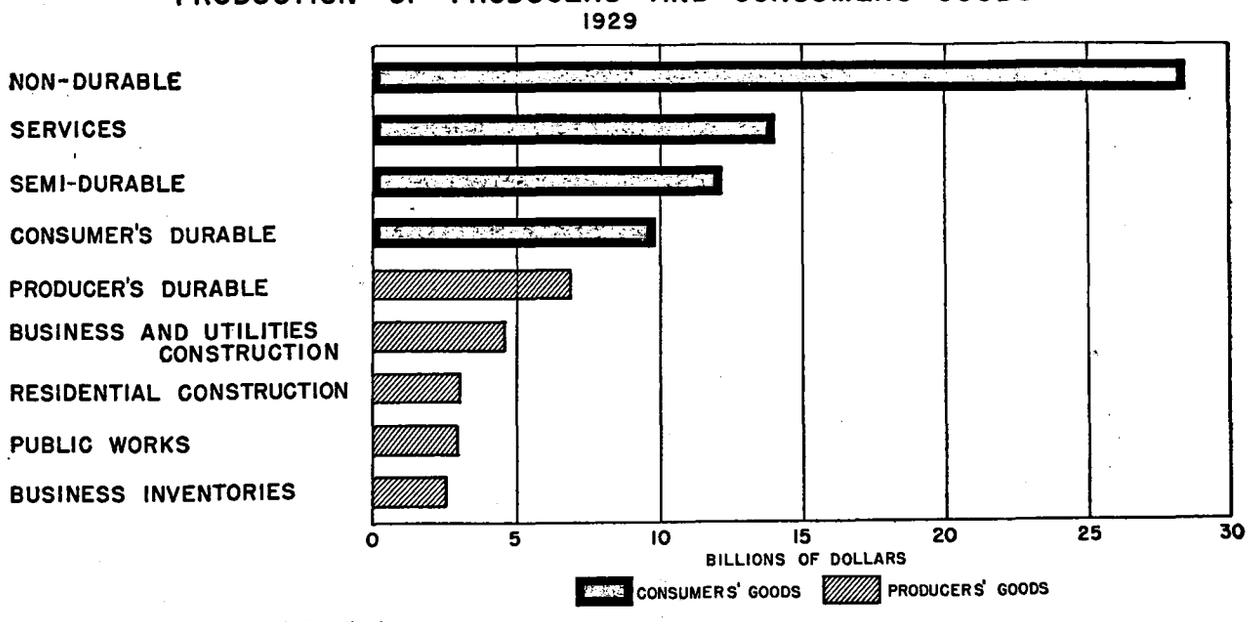
Actual employment for each industry in any year reflects a combination of long-time trend and sensitivity to depression. An examination of the relative sensitivity of industries with rapid, slow, or declining rates of growth, however, does not show any noticeable connection between long-time trend and sensitivity. Differences in sensitivity, on the other hand, are closely related to differences in the durability of goods produced. The discussion of sensitivity will, therefore, be postponed at this point and combined with the discussion of durability which follows.

Durability of Products

One of the most important characteristics of the structure of production is directly related to the durability of products. The significance of durability was apparent in the analysis of consumer wants, for it there became clear that durable consumer goods were more sensitive to variations in consumer income and consumer expenditure than were nondurable goods. This greater sensitivity of consumers' demand for durable goods finds a direct reflection in variation in the production of such goods and is paralleled by a similar behavior in the production of durable goods for producers.

In chart XI the value of all production in 1929 is divided according to the durability of the product. Approximately three-quarters of the total was production of consumers goods while the remaining quarter was composed of producers goods. Residential construction is included with the latter both because such a large proportion of residences are rented by the occupant and are properly classed as being investments by the owners and because as a matter of social accounting it is convenient to impute rents to owner-occupied

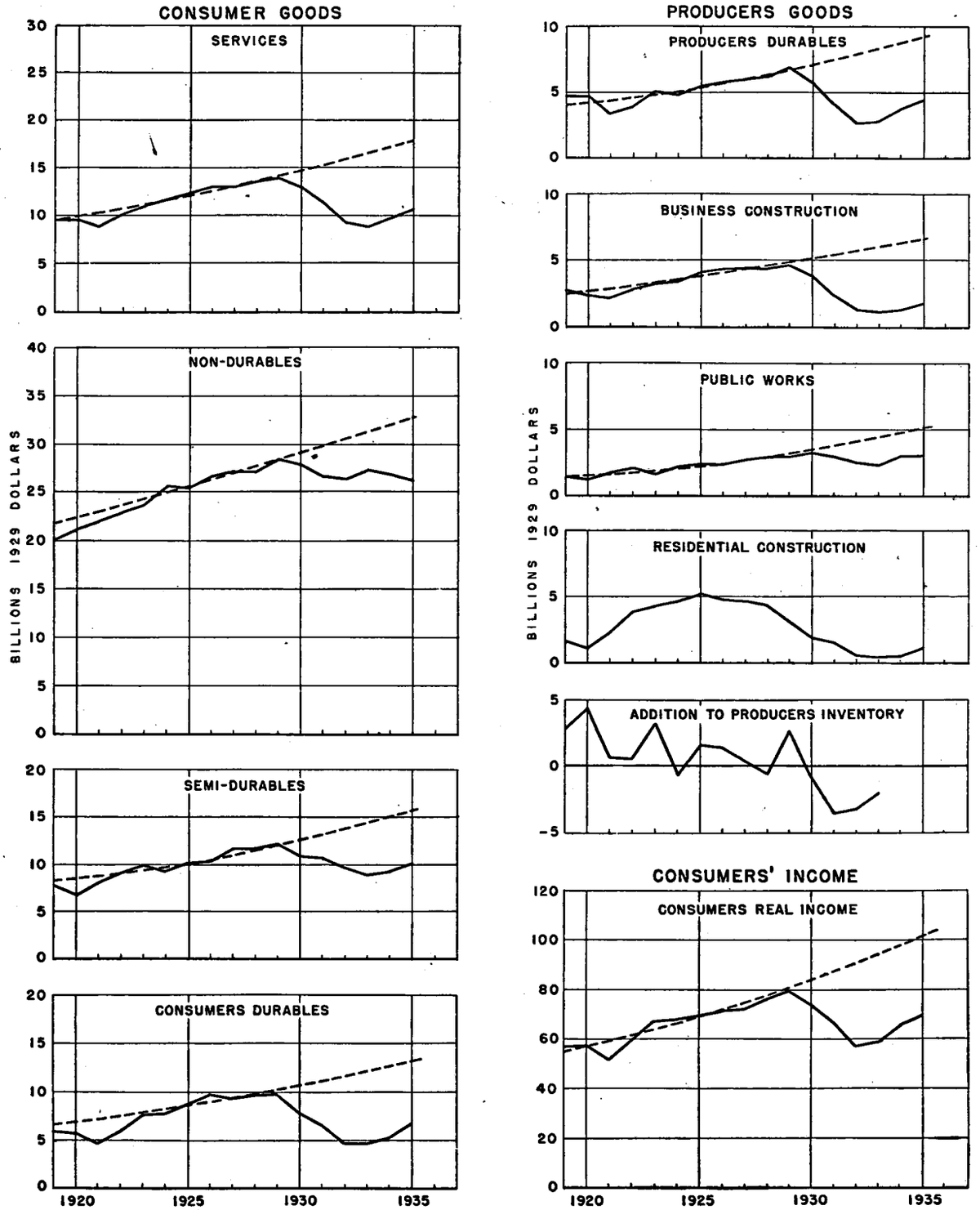
CHART XI



Source: Based on data given in appendix 18, section 4.

CHART XII

TRENDS IN PRODUCTION OF GOODS BY SPECIFIED GROUPS
1919 - 1935



Source: Based on data given in appendix 18, section 4. The trends indicated in the various segments are derived for the years of the period 1923-29, by the use of a compound interest curve. It is assumed that this period reflected conditions of nearly full use of resources.

houses and to treat all purchases of new homes by consumers as investments.[3]

Of the total production in 1929 approximately one-third was made up of durable goods, less than one-fifth of semidurable goods and additions to producers inventory and the remainder or nearly half of the total was made up of consumers nondurable goods and services.

The post-war production in each of these categories of durability is represented in chart XII, and the trend of change indicated except in the case of residential construction and producers inventory for which there is no clear basis for drawing a trend line. As in the charts of the major segments and of individual industries, the trend line shown is the post-war trend after adjustment for the influences of depression. It is notable that in the case of consumer services and nondurable and semidurable consumer goods the trend of increase is low, amounting for the group to approximately 3.8 percent a year, whereas for each of the durable goods categories except residential housing it is appreciably higher, amounting for the group to approximately 5.4 percent. This differential rate of growth is more clearly seen in chart XIII which shows the proportion of total production exclusive of residential construction and additions to inventory in each category from 1919 to 1935. The relatively greater increase in durable goods production from 1919 to 1929 is clear while its greater sensitivity to depression is evident in the data after 1929.

The trend toward greater production of durable goods involves a significant change in the structure of production during the post-war period. There are no comparable data to indicate whether the same type of change was going on before the war, but there is a presumption that the post-war trend is the continuation of a pre-war trend since agriculture which declined so greatly in relative importance was concerned primarily with the production of nondurable and semidurable goods. To some extent both trends reflect the increased industrialization of the country and the shift of its exports from agricultural to industrial products.

The significance of this shift toward durable goods is apparent when the sensitivity to depression of durable goods is compared with that of nondurable goods. In table IV the relation between the actual production in 1932 and the production called for by the post-war trend is indicated. The much greater sensitivity of durable goods and construction than of nondurable and semidurable goods is immediately apparent. Differences in the drop in price for each category are also shown for this table in order to call attention to the possibility that sensitivity in production may reflect insensitivity of price as well as durability of product.[4]

[3] Automobiles and other consumer durable and semidurable goods could logically be treated in the same way but their durability is usually less than that of residences and they are rented to a very much less extent so that no great distortion is introduced by treating such goods as "consumed" when purchased rather than as an investment which renders a series of consumer services through their useful life.

TABLE IV.—*Sensitivity to depression of commodity classes and services*

Commodity class	Proportion of production indicated by trend line which is represented by actual production in 1932 [1] (percent)	Proportion of 1929 price represented by 1932 price [2] (percent)
Nondurable goods	92.7	65.7
Semidurable goods	87.3	64.0
Construction of public works	83.4	80.1
Services	77.5	97.9
Consumers durable goods	60.6	84.6
Producers durable goods	56.1	82.5
Business construction	50.5	82.2

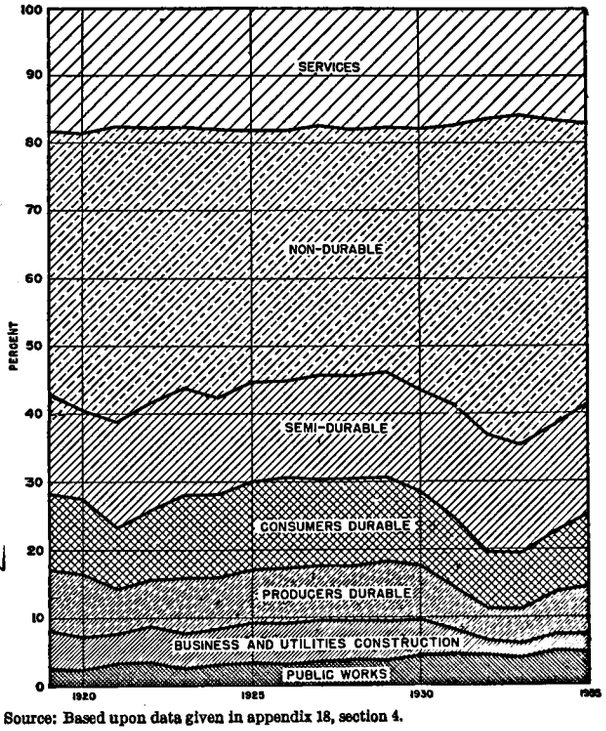
[1] Values upon which the ratios are based are in terms of 1929 prices as given by Simon Kuznets, *Commodity Flow and Capital Formation*, vol. I, p. 485; services is a specially constructed series, shown in Appendix 18, sec. 4. The trend line is based on an exponential regression relating the value to consumer income and time; the trend given by the regression is put through 1926 at a level corresponding to the average value for the years of the period 1923–29 from which the 1932 trend value is derived.

[2] Price ratio obtained from Kuznets, *Commodity Flow and Capital Formation*, vol. I, table II–7, and footnote D of table VI–5. The price ratio for services is from a specially constructed index shown in appendix 18, sec. 4.

[4] For further discussion of the relation between price behavior, durability, and sensitivity to depression, see chap. VIII.

CHART XIII

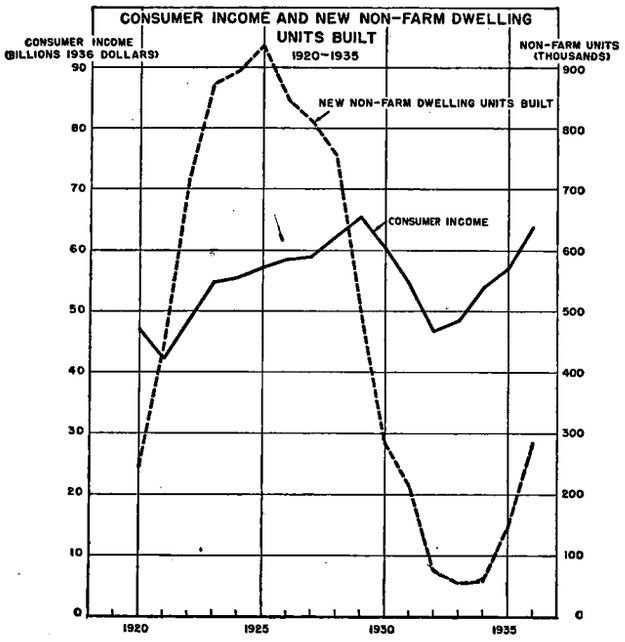
PROPORTION OF GOODS AND SERVICES BY DEGREE OF DURABILITY,



Source: Based upon data given in appendix 18, section 4.

1919–1935

CHART XIV



Source: Based upon data given in Appendix 18, section 9.

Because of the major structural importance of these different categories it seems desirable to examine their behavior in more detail. Examination of chart XII shows that the four categories of consumers goods, producers durable goods, business construction, and public works follow a somewhat similar course, moving down together with depression and moving up with recovery though their trends of change and sensitivity to depression are different. This pattern of behavior appears to be closely related to the variations in consumers real income also shown on the chart. For each of the categories, the post-war peak of production was reached in 1929 along with the peak of consumer income, the depression low was reached in 1932 along with the low in consumer income, or in 1933, the year after the low in income, and each series has recovered considerably above the depression low. This close relation is shown statistically in the table below which gives the proportion of the variation in each of these durability categories which is paralleled by variations in consumers income adjusted for a time factor to account for differences in trend.

In contrast to the other categories of goods, residential construction appears to vary more independently of the variations in consumer income.) Such construction reached its peak in 1925 and continued to decline from then until 1933, its low point corresponding roughly to consumer income at its low but in other respects having little relation to the latter. This partial independence of the two series is clearly brought out in chart XIV, which shows both the number of nonfarm dwelling units constructed each year and the size of total consumer income.

TABLE V.—*Percent of variation, 1919 to 1935, which is paralleled by variation in consumers' income and a time factor*

Services	92. 7
Nondurable	83. 9
Semidurable	73. 9
Consumers durable	93. 8
Producers durable	93. 0
Business construction	91. 0
Public works	82. 9

Source: Based on data given in appendix 18, section 4. Percent of variation is the square of the index of correlation (adjusted) which is derived from a linear regression (in logarithms) relating production in each category to consumer income and time, using the data for the years of the period 1919–35. The consumer income series is that employed in the report, *Patterns of Resource use*, National Resources Committee. For the data, see Appendix 18, sec. 9, of this report.

A second category bearing only a very crude relation to consumer income is the net addition to producers' inventories.) This fluctuates violently and to a considerable extent independently of consumer income though in the depression it is a negative figure and reaches its largest negative value in the year of lowest consumer income. (It thus bears some relation to consumer income but not the close relation shown for the first group of items.)

In appraising the relation between the different categories of production and consumer income it should be kept in mind that production is both an expression of the producers' reaction to the way consumers dispose of their income and the main source of consumers' income. The lag in durable-goods production suggests that expansion of the production of durable goods other than residential housing follows from the expansion in consumer income and consumer expenditures. This is a possibility which can be accepted as a reliable conclusion only after further research. At the present time it appears as very probable but not conclusively established.

The structure of production insofar as sensitivity to depression is concerned can be made more specific by examining the changes in employment in specific lines of activity. In table VI segments of the economy covering approximately 30 percent of the total employment are arranged in order of their sensitivity to variation in consumers' income. The activities are grouped into five degrees of durability, combining all durable goods in one category and all construction in another category. Inventory does not appear as a separate category since it is not an independent branch of production. The table serves to reaffirm the structural importance of durability. How much this sensitivity of durable goods production is a matter of durability, how much it is a matter of the price inflexibility indi-

TABLE VI.—*Sensitivity of employment to depression in specified segments of the economy*

Index of sensitivity to depression [1] (percent range)	Services	Nondurable	Semidurable	Durable	Construction
0–10	Federal Government except Post Office. Post Office. State and local government. Telephone. Electric power and light. Banking and finance. Automobile transport. Telegraph.	Flour milling. Cane sugar. Petroleum refining. Butter and cheese. Bread and baking. Meat packing. Newspapers, printing and publishing.	Rayon yarn.[2]		
10–20	Transportation other than railroads.	Tobacco. Printing and publishing, except book and music. Chemicals. Paper products. Bituminous coal. Anthracite coal. Manufactured gas. Canning and preserving.	Boots and shoes. Knit goods. Dyeing and finishing. Silk and rayon. Wearing apparel. Glass.	Copper smelting.	Construction.[2]
20–30	Railroads.	Confectionery. Paper and pulp.	Rubber tires. Leather. Leather products other than shoes. Printing and publishing, book and music. Other textiles. Cotton textiles. Paint and varnish.	Nonferrous metals other than copper.	Cement.[2]
30–40		Fertilizer. Coke.	Woolen and worsted. Rubber products, excluding tires and tubes.	Pottery. Nonmetallic mining.[2]	
40–50				Furniture. Automobiles. Iron and steel. Iron and steel products.	Lumber and millwork. Clay products. Iron ore.
50–60				Transportation equipment other than automobiles. Other machinery. Electrical machinery.	Marble, granite, etc.

Source: Based on the data for employment calculated at various levels of consumer income as given in table II of *Patterns of Resource Use*, National Resources Committee. The classification of the segment according to durability is based on table I of appendix 8 of this report.

[1] Sensitivity to depression is defined in this case as the percent increase in employment corresponding to a change in consumer income from 65 to 78 billions of 1936 dollars a 20 percent increase) interpolated from table II of *Patterns of Resource Use*, National Resouces Committee.

[2] Estimates are less reliable.

cated in table VI, and how much price inflexibility is itself a matter of durability, are questions whose discussion will be postponed to chapter VIII below.

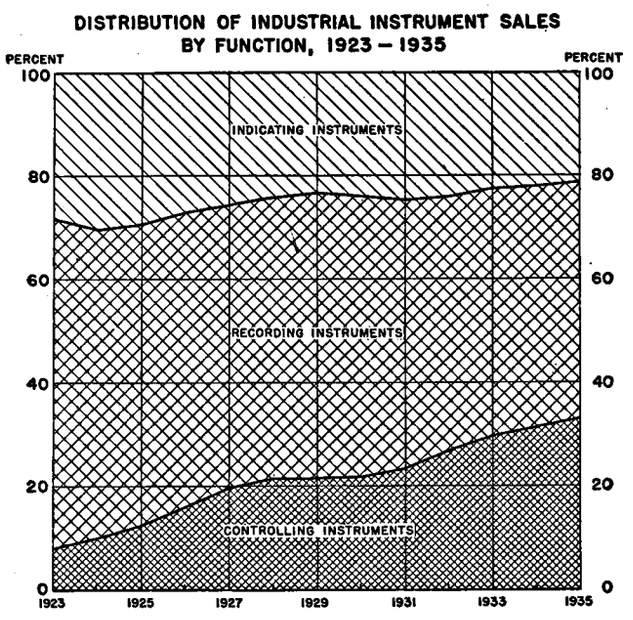
Technology

Contributing to the greater emphasis on durable goods is the continuing development of improved technology. Partly this takes the form of new commodities, such as the automobile and the talking movie, which satisfy wants not previously satisfied or not satisfied so effectively. Partly the improving technology takes the form of techniques or machines which conserve resources, labor-saving devices such as the continuous strip rolling mills, fuel-saving devices such as the improved steam generating power plants, or raw material saving as in the case of the new high-strength steels. Constant improvements in technique make for changes in the structure of production.

The two most important effects of technical change on the structure of production have been the increasing mechanization of production, largely through the introduction of automatic machines, and the improved organization of production in specific areas. In the home, the office, the farm, and the factory, automatic machines are performing services which contribute to a higher standard of living, increase production or release manpower and make it available for some other use. The increased use of automatic machines in industry is graphically indicated in chart XV which shows the proportion of total sales of instruments to industry which are used to control production processes. Such instruments make up nearly one-third of all instrument sales in 1935 whereas in 1920 they constituted less than one-twelfth of such sales.

Coupled with increasing mechanization has been the development of scientific management and improved techniques of organization. In the absence of any change in mechanical instruments, division of labor and synchronization of activity may lead to greatly increased productivity. In some of the most highly mechanized industries it is organization quite as much as mechanization upon which productivity rests. The automobile assembly line is relatively simple mechanically. Organizationally, it must function without a hitch. The large-scale, highly integrated organization of the railway system contributes its major technology. The telephone system is in essence a highly complex, smoothly functioning organization of individuals and materials.

CHART XV



Source: Works Progress Administration, national research project, *Industrial Instruments and Changing Technology*, figure 10, page 40.

Techniques of organization have extended their scope strikingly in recent years. Scientific management has grown from preoccupation with the minute detail of industrial processes—the efficiency of the individual worker's movements—to concern with problems of broader scope—the whole organization of an enterprise, the clarification of duties among departments and branches of the organization and the disentanglement of functions involved in techniques of administration. This development has made possible a greater product per worker often quite as significantly as has increased mechanization.

The saving of manpower in different lines of activity resulting from mechanization and improved management is indicated in chart XVI which shows the decline in the manpower required per unit of production in five major segments of production in the post-war period. The decline in manpower requirement for the same amount of production has been greatest in manufacturing, amounting to approximately 45 percent from 1920 to 1932. Mining, steam railroads, and telephone requirements dropped roughly 20 to 25 percent.

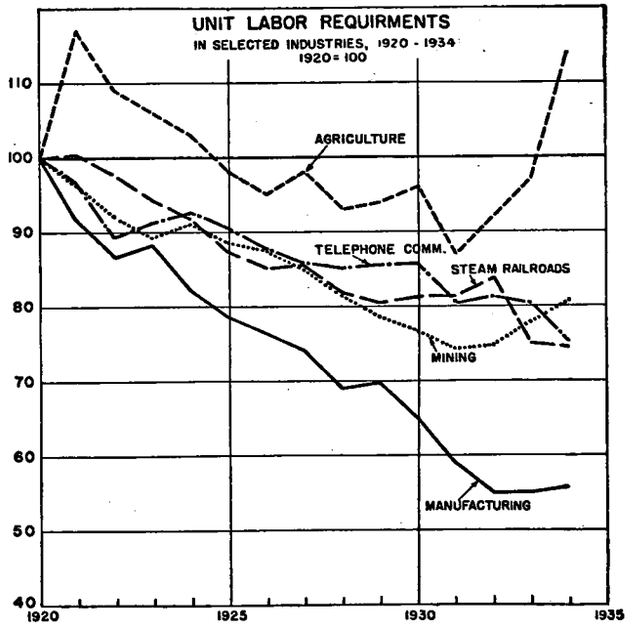
The decline in manpower requirements in agriculture appears to have been more uneven and less marked. Since the estimate of unit labor requirements is largely derived from a comparison of the volume of output with the number of persons employed, the effects of bad seasons in reducing crops and of depression in backing up surplus workers on the farms appear as increases in the amount of labor required per output. Studies of changing techniques in the production of specific crops show continuous declines in labor requirements rather than the uneven trend shown here.

With the exception of the utilities, the increase in output per worker appears to have been checked during the depression. The effect of technological improvements, however, is obscured by the fact that an apparent slowing down in the rate of increase in output per worker may reflect a decline in new invention, a reduced rate of new construction which would mean that new inventions were put into use less rapidly, or an increase in part-time employment.

If similar data were available for trade and consumer services, they would probably show only a very minor reduction in the manpower per unit of production in these fields.

This release in manpower per unit of output continued fairly steadily from 1920 onward but, whatever hardships it may have placed on individuals, it did not involve an absolute diminution in total employment prior to 1930 since the total manpower employed in 1928 and 1929 was 8 percent and 10 percent greater than in 1920. Nor is there convincing evidence that the great unemployment in the depression of the thirties was a direct result of technical improvement. The increasing mechanization and increased integration of production unquestionably altered somewhat the structure of the whole economy and through that influence may have made the whole economy more subject to depression.

CHART XVI



Source: Based on data from *Technological Trends and National Policy*, National Resources Committee, 1937, table 8, page 77, for all industries except agriculture. For the data on unit labor requirement in agriculture, see appendix 18, section 10.

Potential Production

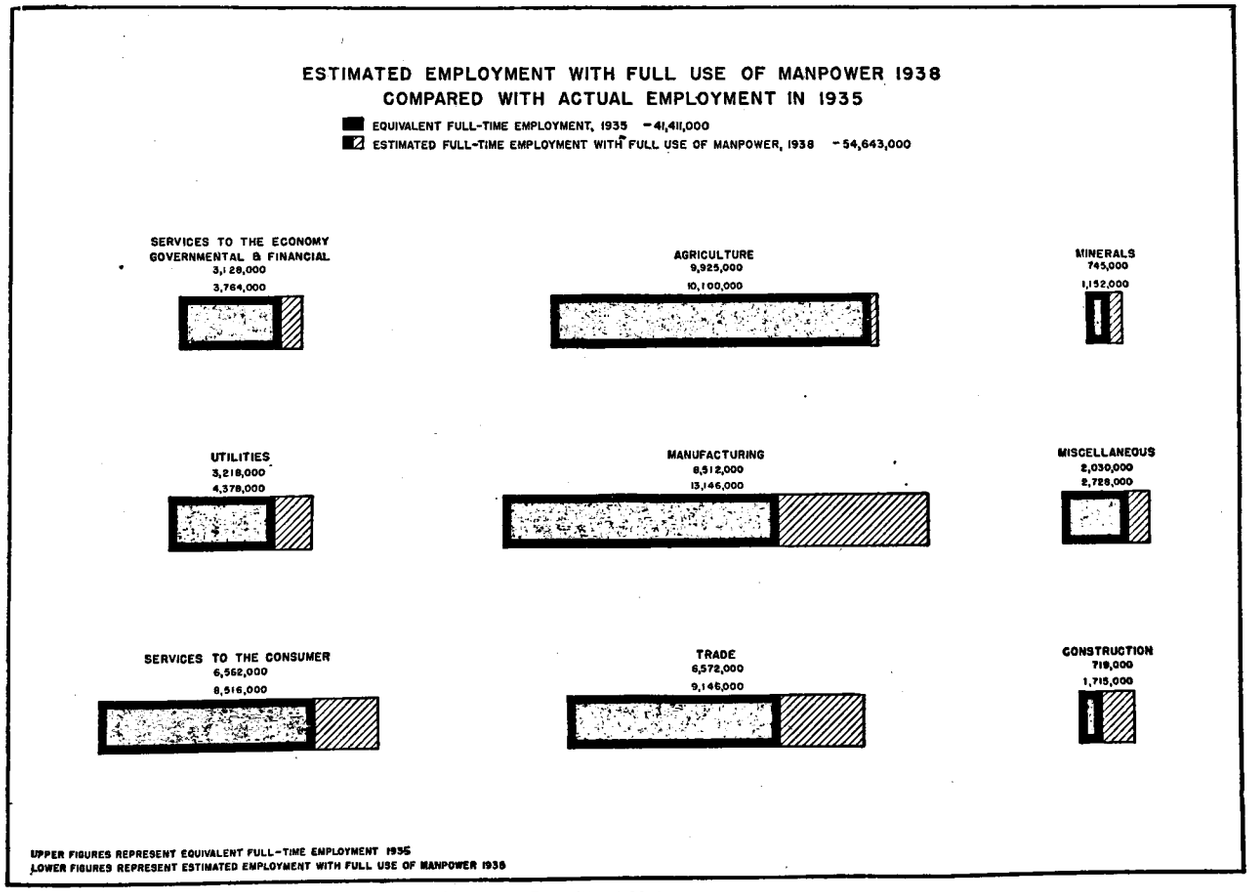
The combined effects of long-time trends, technological change affecting the manpower required for a given volume of production and sensitivity to depression may be seen in the following chart, XVII. Here the potentialities of 1938 are set forth in contrast to the actualities of 1935, for the major segments of the whole economy. The totals for each segment here shown represent the 1938 distribution of employment which it is estimated would correspond with the full use of manpower, taking into account trends in consumption habits and technological changes. The assumption of no unemployment is unrealistic in view of the fact that at no time since 1920 have there been fewer than one and one-half million unemployed. The figures for no unemployment are used because of the absence of a basis for estimating the minimum feasible unemployment. The black portion of each segment represents the actual employment in 1935, reduced to the equivalent of full-time employment. The size of the difference indicates the areas where the absolute increase in employment which would accompany the full use of resources is greatest. A comparison between the black and gray portions of each segment shows the percentage increase which would correspond with full employment under these conditions. The data for construction are very inadequate and the estimate of potential employment is less reliable for this than for other segments.

International Trade

One more major element in the structure of production needs to be considered—international trade. So far only production within the United States has been considered. Actually part of the product of American industry is exported in exchange for commodities and services from abroad. The total volume of exports, including services to foreigners in this country, in 1935 amounted to 2,360 million dollars or approximately 5 percent of the country's total production.[5] The propor-

[5] This percentage is derived as follows: Total production including services in 1929 dollars for 1935 is 62,849 million dollars (as given by S. Kuznets in *Commodity Flow and Capital Formation*); total exports including services in 1935 amounted to 2,360 million dollars or 3,159 millions of 1929 dollars (derived from data of the Bureau of Foreign and Domestic Commerce. The ratio is 5 percent.

CHART XVII



Source: Based upon data in *Patterns of Resource Use*, National Resources Committee, table 1.

tion of the products of three major segments which were exported in 1937 is indicated in table VII.

TABLE VII.—*Proportion of major exports to domestic production, 1937*

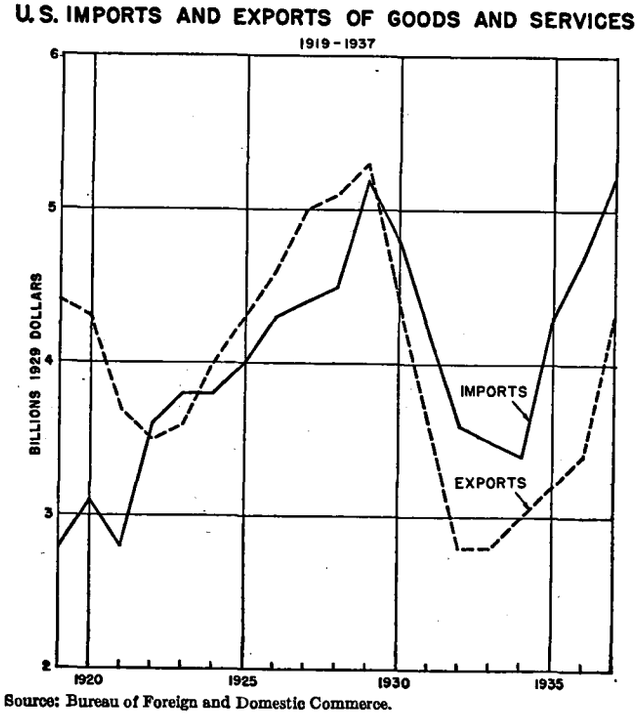
[Value in thousands of dollars]

	Total production	Exports	Proportion exported
			Percent
Agricultural products	[1] 9, 636, 000	[2] 795, 034	8. 2
Mineral products (crude)	[3] 5, 440, 000	[4] 177, 609	3. 3
Manufactures	[5] 58, 850, 000	[6] 2, 471, 303	4. 2
Total exports (including services)		[7] 4, 579, 000	
On the basis of an alternate method of computation, the results are as follows:			
Raw agricultural products	[1] 9, 636, 000	[8] 757, 179	7. 8
Mineral products (crude)	[3] 5, 440, 000	[4] 177, 609	3. 3
Value added, all manufactures	[9] 25, 070, 000	[10] 1, 107, 895	4. 4

[1] Bureau of Agricultural Economics, mimeographed release of May 21, 1938. Gross farm income.
[2] Bureau of Foreign and Domestic Commerce, total agricultural exports.
[3] Bureau of Mines, total value of all minerals produced.
[4] Bureau of Foreign and Domestic Commerce, total value of minerals included in exports of crude materials.
[5] Estimated by applying percentage change in a value index to the 1935 census figures.
[6] All manufactures and semimanufactures.
[7] Bureau of Foreign and Domestic Commerce, Finance Division.
[8] Value of crude agricultural exports plus value of exports of crude foodstuffs plus estimated value of raw materials contained in exports of manufactured foodstuffs and semi-manufactured and manufactured agricultural products.
[9] Estimated by applying ratio of value added to value of product (according to 1935 Census figures) to estimated value of product in 1937.
[10] Estimated by applying appropriate ratios to exports of all manufactures.

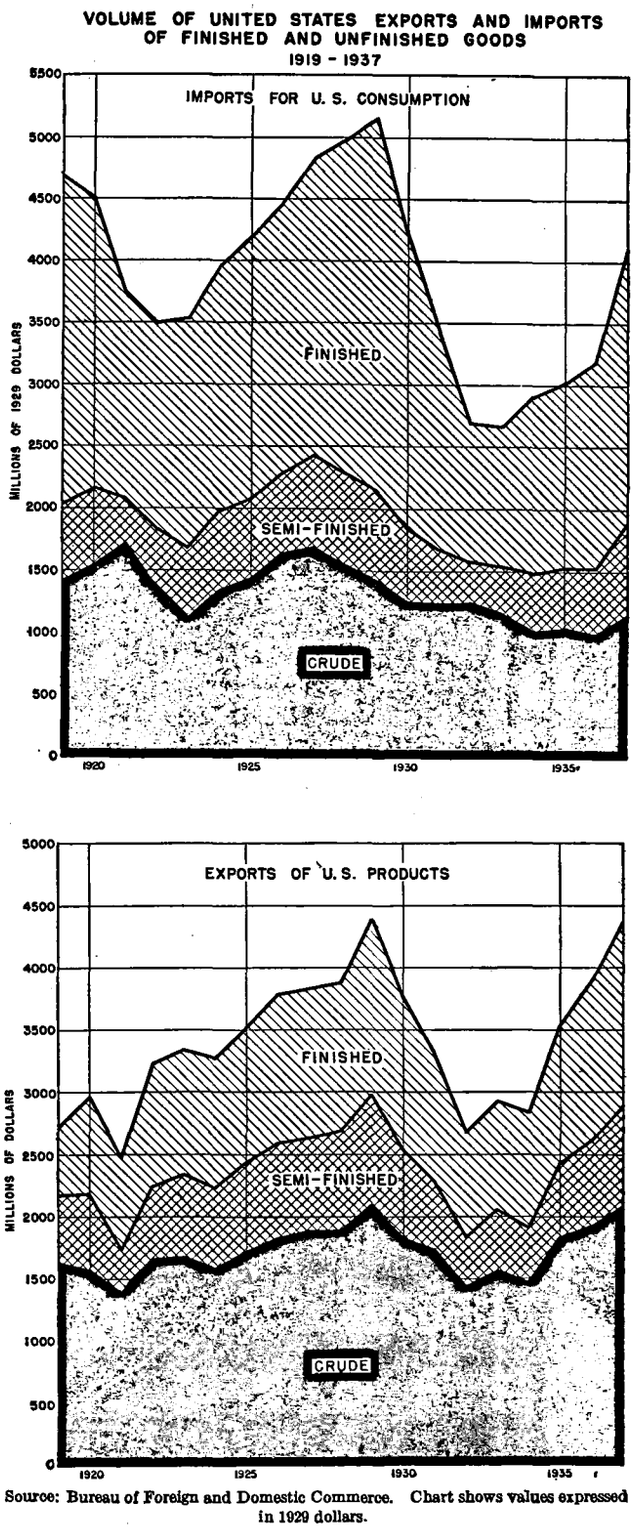
The total exports (both commodities and tourist expenditures) each year since 1919 are given in chart XVIII in terms of 1929 dollars. Table VII–A shows

CHART XVIII



Source: Bureau of Foreign and Domestic Commerce.

CHART XIX



Source: Bureau of Foreign and Domestic Commerce. Chart shows values expressed in 1929 dollars.

the proportion of national production of commodities that has been exported in each census year, without any adjustment for price changes. Total exports show a declining trend both in absolute amounts and as compared with total production. The changing composition of exports is shown in chart XIX. A little more than half the value of total exports is made up of finished manufactures, while raw materials are next in importance. During the depression, more raw materials were exported and correspondingly less finished manufactures; and with recovery, exports of raw materials have fallen sharply in proportion to the total, while exports of finished manufactures, especially machinery and vehicles, have taken their place. Exports of semimanufactured goods have shown a steady, though slight, increasing trend in proportion to the total for the entire period of 1919 to 1937.

TABLE VII–A.—*Total production of goods and proportion exported, 1919–37*

[Millions of dollars]

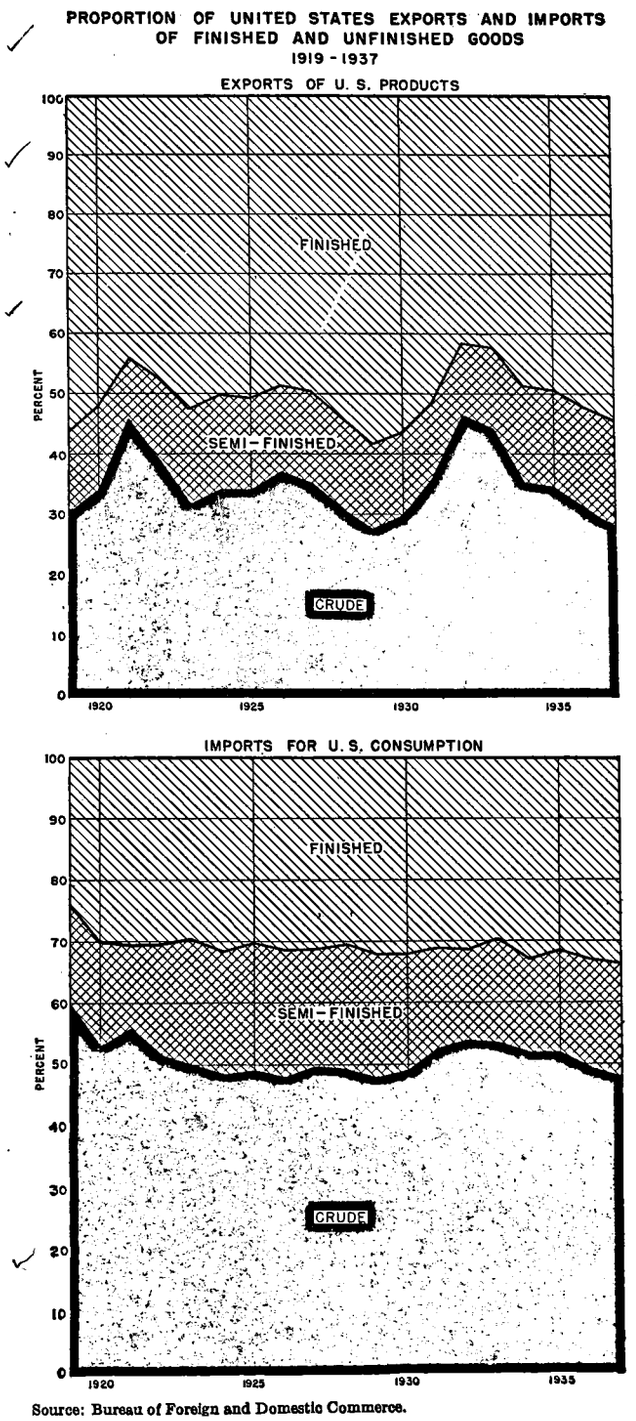
Year	Total United States production	Exports of United States merchandise	Percent exports are of total production
1919	48,527	7,750	16.0
1921	34,163	4,379	12.8
1923	45,903	4,091	8.9
1925	47,494	4,819	10.1
1927	47,930	4,759	9.9
1929	52,825	5,157	9.8
1931	32,337	2,378	7.4
1933	24,945	1,647	6.6
1935	32,937	2,243	6.8
1937	(1)	3,295	[2] 7.5

Source: Bureau of Foreign and Domestic Commerce, *Summary of United States Trade With World*, 1937, p. 39.

[1] Not yet available.
[2] Based on a rough estimate of value of total production.

The primary function of these exports when considered in terms of the whole economy is as an exchange to obtain goods which cannot be produced in this country or which would cost more to produce in this country than other things which might be exported in exchange for them. As has already been indicated, approximately 40 percent of the country's imports (including imports from Hawaii and Puerto Rico, and expenditures of Americans abroad) in 1929 was made up of tropical products and minerals not available in the United States, while another 15 percent was made up of services rendered to Americans abroad as tourists or on business. The remaining 45 percent of imports was made up of things most of which could have been produced in this country but which can be obtained more cheaply by exchange. Thus the country exchanges American produced cotton for Japanese silk, wheat flour and cotton cloth for Cuban sugar, and raw cotton for French brandy and wines. Total imports are

CHART XX



Source: Bureau of Foreign and Domestic Commerce.

shown in chart XIX and XX, divided into the different major categories. The presence of tariffs both in this country and abroad tends to reduce this type of desirable exchange but has at the same time the advantage that it somewhat reduces the impact of foreign conditions on particular industries in this country.

In a general way, exports and imports rise and fall together; both have shown great sensitivity to depression, exports dropping in 1932 to 68 percent of their recent predepression trend and imports dropping to 86 percent of their corresponding trend. The composition of imports in terms of the degree of fabrication shows less marked trends of change than that of exports, the proportion of each major category to the whole being shown in chart XX.

While American imports and exports in recent years have tended to be of approximately the same magnitude and offsetting, there are financial transactions in addition as long- or short-term investments are made or retired between countries or as the profits from investment are realized. Such financial flows and their repercussions on production will be discussed in chapter VI.

The preceding pages represent an effort to indicate the main structural characteristics of production as reflected in the data for the period since the World War. These characteristics are altogether too complex to be summarized in a single paragraph. Yet certain outstanding items can be brought into review. In respect to proportionality the outstanding characteristics which call for note are (1) the greater amount of both manpower and capital employed in agriculture than in manufacturing, yet the very much smaller money value attached to the agricultural contribution to production than to the contribution of manufacturing, a difference which can be partly explained by the low level of agricultural prices; (2) the high proportion of capital invested per worker in the public utility field; and (3) the relatively large contribution to national production made by governmental and financial activities even when the post office and education are excluded. In respect to the changing character of production through time after adjustment for depression influence there are two most striking characteristics. First, there is the tendency for a decline of employment in the extractive segments, agriculture and mining, the lack of any significant post-war trend toward expanding employment in manufacturing and in utilities as a whole, the contraction of railroad employment counterbalancing expansion in other utility activities and the trend of expanding employment in trade, service to the consumer and in the field of government and finance. Second, there is the slight tendency for production to be shifted from nondurable to durable goods. Thus the economy as a whole is undergoing gradual changes in the relative emphasis likely to be placed on different types of productive functions when resources are fully employed.

In respect to depression behavior, the various economic functions show varying degrees of sensitivity to depression forces, the most stable being agriculture and governmental activity while the most sensitive are mining, manufacturing, especially of durable goods, and construction. The greater sensitivity of production in these latter segments is linked with a smaller depression sensitivity of prices. The implication of this will be considered in chapter VIII. Altogether the structure of national production, expanding over a period of years with the increase in the labor force and with improving techniques of production but frequently falling way below the full use of resources, shows a gradually changing proportioning of activity through the years and quite marked differences in the sensitivity of different types of activity to depression. The reasons for the failure of production to be maintained at a level which will fully employ the available resources will be discussed after the financial overlay to production has been considered.

CHAPTER VI.—THE STRUCTURE OF PRODUCTION—FINANCIAL OVERLAY

In the two preceding chapters on the structure of production, attention has been entirely focused on the concrete physical activity of production, its location, and its characteristics. But the bulk of productive activity, apart from home production for home use, is carried on at least in part through the use of money, and the process of production is punctuated by money transactions.[1] It is the purpose of this chapter to indicate the way in which these transactions in combination involve a continuing flow of money overlying production, to show the magnitude of the major money flows and to discuss certain of the factors affecting them.

Money Flows Overlying Production

At frequent and irregularly spaced intervals in the production process money changes hands with respect to some phase of that process. It is successively involved in the long drawn-out activity whereby cotton is raised, ginned, transported to the cotton mill, spun into yarn, woven into cloth, transported to the clothing manufacturer, made into overalls, distributed in bulk to wholesalers, broken into smaller lots and distributed to retailers, and finally distributed, one pair at a time, to the ultimate consumers. A series of money transactions prick out the pattern of production as the farmer pays for seed, rents land, hires cotton pickers, sells his cotton; as the ginning of cotton and its transport are paid for; as the goods change hands in the successive steps toward the consumer; as each producer hires workers, pays for materials and power, pays taxes for the services rendered by government, and pays interest and profits to the holders of financial interests in the enterprise.[2]

In this manner a long series of money transactions outline the physical process of production with considerable detail, yet all of the separate steps in production are not reflected in money transactions. Within a single enterprise production goes on without money changing hands at each stop. There is no separate money transaction as the cotton is put through each of the separate machines in the textile mill. Only as goods are transferred between economic units, or as factors of production are supplied by individuals or enterprises to other individuals or enterprises, does the productive process involve money transactions.

The more highly integrated an industrial process, the fewer the money transactions as the goods move toward the consumer. The Ford Motor Co. can mine ore and coal, make steel, and fabricate it into automobiles without money transactions intervening between these steps. But even in such a highly integrated process of production, money transactions outline the different stages as wages are paid for the different types of activity, taxes are paid on different properties, and materials have to be bought.

Even in the case of government where most services are rendered to business or ultimate consumers without any specific charge for the specific service the process of rendering services is pricked out in money terms as salaries are paid to school teachers, as the labor and material costs of road building are paid, as judges and police are paid, and as the multitude of other productive activities of government are financed.

Thus, for practically the whole of productive activity, except that carried on in the home, there is a pattern of financial flows overlying the physical flows of production. At intervals the financial flows are attached to the physical flows by money transactions. In the following discussion, the structure and magnitudes of these money flows will be sketched as far as possible. At many points, particularly with respect to saving, there are insufficient data available to show magnitudes; at some points there is so much confusion of understanding that even if data were available there would be disagreement as to how they should be interpreted. In spite of its inadequacies, this sketch of the financial overlay to the productive structure is given because of the fundamental importance of financial factors to the functioning of production. The character of the major money flows will be taken up first and then their magnitudes.

The Major Money Flows

The major financial flows and the main production flows differ both in the direction and in the circularity of flow. Production moves by successive steps towards the consumer while the money flows directly connected with production move in the opposite direction. Production, with rare exceptions, is a straight line flow toward the consumer, ending with the latter. Money flow is in the main a circular flow, the same dollars

[1] Productive activity is also carried on within other consuming units for consumption within the units as is the case to some extent in children's or old people's homes and army camps.

[2] There is some question whether interest, dividend, and tax payments are properly included as involving transactions. They are clearly part of the circuit flow of money and will be included as transactions in this discussion.

being able to repeat the circuit time after time. It is partly because of the circular character of the flow of money that the financial flows are so poorly understood as compared with the more direct flows of production.

There are three basic elements in the circuit flow of money which are of primary importance to the structure of production. These are, first, the flow of money from producers to consumers in the form of consumer income; second, the reverse flow of money from consumers to producers as consumers purchase goods; and third, the flow of money from consumers to producers through the investment of savings. The money flowing to consumers as income is received as a return from work in the form of wages and salaries, as a return from investments in the form of interest, dividends, and rents, or as entrepreneurial withdrawals representing a return from work and investment in combination.

Characteristics of Money Flows

The money flowing from consumers to producers through the purchase of commodities and services is usually paid first to the final distributors and is then in part successively passed back to producers at earlier stages of production as each producer purchases commodities or business services from other producers. To some extent consumer savings are used in such a way as to finance consumption by others, in which case the money may pass through other hands before reaching the final distributor through the purchase of goods.

The money flowing from consumers to producers through the investment of savings may go direct to the producer who makes use of the savings or may reach him indirectly through a series of financial institutions which act as middlemen, bringing together funds from investors and distributing them to producers. Whatever the particular route by which money travels back and forth between producers and consumers in each of these flows, together they constitute the basic pattern of the circuit flow of money.

Although this basic set of money flows has been described as though money were first paid out to consumers as income and then money were received back by producers either through the sale of goods or the issuance of securities, there is in fact no necessary beginning or ending to the process. No study of the money actually in circulation can determine whether it originally entered the circuit through the hands of producers or the hands of consumers. It would be just as correct to describe the flow as one in which consumers purchased goods or invested in enterprises and then had their money supply replenished through the receipt of wages, salaries, interest, dividends and other sources. Both processes go on simultaneously and neither precedes the other as a necessary condition of production, however much particular injections of money into circulation can be said to be made initially through the hands of producers or of consumers.

In addition to the goods purchased, both consumers and producers obtain commodities and services, particularly the latter, from government without making any specific payment for the specific goods obtained. The production of these goods is financed in part out of taxes levied on both consumers and producers and in part out of governmental borrowings. In the circuit flow of money, the money collected as taxes performs much the same role as the money collected by producers through sales, in both cases providing the funds out of which current production can be financed. Likewise the money obtained through governmental borrowing roughly corresponds in the circuit flow of money with the money obtained by producers through the issuance of securities.) When government is included as a producer, the three basic flows in the circuit flow of money thus consist of (1) the money flow to consumers in the form of money income, (2) the money flow from consumers to producers in payment for goods plus the taxes paid to government, and (3) the money flow to producers, including government, as savings are made available to them. Besides these basic flows there are secondary money flows such as those involved in the use of installment credit and in the disposal of corporate savings, which are important to the structure of production.

In addition to such money flows, there are various money transactions which have little significance for the structure of production. Thus the sale of securities by one investor to another has little direct significance for production since it does not supply new funds to finance new capital formation. So also the money flow accompanying a transfer of an existing property from one owner to another such as the sale of a farm or home may not be connected with a step in the process of production. Likewise, gifts between consumers only shift purchasing power without contributing to the process of production. All of these can be disregarded in considering the financial overlay to production.

On the whole and over any considerable period of time, the monies paid out to consumers as income are of the same general magnitude as the monies received by producers through the sale of goods, through taxes, or through the sale of securities or the obtaining of loans.[3] However, in any relatively short period it is probable that, even if the total money supply remained constant, serious discrepancies could arise either through the building up of cash holdings by producers at the expense of consumer holdings or of consumer holdings at the expense of producer holdings. Likewise, if there is a significant alteration in the supply of

[3] The monies paid out by producers in retiring outstanding securities are implicitly treated as involving negative sales in the above statement.

money, the monies paid out and received by producers may differ considerably.

There are many persons who believe that differences in the relative money flows are of major significance as a structural feature of the American economy, instituting or contributing to declining use of resources under some conditions and to expanding use of resources under other conditions. At the present time, there is too little data available to measure the magnitude of such discrepancies in the circuit flow of money with any degree of precision. Yet potentially they seem so important that intensive research in this field is called for. Is sufficient purchasing power being generated by business and government together to bring about the full employment of available resources, insofar as purchasing power alone can do this? Under what conditions is a deficiency likely to arise and how could it be remedied? The answers to these questions are important for understanding of the financial overlay to the structure of production. Yet in this report the most that can be done is to indicate the magnitude and character of financial flows without being able to indicate the magnitude of any discrepancies in relative flow which might have occurred.

Even this more meagre objective involves difficulties due to the incompleteness of the available data. It is particularly difficult to trace through the money flows involved in the process of capital formation. For this reason the statistical data will be limited to the flow of income into the hands of consumers, the disposal of this income, and the flow of money between producers.

Money Flows to Consumers as Income

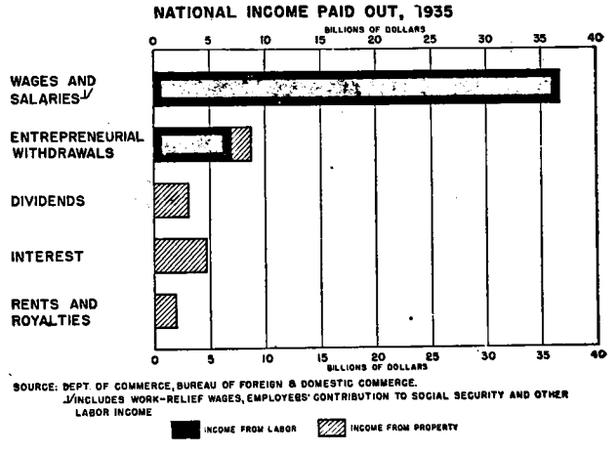
The total flow of money to consumers as income amounted to approximately 55 billion dollars during 1935. The form in which this income was received is indicated in chart I.[4] Approximately two-thirds was received as wages and salaries, a little under one-sixth as a return from property in the form of interest, dividends, rents, and royalties, and the remainder as entrepreneurial withdrawals derived from such activity as farming in which both labor and physical capital are supplied by the income receiver. A very rough allocation of this last amount between property and labor is suggested in the chart. On this basis nearly four-fifths of income receipts of consumers can be attributed to receipts from labor and approximately one-fifth to receipts from property. The industrial source of this income is indicated in chart II.[4]

The changes in the amount of money income paid to consumers are indicated in charts III and IV.[4] In these charts the data for the years 1919 to 1922 reflect the violent readjustments which were the aftermath of the war, particularly the violent price decline of 1920–21 and tell no clear story. The years from 1923 to 1929, a period of relative price stability and relatively full employment, are more significant in the story they tell of trends of change. In this period, consumer income shows a steady upward trend. The income of farmers and other entrepreneurs shows a gradual absolute increase but falls behind in the proportion of the total, dropping from 17.2 percent of the total in 1923 to 15.7 percent in 1929. The remaining consumer income was derived in almost constant proportions from labor and from property, 79.1 percent coming from wages and salaries in 1923 and 78.0 percent in 1929, an insignificant difference in the light of the possible error in the income estimates. In the depression period, 1929 to 1932, the total consumer income dropped precipitately, but the relative importance of income from property, labor, and from entrepreneurial activity as a source of consumer income remained virtually constant, though interest became a larger proportion of income from property as total consumer income declined while salaries in similar fashion became a larger proportion of income from labor. In the recovery period from 1933 to 1937 total consumer income recovered most of its depression drop, wages and salaries recovering slightly more than income from property. On the whole there appears to have been a remarkable degree of stability in the division of income between labor and property in spite of the violent changes in the total amount of consumer income.[5]

[4] For the data on which these charts are based see appendix 18, section 11.

[5] This does not mean a high degree of stability in the proportion of national production going to labor and capital respectively since the dividends paid by corporations in any time period are not necessarily just equal to the profits made. In periods of high or increasing profits corporations as a group are likely to add to their surplus while in periods of low or declining earnings they are likely to pay out in dividends more than they are currently earning. Since this chapter is concerned with money flows rather than with the division of products it is the income paid out not that produced which is important.

CHART I



The relative distribution of income among different income groups has already been shown in chapter II, chart I, for 1935–36. Approximately 70 percent of consumer income went to persons or families with incomes under $3,000, over 80 percent to consumers with incomes under $5,000, and approximately 13 percent went to consumers with incomes over $10,000. No reliable information is available as to any shifts in income distribution which may have arisen in recent years but the relatively stable proportion of consumer income derived from labor and property respectively suggests that no violent changes in the proportionate distribution of income between different groups of consumers have taken place.[6]

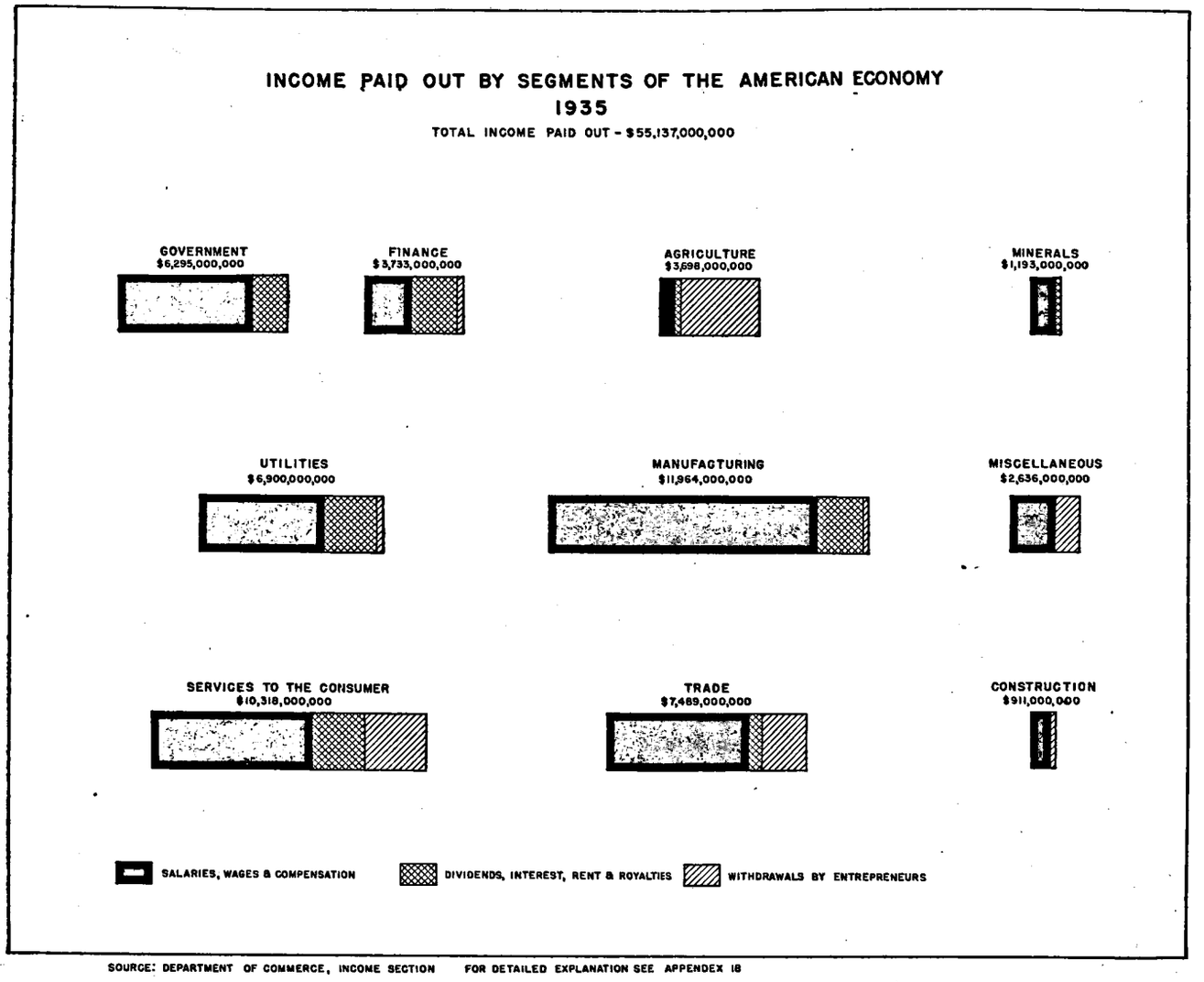
[6] It would be quite possible for a large shift in proportionate distribution of income of income to occur without any significant effect on the proportions of income derived respectively from labor, property, and entrepreneurial activity, but such a shift seems unlikely.

Money Flows Involved in the Disposal of Consumer Income

While the available data does not make it possible to trace through the two main flows from consumers to producers into current consumption and capital formation respectively, it is possible to throw some light on the initial step in those flows by examining the disposal of consumer income. (Consumers can use their income to finance consumption, whether spending it themselves, paying direct taxes, or making gifts to institutions which spend it on social consumption; or they can save their income, either holding the savings in the form of money or investing them in securities or property.)

In table I, estimated consumer income in 1935–36 is divided into the four categories, expenditure on con-

CHART II



SOURCE: DEPARTMENT OF COMMERCE, INCOME SECTION FOR DETAILED EXPLANATION SEE APPENDEX 18

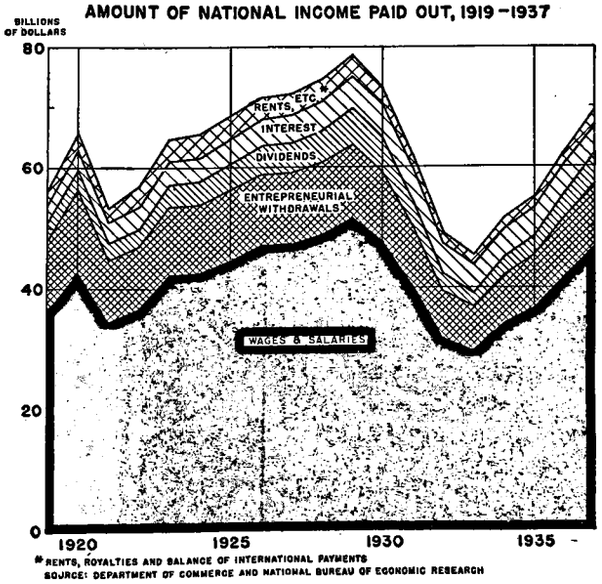
sumption, personal tax payments, gifts, and savings.[7] The 50 billions of expenditures on consumption represent direct payments to producing enterprises for commodities and services plus taxes paid in connection with such goods [8] while the 889 millions paid by consumers in personal taxes constitute one of the bases for financing the services rendered by government. Much of the 2,178 million dollars disposed of as gifts went to finance the services rendered by such institutions as churches, hospitals, and schools. The figure of six billions of income estimated to have been saved by consumers is a very much less accurate figure than that for consumer expenditure but does reflect roughly the magnitude of consumer savings. This sum may in part have been held by them in the form of money, thus constituting an addition to their money holdings; in part it may have been invested in such a way as to finance expenditure on consumption by other consumers as in the case of savings used to provide the loanable funds of installment finance companies; presumably only a part was invested as a step in the process of capital formation and used to finance the construction of new plant or additions to producers' inventories. Data are not available to estimate this latter amount. However, it may be said that of the money flows from consumers to producers in the disposal of consumer income approximately five-sixths represented direct payment for commodities and services, and roughly one-tenth represented savings invested in plant and producers' inventory or loaned to government or disposed of in some other fashion.

[7] In this calculation taxes paid by consumers on owned homes are treated as part of expenditure on housing and all owned homes are treated as independent investments.

[8] Such as sales taxes, automobile taxes, and real estate taxes.

CHART III

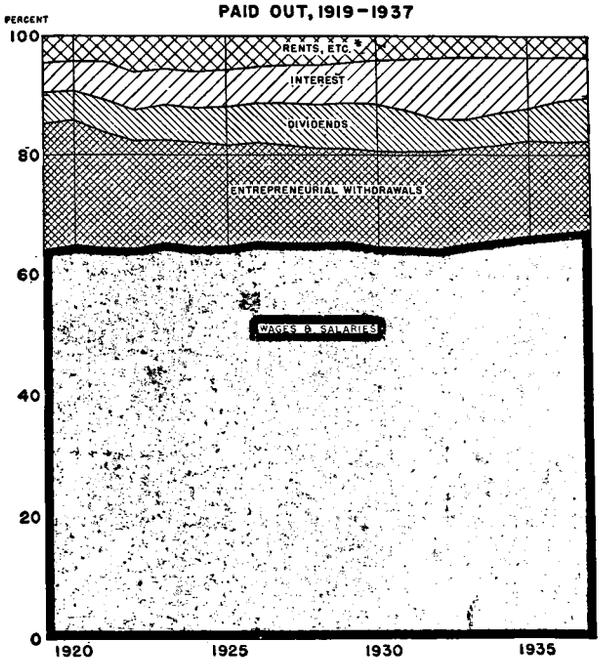
AMOUNT OF NATIONAL INCOME PAID OUT, 1919–1937



*RENTS, ROYALTIES AND BALANCE OF INTERNATIONAL PAYMENTS
SOURCE: DEPARTMENT OF COMMERCE AND NATIONAL BUREAU OF ECONOMIC RESEARCH

CHART IV

PROPORTIONATE DISTRIBUTION OF NATIONAL INCOME PAID OUT, 1919–1937



*RENTS, ROYALTIES AND BALANCE OF INTERNATIONAL PAYMENTS
SOURCE: DEPARTMENT OF COMMERCE AND NATIONAL BUREAU OF ECONOMIC RESEARCH

TABLE I.—*Disposal of consumer income 1935–36*

	Million dollars
Expenditure on consumption [1]	50, 214
Personal taxes [2]	889
Gifts	2, 178
Net consumer savings	5, 978
Total consumer income	59, 259

Source: *Consumer Expenditures in the United States*, National Resources Committee, 1939.

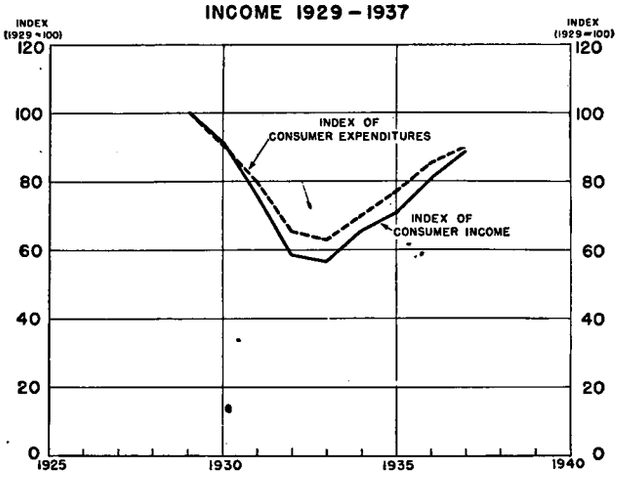
[1] Includes taxes paid in connection with goods consumed, such as sales taxes, automobile license fees, and real estate taxes on owned homes. Also includes the value of home produced food and imputed interest on the value of owned homes.

[2] Includes income taxes, poll taxes, and certain personal property taxes.

No data are available to show the absolute changes through time in the disposal of consumer income taxes, savings, and consumption. However, it is possible to indicate very roughly the magnitude of the changes in the volume of consumer expenditure in very recent years. Changes in consumer expenditure are indicated by an index of total consumer expenditures from 1929 to 1937 in chart V along with an index of consumer income. It is clear that the two fluctuated together during the depression, though expenditure appears to have dropped less and recovered less than

CHART V

INDEX OF CONSUMER EXPENDITURES AND CONSUMER INCOME 1929 – 1937



Source: See appendix 18, section 12.

consumer income. The fact that the index for consumer expenditure runs above that for consumer income does not mean negative savings but only a decline in savings relative to the base year, 1929.

Money Flows Between Producers

Further light can be thrown on the money flows away from consumers by examining the money flows between producers in the successive stages of production. No figures are available presenting these money flows broken down into those flows concerned with current consumption and those concerned with capital formation but the combined money flows between different industries have been worked out for the year 1929 in an unpublished report by Dr. Wassily W. Leontief and are included as Appendix 17 in this report.[9] The results of his analysis are summarized in slightly modified form in table II.[10] The precise figures given do not exactly coincide with other figures contained in this report but the differences are minor insofar as the relative magnitudes of the money flows are concerned.

The figures in table II cover the money flows in 1929 between each of the main segments of the economy except government and finance. Figures are also given for the flows between producers and consumers and the flows between this country and foreign countries in payment for commodities. The rows across the table give the money received by the enterprises in any particular segment from enterprises or individuals in the same segment and from each of the other major segments. Thus, in agriculture, farmers received over 5 billion dollars from other farmers for corn, hay, seed, cattle, and similar items used in further farm production, about the same amount from manufacturing enterprises for wheat, cotton, cattle, and other raw materials for processing or fabrication, about 3 billion for agricul-

[9] Permission to use this material in advance of publication has been generously granted by Dr. Leontief and by the Harvard University Committee on research in the social sciences which is financing Dr. Leontief's study.

[10] The figures in the summary differ from those in Dr. Leontief's table in three respects besides that of summarization. First, the segments, government and finance have been added, though only data on income received by consumers is included under these headings. These amounts have been deducted from Dr. Leontief's item 43c x 44—*Total Services x Undistributed* to make the totals correspond. Second, the consumer service segment has been added and Dr. Leontief's item 43c x 43—*Total Services x Consumption* is treated as measuring both consumer income derived from consumer service enterprises and consumer expenditure on consumer services. This involves some error in that the consumer service activities do involve some payments for materials, taxes, etc., but these are probably not great in comparison with the total item. Finally, the items classified by Dr. Leontief as consumption have been divided up between a new segment, trade, and the category consumer expenditure to which have been added all payments estimated to have been made by retail trade to wholesale trade. The procedure followed is indicated in appendix 18, section 13.

TABLE II.—*Major money flows in the American economy, 1929* [1] *(exclusive of investment flows)*

[Millions of dollars]

The economic units listed at the right paid the amounts of money indicated in the table to the economic units listed below	Money paid by—									Money received from exports	Money payments not allocated to payer	Consumer expenditures	Gross total	Net total
	Government units	Financial enterprises	Agricultural enterprises	Mining	Utilities	Manufacturing	Consumer service enterprises	Trading enterprises	Construction					
Money received by—														
Government units	?	?												
Financial enterprises	?	?												
Agricultural enterprises	?	?	5,346			5,408		2,953		1,194	259	328	15,488	10,142
Mining	?	?	10	357	525	3,403		1,018	1,180	215	759		7,467	7,110
Utilities	?	?	741	1,521	213	2,201				73	3,249	3,146	11,144	10,931
Manufacturing	?	?	1,931	646	2,687	18,467		24,917	2,111	3,675	13,895	2,230	70,649	52,182
Consumer service enterprises	?	?										14,153	14,153	14,153
Trading enterprises	?	?						21,561		1,385		47,196	70,142	48,581
Construction	?	?		36	291	513					3,508	2,623	6,971	6,971
Money paid for imports	?	?	50	24	5	3,647		842	27		402		4,997	4,997
Money receipts not allocated to recipients	?	?	489	2,205	2,136	19,765		6,552	822	73		5,880	37,922	37,922
Income received by consumers	6,470	8,828	6,654	2,873	6,782	20,406	14,153	10,914	3,079		5,791		85,950	85,950
Gross total	6,470	8,828	15,221	7,662	12,639	73,810	14,153	68,757	7,219	6,615	27,863	75,646	324,883	
Net total	6,470	8,828	9,875	7,305	12,426	55,343	14,153	47,196	7,219	6,615	27,863	75,646		278,939

[1] Summarized in a slightly modified form from an analysis given in an unpublished report by Dr. Wassily W. Leontief. For details, see appendix 17, and appendix 18, section 13.

tural products sold to wholesalers or retailers for retail distribution, over a billion from direct exports and approximately a third of a billion from the sale of products direct to consumers, leaving approximately a quarter of a billion of farm receipts in 1929 not accounted for. The gross total of farm receipts from all sources appears to have been over 15 billion, while the net total of receipts by agriculture from sources other than agriculture amounted to approximately 10 billion.

By reading down the first column in the table it is possible to see roughly the disposal of agricultural funds. The 5 billion already referred to was paid by farmers to other farmers, an insignificant amount was paid to mining enterprises presumably mostly for coal, three-quarters of a billion was paid to utilities mostly to the railroads for the transport of farm products, nearly two billion was paid to manufacturers for agricultural machinery, fertilizer, fuel, processed feed, and other things necessary to farm operation. Over 6½ billion was paid out by farmers to consumers in the form of wages, rents, and interest or represented the income of farmers derived from their farm operations. Less than half a billion of farm expenditure remains unaccounted for, a part of which must have been taxes paid to government. The gross total of such items amounted to over 15 billion while the net total of payments made by farmers to other parts of the economy or received as income by farmers amounted to nearly 10 billion. The money payments and receipts of each segment of the economy except government and finance can similarly be read from the table.

This table should not be treated as anything more than a very crude first approximation to the volume of the money flows overlying production.[11] For most segments it shows the relative magnitudes of the money flows, not their precise amounts. It is weak as a representation of all the money flows in 1929 in three major respects. First, it gives only a single item in the case of government and in that of finance. Second, for trade it gives only the minimum money transactions which are estimated to have been involved as commodities were purchased by wholesale trading enterprises, sold to retailers, and in turn sold to consumers or as commodities were purchased directly from producers by retail enterprises and sold to consumers. It does not cover secondary wholesale transactions such as arise when there is more than one middleman between producer and retailer and it does not include in any way such trading transactions as arise when producers purchase commodities from wholesale or retail trading enterprises, the sales by one producer to another through middlemen being treated as though they were direct sales. Finally the table is primarily concerned with the money flows overlying physical production and does not cover the money flows involved in the process of saving and investment. As more complete statistical data become available it would be desirable to complete and make more precise this representation of the money flows involved in production.

The more important of the money flows shown in the table are made graphic in chart VI. For each segment, the money flows between consumers and producers are indicated in gray while the flows between pairs of producers are indicated in black. At the left of each segment the money flowing to consumers as income is represented at the top and money flowing to producers in the form of consumer expenditure is indicated at the bottom. At the right of each segment the money flowing from one producer to another producer in the same segment is indicated. In addition the most important money flows between producers in different segments are indicated. If the remaining money flows were also shown the chart would become too complex to follow. For that reason only their magnitude is indicated under the caption "other." As can be seen from a glance at the chart, the main trunk of money flows runs from consumers to trade, then to manufacturing and in turn to agriculture and to mining, but becomes smaller at each stage as it is reduced by the payments made to consumers as income from labor or capital and those made to the segments supplying services to the whole economy, the utilities, financial institutions, and governmental units. It is this money flow as money moves from consumers into the channels of trade and back to consumers again or from producers to consumers and back to producers through the channels of trade that keeps production going in the American economy.

Factors Associated With Money Flows

The flow of money through these channels is associated with a variety of factors of which the four most important are changes in the total supply of money, the building up or depleting of money balances held by particular economic groups, shifts in the relative flow of funds into current consumption and capital formation, and, finally, changes in price relationships. The last of these will be discussed in chapter VIII. In this chapter a beginning will be made toward delineating the characteristics, magnitude, and changes in (1) the total money supply, (2) the money balances held by different economic groups, and (3) the proportioning of money flows between current consumption and capital forma-

[11] In developing the data underlying this table Dr. Leontief was concerned primarily with the *money value of goods and services* produced by private or corporate enterprise and the money payments made in that connection. He made no attempt to cover *all financial flows*. The incompleteness of the table given above as a representation of all money flows results from the quite different purpose involved in the compilation of the data on which it is largely based. This incompleteness in no way reflects on Dr. Leontief's work.

tion. The lack of adequate data will make the statistical presentation somewhat fragmentary as was the case with the basic money flows. The limited statistical material is included here partly because some sketching in of these factors is essential to an understanding of the structure of the American economy and partly in the hope that subsequent research and data collection can fill out the more significant gaps.

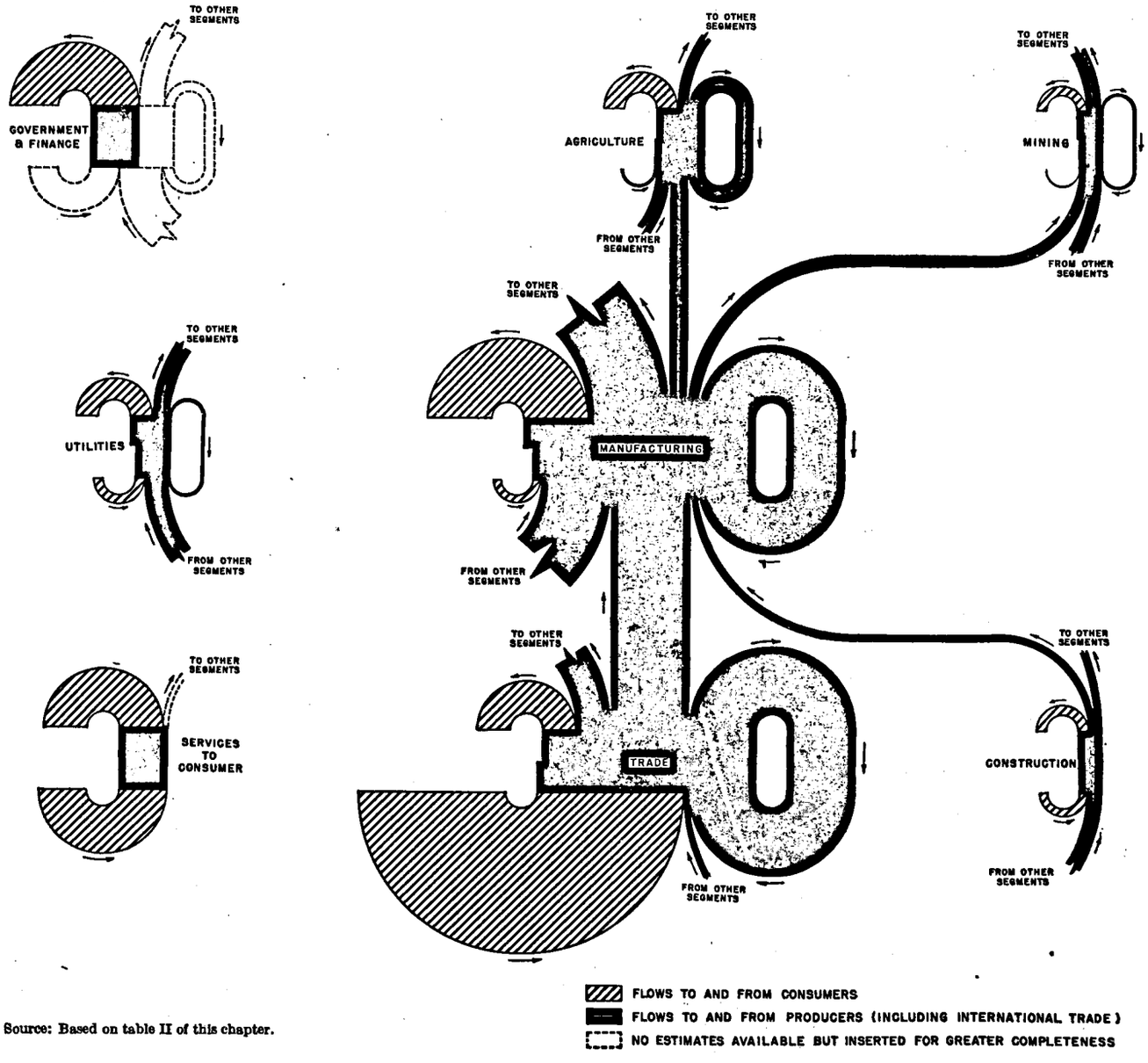
The Money Supply

On June 30, 1935, the total supply of money outstanding in the United States amounted to approxi-

CHART VI

MAJOR MONEY FLOWS IN THE AMERICAN ECONOMY 1929

EXCLUSIVE OF FINANCIAL FLOWS



Source: Based on table II of this chapter.

mately 26.5 billion dollars.[12] This was composed of approximately 4.8 billions of dollars in currency (bills and coins outside of banks) capable of being used as a means of payment in hand-to-hand circulation and 21.8 billions of dollars of demand deposits carried as book entries in banking records and capable of being transferred in these records from the name of one depositor to that of another through checks.[13] By far the larger proportion of the money supply is thus composed of demand deposits, currency contributing only 18 percent of the total.[14]

The variations in the money supply from 1921 to 1937 are indicated in chart VII. The money supply expanded fairly steadily from 1921 to 1929, then contracted sharply to the bank holiday in 1933, and expanded again so that by the end of June 1937 it amounted to over 32 billion dollars. The bulk of this variation took the form of changes in the outstanding deposits. Between the middle of 1929 and 1933, demand deposits dropped over 8 billion dollars, or more than one-third, while most of the increase in money supply after 1933 was in the form of demand deposits.

The wide variations in the total money supply are of considerable importance to the structure of the American economy though there is no general agreement as to the exact role that these variations have played in connection with the variations in the level of production and of prices. Since this report is concerned primarily with the structural characteristics of the American economy rather than its operating characteristics, the exact effect of changes in the money supply on changes in the level of economic activity does not need to be discussed. What is significant for the economic structure is first, that such wide variations in the volume of money outstanding can and do take place within relatively short periods of time,[15] and second, that these changes in money supply necessarily alter the buying power of individuals or institutions.

The great bulk of the money supply in the United States is provided through three channels, bank credit, gold inflow, and government issue. Of these, bank credit is by far the most important while the volume of money outstanding as a result of direct government issue is relatively small consisting mostly of silver certificates, subsidiary coins, and a relatively small volume of United States notes.[16] Likewise the major variations in money supply derive from changes in bank credit. When the banking system expands its loans and investments and thereby increases the money supply, it is providing individuals, enterprises, or government units with buying power without at the same time reducing the buying power of anyone else.[17] Likewise, when bank credit is contracted, the buying power of some economic units is reduced without any

[12] The term "money" has been given many different meanings in economic literature, some more comprehensive than others. In terms of the structure of the whole economy, the significant meaning is whatever is *customarily* given in exchange for goods, securities, or in payment for labor. In this country most goods, securities, or labor transactions involve payment in currency or the transfer of demand deposits from the name of one person or institution to that of another. Some transactions involve barter of goods for goods, as when the farmer swaps butter and eggs for farm supplies at the village grocery. Some transactions involve payment in securities, as when a corporation exchanges its own securities for those of another over which it seeks some measure of control or when Liberty Bonds were used to pay for a new automobile or parlor furniture. But the bulk of transactions involve currency or demand deposits as one of the things exchanged in the transaction and the term "money" in this report will be limited to these two media of payment.

Time deposits are excluded from the category "money" chiefly because they are seldom used as a basis for payment in transactions, usually having to be converted into demand deposits or currency before they can be spent, just as a short-term government note usually has to be converted before it can be the basis for expenditures. Time deposits, call loans, and short-term paper have certain of the characteristics of money but not other characteristics. All represent highly liquid assets, but only currency and demand deposits are *customarily* used to pay for goods, labor, or securities

[13] Checks are often thought of as money, but in practice, except when funds are being withdrawn in currency, a check is essentially a letter to a bank asking the bank to transfer the book entry in the name of one depositor to the name of another depositor, or to a different account of the same depositor, in the same or another bank. It is the bank obligation represented by the book entry and referred to as a deposit which constitutes a part of the money supply, not the check by means of which title to the deposit is transferred.

[14] Gold ceased to be part of the currency supply in March 1933 when gold was retired from circulation. From that time on no part of the internal money supply of the United States has consisted of gold.

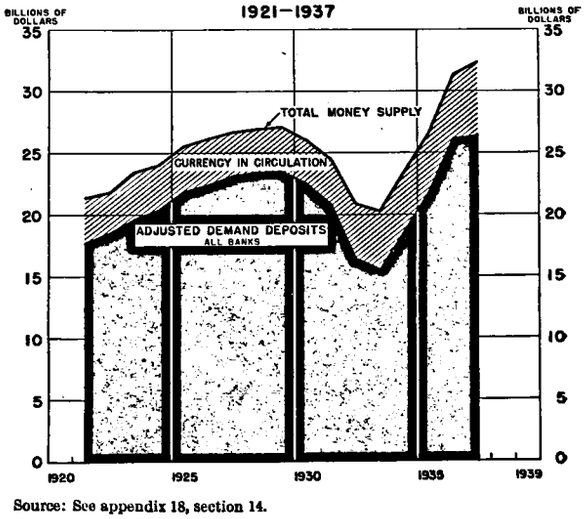
[15] This is a characteristic which sharply distinguishes the American from the English economy, in which no serious contraction in the money supply occurred in the depression.

[16] Both Federal Reserve notes and national bank notes come into circulation primarily as a result of the extension of bank credit or the flow of gold into the banking system.

[17] This is true whether the money supply is expanded by making loans or by purchasing securities. In the latter case, if the securities are newly issued and purchased by the bank directly from the issuer the effect on buying power is the same as if the bank had made a loan to the issuer, though the legal effect is different. If the securities purchased have been previously issued, the bank purchase provides the seller with money which the latter can spend on consumption or investment, or hold as addition to his money balance.

CHART VII

THE MONEY SUPPLY OF THE UNITED STATES
1921–1937



Source: See appendix 18, section 14.

corresponding increase in the buying power of other units. The effect of such changes in buying power presumably depends on the particular conditions under which they occur. The magnitude of their possible effect is suggested by the fact that between 1929 and 1933, the money supply was reduced by practically 7 billions of dollars through the contraction of bank loans and investments while between 1933 and 1937 it was expanded by 12 billion dollars primarily through the expansion of bank credit. Such extensive withdrawals or injections of buying power cannot fail to have an effect on the flow of money and on economic activity.

Money Balances Held by Different Economic Groups

Whatever the magnitude of the money supply at any given time, all the money outstanding must be in the possession of individuals, enterprises, governments or other economic units in the form of money balances.[18] These balances are important to the structure of the American economy because they reflect the power of the holders to put money into circulation by reducing their money balances and to withdraw money from current circulation by expanding their money balances. This power to start and stop the flow of money by varying money balances can have much the same effect on money flows and on production as have changes in the total money supply.

From the point of view of money flows, the most significant money balances are those held (1) by government, especially the Federal Government, (2) by producing enterprises, (3) by financial institutions other than banks, and (4) by individuals.

Actual data on the money balances of different economic groups are surprisingly scarce, considering their importance to the economy. The Federal Government regularly publishes its holdings of currency and demand deposits but for other groups only the very crudest data are available on the total money balances. Estimates are, however, available for 1933 and 1935 covering that part of money balances that is held in the form of demand deposits. Since demand deposits constituted over 75 percent of the total money supply in both these years, the figures on deposit holdings give a rough indication of the distribution of total money holdings even though currency was presumably not distributed in exactly the same proportions as demand deposits.

[18] The terms "possession" and "held by" are used in this chapter to refer to al forms of money even though bank deposits cannot be in the possession of their owner or held by them in the physical sense that coins or notes can be in their owners' possession or holding.

It should also be noted that the money outstanding performs two quite different functions. It not only enters into transactions, passing from hand to hand in exchange for goods, labor, or securities, but between transactions it acts as a store of value in the form of a money balance which represents to its possessor a liquid asset which can be exchanged at a moments notice for other things.

The balances estimated to have been held by each of the different economic groups on December 31, 1933 and 1935, are given in table III. Of the total demand deposits of 21.9 billion outstanding in December 1935 approximately 7.6 billion were held by business enterprises, 5.0 billion by financial institutions and enterprises, 4.1 billion by public bodies and less than 5.2 billion by individuals. Of the amount held by individuals, over 430 million was held in deposit accounts of over $100,000 presumably for the most part the holdings of persons with larger incomes, while a very considerable sum must have been held by persons with intermediate incomes. Only a relatively small part could have been held by the individuals or families with smaller incomes who constitute the main source of consumer expenditure. Probably less than 14 percent [19] and possibly less than 10 percent of the total of demand deposits was held by consumers with incomes under $5,000 who provided over 88 percent of consumer expenditure in 1935–36. In contrast, business enterprises, financial institutions and investors between them held the great bulk of deposit money. Just how currency was divided between these groups can only be surmised. It is probable that a very much larger proportion of currency outside of banks was held by consumers than the proportion of demand deposits held by them. But even if half of the currency were held by individuals or families with incomes under $5,000, their total money holdings, deposits, and currency combined would amount at the very most to a fifth of the total money supply outstanding.

TABLE III.—*Estimated distribution of demand deposits 1933 and 1935*

[Amounts in millions of dollars]

	Deposit balances		Percent to total		Absolute increase	Percentage increase
	Dec. 31, 1933	Dec. 31, 1935	Dec. 31, 1933	Dec. 31, 1935		
Business	6,120	7,640	40.6	34.9	1,520	24.8
Finance	2,390	4,960	15.8	22.7	2,570	107.5
Government and other public bodies	2,690	4,130	17.9	18.9	1,440	53.5
Consumers and unclassified [1]	3,870	5,130	25.7	23.5	1,260	32.6
Total demand deposits [2]	15,070	21,860	100.0	100.0	6,790	45.1

Source: Lauchlin Currie "The Economic Distribution of Demand Deposits" *Journal of American Statistical Association*, June 1938; p. 321.

[1] Includes individuals private accounts regardless of the size of the account but excludes business accounts of individuals.
[2] Adjusted for transit items.

These figures are significant for the structure of the American economy, because they indicate that the bulk of the money outstanding in 1935 was held by business enterprises or by financial institutions and individuals primarily concerned with the investment of

[19] For basis of estimate see appendix 18, section 15.

funds and likely to use their money balances only to a minor extent to purchase goods for consumption. Only a relatively small proportion of the total money supply was held by the individuals who provide the bulk of consumer expenditures. Nearly a fifth was held by public bodies capable of directing funds either into current consumption or capital formation. It is thus apparent that the bulk of consumers live on a more or less hand-to-mouth basis so far as their money holdings are concerned. As a group their money holdings could not have been sufficient to finance much more than a month of consumer expenditure at the 1935–36 rate. A very great percentage change in the money holdings of this group could occur without a very large contribution to current buying power. This is important for the functioning of the American economy because it means that great increases in expenditure on the bulk of consumers could not arise directly out of the use of money balances already held by consumers. They could arise only if consumers received increased incomes or if they either borrowed or trenched on previous investments. On the other hand, the small increases in consumer expenditure such as might arise if consumers depleted their money balances might have very important stimulating effects on economic activity much greater than their absolute magnitude, just as a relatively small increase in money holdings involved in what has sometimes been called a buyers' strike could have a cumulative depressing influence.

The very large changes which can occur in the relative money balances held by different economic groups is suggested by the comparison of the demand deposits of different groups in 1933 and 1935 already given in table III. While the total demand deposits increased nearly 7 billion or 45 percent between these two dates, money holdings of financial companies more than doubled, while the holdings of individuals increased only one-third. Of the total increase in money holdings nearly two-fifths was absorbed into the balances of financial institutions, less than one-fifth into those of consumers, and a fifth each by business and government. The magnitude of these shifts emphasizes the need for more extensive and exact information on money balances. The significance of the shifts will be discussed in the next section in connection with the proportioning of money flow between current consumption and capital formation.

The Proportioning of Money Flows Between Savings and Consumption

The expansion or contraction of the money supply and the building up or depleting of money balances are not the only characteristics of the system of money flows which are of significance to the economic structure. The direction of money flows as between current consumption and capital formation is a factor of major significance.) As money flows through economic channels, there are certain points at which it is directed in such a way as either to finance current consumption or to finance new plants, equipment, and additions to inventory. Sometimes the determination is simple and direct, as where a consumer spends his income on consumption goods or invests a part of it in the construction of a new house or when a corporation invests undistributed income directly in the construction of a new plant. Sometimes the determination of the money flow is a complex matter involving a combination of decisions at many points, as when a consumer saves part of his income and hands it over for investment to some financial institution which, in turn, passes the money savings on to some business enterprise that uses the funds either to expand its plant or to extend credit to consumers. Or the funds may be loaned to some government unit and the latter may determine whether they will be used for public works, for social expenditure on consumption, or in some other manner. However complex the process by which funds are directed into one or the other use, the direction is of significance to the structure of production because it conditions the volume of productive activity going respectively into the supply of goods currently consumed and into new plant, equipment, and inventory.

No attempt can here be made to disentangle all the different channels through which money flows in the process of financing production nor can all the different points be indicated at which discretion can be exercised to direct the flow into the financing of one or the other of the two basic types of productive activity. The most that can be done in this report is to indicate certain major points at which such discretion can be exercised and to suggest some of the ways in which that discretion is exercised.

The groups having discretion over money flows that are of major significance for the structure of the whole economy are (1) consumers in their disposal of consumer income, (2) financial institutions through the direction in which they lend or invest funds, (3) business enterprises through the acquisition and disposal of funds, and (4) governmental units, particularly the Federal Government, through their acquisition and disposal of funds.

Directing of Money Flows by Consumers

In chapter II, the expenditure of consumers on current consumption was examined in considerable detail as an indication of the structure of wants. But little attention was given to the factors which affect the magnitude of the total expenditure on consumption, or on the other ways of disposing of consumer income such as through

investment, gifts, and taxes. (The choice which consumers are in a position to exercise in the disposal of their income between these) categories is of major importance to the structure of the whole economy.[20])

The estimated disposal of consumer income in 1935–36 has already been indicated in chapter II, [21] table I. (Approximately 85 percent of the 60 billion of consumer income went for expenditures on current consumption while 10 percent was saved, nearly 4 percent was given away, and 1.5 percent paid to government units in personal taxes.[22])

Data on the disposal of consumer income between taxes, consumption and savings for other periods are lacking, but analysis of the 1935–36 data can throw some light on the way changes in the distribution of consumer income or in its amount might be expected to influence its disposal provided there were no significant price changes and after consumers have become adjusted to the new condition of consumer income. (A more equal distribution of a given amount of consumer income appears likely to produce a decrease in the volume of savings and in taxes counterbalanced by an increase in the expenditure on consumption, though the magnitude of changes likely to occur in the near future do not appear to be very significant.) The amount of the aggregate consumer savings in 1935–36 is shown in chart VIII. More than half of the positive consumer savings in that period were made by families with incomes over $10,000 while two-thirds were made by families with incomes over $5,000. If the total consumer income were the same but more evenly distributed a smaller proportion would go to the families in the higher income brackets who are likely to save a large proportion of their income and more would go to those likely to spend most of their income on consumption so that total savings would be reduced. Conversely, a less even distribution would

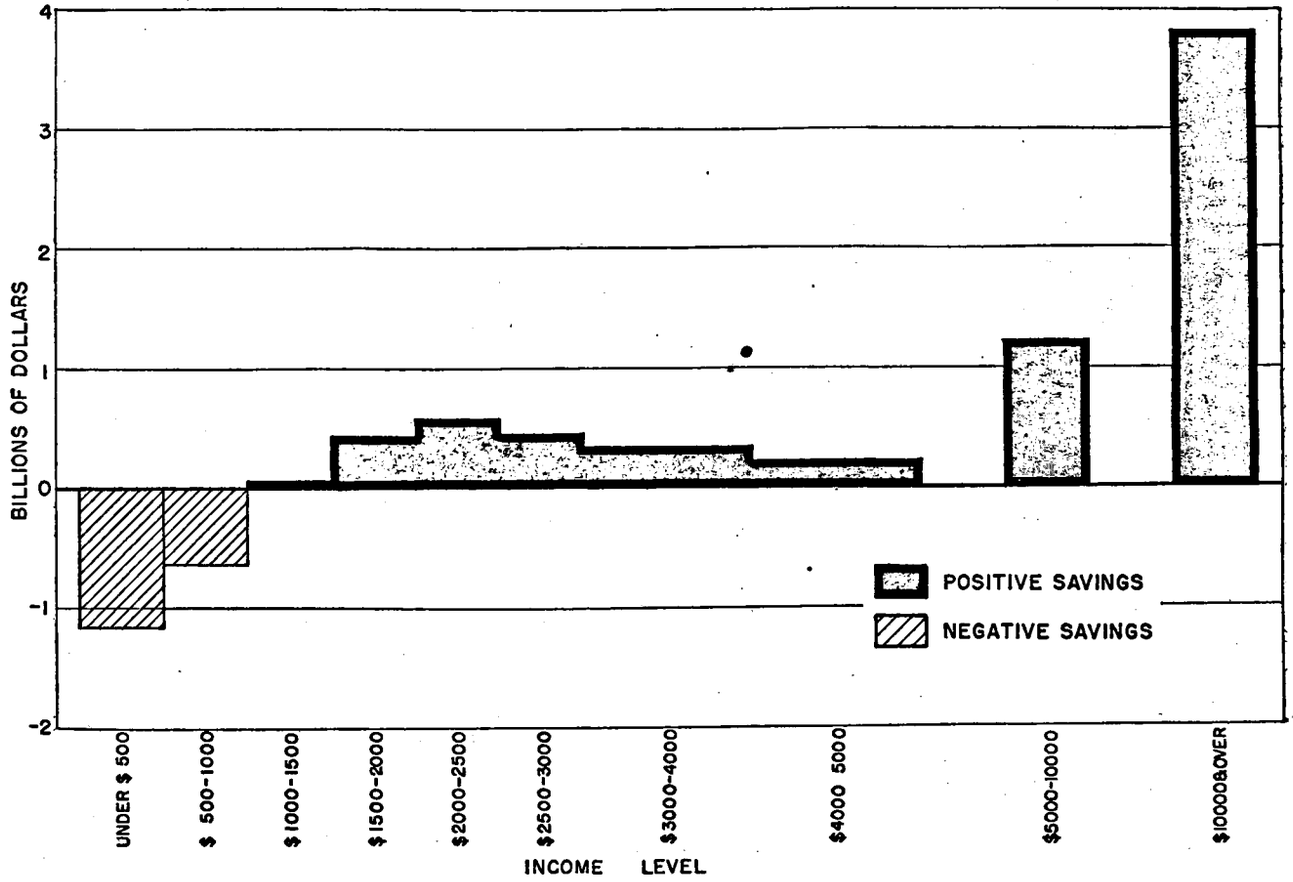
[20] Under any given set of tax laws, consumers presumably have little discretion in the amount of taxes they will pay but the laws levying taxes are to some extent determined by consumer attitudes and reflect the willingness of consumers to be taxed for the services rendered by government units.

[21] See above, p. 11.

[22] No account is taken in the figure for direct taxes of the indirect taxes paid in the purchase prices of goods or the sales taxes added thereto.

CHART VIII

AGGREGATE CONSUMER SAVINGS BY INCOME LEVELS, 1935-1936[1]



Source: *Consumer Expenditures in the United States*, National Resources Committee, 1939.

tend to increase the amount of saving, thereby reducing the total expenditure on consumption.)

A very rough idea of the magnitude of the changes in savings likely to result from changes in income distribution can be obtained by making the extreme assumption that the total consumer income in 1935–36 was spent by families having the average income of that period and comparing the resulting disposal of income with the actual disposal in 1935–36. The comparison is made in table IV, using the $1,250 to $1,500 income group to represent the average.[23] This table clearly indicates the tendency for a smaller proportion of consumer income to be saved and a larger proportion to be spent on current consumption as a given consumer income is more evenly distributed. However, with the extreme assumption of equal distribution compared with the actual 1935–36 distribution the absolute shift over from savings to current consumption would amount to less than 5 billion dollars. A shift of 10 percent of the 1935–36 income from consumers with more than average incomes to those with less than average incomes, or the reverse, would be likely to produce a shift of less than 1.6 billion in the total amount saved by consumers. Such a shift in income distribution would not directly alter the aggregate of consumer expenditure to a significant extent compared with the magnitude of the changes associated with depression. (It might, however, have a very significant effect on the balance between saving and consumption which make for expansion or contraction of economic activity and of total consumer income.)

(Of very much greater importance are the variations in savings and expenditures due to variation in the total amount of consumer income.)In table V the disposal of consumer income is indicated for four different sizes of income on the assumption that the distribution of the income was in the same proportion as the actual distribution in 1935–36, that prices were the same as in that year, and that the income disposal of each income group followed the pattern of the corresponding group in 1935–36. This table indicates that, under the assumed conditions,(both expenditure on consumption and current savings could be expected to increase as consumer income expands, but that the increase in the latter would be likely to be very much more rapid.) An increase of consumer income from the 1935-36 level of 60 billion to 80 billion might be expected to bring an increase of something like 13 billions in expenditure on consumption and an increase of nearly 6 billion in consumer savings. Thus an increase in consumer income of 33 percent under the assumed conditions could be expected to result in an increase of only 25 percent in expenditures on consumption and an increase of nearly 100 percent in savings. The assumptions underlying these figures are too arbitrary to make them directly applicable to the actual disposal of income, but they do indicate the character and magnitude of the changes in the proportion of income saved and spent on current consumption.

The evidence they give is clearly supported by the behavior of consumer income and expenditure during the depression as they are reflected in the indexes of chart V already presented. According to these indexes, expenditures on consumption dropped proportionately less from 1929 to 1932 than did consumer income whereas in the recovery period the behavior was reversed. Presumably taxes, gifts and savings together must have dropped proportionately more than income between 1929 and 1932 and recovered more subsequently. While there is no basis for separating out savings from taxes and gifts they must have constituted a sufficiently large proportion of the combined group in 1929 to dominate its behavior so that the greater stability of expenditure on consumption during the depression compared with consumer income must reflect the greater sensitivity to depression of consumer savings.

[23] The average in 1935-36 was $1,502.

TABLE IV.—*Effect of changes in income distribution on the disposal of consumer income*

	Disposal of consumer income		Ratios	
	With the unequal distribution of income existing in 1935–36, actual disposal	With equal distribution of income, estimated disposal if made in the same proportions as $1,250–$1,500 income group	With unequal distribution of income	With equal distribution of income
	Million dollars	*Million dollars*	*Percent*	*Percent*
Expenditure on consumption	50, 214	55, 756	84. 7	94. 1
Taxes (personal)	889	[1] 2, 404	1. 5	[1] 4. 0
Gifts	2, 178		3. 7	
Net consumer savings	5, 978	1, 099	10. 1	1. 9
Total consumer income	59, 259	59, 259	100. 0	100. 0

Source: Based on data given in *Consumer Expenditures in the United States*, National Resources Committee, 1939.

[1] Breakdown of gifts and taxes by income levels not available.

TABLE V.—*Effect of changes in level of consumer income on consumer expenditures*

[Millions of dollars]

Disbursement	Disposal of consumer income of—				Percent distribution			
	50 billion dollars	60 billion dollars	70 billion dollars	80 billion dollars	50 billion dollars	60 billion dollars	70 billion dollars	80 billion dollars
Expenditures on consumption	44, 080	50, 784	57, 254	63, 494	88. 2	84. 6	81. 8	79. 3
Gifts and personal taxes	2, 455	3, 113	3, 814	4, 541	4. 9	5. 2	5. 4	5. 7
Net consumer savings	3, 465	6, 103	8, 932	11, 965	6. 9	10. 2	12. 8	15. 0
Total	50, 000	60, 000	70, 000	80, 000	100. 0	100. 0	100. 0	100. 0

Source: *Consumer Expenditures in the United States*, pt. III, National Resources Committee, 1939.

The tendency for a different proportion of consumer income to be spent on consumption at different levels of consumer income has major significance for the structure of the American economy. When both economic activity and consumer income are declining, the tendency for a larger proportion of consumer income to be spent on consumption must act to some extent as a force minimizing further decline. This influence could be counteracted by other forces, but in itself seems likely to be a significant factor at very low levels of economic activity. Conversely the greatly increased savings at the higher levels of consumer income suggest the possibility of oversaving in relation to expenditure on consumption. This possibility is one which calls for extensive study, both of the probable savings at different levels of consumer income and the opportunities for the effective use of savings.

Directing of Money Flows by Financial Institutions

To the extent that consumers invest their savings directly in new capital goods such as the construction of new homes or the development of privately owned enterprises, or to the extent that they loan their savings to others for expenditures on consumption, consumers determine the direction of the flow of funds into captial formation or current consumption. But to a significant extent current consumer savings are either held in the form of money or are handed over to financial institutions—banks, insurance companies, and similar institutions. In either case the financial institutions are placed in a position to determine the direction of flow, providing funds to finance current consumption as in the case of installment sales or consumer credit, to finance business enterprise, to finance government activity, or to finance individuals or other financial institutions purchasing securities. Investment funds directed into these different channels have quite different effects, those made available directly to consumers and to business enterprises going largely to finance consumption and capital formation respectively. To the extent that government is financed or to the extent that other security purchases or lenders are financed, the determination of whether the funds flow into consumption or capital formation channels is passed along. No attempt can be made here to disentangle these flows. Much data on various phases are available but they have never been put together into a comprehensive analysis. There is much need for tracing through the magnitude and characteristics of the different money flows involved in the investment of savings to discover their structural significance.

In addition to the handling and direction of investment funds, financial institutions are also in a position to dispose of income and depreciation funds arising from their current operations. Because the problems arising from the disposal of such funds are alike for all corporations whether financial institutions or producing corporations, they will be taken up under the heading of business corporations.

Directing of Money Flows by Business Corporations

In the course of their operations many if not most corporations receive more money from the sale of their products than they expend for the raw material, labor, supplies and services necessary to their production. Part of this sum is customarily allocated to depreciation, part is paid to government in taxes and part may be used to pay interest charges. The remainder represents net income which is within the disposal of the corporation. It can either distribute this money to consumers as income subject to their disposal or it can save the money, investing it in securities, using it to finance new plants or inventories, extending credit on the basis of it or holding it as an addition to the corporation's money balances. In addition, corporations which have accumulated undistributed income in prior years can dissave by declaring dividends, paying out money in excess of that received as income and depleting their cash balances, reducing their investments or reducing their capital assets in the process. A corporation may thus be in a position to save out of its current income or dissave out of prior income with much the same effect as the saving or dissaving of consumers. This ability of corporations to save or dissave is of importance to the structure of the whole economy because it means that corporations can exercise some control over money flows which is independent of the direct processes of production. By saving part of their income, corporations add to the total of national money savings which must find an outlet through investment channels.[24] By dissaving through distributing dividends in excess of their current income, corporations can make a net contribution to consumer income.[25] The magnitude of corporate saving or dissaving is not directly dependent on productive activity and is therefore a more or less independent factor in the determination of money flows.

The discretion of a corporation over the disposal of income is paralleled by a second discretion of a similar nature, that over the disposal of funds allocated to depreciation. In carrying on productive activity, corporations make use of plant and equipment whose remaining useful life is steadily reduced through this use and through obsolescence with the passage of time. Many corporations also use up reserves of natural re-

[24] There is presumably a net contribution only if the total funds allocated to depreciation are also invested in new capital formation.

[25] If corporate income is distributed as dividends presumably some of the resulting consumer income would be saved but not all as would be the case with undistributed corporate income.

sources such as ore or coal in their current production. Since a corporation's acquisition of plant, equipment and natural resources presumably involved an initial capital outlay, the corporation must derive enough from its current operations to recover the current share of this capital investment[26] before its accountants can figure that the corporation has obtained a net income. The current share of the previous capital investment is customarily included by accountants as a depreciation charge[27] and included as a cost of the operations of a given period whether earned or not. If the operating receipts of a corporation are not sufficient to cover both operating costs and depreciation, the enterprise has suffered an accounting loss. To the extent that its receipts from operations are in excess of its operating costs, the extra receipts are allocated to depreciation to the amount necessary to cover this item, any extra receipts being available for the payment of income taxes, interest, and dividends.[28]

Any funds allocated to depreciation must be considered as a return of previously invested capital and play much the same role in the flow of money as that played by corporate savings. Such funds can be accumulated as a cash balance, invested in securities or invested in new plant, equipment, and inventories. In any case, so far as the flow of money is concerned, they represent investment funds available to finance capital formation just as much as corporate savings out of income. In order to maintain the circuit flow of money, the funds allocated by corporations to depreciation must find an outlet directly or indirectly in new capital formation except as they are used to finance interest or dividend payments in excess of current income.

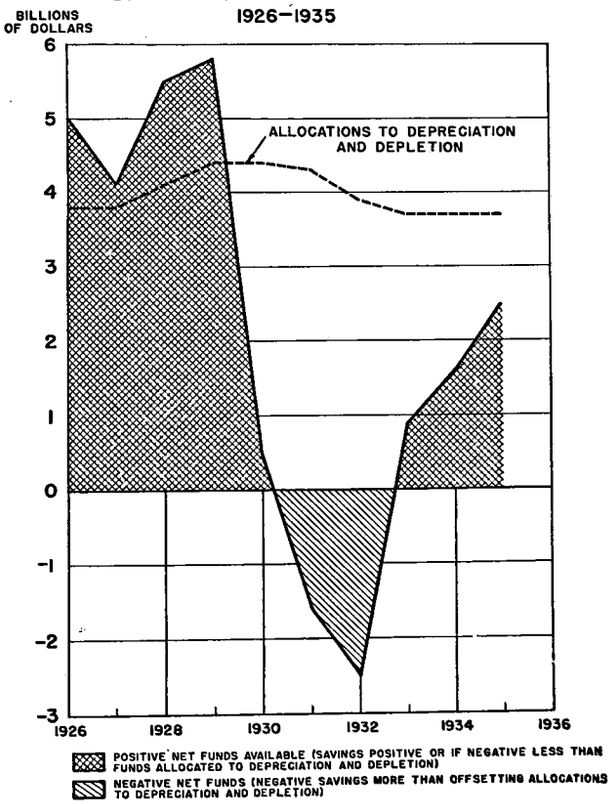
The magnitude of corporate savings and depreciation (including depletion) is indicated in chart IX which gives figures for all corporations from 1926 to 1935. Corporate savings are added to depreciation so that in 1926 the total of such funds available for capital formation amounted to approximately 5.0 billions composed of 1.2 billions of corporate savings and 3.8 billions of funds allocated to depreciation. In years in which corporate savings are negative they constitute a deduction from the depreciation funds which would otherwise have been available for capital formation. In 1931 and 1932, negative savings were so great that they more than cancelled depreciation with the result that nonfinancial corporations as a group appear to have made a net contribution to consumer buying power, either through operating deficits or through interest and dividends payments in excess of income plus depreciation charges.

As could be expected, depreciation charges remained fairly stable throughout the period, declining somewhat with the decline in capital formation during the depression but on the whole reflecting the relative stability in the productive assets of corporate industry. In contrast to depreciation charges, corporate savings fluctuated widely in response to the depression. At their maximum in 1929 they amounted to 1.4 billions and declined to a low of minus 6.4 billions in 1932, recovering to minus 1.2 billions in 1935.

Corporate funds derived from security issues.—In addition to corporate funds derived from operations and available for capital formation, corporations derive a significant volume of funds to finance capital formation from the issuance of new securities. While many data on security issues by corporations are available, no clear segregation of issues into those financing capital formation and those financing the purchase of other securities or of existing properties has been made except in the one year 1929. The total of new corporate issues

CHART IX

CORPORATE FUNDS DERIVED FROM OPERATIONS AVAILABLE FOR CAPITAL FORMATION 1926–1935



Source: See appendix 18, section 16.

[26] This is usually arrived at by distributing the initial cost of the plant or equipment over its probable useful life. Various methods have been developed for making this allocation.

[27] Or depletion charge where ore, coal or similar reserves are used up.

[28] This is necessarily a very generalized statement of the customary procedure. In practice there are many details, minor exceptions and special cases but they do not effect the basic character of the procedure.

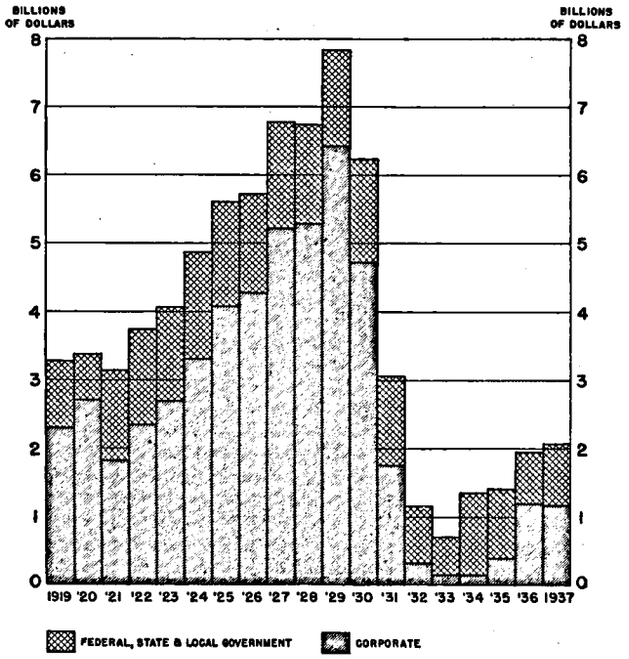
whose proceeds were used primarily to pay for the construction of new plant, the purchase of equipment or addition to inventory amounted to approximately 2 billion dollars in that year.[29] This amount was less than half the sum of corporate savings and allocations to depreciation and depletion in the same year.

A rough indication of the violence of the swings in the issuance of new corporate securities is given in chart X which shows the total of *all* corporate securities except those issued for refunding purposes between 1919 and 1937. These data include both the securities issued to purchase other securities and those providing funds for capital formation. In 1929, the latter item amounted to only 30 percent of the total, indicating the very large volume of new securities issued in that year to purchase other securities. In other years the proportion may not have been so great but in any case the volume of new securities shown in the chart greatly exaggerates the volume of the funds raised to finance new capital formation. However, the chart does show the violent decline in new corporate securities issued after 1929 and the very slight recovery since 1932. It is thus clear that there was a big decline in the funds obtained by corporations both from new security issues and from their own operating activity with which to purchase new capital formation. This is consistent with the great depression sensitivity of the capital goods industries already noted.

[29] G. A. Eddy, "Security Issues and Real Investment in 1929," *The Review of Economic Statistics*, May 1937.

CHART X

NEW SECURITY ISSUES 1919 – 1937



Source: See appendix 18, section 17.

Unincorporated business enterprises.—Unincorporated business enterprises are also in a position to direct funds to some extent between capital formation and current consumption. Such enterprises borrow funds and can use them either to extend consumer credit or to acquire new plant, equipment or inventory. Likewise, many unincorporated enterprises deduct depreciation from their receipts before arriving at their net income.[30] To this extent they present the possibility of directing money flow. But most unincorporated enterprises do not deduct depreciation in arriving at their income while the income of an unincorporated enterprise is usually directly available to its owner and no sharp distinction can be maintained between the savings out of income made by the owner and the savings out of income made by the enterprise. As a result, in sketching the structure of the American economy, there is no significant error involved in regarding all the income of unincorporated enterprises as part of consumer income and disregarding depreciation.

Directing of Money Flows by Government Units

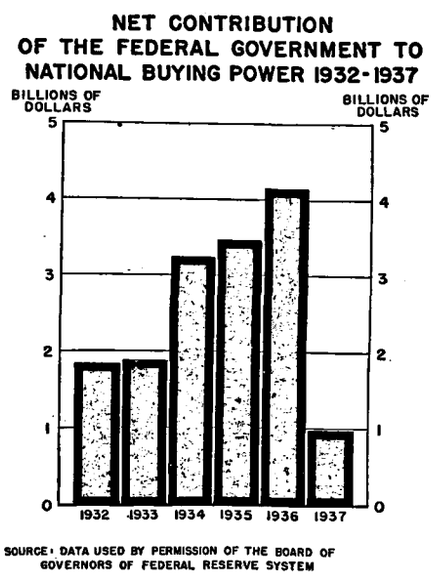
The Federal Government has more flexibility in the directives which it can exercise over money flow than any of the other groups mentioned. Neither financial institutions nor business corporations can appropriately spend money directly on final consumption. The bulk of consumers cannot invest money directly in productive activity which they are in a position to carry on. The Federal Government is not only expected to do both of these things but it can, within limits, derive the funds to do either or both from taxation or from borrowing. It can go even further and issue its own money if necessary and can give money away as in the case of direct relief payments. Altogether the flexibility of the Federal directives over money flow is great.

The way in which the Federal Government has contributed to consumer buying power in recent years is indicated in chart XI which shows the net contribution in each year from 1932 to 1937. The peak contribution to buying power in the recovery period was in 1936 when over 4 billions of dollars was paid out by the Federal Government in excess of the amounts collected in taxes, tariffs, and the like. This was followed by a very sharp reduction in the Federal contribution to consumer-buying power in 1937.

State and local governments are also in a position to direct the flow of money to some extent through taxes and borrowings expended on both current consumption

[30] In the bulk of individual enterprises, particularly in the case of farmers, no depreciation is deducted in arriving at income but rather many capital expenses are charged to current operations. Over a longer period much the same figures for total of income may be obtained.

CHART XI



and public works. However, they have not the flexibility of the Federal Government nor do they represent the possibility of such a large volume of money flows capable of being subjected to a single basic policy as is the case with Federal funds.

TABLE VI.—*Money expenditures on gross capital formation and on consumption*

[Millions of current dollars]

Year	Expenditures on gross capital formation [1]	Changes in business inventories [2]	Consumer expenditures [2]
1929	17,572	+2,414	62,300
1930	14,419	−1,128	56,568
1931	9,513	−1,375	49,840
1932	5,568	−2,461	40,806
1933	5,099	−1,129	39,187
1934	8,453	−1,524	43,423
1935	10,857	+19	47,784

[1] Source: Kuznets, Simon, *Commodity Flow and Capital Formation*, vol. I, p. 484. This item represents expenditure on gross capital formation exclusive of net changes in claims against foreign countries, of all repairs and maintenance and of consumers' movable, durable commodities, but includes net changes in stocks of gold and silver.
[2] Source is same as above.
[3] See appendix 18, section 12.

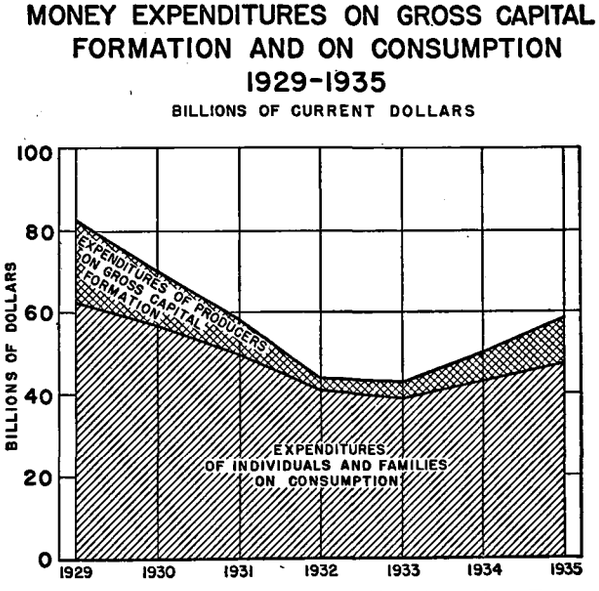
Total Expenditure on Consumption and Capital Formation

All of these money flows operate to stimulate productive activity. Consumer expenditure provides the ultimate basis for financing current production. Savings and allocations to depletion and depreciation provide the basis for financing capital formation whether in the form of fixed assets or additions to inventory. The magnitude of these items from 1929 to 1935 is indicated in terms of current dollars in table VI and summarized in chart XII. The great depression drop in consumer expenditures and the much greater drop in the expenditures on fixed capital are clear. Expenditures for additions to inventory show a more erratic behavior, partly varying with other forms of expenditures but to a considerable extent varying independently. The variations in these expenditures combined with variations in prices, still to be discussed, largely determine the variations in the level at which resources are used.

Need for Intensive Investigation of Money Flows

In this chapter an attempt has been made to sketch the major money flows overlying production and to point to some of their major characteristics. Neither the collection nor analysis of data has developed to the point where it is possible to block in a clear and balanced picture of the actual money flows as they affect production. Here and there parts of the total picture have been indicated in the preceding pages, but they constitute only fragments. There is great need for intensive work to develop the whole picture. This chapter can serve only to indicate the importance of money flows to the functioning of production and suggest the character of an analysis of money flows which would clarify the structure of production and throw light on the behavior of the American economy.

CHART XII



Source: or Fexpenditures of producers on gross capital formation, see Simon Kuznets, *Capital Formation and Commodity Flow*, vol. I, table VIII-2, p. 484. For expenditures of individuals and families on consumption, see appendix 18, section 12.

CHAPTER VII.—THE ORGANIZATIONAL STRUCTURE

The first part of this report has outlined the economic basis for production—the wants of American consumers and the resources of the nation available to satisfy these wants. The second part has set forth the more important characteristics of production—its geographical distribution, its functional aspects, and the overlay of financial flows which prick out the pattern of productive activity. It is the purpose of this third part to examine the organizing influences which weld the millions of separate individuals engaged in production into what is essentially a single national economy.

The way in which the millions of workers in the American economy are organized into a functioning whole is far from simple. Even the supplying of a single commodity like gasoline calls for the services of a multitude of separate individuals and agencies. An oil operator brings oil to the surface of the ground; the local government prevents the theft of oil or destruction of equipment; a railroad corporation transports the oil; State and Federal Governments prevent interference with the transport of oil; a refining company maintains an organization of workers and chemical equipment to convert the oil into more useful forms; a retail distributor parcels out the resulting gasoline in small quantities to individuals requiring it; the Federal Government supplies a dependable medium of exchange, which allows the oil operator, the railroad, the refining company, and the retailer to act easily in an organized fashion without being under a single administrative authority, and enforces contracts so that organizing arrangements on specific points can be more safely entered into; finally, government maintains a system of highways and byways which allow an ultimate consumer to combine the gasoline with other resources under his control in satisfying his desire for automobile travel. This joint activity of many individuals contributing to satisfy the demand for a particular product is typical of most production and represents a high degree of organization in the use of resources.

Basic Continuity

Underlying this organization and essential to its existence is the basic continuity in human wants and human actions as today's activity grows out of and repeats that of yesterday, yet varies from it in greater or less degree. The influence of essential repetition in wants and in the techniques employed to fill wants is so all-pervasive that it is often overlooked, yet without it the existing organization of resources could hardly have arisen or continued to function. The farmer plants wheat, not because of some contract with an ultimate consumer, but simply because of an assumed continuity in the demand for bread. The business man, in setting up a new cotton mill to make cloth for men's shirts, is impelled to do so very largely by a belief in the continuity in the demand for shirts. The tobacco grower and the cigarette manufacturer both base their actions on the belief that the practice of smoking cigarettes will continue in the immediate future.[1]

Likewise, there is continuity in techniques, for the methods of doing things, in the aggregate, do not change overnight. Constant improvements in techniques are made, but as a rule they are introduced into practice gradually over a period of years. The automobile did not replace the horse in a single season. Continuous-strip rolling mills did not replace older, less effiicent mills, in a single year. The process of old rolling mill displacement has been going on for a decade and is not yet complete. Ways of doing things in the immediate future are not going to be essentially different from the ways of the immediate past, though the scientific knowledge of improved methods may exist and though gradually over a period of years great changes may take place.

This continuity in wants and techniques is the most basic factor underlying the organizing of resources. Without a large measure of continuity, chaos would result. Minor breaks in continuity can be taken care of through the price mechanism, through administrative adjustments, through alternation in the canalizing rules, and through shifts in goals accepted. But where continuity breaks down to a significant extent as in the case of flood or fire or panic, loss of foreign markets or war, strike or technical breakdown, the effective organization of resources itself breaks down and often drastic steps have to be taken. Such is usually the case when martial law is declared after a disaster, and the service of protection and the service of supply have to be organized afresh. Such also was the case with the accumulated farm surpluses of the depression, which resulted, in part, from lack of continuity and produced intervention on the part of both political parties. Such also was the intervention during the war, when the railroads became clogged with war supplies and a unified command was necessary to disentangle the traffic snarl. The positive intervention that is necessary when continuity breaks down to a serious extent suggests the importance of this factor to the effective organization of resources.

[1] Evidences of essential continuity in wants and techniques of production are set forth in *Patterns of Resource Use*, National Resources Committee, 1938.

Organizing Influences

Within the conditions established by continuity in wants and techniques the complex organization of resources is brought about and maintained through four major organizing influences. First, there is the market mechanism—the interaction of individuals or groups buying and selling in the market. A second major organizing influence takes the form of administrative coordination, as the activities of individuals in factory, corporation, or government bureau are directed and interrelated by a common authority. A third influence is the canalizing action of laws, rules, and customs whereby the community shapes and molds and limits and canalizes the actions of many separate individuals into coordinated form without the exercise of direct administrative control. Finally, there is the organizing influence arising from the acceptance of common goals which can bring about coordinated action of separate individuals without the presence of any common authority. In practice, these four organizing influences interplay and reinforce each other, sometimes one and sometimes another being the more significant in a particular situation. For the nation as a whole, it is the combined influence of these four factors which results in the organized use of resources and yields that level of living which characterizes the American economy.

The Market Mechanism

Of the influences actually bringing about the organization of productive activity, the market mechanism is the most generally recognized. Through price, and through buying and selling in the market, the activities of many separate individuals or enterprises are brought into mesh with each other. In the market, the price of an article can act, after a fashion, as a regulator. If insufficient resources are being employed in making a particular article and oversufficient resources are going into another article, an increase in the price of the first and a fall in the price of the second will stimulate individuals controlling the necessary resources to divert a part of them into the first activity and out of the second.) A relative increase in the price of shoes as compared with saddles would tend to guide leather and labor away from use in saddles and into the making of shoes. The proportion of cotton and corn planted on Arkansas farms varies from year to year with changing relationships in the prices of those crops and reflects the operation of the market as an organizing influence.

Sometimes this market mechanism is credited with being the major, or even the sole, organizer of resources. In theory it is possible to show that, under certain conditions, the market mechanism might, by itself, have sufficient organizing influence to produce effective use of resources. In the case of a great many commodities, however, free markets do not and usually cannot exist, and the market mechanism acts only crudely, slowly, and not too effectively in bringing basic organization into the use of resources.

Administrative Coordination

Administrative coordination has become of increasing importance as an organizing influence. A century ago, when business enterprises were small and government activity was relatively less important, the market played a major coordinating role. But during the past hundred years great segments in the organization of economic activity have gradually but steadily been shifted from the market place to administrative coordination.

The extent of administrative coordination of economic activity is difficult to realize. Today, hundreds of thousands of workers may be organized in a single great enterprise. Within the enterprise, their activity is coordinated, not through the shifting of prices and supply and demand in the market, but through administrative direction. The largest enterprise, the American Telephone and Telegraph Co., in 1929 was coordinating the activity of over 450,000 persons within its system. Consider the vast difference between this situation and the thousands of separate and independent enterprises such as would have to exist if economic organization in the telephone industry were accomplished primarily through the market place. An effective telephone system would not be possible without a high degree of administrative coordination. In the field of government, likewise, the organization of resources within each government body is to a large extent brought about through administrative coordination. Large-scale enterprise and the extension of the economic role of government together have made administrative coordination a major factor in the organization of resources.

Canalizing Rules

A third means by which organization is brought about is through canalizing rules whereby the action of individuals is molded and limited without being subject to administrative control. Laws, rules, and regulations, accepted procedures, and binding customs constitute canalizing influences which narrow down the scope of individual action without determining it. They supply the traffic regulations for the ceaseless interplay of human activities. If effective, they contribute to the organization of resources by limiting action which will disrupt or impede effective use and by facilitating the flow of action into constructive channels.

Accepted Goals

Finally, the acceptance of common goals is, of itself, an organizing influence. A number of people, having accepted a common goal, may be able to act independently and without communication, yet their activities may be to a greater or less extent coordinated by the logic of their accepted goal. The acceptance of a specific goal by the management of an enterprise, as a contract to fill a big order, for example, can spur the individuals in the management to independent though coordinated action, as each, knowing the meaning of the big order in terms of the functions for which he is responsible, acts to carry out his share in the undertaking even before he is given specific instructions.

The Complex Play of Organizing Influences

These four organizing influences—the market mechanism, administration, canalizing rules, and accepted goals—all combine to give that complex organization of resources, without which daily living as we know it would not be possible. The major organizational problem involved in seeking more effective use of resources is, therefore, to discover the appropriate role to be played by each of these organizing influences. How much can be left to continuity and the inertia of continuity? How far can reliance be placed on the organizing influence of accepted goals? How much reliance can be placed on the market mechanism? How much coordination can be supplied through canalizing rules? At what points can administration provide more effective organization?

The role which each influence plays at different times and at different places will vary; but hardly any significant event occurs without some element of organization being contributed by each of these four influences. While each can be discussed separately, their actual operation in the American economy is so closely interrelated that their separate roles cannot be easily disentangled. The market mechanism would not be an effective influence for organizing the activity of separate economic units on a large scale if it were not for the existence of canalizing rules, whether these rules are codified into law as in the case of the enforcement of contracts, are formal but nonlegal rules such as the trading rules of the wheat pit and the stock exchange, are informal rules such as the "one-price" rule accepted by buyer and seller alike in most American retail stores in which there is no bargaining with customers,[2] or take the form of the custom of accepting money in exchange for goods. Neither could it function effectively in the absence of an accepted goal, namely, the goal of transacting business.

Administration alone is equally incapable of organizing resources on the scale of the whole American economy. Even in the case of the largest administrative units of government and of business, some of the burden of organizing resources is carried by the market as workers are hired, raw materials purchased, and goods sold, while, without the organizing influences of accepted goals, the minute detail in administrative direction which would be required would make large administrative units impossible.[3]

Though these four different organizing influences are not in practice independent of each other, it is possible to speak of particular situations as dominated by one or another of the four factors. Thus, it is usually appropriate to refer to the activity carried on within a particular factory or government bureau as organized administratively. The administrative influence dominates activity even though a supplementing role is played by the other three influences. If, in a particular community, practically all activity is carried on by one-man enterprises and the products are swapped through the market, it would be appropriate to say that the activity was organized primarily by the market, even though other organizing influences were present. The political field sometimes gives an example of organized activity in which the acceptance of a common goal, the election of a particular candidate nominated by the party, is the dominant organizing influence. (National unity in time of war or depression is another example of the coordinating influence of an accepted goal.) Obvious examples of situations in which canalizing rules play dominant roles are city zoning and the regulation of traffic.

For the American economy as a whole it is not possible to say that any one of these organizing influences is the dominant one. Each appears to play a significant role. The remainder of this chapter will be devoted to an examination of the extent to which each organizing influence contributes to the organized use of resources. Since the market consists of transactions between administrative units within which coordination is primarily administrative, the first of the organizing influences to be considered will be administration. The role of the market will then be discussed, and, finally, the roles of canalizing rules and accepted goals.

[2] The extent to which this informal "one-price" rule contributes to the organization of economic activity is difficult to realize until comparison is made with the operations of an oriental bazaar where the prices of even minor items are the subject of time-consuming higgling and bargaining. A modern department store could not survive if each sales clerk had to bargain with each customer on the price of each article purchased. Nor could it survive if each customer spent several minutes trying to get a penny reduction in the price of a spool of thread. Only by the acceptance by both buyer and seller of the informal rule of "one-price—no bargaining" can efficiency in retailing be maintained.

[3] The reliance which administrative units place on the acceptance of common goals can be appreciated by considering what would happen in a big corporate enterprise if subordinates did nothing during working hours except those things which they were specifically told to do by the president of the corporation, either directly or through his subordinates. In such a situation the president could leave no decision to subordinates.

Extent of Administrative Coordination

A rough indication of the extent of administration in the American economy can be obtained by examining the size of economic units in different segments of the economy. For this purpose the significant economic unit would be the administrative unit and would include all the productive activity under a single administrative control. The separate producing units would include the independent farm enterprise, the private business or professional enterprise, the corporate enterprise including legally controlled subsidiaries as part of the parent enterprise, the Federal Government and each State and local government, independent universities and independent church units. On this basis there must have been in 1937 between 10 and 12 million economic units producing commodities or rendering services and engaging the activity of approximately 48,000,000 persons either part or full time. Of these, approximately 6.8 million were farm units, nearly 20,000 were government units, and 1.7 million were business units reporting to the Social Security Board or to the Interstate Commerce Commission. The remainder were for the most part service and professional units and very small business units. A crude indication of the relative importance of producing units of different sizes is given in table I. This table tends to minimize the importance of the large enterprises because it treats subsidiaries of a corporation as though they were independent units, but until compilations for consolidated enterprises have been made, it does serve as a rough guide to the importance of producing units of different sizes.

TABLE I.—*Distribution of producing units and their employment,*[1] *by number employed, 1937*

[Treating subsidiaries of a corporation as independent units]

Number employed	Number of producing units	Percent of total employed
1–5	9,368,000–10,868,000	30–35
6–299	696,564	28–33
300–999	11,762	9–12
1,000–9,999	3,549	12–16
10,000 and over	246	11–14
Total	10,000,000–[1] 12,000,000	100

Source: See appendix 18, section 18.

[1] Rounded figures.

NOTE.—The bulk of the data on number employed and employer units, excluding agriculture, are derived from Social Security Board data on employer returns. Since the returns of subsidiaries of a parent corporation are not consolidated in the Social Security Board data, the economic units and the number employed in the class, 10,000 and over, are seriously understated, with a corresponding overstatement of these in the classes under 10,000. For example, General Motors Corporation is represented as an economic unit 54 or more times. It has not been possible to correct for this lack of consolidation.

It indicates that over a third of the manpower engaged in production in 1937 was attached to administrative units of 300 persons or more, while approximately one-eighth was employed in administrative units of 10,000 persons or more. These figures are very rough approximations, but they do indicate the extensive role which is played by administrative units in the organization of resources.

It would be desirable to present a similar analysis using capital assets employed rather than manpower as a measure of size, but data for this analysis are not available. There is, however, considerable evidence that on the whole there is more capital employed per worker in the large administrative units than in the small units, with the possible exception of the farm. As a result the administrative units employing 300 or more persons would be employing more than a third of the capital assets of all producing units.

Major Administrative Units

Some indication of the extent of administrative coordination in particular segments of economic activity can be obtained by listing the largest administrative units in the country and examining the scope of their activities. In table II an attempt has been made to list the 200 largest nonfinancial corporations, the 50 largest financial corporations, and the 20 largest government units in 1935. In the case of the corporations, size has been measured in terms of the assets controlled directly or through subsidiaries, while the size of the government units listed has been measured by the number of persons employed.[4] Various other measures of size could be employed such as contribution to national income or in the case of business enterprises, the volume of sales or value added by manufacture. Different measures of size would give some differences in the specific list of units included as largest but a large proportion of the units listed in table II, except perhaps the financial companies, would be included among the largest corporations on almost any reasonable basis of measuring size. Data on the number of employees of many of the largest companies are published in *Moody's Manuals* and are also included in the table, even though the data for the different companies are not directly comparable, sometimes including employment by subsidiaries as well as employment in foreign countries and sometimes excluding one or both of these items. It is probable that there are some big administrative units not included in the above list, because no public data on them were available. However this list includes most of the major administrative units in the American economy.

[4] The method of arriving at the 200 largest nonfinancial corporations in 1935 is set forth in detail in appendix 10. In the case of each of 185 of the companies, the figure given for total assets is a consolidated figure published in *Moody's Manual* (except that where depreciation and depletion were included in total liabilities these were deducted from total assets), and represents the total assets less depreciation and depletion of the parent company named and subsidiaries which it has chosen to consolidate in the report made available to Moody's Investment Service. In the case of 15 companies no such figure was available, and an estimate of total consolidated assets, less depletion and depreciation was made by methods indicated in the appendix.

In the case of the 50 largest financial corporations, the assets reported above are obtained directly from *Moody's Manuals*.

The employment figures for the 20 largest government units are derived from sources indicated in appendix 18, section 17.

TABLE II.—*Largest administrative units*

(200 largest nonfinancial corporations, 50 largest financial corporations, and 20 largest governmental units)

	Assets, 1935 (millions of dollars)	Number employed, 1935 (thousands)
INDUSTRIALS		
Standard Oil Co. (New Jersey)	1,894.9	50
United States Steel Corporation	1,822.4	193
General Motors Corporation (estimated)	[1] 1,491.9	212
Socony-Vacuum Oil Co., Inc.	789.7	55
Standard Oil Co. (Indiana)	693.5	35
Ford Motor Co.	681.6	----
Bethlehem Steel Corporation	673.1	51
Anaconda Copper Mining Co.	581.5	25
E. I. DuPont de Nemours & Co.	581.1	41
Standard Oil Co. of California	579.5	18
The Texas Corporation	473.8	----
Gulf Oil Corporation	430.2	----
General Electric Co.	398.1	56
International Harvester Co.	365.2	46
Shell Union Oil Corporation	358.1	29
Consolidated Oil Corporation	331.1	25
The Koppers Co. (estimated)	[1] 331.0	7
Kennecott Copper Corporation	323.6	----
Swift & Co.	321.4	60
Armour & Co. (Illinois)	317.1	59
Republic Steel Corporation	297.5	47
Union Carbide & Carbon Corporation	271.1	----
The American Tobacco Co.	264.2	10
Pullman Incorporated	258.6	27
Allied Chemical & Dye Corporation	252.5	----
Sears, Roebuck & Co.	234.0	46
Aluminum Company of America	223.0	18
American Can Co.	209.1	----
Youngstown Sheet & Tube Co.	207.5	17
Westinghouse Electric & Manufacturing Co.	194.5	37
Chrysler Corporation	193.5	65
F. W. Woolworth Co.	192.3	59
The Goodyear Tire & Rubber Co.	192.3	18
National Dairy Products Corporation	192.0	35
The Great Atlantic & Pacific Tea Co. of America	189.2	90
Phelps Dodge Corporation	185.1	7
Jones & Laughlin Steel Corporation	185.0	24
United Fruit Co.	184.9	----
Tide Water Associated Oil Co.	182.8	11
National Steel Corporation	180.5	20
Singer Manufacturing Co.	175.8	----
Phillips Petroleum Co.	174.5	8
American Smelting & Refining Co.	171.7	26
Liggett & Myers Tobacco Co.	170.5	20
Montgomery Ward & Co., Inc.	168.7	31
Warner Bros. Pictures, Inc.	168.5	12
Eastman Kodak Co.	168.3	29
The Atlantic Refining Co.	163.0	----
United States Rubber Co.	159.3	46
American Radiator & Standard Sanitary Corporation	159.1	26
The Pure Oil Co.	157.2	10
R. J. Reynolds Tobacco Co.	153.9	15
Union Oil Company of California	151.7	8
Glen Alden Coal Co.	151.4	20
Pittsburgh Coal Co.	142.2	12
Ohio Oil Co.	139.7	6
The Firestone Tire & Rubber Co.	139.3	2
Loew's Incorporated	128.6	----
Hearst Consolidated Publishers, Inc.	128.6	----
The Procter & Gamble Co.	127.1	10
National Biscuit Co.	124.5	18
The B. F. Goodrich Co.	124.0	30
The American Rolling Mill Co.	123.0	15
The Borden Co.	120.1	30
Paramount Pictures, Inc.	118.9	----
Corn Products Refining Co.	118.7	4
S. S. Kresge Co.	118.5	20
Inland Steel Co.	118.3	10
The American Sugar Refining Co.	117.7	----
Wheeling Steel Corporation	113.0	18
Pittsburgh Plate Glass Co.	109.7	14
Crucible Steel Co. of America	109.1	----
Sun Oil Co.	107.1	12
National Lead Co.	104.0	6
Radio Corporation of America	102.5	23
Crown Zellerbach Corporation	101.3	7
International Shoe Co.	83.2	30
The Lehigh Coal & Navigation Co.	82.0	----
Gimbel Bros., Inc.	79.9	13
Deere & Co.	79.7	15
Wilson & Co., Inc.	79.2	18
Climax Molybdenum Co.	79.1	----
Minnesota & Ontario Paper Co.	78.2	----
The Cudahy Packing Co.	76.4	----
Brown Co.	76.4	----
J. C. Penney Co.	74.4	----
St. Regis Paper Co.	73.7	----
Marshall Field & Co.	97.0	----
United Shoe Machinery Corporation:	96.4	----
General American Transportation Corporation	96.3	----
Crane Co.	95.2	----
Continental Can Co., Inc.	94.6	----
Philadelphia & Reading Coal & Iron Corporation	93.0	----
Continental Oil Co.	91.7	----
American Car & Foundry Co.	91.2	----
R. H. Macy & Co., Inc.	90.5	----

[1] Estimated on the basis indicated in table 1, appendix 10.

TABLE II.—*Largest administrative units*—Continued

	Assets, 1935 (millions of dollars)	Number employed, 1935 (thousands)
INDUSTRIALS—continued		
Allis-Chalmers Manufacturing Co.	73.2	----
U. S. Smelting, Refining & Mining Co.	73.0	----
Columbia Oil & Gasoline Corporation	71.8	----
McKesson & Robbins, Inc. (Maryland)	71.4	----
American Woolen Co.	71.0	----
S. H. Kress & Co.	70.4	----
The Baldwin Locomotive Works	69.7	----
The Cleveland Cliffs Iron Co.	69.5	----
American I. G. Chemical Corporation	69.3	----
General Foods Corporation	67.9	----
Interlake Iron Corporation	67.4	----
PUBLIC UTILITIES		
American Telephone & Telegraph Co.	3,998.3	270
Consolidated Edison Co. of New York, Inc.	1,377.0	45
Commonwealth & Southern Corporation	1,173.8	----
Associated Gas & Electric Properties (estimated)	[1] 1,125.4	20
Cities Service Co.	1,113.2	----
The North American Co. (estimated)	[1] 1,042.6	----
The United Gas Improvement Co.	812.9	----
American Power & Light Co.	[1] 795.9	----
International Paper & Power Co.	[1] 771.2	----
Public Service Corporation of New Jersey	694.0	20
Electric Power & Light Corporation	[1] 651.5	----
Niagara Hudson Power Corporation	648.0	10
Pacific Gas & Electric Co.	647.3	10
Standard Gas & Electric Co.	[1] 637.3	----
Columbia Gas & Electric Corporation	584.7	13
Interborough Rapid Transit Co.	554.8	16
National Power & Light Co.	[1] 546.8	----
The United Light & Power Co.	537.2	----
International Telephone & Telegraph Corporation	489.7	60
American Gas & Electric Co.	[1] 417.7	9
Middle West Corporation (estimated)	[1] 400.0	----
American Water Works & Electric Co.	396.7	9
Commonwealth Edison Co.	[1] 376.4	9
Stone & Webster, Inc.	371.7	----
Utilities Power & Light Corporation	367.2	----
Southern California Edison Co., Ltd.	360.2	4
Western Union Telegraph Co.	341.6	47
The Detroit Edison Co.	327.2	6
Midland United Co. (estimated)	[1] 320.0	----
Brooklyn-Manhattan Transit Corporation	300.4	----
Public Service Company of Northern Illinois	[1] 226.1	----
Duke Power Co.	213.6	----
The Peoples Gas Light & Coke Co.	211.4	----
Pacific Lighting Corporation	194.3	3
The Edison Electric Illuminating Co. of Boston	181.8	7
Federal Water Service Corporation	176.7	----
Consolidated Gas Electric Light & Power Co. of Baltimore	160.1	5
Central Public Utility Corporation	[1] 151.6	----
Lone Star Gas Corporation	134.4	4
Long Island Lighting Co.	127.6	2
Hudson & Manhattan Railroad Co.	125.5	2
The Brooklyn Union Gas Co.	121.8	5
Chicago Railways Co.	112.0	----
Boston Elevated Railway Co.	110.6	6
Third Avenue Railway Co. (estimated)	[1] 107.2	4
Portland Electric Power Co.	95.0	----
Community Water Service Co.	84.5	----
Jersey Central Power & Light Co.	80.1	----
Associated Telephone Utilities Co.	79.4	----
Philadelphia Rapid Transit Co.	73.0	----
St. Louis Public Service Co.	72.8	----
National Fuel Gas Co.	72.4	----
The Baltimore Transit Co.	67.7	----
Natural Gas Pipeline Co. of America	67.3	----
RAILROADS		
The Pennsylvania R. R. Co. (estimated)	[1] 2,863.0	109
The New York Central R. R. Co. (estimated)	[1] 2,356.0	95
Alleghany Corporation (estimated)	[1] 1,739.0	----
Southern Pacific Co.	1,677.7	37
The Great Northern Ry. Co. (estimated)	[1] 1,152.1	16
Northern Pacific Ry. Co. (estimated)	[1] 1,131.2	17
Baltimore & Ohio R. R. Co.	1,118.3	35
The Atchison, Topeka & Santa Fe Ry. Co.	1,091.6	42
Union Pacific R. R. Co.	1,069.6	30
Atlantic Coast Line R. R. Co. (estimated)	[1] 786.5	13
Chicago, Milwaukee, St. Paul & Pacific R. R. Co.	699.5	30
The Illinois Central R. R. Co.	656.8	29
Missouri Pacific R. R. Co.	617.3	23
Chicago & Northwestern Ry. Co.	598.2	25
Southern Railway Co.	587.1	26
The New York, New Haven, & Hartford R. R. Co.	535.9	20
Reading Co. (estimated)	[1] 495.3	17
Chicago, Rock Island & Pacific Ry. Co.	481.2	21
Norfolk & Western Ry. Co.	467.9	20
St. Louis-San Francisco Railway Co.	417.9	13
Wabash Railway Co.	313.6	10
Boston & Maine R. R. Co.	295.4	12
Seaboard Air Line Ry. Co.	272.1	12
Missouri-Kansas-Texas R. R. Co.	249.6	8
The Delaware & Hudson Co.	235.8	17
The Denver & Rio Grande Western R. R. Co.	233.1	6
Lehigh Valley Railroad Co.	217.0	13
The Western Pacific R. R. Corporation (estimated)	[1] 196.8	3
The Delaware, Lackawanna & Western R. R. Co.	176.4	15

TABLE II.—*Largest administrative units*—Continued

	Assets, 1935 (millions of dollars)	Number employed, 1935 (thousands)
RAILROADS—continued		
Western Maryland Ry. Co	168.1	4
The Virginian Ry. Co	153.4	2
Chicago Great Western R. R. Co	141.3	4
Kansas City Southern Ry. Co	131.3	3
Florida East Coast Ry. Co	123.2	2
Chicago Union Station Co	91.4	
Chicago & Western Indiana R. R. Co	88.9	
Chicago & Eastern Illinois Ry. Co	80.2	
Terminal Railroad Association of St. Louis	[1] 77.0	
Minneapolis & St. Louis R. R. Co	72.0	
BANKS		
Chase National Bank	2,350.5	
National City Bank	1,880.7	
Guaranty Trust Co	1,847.4	
Bank of America National Trust & Saving Association	1,277.4	5.7
Continental Illinois National Bank & Trust Co	1,141.1	
Bankers Trust Co	1,031.7	
First National Bank (Chicago)	925.4	
Central Hanover Bank & Trust Co	914.8	
First National Bank (Boston)	729.6	
Irving Trust Co	720.0	
Manufacturers Trust Co	673.0	
Chemical Bank & Trust Co	625.2	
Security First National Bank	591.0	
First National Bank (New York)	584.2	
Bank of the Manhattan Co	548.3	
J. P. Morgan & Company, Drexel & Co	537.9	
Philadelphia National Bank	432.8	
New York Trust Co	419.7	
National Bank of Detroit	395.9	
Cleveland Trust Co	337.7	
Mellon National Bank	337.6	
Union Trust Co	334.5	
Northern Trust Co	320.7	
Corn Exchange Bank Trust Co	317.4	
American Trust Co	271.8	
Wells Fargo Bank & Trust Co	248.6	
First National Bank (St. Louis)	235.5	
Pennsylvania Company for Insurances, etc	235.3	
Anglo-California National Bank	214.3	
Harris Trust & Savings Bank	207.6	
OTHER FINANCIALS		
Metropolitan Life Insurance Co	4,234.8	48.5
Prudential Insurance Co	3,129.5	38.6
New York Life Insurance Co	2,243.6	
Equitable Life Insurance Society of the United States	1,816.2	
Mutual Life Insurance Co. of New York	1,239.0	
Northwestern Mutual Life Insurance Co	1,072.0	1.7
Travelers Insurance Co	787.9	
John Hancock Mutual Life Insurance Co	731.5	
Penn Mutual Life Insurance Co	600.7	1.5
Mutual Benefit Life Insurance Co	586.8	1.0
Massachusetts Mutual Life Insurance	532.2	
Aetna Life Insurance Co	503.5	
Marine Midland Corporation	453.3	
New England Mutual Life Insurance Co	343.5	
Union Central Life Insurance Co	326.8	
Provident Mutual Life Insurance	298.3	.5
Commercial Investment Trust Corporation	297.2	4.2
Wisconsin Bankshares Corporation	276.4	1.2
Connecticut Mutual Life Insurance Co	268.4	
Pacific Mutual Life Insurance Co	215.6	
GOVERNMENT [2]		
United States of America, excluding Post Office		790
United States of America, Post Office		260
City of New York (including counties)		127
New York State		51
Pennsylvania State		41
Chicago		40
Detroit		29
Ohio State		23
Philadelphia (city and county)		30
Illinois State		21
Massachusetts State		19
California State		20
Los Angeles City		26
Los Angeles County		14
Boston City		18
Virginia State		14
Baltimore (city and county)		14
New Jersey State		11
St. Louis (city and county)		13
Cleveland		14

[1] Estimated on the basis indicated in table I, appendix 10.
[2] Source: See appendix 18, section 17.

An examination of the list will indicate the areas of economic activity in which administrative coordination is an important factor. Approximately half of the nonfinancial corporations are railroads or utilities. In 1935 the railroads in the list and their subsidiaries operated over 90 percent of the railroad mileage of the country.[5] In the same year the electric utilities on the list accounted for approximately 80 percent[6] of the electric power production in the United States as well as more than 90 percent of the telephone service, virtually the whole of the telegraph service and most of a large part of the rapid transit facilities of New York, Chicago, Philadelphia, Boston, and Baltimore. The remaining 107 corporations on the list of nonfinancial corporations include 84 corporations primarily manufacturing in character, 10 merchandising corporations, 9 primarily mining, and 4 providing other services or carrying on miscellaneous activities.

The manufacturing companies on the list comprise a much smaller proportion of all manufacturing assets and employment than do the railroads and utilities, though their importance varies greatly from industry to industry. In some industries like steel, petroleum refining, rubber and cigarette manufacturing, the large corporations listed above comprise most of the industry. In other industries, such as cotton textiles and the clothing industries, not a single corporation on the above list is primarily engaged in that industry, though often a large corporation may carry on subordinate activities in such an industry, just as certain of the larger automobile companies make cotton cloth for their own use.

Industries Characterized by Large Corporations

Some impression of the industries in which the larger corporations constitute a significant proportion of the industry can be obtained by listing the 65 most important industries and indicating both the proportion of the industry's product supplied by the four largest companies, and the number of corporations listed among the 200 largest whose primary activity lies in the particular industry. Such a list is given in table III covering all the manufacturing industries employing over 25,000 persons. Except in the case of the large automobile corporations, which are treated as equally engaged in the automobile industry and the automobile body and parts industry, each of the large corporations has been classed for the purpose of the above list according to its primary activity. Of the 65 industries employing 25,000 persons or more, 24 are represented by at least one of the large companies on the list of 200 nonfinancial corporations. These industries include 67 of the 84 manufacturing corporations in the list, while the primary activity of 17 of the large manufacturing corporations fall in one or another of the industries employing less than 25,000 persons.

[5] Based on data in *Statistics of Railways of the United States, 1935*; Interstate Commerce Commission.
[6] Based on *Moody's Manuals*, "Utilities," 1935.

TABLE III.—*Manufacturing industries and the large corporations*

[The Larger Industries and the Number of the 200 Largest Nonfinancial Corporations Primarily Engaged in Each]

Census industry	Number of largest 200 nonfinancial corporations primarily engaged in the industry	Percent of value of products by largest four producers in 1935
Industries employing over 100,000 persons:		
Steel-works and rolling-mill products	10	49.3
Meat packing, wholesale	4	55.6
Motor vehicles, not including motorcycles	3	87.3
Motor-vehicle bodies and motor-vehicle parts	3	69.4
Paper	3	14.7
Electrical machinery, apparatus, and supplies	2	44.4
Boots and shoes, other than rubber	1	26.0
Wool and hair manufactures	1	24.2
Printing and publishing, newspaper and periodical	1	20.3
Bread and other bakery products	1	18.2
Machinery n. e. c.	1	7.0
Lumber and timber products, n. e. c.	1	4.7
Railroad repair shops, steam		37.4
Canned and dried fruits and vegetables, etc.		22.7
Cotton manufactures		8.4
Men's cotton garments		7.5
Furniture, including store and office fixtures		5.6
Knit goods		5.3
Men's, youths' and boys' clothing, n. e. c.		5.1
Printing and publishing, book, music and job		4.4
Women's, misses and children's apparel, n. e. c.		1.4
Industries Employing 25,000 to 100,000 persons:		
Petroleum refining	17	38.2
Rubber tires and inner tubes	4	80.9
Chemicals, n. e. c.	4	37.1
Cigarettes	3	89.7
Tin cans and other tinware, n. e. c.	2	80.8
Agricultural implements	2	72.4
Steam and hot-water heating apparatus, etc.	2	38.7
Glass	1	44.9
Gas, manufactured	1	37.6
Radio apparatus and phonographs	1	28.6
Foundries	1	25.2
Drugs and medicines	1	23.4
Rayon and allied products		74.3
Carpets and rugs		51.1
Refrigerators, etc.		46.1
Ship and boat building, steel and wooden		44.8
Cigars		38.5
Nonferrous-metal alloys, and products		37.8
Hardware, n. e. c.		36.4
Paints, pigments, and varnishes		32.3
Engines, turbines, water wheels and windmills		30.7
Flour and other grain mill products		29.4
Structural and ornamental metalwork		24.5
Wirework, n. e. c.		23.1
Pulp (wood and other fiber)		22.7
Leather: Tanned, curried and finished		22.5
Machine-tool accessories		21.8
Ice, manufactured		20.7
Clay products (other than pottery)		19.3
Rubber goods, n.e. c.		19.2
Pottery, including porcelain ware		19.0
Rayon manufactures		18.5
Stoves and ranges (other than electric)		16.1
Paper goods, n. e. c.		14.2
Boxes, paper, n. e. c.		14.1
Dyeing and finishing cotton, rayon and silk		13.9
Boxes, wooden, except cigar boxes		13.9
Machine tools		13.8
Confectionery		12.5
Stamped and pressed metal products		12.0
Liquors, malt		11.8
Silk manufactures		11.5
Machine shop		8.7
Planing-mill products		4.6

Source: Based on table II, appendix 7 and table I, appendix 10.

Such a compilation in no way reflects the secondary activities of the larger companies. The big railroad companies operate railroad repair shops, one of the meat packing companies plays a significant role in the canning of fruits and vegetables, and in a large number of other industries, such as rayon, rugs, refrigerators, and boat building, one or more of the large corporations plays a significant role, though the particular industry is not its primary field of activity. In many of the more important industries such as knit goods and clothing, none of the large corporations appear to play a significant role.

While the figures in table III give a clear indication of the importance of the big corporation in different industries, they do not give a clearly defined indication of the extent to which manufacturing as a whole is carried on by large enterprise. To obtain a more precise answer to this question, a special tabulation of 1935 census data has been compiled which brings together data on all the manufacuring activity of each of the largest manufacturing companies and their legally controlled subsidiaries.[7] In such a compilation the mining, service, trade, and other nonmanufacturing activities of the larger companies is excluded, so that the figures apply only to the strictly manufacturing activity of the larger companies. The results of this compilation are given below, indicating the role of the 100 largest manufacturing companies on the basis of different measures of size.[8]

With size measured by employment:
100 companies employed 20.7 percent of all the manpower engaged in manufacturing;
With size measured by value added by manufacture:
100 companies contributed 24.7 percent of all the value added in manufacturing activity;
With size measured by value of product:
100 companies accounted for 32.4 percent of the value of products reported by all manufacturing plants.

Thus, while a large proportion of the activity in particular manufacturing industries is carried on by very large corporations, the proportion of all manufacturing activity carried on by the very large companies is much smaller than in the railroad and utility fields. The fact that the big manufacturing corporations produce a larger proportion of the total value added by manufacturing than their proportion of the total manpower employed in manufacturing reflects to some extent the larger volume of capital per unit of manpower which they employ compared with the smaller companies. If comparable data were available on the value of the physical plant controlled by the hundred largest companies (size being measured on the basis of the value of physical plant) there is little question that the proportion of such assets held by them would be very much greater than the ratios of 20 percent of manufacturing manpower and 25 percent of value added by manufacture. Very probably, more than a third of the value of the manufacturing plant of the country is operated by the 100 largest manufacturing corporations even though they

[7] Corporations have been classed as subsidiaries where more than 50 percent of the voting power of its stock was held directly or indirectly by another corporation. See appendix 9.

[8] It should be noted that the three different methods of measuring size result in three different lists of the "largest" companies. Most of the companies on any one list are also on the other two, but not all of the smaller "large" companies.

employ only a fifth of the manpower engaged in manufacturing.[9]

When attention is turned to the field of mining, the same diversity of situation is apparent that exists in the field of manufacturing, though much less data are available to indicate the true role of the large administrative units. Large corporations listed above, or their subsidiaries, account for a large proportion of the iron ore and anthracite mined in the United States. They mine a significant part of the other nonferrous metals and extract much of the petroleum produced. But at the present time no real basis exists for determining the proportions of the nation's mineral resources controlled by the larger corporations or the proportion of the manpower engaged in mining which they employ.

In the field of wholesale and retail trade, the large mail-order houses, department stores, and retail chains play a significant though by no means a dominant role. Ten such companies are included in the list of 200 corporations, though together their sales appear to account for less than 8 percent of the total retail sales in the country.

In the field of services three large motion-picture companies play a significant role in that industry but, for the most part, the unregulated services are provided by medium or small enterprises.

The list of 50 largest financial corporations includes 30 banks, 17 life-insurance companies, and 3 investment trusts, each with assets of over 200 million dollars. The 30 banks together hold 34.3 percent of the banking assets of the country outside of the Federal Reserve banks while the 17 life-insurance companies account for over 81.5 percent of the assets of all life-insurance companies. The 3 investment trusts are important in their field. No general comparison between the size of these financial corporations and that of the nonfinancial corporations can be made because the financial companies act primarily as channels through which funds are invested and as a rule neither use a large volume of industrial assets in their operations nor employ a large number of persons. Most of their assets are loans or securities which only duplicate the assets of other corporations or borrowers. The significance of these large financial companies lies not so much in their productive activity as in the controls which they can exercise over economic policies, a subject to be discussed in a later chapter.

The final field to be considered is that of government. In this field large administrative units also play a significant role. The 20 largest governmental units together employ approximately 46 percent of all the manpower employed in government, including public education but excluding employees on work-relief programs.[10] The largest of these, the Federal Government, employs over a million persons in all its diverse activities, including the 284,000 in the post office, and 327,000 in the Army and Navy. It is by far the largest single administrative agency in the country, a single department, the post office, employing nearly as many persons in 1935 as the largest corporate employer. Some of the State and city governments rank high in size compared with corporate units. There are only a few corporations that employ more workers than the New York City government while State governments, New York, Pennsylvania and Ohio, and the city governments of Chicago, Philadelphia, Detroit, and Los Angeles rank along with the larger corporations in the list of 200.

The Fields of Small Enterprise

The analysis of the list of largest administrative units can disclose the types of activities in which large enterprise plays a significant role but can throw little light on the fields in which really small enterprise predominates. Of these, agriculture is by far the most important. In 1935 there were nearly 7 million farm units, less than 42,000 of which involved the gainful activity of more than 5 persons. The 7 million farm units each engaging the activities of only 1 to 5 persons accounted for well over half of the total number of producing units in the country and together they accounted for 97 percent of the persons engaged in agriculture.[11]

The other more important fields of really small enterprise are service, retail trade, and construction. While there are a few lines of service, such as the motion-picture field, in which large or medium enterprises predominate, and education, in which large government units often supply the service, most of the nonutility services are supplied by extremely small enterprises or individuals. In the field of retail trade, in spite of the encroachment of mail-order houses, large department stores, and chain stores, approximately 30 percent of all retail sales in 1935 were made by independent stores each having annual sales of under $30,000 and for the most part engaging the activities

[9] This conclusion is confirmed by results of the analysis of income-tax returns given in table V–A, appendix 11. This analysis indicates that in 1933, 75 corporations whose activity was primarily manufacturing controlled directly or through legally controlled subsidiaries (more than 50 percent voting control) approximately 45.5 percent of the land, buildings, and equipment (after depreciation) which was controlled by all corporations whose activity was primarily manufacturing. This figure requires two adjustments before it can throw light on the concentration of manufacturing assets since (1) all manufacturing is not carried on by corporations, and (2) the Treasury necessarily classifies all assets of a corporation which is *primarily* a manufacturing company as if *all* its activities were manufacturing. If the figure of 45.5 percent were adjusted for these two factors it would be reduced somewhat but would be most unlikely to fall below 35 percent.

[10] See table I, appendix 15.

[11] See appendix 18, section 18.

of only one or two people.[12] Similarly, a third of all the construction by private firms in 1935 was carried on by firms which performed less than $50,000 worth of work apiece.[13]

In other fields of activity there are many separate small units, but the number of persons engaged does not bulk large in relation to the whole national economy. Many small manufacturing or mining enterprises, small utilities, and small government units exist but do not carry on a significant proportion of the total activity in each of these fields, leaving them to be divided mostly between the medium and very large enterprises. Altogether, little more than a third of the nation's economic activity is carried on by producing units engaging the activity of one to five persons. An almost equal proportion was carried on by a few hundred very large administrative units.

The 200 Largest Nonfinancial Corporations

The greater part of the activity carried on by large administrative units is carried on by the large business corporations and their subsidiaries. In order to bring out more clearly the role of these large corporate units, a special tabulation of their balance sheets and of certain items from their income statements was made from income-tax returns. The precise procedure followed and the detailed results are given in appendix 11.

In such a tabulation, a major problem was presented by the subsidiaries of the large corporations. The Bureau of Internal Revenue has in recent years published figures in its *Statistics of Income* on the assets and incomes of corporations classified according to size. But in these compilations the subsidiaries of a corporation are treated as though they were independent companies, except when the parent held stock in the subsidiaries representing 95 percent or more of the total voting power, and even then the data on subsidiaries are included with the parent company only if the latter has chosen to file a consolidated balance sheet with the Bureau. The importance of this treatment of subsidiaries as independent companies can be indicated by a single piece of evidence. The published income-tax statistics indicate that in 1933 there were 375 nonfinancial corporations each reporting assets of over 50 million dollars. Yet, in the case of 102 of these companies, *Moody's Manuals* indicate that in 1933 they were subsidiaries of other corporations.[14] Thus, the 375 corporations each with assets over 50 million dollars turn out to be only 273 independent corporations and 102 of their subsidiaries. In addition to these large subsidiaries, the large corporations have many smaller subsidiaries which they control through majority voting power.

A clear statement of the assets controlled by larger corporations would require that each independent corporation should consolidate into its accounts the assets of all the corporations which it controlled, directly or indirectly through the ownership of stock representing more than 50 percent of the voting power.[15] It is not possible to make such a consolidation from the data filed with the Bureau of Internal Revenue, but some account of subsidiaries can be taken. In the compilations given in the appendix and summarized below, the aim was to obtain figures covering the 200 largest nonfinancial corporations and all of their legally controlled subsidiaries. To this end, each nonfinancial corporation reporting assets of 10 million dollars or more to the Bureau of Internal Revenue in 1933 was checked against *Moody's Manuals* to see if it was a subsidiary of one of the 200 largest independent corporations. Altogether 280 subsidiaries of the 200 largest nonfinancial corporations were found with assets over 10 million dollars. Compilation of the balance sheets and certain income statement items of these 280 subsidiaries and their 200 parents were then made. To the figures were added estimates of the assets and corresponding income statement items for the subsidiaries with assets under 10 million dollars to give estimates for the total assets and activity controlled by the 200 largest corporations. These resulting figures for total assets do not represent consolidated figures but involve a significant amount of duplication since they include both the assets of subsidiaries and the stock held by parents in subsidiaries as well as credit extended to them, just as do the asset figures for all corporations compiled and published by the Bureau of Internal Revenue.[16] Most of this duplication can be eliminated by deducting the item "taxable securities" from the summated assets of the 200 largest corporations and their subsidiaries thus providing a figure which can be compared with the total assets of all nonfinancial corporations less their taxable securities. Such a procedure not only eliminates the security holdings of parents in subsidiaries but also all the asset duplications due to intercorporate holdings of stocks and bonds. It does not, however, eliminate the duplication due to the intercorporate extension of short-time credit. A more basic figure which involves no duplication can be obtained by restricting the compilations to the value of physical assets recorded under

[12] Based on U. S. Department of Commerce, *Census of Business*, "Retail Distribution," vol. I, 1935.

[13] Based on U. S. Department of Commerce, *Census of Business*, "Construction Industry," vol. III, p. 30. 1935.

[14] Source: See appendix 11.

[15] Ownership by a subsidiary of part or all of the stock representing a majority of the voting power over another corporation is presumed to be included in the phrase "through ownership of stock," as well as stock owned directly by the parent corporation.

[16] It also includes duplication to the extent that subsidiaries held stock in their parents or extend credit to them, but this item is believed to involve an insignificant proportion of the total assets of the large corporations.

the items "inventories" and "land, buildings and equipment." [17] Such figures represent the tangible wealth controlled by the corporations and are directly comparable to estimates of industrial and national wealth. For some purposes the assets less taxable investments may be more significant, while for still other purposes the physical assets or only the land, buildings and equipment—the instruments of production—are the more significant. Figures for each of these are given in table IV.

TABLE IV.—*Assets and income statement items for 200 largest nonfinancial corporations and their unconsolidated subsidiaries, 1933*

	Millions of dollars
Assets	
Cash	2,579
Inventories	3,867
Land, buildings, and equipment [1]	59,949
Tax-exempt investments	803
Taxable investments	17,754
Notes and accounts receivable	5,498
Miscellaneous assets	5,167
Total assets	95,617
Total assets less taxable securities	77,863
Total physical assets [2]	63,816
Selected income statement items:	
Gross receipts from sales and services	21,985
Interest received	361
Cash dividends received	415
Cash dividends paid	1,525
Depreciation and depletion charged	1,633
Taxes paid	1,043
Interest paid	1,628
Compiled net profit or loss	533
Income derived from operations	1,779

Source: See table II, part 2, appendix 11.
[1] Less reserves for depreciation and depletion.
[2] Land, buildings, and equipment (depreciated) and inventory.
NOTE.—Size is measured throughout by amount of gross assets.

The absolute figures for the assets and income items of the 200 largest nonfinancial corporations and their subsidiaries are in themselves significant, as they show the great volume of assets controlled by the relatively small group of corporations. That 200 corporations control over 60 billion dollars worth of physical assets is in itself a striking fact. The real significance of these figures, however, lies in the basis they give for comparing the assets of the large corporations with other asset and wealth items.

The three most important items with which the assets of the 200 largest corporations could be compared are: (1) the assets of all nonfinancial corporations, (2) the total industrial wealth of the nation, and (3) the total national wealth. The figures for all nonfinancial corporations can be derived directly from the income tax statements, the same source as that for the figures on the 200 largest corporations and their subsidiaries, and are directly comparable with them. For national wealth a very crude estimate of the value of all physical wealth of the country other than personal belongings has been made which gives figures comparable with the figure for land, building, equipment, and inventory held by the largest corporations.

Figures for total industrial wealth have been obtained by summating estimates of the wealth (land, buildings, equipment, and inventory) used by the railroads and other public utilities, by manufacturing and mining enterprises, by wholesale and retail enterprises, by the construction industry, by finance companies exclusive of their holdings of farm and residential real estate, and by the service industries exclusive of public education. The resulting figures for industrial wealth represent the national wealth less agricultural wealth, governmental wealth, and residential housing which together make up more than half of the national total. Presumably some of the wealth used in the service industries should be excluded from the total of industrial wealth, but no adequate basis was found for making such a deduction, so that if anything, the figures for industrial wealth are slightly exaggerated. The figures arrived at for these different categories of assets and wealth (in 1933) are given in table V along with the proportion of each category which is controlled by the 200 largest corporations.[18] Together these 200 largest corporations controlled in 1933 approximately 19 to 21 percent of the national wealth, between 46 and 51 percent of the Nation's industrial wealth, and approximately 60 percent of the physical assets of all nonfinancial corporations.

A break-down of large corporations into major industrial categories is given in table VI. It shows, as has already been indicated, that the bulk of transportation and of other public utility assets is in the hands of the very large corporations and that over 45 percent of the land, buildings, and equipment (depreciated) of manufacturing corporations was held by the 75 largest manufacturing corporations. Since approximately 92 percent of the manufacturing is carried on by corporations, these 75 corporations must have held in the vicinity of 40 percent of the total plant used in manufacturing.[19] The 25 largest nonfinancial corporations not classed by the Bureau of Internal Revenue as transportation, public utility, or manufacturing represent only 17 percent of the land, buildings, and equip-

[17] Depreciated.

[18] It should be noted that throughout this section, the figures given are not concerned with the assets *owned* by large corporations but with the assets *controlled*. "Assets controlled" includes both the assets owned by a corporation and the assets owned by its subsidiaries. A corporation has been treated as a subsidiary when a majority of the voting power of its stock is held directly or through subsidiaries by another corporation. Where only working control of a corporation (a large minority interest) is held by another corporation the former has not been treated as a subsidiary of the latter.

[19] An exact figure cannot be given because some of the assets of corporations properly classed as manufacturing corporations are concerned with other activities than manufacturing.

TABLE V.—*Relation of 200 largest nonfinancial corporations to all nonfinancial corporations, to industrial wealth, and to national wealth, 1933*

	200 largest nonfinancial corporations and subsidiaries	All nonfinancial corporations	Total industrial wealth	Total national wealth	Percent of each category controlled by 200 largest corporations		
					All nonfinancial corporations	Industrial wealth	National wealth
	Billions of dollars	*Billions of dollars*	*Billions of dollars*	*Billions of dollars*			
Total assets, involves some duplication	95.6	167.7			57.0		
Total assets less taxable securities, involves only minor duplication	77.9	142.0			54.8		
Total physical assets, land, buildings, equipment, and inventories, involves no duplication	63.8	107.0	[1] 125–140	[2] 300–340	59.6	46–51	19–21
Total instruments of production, land, buildings, and equipment, involves no duplication	59.9	93.4			64.2		
Gross receipts from sales and services	22.0	73.4			29.9		
Interest and dividends paid	3.2	5.0			64.0		
Compiled net profits	.5	.1					

Source: See appendix 11, table II.

[1] Represents a summation of the wealth used by railroads and other public utilities, by manufacturing and mining enterprises, by wholesale and retail enterprises, by the construction industry, by finance companies exclusive of their holdings of farm and residential real estate, and by service industries exclusive of public education; this is equivalent to total national wealth less agricultural wealth, governmental wealth, and residential housing. Presumably part of the wealth used in the service industries should be excluded from an estimate of industrial wealth but no satisfactory basis for estimating the amount to be excluded could be found. The estimate for the total industrial wealth is likely to err on the side of being too large. See Appendix 18, section 5; the figures are for 1935, and it is assumed that the range would be the same for 1933.

[2] See appendix 19, section 5. Excludes value of personal property; the figures are for 1935, and it is assumed that the range would be the same for 1933.

ment (depreciated) used in these other activities which include mining, trade, construction, and services.

Growth in the Relative Importance of the Large Corporations

The relative importance of large corporate units in the American economy appears to have been fairly steadily increasing as a part of the process of shifting from an economy primarily agricultural in character to one predominantly industrial. As recently as 1870, 53.0 [20] percent of the persons gainfully occupied were engaged in agriculture. In 1930 only 21.4 [20] percent were engaged in agriculture. Broadly speaking, industry—consisting primarily of transportation and the public utilities, mining and manufacturing, and wholesale and retail distribution—has in the last century displaced agriculture as the dominant characteristic of the American economy. With this industrialization an increasing proportion of the whole economy has come to be carried on by corporations while large corporations have come to play an increasing role both in relation to all corporations and in relation to the national economy. No figures are available on the increasing importance of corporations in the whole economy, but the increasing role of large corporations can be indicated.

The changing importance of large corporations to all nonfinancial corporations between 1929 and 1933 is shown in table VII. The figures for the 200 largest corporations in 1929 were derived from income tax returns by essentially the same procedure as that already indicated for 1933, while the intervening years were estimated by methods set forth in appendix 11.[21] For earlier years no such reliable figures exist, but the estimates made by Berle and Means appear to be sufficiently reliable to indicate roughly the magnitude of the change in the relative importance of the larger corporations in relation to all nonfinancial corporations.[22] The figures become successively less reliable as one goes back to the earlier years. The composition of the list of 200 largest in each year changes from year to year as particular corporations decline in relative importance and others take their places, but the turnover is relatively slow. The proportionate holdings

[20] U. S. Department of Commerce, *Census of Population, 1930*, vol. IV.

TABLE VI.—*Concentration in 4 industrial categories, 1933* [1]

Proportion of corporate assets in 4 industrial categories controlled by largest corporations in these categories	1933	
	Total assets less taxable investments (less depreciation)	Land, buildings, and equipment (less depreciation)
	Percent	*Percent*
75 largest manufacturing corporations	40.2	45.5
45 largest transportation corporations	91.7	91.6
40 largest public utility corporations	80.4	81.2
25 largest "other" nonfinancial corporations	14.8	17.4

[1] For derivation of this table, see appendix 11.

[21] It should be noted that since the figures represent the 200 largest nonfinancial corporations respectively in each successive year, they do not concern a group of corporations which is identical in successive years, but one which changes gradually as particular corporations decline in importance and others take their place among the 200 largest.

[22] *The Modern Corporation and Private Property*, MacMillan Co., 1933. The authors concluded that in 1929, 49.2 percent of the assets of all nonfinancial corporations exclusive of intercorporate security holdings were owned by 200 corporations and their subsidiaries but indicated the crudeness of this estimate by suggesting that the true figures probably lay between 45 and 53 percent. The more exact ratio arrived at on the basis of the income tax returns of the largest corporations and their large subsidiaries indicated that 47.9 percent of the assets exclusive of taxable securities of all nonfinancial corporations were held by 200 corporations or their subsidiaries. The two figures are not exactly comparable because the Berle and Means estimates exclude short-term intercorporate loans as well as taxable securities. However, the closeness of the ratio indicates the approximate accuracy of the Berle and Means figure. Their estimates for the years 1926–29 are arrived at on the same basis and are presumably of the same order of approximate accuracy. The estimates in prior years are recognized as being relatively crude. Because the larger corporations on the whole "watered" their stock to a greater extent than smaller corporations, the Berle and Means figures tend to minimize the growth in the relative importance of the larger corporations.

of the largest corporations increased from approximately one-third of the assets (exclusive of intercorporate securities) of all nonfinancial corporations in 1909 to over 54 percent in 1933.[23] Since there is no reason to believe that a smaller proportion of economic activity was carried on in 1933 by corporations than in 1909, the figures would seem to indicate an increasing proportion of all activity carried on by the 200 nonfinancial corporations which were largest in the successive years. This evidence of corporate growth serves to emphasize the increased role of large administrative units in determining the use which is made of national resources.

It would be highly desirable to have comparable figures on the changing role of large government units, particularly that of the Federal government. Relatively few precise data on this score are available. If adequate estimates could be made as to the proportion of the country's wealth which was owned by the Federal government or its agencies and the proportion of the gainfully employed who were in government service, they would undoubtedly show similar general growth in the relative importance of government, temporarily accelerated by periods of war or other national emergency. That the proportionate role in the national economy of the large administrative units, including both corporate and government, has greatly increased in the last 50 years there can be little doubt. The alteration in the structure of the American economy resulting from the increased importance of administrative coordination will become apparent in subsequent chapters.

TABLE VII.—*Proportion of assets of all nonfinancial corporations held by 200 largest nonfinancial corporations, 1929–33*

[Money figures in millions of dollars]

	1929	1930	1931	1932	1933
TOTAL ASSETS [1]					
200 largest nonfinancial corporations	98, 597	107, 073	101, 662	96, 690	95, 617
All other nonfinancial corporations	100, 832	91, 258	76, 766	77, 560	72, 104
Total nonfinancial corporations	199, 429	198, 331	178, 428	174, 250	167, 721
Concentration ratio: 200 largest to all nonfinancial corporations (percent)	49. 4	54. 0	57. 0	55. 5	57. 0
TOTAL ASSETS LESS TAXABLE INVESTMENTS [2]					
200 largest nonfinancial corporations	84, 809	91, 364	85, 169	79, 916	77, 863
All other nonfinancial corporations	92, 195	76, 846	68, 175	65, 973	64, 125
Total nonfinancial corporations	177, 004	168, 210	153, 344	145, 889	141, 988
Concentration ratio: 200 largest to all nonfinancial corporations (percent)	47. 9	54. 3	55. 5	54. 8	54. 8
LAND, BUILDINGS, AND EQUIPMENT LESS DEPRECIATION AND INVENTORIES					
200 largest nonfinancial corporations	63, 954	[3]	[3]	[3]	63, 816
All other nonfinancial corporations	57, 989				43, 168
Total nonfinancial corporations	121, 943				106, 984
Concentration ratio: 200 largest to all nonfinancial corporations (percent)	52. 4				59. 7
LAND, BUILDINGS, AND EQUIPMENT LESS DEPRECIATION [4]					
200 largest nonfinancial corporations	58, 351	62, 709	62, 658	60, 540	59, 949
All other nonfinancial corporations	42, 278	41, 628	36, 368	35, 404	33, 407
Total nonfinancial corporations	100, 629	104, 337	99, 026	95, 944	93, 356
Concentration ratio: 200 largest to all nonfinancial corporations (percent)	58. 0	60. 1	63. 3	63. 1	64. 2

Source: For the method used, see appendix 11.

[1] Involves intercorporate duplication.
[2] Slight intercorporate duplication.
[3] Inventories not available for 1930–32 because of inadequate data for interpolation.
[4] No intercorporate duplication.

Determinants of Size of Enterprise

The prevalence of very large administrative units in some segments of the economy and their absence in others raises the question of the forces making for size. Why are some activities dominated by large units and others by small? This is a question that deserves intensive research, both in its technical aspects and its social implications.) Here the most that can be done is to indicate certain elements of the problem.

One aspect of the problem of size of administrative unit has to do with the economical size of plant. It is generally agreed that in any concrete situation there is an appropriate size of plant such that a much larger plant would be uneconomically large, and a smaller plant would be uneconomically small. The appropriate size of plant for supplying a particular product will depend on a wide variety of circumstances of which the most important are usually the techniques of production, the techniques of administration, and the size of the available supply of raw materials and labor, and the size of the available market for the product. The appropriate size is likely to become larger or smaller with improvements in technique or administration, or with changes in the market. But whatever its size, whether a mammoth rolling mill, standard medium-sized cotton mill, a corner drug store, or a 160-acre farm, it is likely to set a minimum limit to the size of the appropriate administrative unit.[24]

In the case of most of the very large enterprises, however, the administrative unit is not limited to a single plant. Instead, it is likely to embrace a number of plants, perhaps hundreds or even thousands. The General Motors Corporation, The Great Atlantic & Pacific Tea Co., and The National Dairy Corporation are examples of companies operating many separate plants scattered over the entire country. There is much less agreement as to the efficiences of multiplant administrative units. It is claimed by some that all, or pratically all, the technical efficiencies of large scale operations are obtained in the large single plants. Others claim that there are in many instances technical efficiencies as well as operational economies in multiplant operation. It is quite possible that just as there

[23] Changes in the method of reporting to the Bureau of Internal Revenue prevented the carrying of the compilation and estimating beyond 1933 with the small staff of technicians available.

[24] It is, of course, possible to have several quasi-independent administrative units operating the same plant. Thus, a separate department in a department store is sometimes rented to an enterprise which is independent of other departments, or a steel company may contract out the operating of particular blast furnaces. But this is exceptional.

is presumed to be an optimum size of plant, there may be an optimum size of administrative unit, sometimes involving only a single plant and sometimes embracing a multitude of plants. Just what are the factors making for the optimum administrative unit is likewise a question deserving intensive study.

Until the forces making for large as against small enterprises have been intensively studied it will not be possible to say how much the concentration into large administrative units is a product of technical considerations, how much it is a product of the drive to reduce or eliminate market controls, and how far it results from other considerations such as the ability to raise capital or the requirements of mass marketing. For the present discussion of the structure of the American economy, the first consideration is to recognize the extent and scope of administrative coordination in the use of resources. Until the extensive role played by administration in the organization of economic activity is fully recognized, there is danger of overestimating the extent to which coordination is brought about through the market mechanism

Extent of Market Coordination

While administration plays the role of coordinating the activities of individuals within economic units, the market functions to coordinate the activities between economic units. As has been noted, it is not the sole influence coordinating the activities of separate economic units, but operates within the framework established by canalizing rules, in conjunction with the greater or less influence of accepted goals, and supplemented by threads of administrative control running between economic units. In conjunction with these other influences, the market interrelates the millions of families and individuals who constitute the ultimate consuming units, the millions of gainfully occupied who constitute the ultimate producers, the millions of investors who in part finance the formation of capital, and the millions of producing units, some large and some small, within which production is carried on.

Characteristics of Market Coordination

The market contributes to economic organization through two quite different characteristics, money transactions and flexibility of price. Both these characteristics are thoroughly familiar but are so often confused that their difference needs to be emphasized here.

Coordination through money transactions.—In the preceding chapter the circuit flows of money have already been discussed. These circuit flows are made up of a series of money transactions which facilitate the organized use of resources. Through these money transactions manpower and capital funds are made available to producers; raw materials, semifinished products, and capital goods are transferred from one producer to another, and finished products or services are made available to consumers. These money transactions also provide a system of prices which are stated in terms of a common money medium and which act as a guide to the use of resources, stimulating some uses and repressing others. The organizing role of money transactions is too familiar to justify discussion here.

What is less often recognized is that money transactions can perform at least part of their organizing role regardless of whether prices are flexible or rigid. In the middle ages under the guild system, prices for most guild products were extremely inflexible, some remaining constant for a century at a time. Yet if all prices could be made perfectly rigid for years at a time, this would not prevent money transactions at these rigid prices from playing a role in the organizing of resources. Even if the system of rigid prices bore no close relation to a set of prices which would correspond to effective use of resources, both production and consumption could be expected to adjust to the particular prices. Where the particular prices were too high in relation to a balanced use of resources, consumption would presumably be lower than would be warranted by the available resources, while competition to supply this limited market at a high price might lead to such a large number of producers operating at partial capacity that costs of production would be increased to the point that no one producer was making more than a competitive profit. Gasoline distribution suggests a case of this type of competition which acts to increase costs instead of reducing distribution margins. Conversely, a price too low in relation to effective use of resources might result in insufficient production to supply the demand at the particular price. The deficiency of supply might lead to rationing, or perhaps the extra demand might be discouraged by the necessity of waiting in queues for the chance to buy, as happened on a large scale in Russia in the 1920's.

But neither in the case of too high nor too low prices would the perfect rigidity of prices prevent money transactions from contributing to a major extent to the organizing of economic activity. The market would be playing the same role between enterprises that administration plays within enterprises, directing manpower and materials into different channels and helping transfer materials from one step in production to another. Likewise, it would allocate the products of activity between consuming units, performing the same function that the head of a family performs in apportioning products among the family members. How well it would perform these functions would depend very largely on the price relationships actually existing. One pattern of prices might lead to ineffective or only partially effective use of resources, just as incompetent

management within an administrative unit can lead to wasteful use of resources while another set of prices might lead to more effective use. Thus, whether prices are inflexible or more or less flexible, the market mechanism contributes to the organization of economic activity through money transactions.

Coordination through price flexibility.—In addition to money transactions, the market can contribute to the organization of production through price flexibility. This can arise in two ways, first, by price adjustments which alter price relationships in such a way as to make them conform more nearly with price relationships conducive to effective use of resources, and second, by price adjustments which insure an adequate supply of buying power. Both of these will be discussed in detail in the next chapter in connection with the price structure. It is sufficient here to mention them before examining certain types of price formation and the character of the market in different parts of the American economy.

There are two main processes by which prices are arrived at.[25] Prices may be made in the free market as the result of the interaction of a very large number of buyers and sellers or, in a more restricted market prices may be made by administrative decisions influenced to a greater or less extent by market conditions.[26] The price of wheat in the Chicago Wheat Pit and the price of steel shares on the New York Stock Exchange are examples of prices made in a free market. Such prices will be referred to hereafter as market prices. The wholesale prices of automobiles and agricultural implements are set by the respective manufacturers and these result from administrative decision. Such prices will be referred to as administered prices.

The chief differentiating characteristic of market and administered prices lies in the relation between the prices at which successive transactions are likely to take place. In a free market there is nothing tending to make successive transactions in a particular commodity take place at identical prices. Occasionally there may be a run of identical prices for hundred-share lots of steel stock but it is highly unlikely that all round-lot transactions in steel stock would take place at the same price for several days at a time.[27] On the other hand, it is the nature of an administered price that it is set for periods of time, and a series of successive transactions take place at that price. Thousands of automobiles of a given make and model may be sold through a period of months at identical wholesale prices and only occasionally will the administered price be altered to meet changes in market conditions, changes in model, or an alteration in costs. Thus, it is the nature of free-market prices to be highly flexible, responding quickly to the short-run ebb and flow of demand and supply, whereas administered prices tend to lack the very short run flexibility of market prices.

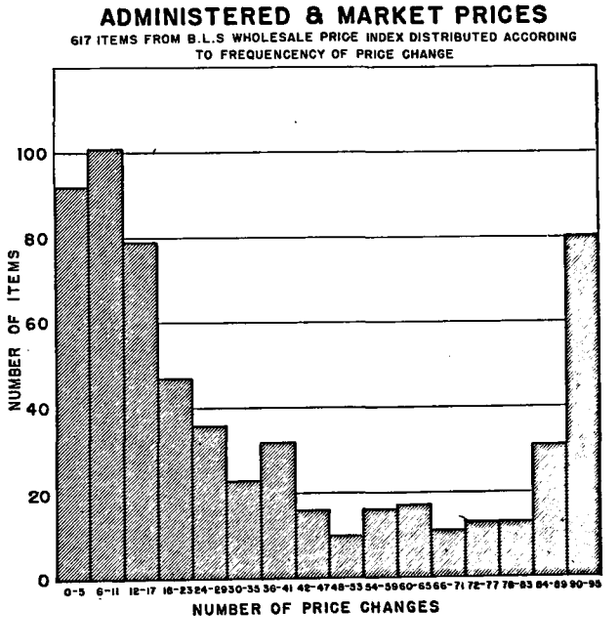
Theoretically, an administered price could be so frequently altered, hourly or daily, as to approximate the flexibility of a market price, but in practice administered prices tend to be less flexible, varying from the relatively flexible to the highly inflexible. This is brought out clearly in chart I which shows the items underlying the Bureau of Labor Statistics wholesale price index distributed according to the frequency with which their prices changed in successive months between 1926 and 1932. Some items showed a difference in price in every month over the preceding month, thus changing 95 times in the 96 monthly observations. Other items were the same in price throughout the

[25] There are many other ways by which prices are arrived at. Prices, particularly fees for services, are often customary. They may be arrived at on a basis of auction. Other pricing processes have sometimes developed. However, market prices and administered prices are the most important in the American economy at the present time.

[26] The term "free market" is used here in general to refer to a market in which no one producer or organized group can influence price through expansion or contraction of its production to an extent sufficient to justify it in giving weight to this influence in developing its production policy and in which no one consumer (ultimate or intermediate) can influence price through expanding or contracting its consumption to an extent sufficient to justify it in giving weight to this influence in developing its consumption policies. Stated in technical terms, a free market would be one in which each individual producer was faced with a virtually horizontal demand curve for its product and each individual consumer was faced with a virtually horizontal supply curve. Other economic conditions are also necessary to the existence of a free market such as the absence of government restriction on prices and the absence of temporary speculative control of prices such as is involved in a corner on wheat or an effective stock pool.

[27] Except, of course, if the market were being rigged. In that case it could not be classed as a free market.

CHART I



Source: Based on data given in appendix 2, table I.

period, thus having zero price changes. On the whole the items tend to fall fairly close to one end or the other of the frequency scale. Of the 617 items covered, 111, or 18 percent, changed 84 times or more, while 193, or 31 percent, changed less than 12 times. This bunching at the extremes gives the distribution shown in the chart a more or less U-shaped character which is usually associated with two distinct types of behaviour. For convenience the prices which changed more than 77 times in the 8-year period will be referred to as market-dominated prices, although in the case of several there were short periods when the prices took on the character of an administered price, while there are others which would show themselves to be administered prices if weekly or daily price data were employed. In these cases, even though the prices were administered, the market appeared to dominate the price behaviour. Similarly, prices which averaged less than 23 changes a year will be referred to as administration-dominated prices since their infrequency of price change indicates an appreciable degree of price control in the hands of individual producers. These two groups of prices include 71 percent of the items represented by the chart. The remaining 180 items which showed between 23 and 78 changes are not clearly dominated by either the market or administration. In the next chapter, which deals with the price structure, the difference in the behavior of these groups will be examined.

It is generally recognized that a producing unit acting alone can operate on the basis of administered prices only where it supplies a significant proportion of all the particular market or can narrow down the scope of the market by emphasis on special brands, trade names, and similar devices for differentiating the product of one producer from that of another in the minds of buyers. When the independent producer is so small in relation to the market that he can sell all that he can produce without having a significant effect on prices,[28] then he cannot administer the price of his product. If all the producers supplying a particular product are in this situation, the price is made in the market and cannot be administered by the producers except through collusion on the part of the producers or the interposition of some higher authority.[29] Only where the producer is large in relation to the market can he administer the prices of his product.

The size of a single producer in relation to the market should not be confused with the absolute size of producing units for which data were given in the preceding section. The possible market for the products of a single producer may be Nation-wide or even world-wide as in the case of wheat and automobiles. The market may be only regional as in the case of cement. It may be local as in the case of bread baking and ice manufacture or extremely local as in the case of the retailing of food where even a few city blocks may be sufficient to delimit for a particular store the circle of its possible customers. This means that the importance of a particular producer in relation to the market must be measured in terms of the proportion of the market which he supplies. The single grocery store in an isolated country town is in a position to dominate the local market. Except for locally grown food products, it must supply the bulk of the community's food. The grocer is in a position to administer his own prices. On the other hand a huge company employing thousands of workers in producing standard cotton goods would be producing a product which has a world market. Such a company would be likely to be supplying only a very significant proportion of the total and would not be in a position to dominate the market even to the extent of administering its own prices.

The markets for particular products or services are seldom sharply defined. Geographically, the market which can be reached from a particular plant is likely to taper off gradually with distance, as transportation costs become greater, or delay in delivery becomes more important. In terms of function, also, products do not fall into sharply defined categories with separate and distinct markets. If products are defined narrowly, the markets for particular products are largely overlapping. Perhaps the market for 36-inch cotton sheeting of a particular quality might be discussed as a definite thing, but actually the market for 36-inch sheeting overlaps that for 54-inch sheeting of the same quality. For many uses one could be substituted for the other. Yet, for some uses they are not adequate substitutes for each other so that their markets are not exactly coterminous. Similarly, sheeting of the same width but of different quality or construction may be interchangeable with each other for some purposes and sufficiently different for other purposes to be inadequate substitutes. The same difficulty arises when markets for broader categories are discussed. Cotton sheeting as a whole overlaps with linen sheeting for some purposes, with silk and rayon sheeting for some purposes, with sheet rubber for still other purposes. Thus, the market which any particular producer is supplying is not a sharply determined market but one that ramifies in different directions with no precise geographical or functional limits.

Concentration in Relation to Major Markets

Though markets cannot be sharply delineated, it is possible to obtain a rough indication of the degree of concentration in relation to the market by adopting the industrial or other categories generally employed

[28] I. e., when he, as an independent producer, faces a horizontal demand curve for his product within the range of his capacity to produce.

[29] Prices administered by consuming units are sufficiently infrequent to be disregarded in outlining the structure of the national economy.

and measuring concentration in these terms.[80] This is done in the following sections which take up successively the degree of concentration in each of the major markets—goods, labor, and securities. The results of such measurement can, of course, give only a crude approximation to market concentration, but such a crude picture is of value in outlining the general structure of the American economy.

Concentration in relation to the market for goods.—In the market for goods, including both commodities and services, the vast bulk of consumers are unorganized so that there is little concentration on the part of the ultimate buyers of consumer goods. For particular types of consumer goods the effective demand may be limited to a relatively small number of ultimate buyers, and in particular localities consumers may have developed effective cooperatives or collective bargaining associations for particular commodities, but for the bulk of consumers goods the number of potential buyers tends to be large, often ranging into the millions so far as particular producers are concerned.

In contrast to lack of concentration among consumers, a great deal of concentration in relation to the market is evident among producers. For commodity after commodity produced for consumption, the number of separate producers is small so there are only a small number of sellers in relation to the large number of ultimate buyers. Likewise, for many services rendered to consumers, the number of enterprises in a position to supply the particular service is small. This same concentration of production in some fields leads to conditions in which the intermediate buying is concentrated and the selling is unconcentrated. This is particularly true in the case of farm products. Farmers sell the bulk of their cigarette tobacco to a handful of cigarette manufacturers who in turn sell the finished cigarettes to millions of consumers through the retail channels. The bulk of cattle and hogs is sold to a few meat packers, and a major part of the wheat used in this country is sold to a few flour milling companies. In other cases, the concentration of producers leads to concentration of both buying and selling, as when a few steel producers supply most of the heavy steel rails and the bulk of the purchases is made by a small number of railroads. It is primarily the concentration of production in many lines of activity that provides the small number of sellers or buyers which characterize the market for so many goods and limit the operations of the market as an organizing influence. This section will therefore be concerned only with concentration in relation to the market as it is reflected in the concentration of production.

Government-operated enterprise and the regulated public utilities probably constitute the area of greatest concentration in relation to the market. In the case of the bulk of the services rendered by government units for which specific charges are made, such as postal services, water supply, and other utility services, the government unit is the only agency supplying the particular service to the particular market. Likewise in the supplying of electric power, gas, and local telephone service, relatively few communities are served by more than one utility company supplying each of these services. Local transport is usually supplied by one or a few traction or bus companies and many small taxi units. The railroad transportation service between particular points is usually restricted to one or a very few railroads, though truck and bus service has cut into the market for certain types of transport service. Long-distance communication, other than that through the mails, is mostly divided between the telephone company and two telegraph systems. Thus, in supplying services in most of the government and utility fields, there is a high degree of concentration in relation to the market, and prices are administratively determined either by government or through a regulatory process which involves both government and private business. Only to a negligible extent are the services rendered by government or the utilities supplied in a free market and at prices determined in the market.

In the field of manufactures, concentration in relation to the market runs all the way from a high degree of concentration in the supplying of automobiles, cigarettes, and agricultural implements to the relatively small concentration in the production of cotton textiles, knit goods, and clothing. This variety is shown in chart II, which indicates for each census industry the proportion of the industry's product, measured in value terms, which was produced by the largest four and the largest eight producers in the industry in 1935. The different industries are divided into three groups: First, the 21 big industries, each of which employed 100,000 persons or more in 1935; next, the 44 medium-sized industries, each employing between 25,000 and 100,000 persons in 1935; and, finally, the 211 smaller industries, each of which employed less than 25,000 persons. Within each group the industries are arranged in order of declining concentration as measured by the relative value of the products of the four largest producers.

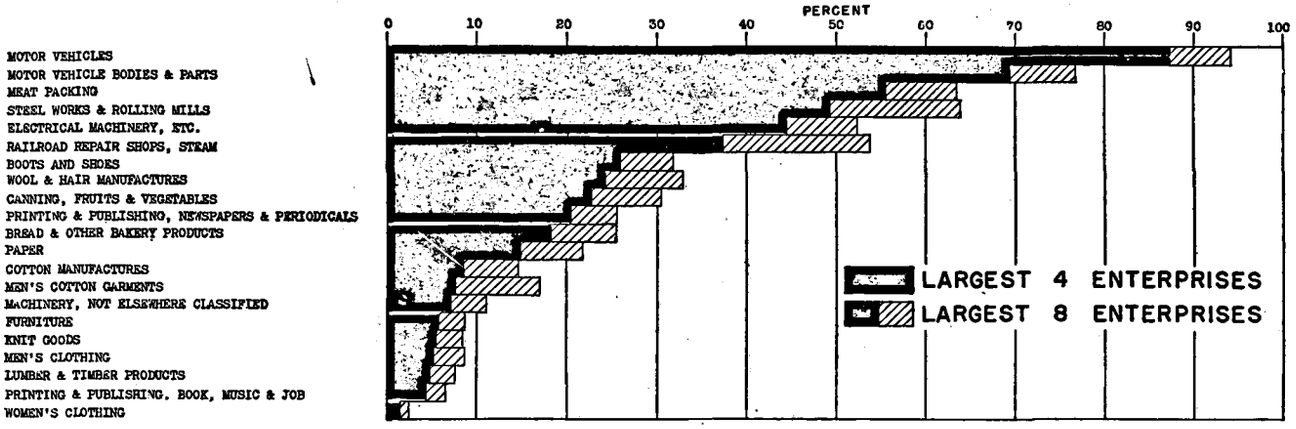
In reading this chart it is important to keep in mind three weaknesses, each of which tends to minimize the actual degree of concentration in relation to the market. First, the Census in grouping individual plants

[80] The term "concentration in relation to the market" is used throughout this chapter to refer to concentration in buying or selling, i. e., a large proportion of the sales of a particular goods made by a small number of sellers or purchased by a small number of buyers.

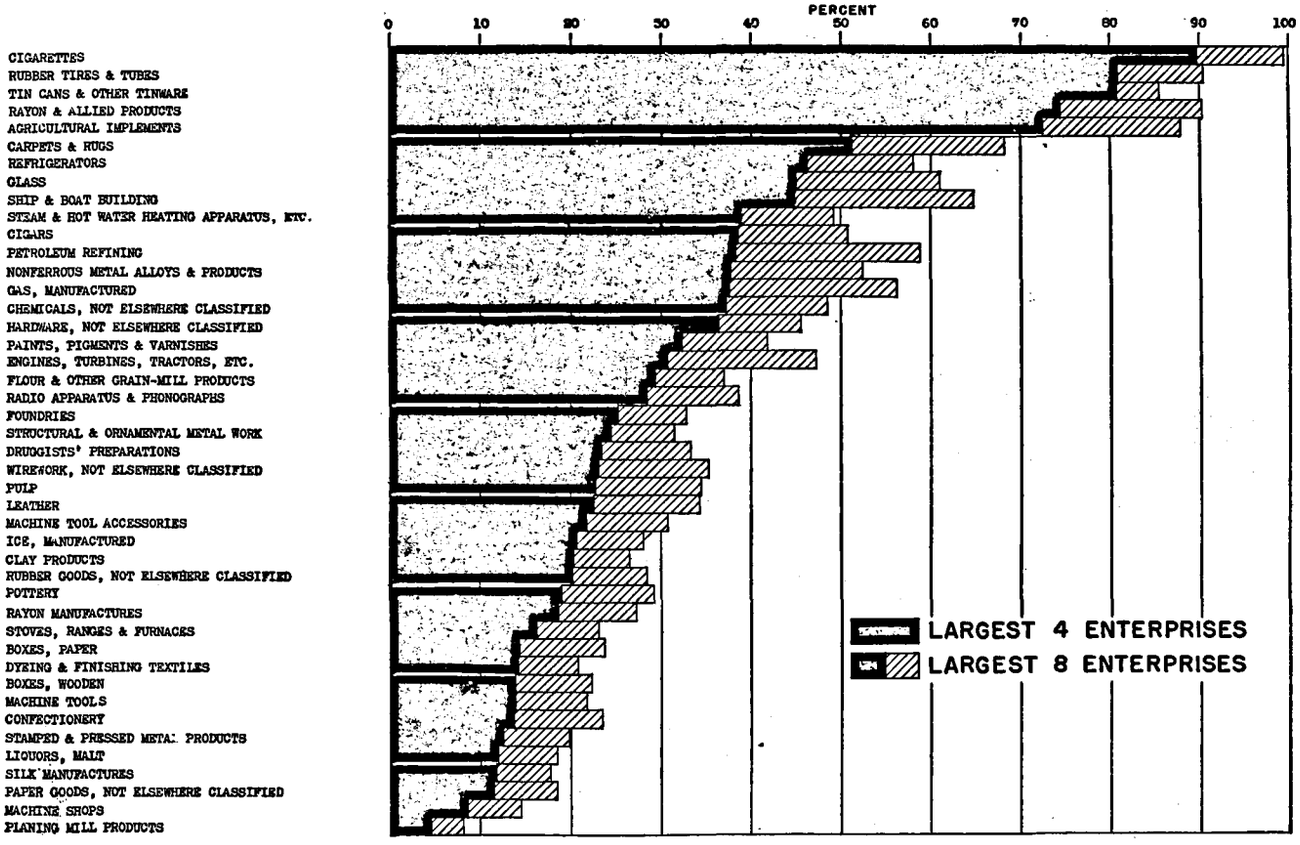
CHART II

CONCENTRATION, MEASURED BY VALUE OF PRODUCTS, IN MANUFACTURING INDUSTRIES 1935

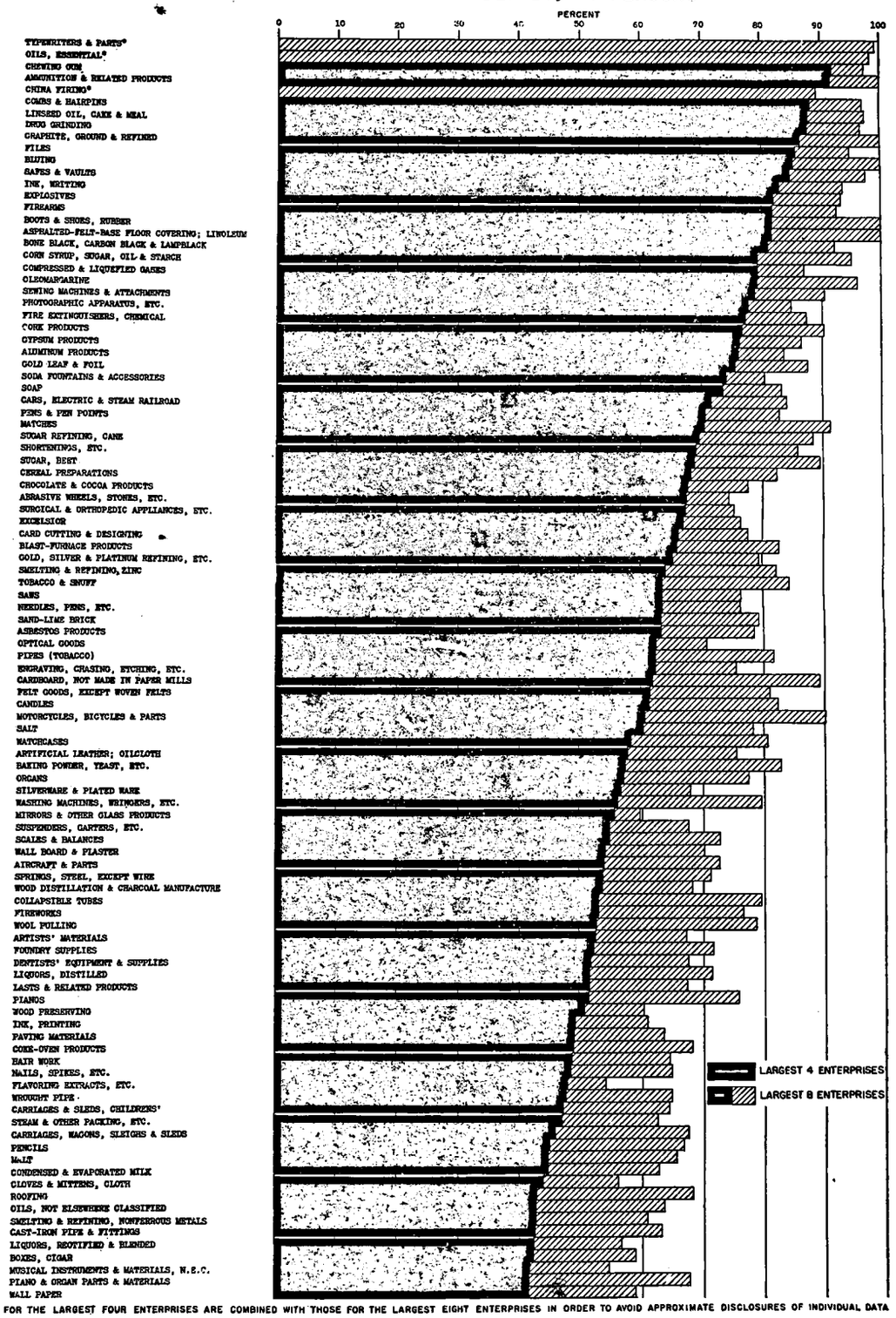
INDUSTRIES EMPLOYING MORE THAN 100,000 PERSONS



INDUSTRIES EMPLOYING 25,000 TO 100,000 PERSONS

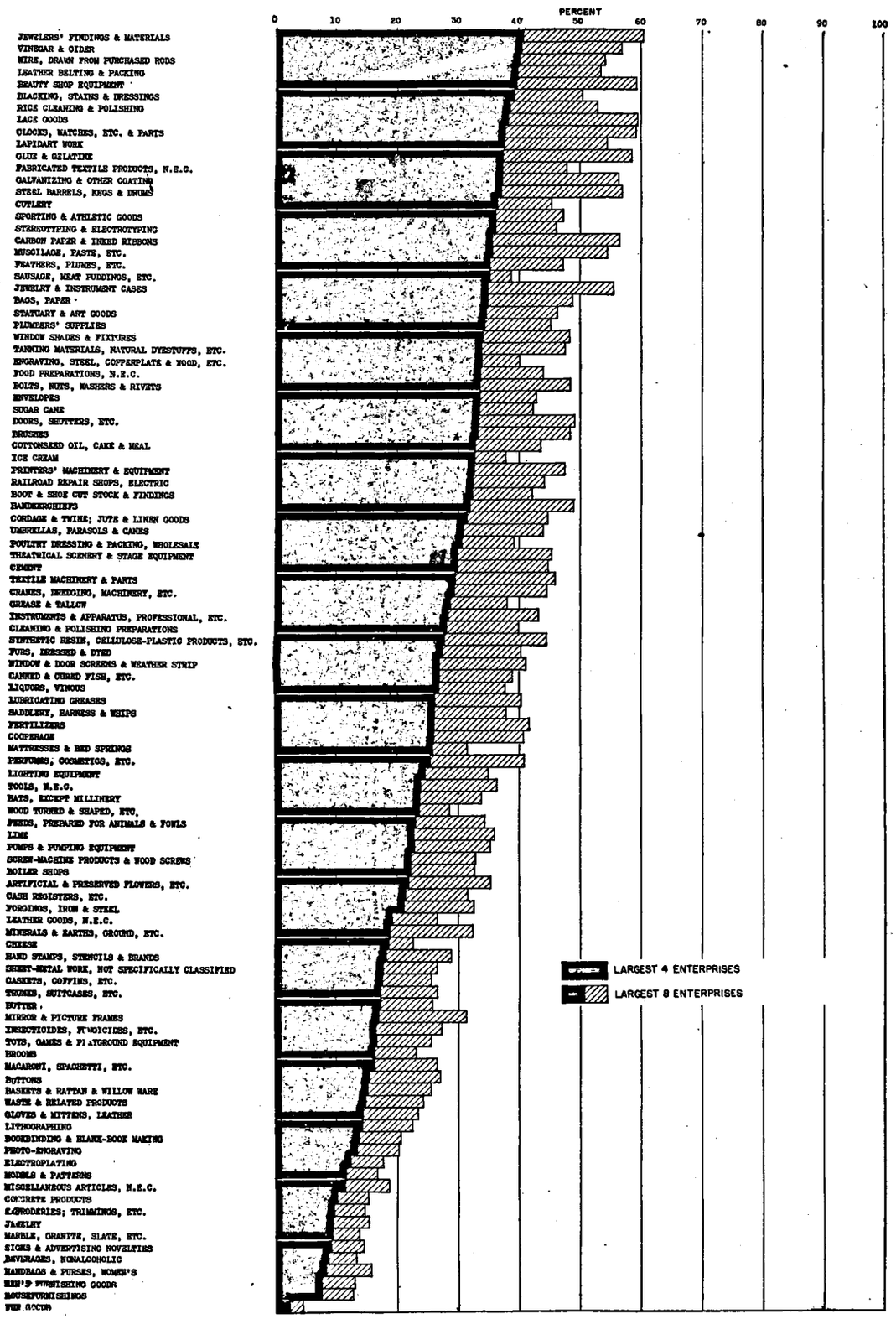


INDUSTRIES EMPLOYING UNDER 25,000 PERSONS



THE DATA FOR THE LARGEST FOUR ENTERPRISES ARE COMBINED WITH THOSE FOR THE LARGEST EIGHT ENTERPRISES IN ORDER TO AVOID APPROXIMATE DISCLOSURES OF INDIVIDUAL DATA

INDUSTRIES EMPLOYING UNDER 25,000 PERSONS (CONTINUED)



Source: Based upon data given in appendix 7, table I.

has to adopt fairly comprehensive categories. Thus, cotton manufacture includes such diverse activities as the making of surgical gauzes, tire fabrics, belting, sheeting, yarns, and print cloths, while such industries as druggists' preparations, canning of fruit and vegetables, and most of the "not elsewhere classified industries" are congeries of separate industries, each having a more or less independent market. If the manufacture of each major product were taken separately, a very much greater degree of concentration would be shown. When the proportion of surgical gauze produced by the largest four producers of such gauze is taken separately from the largest four making tire fabrics and the largest four making cotton belting, and so on for each item, the concentration shown would presumably be much greater.[31] Except where the bulk of the product of an industry is fairly homogeneous, as in the case of cement, ice, and cigarettes, the census figures tend to minimize the degree of concentration in relation to the market.

Also, because the census figures report national totals, they minimize the concentration in industries not producing for a national market. Even though the bulk of both cement and ice is homogeneous, the market for these products on the west coast does not overlap the Mississippi Valley markets, nor do Atlantic coast cement and ice travel in significant volume to the midwest. Some products, such as bread and manufactured gas, are almost entirely produced for very local consumption. For many industries, like flour milling and cigar manufacture, the market for some producers is purely local and for others it is national. These industries have been classed on the basis of whether the bulk of production was for the local or the national market. The impossibility of completely separating the local from the national market thus tends also to make the data in chart II minimize the concentration in relation to the market which actually exists in the field of manufacturing.

The third element making these data minimize the degree of concentration in relation to the market is the high degree of product differentiation which exists in some industries. If the product of each producer is distinguished from that of the next by characteristics which are important to consumers, such as might arise from superior design or workmanship, patented advantages, or simply through the trade-mark of its producers, the products of separate producers are not homogeneous to the same extent as cotton which is produced by a multitude of separate producers and can be graded and each grade treated as homogeneous for market transactions.) The significance of product differentiation will be pointed out in connection with prices.

[31] It would be identical if the same four companies were the largest producers of each item. Only under unusual circumstances could it be lower.

In spite of the fact that the data in chart II greatly minimize the degree of concentration in relation to the market in the field of manufacturing, they do indicate a very important degree of concentration. In approximately a third of the census industries the largest four companies contributed more than half of the value product of the industry, while in 60 percent of the industries the largest four companies contributed more than a third. If similar data were available, not for whole congeries of products but for specific items like electric motors or mens' work shoes, the degree of concentration in relation to the market would presumably be very much greater.

An examination of the chart does not disclose any clearly defined difference in the character of the products of the concentrated and the unconcentrated industries. There is a very slight tendency for the durable-goods industries to be more concentrated than the nondurable. In table VIII, the largest industries are arranged by durability and by concentration. For this group of industries the slightly greater concentration in the durable goods is indicated. The same tendency for durable goods to be more highly concentrated also appears among the medium and small industries. In none of these groups of industries, however, is the tendency very clear and further study may possibly show that the particular result here shown is more or less fortuitous. There is also a tendency for the newer industries to be more concentrated. Automobiles and parts, rubber tires and tubes, cigarettes, rayon, and refrigeration (mostly electric) are all concentrated to the point that 40 percent or more of the value of products in 1935 was produced by four companies.

On the whole the available data points to a significant degree of concentration in the manufacturing field as a

TABLE VIII.—*Large industries arranged by durability and concentration*

Proportion of value of products produced by four largest enterprises	Nondurable	Semidurable	Durable
Over 60 percent			Motor vehicles. Motor vehicles, bodies and parts.
30–60 percent	Meat packing		Steel works and rolling mills. Electrical machinery. Railroad repair shops.
10–30 percent	Canning fruits and vegetables. Newspaper and periodicals. Bread and bakery products. Paper.	Boots and shoes. Wool and hair manufacture.	
0–10 percent		Cotton manufacture. Men's cotton garments. Knit goods. Men's clothing. Books and publishing. Women's clothing.	Machinery N. E. C. Furniture. Lumber and timber products.

Source: Based on appendix 7, table II.

whole. There is sufficient concentration to make the bulk of the prices of manufactured products administered prices, as will be apparent in the discussion of prices. Among the industries employing 25,000 persons or more there was sufficient concentration to allow price administration in most industries.

The field in which the free market is dominant is that of agriculture. For the staple crops, price tends to be made in the market and is outside the control of any independent producer. Corn, wheat, cotton, hogs, and beef cattle, chickens and eggs, all show the free market type of price formation. In the production of these staples there is little concentration in relation to the market. So far as cotton, wheat, and hogs are concerned, the insignificant market position of the largest four and largest eight producers is given in the table below.

TABLE IX.—*Concentration in the production of three agricultural products*

	Proportion of total by—		Total number of farms producing
	Largest 4 producers	Second largest 4 producers	
	Percent	*Percent*	
Cotton (acres)	0.14	0.09	4,850,000
Wheat (bushels)	.13	.08	1,364,000
Hogs (number)	.09	.03	3,971,000

Source: Largest producers determined from data on checks of $10,000 or more issued by the Agricultural Adjustment program to agricultural producers as reported in *Senate Document No. 274* (74th Congress, Second Session), 1936; and on production (cooperating) of largest producers and total national production for each product.

In each case the largest 4 producers account for an insignificant fraction of the total production, a small fraction of 1 percent. The marked difference between the conditions under which the prices for these staple agricultural commodities are formed and the conditions of price formation in the bulk of manufacturing activity is emphasized by the fact that there were less than 170,000 separate manufacturing enterprises reporting to the census of manufactures in 1935 and making the whole range of manufactured products. Yet there were nearly five million separate producers of cotton. Only in the nonstaple products of agriculture is the market such that the individual can administer his prices, and even there it is rare. The great bulk of agricultural production is destined for a market which is free so far as control by the individual producer or even the selling cooperative is concerned.

In the field of mining there is very inadequate data as to the concentration in relation to the market. It is well known that the mining of iron ore is concentrated, as is the mining of anthracite coal. Petroleum production and bituminous coal production are on the whole relatively unconcentrated, though in many local situations the latter shows some tendency toward administered prices.[32] There is need for more adequate data on concentration in the ownership of mineral resources and their extraction.

Construction is on the whole unconcentrated so far as the producing units are concerned.

The two remaining fields of activity, retail distribution and consumer services, are dominantly rendering services to a local market so that national totals throw little light on concentration in relation to the market. The lack of information on this score is not, however, significant since there is little retail trade that is carried on under free market conditions, and few consumer services provided on a free market basis. For the most part the individual consumer buys most commodities at prices set by the retail distributor or, under the Miller-Tydings Act, by the manufacturer. Consumer services likewise are supplied in large part on the basis of a fixed price schedule. Both are for the most part conducted on the basis of administered prices.

In summary, it can be said that there is such a degree of concentration in relation to the market for the bulk of goods in the American economy that to a major extent the prices of goods are formed on an administered basis rather than on the basis of a free market. Only in the case of agricultural products and certain other products is price formed in a free market. The significance of the extensive role of administered prices will be discussed in the chapter on the price structure.

Concentration in relation to the market for labor.—The market for labor is fundamentally different from that for goods. It is concerned primarily with the conditions of productive activity, not with the product of such activity. Both commodities and services relate to the results of economic activity and money paid for them is paid for the specific product or service. In contrast to this, wages and salaries are payments made to induce workers to accept the direction of someone else during working hours.[33] When a worker accepts employment with a particular enterprise he is agreeing to make himself part of the productive organization of the enterprise, to work under the direction of its management, and to leave the product of his activity at the disposal of the enterprise. In return for subjecting himself to this administrative direction, the worker receives a wage or salary which constitutes essentially a ticket on production redeemable in the products of this or other producers. As the chapter on money flows has already indicated, the paying out of these tickets on production,

[32] Petroleum production has been to a significant degree subject to production control through State action. Petroleum refining is a relatively concentrated industry.

[33] There are borderline cases which might be classed either as involving payments for labor or payments for services, but in most cases the classification is clear. It depends partly on customary usage but primarily on the degree to which one individual (or organization) acquires administrative authority over another. It is customary to regard the independent architect engaged to design a home as paid for a service, whereas an architect employed by a housing corporation on a salary basis to design homes is customarily regarded as an employee paid for labor. The degree of administrative control which he accepts is presumed to be greater in the latter case while the degree of independence is presumed to be greater in the former case.

and their subsequent redemption, is an essential part of modern industry. Such wage and salary payments represent simply one aspect of the continuing social relationships running from employee to employer and from employer to employee which form the basis of organized activity within administrative units.[34] The market for labor, therefore, cannot be effectively discussed as simply the market for a special type of commodity.

In spite of the fact that labor is not a commodity, the payments to be made to workers for accepting administrative direction are usually agreed on in terms of so much per unit of time worked or per unit of product produced. Wage or salary rates are thus similar in certain respects to the prices paid for commodities, and the processes by which these labor rates are arrived at are in some respects similar to those which lead to price determination in the market for goods. The competition of workers for jobs may result in lower labor rates, or the competition of employers for workers may lift the rates. Yet the similarities are probably less significant than the differences.

Because of the personal relationship involved in employment, it is doubtful if there could be such a thing as a free market for labor. To the wheat farmer it makes little difference who the purchaser of his wheat may be so long as he gets his money. Nor does the wheat purchaser usually care what farmer produced it. Though it usually makes relatively little difference to an enterprise whom it employs so long as technical qualifications are met, it usually makes a great deal of difference to the individual worker for what enterprise he works. The personal character of the transaction prevents the interchangeability which is essential to a free market.

In practice, the bulk of labor rates are administrative or quasi-administrative in character though the conditions surrounding the administration differ widely. There are four more common ways in which the administrative or quasi-administrative rates are established. (1) They may be arrived at through individual bargaining between the employer and employee with the rate maintained constant through a period of time on the basis of oral or written agreements but subject to revision from time to time on the basis of new bargaining. (2) They may be set by administrative action on the part of the employer as in the case of government and of many corporations and businesses. (3) They may be set by administrative action of a labor organization as in the case of some of the building-trade unions. (4) They may be arrived at through collective bargaining between representatives of producers and workers.[35] In each case the rates arrived at, like the administratively set prices of goods, are usually made in the light of existing market conditions so that they are not unrelated to the market. However, like administered prices of goods, they are not arrived at as the result of the interaction of many buyers and sellers bidding against each other in the market.

The administrative character of labor rates suggests that a considerable degree of concentrating of buying, selling, or of both, must exist. On the side of buyers, that is, among employers, there is a high degree of concentration in many if not most labor markets. This concentration arises from a variety of factors of which some of the more important are (1) the narrow geographical limits of most labor markets; (2) the limits imposed by specialized techniques; (3) the industrial concentration already referred to; and (4) the formal or informal arrangements which so often develop among the more important employers in local communities or particular industries. Each of these contributes to make the number of separate employers competing for the manpower in many particular localities and industries relatively small.

The geographical narrowness of particular labor markets cannot be overemphasized. While there are some fields, such as that of construction and the harvesting of agricultural crops, in which there is a relatively high degree of geographical mobility, and some workers in most communities, particularly the unmarried and those newly seeking work, who are so little tied to the community that they can easily move to a new locality, the bulk of workers in most communities are relatively immobile. They may own a home which would have to be sold at a loss if they were to seek employment in some distant community. They may have established social ties which hold them to the particular community. The lack of familiarity with other communities may act as an impediment to the seeking of work in new territory. This relative immobility of workers is reflected in the stranded populations of the worked-out coal areas of West Virginia and the cut-over timber lands of northern Michigan and in the very wide differences in wage rates in different parts of the country, particularly between the north and south and between rural and urban areas.

The relative immobility does not mean that there is not a constant moving of workers from one region to another, but only that there are sufficient impediments to such movement as to make each locality an almost independent labor market so far as short periods of time are concerned. The working population of a particular community can be somewhat augmented from the im-

[34] The importance given to the problem of maintaining esprit de corps in administrative units is significant evidence on this point.

[35] There are many other ways by which wage rates might be arrived at, but the above four seem to be factually the more important.

mediately neighboring communities or can seek work in the surrounding communities, but any major increase or decrease is usually brought about only gradually through a considerable period of time.

Not only is the particular labor market made narrow by the geographical immobility of labor but it is also made narrow by the specialized techniques of industry and the specialized skills which have to be developed to fill particular jobs. Neither the skilled typist nor the skilled cotton spinner is usually equipped to compete with the other for either of their jobs. The mason, the carpenter, and the electrician do not usually compete with each other in the same labor market. To shift from employment as a skilled worker or semiskilled worker in one industry to work involving the corresponding degree of skill in another often requires an extensive period of retraining which limits the quick shifting of skilled and semiskilled workers from industry to industry. This functional immobility is often quite as narrowing an influence on the market for labor as is the geographical immobility and is reflected in the wide differentials in labor rates which often exist between jobs in the same locality and calling for the same level of skill but requiring a different type of training. The national market for labor is thus in reality a series of relatively small markets divided from each other both geographically and by types of skill, but partially linked to each other by the mobility of the relatively footloose individuals in each community and by the very gradual mobility of other parts of the population.

Most labor markets are so narrow that they are dominated on the hiring side by a relatively few enterprises. There are many towns in which a single factory or mine is the main source of jobs. In other towns there may be only a handful of separate enterprises which absorb a major proportion of the workers, giving a significant degree of concentration on the hiring side which is augmented if the different enterprises do not compete for the same skills. Even in the larger cities, there are many skills the market for which is dominated by a few companies. This concentration on the hiring side of the labor market is augmented by the concentration of production into large administrative units, which has already been discussed. It is further intensified in many cases by understandings which develop between leading employers in a particular community or industry. These factors in combination operate to produce a high degree of concentration on the hiring side in the bulk of the labor markets of the American economy. If there were no counterbalancing concentration on the side of workers, the establishment of labor rates would be largely in the hands of individual producers, limited to a greater or less extent by market conditions and the partial mobility of workers.

In many fields, labor unions and collective bargaining operate to produce a considerable degree of concentration on the job-seeking side of the labor market. This concentration is usually narrower in scope than that on the employing side of the market because it only involves group bargaining, not group limitation on the supply of labor.[36] So long as the membership of a union is open to all comers in an industry, concentration on the labor side is limited to bargaining on the terms under which workers will be employed. In contrast, there is often sufficient concentration on the employing side of the market so that employers in particular communities and industries are in a position, not only to bargain on the terms of employment, but to limit the demand for workers by shifting work from one community to another or by limiting production itself. Even though unionization does not result in the same degree of concentration on the labor side of the market as that so often existing on the employing side, it does somewhat correct the unbalance in bargaining position so that in such cases labor rates are collectively bargained instead of being administered by the employing enterprises. Where there is little concentration on the employing side of a market, a strong union may be able to administer labor rates, thus providing an unbalance in the other direction.

Prior to 1935 the most important groups of organized workers were in the railroad, coal mining, clothing, and communication industries, and the skilled workers in the construction and printing industries. In 1933 approximately 2,973,000 workers [37] were reported as on the rolls of labor organizations or 11 percent of the total wage earners and salaried workers in the country.[38] Since that time union membership has expanded greatly until in 1938 a total claimed membership of over 8 million [39] or 27 percent [40] of the wage and salaried workers of the country in that year was reported.[41] The organizations to which these workers belong will be discussed in more detail in chapter IX in connection with the structure of controls. In this chapter their significance lies in the bargaining concentration in relation to the labor market which they give to the workers, thus making many labor markets relatively concentrated on both sides.

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[36] The lockout and strike are of course limitations in the demand for and supply of labor respectively, but they are extreme moves in the bargaining process rather than attempts to effect the level of labor rates by *continuing* restriction of demand or supply.

[37] Wolman, Leo, *Ebb and Flow of Trade Unionism*, p. 16.

[38] *Survey of Current Business*, June 1938, "National Income in 1937 Largest Since 1929."

[39] Rough estimate based on September 1937 estimates given in appendix 14, plus 500,000 additional to account for increase since that date.

[40] Estimate of wage earners and salaried workers in 1938 based on rough estimate of 2.5 million drop from the 1937 average of 32.5 given in the *Survey of Current Business*, June 1938.

[41] The latter percentage is likely to be somewhat inflated whereas the figures presented by Dr. Wolman are corrected for overreporting of membership. It should also be noted that all persons employed are not eligible for union membership, so the percentages do not represent the degree of organization of potential members.

Written agreements between employer and representatives of employees covering both labor rates and other terms of employment constitute the best evidence of this concentration and the resulting quasi-administered labor rates. In July 1938 between 4,700,000 and 5,700,000 workers [42] were covered by such written union agreements. Industries in which there appeared to be a significant proportion of workers covered by such agreements are given in table X. The industries are grouped roughly according to the proportion of the workers that are covered by union agreements. No data are available on the actual number of workers covered by agreements in each industry. However, the importance of the industry is indicated in each case by giving the total persons employed.

For the great bulk of workers not covered by written agreements it is probable that there is sufficient concentration on the hiring side of the market to allow the employer to administer the labor rates within very appreciable limits, altering them from time to time in the light of market conditions and the functions being performed. This is certainly true of the rates paid by most government agencies, by most big business units operating in industries lacking labor organization, and in many medium and small enterprises. Only in the case of very small enterprises or special skills is individual bargaining the usual basis for arriving at labor rates. The behavior of labor rates under these conditions of relatively high concentration on one or both sides of the labor market will be discussed in the next chapter in connection with the behavior of all prices.

Concentration in relation to the security markets.—Security transactions can be broken down into four major categories which have quite different characteristics so far as concentration of buying or selling is concerned. These consist of (1) listed securities handled on the public exchange and not newly issued, (2) newly issued securities, (3) unlisted securities not newly issued, and (4) private, commercial, and similar loans which make up special types of security transactions.

In the case of a great many securities listed on the public exchanges and not newly issued, their prices are determined under relatively free market conditions. In such cases there are usually at any one time a sufficiently large number of owners in a position to sell at a price to prevent any one seller from dominating the market for any significant period of time, and there are enough buyers to prevent any one buyer from exercising a significant control over price except very temporarily. In the case of other listed securities, where large blocks

[42] For estimating the workers covered by written agreements a rough percentage was assumed corresponding to each group shown in table X and applied to the employment figures in each group. The range shown is calculated by increasing and decreasing the resulting figures for each group by 10 percent and then summing them.

TABLE X.—*Prevalence of written union agreements in the United States, July 1938*

Industries covered	Number employed in industry, 1935
A. Almost entirely under written agreements:	
1. Clothing, men's (outerwear and furnishings)	321,000
2. Clothing, women's (outerwear and underwear)	260,000
3. Coal mining	455,000
4. Furs	23,000
5. Glass (window, plate, and other flat glass)	73,000
6. Liquor, malt (includes route salesmen)	48,000
7. Musicians [1]	234,000
8. Newspaper printing and publishing	
9. Performers (legitimate stage, vaudeville, burlesque, grand opera, motion pictures, and radio performers) [2]	233,000
10. Railroad train and yard services	
Total	1,647,000
B. Large proportion under written agreements (more than half):	
1. Aluminum (refining and fabrication)	22,000
2. Automobiles and parts	425,000
3. Book, magazine, and job printing and publishing	166,000
4. Building and construction [1]	719,000
5. Cement manufacture	23,000
6. City passenger transport (street railway, elevated, bus, and subway)	275,000
7. Electrical equipment (includes radios)	51,000
8. Hats and millinery	399,000
9. Iron and steel	
10. Longshore	205,000
11. Machinery and parts	
12. Maritime transport (licensed and unlicensed personnel)	172,000
13. Railroad clerical service	414,000
14. Railroad shops and maintenance	54,000
15. Rayon yarn	
16. Rubber (tires, inner tubes, boots, shoes, and other rubber goods)	132,000
17. Stoves	49,000
18. Tailors (merchant tailors employed in retail trade)	15,000
Total	3,111,000
C. About half under written agreements:	
1. Baking (bread, cracker, cake—includes route salesmen)	240,000
2. Glassware	12,000
3. Intercity bus transport	
4. Metal mining, nonferrous	53,000
5. Petroleum (crude production and refining)	243,000
6. Shipbuilding and repairs (private shipyards)	51,000
7. Shoes	216,000
8. Silk and rayon textiles	132,000
9. Theater and motion-picture studio employees (motion-picture operators, box office, stage hands, costume seamstresses, etc., in legitimate and motion-picture theaters; studio production employees)	
10. Trucking (city and intercity—includes route salesmen)	158,000
11. Upholstering and floor covering (employees in retail trade)	9,000
Total	1,114,000
D. Moderate proportion under union agreements:	
1. Barbers [1]	
2. Brick and clay products (includes pottery and chinaware)	50,000
3. Canning (vegetable, fruit, fish, etc.)	140,000
4. Cigarettes	26,000
5. Cigars	59,000
6. Coke and manufactured gas	46,000
7. Cotton textiles and small wares	396,000
8. Dyeing and finishing textiles (excluding textiles)	79,000
9. Flour and other grain products	31,000
10. Furniture (wood, upholstered and metal)	146,000
11. Hosiery	144,000
12. Hotels and restaurants [1]	787,000
13. Jewelry and silverware	33,000
14. Leather (tanning and leather products, other than shoes)	120,000
15. Light and power	231,000
16. Lumber and timber products (logging, sawmills, planing mills, and products other than furniture, pulp and paper, turpentine and rosin)	456,000
17. Milk and other dairy products (includes route salesmen)	
18. Newspaper office employees (editorial, circulation, and advertising departments)	
19. Pulp and paper products	94,000
20. Sugar refining, cane	15,000
21. Taxi	
22. Telegraph	70,000
23. Woolen and worsted textiles	176,000
Total	3,102,000

Source: This classification was prepared by the Industrial Relations Section of the Bureau of Labor Statistics; it is based upon union agreements and other information in the files of the Bureau, not upon a statistical survey.

[1] Conditions regulated in many cases by detailed written working rules which may be orally accepted by each employer without being incorporated in an individual written agreement.

[2] Stage, vaudeville, burlesque, and grand opera performers are generally covered by individual contracts with uniform provisions, as agreed upon in collective bargaining.

of a particular stock or bond are held by a few owners, the conditions of a free market may be lacking.

In contrast to these relatively free market conditions for seasoned securities, new security issues cannot usually operate on the basis of a free market. Such large blocks of a stock or bond issue are initially held by the issuing corporation and subsequently by the underwriting syndicate that a free market cannot be expected. For a time the syndicate almost necessarily dominates the selling side of the market and is in a position to "break" the market. The economic implications of the process of new security flotation have received so little attention that it is not possible to indicate clearly the structural significance of the lack of a free market in the period of initial flotation.

Unlisted securities usually have a somewhat less broad market than listed securities and are therefore more subject to control for periods of time by a particular buyer or seller. Often administered prices appear in this field as a particular firm specializes in a certain issue, offering to buy at a price which is held constant for considerable periods of time. The same firm is likely to establish a selling price constant for periods of time. The difference in the fixed buying and selling price constitutes the equivalent of a commission for handling the securities and taking the risks of maintaining the market.

Transactions involving private and commercial and other loans appear to run the whole gamut of market conditions. While there is little evidence of concentration in relation to the market on the part of either lenders or borrowers in the main financial centers when large sums and ample security are involved, the small local borrower is usually faced with only a small number of potential lenders. The extent to which lending terms are administered by the lender, are bargained between the lender and the borrower, or are made in the free market, cannot be set forth here, but it is well known that administered terms are set by the lender so far as a large body of small businesses and borrowers are concerned, and that the terms often remain constant for months or even years at a time. How significant this is to the structure of the whole economy is a problem which has received little attention and yet may be important.

The foregoing survey of the degree of concentration in the three main markets—goods, labor and securities—has blocked out the areas in which the market mechanisms facilitate the organization of resources through free market prices and the areas in which the market operates through prices which are not currently set by the interaction of a large number of independent buyers and sellers. In spite of its crudeness, the survey has shown that outside of the prices of agricultural products and listed securities, the bulk of prices, including labor rates, are not established in free markets. This is an essential structural characteristic of the American economy. The fact that such a large proportion of prices are made in markets in which there is a relatively high degree of concentration of buying, of selling, or of both, is an essential key to an understanding of the behavior of prices and of the organizing function played by the market mechanism in the American economy. It means that the market mechanism plays a smaller role in the organizing of resources than would be the case if the bulk of prices were made in free markets and points to the larger role played by administration and by the other organizing influences yet to be discussed.

Coordination through Canalizing Rules

The framework of laws, rules and customs which canalize human activity without dictating it are so familiar that their organizing influence is often little realized except as some sharp change is made such as the adoption of a new canalizing law or the widespread breaking of an old custom. Yet in practice they are probably as essential to the effective organizing of resources as are administration and the market mechanism. Consider how much the American one-price system of retail buying and selling contributes to effective retail distribution, yet it is only a matter of an accepted custom. Or the great aid to the organizing of production which is given by the standard rules of double-entry bookkeeping which are mostly a matter of custom though sometimes codified into law for such types of activity as railroad or utility operation. Essential to the effective working of many of the organized markets are the marketing rules by which transactions are guided but not determined. The laws which require the fulfillment of contracts and laws which limit the theft or destruction of physical wealth are essential to the organization of modern industry. All of these constitute examples of working rules by which human activity is guided into more productive channels.

Not all the laws, rules, and customs are solely canalizing in character. Some dictate specific action, as when an income-tax law requires a specific payment or a safety regulation, as interpreted by a regulating agency, requires the demolition of an unsafe building. Laws which call for specific performance are administrative in character though they may also have a canalizing influence.

On the whole, the bulk of laws, rules, and customs are primarily canalizing. By setting up barriers to particular actions they narrow down the range of discordant activities and thereby encourage activities on the part of individuals, enterprises, and government units which mesh with each other in a more organized fashion than would be possible in the absence of their canalizing influence. The zoning ordinance which limits new factory construction to one part of a city

and separates residential from commercial areas does not require anyone to build a new factory but only requires that *if* a new factory is built it should be built in the manufacturing area, not in the residential or commercial area. Such an ordinance can thus produce a more organized development of a city without administering that development. It canalizes city development without dictating specific performance.

Relatively little analysis has been made of the organizing influence of canalizing rules in the field of economic activity. Studies have been made of the way laws come into being, the way government institutions develop, and the way individuals holding political positions acquire those positions or are displaced, but relatively little attention has been given to the organizing influence which laws have on economic activity.[48] Until more extensive analyses have been made, it is not possible to indicate clearly the role played by canalizing rules. Yet such work as has already been done indicates clearly that laws, rules, and customs do play a major role in making the separate activities of millions of individuals mesh into the organized activity of the American economy.

Coordination through Accepted Goals

The fourth major organizing influence, that of accepted goals, has received even less study than canalizing rules yet it is clear that it plays a significant role in the organization of the use of resources. When two or more people agree to accomplish a certain objective it is often possible for their action to be coordinate simply because each one acts in terms of the logic implicit in the accepted goal. In such a simple action as moving a table across a room, if two men agree on this action, each one almost automatically takes hold of the end of the table nearest to him. Only if neither is nearer one end than the other do they waste effort by both grabbing for the same end of the table. In the complex life of every day, reliance is constantly being placed on the logic of accepted goals to guide individuals so that their separate activities fit together. A meeting is to be held, a big contract is to be filled, or a boat is to be docked. With only a minimum of specific instructions, the individuals directly responsible for any one of these activities will take up their appropriate positions and carry forward their respective functions. The man on the pier does not have to be told to catch the first coil of rope thrown out from the boat as it comes close to the pier, draw in the slack, and drag the following hawser over the appropriate capstan. His training allows him to follow the logic of the situation as it develops, drawing in the successive hawsers, perhaps receiving directions from time to time with respect to particular details of action but, on the whole, carrying out those actions implicit in docking the boat which are appropriate to his position. Each other member of the pier crew is likewise guided to a greater or less extent by the logic of the job in hand. With a minimum of explicit direction, the organized activity of tying the ship up at the pier is carried forward. In situation after situation which could be analyzed, organization is to a significant extent the result of the acceptance of some explicitly recognized goal though in more complex situations its influence is usually combined with that of the market mechanism, administration, and canalizing rules, the different influences in combination producing the organized result.

So little study has been given to the part of the organizing influence of accepted goals in economic matters that it is not possible to set forth their role in the organizational structure of the whole economy. It is well recognized that in times of war the national unity growing out of the widespread acceptance of the single war objective does act as an organizing influence. In peace times there may be similar though less clearly discernable results growing out of the acceptance of national goals. Until analyses along this line have been developed, the role of accepted goals which is so important to the organization of activity in lesser spheres cannot be set forth as it effects the organizational structure of the whole economy.

Regardless of the exact role of accepted goals, there can be little question that the four factors discussed above, administration, market mechanism, canalizing rules and accepted goals, are of major significance for the organized use of resources. Together they constitute the main influences which make the separate activities of the millions of workers in the nation combine into an organized whole. Each concrete situation usually involves a combination of these influences, sometimes in one proportion, sometimes in another. These influences in combination provide the organizational structure of the whole economy and the relative roles which each plays gives its specific character to the organizational structure of the American economy.

[48] A few studies of the character suggested have been made as John R. Commons, *The Legal Foundation of Capitalism;* James C. Bonbright, *Valuation of Property;* and Berle and Means, *The Modern Corporation and Private Property.*

CHAPTER VIII.—THE PRICE STRUCTURE

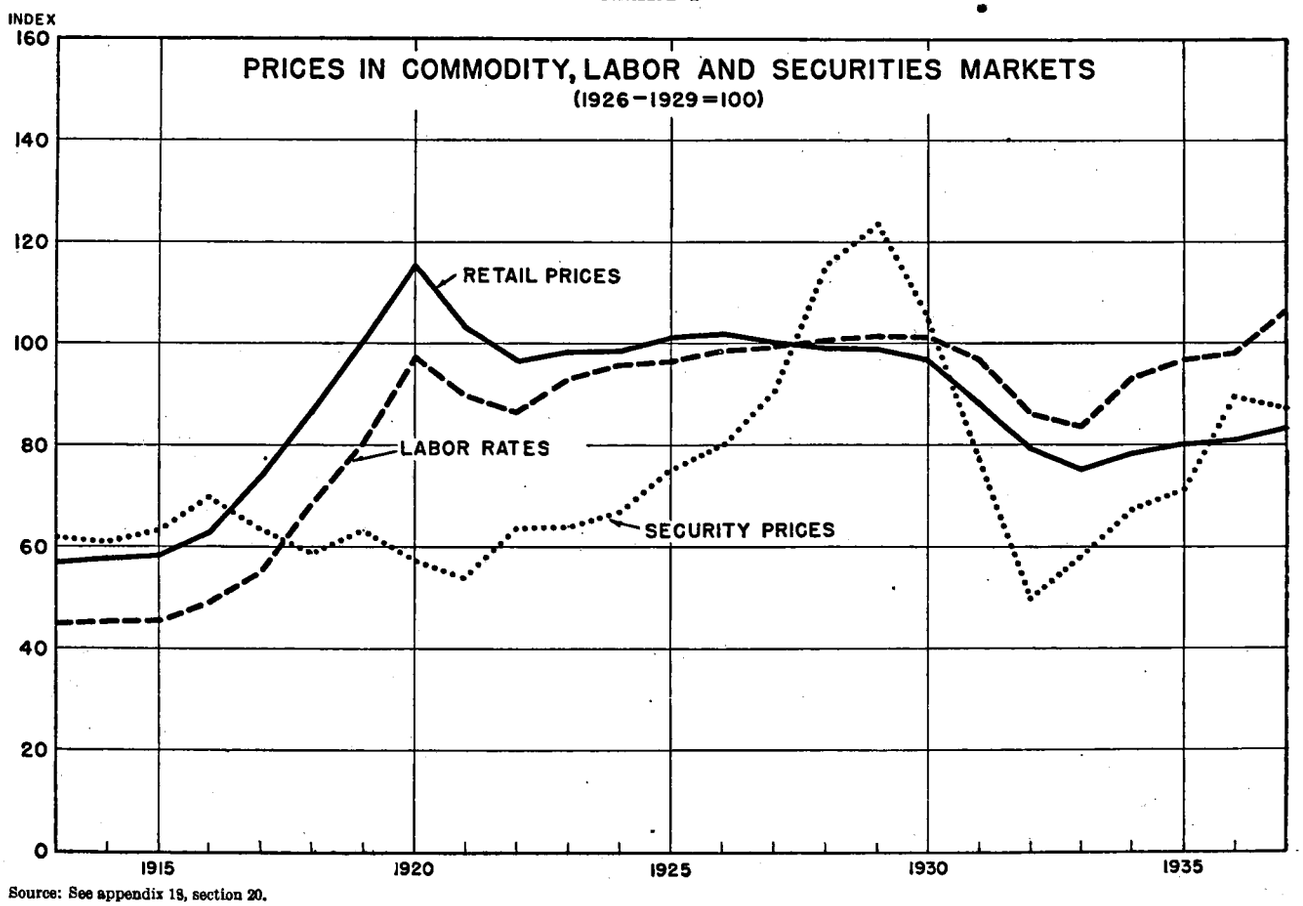
Introduction

In the preceding chapter the market mechanism has been emphasized as a major coordinating influence. This coordination is brought about through the series of exchanges between economic units. These in turn are in large measure governed by prices which act as a mediator in apportioning resources and benefits. It is the purpose of this chapter to examine the behavior of prices in order to develop the structure of prices through which the market operates to influence the use of national resources. Following the procedure of earlier chapters, the price structure will be considered first in terms of the interrelationship of prices as of a given time, then in terms of the trends of change, and finally in terms of their sensitivity to depression.

Prices fall into three major categories according to the three main types of transactions which they govern—goods, manpower, and securities. The first, goods prices, involves primarily the products of productive activity, including capital goods as well as consumption goods and both commodities and services. The second category involves primarily the employment arrangements whereby individuals agree to work under administrative direction for a wage or salary. The contractual wage or salary rates enter into the price structure as the price for manpower. The third category, that of security prices, refers primarily to the legal instruments representing the prospect of future money returns in such forms as interest and dividends.[1]

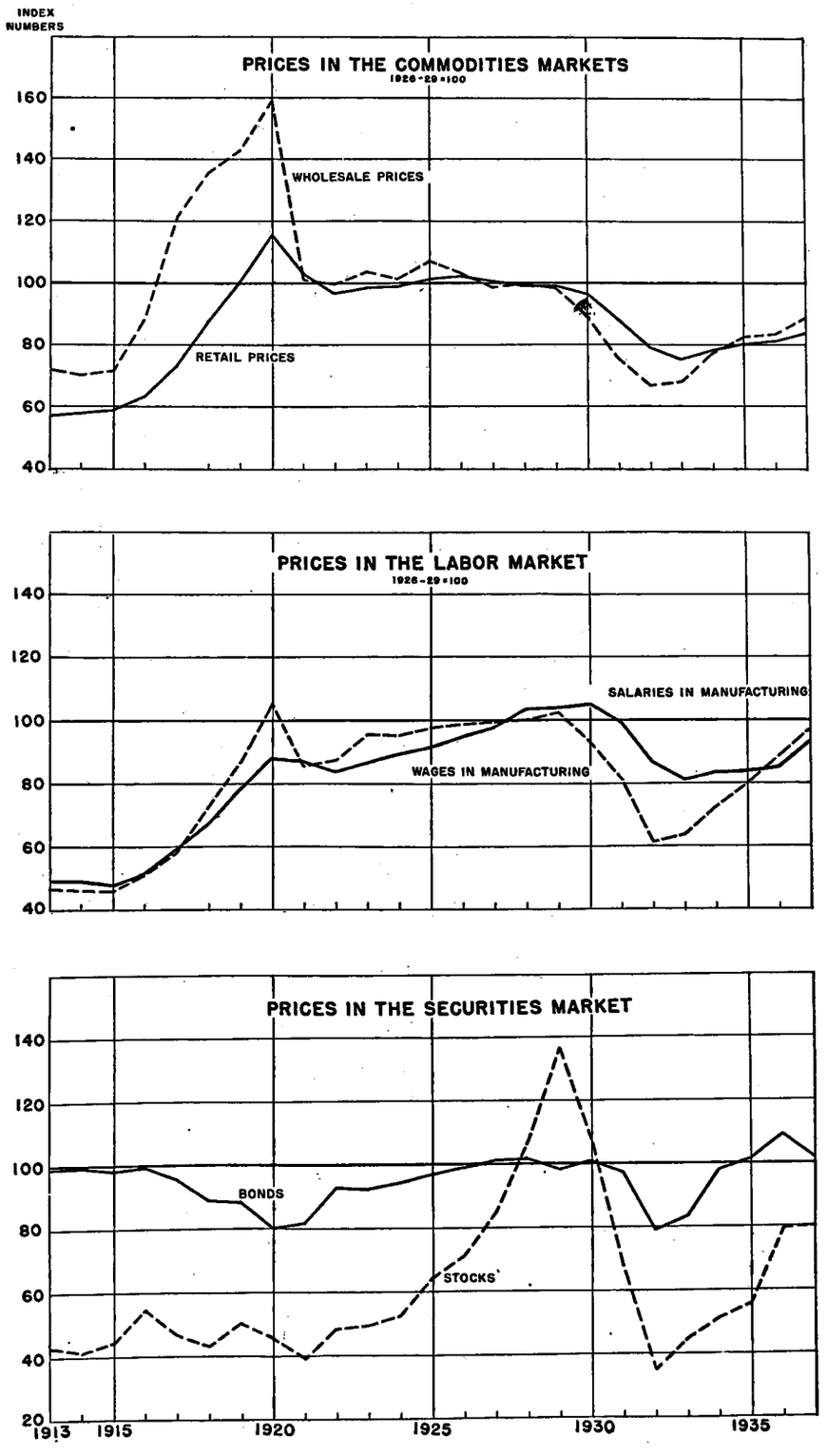
[1] These legal instruments often involve more or less contingent threads of control over productive enterprises, as in the case of voting stock, or over instruments of production, as in the case of a farm mortgage, but their main characteristic from the point of view of price is their prospect of bringing in money to the purchaser in the future. At their initial sale, securities may bring capital to productive enterprise or funds to be spent on current consumption, whereas in subsequent sales the interest and controls represented by the security are transferred from one holder to another at a price. In either case the essential nature of the transaction is the payment of money currently for the prospect of receiving money in the future.

CHART I



Source: See appendix 18, section 20.

CHART II



Source: See appendix 18, section 20.

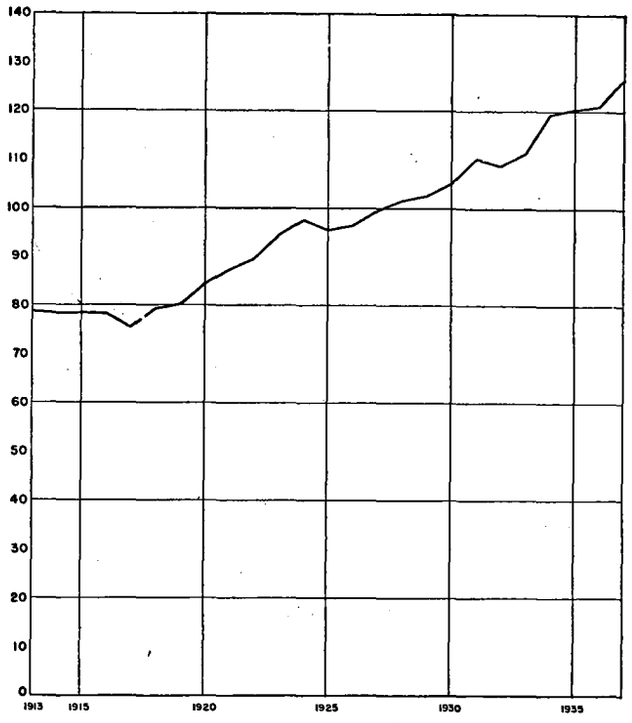
In order to cover the essentials of the price structure, it would be necessary to outline the structure of prices in the goods market, the structure of wage and salary rates, and the structure of security prices, and to follow through the interrelations among these three structures.

The Relation Between Goods Prices, Labor Rates, and Security Prices

A rough indication of interrelation between prices in the three main price fields can be obtained by comparing price indexes representing price behavior in each field. In chart I, crude indexes are given of the changes in goods prices at retail,[2] in labor rates, and in security prices. An examination of this chart indicates that retail prices and labor rates tend to fluctuate fairly closely together for short periods, both rising sharply in the war years from 1915 to 1920 and then falling together in 1921 and 1922, falling again from 1930 to 1933 and rising from then to 1937. This close relation between fluctuation in hourly labor rates and fluctuations in retail prices holds for both hourly wage rates and salary rates but neither appears to fluctuate closely with wholesale prices. This is made apparent in chart II, which gives indexes for each of the four items separately and shows wage and salary rates fluctuating fairly closely together while wholesale prices show much more violent fluctuations in the war period than do retail prices.

Though labor rates and retail prices tend to fluctuate roughly together for short periods, labor rates have increased fairly steadily in relation to retail prices. This is shown in chart III, which gives the relation of hourly labor rates to retail prices. Taking the index of retail prices as 100,[3] the index of labor rates increased fairly steadily from 78.8 in 1913 to 126.5 in 1937. Both the retail price index and the labor rate index are too crude to allow a precise measurement of the increase in the real buying power of hours of labor, but they point to a very real and fairly continuous increase since 1913. This increase does not necessarily mean that annual incomes have increased but only that an hour of labor can buy more goods.

CHART III.—*Ratio of wage rates to retail prices 1913–1937, 1926–29=100*



Source: Based on data given in appendix 18, section 20.

The increase in hourly labor rates in relation to retail prices presumably reflects, for the most part, such of the gains from technical improvement as have been passed on to the consumer in the form of either lower prices or higher labor rates. Just how far the gains from technical improvement have actually been passed on and how far they have been retained by producers cannot be determined without intensive research, but it is clear that in very considerable magnitude the gains have been passed on. In the main this has resulted from the individual producer's effort to expand his markets, from price competition among producers, and from the pressure of organized labor to increase its hourly wage rates.

[2] As an index of retail prices, the Bureau of Labor Statistics *Index of the Cost of Living*, is used to reflect goods prices because it is probably more typical of goods prices as a whole than an index of wholesale prices or a composite of wholesale and retail prices. In the first place the cost of living is on the whole more comprehensive than an index of wholesale prices. It includes the prices for many commodities and services which do not pass through the wholesale markets, such as the professional services of doctor and dentist, the personal services of barber shops, amusements, and house rentals. It also reflects in the price of retail commodities not only the price for the function of retail distribution but to some extent the wholesale prices of the commodities distributed at retail. On the other hand, it misses the goods sold at wholesale but not passing through the retail markets, such as capital equipment and construction goods. In the second place, both the wholesale and retail indexes probably exaggerate the flexibility of prices because they tend to be made up of more standard commodities which, on the whole, fluctuate in price more than nonstandard goods. This exaggeration of flexibility is probably inherent in the creation of price indexes. In order to construct an index of prices it is almost essential to employ the prices of relatively standard products to typify the prices in whole industries. Yet in most industries the standard products are, on the whole, more flexible in price than the less standard products. Thus cotton yarns and standard cotton sheeting, print cloth and similar standard fabrics are used to typify the cotton textile industry. These are items all of whose prices are relatively flexible. But approximately 20 percent of the value of products of the cotton textile industry is made up of specialty products such as draperies, plush, velvet, surgical dressings, woven labels, which are relatively less flexible in price. For most industries it is easier to obtain continuous price series for standard products than for specialty products and the price of a standard product seems a more appropriate item in a price index than the price of any single specialty product because it is likely to represent a larger proportion of the total product of the industry. The same exaggeration likewise tends to arise in the cost of living index, though since the items in the cost of living index are, on the whole, less flexible than wholesale prices the exaggeration of flexibility is probably not so great.

[3] Both indexes being based on 1926–29 as 100.

This passing on of the gains from technical improvement can be seen in detail in some of the industries which have shown great strides toward more efficient production in recent years. In chart IV below, hourly wage rates [4] and indexes of wholesale prices are given for three such industries. In the automobile industry the price of cars declined fairly steadily from 1926 to 1933, while wage rates appear to have been increasing steadily from 1926 to 1937 except for the depression years of 1932 and 1933. Not only was the quality of the low-priced car steadily improved but the technical improvement which reduced the man-hours necessary to produce a car was to a greater or less extent reflected in the smaller number of hours which it was necessary to work in the industry in order to obtain enough wages to buy a car.[5]

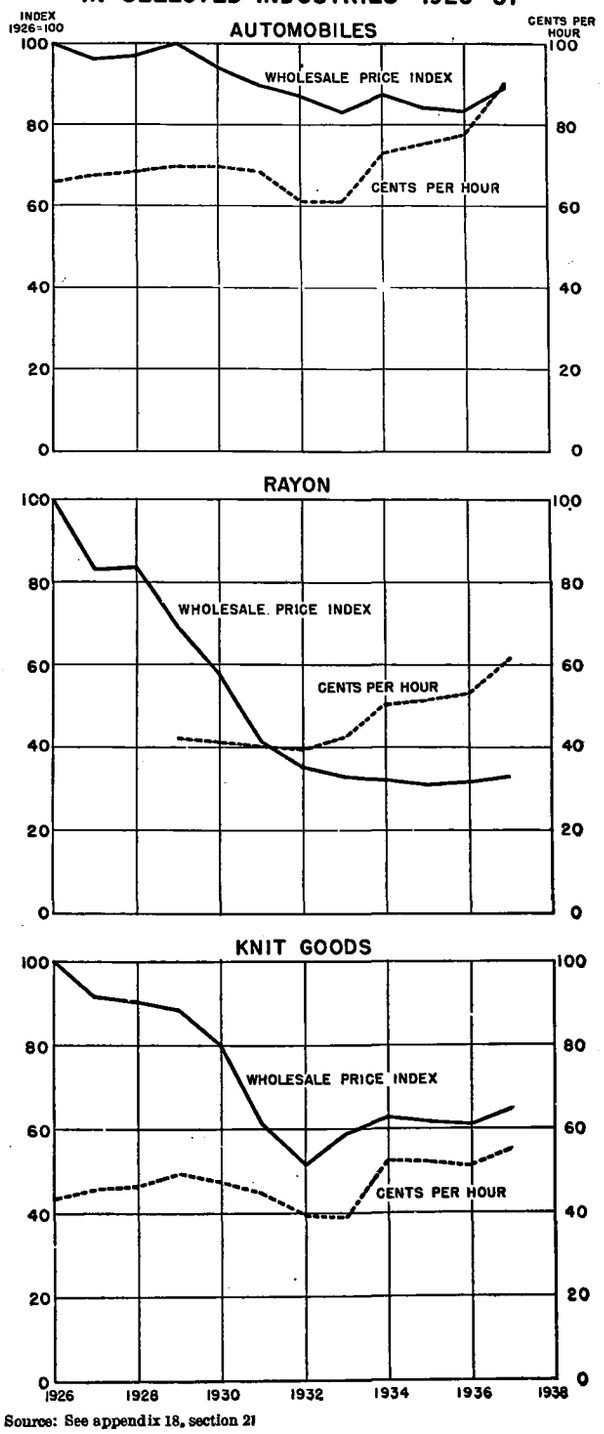
In the case of rayon, the price dropped sharply from 1926 to 1931 and more gradually thereafter, reflecting the decreased costs of production. Unfortunately data on hourly earnings are not available prior to 1929. The level of earnings in that year, however, and some steady increase shown since 1932 indicate that the gains from technical improvements in this industry were first passed on to the consumer in the form of lower prices and subsequently passed on to the workers in the form of higher wages.

The knit goods industry appears to have gone through a period prior to 1930 when technical gains were passed on through both price decline and wage increase. Thereafter prices and wages have moved up and down together, maintaining a fairly constant relationship with each other.

In considering the gains in the buying power of hourly earnings it is important not to confuse these with increases in annual wages or with improvements in the standard of living. Because of extensive unemployment and part-time employment, increases in relative hourly wages have not necessarily meant an increase in annual income. Likewise even with full-time employment the reduction in the hours of the standard work week, already indicated in chapter V has reduced the total hours worked so that the increase in relative hourly wage rates has not resulted in a commensurate increase in income even for those persons fortunate enough to be fully employed. In each of the three industries shown in chart IV, weekly earnings were lower in 1936 than in 1929 although hourly wage rates were substantially higher.[6] (The significance of the decline of goods

CHART IV

WHOLESALE PRICES AND HOURLY WAGE RATES IN SELECTED INDUSTRIES 1926-37



Source: See appendix 18, section 21

[4] National Industrial Conference Board hourly earnings are used in this chart for automobiles and knit goods although they differ somewhat from the hourly earnings shown for these industries in appendix 6. The latter are based on Bureau of Labor Statistics data, which are not available for the years prior to 1932.

[5] The manpower involved in producing the raw materials for the industry and the wage rates paid in their production should also be taken account of, but data are not now available in a form to do this.

[6] See appendix 18, section 21.

prices in relation to hourly labor rates lies in the decline in real prices in response to the decline in real costs resulting from technical improvement. Only under conditions in which resources were continuously used to the full and men and equipment were not idle would this decline in prices be surely reflected in an increase in the standard of living.

In contrast to the closely similar behavior of the indexes of retail prices and labor rates, security prices appear to fluctuate in a manner largely independent of these two. Between 1915 and 1920, when both retail prices and labor rates approximately doubled, the index of security prices fluctuated relatively little. It was, in fact, slightly lower in 1920 than in 1915 since, although stocks went up a little, bonds dropped appreciably in response to the higher rates of interest resulting from the war, as can be seen in charts I and II. Between 1922 and 1929 when both retail prices and labor rates were relatively stable except for the gradual increase in the latter, the index of security prices approximately doubled, the bonds index recovering its earlier loss and the stock index tripling. Only in the depression period from 1929 to 1937 do the indexes of retail prices, labor rates, and security prices show the same general behavior. All three declined with depression and rose with recovery, security prices dropping sooner and more sharply and recovering sooner and more sharply than the other two. Retail prices dropped more than labor rates and recovered less, thus continuing the trend toward higher hourly labor rates in relation to prices already referred to, but neither retail prices nor labor rates dropped as far or recovered as much as security prices.

So far, in discussing the structure of prices, attention has been focused on general price indexes typifying the three main types of market transactions. This was done in order to emphasize the general relation of the different markets to each other. Actually within each of these markets there is the greatest diversity of price behavior, with certain patterns running through this diversity which appear to give to the system of prices in the United States its essential structure. For the purpose of examining these patterns of price behavior, each market will be considered in turn, first the prices of goods, then labor rates and then, very briefly, security prices.

The Structure of Goods Prices

In comparing indexes of goods prices with indexes for labor rates and security prices, an index of retail prices has been employed to represent the general behavior of goods prices. This index has been used because, on the whole, an index of retail prices seems more typical of the behavior of goods price than the wholesale price index or than any composite index which could at present be constructed. But in examining the internal structure of goods prices, the constituent items in the available wholesale price index appear likely to give a better basis of analysis than those making up the retail price index. The available data on individual wholesale prices are on the whole more reliable than those for retail prices;[1] wholesale prices tend to be more sensitive than retail prices and thus magnify the essentials of the goods price structure; and finally, wholesale prices lie at the heart of the goods market and their behavior is basic to the economic adjustments by which the market mechanism can operate to facilitate the full and effective use of resources.

As is to be expected, the behavior of individual wholesale prices is very different from that of the wholesale price index. A fairly typical sample of individual price series is given in chart V.[2]

The separate series show the greatest diversity of behavior. Both egg and coal prices show a marked seasonal variation, but egg prices show clearly the influence of the depression, while the price of coal hardly reflects the depression at all, the drop in price from 1929 to 1932 being more like a step in a longer trend of declining anthracite prices. Most of the series show the influence of the depression to a greater or less extent, though men's dress shoes fail to show a depression decline in price and rayon fails to show a rise in price with recovery. Tobacco prices followed fairly closely the behavior of the wholesale price index, while rye shows independent fluctuations which might be traced to variations in the size of crop. The top four series show price changes practically every month, while the price of rayon and dress shoes reflect an appreciable degree of administrative control, each of them remaining constant for months at a time. Glucose is intermediate, being fairly flexible in price yet showing occasional periods of price administration. Almost any group of wholesale prices chosen at random will show this same diversity of behavior.

Sensitivity to Basic Factors Conditioning Economic Activity

The first important structural characteristic underlying this diversity of behavior is associated with differences in the sensitivity of prices to gradual changes in the basic factors which condition economic activity—changes in techniques of production, in available resources, and in consumer wants. If prices are to act in such a way as to apportion resources in balanced fashion between different uses, price relationships must

[1] The reliability of the constituent items in the Bureau of Labor Statistics *Wholesale Price Index* is discussed in detail in appendix 1.

[2] This chart shows the variation in price movements by months.

undergo constant adjustment to new conditions. When improved techniques of producing rayon are developed so that less manpower is necessary to make it, the full use of the new techniques will be developed only if rayon production is expanded to an extent corresponding to the reduction in the resources, including manpower, necessary to produce it. This calls for a lowering of rayon prices in relation to the prices of other textile fibers. Likewise, if the supply of a particular resource is approaching exhaustion, balanced use of resources requires a restriction of its use to the filling of the most pressing wants and the substitution of other materials where possible. If this restriction is to be accomplished through price, a gradual increase in the relative price of the particular resource would be required. Finally, when consumers' wants shift from one type of goods to another, the readjustment in the use of resources calls for readjustment in price relationships.

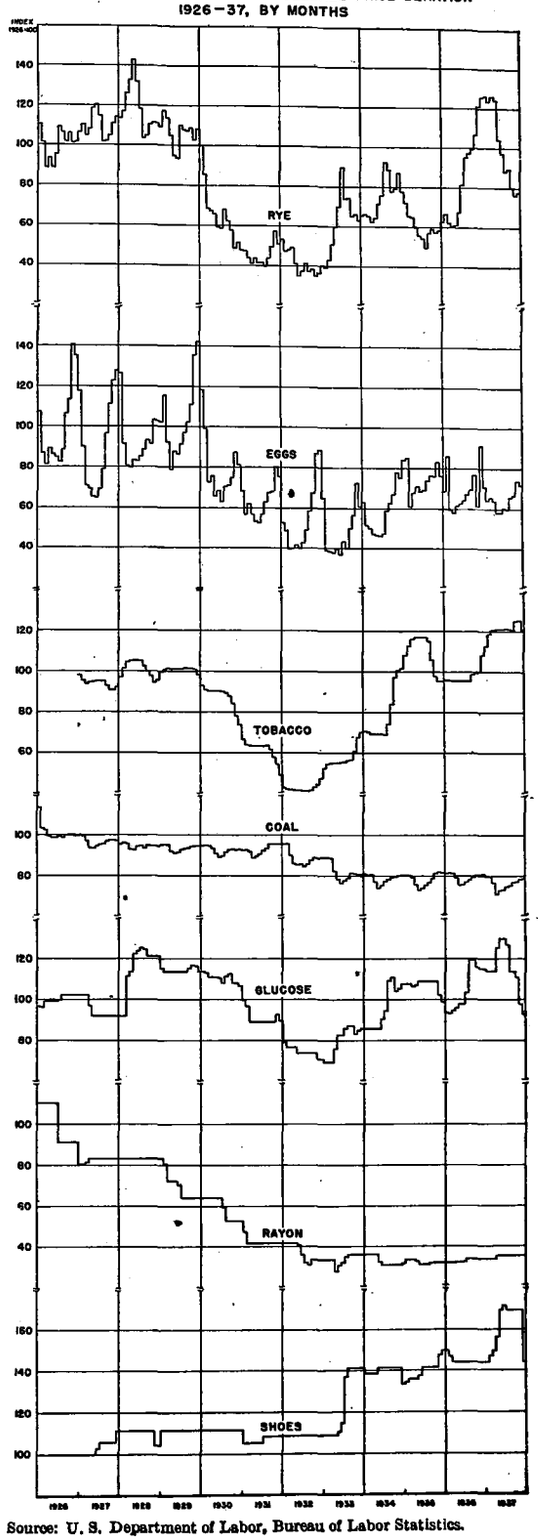
It is an important characteristic of these changes in price relationship which work for balanced use of resources that they require only gradual change. They do not call for day-to-day or week-to-week or monthly changes. While flexible market prices may actually make this adjustment by constantly changing, a price which was readjusted only once or twice a year might also be sufficiently flexible to keep pace with the underlying changes in techniques of production, in available resources and in consumer wants. At best the most effective use of resources which can be hoped for in practice can only be a crude approximation to a balanced use and, so long as full use of resources is maintained, relatively infrequent readjustments in price could serve to maintain approximate balance in price relationships. Thus while administered prices which change infrequently do not contribute effectively to full use of resources, as will be made clear in the next section, there is nothing inherent in such administered prices to prevent relatively balanced use of resources, provided full use is not dependent on their flexibility.

The extent to which both market and administered prices adjust to the basic conditions underlying the use of resources could be clearly brought out if adequate data were available covering a fairly long period of full use of resources with relatively stable prices. Unfortunately, long periods of sustained full use of resources have not occurred in recent times. The period from 1923 to 1929 was one of relatively full use of resources but relative price stability after the post-war distortions was not achieved until 1925 or 1926. By analyzing the price data for the period from 1926 to 1929, however, considerable light can be thrown on the price readjustments which take place in the presence of relatively full use of resources and a relatively stable level of goods prices.[9]

[9] The choice of 1926 as the initial year in the period analyzed is due in part to the fact that the number of items on which wholesale price data is published by the Bureau of Labor Statistics was greatly increased in that year.

CHART V

EXAMPLES OF VARIETY IN WHOLESALE PRICE BEHAVIOR 1926–37, BY MONTHS



Source: U. S. Department of Labor, Bureau of Labor Statistics.

Between 1926 and 1929, though the index of wholesale prices dropped only 4.7 percent, individual prices changed in such a way as to bring very considerable alterations in price relationships. This shift in price relationships is clearly indicated in chart VI which shows the 617 items included in the Bureau of Labor Statistics wholesale price index distributed according to the percent change in price from 1926 to 1929.[10] Approximately 93 of the items dropped from 0 to 5 percent, thus following fairly closely the change in the wholesale index which is indicated by the dotted line. On the other hand, 67 items were more than 15 percent higher in 1929 than in 1926, while 113 items were at least 15 percent lower. This diverse behavior typifies the constant readjustment taking place in prices and while some changes can be attributed to temporary conditions, a considerable proportion undoubtedly reflect basic changes in the appropriate use of resources.

Readjustment was not equally marked for different groups of prices. In chart VII the data of chart VI[11] are broken down into ten separate groups according to administrative and market dominated prices as reflected in frequency of price change.[12] It is evident from the chart that as the role of administration increases, the likelihood of marked readjustments in price diminishes. In the least flexible group of administered prices there are 8 items which showed no price change at all from 1926 to 1929, while, for nearly three quarters of the items, the average price in 1929 was within 5 percent of the average price in 1926. At the other end of the scale, only a fifth of the market-dominated prices averaged within 5 percent of their 1926 prices. The greater diversity of behavior in the market-dominated prices, largely agricultural products or their derivatives, cannot be accounted for wholly by differences in crop conditions between 1926 and 1929. On the whole the marked contrast between the behavior of the market-dominated prices and those showing marked infrequency of price change can only be accounted for by a lower sensitivity to changes in the basic factors—techniques, resources, and wants.

In order to discover if possible the type of prices tending to be least sensitive in their basic adjustment, the 617 items have been regrouped according to several significant categories and the behavior within the separate groups examined. First the separate items were grouped into food, clothing, and other items.[13] The results are given in chart VIII. From the chart it is clear that on the whole food prices are sensitive to changes in the three basic factors, wants, resources, and techniques, clothing prices are intermediately sensitive, while the bulk of the price insensitivity is in other items. The same items are then grouped according to fabrication. Here again, the raw materials are most sensitive, the semifinished less so, and the finished commodities least sensitive. Finally, the items are grouped by durability, the nondurable commodities showing the most sensitivity, the semidurable less, and the durable the least.

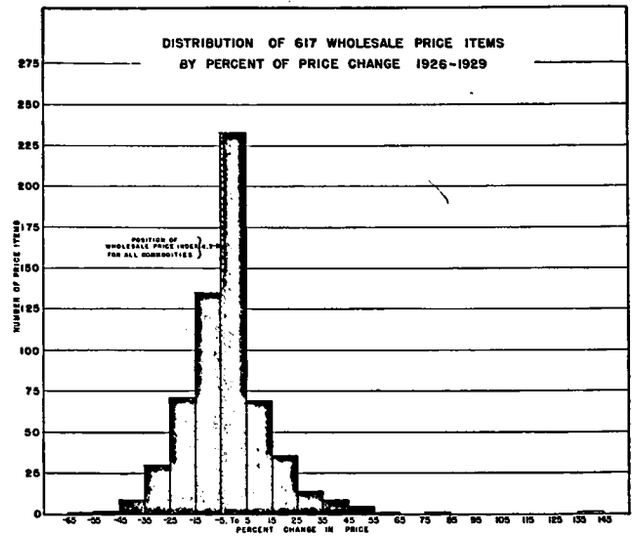
The above analysis suggests that with relatively full use of resources and a relatively stable level of goods prices, the bulk of prices show sufficient flexibility of price to make possible the adjustments to changes in techniques, in available resources and in consumer wants which are required for reasonably balanced use of resources. At the same time it is reasonably clear that there are some groups of items which do not show the requisite flexibility. Even if full use of resources were attained the insensitivity of such items would impede the balanced use of resources. The above analysis also suggests that the items which are insensitive to changes in the basic factors tend to fall among the more highly processed goods and durable goods. These products are particularly associated with the dominance of administrative controls. However, the analysis is based on the frequency of particular types

[10] While the Bureau of Labor Statistics wholesale price index includes 784 items many items are largely duplications, as for instance several butter items. Because of the weighting system used in compiling the index this duplication is in no way detrimental but in the analysis of separate price behavior, this duplication would tend to distort the results except where Bureau of Labor Statistics weighting is also employed. For this reason duplicating items have been dropped according to principles outlined in appendix 2. Also some items have been dropped because the data were incomplete. This reduces the items from 784 to 617. The annual figures used are averages of the monthly data.

[11] The data upon which these charts are based are given in table I of appendix 2.

[12] This follows the procedure used in *Industrial Prices and Their Relative Inflexibility*, by G. C. Means, 74TH Cong., 1st sess., S. Doc. 13.

CHART VI



Source: Based on data given in appendix 2, table I.

[13] The food and clothing categories both include the goods ready for consumption and the raw materials going into them. See table 1, appendix 2.

of behavior for groups of prices so that no conclusions can be reached as to the sensitivity of particular items. It can point to the types of prices requiring investigation and can suggest the magnitude of this type of insensitivity, but only detailed investigation into the effectiveness with which particular industries are using the available resources could determine that particular prices were a serious impediment to balanced use of resources.

The discovery and elimination of prices which impede the balanced use of resources constitutes one of the continuing functions which need to be performed if effective use of resources is to be attained. It is a function which does not involve the whole economy as a single going concern, but which can be carried out piecemeal, one industry at a time, as techniques for dealing with the problem are further developed and as the need for specific action becomes more apparent. Failure to perform this function may lead to waste and inefficiency in the use of particular resources or to unjustified monopoly profits, but it has relatively little effect on the economy as a functioning machine.

Sensitivity to Depression and Recovery

More important for the immediate functioning of the whole economy are the differences in the sensitivity to depression and to recovery displayed by the prices of different goods. The tremendous drop in economic activity between 1929 and 1932 and the large measure of recovery from 1932 to 1937 give a basis for analyzing this type of sensitivity. The quite diverse behavior of particular wholesale prices from 1929 to 1932 is shown in chart IX. There is nothing in the behavior of the individual items that can properly be called typical. Though the wholesale price index dropped 32 percent, a third of the items dropped more than 35 percent while another third dropped less than 25 percent.[14] The same diverse behavior appears in the recovery period and is shown in chart X.

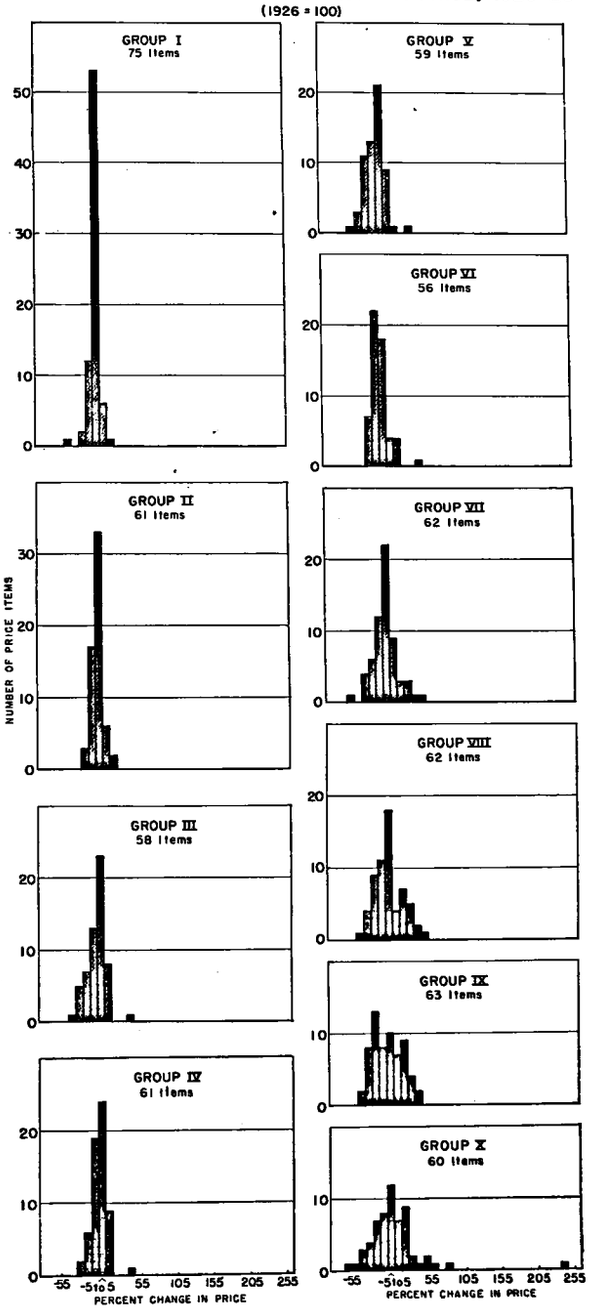
At first glance the diverse behavior of prices in these two periods might appear to be of the same nature as the diverse behavior between 1926 and 1929. Actually, however, the behavior in the depression period is intimately tied to the behavior in the recovery period and appears to involve a specific depression behavior superimposed on the tendency toward price readjustment which operates when resources are more fully employed. On the whole, and with many exceptions, there was a rough tendency for the prices which dropped most from 1929 to 1932 to rise most from 1932 to 1937 while those that dropped least tended to rise least. This is indicated in chart XI which gives the 617 wholesale price items plotted so as to show changes in price in both periods. Each dot represents one item and its distance from the vertical axis represents the fall in price while

[14] If the Bureau of Labor Statistics weights were applied to the individual items, more emphasis would be placed on the more sensitive items.

CHART VII

WHOLESALE PRICE ITEMS IN TEN FREQUENCY GROUPS DISTRIBUTED BY PERCENT CHANGE IN PRICE, 1926-29

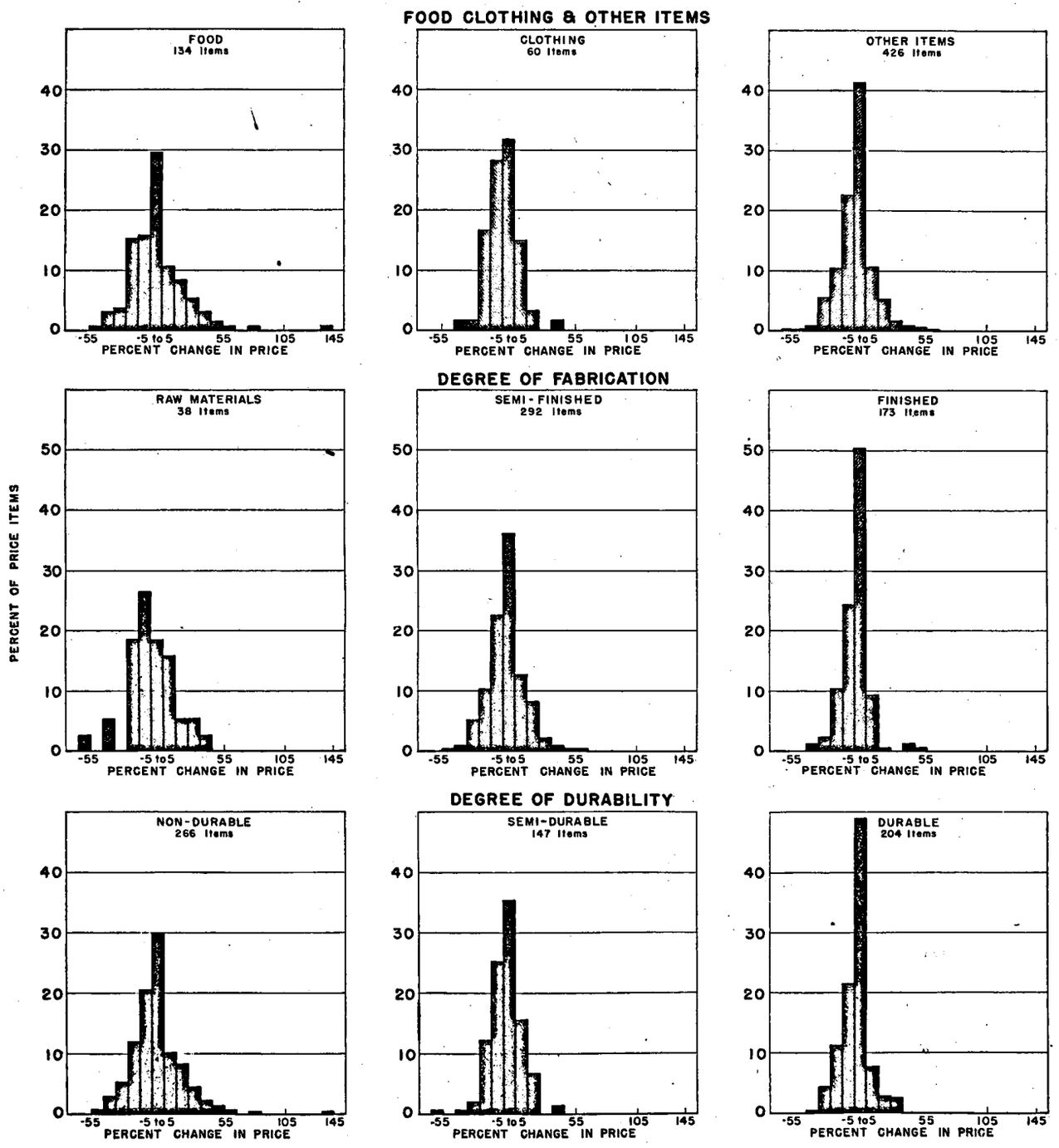
(1926 = 100)



Source: Based on data given in appendix 2, table I.

CHART VIII

GROUPS OF PRICES DISTRIBUTED ACCORDING TO PERCENT CHANGE IN PRICE FROM 1926 TO 1929



Source: Based on data given in appendix 2, table I.

the distance from the horizontal axis represents the rise.[15] Thus if the price of an item dropped 10 points and recovered 10 points (1929=100), the point representing it would lie on the line AA′ fairly close to 0. If it dropped 50 points and recovered 50 points, its dot would also lie on the line AA′ but further from the origin. If it recovered more than it dropped, its dot would lie above AA′ and if it recovered less it would lie below the line.

It is clear from the chart that the bulk of prices had not recovered all of their depression drop by 1937. The line BB′ represents the recovery of the wholesale price index. The scatter of the points about the line BB′ suggests that prices which were sensitive to depression influence were also sensitive to recovery influence, on the whole to about the same degree.[16] Similarly, the insensitive prices were on the whole insensitive in both periods.

Depression sensitivity and character of product.—This similarity of behavior in both depression and recovery offers the possibility of measuring the sensitivity of individual prices to depression and recovery in a way that largely eliminates the influence of non-depression factors such as were at work between 1926 and 1929. A crude measure can be derived by taking an average of the prices in 1929 and 1937 and using the difference between this figure and the price in 1932 as the drop in price attributable to the depression.[17] The resulting figure gives a better indication of sensitivity to depression than either the drop in price in the first period or the rise in the second period because any change in price in the period not attributable to the depression and recovery is partly averaged out. In the discussion which follows this index of depression sensi-

[15] The changes in both periods are stated as a percent of the 1929 price.

[16] The coefficient of correlation between the depression drop and the recovery rise for the 617 items is 0.51. The size of this figure suggests the existence of an appreciable degree of association between the depression drop and the subsequent recovery rise.

[17] A technically more satisfactory index of depression sensitivity would be one based on the results of associating each price series with an index of industrial activity and a trend factor, but the crude index developed above gives essentially the same results and is used in the text because it can be more easily grasped.

CHART IX

Depression Period, 1929–1932

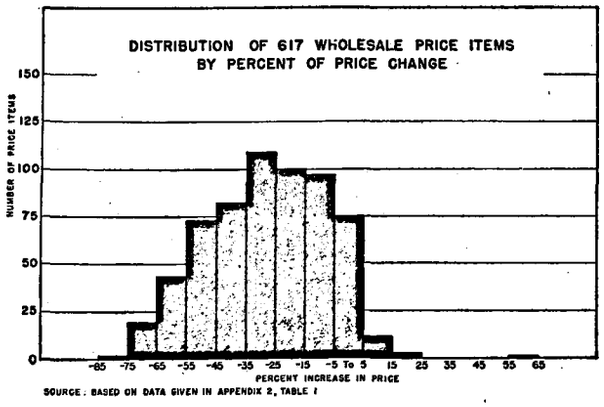


CHART X

Recovery Period 1932–1937

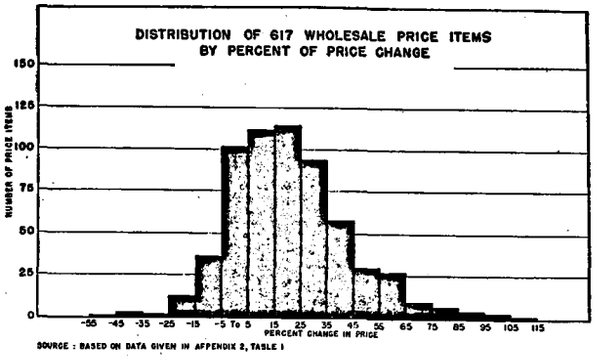
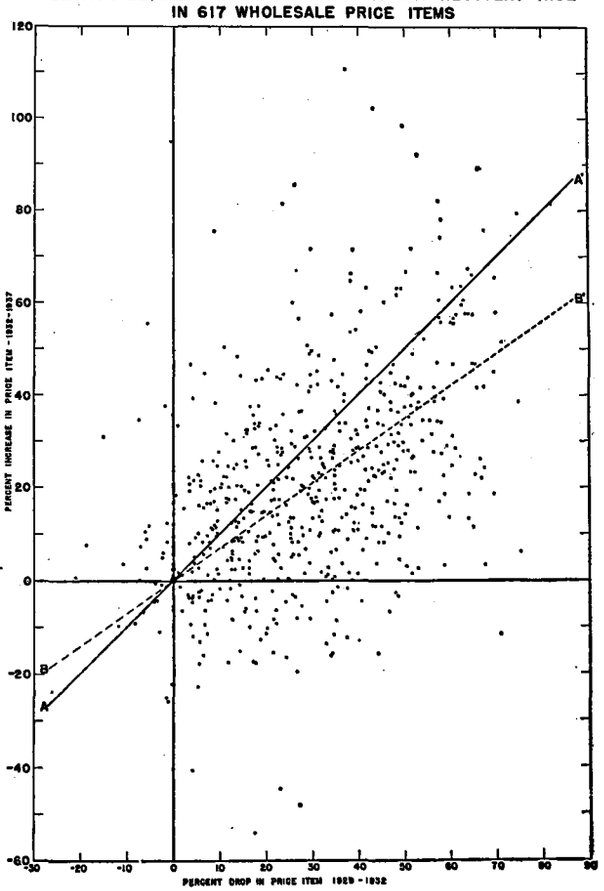


CHART XI

RELATION BETWEEN THE DEPRESSION DROP AND RECOVERY RISE IN 617 WHOLESALE PRICE ITEMS



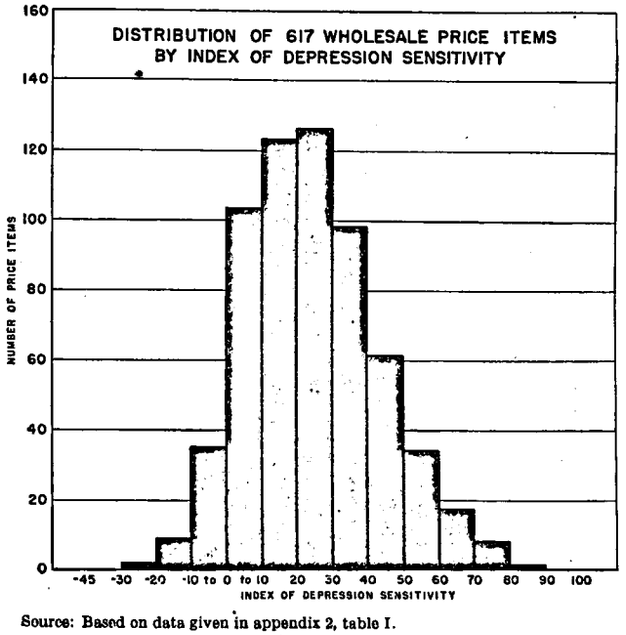
Source: Based on data given in appendix 2, table I.

tivity will be used, the large values indicating greater sensitivity and the small values indicating lesser sensitivity. A negative index would indicate that the price in 1932 was higher than the average of 1929 and 1937. Chart XII shows the distribution of the 617 items by this sensitivity index.

When this index of sensitivity is used as a tool of analysis, and the depression reactions of different items or groups of items among the 617 wholesale commodities are compared, certain characteristics of the price structure become apparent. For example, the wholesale prices of foods have, on the whole, shown a high degree of sensitivity to depression, clothing a lesser degree of sensitivity, and items other than these two have, as a group, been still less sensitive. Chart XIII gives the items in each of these groups distributed according to the sensitivity of their prices to depression.

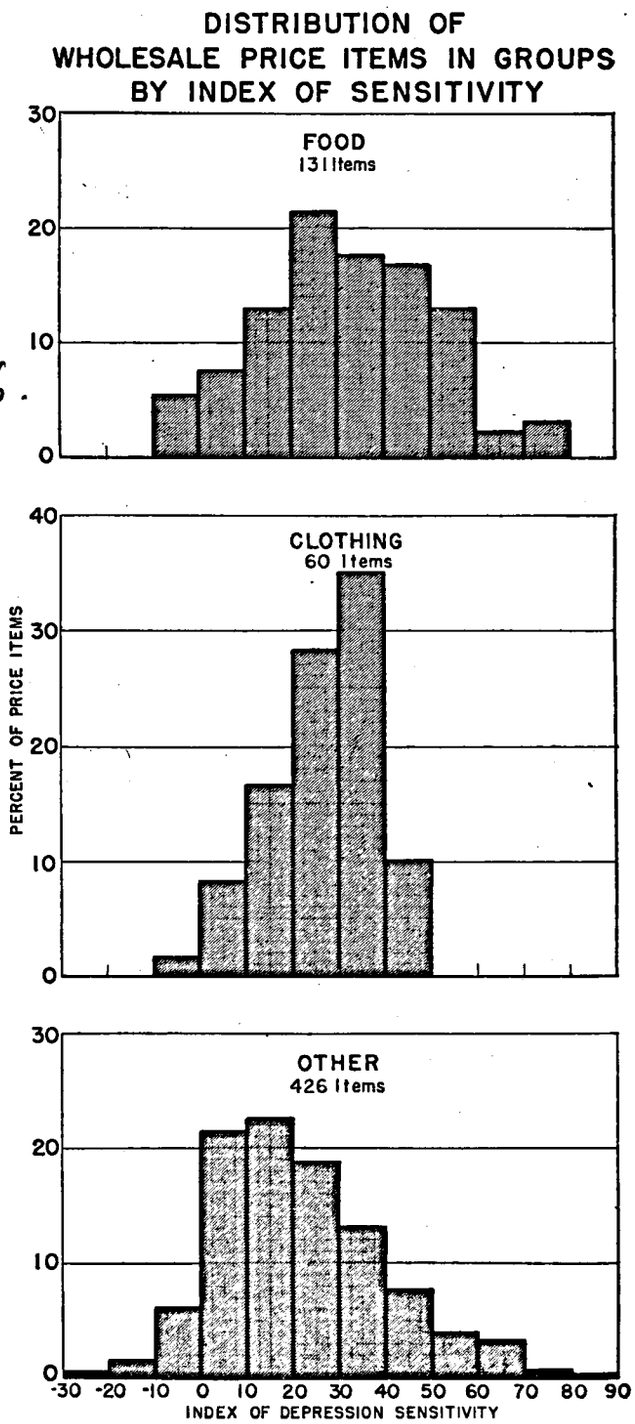
An outstanding characteristic of the price structure is brought out by this type of analysis, namely that on the whole prices are less sensitive as goods move toward the user. In case after case the price of a fabricated product is less sensitive than the price of its raw material. Flour is less sensitive than wheat and bread at wholesale is less sensitive than flour, while bread at retail is least sensitive of all.) Cotton yarn is less sensitive to depression than cotton, most cotton cloths are less sensitive than cotton yarn, cotton clothing at wholesale than cotton cloth, and cotton clothing at retail less sensitive still. Series of this type are set forth in table I. Chart XIV shows the tendency toward less sensitivity with more fabrication by comparing the ratio of sensitivity of the later stage to that in the preceding stage. The cases are distributed according to the ratio of the sensitivity at the subsequent stage to the sensitivity of the corresponding item

CHART XII



Source: Based on data given in appendix 2, table I.

CHART XIII



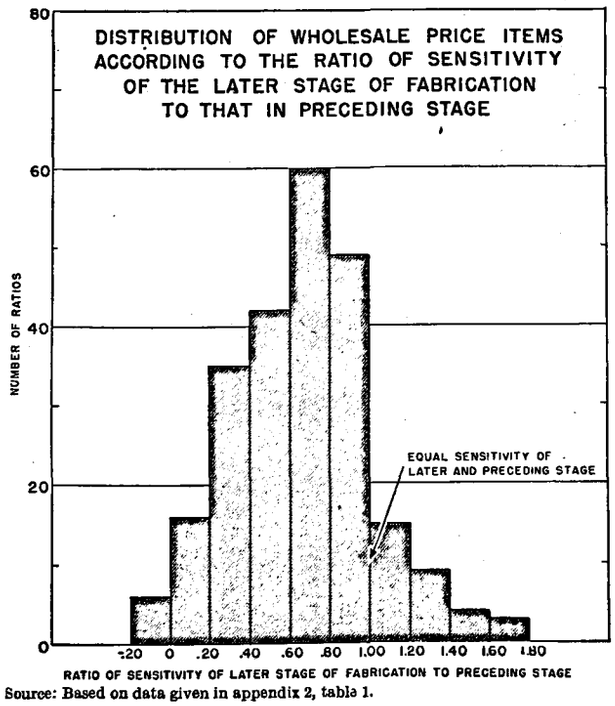
Source: Based on data given in appendix 2, table I.

at the preceding stage. In 208 cases the subsequent stage showed less sensitivity than the preceding stage and in only 31 cases was price more sensitive to depression in the subsequent stage. A clear example of the latter situation is found in the case of gasoline at wholesale, which shows more sensitivity than petroleum. The case of cold rolled steel is a mixed one, for one raw material, scrap steel, is more sensitive than cold rolled steel, while pig iron, also a raw material for cold rolled steel, is less sensitive. Though there are a few such exceptions, there is a tendency in general toward a gradually increasing insensitivity to depression as the ultimate user is approached.

This same tendency is evident when items are grouped by degree of fabrication, semifinished goods being on the whole less sensitive than raw materials as a group and finished goods being less sensitive than semifinished goods. This is brought out clearly in chart XV which shows the items in each of these groups distributed according to their sensitivity to depression.

When items are grouped by the type of activity which has contributed most to their value, it is apparent that agricultural products, both raw and processed, are most consistently sensitive to depression while goods whose value is largely the product of manufacturing activity tend to be relatively insensitive. Mine and forest products are more diverse in their behavior. This is clearly shown in chart XVI. The division between groups is necessarily somewhat arbitrary. Items are classed as dominantly agricultural when the bulk of their value is farm produced. Thus not only wheat and hogs but also flour and pork are so classed since in each case the value added in processing is a small proportion of the value of the product, 18 and 13 percent respectively in 1929, for the industries as a whole. On the other hand, bread at wholesale is classed as predominantly a manufactured product since only approximately 19 percent of the wholesale value can be attributed to the farm on the basis of the flour, butter, eggs, and milk used in its manufacture. While the classification is necessarily crude, it does involve important distinctions as is evident from the chart. Only 10 percent of the agriculture dominated items sho

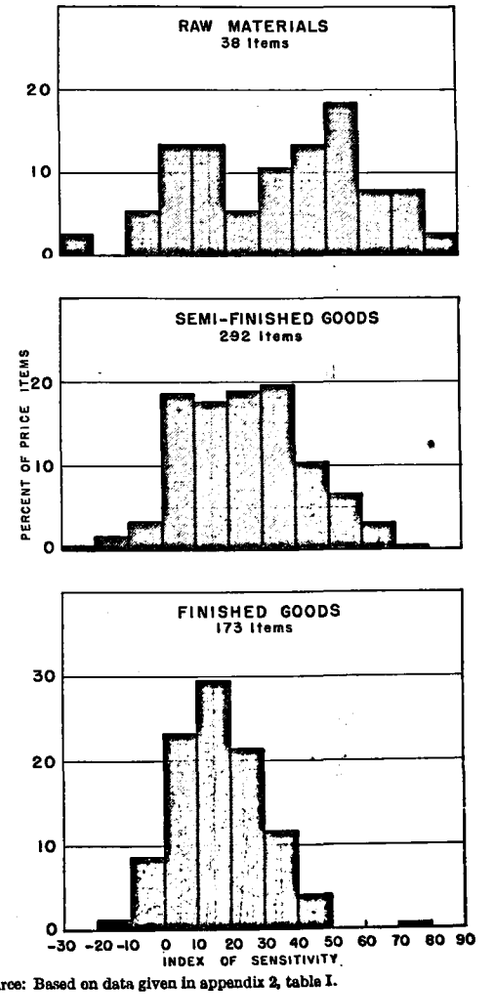
CHART XIV



Source: Based on data given in appendix 2, table 1.

CHART XV

DISTRIBUTION OF WHOLESALE PRICE ITE
IN GROUPS BY DEGREE OF FABRICATION B
INDEX OF SENSITIVITY

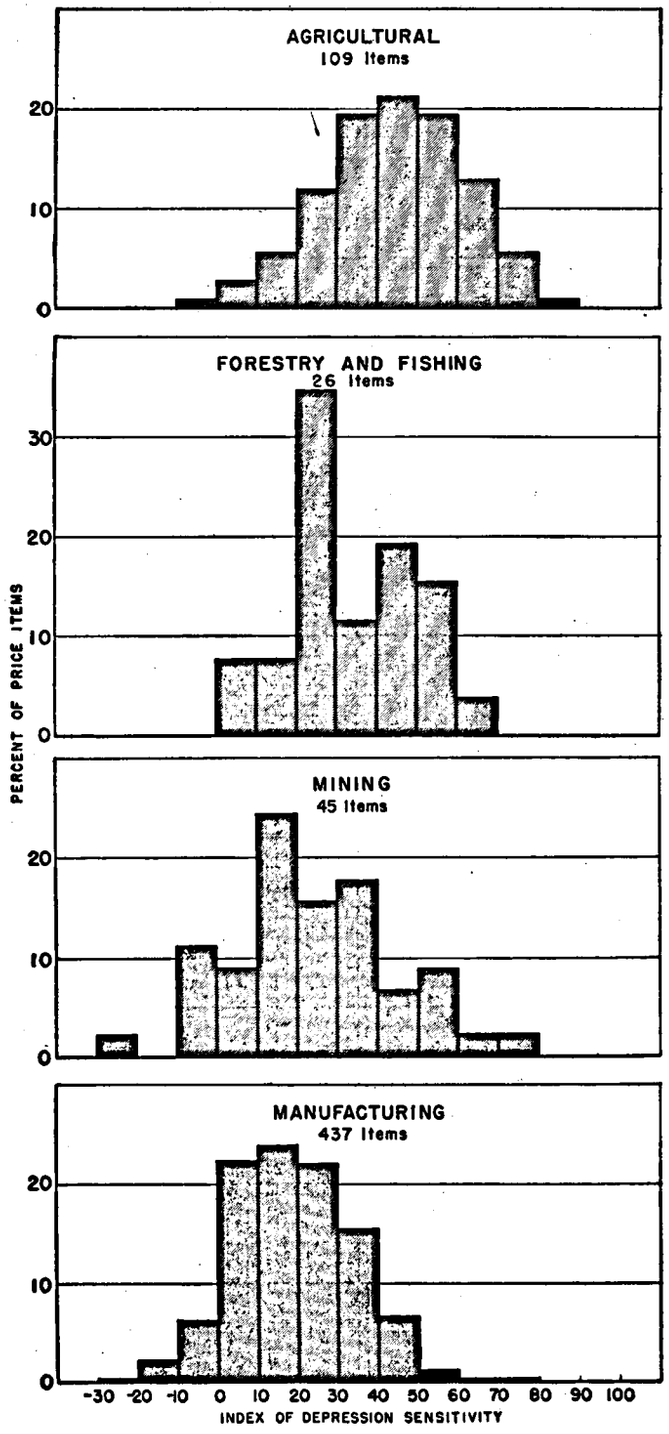


Source: Based on data given in appendix 2, table I.

CHART XVI

DEPRESSION SENSITIVITY OF WHOLESALE PRICE ITEMS

GROUPED BY TYPE OF ACTIVITY

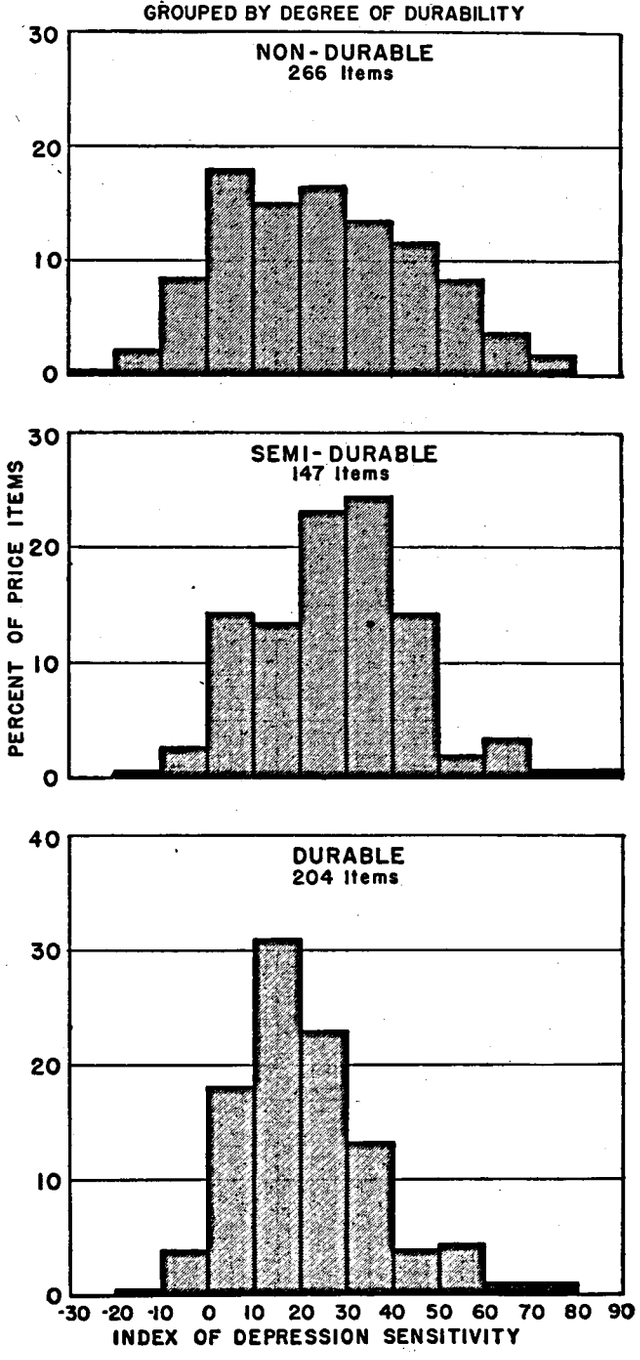


Source: Based on data given in appendix 2, table I.

CHART XVII

DEPRESSION SENSITIVITY OF WHOLESALE PRICE ITEMS

GROUPED BY DEGREE OF DURABILITY



Source: Based on data given in appendix 2, table I.

TABLE I.—*Depression sensitivity index of wholesale price items grouped according to degree of fabrication*

			FOOD AND TOBACCO		
Wheat	54.1	Wheat flour	39.6	Bread (average of 5 cities)	13.6
Rye	59.5	Rye flour	39.7	Other wheat products [1]	18.6
Oats	52.0			Oatmeal	42.6
Corn	71.5			Corn products [2]	43.1
Corn	71.5	Hogs, cattle and sheep [3]	50.4	Meat products [4]	45.8
Oats	52.0			Hides and skins	67.6
Alfalfa hay	39.4	Poultry	28.4	Dressed poultry	27.1
Other hay	29.3			Eggs (average of 7 cities)	30.8
Alfalfa hay	39.4			Dairy products [5]	27.5
Other hay	29.3				
Raw sugar	18.2			Refined sugar	17.7
				Molasses	8.8
Peanuts	61.2			Peanut oil	57.8
				Peanut butter	42.7
Beans	56.6			Canned baked beans	27.2
Cocoa beans	25.4			Powdered cocoa	11.0
Tobacco	68.6			Smoking tobacco	19.2
				Cigarettes	10.9
			TEXTILES AND LEATHER		
Cotton	46.3	Cotton cloth [6]	35.9	Cotton housewares [7]	32.7
				Cotton knit goods [8]	25.2
				Men's cotton clothes [9]	22.5
				Cotton thread, twine and rope	20.7
Wool (imported and domestic)	56.8	Wool cloth [10]	31.8	Blankets	34.9
				Men's and boys' clothing [11]	32.7
				Carpets [12]	25.0
Raw silk	35.6	Silk yarn, thrown	31.2	Silk hose, women's	32.0
		Silk yarn (domestic and imported)	19.3	Silk hose, men's	18.1
		Wood pulp (4 items)	34.0	Women's rayon hose	27.7
		Rayon	22.6		
Hides and skins	67.6	Leather (sole and side chrome)	36.1	Shoes [13]	18.4
				Traveling bags and suitcases	24.2
		Harness leather	22.4	Leather belting	7.4
				Harness	10.8
			SOAP, ETC.		
		Vegetable oils [14]	44.3	Soap (including powder and chip)	26.0
				Glycerin	56.0
			PETROLEUM PRODUCTS		
Petroleum, Oklahoma, California, and Pennsylvania	28.0			Gasoline [15]	33.6
				Fuel oil, Oklahoma and Pennsylvania	41.4
				Paraffin	39.4
				Kerosene, white and standard	18.7
				Cylinder oil, Oklahoma and Pennsylvania	22.2
			RUBBER GOODS		
Rubber	81.8			Tires and tubes	26.0
				Other than tires and tubes [16]	19.0
			NEWSPRINT, ETC.		
		Wood pulp (4 items)	34.0	Newsprint paper	3.0
				Wrapping paper	0
			LINOLEUM, ETC.		
Flaxseed	45.8	Linseed oil	42.4	Linoleum (inlaid and plain)	19.4
		Linseed meal	31.6		
			CONSTRUCTION MATERIALS, ETC.		
Portland cement	17.4			Concrete blocks	5.0
Sand	13.6				
Gravel	12.6				
Mesabi ore	3.5	Steel scrap	66.0	Bar iron	13.5
				Malleable castings	14.0
		Pig iron	31.4	Spiegeleisen	19.2
				Steel billets	26.0
		Foundry iron	41.6	Cold rolled steel	35.6
				Cast iron pipe	50.7
				Rails	.1
				Wire and wire products [17]	18.9
				Plates [18]	19.4
				Skelp, pipe and tubing [19]	23.6
				Bars [20]	24.5
				Sheets [21]	25.0
				Other iron and steel products [22]	27.0
Copper (electrolytic)	55.6			Copper wire, rods and sheets	41.3
Copper	55.6			Brass wire, rods, tubes and sheets	37.5
Tin	61.6			Solder	56.2
Lead	47.4			Lead pipe	35.4
				Babbitt metal	42.9
Lead	47.4	White lead	9.3	White paint	17.5

See footnotes at end of table.

TABLE I—Continued

CONSTRUCTION MATERIALS, ETC.—Continued

Zinc	52.8	Zinc sheets	16.0
Sulphur	0	Sulphuric acid	1.2
Borax	12.3	Boracic acid	11.6
Sisal	57.2	Sisal rope	20.8
Hemp	61.2	Manila rope	21.6
Jute	40.6	Jute yarn	22.5
		Burlap	30.8
		Binder twine	28.5

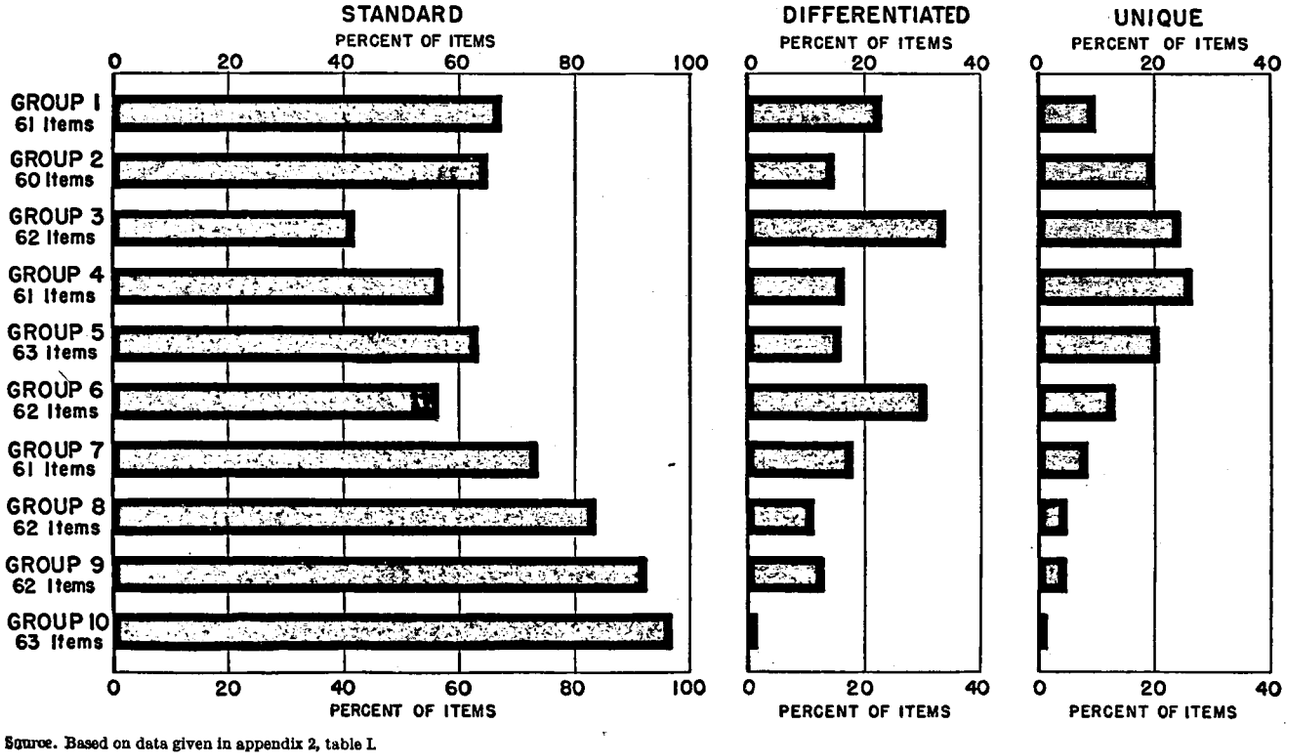
Source: Based on table I, of appendix 2.

NOTE.—Where average indexes are indicated by reference to the footnotes, they are straight arithmetic averages of the sensitivity indexes for the items noted, without any adjustment for relative weight.

[1] Includes soda crackers, pretzels, sweet crackers, macaroni, and wheat cereal.
[2] Includes hominy grits, two items for corn meal, corn oil, corn starch, glucose, laundry starch, and corn cereal.
[3] Includes hogs, cows, steers, calves, sheep and lambs.
[4] Includes items under meats in appendix 2, table I, and oleomargarine, but excludes dressed poultry.
[5] Includes butter, cheese, milk: New York, San Francisco, Chicago; and evaporated milk.
[6] Includes osnaburgs, light drill, print cloth (2 quotations), brown sheeting, ticking, wide duck, denim, heavy drill, flannel beige, bleached sheeting, muslin, sheeting percale, percale, muslin No. 4, gingham, toweling, madras shirting, damask.
[7] Includes cotton blankets, colored cotton blankets, pillow cases, table cloths.
[8] Includes men's cotton hose, women's union suits, men's cotton underwear, and men's union suits.
[9] Includes overalls, soft collars, men's dress shirts, work shirts, men's work trousers, dress shirts, stiff collars.
[10] Includes worsted suiting, uniform serge, heavy overcoating, suiting serge, wool broadcloth, bleached flannel, wool crepe, serge, 7-ounce flannel, Sicilian cloth.
[11] Includes indexes for boys' knickers, top coat (2 quotations), men's 4-piece suits, men's 3-piece suits, boys' 4-piece suits, overcoats, and men's wool underwear.
[12] Includes axminster carpets, Brussels carpets, and Wilton carpets.
[13] Includes the items listed under "shoes" in appendix 2, table I.
[14] Includes coconut oil, palm kernel oil, palm nigr oil, and cottonseed oil.
[15] Includes natural gasoline, Oklahoma and Eastern and California gasoline.
[16] Includes men's rubber heels, rubber hose, men's rubbers and women's rubber heels.
[17] Includes wire rods, wire nails, wire, and woven wire fence.
[18] Includes steel plates, terneplate, and tie plate.
[19] Includes skelp, boiler tubes, galvanized pipe, and sewer pipe.
[20] Includes reinforced bars, cold finished bars, merchant bars, and angle bars.
[21] Includes auto body sheets, steel sheets, annealed sheets, and galvanized sheets.
[22] Includes radiators, galvanized iron tubs, galvanized iron pails, large rivets, plow bolts, steel barrels, merchant bolts, track spikes, tractor bolts, and butts.

CHART XVIII

STANDARD, DIFFERENTIATED AND UNIQUE COMMODITIES IN TEN DEPRESSION SENSITIVITY GROUPS



Source. Based on data given in appendix 2, table I.

sensitivity less than 20 points while 90 percent show a greater sensitivity than this. Clearly the area of price sensitivity in the national economy is agriculture while manufacturing, except for the processing of agricultural products, is relatively insensitive. The relative insensitivity of retail prices has already been noted.

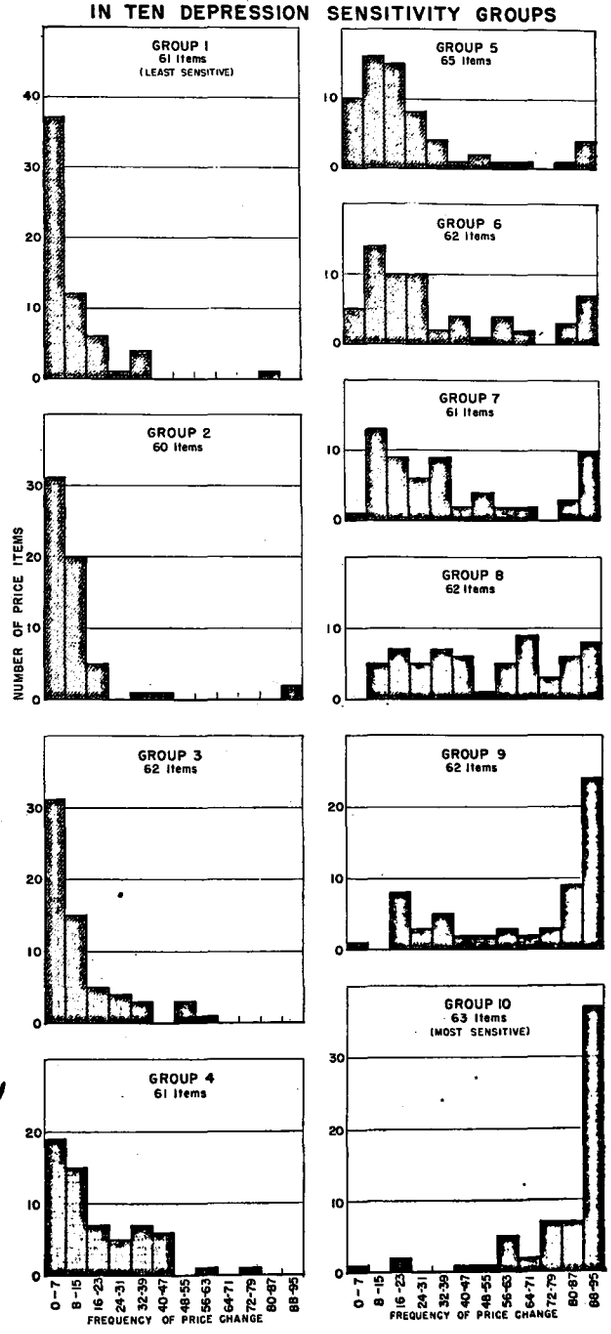
A further light is thrown on the structure of prices by grouping items according to their durability and indicating their depression sensitivity. This is done in chart XVII which makes it clear that the prices of durable are less sensitive than are the prices of semi and non durable goods.

Insensitivity to depression also appears to be associated with the degree of differentiation between the products of different producers. Some goods are so standard that the product of any particular producer is interchangeable with that of many other producers. Once the cotton or wheat farmer has sold his crop it becomes absorbed into the market and ceases to be distinguishable from the cotton or wheat of many other farmers producing the same grade. At the other extreme are the products which are so characteristic of their particular producers that the product of one producer can be clearly distinguished from the product of another. A Ford, a Chevrolet, and a Plymouth are sufficiently distinct from each other physically so that no one should have difficulty in distinguishing them. The product of each auto producer is unique even though the producers compete with each other in meeting the same set of consumer wants. Between the items which are clearly standard and those which are clearly unique lie many borderline cases which may be designated as differentiated. Sometimes the physical characteristics of the product are such as to take the article out of the standard class and yet do not justify classing the product as unique. In other cases the producer, through trade names and advertising, has brought about in the minds of consumers a significant degree of differentiation of his product from that of other competing producers. While no clear cut lines can be drawn between these three types of goods, it is possible to classify commodities roughly into standard, differentiated, and unique.

When goods are so classified, it at once becomes clear that the wholesale prices of standard goods are on the whole more sensitive to depression than the prices of differentiated goods and both are more sensitive than the prices of goods classed as unique. This is brought out in chart XVIII in which the 617 wholesale items are divided into 10 groups according to depression sensitivity and within each group are subdivided to indicate the degree of differentiation. Standard products make up virtually the whole of groups 8, 9, and 10 which contain the items most sensitive to depression. The bulk of the differentiated and unique products appear at the other end of the scale of sensitivity in groups 1, 2, and 3. A large number of standard items, however, were highly insensitive to depression. These are listed in table II.

CHART XIX

FREQUENCY OF PRICE CHANGE IN TEN DEPRESSION SENSITIVITY GROUPS



Source: Based on data given in appendix 2, table I.

TABLE II.—*Commodities classified as "standard" in groups 1, 2, and 3 listed according to depression sensitivity index*

[Order of sensitivity from lowest to highest]

Code No.	Name of commodity	Depression sensitivity index
573	Plaster	−20.6
658	Phosphate rock, 68 percent	−20.2
651	Potash, iodine	−18.3
336	Cotton thread, 6-cord, white, 100 yards	−18.2
599	Arsenic, powdered arsenious oxide	−13.5
661	Potash, muriate, 80–85 percent K. C. L.	−13.3
662	Sulphate of potash, 90–95 percent	−11.3
646	Iodine, resublimed	−10.8
760	Matches, nonsafety	−10.2
345	Coal	−8.8
644	Epsom salts, in barrels	−7.1
598	Coal-tar products, anilin oil	−6.6
565c	Glass, plate, polished	−6.1
761	Matches, safety	−5.6
597	Ammonia, aqua	−5.0
629	Soda sulphide, 30 percent crystals	−4.3
650	Phenol, carbolic acid	−4.0
343	Coal	−3.9
469	Aluminum, 98–99 percent	−3.8
596	Ammonia, anhydrous	−3.6
602	Coal-tar products, benzine	−3.0
624	Salt, sodium chloride	−2.2
344	Coal	−2.0
131	Raisins	−1.4
536	Barytes, ground	−.8
541	Lampblack	−.6
653	Soda phosphate	−.2
746	Paper, wrapping, manila, jute	0
628	Sodium silicate, 40 degrees	0
587	Acid, nitric, 42 degrees	0
609	Coal-tar products, black	0
590	Coal-tar products, salicylic acid	0
630	Sulphur, crude	0
607	Calcium carbide	0
474	Nickel elect-cathodes, 98–99 percent	0
611	Coal-tar products, indigo, 20 percent, paste	0
585	Carbon dioxide, liquid	0
439	Rails, steel	.1
581	Crushed stone, 1½ inch	.3
610	Coal-tar products, brown colors, sulphur	.4
648	Opium	.4
402	Bar iron, refined, per pound	.6
544	Chrome yellow	1.0
592	Acid, sulphuric, 66 degrees	1.2
586	Acid, muriatic, 20 degrees	1.2
398	Angle bars, steel	1.4
409	Boiler tubes, cold-drawn steel	1.4
660	Manure salts, 20 percent	1.5
626	Sodium bicarbonate	1.6
176	Salt, 280-pound barrels	1.6
542	Paint, prussian blue	1.8
415	Sanitary cans, tin	2.0
436	Pipe, steel, galvanized	2.0
759	Cigar boxes, veneer	2.1
622	Soda, carbonate, sal	2.2
507	Cement roofing tile, 9 x 15 inches	2.4
744	Paper, newsprint, rolls	3.0
654	Alkaloids, strychnine	3.2
53	Onions	3.4
425c	Iron ore	3.5
627	Soda, caustic, 76 percent	3.6
557	Whiting, imported chalk	3.7
537	Acetate, butyl	3.8
608	Calcium, chloride, 73–75 percent	4.1
435	Pipe, steel, ¾-inch	4.2
330	Artificial leather, 17½ ounces	4.2
620	Potash, caustic, 88–92 percent	4.5
772	Shipping cases, rough, pine	4.8
655	Zinc chloride, granular	4.8
497	Concrete blocks, plain, 8 x 8 x 16 inches	5.0
625	Soda ash, 58 percent	5.2
659	Kainit, 12.4 percent	5.6
128	Currants, dried, 50-pound box	5.6
623	Salt cake, ground	5.6
649	Peroxide of hydrogen, 4-ounce bottle	6.0
550	Lithopone	6.7
556	Turpentine	6.7
331	Artificial leather, 7 ounces	6.8
538	Bone black, powdered	7.2
225	Leather belting, 1 inch	7.4
570	Lime, building	7.8
593	Alcohol, denatured, 188 proof	8.0
619	Oil, pine, distilled	8.5
613	Copperas	8.6
545	Ethyle acetate, anhydrous	8.7
543	Chrome green, light	8.8
171	Molasses, per gallon, average sugar content	8.8
595	Aluminum sulphate	8.9
132	Bananas	9.0
663	Soda, nitrate, chili saltpeter	9.2
558	Zinc, oxide	9.3
548	Lead, carbonate, white, in oil	9.3
635	Citric acid, crystals	9.6
337	Shoe thread, linen, per pound, 10's	9.8
638	Alkaloids, caffeine	9.8
423	Locks, 3½-inch sets	11.2

TABLE II.—*Commodities classified as "standard" in groups 1, 2, and 3 listed according to depression sensitivity index*—Contd.

Code No.	Name of commodity	Depression sensitivity index
540	Iron oxide, black	11.3
43	Milk, 3.5 percent	11.4
584	Acid, boric	11.6
571	Lime, hydrated	11.8
604	Borax, crystals, granulated	12.3
346	Coal	12.3
603	Bleaching powder	12.5
632	Coal-tar product, toluene	12.5
508	Wall tile, glazed	12.6
569	Gravel, ton	12.6

Source: Based on appendix 2, table I. The code number given for each item in this and subsequent tables refers to the code number attached to the particular item by the Bureau of Labor Statistics.

Depression sensitivity and degree of administrative control.—Insensitivity to depression is thus clearly associated with a number of factors, closeness to the ultimate user, high degree of fabrication, manufacturing activity, durability, and a high degree of product differentiation. Such insensitivity is also closely associated with the degree to which prices are dominated by administration. In chart XIX the wholesale-price items are divided into 10 groups according to their depression sensitivity and the frequency of price change is indicated. There is a clearly marked progression from the highly insensitive prices in group 1 which change infrequently to the highly sensitive prices in group 10 which change with great frequency.

Depression sensitivity and tariffs.—One more factor needs to be considered, the possible effect of tariffs upon price sensitivity. The 617 wholesale items were classified according to the ratio of the tariff rates on each item to the average of the American wholesale price from 1930 to 1936. The results of this classification compared with depression sensitivity are shown in chart XX. Again the items are divided into 10 sensitivity groups and distributed within each group according to the magnitude of the tariff. From this chart it is clear that there is no general relation between insensitivity to depression and amount of tariff. Over 24 percent of the items in the insensitive groups 1, 2, and 3 are without tariff protection while only 16 percent of the items in the most sensitive groups 8, 9, and 10 are without tariff protection. If anything, the sensitive items appear to have somewhat more tariff protection than the insensitive items. This does not mean that the tariff does not contribute to the insensitivity of certain items but it does mean that the tariff is not a major explanation of price insensitivity. How account for the differential sensitivity of prices to depression?

Basic Factors in Depression Insensitivity of Price

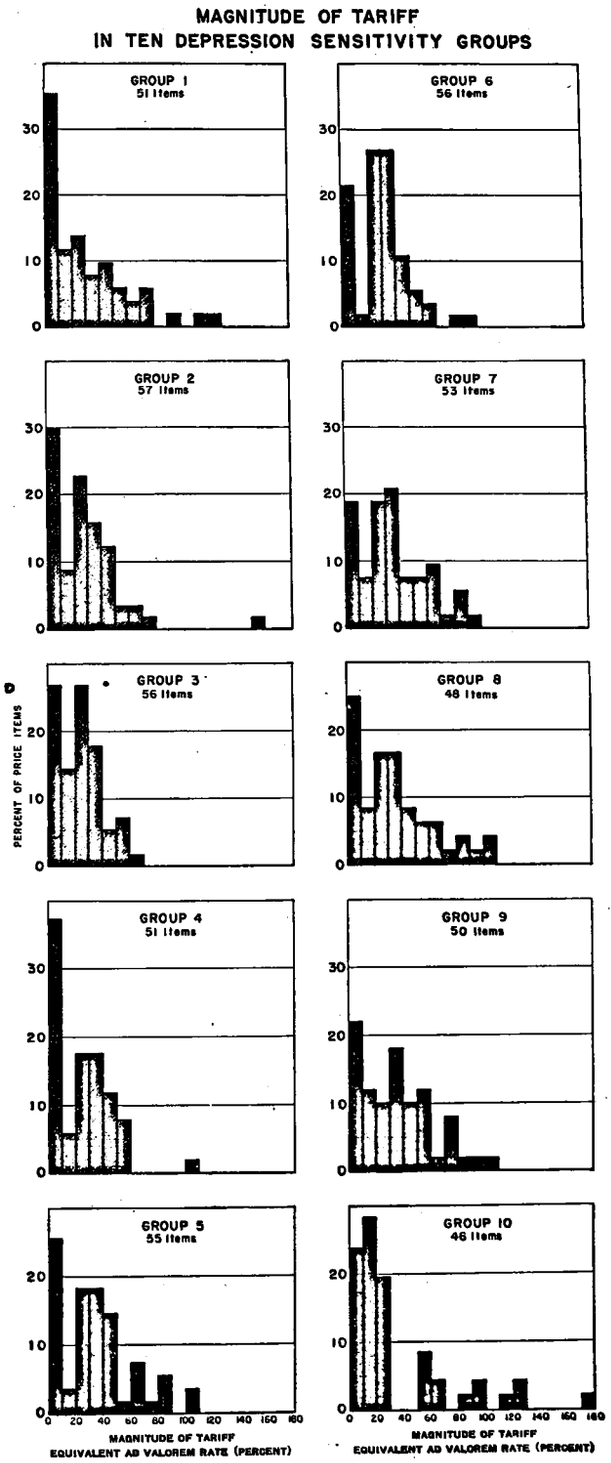
In the preceding paragraphs the wide differences in the sensitivity of prices to depression has been indicated

and an attempt has been made to relate the degree of sensitivity to different characteristics of goods on the market. Depression sensitivity has been found to be associated, on the whole, with raw materials, with agricultural products, with market-dominated prices, with nondurable goods and with standard commodities. On the other hand insensitivity to depression, on the whole, has been found to be associated with fabricated products, with manufactured goods, with administration dominated prices, with durability and with differentiated products. Because of the effect of this differential sensitivity in disorganizing economic activity, it is important to discover, if possible, what forces lie back of it. To find price insensitivity associated with one set of factors and sensitivity associated with another set does not give an adequate explanation of what brings about this differential sensitivity. It is still necessary to seek explanations of this behavior. Can insensitivity be accounted for by the closeness of goods to the ultimate user; by the fact that they are manufactured products; by durability; by product differentiation; or by administrative controls? Or is the explanation to be found in a combination of several of these factors?

Attempts to answer this question have, up to the present, produced divergent explanations and the question is still moot. Yet the accumulating evidence appears to point to administrative controls as the dominant explanation. This is the generally accepted explanation of the insensitivity of prices set by government and of prices set through public utility regulation. There is an increasing literature discussing the theoretical possibility that, when the number of independent and competing producers supplying a particular market is relatively small, administrative controls over price may be exercised without any collusion between separate enterprises and without a single producer dominating the market.[18] The material which follows indicates that the exercise of administrative controls over price can account for most of the cases of depression insensitivity which have been included in the data already presented.

Relation of monopoly profits.—Before proceeding to examine the evidence of administrative controls, it is necessary to give clear warning against confusing the presence of administrative controls over price with the presence of monopoly profits.[19] In a particular case the administrative control over price may be sufficient to

CHART XX



Source: Based on data given in appendix 5, table II.

[18] Cf. Edward G. Chamberlin, *Theory of Monopolistic Competition*, Cambridge, 1933; Joan Robinson, *Economics of Imperfect Competition*, London, 1933.

[19] Much confusion has arisen in economic discussions because of different meanings attached to the terms competition and monopoly. In earlier discussions the term "monopoly" was used on the whole to refer to situations in which sufficient control would be exercised over price by an individual producer or by a colluding group of producers to make possible monopoly profits, i. e., profits above the rate necessary to induce new investment in other industries not subject to monopoly control. A situation was in general classed as competitive if there was insufficient control over price to make monopoly profits possible. Economists, lawyers, and laymen adopted meanings of this general character for the two terms "monopoly" and "competition."

allow monopoly profits to be made. But in innumerable cases where there is some measure of administrative control over prices, there is not the opportunity to make monopoly profits. The bulk of retail distribution is carried on with administered prices. In fact, the one-price system of buying and selling by which prices remain constant over periods of time is one of the major elements contributing to the efficiency of American retail distribution. Yet in spite of the significant degree of control over price on the part of the individual enterprise, which this system reflects, the bulk of retailers are surely not making significant monopoly profits. Similarly, in manufacturing industries a large number of products are sold at a listed or posted price less standard discounts and the price is altered occasionally by altering the discounts or by revising the listed or posted price.[20] Yet in a large number of these cases of administrative control over price, probably in the bulk of them, there is no problem of monopoly profits. In many cases of administered prices the enterprises are actually operating at a loss. Thus it must be clear that administrative control over prices does not necessarily involve monopoly profits. Rather, monopoly profits can arise only in the more extreme cases of administrative control or under special conditions. Whether or not administrative controls over price are sufficiently strong to allow the making of monopoly profits, these controls are important factors affecting the relative sensitivity of prices to depression and the problem of whether resources will be used to the full. On the other hand, only those administrative controls over price which are sufficiently strong to allow the making of monopoly profits are significant to the long-run problem of securing a balanced use of resources. Once administered prices as such are distinguished from monopoly profits as such and the former are recognized as a normal way of doing business, it should be possible to examine the problem of administration in relation to the depression sensitivity of prices in an analytical fashion.

Relation to consumer wants.—A possible explanation of the difference in the depression sensitivity of different prices could theoretically be found in the different importance attached by consumers to different goods. Thus the fact that the price of a particular good failed to decline significantly during the depression might be explained by the fact that consumers required the particular item so strongly that they continued to buy it in much the same volume even though their money incomes were curtailed by the depression. With no significant decline in the volume of sales there would be no particular pressure for a decline in price. On the other hand there would be a fall in the sale of items whose purchase could be postponed by the consumer or that were less significant to his standard of living. If there were no administrative control of price directly or through a restriction of production, the prices of such items could be expected to fall in relation to the items that were more indispensable to the prevailing standard of living. Thus the price of food which is essential to living might be expected to be insensitive to depression, while the price of clothing would be more sensitive and the price of such postponable items as automobiles and agricultural machinery would be the most sensitive to depression.

In actual experience the exact reverse appears to have been the case. In the depression, there was a general tendency, though with many exceptions, for the industries whose sales dropped most to show relatively little price readjustment, while in the industries in which a major price readjustment took place, there was a tendency for consumption to drop least.[21] Likewise, in the recovery period, the industries whose sales were increasing most showed little price rise while those with the least rise in sales showed the greatest rise in price. This behavior is typified in chart XXI which indicates the depression changes in price and in production for each 10 industries which together produce approximately half of the value of products of all manufacturing

More recently a group of technical economists have redefined the terms monopoly and competition to refer to the elements in a situation rather than to the situation itself. On this basis a particular situation can have some monopoly elements and some competitive elements. Moreover, it is difficult to conceive of a case in practice, however competitive, which did not involve some monopoly elements or however monopolistic which did not involve some elements of competition. Both the retail store keeper and the wheat farmer, through monopolizing a piece of land, are to some extent monopolists while the monopolized post office has to compete with other forms of communication. If the bulk of economic technicians classify every situation as both monopolistic and competitive regardless of whether there is power to make monopoly profits while the laymen continue to classify situations on the basis of the older meanings of the terms, only confusion can result. For this reason the terms are avoided in this report except where no confusion is likely to arise. The term "monopoly profits" is used because it is believed to involve no ambiguity as to its general meaning, though the determination of monopoly profits in any concrete situation has its serious difficulties.

[20] It is well worth noting that much of the pressure for price regulation in the National Recovery Administration was aimed against special discounts to particular buyers which departed from the list price less standard discounts. The Robinson-Patman Act makes illegal the discrimination among buyers involved in special discounts arrived at by bargaining and thereby makes administered prices almost mandatory in this part of the economy.

[21] In the National Industrial Conference Board Bulletin, February 20, 1939, the claim is made that this conclusion has not much practical value because the relation between changes in price and production for *individual commodities* is much more heterogeneous than for *whole industries*.

The evidence presented in the bulletin shows that *even for individual commodities* there is a clearly marked tendency, with of course many exceptions, for a drop in production between 1929 and 1933 to be associated with a smaller drop in prices and a large drop in prices to be associated with a small drop in production. This tendency is clearly indicated in the attached table which was compiled directly from the bulletin.

Number of items listed in NICB Bulletin falling into different categories of price and production change between 1929 and 1933

	With production drop of—		
	More than 50 percent	25 to 50 percent	Less 25 percent
Items with price drop of less than 25 percent	40	25	1
Items with price drop of 25 to 50 percent	23	26	2
Items with price drop of more than 50 percent	11	24	6

and agricultural enterprises. It is evident that the relative stability of the prices of agricultural implements, automobiles, and steel between 1929 and 1932 was not due to stability in the demand for the product, and that the relative instability of the prices of textile products, food, and agricultural commodities was not due to the instability in the demand for the product. Thus differences in the stability of the demand for particular products does not appear to be the primary explanation for the differences in price sensitivity.[2]

(Relation of the degree of fabrication.) Likewise the difference in degree of fabrication does not appear, in itself, to be the primary explanation of differences in price sensitivity. The prices of most raw materials, but not all, are nonadministrative in character, and most,

If the group of chemical and drug items for which the price data are known to be very unsatisfactory and for many of which there are *no comparable data* on the production of individual items for the years 1929 and 1933 in the sources used in the bulletin study, are excluded the relationship is even more clearly brought out as indicated in the table below:

Number of items listed in NICB Bulletin other than chemicals and drugs falling into different categories of price and production change from 1929 to 1933

	With production drop of—		
	More than 50 percent	25 to 50 percent	Less than 25 percent
Items with price drop of less than 25 percent	38	18	8
Items with price drop of 25 to 50 percent	22	18	24
Items with price drop of more than 50 percent	9	22	66

When, as in this report, the analysis is made in terms of industries instead of individual commodities the influence of special factors which effect the price and production relationships for particular commodities tends to be partially offsetting and the basic general factors tends to dominate the relation between price and production. Examination of the data provided by the National Industrial Conference Board brings out the striking extent to which, for industries as a whole, there is a clearly defined tendency, with exceptions, for *industries* showing a large drop in production between 1929 and 1933 to show a small drop id prices and industries with a small drop in production to show a large drop in prices.

[2] This same analysis can be stated in technical economic terms. The trained economist speaks of a demand curve which indicates the amount of a given commodity which a consumer or group of consumers will buy at each of a series of different prices if they have a given volume of income (stated in terms of its real buying power) and if the prices of other commodities are assumed the same. He also speaks of a shift in the demand curve which may result from a change in the volume of consumer income. This means that with a change in consumer income there will be a change in the volume of the particular commodity demanded at each level of its price. For most commodities an increase in income will involve an increase in the volume demanded at each given price so that when a demand curve at one level of income is plotted with standard coordinates and price indicated along the vertical axis, the demand curve corresponding to a higher level of income will be above and to the right of the first curve and the curve corresponding to a lower level of income will fall below and to the left of the initial curve.

If the difference in the relative depression sensitivity of prices for different items were due primarily to the structure of consumer wants, it would be expected that the items with insensitive prices would tend to be those with highly elastic demand curves and/or with demand curves showing little sensitivity to changes in consumer income. This would include the nondurable basic necessities such as food and to a less extent clothing. Conversely, items with a high degree of depression sensitivity in price would be those such as automobiles and other durable consumer goods which have an inelastic demand curve, a demand curve highly sensitive to depression, or a combination of both. Since food as a whole, and to a less extent clothing, show depression sensitivity in price and durable consumer goods show a considerable degree of depression insensitivity of price, the differential price sensitivity cannot be attributed to the structure of wants.

Such a conclusion should not be confused with the conclusion that where an individual business is in a position to control its price to a greater or less extent, there is less business inducement to lower price where the demand curve for the product is inelastic than where it is elastic.

TABLE III.—*Raw material commodities classified according to order of depression sensitivity*

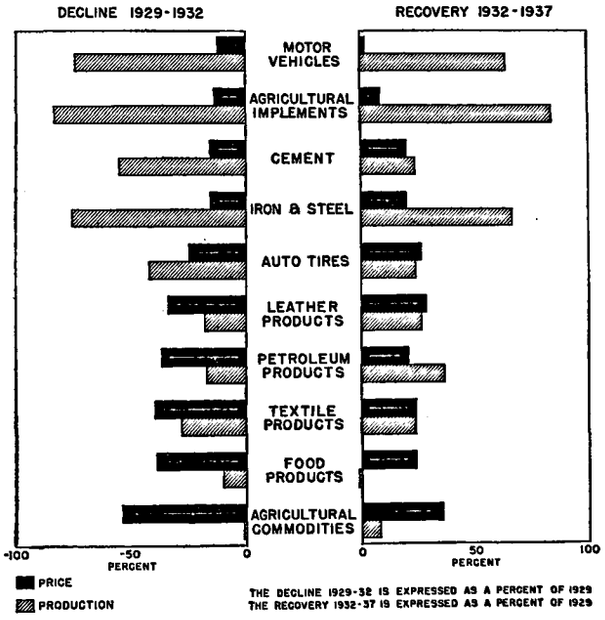
[Order of sensitivity from lowest to highest]

Code No.	Name of commodity	Depression sensitivity index
658	Phosphate rock	−20.2
469	Aluminum	−3.8
536	Barytes	−.8
630	Crude sulphur	0
581	Stone, crushed	.3
425c	Mesabi ore	3.5
557	Whiting	3.7
663	Sodium nitrate	9.2
346	Soft coal, mine run	12.3
569	Gravel	12.6
579	Sand	13.6
348	Soft coal, screenings	13.6
546	Copal gum	24.0
40c	Hay	29.3
50	Timothy seed	34.0
299c	Raw silk	35.6
476	Mercury	37.4
39	Alfalfa hay	39.4
329	Jute	40.6
49	Flaxseed	45.8
24c	Cotton, middling	46.3
42	Hops	47.4
161	Copra	47.9
4	Oats, No. 2, white	52.0
47	Alfalfa seed	52.2
488	Zinc pig	52.8
59c	Wool, domestic	53.1
6c	Wheat	54.1
1	Barley, malting	55.2
5	Rye, No. 2	59.5
65c	Wool, foreign	60.4
551	China-wood oil	61.8
445	Steel scrap	66.0
2c	Corn	71.5
48	Clover seed	72.4
470	Antimony	73.9
751c	Rubber, crude	81.8

Source: Based on data in appendix 2, table I, National Resources Committee classification.

CHART XXI

PRICE AND PRODUCTION CHANGES DURING DEPRESSION AND RECOVERY FOR 10 MAJOR INDUSTRIES



Source: See appendix 18, section 22.

but not all, raw materials show relative price sensitivity. When a comparison is made between the raw materials showing the greatest and those showing the least price sensitivity during the depression, the effect of administration is apparent.) In table III all of the items from the Bureau of Labor Statistics list which are raw materials requiring fabrication before use are listed according to their depression sensitivity. At the bottom of the list, showing most sensitivity, are the agricultural products each with hundreds of thousands of separate producers, steel scrap gathered from thousands of sources and the metals utilizing copper, tin, and zinc. At the very top of the list, showing little or no downward adjustment to depression conditions, are iron ore, aluminum, crude sulphur, phosphate rock, barytes, and crushed stone, the production of each of which is dominated by a few companies.[23] (It seems clear that raw materials as a group are sensitive in price not so much because they are raw materials as because so many of them are produced by a very large number of producers under conditions in which no individual producer can affect the price by limiting his own production. In the few cases where the production of a raw material is dominated by a few producers the prices show as great insensitivity as products other than raw materials.[24])

A similar comparison for semifinished and finished goods has been attempted. The analysis is complicated, however, by the influence of the sensitivity in the raw materials where these make up a large part of the value of the product. Thus the price of beef is dominated by the price of cattle so that the depression sensitivity of the price of cattle is transferred in large part to the price of meat, and a comparison between the sensitivity of meat prices and concentration in the meat packing industry is misleading. The appropriate comparison would be between concentration in the packing industry and packers' margins—the difference between the price of the steer on the hoof at the stock yards and the sum of the wholesale prices of the separate parts after the packing process has been completed. This packers' margin is the real "price" paid for the function of meat packing. In order that price comparisons among semifinished and finished goods may have validity they have been limited to products whose value is derived predominantly from manufacturing activity and only to a secondary degree from the raw material used in production.

A further problem arises from the fact that the available figures on manufacturing concentration are of national scope and apply to rather broadly classified industries. This means that their significance as indexes of concentration in relation to the market is limited to industries in which the bulk of the producers have access to a national market. Fresh bread, for example, is necessarily produced for a relatively local market while the weight of cement prevents plants at one end of the country from supplying markets at the other end in an economical fashion. In these industries, figures on concentration for the country as a whole cannot throw light on the actual degree of concentration existing in particular markets. Likewise the broad census classification often combines a variety of distinct industries under one classification.

In order to avoid these various difficulties, the list of census industries has been reduced by a crude classification to those industries which are relatively homogeneous in product, where at least a third of the value of the product is believed to come from manufacturing activity, where the product itself was believed to be produced for a national or international market and where reasonably reliable data were available as to the price of the product. Thirty-seven census industries met this requirement. When the depression drop of prices in these industries is compared with the proportion of value product in each which was produced by the four largest enterprises, a rough relation is apparent between concentration and price insensitivity. This is indicated in chart XXII. (As in the case of raw materials, the semifinished and finished goods which are less sensitive appear on the whole to be those whose production is dominated by a relatively few enterprises.)

(The durability of goods is often offered as an explanation of the depression insensitivity of prices. It has already been shown that there is a tendency for durable goods as a group to be less sensitive than nondurable goods. However, when the individual items are compared it at once becomes clear that the durable goods whose production is relatively unconcentrated are highly sensitive and that it is only the concentrated durable goods whose prices are insensitive, just as are the prices of concentrated nondurable goods. The tendency for nondurable goods as a group to be sensitive and durable goods as a group to be more insensitive appears to reflect the agricultural character of a large proportion of the nondurable goods and the very large number of producers supplying such products.) This is brought out in table IV which gives all the durable and nondurable goods among the 617 wholesale items which showed an extremely high sensitivity (greater than 50) or an extremely low sensitivity (less than 10) arranged in order of increasing sensitivity.

Among the basic durable materials, such items as steel scrap, lumber, copper, and tin which are available from many sources, show a high degree of price sen-

[23] Crushed stone production is not dominated by a few companies for the country as a whole but production is mostly for very local consumption and in most localities crushed stone production is dominated by one or a few companies.

[24] Copper is a significant exception. The bulk of copper is mined in the United States by a few companies. The flexibility of copper prices appears to be due to the direct competition of foreign producers, particularly the African mines, and to the availability of supplies of reclaimed copper.

TABLE IV.—*Durable and non-durable wholesale price items showing a depression sensitivity index of greater than 50 and less than 10*

DURABLE ITEMS

High sensitivity (index greater than 50)			Low sensitivity (index less than 10)		
B. L. S. Code No.	Name	Index of sensitivity	B. L. S. Code No.	Name	Index of sensitivity
434	Cast iron pipe	50.7	399	Augers	0
511	Yellow pine lath	52.8	474	Nickel, cathode	0
488	Zinc, pig	52.8	439	Steel rails	.1
516	Douglas fir, B	53.4	581	Stone, crushed	.3
487	Copper wire	53.5	418	Files	.5
472	Copper electrolytic	55.6	402	Bar iron, Pittsburgh	.6
515	Douglas fir #1c	55.8	398	Angle bars	1.4
483	Solder	56.2	409	Boiler tubes	1.4
522	Yellow pine flooring	58.6	417	Chisels	1.8
484	Tin	61.6	415	Garbage cans	2.0
445	Steel scrap	66.0	436	Galvanized pipe	2.0
762	Plate glass mirror	72.6	507	Roofing tile	2.4
470	Antimony	73.9	443	Crosscut saws	3.0
			456	Vises	3.0
			425c	Mesabi ore	3.5
			435	Blacksteel pipe	4.2
			710	Vacuum cleaners	4.4
			676	Carvers	4.7
			370	Engine, 3-horsepower	4.8
			497	Concrete blocks	5.0
			561	Wallboard	5.6
			380	Corn planter	6.0
			444	Hand saws	6.0
			687	Electric ironers	6.0
			494	Sinks	6.5
			393	Grain thresher	7.0
			570	Quicklime	7.8
			367	Grain binder	7.8
			391	Spades	8.0
			381	Tractor plow	8.4
			376	Hoes	8.6
			385	Hand rake	9.4
			421	Corn knives	9.4
			681	Felt base, part carpet	9.5
			698	Electric range	9.5
			388	Cream separator	9.7
			390	Shovels	9.7
			686	Electric irons, plain	9.8

NONDURABLE ITEMS

184	Corn oil	50.2	585	Carbon dioxide liquid	0
748	Wood pulp, sulphate	51.5	587	Nitric acid	0
4	Oats, No. 2, white	52.0	590	Salicylic acid	0
47	Alfalfa seed	52.2	607	Calcium carbide	0
349	Beehive coke	52.5	628	Sodium silicate	0
355	Fuel oil, Oklahoma	52.6	630	Crude sulphur	0
145	Bacon	53.1	746	Wrapping paper	0
737	Cottonseed meal	53.8	781	Plug tobacco	0
6c	Wheat	54.1	136	Canned peas	.1
19c	Sheep	54.6	610	Coal tar, brown	.4
173	Oleo oil	55.0	648	Opium	.4
1	Barley, malting	55.2	586	Muriatic acid	1.2
188	Soybean oil	55.8	592	Sulphuric acid	1.2
645	Glycerin, c. p	56.0	660	Manure salts, 20%	1.5
52	Beans, dried	56.6	156	Plain soda	1.6
170	Lard	56.8	176	Salt	1.6
150	Pork, fresh, compressed	57.1	626	Sodium bicarbonate	1.6
			759	Cigar boxes	2.1
187	Peanut oil	57.8	622	Sal soda	2.2
185	Cottonseed oil	58.0	744	Newsprint paper	3.0
181	Tallow (edible)	58.8	654	Strychnine	3.2
116	Corn meal, yellow	59.0	53	Onions	3.4
5	Rye, No. 2	59.8	627	Caustic soda	3.6
631	Tallow, packers	61.0	537	Butyl acetate	3.8
46	Peanuts	61.2	608	Calcium chloride	4.1
736	Bran	61.6	620	Caustic potash	4.5
551	Chinawood oil	61.8	655	Zinc chloride	4.8
554	Rosin, grade B	61.9	625	Soda ash	5.2
17c	Hogs	63.0	101	Crackers, sweet	5.6
665	Tankage	63.8	128	Dried currants	5.6
739	Middlings	65.3	623	Salt cake	5.6
51	Tobacco, leaf	68.0	659	Kainit, 20%	5.6
146	Cured pork belly	69.8	649	Hydrogen peroxide	6.0
2c	Corn	71.5	556	Turpentine, south	6.7
48	Clover seed	72.4	777	Toilet soap	7.3
147	Cured pork belly rib	74.1	177	Canned soup (tomato)	7.5
113	Hominy grits	77.6	593	Denatured alcohol	8.0
115	Corn meal, white	77.6	619	Pine oil	8.5
			137	Canned spinach	8.6
			613	Copperas	8.6
			545	Ethyl acetate	8.7
			171	Molasses	8.8
			595	Aluminum sulphate	8.9
			132	Bananas	9.0
			663	Sodium nitrate	9.2
			635	Citric acid	9.6
			638	Caffeine	9.8

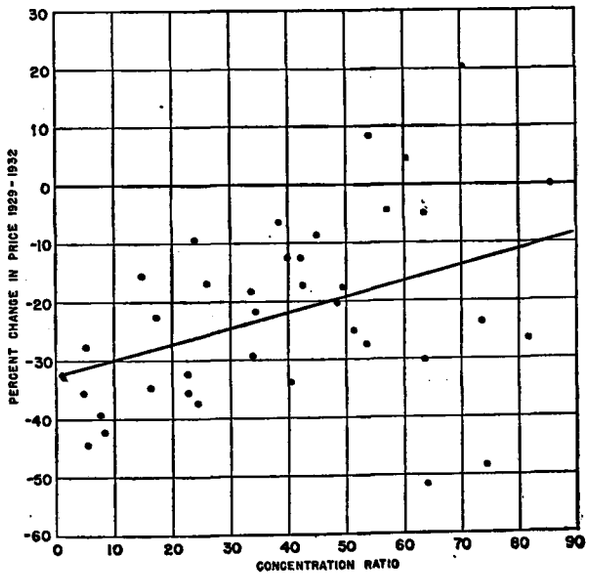
Source: Based on data given in table I of appendix 2

sitivity, whereas the price of such items as iron ore, iron bars, steel rails, and nickel, whose production is known to be relatively concentrated are highly insensitive to depression forces. No highly fabricated durable goods in the list shows great sensitivity, but the insensitive durable items such as agricultural implements and tools of various sorts are produced in industries known to be relatively concentrated. Among the nondurable goods the sensitive items are, almost without exception, farm or forest products or petroleum and its derivatives, goods in the production of which there is little concentration. On the other hand the production of the nondurable items whose prices are insensitive to depression are on the whole dominated by a relatively few enterprises. An examination of these data can leave little doubt that it is not durability as such that makes for depression insensitivity of price but rather that on the whole the production of durable goods is more concentrated than is that of nondurable goods and that the insensitivity of prices is primarily related to this concentration.

Primarily a function of administrative controls.—The main conclusion to be reached from this analysis is that, while many factors influence price insensitivity, the dominant factor in making for depression insensitivity of prices is the administrative control over prices which results from the relatively small number of concerns dominating particular markets. Though depression insensitivity of prices occurs more often in

CHART XXII

RELATION BETWEEN CONCENTRATION AND DEPRESSION DROP IN PRICES IN 37 MANUFACTURING INDUSTRIES



Source: Appendix 8.

the case of durable goods and fabricated products than in the case of nondurable goods and raw materials, it is just these fields in which production is most concentrated in relation to the available market and prices are most extensively dominated by administrative controls. Where durable goods and fabricated products are supplied by a large number of producers for a single market, their prices tend to be relatively sensitive to depression influences and where the production of nondurable goods and raw materials is concentrated into the hands of a relatively small number of producers, their prices appear to be on the whole relatively insensitive to depression influences.

Factors underlying administrative controls.—As a result of the foregoing analysis, it is possible to construct a fairly clear picture of the varying degrees of the depression sensitivity of prices and the factors lying back of this insensitivity. In chapter IV on the geographical structure of production, the flow of goods was described showing raw materials moving through successive stages of fabrication and distribution to the consumer. At each stage the potential market for the particular product tends to narrow down. Wheat can be produced for a world market but fresh bread baked in one place cannot be economically supplied to another place only a few hundred miles away. Thus as goods move from raw materials to finished products the geographical market on the whole tends to narrow down. In a similar fashion the market for a particular raw material narrows down as it becomes more and more fabricated because of the narrowing of alternative functions for which it can be used. Wheat can be used for seed, be fed to chickens or be made into flour, serving any one of the functions implicit in these alternative uses. But once it is made into flour it cannot be used as seed and once the flour has been made into bread it cannot alternatively be used to make crackers or macaroni. Thus there is a tendency for the market for the particular bushel of wheat or bag of flour to narrow down in the successive stages of fabrication.

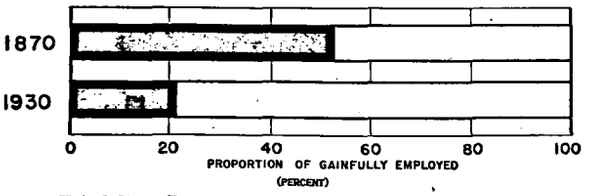
Because of this narrowing down of the market at successive stages both geographically and functionally, it is usually possible for fewer and fewer producers to supply any particular market. It takes a million wheat farmers to supply the wheat market, a few thousand flour mills to supply the flour market and only a handful of bakers to supply some rural town or small city with bread. This same tendency appears in industry after industry: as cotton moves into yarn, into cloth, into clothing, and onto the shelves or racks of the local store; as iron ore moves into pig iron, into steel, into particular standard shapes, and finally into a place in a particular building; and as timber moves into wood pulp, into paper, into a printed book and onto the counter of a local drug store. Sometimes there is a return flow as the worn-out auto reappears as scrap iron or as the book is collected as waste paper, but on the whole the market for goods at each successive stage tends to be narrower, sometimes geographically, sometimes functionally, and sometimes both.

With this narrowing there is almost necessarily a tendency for the required number of separate producers to be less. While millions of farmers are required to supply the market for food, there may be less than a half dozen grocery stores which are within the economical range of the particular housewife. And as the number of separate enterprises supplying a particular market is smaller the administrative control over prices which can be exercised by each producer tends to increase. The wheat farmer has to take the market price for his grain; the local baker can set his own price and as long as it is not too far out of line with the price set by the grocery store down the street he can usually persuade some customers that his bread is worth the difference, especially if his advertising expenditure is adequate. This narrowing of the market with successive stages of fabrication appears to be a factor in making for administrative control over price and insensitivity of prices to depression.

A second factor making for administrative control and price insensitivity is the large size of the efficient enterprise in many lines of activity. No one has yet shown how corn can be produced and marketed efficiently by an enterprise employing several thousand persons. The efficient farm unit—even a large wheat farm or cotton plantation—is relatively small. On the other hand, no one has shown how a steel mill or an aluminum plant can be operated efficiently by a handful of workers. The efficient steel mill calls for hundreds of workers, and the production of steel through its various processes may involve enterprises employing thousands of workers. All the new pig aluminum produced in the country is produced by only four plants. Thus, administrative control over price not only arises and increases as the market narrows down but it tends to increase wherever efficiency in production requires large enterprises which reduce the number of independent producers required to supply the particular market. On the whole, this reduction in the number of separate producers appears to be a dominant factor in railroading and communication, highly significant in manufacturing, of minor significance in agriculture, and of varying significance in forestry and mining. In the manufacturing industries it appears particularly

CHART XXIII

PLACE OF AGRICULTURE IN THE NATIONAL ECONOMY
1870 - 1930



Source: United States Department of Commerce, *Unpublished Report on Census Data*, and the *Census of Population, Occupations*, vol. IV, 1930.

important in the durable goods industries, but other factors may account for the concentration in many durable goods industries.

A third major factor contributing to administrative control over price and price insensitivity is collusion between separate enterprises or the bringing of whole industries under the dominant control of a single individual or group for the very purpose of exercising control over price. This control may be very loose and informal or may involve the concentration of production into a single enterprise as in the case of nickel and virgin aluminum. It may be reinforced through patents, through control of natural resources, or through strategic location. But however maintained, it adds to the inflexibility inherent in the narrowing of markets and the size requirements of modern industry.

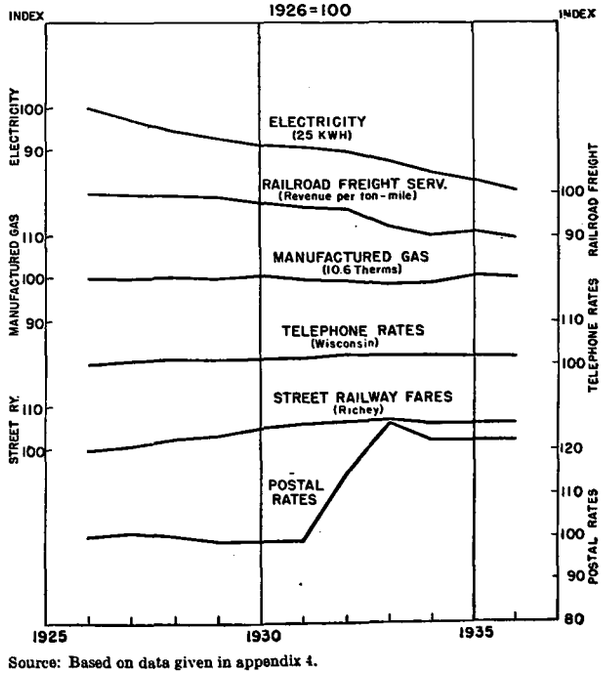
Just how far each of these factors contributes to the presence of administrative control over prices cannot be determined without a careful study, industry by industry, of those industries showing a significant degree of administrative control. It is, however, abundantly clear that a considerable degree of administrative control is inherent in the narrowing of markets and the willingness of buyers to accept the one-price system of American merchandizing. Further administrative control is implicit if the efficiencies of modern technology are to be realized. Only to the extent that administrative controls arise from collusion between enterprises or through the bringing of production under common control beyond the extent necessary for efficient operation is there an opportunity to reduce the existing degree of administrative control without incurring a cost of decreased efficiency in the use of resources. Thus a considerable degree of administrative control over prices appears to be inherent in the modern economy. Administered prices and their depression insensitivity seem to be an integral part of the structure of economic activity. With the century-long transition of this country from a predominantly agricultural to a predominantly industrial country, the administration-dominated prices of industry have gradually displaced the market-dominated prices of agriculture as the more characteristic form of price. As recently as 1870, over half of the gainfully employed workers in the United States were engaged in agriculture, whereas in 1930 little over a fifth were so engaged. This transition is shown in chart XXIII. However much of a role price administration may have played in the earlier years of this century, there can be little question that it plays a dominant role today.

Significance of Administrative Control over Prices

The great importance of administrative control over prices is not primarily its effect upon the gradual adjustment of prices necessary to insure a reasonable balance in the use of resources but the disorganizing results which arise from the resulting depression insensitivity of prices. It has already been shown that in the bulk of unregulated industries there is sufficient competition to keep monopoly profits to a minimum and insure at least a gradual readjustment of prices. In certain industries in which the power to administer prices is inherently so great that it makes possible significant monopoly profits, government can intervene to minimize or eliminate such profits either by sharing in the process of price administration, as in the case of railroad and utility regulation or by taking over the administering

CHART XXIV

RATES CHARGED
BY VARIOUS PUBLIC UTILITIES



Source: Based on data given in appendix 4.

of prices through government ownership. For the national economy as a whole the combination of competition in the bulk of industries and government regulation or ownership in others appears to be capable of insuring the adjustments in price necessary to a balanced use of resources if it were not for the disorganizing effect of prices which are insensitive to depression influences. It is in the latter insensitivity that administrative control of prices has its major significance. Government intervention does not appear to reduce the disorganizing effects of insensitivity. However, successful governmental regulation or operation may be, in minimizing monopoly profits, it appears to increase rather than to decrease the insensitivity of prices to depression influences. This is brought out in chart XXIV which gives indexes of rates charged by the post office and by various regulated utilities before and during the depression. There is almost no downward reaction to the depression and in some cases an actual depression rise, most conspicuous in the case of the post office whose rates are administered by the Congress. Thus, while government may intervene to minimize monopoly profits in particular industries, this type of intervention does not operate in such a way as to bring the sort of depression adjustments in price which are likely to arise where prices are dominated by the market.

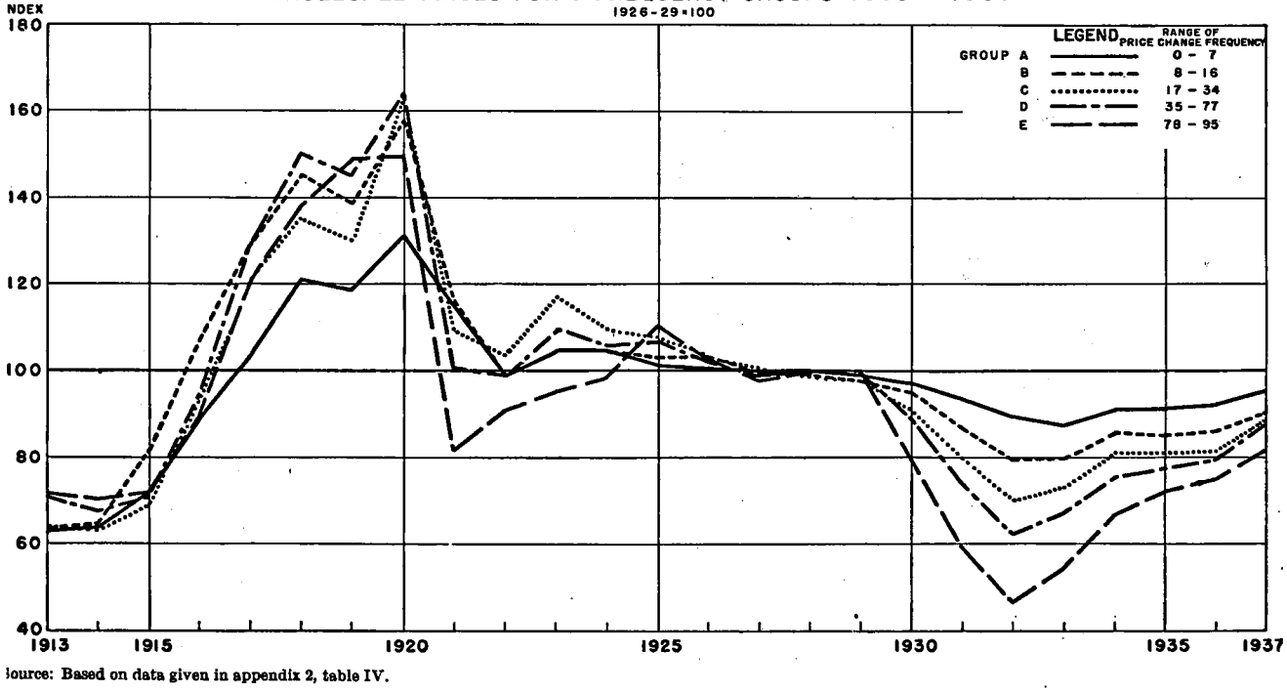
The insensitivity of administered prices to depression influences is important because it means that general shifts in the price level do not take place in response to deficiencies of purchasing power. Instead, when pressure for general revision of prices arises as a result of depression influences, the market-dominated prices drop while the administration-dominated prices show varying degrees of resistance to readjustment. This can be clearly seen in chart XXV, which gives five indexes of the behavior of prices when items are grouped according to their frequency of price change, infrequency of price change being a rough guide to the degree of administrative control over price. Index E reflects the behavior of the 123 items from among the 617 wholesale price items which changed in price practically every month from 1926 to 1932. Index A represents 136 items which showed less than 8 changes between successive monthly quotations in the same 8-year period, or an average of less than one change a year. The other three indexes represent items intermediate in the frequency of price change.[25] All the indexes are based on the average of 1926 to 1929 as 100, thus being arbitrarily made to fit together during that period.

An examination of the chart shows the progressively greater sensitivity of prices to depression as the prices show less administrative control. It is notable that the

[25] The grouping of items by frequency of price change is made, not because of any significance of frequency of price change in itself but because it is at least a rough index of the degree of administrative control and is largely independent of the actual behavior of prices between 1929 and 1932 and between 1932 and 1937. Essentially, the same classification would have resulted if items had been grouped by the frequency of price changes from 1926 to 1929.

CHART XXV

WHOLESALE PRICES FOR 5 FREQUENCY GROUPS 1913 — 1937



Source: Based on data given in appendix 2, table IV.

indexes spread out between 1929 and 1932 and come more or less together between 1932 and 1937. It is also significant that, in spite of the dislocations of the World War and its immediate aftermath, the five indexes when carried back to 1913 come fairly close together.[26] During the war years the price rise appears to have been of a more general character, the whole body of prices rising, though the infrequently changing prices as a group rose least. However, in the precipitate depression drop of prices from 1920 to 1921 when the index of wholesale prices dropped 37 percent, the five groups of prices showed the same tendency for the market-dominated prices to drop most, and the administration-dominated prices to drop least. In the recovery period from 1921 to 1923, the three groups showing the more frequent price changes rose, the most frequently changing rising the most as in the period from 1932 to 1937. On the other hand the two least frequently changing groups were lower in 1923 than in 1921. These changes are indicated in table V.

[26] If 1913 had been used as a base instead of 1926 to 1929, the five indexes would have shown the same splaying out in the depression and coming together in the recovery, though they would not have started as close together or returned as nearly together.

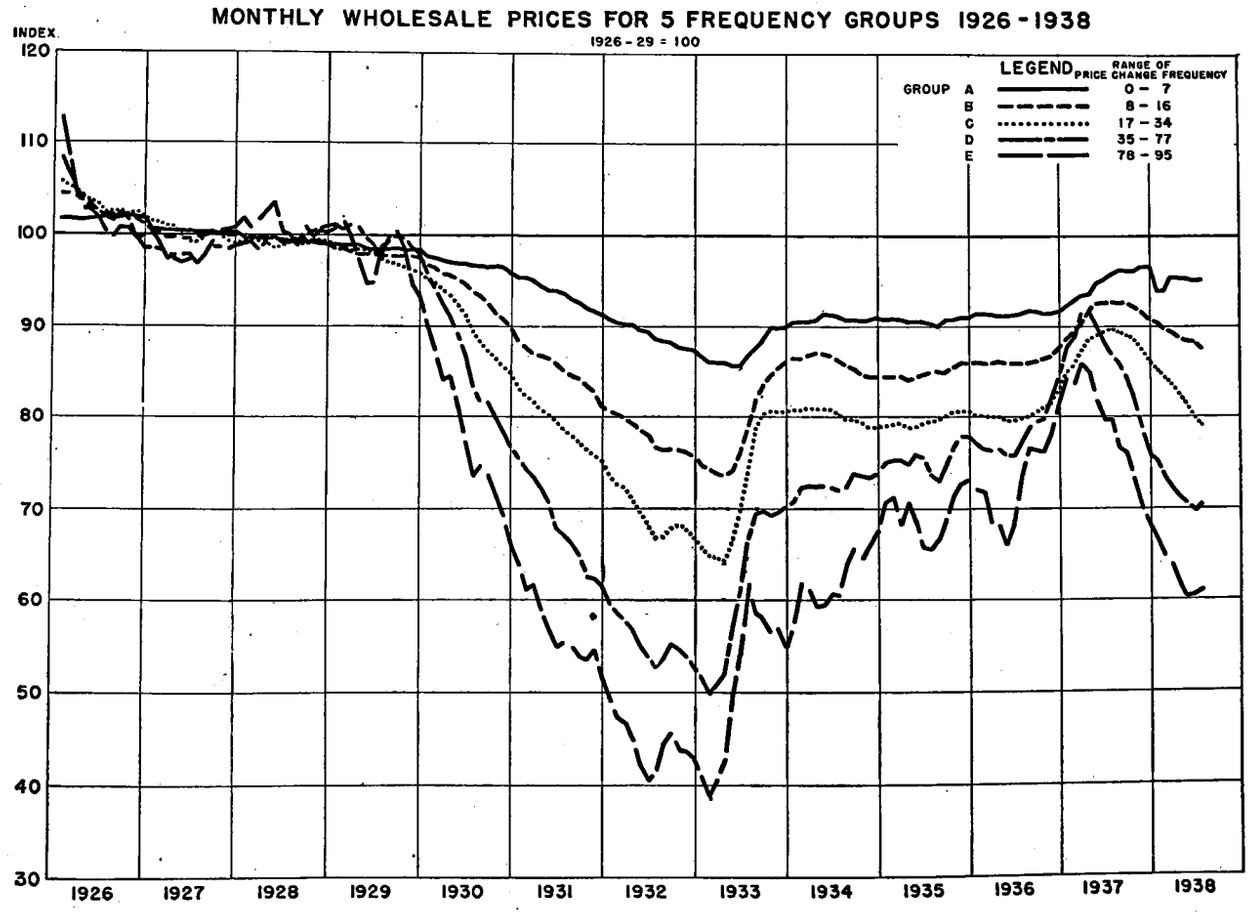
TABLE V.—*Decline and recovery of 5 price indexes, 1920–23, 1929–37*

	Drop in prices 1920 to 1921 as a percent of 1920 prices	Rise in prices 1921 to 1923 as a percent of 1923 prices	Drop in prices 1929 to 1932 as a percent of 1929 prices	Rise in prices 1932 to 1937 as a percent of 1937 prices
Group A	12.3	−10.2	9.4	6.3
Group B	26.6	−11.1	18.7	13.6
Group C	33.3	6.7	28.2	20.8
Group D	38.8	8.6	37.9	29.5
Group E	45.4	14.5	53.4	43.4
Wholesale price index	36.8	2.7	32.0	24.9

Source: Based on data in appendix 2, table IV.

The uniform character of the difference in the behavior of the five groups is brought out more clearly when the monthly data are plotted as in chart XXVI. This chart also brings out the sharp downward swing of

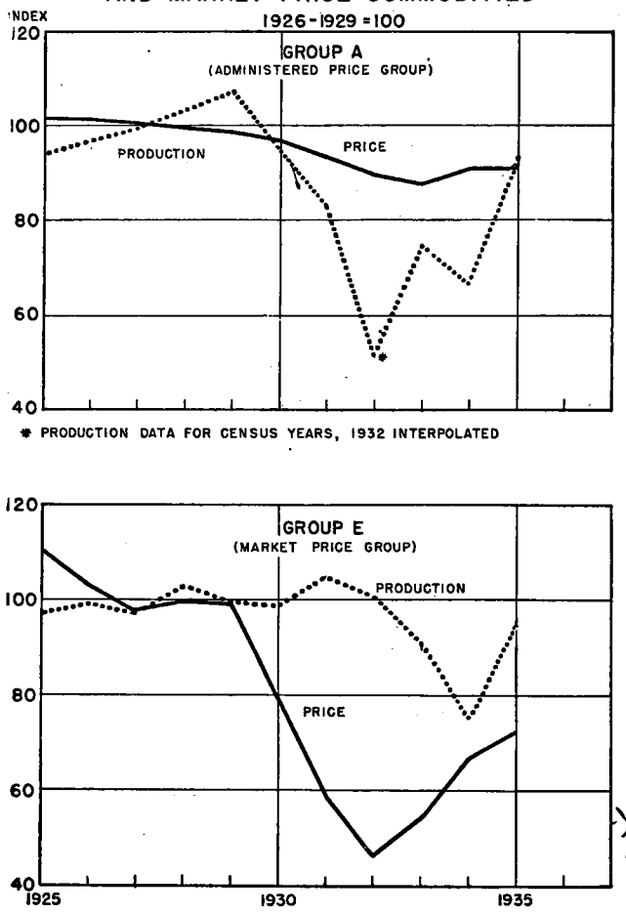
CHART XXVI



Source: See appendix 18, section 23.

CHART XXVII

PRODUCTION AND PRICES OF ADMINISTERED AND MARKET PRICE COMMODITIES



Source: See appendix 18, section 24.

prices after the early months of 1937 and indicates again a repetition of the behavior pattern already noted.

The monthly data also bring out the lag in the initial reaction to depression on the part of prices more subject to administration. The most sensitive index, E, turns down first, followed a month later by D and two months later by C and B. The least sensitive index, A, lagged by eight months. In terms of the period of the depression, these are relatively minor lags. The fact that they are present and are minor lends support to the idea that the relative insensitivity of the administered price does not reflect primarily a delay in reacting to a reduced level of purchasing power but is a differential reaction which could not be expected to disappear if conditions were stabilized at the lower level of purchasing power.[27]

[27] This idea is given further support by the fact that except for the slight lag already noted the insensitive prices began to rise in the recovery period about as soon as the sensitive prices even though there was still a very wide gap between their relative positions.

As has already been indicated, there is a marked tendency for some industries to react to the depression and recovery primarily through a decline and recovery in prices, whereas others react primarily through a decline and recovery in production. This same general tendency is reflected when production indexes are developed to correspond to the five price indexes just given. The production indexes actually developed are very preliminary in character and the coverage is far from complete, varying from approximately 50 percent of the total value of the commodities whose prices are represented by the items in group A, to 80 percent in group E. The production indexes for groups A and E are given in chart XXVII [28] along with the corresponding price indexes. This chart indicates clearly the decline and recovery in price of the group of items dominated by the market and the decline and recovery in production for the most administration-dominated group of items. The behavior of all five groups in depression and recovery is given in table VI. The prices and production ratios given in the table are averages for each group and as such allow the special factors which effect the price and production relationships of particular commodities to offset each other to a considerable extent so that the rough general relationship underlying this diversity of behavior is apparent. Even with this offsetting of special factors, the three middle groups do not show a smooth progression but reflect other factors influencing price behavior. Yet they fall intermediately between the two extreme groups and support the rough association between a large depression drop in production and a small drop in price on the one hand, and a large drop in price and maintained production on the other, with intermediate results between.

TABLE VI.—*Percentage changes in production and prices for five frequency groups*

Group	Percent drop, 1929–32		Percent increase, 1929–35	
	Price	Production	Price	Production
A	9.4	52.6	2.0	81.0
B	18.7	32.8	6.9	26.5
C	28.2	45.7	15.5	46.8
D	37.9	38.7	25.0	32.2
E	53.4	−0.4	55.7	−5.9

Source: Based on data in appendix 18, section 24.

New Terms Necessary for the Analysis of Price Behavior

The foregoing analysis points to characteristics in the price structure which require new terms for their discussion. It is not sufficient to talk of a change in the level of prices such as might be reflected by a change in the index of wholesale prices. If the insensitive

[28] The data for the other groups were completed after the chart was made and time did not permit their inclusion.

prices remained constant while the sensitive prices went down 20 percent, the net effect might be to lower the index of wholesale prices by 10 percent. The same change in the index could be brought about by a decline in all prices of 10 percent. Yet the two ways by which the drop in the wholesale price index was brought about would have quite different implications. The general drop in prices would leave price relationships unaltered. If, before such a drop, wheat was a dollar a bushel and a threshing machine cost $2,000, the latter could be obtained for 2,000 bushels of wheat. If both wheat and threshers dropped 10 percent in price the threshers could still be obtained for 2,000 bushels of wheat.

On the other hand, the differential type of changes tends to distort price relationships. If, in the light of existing resources, wants, and techniques, the prices of wheat and threshers were approximately in balance at $1 and $2,000 respectively and wheat dropped to 80 cents because of a decline in general purchasing power, while the price of threshers remained constant, the two prices would be out of balance so far as the basic relation between wants, techniques, and resources is concerned.[29]

General price changes of the first type have been extensively discussed in economic literature, but the second type has received little attention. Yet the general price changes between 1929 and 1938 were almost entirely of the second type. It has already been indicated that between 1929 and 1932 there was a considerable drop in the wholesale price index, but that this drop was made up of a violent drop in the prices of market-dominated commodities, and there was only a very small drop or no drop at all for the bulk of the prices which are subject to extensive administrative control. As a result, price relationships were seriously distorted. In the recovery period from 1932 to 1937, much of this distortion was eliminated by the large increases in the market-dominated prices and the relatively small increase in the bulk of the administration-dominated prices.

This differential behavior of prices points to a characteristic of the price structure of great importance and one calling for intensive study. General changes in the level of prices are often looked upon as an essential part of the process by which the market mechanism operates more or less automatically to maintain full and effective use of resources. Yet the evidence above suggests that, at least under some conditions, the forces making for a general change in the price level actually work themselves out through a violent distortion of price relationships rather than through a general price readjustment.

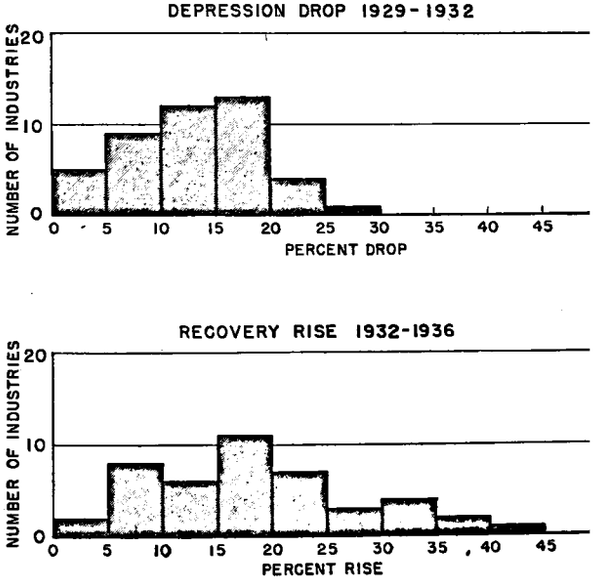
[29] Among technicians the two different types of price change might respectively be referred to as a change in the "slope" of the price structure or a "rotation" of prices when there is a change in the relation between indexes made up respectively of market- and administration-dominated prices, and as a change in the "level of the price structure" or a "translation" of prices when such indexes change upward or downward together. Changes in prices might be of either type or a compound of both types of change, though the general price changes during the current depression were for the most part changes in "slope."

Labor Rates

The structure of labor rates cannot be studied in as great detail as that of goods prices because of the absence of adequate data. Prior to 1929 the hourly wage data are too inadequate to provide a basis for any general analysis. The consideration of labor rates is, therefore, limited to the years from 1929 to 1936. For this period the behavior of wages will be examined in 44 manufacturing industries representing approximately 60 percent of the workers employed in manufacturing in 1935. For each industry the figures used in the analysis are not indexes of actual hourly wage rates but of average wage rates derived by dividing total weekly pay rolls by total hours worked for a group of firms in each industry which report such data to the Bureau of Labor Statistics. The resulting figures represent a rough index of hourly wage rates in each industry, but have the weakness that if the proportion of skilled and unskilled workers shifts markedly the figures as calculated will, to that extent, give a distorted representation of hourly wage

CHART XXVIII

DISTRIBUTION OF HOURLY WAGE RATES IN 44 INDUSTRIES BY DEPRESSION DROP AND RECOVERY RISE



Source: Based on data given in appendix 6, table I.

rates. Until correction can be made for this factor, the figures will have to serve.

An examination of the wage data shows very much greater similarity of behavior in wage rates than in goods prices, and a much smaller sensitivity to depression. This is brought out in chart XXVIII, which shows the 44 industries distributed according to the drop in wage rates between 1929 and 1932, and the rise from 1932 to 1936. In half the industries, the hourly wage rate dropped less than 15 percent while the all commodity wholesale price index dropped 32 percent and the retail prices dropped 20 percent. Only four industries in the sample show a cut in wage rates of more than 20 percent. Since in most cases the hourly wage rate dropped less than retail prices, these figures suggest that workers who continued to be fully employed experienced, on the whole, a gain in real buying power, and that the real burden of the depression took the form of unemployment or partial employment and the lack of stability which goes with such conditions. In the recovery period the differences in behavior were greater, presumably in part due to the increased strength of labor organizations which were able to lift wage rates in particular industries appreciably above their 1929 level.

The extent of the depression drop in wage rates does not appear to be closely associated with the durability of goods produced or with the depression drop in employment. In 20 of the 21 durable goods industries included in the sample, employment dropped over 50 percent while it dropped less than 50 percent in all but three of the semi- or non-durable industries covered. Yet indexes of the hourly wage rates in the two groups behave almost alike. This is shown in chart XXIX which indicates not only the behavior of wage rates in the durable and nondurable groups of industries but also the difference in the volume of man-hours worked. The same lack of any clear connection between the decline in the manpower required by an industry and the decline in wage rates is apparent when the individual industries are compared with each other. The 44 industries are listed in table VII in order of the percentage decline in hours worked and the percent decline in wage rates.

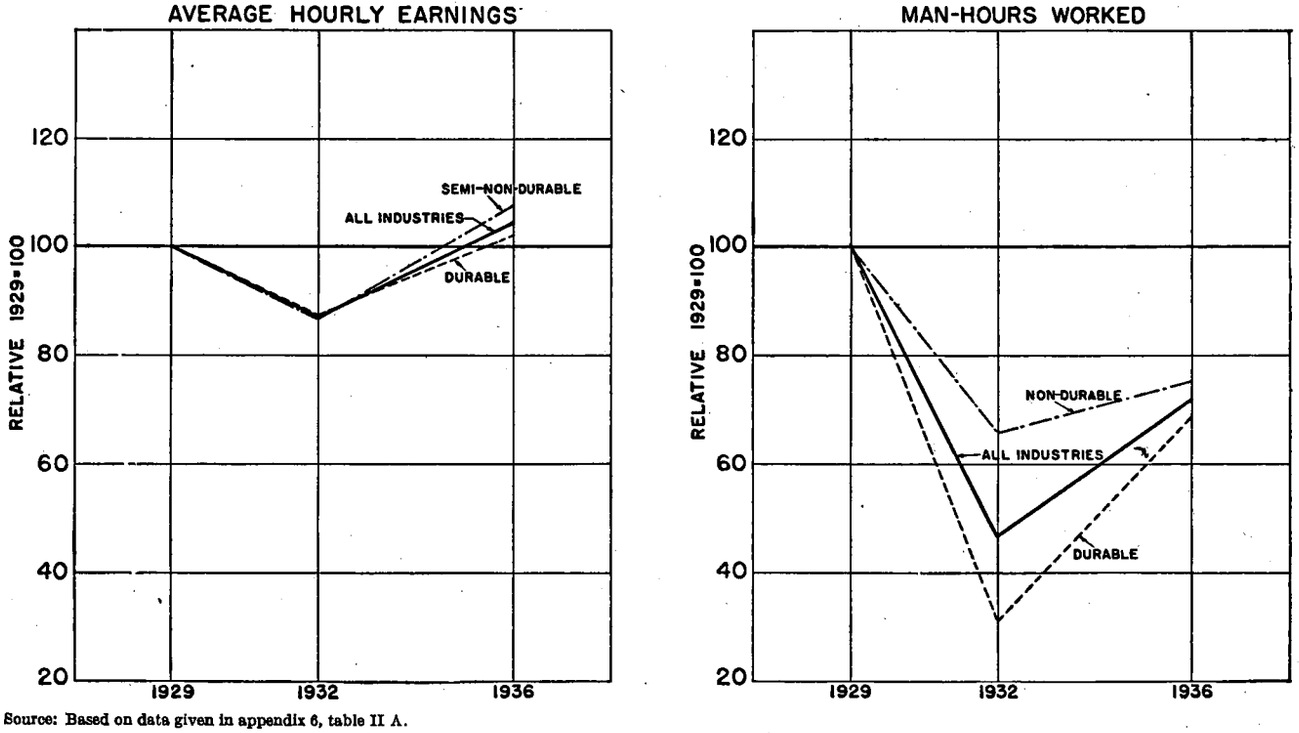
In the recovery period, the semi- and nondurable industries showed greater increases in wage rates than did the durable goods but the difference is not very significant.

Examination of table VII suggests that, on the whole, the wage rates in the concentrated industries like auto-

CHART XXIX

EARNINGS AND EMPLOYMENT IN RELATION TO DURABILITY

1929, 1932 & 1936



Source: Based on data given in appendix 6, table II A.

TABLE VII.—*Percentage decline of man-hours and wage rates in 44 industries, 1929–32*

Industry	Percentage decline in man-hours 1929–32	Percentage decline in hourly wage rates 1929–32
Machine tools	84.8	5.8
Agricultural implements	84.2	18.2
Brick, tile, and terra cotta	77.7	21.3
Lumber: Sawmills	74.8	16.9
Structural and ornamental work	71.8	8.3
Foundry and machine shop products	71.7	13.2
Radios and phonographs	70.4	2.9
Blast furnaces, steel works, and rolling mills	70.2	19.5
Lumber: Millwork	70.0	16.6
Electrical machinery, apparatus, and supplies	69.2	6.9
Brass, bronze, and copper products	66.6	10.9
Steam and hot water heating apparatus	65.9	13.5
Automobiles	63.5	9.1
Hardware	62.9	4.3
Cement	62.4	18.6
Cast-iron pipe	60.3	18.1
Stoves	59.8	19.8
Silver and plated ware	55.0	16.9
Glass	52.3	11.3
Ship building	51.3	1.7
Stamped and enameled ware	48.6	13.5
Carpets and rugs	63.7	14.0
Fertilizers	60.4	14.4
Rubber tires	60.3	7.1
Silk and rayon goods	43.8	20.4
Chemicals	42.8	.2
Cotton goods	39.2	21.9
Woolen and worsted goods	38.9	19.0
Cigars and cigarettes	37.0	11.0
Confectionery	37.0	8.8
Leather	36.3	16.2
Paper boxes	36.1	6.1
Ice cream	35.8	11.6
Paper and pulp	35.0	19.4
Petroleum refining	34.8	2.3
Dyeing and finishing, textiles	28.5	20.0
Knit goods	27.9	15.9
Men's clothing	26.8	29.3
Newspaper printing and publishing	24.9	8.4
Boots and shoes	24.6	10.8
Flour	23.6	14.2
Rayon and allied products	22.5	5.5
Slaughtering and meat packing	21.0	13.1
Chewing and smoking tobacco and snuff	8.4	18.7

Source: Based on data given in appendix 6, table I.

mobiles, rayon, and rubber tires, declined less than wage rates in the unconcentrated industries like cotton textiles and men's clothing. To bring out this difference in behavior, both the durable goods industries and the semi- and non-durable goods industries have been divided into concentrated and nonconcentrated industries on the basis of the proportion of the workers in the industry employed by the four largest companies. Industries in which four companies hired more than 30 percent of the workers are arbitrarily classed as concentrated industries. When the wage rates for the separate groups are plotted, as in chart XXX, the greater sensitivity of the nonconcentrated industries is apparent. In the case of both durable and nondurable goods, wage rates in the concentrated industries as a group fell less than rates in the nonconcentrated industries and rose more in the period of recovery.

Apart from the difference in behavior shown in the charts mentioned above, reflecting the durability of goods and degrees of industrial concentration, the analysis of the wage data for the 44 industries has not disclosed any characteristics of wage behavior which appear significant for the structure of prices.[30] A larger sample, covering a longer period and subjected to more intensive analysis, would undoubtedly disclose important elements in wage behavior. How are wages actually affected by labor organization, by regional difference, and by other factors? As it is, one can point to the greater homogeneity in the behavior of wage rates than in the behavior of goods prices and a very much greater stability than is shown by wholesale prices. At the same time a degree of flexibility is shown which suggests a process of constant gradual readjustment to altered conditions.

[30] Analysis of the sample of 44 industries disclosed no significant association between the level of wage rates in 1929 and the depression drop, or between price changes and changes in wage rates.

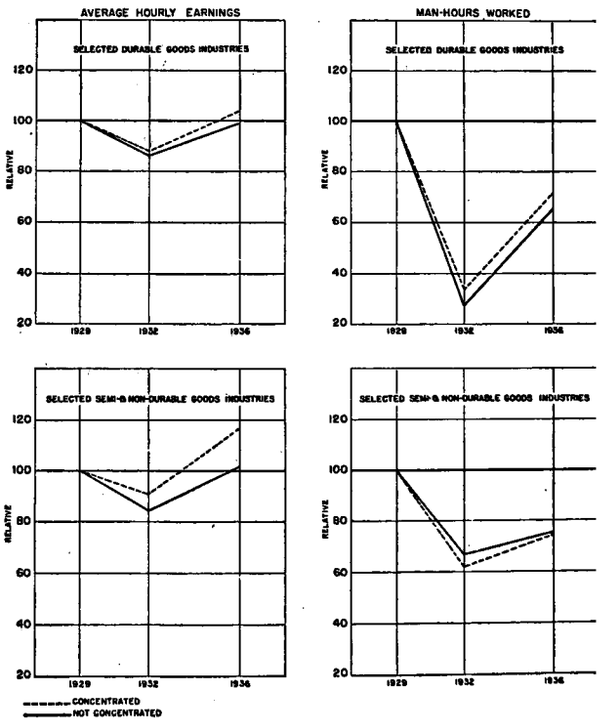
Security Prices

The third main element in the price structure consists of security prices and the associated interest and dividend rates. They are just as much a part of the price structure as are goods prices and labor rates. But research using modern methods of investigation has not yet been carried to the point where characteristics significant to the structure of the whole economy have been disclosed. Only the general independence and fluidity of security prices referred to in the first section of this chapter are evident.

The fact that security prices act more or less independently of goods prices and labor rates can undoubt-

CHART XXX

EARNINGS AND EMPLOYMENT IN RELATION TO DURABILITY AND CONCENTRATION
1929, 1932 & 1936



Source: Based on data given in appendix 6, table II A.

edly be explained in part by the small volume of new securities issued each year in relation to the total issues outstanding. The average annual issue of new securities between 1926 and 1929 as reported by the *Financial and Industrial Chronicle* was only 8 billion dollars, compared with a total of corporate and governmental securities outstanding of over 185 billion dollars in 1929. The market is, therefore, to a large extent dominated by the outstanding securities and only to a secondary extent influenced by new issues. It is a little as though 200 to 250 million bales of cotton were constantly kept on hand. In such a case a difference between a 15 million bale crop and a 10 million bale crop in any one year would be likely to be of secondary significance compared to variations in the desire to store cotton. Because of the large volume of outstanding securities in relation to the annual increment, security prices can move in ways which are not directly related to productive activity. Just how these movements actually contribute to or impede effective use of resources needs to be made the subject of more intensive study along with the study of the interrelation of particular groups of security prices and of interest and dividends rates and their differential behavior.

Conclusion

This summary analysis of the behavior of prices brings out two characteristics of the price structure which throw important light on the organizing influence of prices and the market mechanism. The preceding chapter has indicated that the market can act as an organizing influence partly through the characteristics of money transactions and partly through gradual or rapid changes in price relationships. The analysis of actual price behavior in this chapter has suggested that, for the bulk of goods prices and, so far as the very summary analyses can indicate, for the bulk of labor rates and the bulk of security prices, there is a degree of price flexibility which appears sufficient to allow the gradual readjustment of price relationships to reflect the gradual changes in wants, in resources, and in techniques of production, if the level of economic activity were reasonably well maintained. On the other hand, the analysis has made it abundantly clear that large groups of prices, and to some extent labor rates, do not have a quick sensitivity to the decline in buying power which accompanied the recent depression, while other goods do have such a quick sensitivity. On the whole, it is the administration-dominated prices which show relatively little price readjustment with depression, while the market-dominated prices have tended to be sensitive not only to the more slowly working influence of changes in wants, resources and techniques, but also to the more rapid changes in mass buying power. This differential sensitivity of prices to depression influences tends to introduce serious distortions in the price structure and appears to reflect a disorganizing rather than an organizing role that the market can play. It is a characteristic of the price structure of the greatest importance.

CHAPTER IX.—THE STRUCTURE OF CONTROLS

Chapter VII has discussed the main influences which make for economic organization—the market, administration, canalizing rules, and accepted goals. Chapter VIII has examined the structure of prices through which the market operates to influence economic activity. In this chapter an attempt will be made to examine the nonmarket controls through which economic activity is influenced and to show how the innumerable threads of control build up into a structure of controls which is quite as important as the structure of prices in determining the use which is made of national resources.

The major elements of control which are significant for the structure of the American economy are to be found in the great operating corporations, in the big financial institutions, in the trade and businesss associations, in the labor unions, in the farm organizations, in consumer organizations, and finally in the State and Federal Governments. If the economic controls associated with these organizations could be clearly delineated, the results would yield the main essentials in the structure of controls.

In practice, the task of outlining the structure of controls is more difficult than that of giving the essentails of the price structure. This difficulty arises in part from the greater difficulty of observing and measuring controls, and partly from lack of a background in economic literature for the conception of such a structure. Prices can fairly readily be measured, but the threads of control which constitute the control structures are often hidden, ill defined, and difficult to determine. Economic literature is full of discussions of price relationships and the conception of a system of interrelated prices. Against this background it is possible to set actual prices and bring out both their interrelated character and their behavior as they condition the use of resources. But economic literature has been little concerned with building up the conception of a system of more or less interrelated controls which might equally condition the use of resources. Since, in fact, economic activity in this country is quite as much organized through systems of administrative or canalizing controls as it is by the market, it is impossible to outline the structure of the American economy without covering the structure of such controls. The absence of any well articulated conception of such a system of controls makes this task more difficult and is likely to make the results less satisfactory.

The Concept "Controls"

Because the term "controls" involves a relatively new economic concept, it is important to give it the greatest possible clarity.[1] It is used here to refer to the ability of one individual or group to influence the policies in respect to the use of resources which are adopted by another individual or group. Thus, if a person can influence the production policy of a particular farmer by offering to buy his product at a price, by threatening to foreclose his mortgage, or by some other means so that the farmer raises one crop rather than another, to that extent the person is in a position to exercise some measure of control over the farmer's activity. Likewise, a factory superintendent is usually in a position to exercise a considerable measure of control over the activities of the workers in the factory during working hours. The management of a corporation similarly exercises a measure of control over the activities of subordinates, while the directors and the security-holders may, in turn, exercise varying degrees of control over the policies adopted by the management. Other groups, such as important buyers of a company's products, suppliers of raw material, financing agencies labor unions, and government agencies, may exercise a considerable influence over the policies of an enterprise and to that extent share in its control. In each case policies are developed with respect to the use of the resources available to the individual, or enterprise, or agency, and each of the persons or groups who influenced these policies may be said to have exercised some measure of control over them.

It is possible to conceive of a highly complex pattern of threads of control running between all the individuals and groups in a society much as the physicist conceives of lines of attraction connecting all the stars and

[1] To some extent this chapter is concerned with subject matter which is covered by the political scientists under the heading of "power." The term "controls" is used rather than the term "power" for two reasons. First, the political writers in discussing "power" have traditionally limited the discussion to the field of Government and have centered their attention, not on how power operates to make for more or less effective use of resources, but on how power is acquired, maintained, or displaced. Therefore, in attempting to integrate market, administrative and canalizing factors as they affect the organization of resources it has seemed advisable to use a term not likely to be given the traditional connotations usually attached to the term "power."

A second and more significant reason for using the term "controls" rather than the term "power" is the dynamic implications of the former. "Power" is solely a term of position whereas "control" is a term of both position and action. A person can have powers, i. e., be in a position of power. Likewise, a person can have controls, i. e. be in a position of control. But only in the case of control is it possible to say that a person controls, referring thereby to the dynamic process of influencing the policies adopted by others. The verb "to control" thus corresponds to the phrase "to exercise power." A third advantage of the term "controls" is that it is likely to result in greater concreteness. The statement that A has control will usually evoke the questions "control over what or whom?" Power is more likely to be treated as an abstract quality so that the statement that A has power is more likely to be accepted as requiring no further definition.

The term "controls" is used throughout this report in the plural or in the form "threads of control" to suggest the very partial character of the controls exercised by anyone over others in any concrete situation. Like the term "power" when applied to the problems of political science, the term "controls" applied to economic problems in this report is limited in its scope to cover only social relationships and does not refer to an individual's control over physical matter.

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planets in the universe. In outlining the structure of controls, however, only certain major controls need to be considered.

Market Controls

Many of the threads of control exercised by individuals or groups are summarized in market phenomena. The influence which millions of bread consumers exercise over wheat farmers operates almost entirely through the influence of their demand on price and is thus summarized in the price of wheat.) The controls exercised by millions of telephone users over the telephone systems are partly reflected in the demand for telephone service. To the extent that threads of control are summarized in market phenomena, they can be referred to as market controls and be analyzed as such. It is possible to imagine an economy in which all controls consisted of market controls. In such an economy, the policy of every enterprise would be so dominated by market controls reflected in market prices that no significant alternatives in price policy would be left to be influenced by nonmarket controls.[2] In such a case, all controls would be covered by an analysis of markets.

Nonmarket Controls

However, in practice, market controls only partly determine the use of resources. In many producing units there is a wide latitude of choice in price policy, and economic controls not operating through the market are in effect. The extent of these nonmarket controls is suggested by the prevalence of insensitive administered prices already noted and by the absence of free market prices in a large part of the American economy.[3] Where policies with respect to the use of resources are only limited and not dominated by market controls, the nonmarket controls become a significant factor making for more or less effective use of resources. These nonmarket controls appear to build up into what has here been called a structure of controls, some of minor significance, some of major significance to the functioning of the national economy. The present outline of the structure of controls is concerned only with these major nonmarket controls.

Nonmarket controls may be said to be of major importance when policies affecting a very large number of persons can be significantly influenced. The major policies developed in large administrative organizations, such as an army or a large business corporation, usually are subject to a very considerable measure of nonmarket control and influence the actions of so many people in their use of resources as to be of significance to the functioning of the whole economy. The nonmarket controls exercised by financial institutions through the handling of investment funds, and the nonmarket controls exercised by government through the regulation of business enterprises, through its fiscal policies, through the protection of property and enforcement of contracts, and through other major policies, likewise influence the activities of millions of people and are important to the structure of controls. Persons or groups in a position to influence policies at these points are, for this reason, in a position to influence to a corresponding extent the effectiveness with which the national resources are employed.

The nonmarket controls over policy are seldom sharply defined. Often the threads of nonmarket control build up in such a way as to result in many different foci of control, each focus having to do with some particular phase of activity. Thus, in a big corporation, while the main threads of control over operating policy may come to a focus in the hands of the corporation president, some threads of control are likely to rest with other groups; controls over financial policy may be partly focused in a special finance committee of the board of directors and partly focused in some bank or financial house to which the corporation is under obligation; the threads of control over labor policy may be divided between the corporation and a labor union, some threads focusing in the corporate management and some in the union officials; threads of control over some aspects of policy may rest with the government bodies, as in the case of minimum working standards or public utility regulation; still other threads may rest with some dominant buyer whose orders are so important that he can, within limits, dictate the internal policy of the corporation, say with respect to its policy toward labor organization; or a supplier of raw materials or of services may hold sufficient threads of control to influence or dominate corporate policy in particular respects. Thus, in any concrete situation, there is likely to be a complex network of controls, and a series of foci of varying degrees of importance, each concerned with some particular phase of activity.

The controls which come together at these different foci are sometimes direct and immediate, as in the case of a soldier and his immediate superior officer, or the worker and his shop foreman, but as often they are indirect and intangible. Sometimes they may operate simply through establishing a climate of opinion within which policies are developed. More often they impinge directly on the process of policy formation. The controls which a banker can exercise over a business enterprise may be only indirectly related to the process of borrowing. The controls exercised by Government through its monetary and fiscal policies

[2] Such a conception is, of course, the basis of traditional economic analysis.

[3] It should be noted that the existence of a "price policy" on the part of a functioning firm is prima facie evidence of the presence of nonmarket controls, though it does not indicate their magnitude.

often go largely unnoticed. The controls which a corporation exercises over public opinion through its institutional advertising are far from direct. The whole structure of controls is thus made up of some elements of control which are easily traced and other elements so indirect that their existence can only be surmised.

The actual threads of control may be entirely informal or may be accompanied by a formal setting. For a business enterprise an organization chart may indicate the lines of control and responsibility with respect to its major policies. The corporate charter must set forth in some detail the formal division of controls between different groups of security holders and between the security holders and the management. Sometimes the formal lines of control and the actual lines may differ. In many corporations a majority of the stockholders are, as a matter of form, in a position to control the corporate enterprise, while, as a matter of fact, they are not in position to exercise actual control. Since the formal controls are often more easily ascertained than the actual controls, there is always danger of arriving at a false impression as to the locus of controls in any concrete situation. Only gradually as the concept of controls is further clarified through discussion and as actual economic activity is more closely analyzed will it be possible to give clear definition to the structure of controls.

The Basis of Controls

In the conduct of economic activity the controls exercised by individuals or groups arise from three main sources: possession of one or more of the factors of production, possession of liquid assets, and position in relation to a functioning organization.

Controls arising out of possession of the factors of production are relatively simple and direct. The farmer possessing land, tools, and seed is to this extent free of outside controls. The manufacturer possessing a factory can limit its use, usually determining when it shall be run and when it shall be closed. A strategically located worker may exercise some control over production through his freedom to quit work. Possession of one or another factor of production is thus one basis of control.

Possession of liquid assets, particularly the possession of salable securities and money, is a second source of economic controls. The possessor of liquid assets is in a position to buy action by others. Sometimes the mere possession of liquid assets without their actual expenditure can influence the action of others, though, for the most part, the controls derived from liquid assets depend on the expenditure of the liquid assets in the market.

The third and, for present purposes, the most important form of the economic controls exercised by individuals or groups arises from their position in relation to some functioning organization. The management of a large corporation may be able to exercise a significant degree of control over the use which is made of resources without itself owning any significant volume of assets. Because of its position in the corporate organization, the management shares in the controls arising from the assets of the corporation and the institutional relationships which develop out of its operations as a going organization. The leaders in a labor organization can exercise some control over production policy as a result of their position in an organization whose influence is based upon the labor factor of production. The leaders in a trade association similarly derive some measure of influence over the use of resources as a result of the organized relationship of its members. A government administrator is in a position to influence the use of resources as a result of his position in the governmental organization. The individuals in such positions do not exercise controls as a result of their own possession of assets but as a result of their organizational position.

The major importance of organizational controls is due, first, to the fact that the most significant nonmarket controls arise from organizations, and second to the greater relative growth of such organizational controls. The great shift from a dominantly agricultural to a dominantly industrial economy during the last century has tended to expand organizational controls. The increased concentration of production into large corporate units, expansion of government functions, increased financial concentration, and growth of both labor organizations and trade associations all work in this direction. The expansion in the role of organization has reduced the relative importance of market controls and increased that of nonmarket controls to such an extent that market controls no longer dominate economic activity. Nonmarket controls have ceased to be isolated as incidental occurrences and have developed into an interrelated system of controls which is quite as important as the system of interrelated prices in determining the use to which resources are put. It is this system of nonmarket controls and its structure with which the remainder of this chapter is concerned.

The Structure of Controls

The main essentials in the interrelated structure of controls have to do, first, with the large producing units, their major policies, and the controls over these policies, and, second, with the controls over aspects of the policies of smaller producing units such as can be

exercised by government agencies, financial institutions, trade associations, labor unions, and similar organizations.) The major role in the American economy played by the two hundred largest nonfinancial corporations has already been indicated in chapter VII. The nonmarket controls which influence the use of resources made by these separate producers constitute a significant part of the structure of controls and will be examined below in some detail. For smaller producing units, the nonmarket controls are less likely to be significant, except where a number of separate units are subject to the same controls in respect to some phase of their policy as, for instance, where a trade association influences the terms of trade or a labor union influences the terms of work. In such cases it is the controls exercised by the organization influencing some particular aspect of policy for many producers which are important. The nonmarket controls influencing only the policy of the specific small producer can be disregarded because of the relatively minor role played by any one such producer in the national economy. In the following pages an attempt will be made to outline the main elements in the structure of controls, taking up, first, the controls exercised over the larger corporations, giving particular emphasis to the controls exercised by what might be called the corporate community; second, the controls exercised by the more important organizations of economic-interest groupings outside of the larger corporations; and finally, the controls exercised by government.

Controls over the Larger Corporations

A clear indication of the controls exercised over the larger corporations can be obtained by examining the 200 largest nonfinancial corporations and the larger financial corporations already listed in chapter VII. What persons or groups are in a position to influence the policies of these large corporations? What are the more important nonmarket controls?

The Separation of Ownership and Control

In an examination of the controls exercised over the larger corporations, first consideration must be given to ownership. It has long been customary to regard the stockholders of a corporation not only as the owners of the corporation but also as the main source of control over its activity. Yet, in practice, ownership of most of the larger corporations has become so dispersed that the stockholders have ceased to be able to exercise a very significant degree of control over corporate policy. Sometimes legal devices such as nonvoting stock and pyramided holding companies have been adopted to divest stockholders of effective control over corporate policy and personnel. On the whole, ownership and control have become separated in the larger corporations.

The inability of stockholders to exercise major control over corporate policies can be suggested by an examination of the stock ownership of the country's largest nonfinancial corporation, the American Telephone & Telegraph Co. At the end of 1935 there were 659,000 stockholders on the books of the corporation, a number almost equal to the number of potential voters living in the five smallest States.[4] The holdings of different sized blocks of stock are indicated in table I.

TABLE I.—*Distribution of stock ownership, American Telephone & Telegraph Co., 1935*

Number of shares held	Number of holders	Percent of stockholders	Percent of total number of shares
1–5		36.8	3.8
6–10		20.7	6.1
11–25		22.5	13.2
26–99		15.9	26.4
100–999		5.0	33.9
1,000–9,999		.1	11.4
10,000 and over	43		5.2

Source: *Annual Report of the American Telegraph & Telephone Co.* for 1935.

The 43 largest stockholders, each owning 10,000 shares or more, together owned only 5.2 percent of the total stock, while the 700 holding 1,000 or more shares together held only 16.6 percent. In this largest of all corporations, stock ownership is so widely dispersed that no one person or small group is in a position to dominate the corporation as a result of stock ownership. Neither are stockholders as a group in a position to exercise significant control over corporate policy through majority vote. The policies of the corporation have seldom been presented to the stockholders for a vote before adoption,[5] and even in the usual vote for corporate directors the proxy machinery usually eliminates any significant control by stockholders.[6] As a result, control over the policies of the American Telephone & Telegraph Co. lies only to a minor extent with its stockholders.

While the dispersion of ownership and the corresponding separation of ownership and control has developed to a high degree in the case of this largest of corporations, it has carried to a considerable degree in most of the larger corporations. In the study of large corporations by Berle and Means,[7] it was shown that

[4] The number of potential voters is defined as that portion of the population which is 21 or more years of age. The five smallest States with respect to population are Nevada, Wyoming, Vermont, New Mexico, and Delaware.

[5] Corporate charters often contain specific provisions requiring a majority vote of stockholders on certain problems of policy such as a proposal for issuing new stock, but this type of voting is not usually concerned with the main essentials of corporate policy.

[6] See *The Modern Corporation and Private Property*, by A. A. Berle, Jr., and G. C. Means, New York, 1932, book 1, ch. V.

[7] *Op. cit.*, book I, ch. V.

of the 200 largest nonfinancial corporations in 1929, only 11 percent were clearly controlled on the basis of majority stock ownership, while in the case of 65 percent of the 200 corporations representing 80 percent of their combined assets, the ownership of stock was so widely dispersed or so shorn of powers through some legal device that stockholders were not in a position to influence corporate policy to a major degree.

The same indication of a high degree of separation of ownership from control is disclosed in a more recent study based on information filed with the Securities and Exchange Commission.[8] Many corporations are required to file with the Commission information on the total stockholdings of their officers and directors and the stockholdings of other individuals and corporations holding 10 percent or more of any of their voting issues. This information was available at the end of the year 1935 for 155 of the 200 large corporations listed by Berle and Means. A compilation based on these data is given in table II.

TABLE II.—*Stockholdings of controlling groups*

[Distribution of 155 large corporations according to proportion of voting stock owned by officers, management, and control group]

Proportion of stock outstanding (percent)	Number of companies		
	All officers	Management (all officers and directors)	Control group (officers, directors and stockholders with 10 percent of any voting stock issued) [1]
0–1	96	61	73
1–3	25	30	
3–5	10	21	
5–10	15	16	24
10–15	3	11	
15–50	4	14	43
50 and over	2	2	15
	155	155	155
Median holding as percent of voting power.	.40	1.74	5.40

Source: See footnote 8, below.

[1] Includes both stockholdings by other corporations and by individuals. A large proportion of the stockholders holding 10 percent or more at any voting stock issue were other corporations.

For nearly half of these 155 big companies no one stockholder owned more than 10 percent of the voting stock, and the officers and directors together owned less than 5 percent of the outstanding stock. In only 15 companies did the officers, directors, and large stockholders appear to own 50 percent or more of the voting stock, and in several of these cases the large stockholders were other corporations. For the 155 corporations as a whole the control groups owned approximately 12.4 percent of the voting stock.[9] Since this figure includes substantial stockholdings by other corporations, the stockholdings by individuals in a position to exercise dominant control over these corporations must have been appreciably less than 12.4 percent of the total voting stock outstanding. No corresponding information is provided on the remaining 45 corporations. 21 of them had dissolved, merged or gone into receivership, 16 did not have to file such information with the Commission because their stocks were not listed on any public exchange, and eight were not included in the compilation for miscellaneous reasons. Presumably, the stocks of the 16 corporations not listed on any exchange were closely held and largely subject to control by their owners, while in the case of the 15 companies in receivership, control over policy was almost completely taken away from the owners by court action.

It is clear, therefore, that for most of the largest corporations ownership and control have become largely separated. This condition appears to be particularly characteristic of the corporations which have travelled furthest along the road of corporate development, such as the railroads and others of the older corporations. The lack of significant stockholder control over corporate policies may be regarded as the typical condition toward which the large corporate units have been tending. The main controls must be looked for elsewhere.

Management the Center of Policy Formation

Since the owners of the larger corporations do not in most cases exercise a significant degree of control over corporate policy, attention must be shifted to the management which is at the center of the forces influencing policy formation. The officers and directors of a corporation are responsible for the development of policies and their execution. Together, the officers and directors are usually in a position to exercise a large measure of control over corporate affairs.

The separate roles of directors and of officers in policy formation vary from corporation to corporation and have been too little studied to make possible any precise distinction between their respective roles. The process of policy formation is a highly complex one in which many persons and groups may take part. To what extent the directors as a group usually act as a body of review for the policy proposals developed by the officers of a corporation, and to what extent they initiate policies is not clear and presumably varies from corporation to corporation. It is sufficient for this outline of the structure of controls to recognize that policy formation for most of the large corporations centers in the management, consisting of both officers and directors. Once this is recognized, it is possible to treat each producing unit as a going organization in which policy is continuously being formed and efforts made to carry it out. The management at the center of this process influences

[8] Robert A. Gordon, "Ownership by Management and Control Groups in the Large Corporation," *Quarterly Journal of Economics*, May 1938.

[9] Average of percent holdings by control groups when weighted by number of shares of voting stock, each share being multiplied by the number of votes attached to it.

policy to a major extent as a result of its position in the organization, while a variety of both market and nonmarket controls limit the controls which the management itself is in a position to exercise.

The more important nonmarket controls impinging on corporate managements can roughly be grouped into three categories, (1) the corporate community, (2) other organized interest groups, and (3) government.

The Corporate Community

If each corporate management were quite independent of every other corporate management and subject only to market controls in its development of policy, the structure of nonmarket controls might be of only secondary importance. In fact, however, there is a great deal of interrelationship between corporate managements. Partly through interlocking directorates, partly through the activities of the major financial institutions, partly through particular interest groupings, partly through firms rendering legal, accounting, and similar services to the larger corporations, and partly through intercorporate stockholdings, the managements of most of the larger corporations are loosely brought together in what might be called the corporate community.

Interlocking Directorates

The formal interrelationships between the larger corporations brought about through interlocking directorates can be seen by examining the directorates of the 200 largest nonfinancial corporations and the 50 largest financial corporations already listed in chapter VII.[10] In 1935 only 25 of these corporations had no director in common with at least one other corporation on the list.[11] One corporation, the Western Union Telegraph Co., interlocked with 35 other corporations on the list. An indication of the interlocking between the 250 corporations is given in chart I, which shows all the interlocks between each of the 100 corporations having the most interlocks and between these and all the other corporations in the list of the 250 largest. The 100 corporations with the most interlocks are listed in the vertical columns in order of the frequency of interlocks, while the same corporations plus all the others among the 250 corporations with which they interlock are listed horizontally. The interlocks are indicated in the respective squares.[12] Other interlocks not shown in the chart are given in appendix 12, table VI.

Altogether there were 3,544 directorships on the boards of these 250 corporations in 1935, and these positions were held by 2,725 individual directors. The distribution of the directorships, among individuals, is shown in table III. Between them, 400 men held nearly a third of these directorships; 1,000 men held over half.

TABLE III.—*Number of directors and their holdings of directorships in 200 largest nonfinancial and 50 largest financial corporations, 1935*

Number of directorships held by a single individual	Total number of directors	Total number of directorships held	Cumulative number	
			Directors	Directorships
9	1	9	1	9
8	3	24	4	33
7	6	42	10	75
6	6	36	16	111
5	19	95	35	206
4	48	192	83	398
3	102	306	185	704
2	303	606	488	1,310
1	2,234	2,234	2,722	3,544
Total	2,722	3,544		

Source: See appendix 12, table VII.

The extent of this interlocking and the magnitude of the assets involved are indicated in table IV. Out of the 250 corporations, 151 companies, whose assets amounted to nearly three-quarters of the combined assets of the 250, were interlocked with at least three other companies in the group. There can thus be no question of the very extensive formal interlocking of the large corporations.

Just how important for policy formation these interlocks may be is a much more difficult matter to determine. It would be easy to overestimate their importance, since many directors are relatively inactive. On the other hand, it might be equally easy to underrate the influence on policy which results from the climate of opinion developed in part through these interlocks. That the interlocks are not primarily brought about through inactive directors is suggested by the fact that 59 of the 83 directors holding 4 or more directorates in this group of corporations were in an active position in at least one of the corporations they served, being chairman of one of the boards, a member of an executive or finance committee or an executive officer of the corporation.[13] Such men are likely to take a responsible share in the development of policy in any corporation in which they hold a responsible position. But until more study has been given to the process of policy formation, the actual role of interlocking directorates cannot be clearly determined.

Intercorporate Minority Stockholders

A second influence tying together many of the large corporations results from extensive intercorporate stockholdings. In the case of at least 30 of the 250 large corporations, 10 percent or more of the voting

[10] See appendix 12.

[11] Appendix 12, table II.

[12] It should be noted that, since the chart sets forth the interlocks of each corporation with other corporations, each interlock between the 100 corporations appears twice, once opposite the name of each of the corporations interlocked.

[13] See appendix 12.

CHART I

INTERLOCKING DIRECTORATES AMONG 250 LARGE CORPORATIONS, 1935 ARRANGED IN ORDER OF NUMBER OF INTERLOCKS

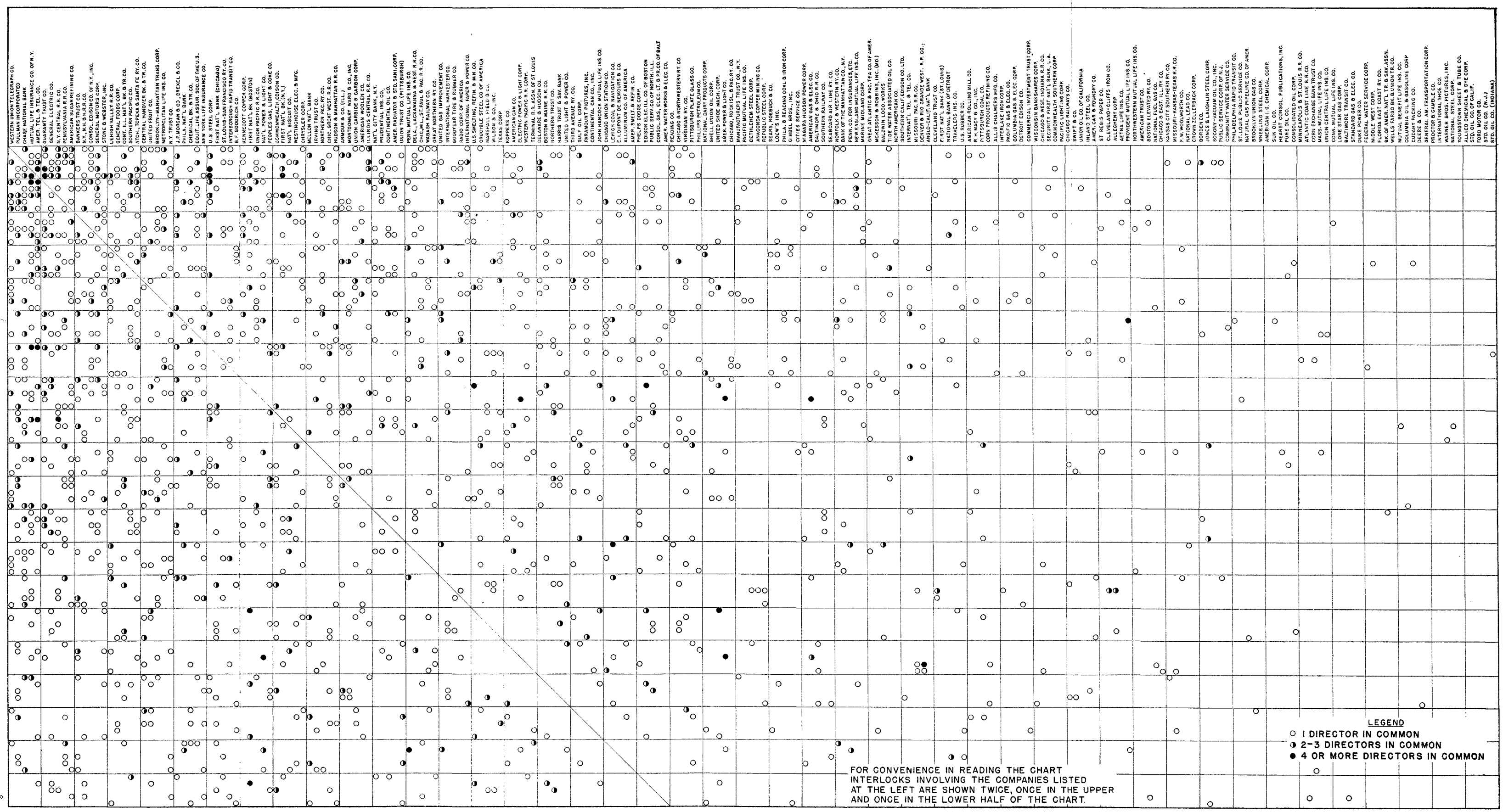

WESTERN UNION TELEGRAPH CO.
PULLMAN INCORPORATED
CHASE NATIONAL BANK
MUTUAL LIFE INSURANCE CO. OF N.Y.
AMER. TEL. & TEL. CO.
GUARANTY TRUST CO.
GENERAL ELECTRIC CO.
N.Y. CENTRAL R.R. CO.
PENNSYLVANIA R.R. CO.
AMERICAN SUGAR REFINING CO.
BANKERS TRUST CO.
N.Y., N.H. & H.R.R. CO.
CONSOL. EDISON CO. OF N.Y. INC.
GENERAL MOTORS CORP.
STONE & WEBSTER, INC.
LEHIGH VALLEY R.R. CO.
GENERAL FOODS CORP.
CONT. ILL. NAT'L BK. & TR. CO.
SOUTHERN PACIFIC CO.
ATCH., TOPEKA & SANTA FE RY. CO.
CENTRAL HANOVER BK. & TR. CO.
UNITED FRUIT CO.
BROOKLYN-MANHATTAN TRANS. CORP.
METROPOLITAN LIFE INS. CO.
N.Y. TRUST CO.
J.P. MORGAN & CO., DREXEL & CO.
PHILA. NAT'L BANK
CHEMICAL BK. & TR. CO.
EQUIT. LIFE ASSUR. SOC. OF THE U.S.
NEW YORK LIFE INSURANCE CO.
U.S. STEEL CORP.
FIRST NAT'L BANK (CHICAGO)
ST. LOUIS-SAN FRANCISCO RY. CO.
INTERBOROUGH RAPID TRANSIT CO.
B.F. GOODRICH CO.
KENNECOTT COPPER CORP.
FIRST NAT'L BK. (BOSTON)
UNION PACIFIC R.R. CO.
NAT'L POWER & LIGHT CO.
PEOPLES GAS, LIGHT & COKE CO.
COMMONWEALTH EDISON CO.
FIRST NAT'L BK. (N.Y.)
NAT'L BISCUIT CO.
WESTINGHOUSE ELEC. & MFG.
CHRYSLER CORP.
MELLON NAT'L BANK
IRVING TRUST CO.
NORTHERN PAC. RY. CO.
CHIC. GREAT WEST. R.R. CO.
HUDSON & MANHATTAN R.R. CO.
ARMOUR & CO. (ILL.)
MONTGOMERY WARD & CO., INC.
UNION CARBIDE & CARBON CORP.
AMERICAN WOOLEN CO.
ILLINOIS CENTRAL R.R. CO.
NAT'L CITY BANK, N.Y.
PRUDENTIAL INS. CO.
CONTINENTAL OIL CO.
AMER. RADIATOR & STD. SANI. CORP.
UNION TRUST CO. (PITTSBURGH)
PENN. MUTUAL LIFE INS. CO.
DEL., LACKAWANNA & WEST. R.R. CO.
CHIC., MIL., ST. PAUL & PAC. R.R. CO.
WABASH RAILWAY CO.
GREAT NORTHERN RY. CO.
UNITED GAS IMPROVEMENT CO.
INTERNATIONAL HARVESTER CO.
GOODYEAR TIRE & RUBBER CO.
RADIO CORP. OF AMERICA
INTERNATIONAL PAPER & POWER CO.
U.S. SMELTING, REFIN. & MINING CO.
CRUCIBLE STEEL CO. OF AMERICA
MARSHALL FIELD & CO.
WILSON & CO., INC.
TEXAS CORP.
KOPPERS CO.
AMERICAN CAN CO.
ELECTRIC POWER & LIGHT CORP.
WESTERN PACIFIC R.R. CORP.
TERMINAL R.R. ASSN. OF ST. LOUIS
DELAWARE & HUDSON CO.
BOSTON & MAINE R.R. CO.
NORTHERN TRUST CO.
HARRIS TRUST & SAV. BANK
UNITED LIGHT & POWER CO.
THIRD AVENUE RY. CO.
GULF OIL CORP.
PARAMOUNT PICTURES, INC.
CONTINENTAL CAN CO., INC.
JOHN HANCOCK MUTUAL LIFE INS. CO.
CHICAGO UNION STATION CO.
LEHIGH COAL & NAVIGATION CO.
E. I. DUPONT DE NEMOURS & CO.
ALUMINUM CO. OF AMERICA
AMERICAN SMELTING & REFINING CO.
PHELPS DODGE CORP.
EDISON ELEC. ILL. CO. OF BOSTON
CONSOL. GAS, ELEC. LT. & PR. CO. OF BALT.
AMER. WATER WORKS & ELEC. CO.
READING CO.
CHICAGO & NORTHWESTERN RY. CO.
VIRGINIAN RY. CO.
PITTSBURGH PLATE GLASS CO.
PHILLIPS PETROLEUM CO.
MANUFACTURERS TRUST CO., N.Y.
SHELL UNION OIL CORP.
UNITED SHOE MACH. CORP.
AMERICAN TOBACCO CO.
CHICAGO, ROCK ISL. & PAC. RY. CO.
MANUFACTURERS TRUST CO., N.Y.
PACIFIC MUTUAL LIFE INS. CO.
SEARS, ROEBUCK & CO.
ANACONDA COPPER MINING CO.
REPUBLIC STEEL CORP.
SEARS, ROEBUCK & CO.
LOEW'S INC.
PHILA. & READING COAL & IRON CORP.
GIMBEL BROS., INC.
COLGATE-PALMOLIVE-PEET CO.
NIAGARA HUDSON POWER CORP.
AMERICAN GAS & ELEC. CO.
BALTIMORE & OHIO R.R. CO.
CELANESE CORP.
SEABOARD AIR LINE RY. CO.
NORFOLK & WESTERN RY. CO.
ATLANTIC COAST LINE R.R. CO.
PENN. CO. FOR INSURANCES, ETC.
NEW ENGLAND MUTUAL LIFE INS. CO.
MARINE MIDLAND CORP.
ATLANTIC REFINING CO.
MCKESSON & ROBBINS, INC. (MD.)
BALDWIN LOCO. WORKS
TIDE WATER ASSOCIATED OIL CO.
SOUTHERN PAC. CO.
SOUTHERN CALIF. EDISON CO. LTD.
INTERNAT'L TEL. & TEL. CO.
U.S. RUBBER CO.
DENVER & RIO GRANDE WEST. R.R. CO.
ANGLO-CALIF. NAT'L BANK
CLEVELAND-CLIFFS IRON CO.
ST. LOUIS-SAN FRANCISCO RY. CO. (ST. LOUIS)
NATIONAL BANK OF DETROIT
TRAVELERS INS. CO.
U.S. RUBBER REALTY CO.
U.S. PIPE & FOUNDING CO.
R.H. MACY & CO., INC.
PITTSBURGH COAL CO.
CORN PRODUCTS REFINING CO.
ALLIS CHALMERS MFG. CO.
INTERLAKE IRON CORP.
PACIFIC GAS & ELEC. CO.
CERRO DE PASCO COPPER CORP.
DETROIT EDISON CO.
COMMERCIAL INVESTMENT TRUST CORP.
WISCONSIN BANKSHARES CORP.
CURTIS PUBLISHING CO.
SECURITY FIRST NAT'L BANK, L.A.
COMMONWEALTH & SOUTHERN CORP
PUBLIC SERVICE CORP.
CHICAGO RAILWAYS CO.
SWIFT & CO.
UNION OIL CO. OF CALIFORNIA
NATIONAL DISTILLERS
AMER. CAN & FOUNDRY CO.
ST. REGIS PAPER CO.
CLEVELAND-CLIFFS IRON CO.
KRESGE (S.S.) CO.
AETNA LIFE INS. CO.
PROVIDENT MUTUAL LIFE INS. CO.
NORTHWESTERN MUTUAL LIFE INS. CO.
AMERICAN TRUST CO.
BOSTON ELEVATED RY. CO.
NATIONAL FUEL GAS CO.
KANSAS CITY SOUTHERN RY. CO.
MISSOURI-KANSAS-TEXAS R.R. CO.
F.W. WOOLWORTH CO.
KELLOGG CO.
CROWN ZELLERBACH CORP.
BORDEN CO.
JONES & LAUGHLIN STEEL CORP.
SOCONY-VACUUM OIL CO., INC.
PUBLIC SERVICE CORP. OF N.J.
COMMUNITY WATER SERVICE CO.
NATURAL GAS PIPELINE CO. OF AMER.
ST. LOUIS PUBLIC SERVICE CO.
BROOKLYN UNION GAS CO.
AMERICAN I.G. CHEMICAL CORP.
SUN OIL CO.
HARCOURT, BRACE & WORLD, PUBLICATIONS, INC.
PURE OIL CO.
CONSOLIDATED OIL CORP.
MINNEAPOLIS & ST. LOUIS R.R. CO.
ALLEGHANY CORP.
CORN EXCHANGE BANK TRUST CO.
MASS. MUTUAL LIFE INS. CO.
UNION MUTUAL LIFE INS. CO.
LONE STAR GAS CORP.
BALTIMORE TRANSIT CO.
CONSOL. COAL CO.
DUKE POWER CO.
FEDERAL WATER SERVICE CORP.
MIDDLE WEST CORP.
ILLINOIS CENTRAL R.R. CO.
BK. OF AMER. NAT'L TR. & SAV. ASSN.
WELLS FARGO BK. & UNION TR. CO.
MUTUAL BENEFIT LIFE INS. CO.
EQUITABLE OFFICE BUILDING CORP
CUDAHY PACKING CO.
PROCTOR & GAMBLE CO.
DEERE & CO.
INTERSTATE DEPARTMENT STORES, INC.
INTERNATIONAL SHOE CO.
WARNER BROS. PICTURES, INC.
COMMONWEALTH EDISON CO.
YOUNGSTOWN SHEET & TUBE CO.
ALLIED CHEMICAL & DYE CORP.
STD. OIL CO. OF CALIF.
STD. OIL CO. (INDIANA)
STD. OIL CO. (N.J.)
STD. OIL CO. (OHIO)
TEXAS CO.
SINCLAIR OIL CORP.
SKELLY OIL CO.
GULF OIL CORP.
PHILLIPS PETROLEUM CO.
CONTINENTAL OIL CO.
SHELL UNION OIL CORP.
ATLANTIC REFINING CO.
TIDE WATER ASSOCIATED OIL CO.
SOCONY-VACUUM OIL CO., INC

TABLE IV.—*Corporations interlocking with one or more other corporations among 200 largest nonfinancial and 50 largest financial corporations, 1935*

Type of corporation	All corporations		Corporations interlocking with one or more other companies			Corporations interlocking with two or more other companies			Corporations interlocking with three or more other companies		
	Number	Total assets	Number	Assets	Percent of total assets	Number	Assets	Percent of total assets	Number	Assets	Percent of total assets
Industrial	107	$25,140.6	91	$23,022.3	91.6	71	$16,261.9	64.7	60	$14,645.5	58.3
Utilities	54	25,232.6	46	22,886.3	90.7	34	20,153.2	79.9	26	16,049.6	63.6
Railroads	39	23,874.0	38	23,705.9	99.3	36	22,796.2	95.5	31	20,146.1	84.4
Banks	30	20,707.6	30	20,707.6	100.0	28	20,223.5	97.7	22	16,921.3	81.7
Other financial	20	19,959.4	20	19,959.4	100.0	18	19,045.8	95.4	12	16,095.1	80.6
All corporations	250	114,914.2	225	110,281.5	96.0	187	98,480.6	85.7	151	83,857.6	73.0

Source: Number of companies derived from chart I., chap. IX and from table VI of appendix 12; the assets are obtained from appendix 10, table I and appendix 12, table I.

power derived from stock ownership was held directly or indirectly by another corporation in the group or by one of the 9 financial or holding companies not included in the list of 250 corporations but clearly part of the corporate community.[14] In all but one of these cases, the corporate stockholders were the only stockholders with 10 percent or more of the voting power. These holdings are listed in table V for those 7 of the 250 corporations filing such information with the Securities and Exchange Commission or with the Interstate Commerce Commission.

It is clear that while none of these corporations are legally controlled by another corporation, they are not entirely independent of each other. Often, a corporation holding 10 percent or more of the stock of another corporation can influence the policies of the latter to a significant extent and in many cases even determine its management.[15] Such large intercorporate stockholdings and the many smaller holdings of a similar character help to build up the interrelationships between the big corporations which form the basis of the corporate community.

Interrelationships Resulting from the Servicing of the Large Corporations

A third factor binding the larger corporation into a corporate community derives from the activity of the firms which provide these large corporations with financial, legal, accounting, and similar services. Of these services, the financial are undoubtedly the most important. In the single year, 1935, 175 of the 200 largest nonfinancial corporations issued new securities. This meant that in most cases they had to call on one or more of the financial or investment firms to underwrite and distribute these issues. Most of such financing is handled by a very small number of firms. According to figures obtained from the Securities and Exchange Commission, 56 percent of all the corporate underwriting in 1935 was initiated by only 10 firms.

As an almost necessary result of such activity, each of the more important investment firms is drawn ultimately into the affairs of a number of the big corporations.

The more important accounting firms also act, though presumably to a lesser extent, as a binding force in the corporate community. The ten largest accounting firms certified 52 percent of the accounts of all the accounting firms (754 in number).[16]

In the same way, the leading legal firms, advertising firms, engineering firms, public relation counsellors, and espionage firms are apt to have a score or more of the larger corporations as their clients and come into intimate contact with one or another phase of their major policy problems.

All of these firms rendering special services to the big corporations necessarily deal with some important phase of corporate policy for each of the corporations which they serve. Almost inevitably they contribute in conferences and individual discussions to that climate of opinion within which corporate policies are formed, carrying from one corporation to another some degree of common background and temper of thought which adds a measure of unity to the corporate community.

Interrelationships Resulting from the Control over Investment Funds

A fourth factor making for interrelationship among the larger corporations results from the activities of the larger financial corporations in the use which they make of the investment funds at their disposal.[17] In 1935,

[14] Wherever more than 50 percent of the voting power of one corporation was controlled directly or indirectly by another corporation, the former has been treated in this report as a subsidiary of the latter and not as an independent corporation.

[15] The financial community often speaks of a 20–30 percent stock ownership as constituting "working control."

[16] Based on the period Jan. 1, 1925 through Dec. 31, 1935; data furnished by the Securities and Exchange Commission.

[17] It is often held that control over the larger nonfinancial corporation centers in the larger banks and insurance companies. This may have been the relationship which developed in other countries in which banking concentration has been carried to a very much greater extent than in the United States. In this country, however, there is much evidence that, though the larger banks and insurance companies are an integral part of the corporate community and are dominated by much the same group of individuals, the basis of controls in the corporate community is too diffuse to justify the statement that control centers in the banking institutions. A bank is quite as likely to be dominated by an industrial, railroad, or utility group as to dominate such a group. Unquestionably, the banks and insurance companies play a significant role in the structure of controls, but more as one of the many bases for the controls exercised by the dominant groups than as the center of such controls. See below pp. 160–163.

TABLE V.—*Holdings by the 250 large corporations of more than 10 percent of voting stock of the 200 largest nonfinancial corporations, Dec. 31, 1935* [1]

Corporation issuing stock	Corporation holding more than 10 percent of the outstanding votes	Percent of votes held
Allied Chemical & Dye Corporation.	Solvay American Investment Corporation.	22.6
Atlantic Coast Line R. R. Co.	Atlantic Coast Line Co.	26.9
Boston & Maine R. R. Co.	Pennroad Corporation	19.3
	New York, New Haven & Hartford R. R. Co.[2]	26.2
Brooklyn Union Gas Co.	Kopper's Gas & Coke Co.	[3] 23.9
Chicago & Eastern Illinois Ry. Co.	Virginia Transportation Corporation	[4] 42.7
Chicago, Rock Island & Pacific Ry. Co.	St. Louis-San Francisco Ry. Co.	14.2
Consolidated Oil Corporation	Petroleum Company of America	11.3
Denver & Rio Grande Western R. R. Co.	Missouri Pacific R. R. Co.	[5] 50.0
	Western Pacific R. R. Corporation	[5] 50.0
Detroit Edison Co.	American Light & Traction Co.	16.2
	North American Co.	19.0
Electric Power & Light Corporation.	Electric Bond & Share Co.	56.6
Illinois Central R. R. Co.	Union Pacific R. R. Co.	[6] 29.0
International Paper & Power Co.	Chase National Bank	15.3
Lehigh Valley R. R. Co.	Pennsylvania R. R. Co. (indirectly held through the Pennsylvania Co.).	[7] 30.1
Missouri Pacific R. R. Co.	Alleghany Corporation	46.4
National Power & Light Co.	Electric Bond & Share Co.	47.1
	Lehigh Coal & Navigation Co.	12.8
Norfolk & Western Ry. Co.	Pennsylvania Railroad Co. (held directly and indirectly through the Pennsylvania Co.).	[8] 44.5
Pacific Gas & Electric Co.	North American Co. (held directly and indirectly through Western Power Corporation).	[9] 15.3
Philadelphia & Reading Coal & Iron Corporation.	National City Bank, trustee	[3] 25.2
	Baltimore & Ohio R. R. Co. (proportionate share in above trust).	[3] 21.7
Public Service Corporation of New Jersey.	United Corporation	13.9
	United Gas Improvement Co.	28.6
Public Service Company of Northern Illinois.	Commonwealth Subsidiary Corporation.	28.6
Reading Co.	Baltimore & Ohio R. R. Co.	42.2
	New York Central R. R. Co.	25.0
Republic Steel Corporation	Cleveland Cliffs Iron Co.	10.3
Seaboard Air Line Ry. Co.	Pennroad Corporation	13.9
Standard Gas & Electric Co.	Standard Power & Light Corporation	53.6
United Light & Power Co.	Kopper's Gas & Coke Co.	28.1
Wabash Ry. Co.	Pennsylvania R. R. Co. (indirectly held through Pennsylvania Co.)	[10] 56.2
Western Indiana Ry. Co.	Baltimore & Ohio R. R. Co. (deposited with Chase National Bank as trustee).	[11] 41.8

[1] Compiled from materials published by the Securities and Exchange Commission and from information in *Moody's Investment Manuals, 1936*. For details of procedure and definition, see appendix 18, section 25.

[2] This block of stock is held through a subsidiary, the Boston Railroad Holding Co., 100 percent of whose common stock is owned by the parent.

[3] Owner disclaims beneficial interest. See appendix 18, section 25, for discussion.

[4] This company is a subsidiary of the Chesapeake & Ohio Ry. Co. The parent does not admit beneficial interest in the stock of the Chicago & Eastern Illinois Ry. Co.

[5] *Moody's Manuals, 1936*, "Joint Control: Company is controlled by Western Pacific R. R. Corporation and Missouri Pacific R. R. Co.".

[6] 23.8 percent of the voting power of the Illinois Central R. R. Co. is held by the Union Pacific R. R. Co. directly, the remaining 5.2 percent is held by the Railroad Securities Co., whose entire capital stock is, according to *Moody's Manuals*, owned by "Kansas City Industrial Land Co., which is affiliated with Union Pacific R. R.". The proportion of this 5.2 percent owned by the Union Pacific cannot be determined inasmuch as the precise nature of the relationship between Kansas City Industrial Land Co. and Union Pacific is not clear.

[7] The Pennsylvania R. R. Co. owns all of the outstanding stock of the Pennsylvania Co.

[8] The Pennsylvania R. R. Co. is reported by the Securities and Exchange Commission to own what is computed at 25.1 percent of the voting stock of the Norfolk & Western Ry. Co. directly. The Pennsylvania Co., all of whose outstanding stock is owned by the Pennsylvania R. R. Co., owns 28.2 percent more but the proportionate interest of the parent company (Pennsylvania R. R. Co.) is not disclosed. According to Moody's the Pennsylvania R. R. Co. owns 44.5 percent of the voting stock of the Norfolk & Western Ry. Co.

[9] This figure represents the estimated holdings, directly and indirectly, of the North American Co. in the Pacific Gas & Electric Co. Computations from Securities and Exchange Commission and Moody's data show that 9.1 percent of the votes of the latter are held directly. The Western Power Corporation, a subsidiary of the North American Co., is reported to have held 10.8 percent of the votes of the Pacific Gas & Electric Co. However, an analysis of the balance sheet of the Western Power Corporation and of the holdings of the North American Co. show that the latter holds about 57 percent equity in the former. The stock of the Pacific Gas & Electric Co. is almost the sole asset of the Western Power Corporation; so 57 percent of the 10.8 percent amounts to 6.2 percent of the votes outstanding in the Pacific Gas & Electric Co., bringing the holdings of the North American Co. to 15.3 percent of the voting power, which figure is entered in the table.

[10] Pennsylvania Co. is related to Pennsylvania R. R. Co., as described in [7] above. According to *Moody's Manuals, 1936*, the more accurate figure is 48 percent.

[11] The proportionate interest of the Baltimore & Ohio R. R. Co. is not shown although the railroad is probably owner of the entire amount.

banks, insurance companies, and similar financial corporations owned approximately a quarter of all the outstanding bonds of American corporations.[18] No figures are available on either the bonds of the larger corporations which are owned by the larger banks and insurance companies or the extent to which the leading financial institutions have provided funds to the larger corporations on the basis of short-term loans. Both sums must be of considerable magnitude and the basis of very real influence over corporate policies. Some controls are likely to arise at the time debts are being incurred, but most particularly they arise when difficulty is met with in the repayment of debts. Banks or insurance companies once having loaned funds to a corporation, or having purchased its bonds, must keep in close touch with its activities. If the corporation gets into financial difficulties, they are directly concerned in keeping it solvent or with its reorganization. Because of the magnitude of the funds for which they are responsible, the financial institutions are often able to exercise a major influence in such proceedings and, after reorganization, to occupy a strategic position in relation to the reorganized corporation. Thus, as a result of the investment funds which they control and the opportunities which arise in connection with their use, the relatively small number of large financial institutions tends to increase the interrelationship in the corporate community.

Corporate Interest Groupings

When the interrelationships between the larger corporations are carefully examined, company by company, groupings of more closely related companies emerge. Sometimes several corporations are closely bound together, as in the case of the Electric Bond & Share Corporation and the three major systems in which it owns a large minority interest and which it manages on a contractual basis. Sometimes corporations have several directors in common as in the case of the United States Steel Corporation and the American Telephone & Telegraph Co. with four common directors, and Pullman, Inc. whose directorate of 14 included in 1935 two partners of J. P. Morgan & Co. and four representatives of the First National Bank of New York. Such a large number of common directors combined with other evidences of close association is taken to be sufficient grounds, not for classifying the corporations as subject to the same control, but as subject to some measure of common influence and properly classed as belonging to a common interest group. More often the basis for grouping corporations together is less concrete and grows out of an examination of the historical background of each corporation, as well as its current

[18] Twentieth Century Fund, Inc., *Debts and Recovery*, New York, 1938, p. 287.

position. Interlocking directorates alone are not sufficient evidence of a close interrelationship between corporations. Neither is the possession of a minority stock interest alone evidence of close association. Nor is a single instance of the underwriting of a corporation's securities by a particular investment house evidence of a close association between the two. But when a corporation was initially promoted by a particular investment firm, when all its new security issues are handled by that firm, when the two have directors in common, and when other evidence of a less precise nature points to a close association between the companies, it seems appropriate to treat them as part of a single interest group.

A grouping of corporations on a basis of such evidence rests to a very considerable degree on matters of judgment. No hard and fast classification of corporations into interest groups can be made, partly because of the difficulties of establishing the actual interrelationships in each situation and partly because of the uncertainty as to when the interrelationships are sufficiently close to justify classing corporations as part of a single interest group. Yet the evidence that such interest groups exist is so overwhelming that an effort has been made to outline the most important of such groups, at least in a tentative form.

A careful study of the interrelationships between the large corporations disclosed eight more or less clearly defined interest groups which so far overshadowed other groups as to justify the limitation of consideration to these eight groups. In appendix 13, these eight groups are delineated and described in some detail. Together they include 106 of the 250 larger corporations[19] and nearly two-thirds of their combined assets. The eight groups, each named according to some characteristic of the group, are listed in table VI, with an indication of the assets falling within each group. No attempt is made to include the assets of smaller corporations falling within the same sphere of influence though many such could be named. In chart II the 106 corporations included in these eight groups are so arranged as to show the interlocking directorates interconnecting these corporations and also the interlocks with 122 other large corporations not included in the eight groups. Though interconnection through common directors was only one type of evidence used in grouping the corporations, the chart clearly brings out the closer relationship between the companies grouped together than those not so grouped. In 16 cases corporations grouped together had four or more directors in common and in 73 cases had two or three directors in common.

[19] This consists of the 200 largest nonfinancial corporations shown in appendix 10 and the 50 largest banks by total resources as reported in Moody's *Banks* for 1936.

TABLE VI.—*Eight interest groups and their assets, 1935* [1]

[Millions of dollars]

	Morgan First National	Rockefeller	Kuhn, Loeb	Mellon	Du Pont	Chicago	Cleveland	Boston	Total assets
Industrials	3,920	4,262	0	1,648	2,232	858	1,066	425	14,411
Rails	9,678	0	9,963	153	0	0	0	0	19,794
Banks	4,421	2,351	548	672	396	2,595	338	740	12,061
Utilities	12,191	0	342	859	0	813	0	554	14,759
Total assets	30,210	6,613	10,853	3,332	2,628	4,266	1,404	1,719	61,025

[1] For a discussion of the interest groups and the allocation of corporations to them, see Appendix 13; the assets are derived from table I of appendix 10, and from Moody's *Banks* for 1936.

The largest of the eight interest groups, that classified as the Morgan-First National group, includes 41 of the 250 larger corporations. It has been referred to as the Morgan-First National group, not because the separate companies are controlled by either J. P. Morgan & Co. or by the First National Bank of New York or by these two institutions in combination but rather because much of the interrelation between the separate corporations allocated to this group is brought about through these two institutions. Morgan & Co. and the First National have had a long history of close working relationships begun by the elder J. P. Morgan and the elder George F. Baker and subsequently developed on an institutional basis. Of the 39 corporations grouped with these 2 financial institutions, 10 had 2 or more directors in common with J. P. Morgan & Co. in 1935. However, information on interlocking directorates was in most cases incidental to the classification of a corporation to this particular group. In the case of 15 corporations classed with the Morgan-First National group, there was no interlocking of directorates with either of the 2 financial institutions while in 4 cases, corporations included in the 250 large corporations, were interlocked by directors with 1 or both of these institutions, but were not included in the 41 corporations constituting the interest group because other evidence pointed to the absence of a close relationship or was insufficient to substantiate such a relationship.

The corporations assigned to the Morgan-First National group include outstanding enterprises in most of the major lines of economic activity. The group is made up of 13 industrial corporations headed by the United States Steel Corporation and including corporations mining iron ore, copper, and coal, extracting oil, making steel and brass, fabricating electrical equipment, railway equipment, and plumbing and heating apparatus, and supplying bakery products, mail-order services, and Pullman services; 12 utility corporations, including the American Telephone & Telegraph Co., the International Telephone & Telegraph Co., and power companies controlling, in 1935, 37 percent of the electric-generating capacity of the country, 11 major railroads

or railroad systems controlling 26 percent [20] of the first-class railroad mileage of the country; and 5 financial institutions including the 2 for which the group has been named. While it is certain that the extensive economic activity represented by these corporations is in no sense subject to a single centralized control, it is equally certain that the separate corporations are not completely independent of each other. The climate of opinion within which their separate policies are developed is much the same, many of the same people participate in the formulation and review of the policies of the separate corporations, financing is carried on for the most part through the same channels, and in many other ways this group of corporations constitutes an interrelated interest group.

The second interest group in importance has been named the Kuhn-Loeb group and consists primarily of railroads whose financing has for many years been handled by Kuhn-Loeb & Co. It includes 13 major railroads or railroad systems which together controlled approximately 22 percent [21] of the first-class railroad mileage in the country in 1935, The Western Union Telegraph Co., and one bank. Since it has never been the policy of Kuhn-Loeb & Co. to maintain more than a few of its contacts by means of directorships, these corporations are not linked to Kuhn-Loeb & Co. through directors except in three cases. There appears to be a much less close grouping of these corporations than in the case of most of those assigned to the Morgan-First National group.

While the two largest interest groups stem primarily from the activities of financial institutions, three interest groupings stem to a large extent from family interests not growing directly out of financial institutions. These are the groups named, respectively, as the Rockefeller, the Mellon, and the Du Pont groups. The largest of these, the Rockefeller group, includes six large oil companies and one bank. The oil companies are all successors to the old Standard Oil Co. which was dissolved by court decree in 1911, and together they control more than half the assets of the oil industry. In each of these companies, John D. Rockefeller and Rockefeller-endowed institutions together hold significant minority stock interests, usually the only large stock interests, representing from 7 to 24 percent of the voting power in the different companies. Just how much control is exercised by Mr. Rockefeller over these companies is not clear. Very possibly it is mostly negative, but none the less real. Without going so far as to class these corporations as under common control, it is appropriate to treat them as belonging to a single interest group. The largest bank in the country, the Chase National Bank, is also assigned to this interest group on grounds indicated in appendix 13.

The second of the family interest groups, the Mellon group, rests to a very much larger extent on ownership than is the case with the other groups covered. It includes nine industrial corporations, one railroad, two utilities, and two banks. In the case of at least six of these corporations, a majority of the outstanding stock appears to be held by members of the Mellon family and their immediate associates. These closely held companies include the Aluminum Company of America, the Gulf Oil Corporation, the Pittsburgh Coal Co., and the Koppers Co., which indirectly controls many gas manufacturing plants. Most of the companies in this group center in Pittsburgh. Two Pittsburgh banks included in the group appear to be simply an integral part of the interest group rather than the center from which it derives its unity.

The third family group, the Du Pont group, includes only four companies, three industrials, and one bank, but all of these are of top rank in respect to size. Control over the separate companies arises primarily from substantial minority stock holdings. One Du Pont family holding company owned approximately 25 percent of the voting stock of the E. I. du Pont de Nemours Co., which, in turn, owned approximately the same proportionate interest in the General Motors Corporation. Another family holding company owned approximately 20 percent of the voting power in the United States Rubber Co. In each of these cases the minority stock holdings were sufficient to give the Du Pont interests working control in the corporations listed and the management of these companies reflects this fact. The bank included in this interest group appears to be incidental to the composition of the group.

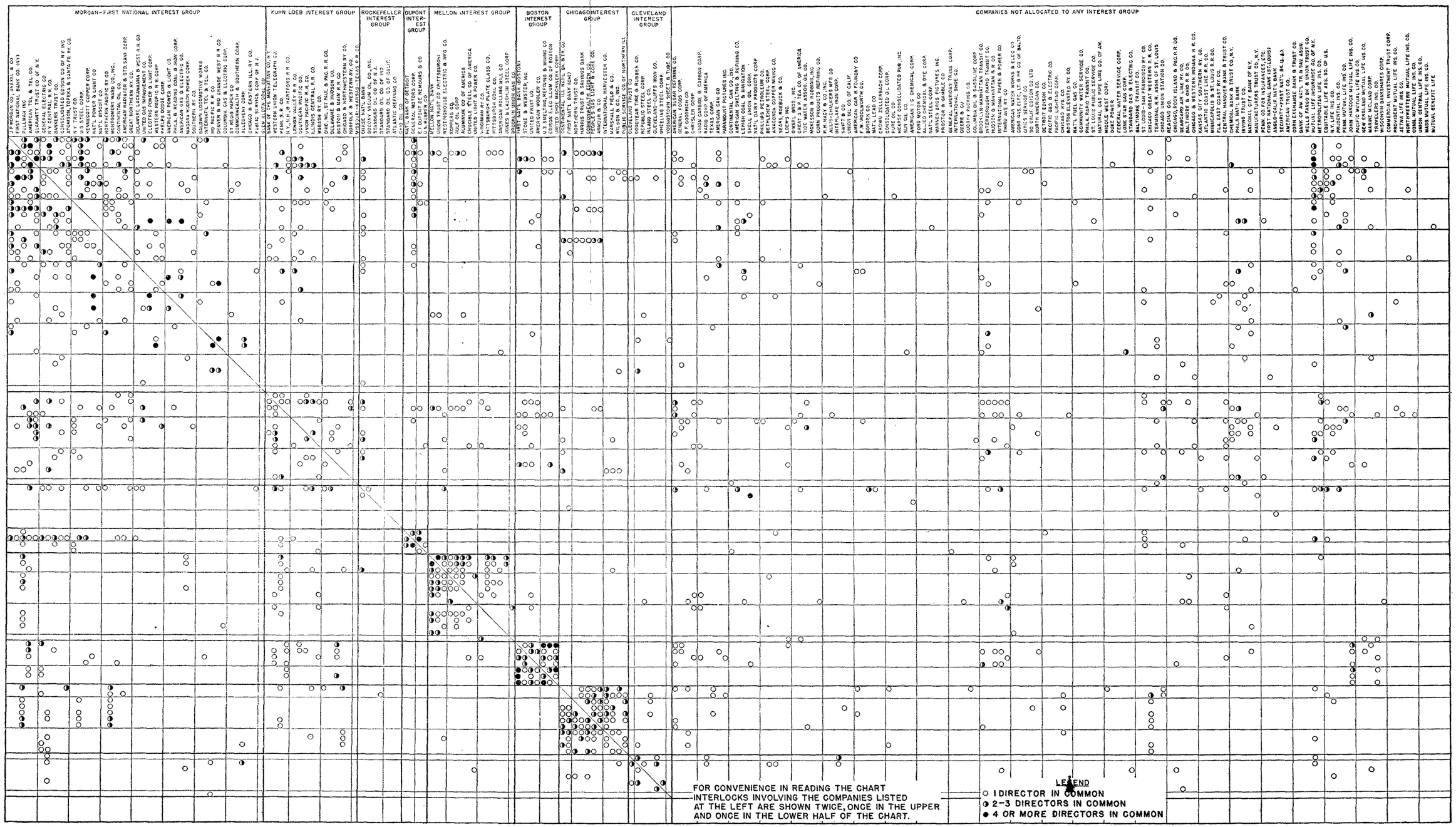
The remaining three of the eight major interest groups appear to stem neither from particular financial institutions nor from particular families but rather to bring together corporations whose activity centers in particular localties. For this reason they have been named for the regions in which they center, the Chicago group, the Boston group, and the Cleveland group. In each case the group includes one or more banks located in the center for which the group is named, industrial activities carried on in the vicinity, such as meat packing in Chicago, shoe machinery in the vicinity of Boston, and steel in the Cleveland area, and in the case of two of the groups, local utilities. Just how closely knit these groups are it is not possible to say, but there can be little doubt that they exist as roughly interrelated groups.

While only 90 of the 200 larger nonfinancial corporations have been included in one or another of the eight groups, there are others with which one or another of these groups is fairly closely related. The International Paper and Power Corporation might properly be classed

[20] Interstate Commerce Commission, *Statistics of Railways in the United States*, 1935
[21] *Ibid.*

CHART II

INTERLOCKING DIRECTORATES AMONG 250 LARGE CORPORATIONS, 1935 ARRANGED ACCORDING TO INTEREST GROUPINGS



Source: See appendix 12 and appendix 13.

with the Boston group, but because 16.6 percent of its voting power was held by the Chase National Bank, it was not so classed. Other corporations are related to the eight interest groups in lesser degree. Likewise, some of the corporations not closely linked to the eight groups are linked to each other in varying degrees.

Finally, the eight interest groupings depicted above are by no means independent of each other. Thus, while there were two Morgan partners and four representatives of First National on the board of directors of Pullman, Incorporated, there were three representatives of the Mellon interests. Similarly, these two groups meet on the directorate of Texas Gulf Sulphur Co., which in 1936 accounted for two-thirds of the sulphur produced in the United States. Each of the interest groups comes in direct relation to each other group in connection with one or another of its activities.

It is apparent from the foregoing analysis that the corporate community, though not formally organized, does build up into significant and more or less interrelated interest groupings. It is clear that corporate policies must be influenced by these interest groupings, though just how far only extensive study can disclose. It is also well recognized that the choice of personnel of corporate management is to a significant extent influenced through these groupings. In the structure of controls, the controls exercised by this corporate community among the larger corporations are of major importance. The influence of these controls also extends beyond the larger corporations. Many of the individuals making up this corporate community also hold responsible positions in medium-sized and smaller corporations. The larger banks can exercise some influence over smaller banks through the system of banking correspondents and over smaller companies through the loan of funds. The larger corporations are often in a position to influence the managements of enterprises from which they purchase their raw material or to which they sell their products. The nonmarket controls exercised by the corporate community thus extend beyond the larger corporations. The main importance of the corporate community, however, lies in the controls exercised over the policies of the larger corporations, through them affecting the whole American economy.

Formal Organizations Representing Economic Interests

In addition to the informal but none-the-less significant groupings of controls which center in the corporate community, there are certain economic-interest groupings operating through formal organizations, which have a significant impact on the policies adopted by specific producing units. The most important of the economic interests formally organized are those of business, labor, farmer, and consumer. In each of these fields of economic interest, there are national organizations which aim to protect the special economic interests of their members. Associated with these national organizations or independent of them are smaller economic-interest groupings organized on a regional or functional basis which aim to further the particular economic interest with which they are concerned. These organizations function partly through the collection and dissemination of information to their members, partly through measures aimed to influence public thinking, partly through their impact on the process of government policy formation, and partly through the development of common policies which their separate members are encouraged to adopt. The importance of these organizations in influencing directly or indirectly the policies of producing units varies so from organization to organization that no simple analysis can indicate the role they play in the structure of controls. The most that can be done is to indicate some of the more important organizations, the scope of their membership, and examples of the kind of controls they are in a position to exercise. This can most easily be done by taking up separately the organizations built around each of the four major economic interests.

Organizations Based on Business Interests

The many organizations built on business interests do not fit into any simple pattern of activity. Some organizations, like the American Bankers Association, the Association of American Railroads, the Edison Electric Institute, the National Manufacturers Association, and the American Iron and Steel Institute, represent to a very considerable degree an extension of the corporate community, being made up of, or to a significant extent dominated by, the larger companies. Other organizations, like the National Retail Dry Goods Association and the Association of Retail Druggists, are made up for the most part of relatively small enterprises. Between these extremes lie many trade associations which are neither an integral part of the corporate community nor yet mainly outside it. Likewise, the functions performed by such associations vary in the widest degree.

In 1937 there were, in addition to the finance, railroad, and utility associations, over 2,400 national and interstate trade associations, each tying together, loosely or more closely, separate enterprises in particular industries. To these must be added the 4,100 State and local trade associations whose importance is primarily local, and the 5,400 local chambers of commerce.[22]

Not all of these associations have the same significance for the structure of controls. Those which are primarily loose organizations, largely fraternal and promotional in their activity, presumably have little influence on policies adopted with respect to the use of

[22] These are not all members of the U. S. Chamber of Commerce.

resources. On the other hand, closely-knit associations which present a united front for an industry in dealing with labor, in disciplining recalcitrant members, in developing practices affecting prices and production, in influencing public thinking, and in affecting government policy may exercise a very considerable measure of influence over the policies developed in the use of resources. Some business associations concentrate on one particular type of activity, such as trade relationships or government policy, while others carry on a more diverse activity. The significance of particular business associations for the structure of controls thus varies from association to association. Similarly, the character of its membership affects the significance of a particular association. An association in an industry made up of a few large corporations may add little to the structure of controls, being simply an additional avenue through which the large corporations exercise their controls. On the other hand, in an industry in which the individual producers are weak, the combination brought about through the trade association may represent a very considerable increase in the non-market controls which are exercised within the industry. Only as the wide variety of roles played by business associations are recognized can their place in the structure of controls be clearly seen.

Major Business Associations

Probably the five most important business associations are the national associations in the fields of finance, railroads, utilities, manufacturing, and all business. The American Bankers Association has a membership which in 1938 accounted for over 90 percent of the banking assets of the country.[23] The Association of American Railroads represents within its membership practically the whole of the railway mileage of the country. The Edison Electric Institute covered through its membership approximately 90 percent of the country's electrical generating capacity. The National Association of Manufacturers included manufacturing enterprises employing roughly a third of the workers in manufacturing industries. The Chamber of Commerce of the United States has not specialized but brings into a single organization 1,000 local chambers of commerce, 500 trade and other business associations, and 10,000 separate corporations and individuals carrying on all types of activities.

With the possible exception of the United States Chamber of Commerce, these national associations appear to be more or less closely tied into the corporate community. Six of the 31 officers and directors of American Bankers Association are officers or directors of six of the country's 30 largest banks. The railroad and utility associations are almost entirely composed of the corporations listed among the 200 largest, and their directorates are for the most part made up of representatives of these large enterprises. The Chairman of the Board and six others of the 18 officers of the National Association of Manufacturers are responsible executives of the 106 largest industrial corporations, while 12 of the 70 directorates of the association were drawn from these largest corporations, and others of the largest corporations are represented on the association's more important policy committees.[24] Even in the case of the United States Chamber of Commerce, there is an important interlocking with the large corporations, 16 directors and officers out of 57 being associated with the management of 28 of the 250 larger corporations.

The important role which such organizations aim to play in the American economy is suggested in their published literature. In one of its bulletins, the National Association of Manufacturers states that it is "the medium through which American industry is able to voice a united opinion on vital national questions" and that it is "the only organization exclusively representing the interests of American industry."[25] The United States Chamber of Commerce indicates that its primary function is "to obtain the matured judgment of business upon national questions, and to present and interpret those views to the agencies of govenment and to the public."[26]

While the functions actually performed by these associations are varied and complex, there is a certain similarity in the character of their activities. Each of them acts as a center for the gathering of information and its dissemination to members. Each of them facilitates the development of common standards and policies within its particular sphere of productive activity. Each of them acts to develop agreement among its members with respect to governmental policies, and campaigns are carried on to prevent the adoption by government of policies believed to be harmful to their interests and to encourage the adoption of favorable policies. Finally, each of these business associations makes it a part of its program to try to influence public attitudes with respect to the activities and aims of its members and public policies likely to affect their interests.[27] All of these association activities are aimed to influence, directly or indirectly, the policies adopted in the use of resources and constitute a more or less significant part of the structure of controls.

[23] See *List of Members of the American Bankers Association*, Mar. 31, 1938.

[24] One hundred companies contributed approximately 45 percent of the total income of the National Association of Manufacturers in 1936. *Hearings before a Subcommittee of the Committee on Education and Labor, United States Senate*, 74th Congress, S. Res. 266, pt. 17 (Exhibit 3799).

[25] *Ibid* (Exhibit 3793).

[26] Pamphlet published by the Chamber of Commerce of the United States, *The Chamber of Commerce of the United States, Its Organizations, Functions and Services*, p. 4.

[27] S. Res. 266, *op. cit.*

Other Business Associations

In addition to the five major associations listed above, there are the numerous more specialized trade and business associations. These associations play varying roles in separate industries, some being concerned particularly with labor relations, while others emphasize trade or pricing problems, government policies, public attitudes, or lines of activity less significant for the structure of controls.

The activity of these associations in relation to labor has varied all the way from attack on labor organization to the active acceptance of collective bargaining with representatives of labor. The National Metal Trades Association, for example, has made a regular practice of furnishing its members with operatives for industrial espionage, guards for struck plants, and strikebreakers up to 70 percent of the total employees in a plant.[28] When this association undertakes to support one of its members in a strike situation, it assumes full control over the conduct of the strike, and any member who settles a strike on terms other than those laid down by the association is liable to suspension or expulsion from the association. An employer who enters a closed-shop agreement with the union is ineligible for membership in the association. The American Iron and Steel Institute, without going to the extreme of the Metal Trades Association, has, in the past, acted for the industry in opposing the organization of workers, as is evidenced by the full-page advertisements published by the Institute in 1936 in 375 leading American newspapers, stating the position of the steel industry in opposition to the organizing campaign of the Steel Workers Organizing Committee.[29] On the other hand, labor organization has come to be accepted as a normal part of the organization of many industries, and regional or national collective bargaining agreements are developed between the trade associations and labor unions, as in the case of clothing and coal. Whichever type of policy is adopted by a trade association, the controls it exercises are a part of the structure of the controls which influence economic policies.

In the field of price problems, the activities of trade associations are not clearly defined. The antitrust laws make direct price controls illegal except as specific types of price control, such as resale price maintenance, are specifically legalized. At the same time, many trade associations do carry on price reporting and similar services which have an effect on price behavior without directly controlling prices. In particular industries their activity undoubtedly facilitates price collusion among members of the industry or the maintenance of a system of price leadership. No attempt can be made here to appraise the significance of such controls. All that can be said is that they constitute an integral, though often minor, part of the structure of controls.

The activities of business associations in the fields of government policy and of public thinking are very much less direct in their effects on the use of resources but are, nevertheless, significant for the structure of controls. Government policies can affect to a greater or less degree, not only the operations of the national economy, but also the structure of controls itself, while public attitudes are basic to the maintenance or modification of any given structure. Both of these will be discussed after the other major economic-interest groups have been considered.

Labor Organization

Paralleling the large corporations and business associations are the organizations of labor, which occupy an increasingly important place in the structure of controls. Labor organizations exercise a measure of direct control over the use of resources both via the market, as they affect the relative bargaining strength of the parties and thereby the characteristics of the bargain in the labor market, and also administratively, to the extent that conditions of industrial operation are laid down by labor organizations or arrived at jointly by the representatives of labor and the representatives of business. In addition, labor organizations, like business organizations, affect the use of resources indirectly through their influence on government policy and on public thinking. A relatively detailed analysis of their place in the national economy is given in appendix 14. For the present purpose it is sufficient to point to the scope of membership in labor organizations, to the scope and character of the two large national federations of labor unions, and to the character of the activities of the separate labor unions, whether members of the federations or independent of them.

Membership in Labor Unions

No completely reliable figures are available as to the membership in labor unions, but the figures of membership made public by the national federations and the more important independent unions together amounted to approximately 8,000,000 in 1938.[30] This is approximately 55 percent more membership than was reported

[28] This and the following information on the activities of the National Metal Trades Association is derived from testimony before the La Follette Committee, op cit., pt. 3, p. 809 ff.

[29] In spite of the position stated by the American Iron and Steel Institute the largest single member, the United States Steel Corporation, and certain other members, subsequently adopted a policy of cooperation with the steel workers union and entered into agreements with it, leaving the so-called "little steel" fighting collective bargaining.

[30] The approximate character of this figure arises primarily from the difficulty of defining membership. Should a person who is temporarily behind in the payment of dues be classed as a member of a labor union? Is the membership of locals correctly reflected in the dues paid by locals to their national organizations?

in 1920, the previous peak of union membership, and nearly two and a half times the membership reported in 1929.[31] Altogether, this reported membership in unions in 1938 represents approximately a quarter of the total employee population.

Major Labor Organizations

The great bulk of labor union membership is in unions which are affiliated with one or the other of the two major union federations, the American Federation of labor and the Congress of Industrial Organizations. The total reported membership in 1938 affiliated with these organizations and unaffiliated is given below:

Membership of unions:	
Affiliated with the American Federation of Labor	[1] 3, 600, 000
Affiliated with the Congress of Industrial Organizations	[1] 3, 800, 000
Unaffiliated trade unions	[2] 750, 000
Total	8, 150, 000

[1] Official figures of the American Federation of Labor and the Congress of Industrial Organizations.
[2] Estimated from the 1937 figures given in appendix 14.

These two major labor organizations are primarily concerned with the servicing and strengthening of their constituent unions in their collective bargaining activity, with the encouragement of governmental policies favorable to their interests and the defeat of government policies believed to be harmful to them, and with influencing public attitudes respecting the activities and aims of their members and public policies likely to affect their interests. All of these activities are aimed at influencing more or less directly the policies adopted in the use of resources and the two national federations constitute a significant part of the structure of controls.

Labor Unions

The separate labor unions affiliated with the two major labor organizations or independent of them have as their primary functions the influencing of industrial policies through collective bargaining. Their influence on industrial policy ranges all the way from participation in such industrial problems as the settlement of the grievances of individual workers, through collective bargaining as to the terms of employment, to participation with management in developing the broad policies of an industry. Some activities like the settlement of grievances, though important to the individual worker, are of only secondary importance to the structure of controls. But labor-union participation in determining wage rates and hours of work, and union participation in the development of other elements of industrial policy, are of prime importance to the structure of controls.

Some impression of labor-union participation in policy formation can be obtained by an examination of the trade agreements entered into between organized workers and managements. These agreements, which record the results of collective bargaining or negotiation between representatives of workers and of their employers, range from very brief and simple statements of wages, hours, and other conditions of work to highly developed and elaborate regulation of many details of industrial relationships. They range from local agreements between unions and individual employers or local associations of employers to national agreements which set standards for a whole industry and are negotiated by national collective bargaining machinery. The customary form of local building or printing trades agreements is representative of activities local in scope, while the national agreement in the men's clothing industry, first negotiated in 1937 between the Amalgamated Clothing and the National Trade Association, is an outstanding example of an agreement on a national scale, affecting 135,000 union members and covering virtually the entire industry.[32]

Agreements in the bituminous-coal industry cover broad districts, but not the entire market. However, the Appalachian agreement, negotiated by representatives of the United Mine Workers and the operators from some eight States, is customarily worked out prior to the agreements for other parts of the country, and this agreement sets standards which influence all other agreements in the industry. The type of agreement which is becoming of increasing importance is that which involves a labor union and a single great corporation, the agreement being negotiated between the leading officers of the union and executives of the corporation. Such agreement typically covers many plants, often in several States. In industries dominated by a few large corporations, the agreement with one company tends to set the pattern for others. This has happened in the past 3 years in the case of agreement between the United Automobile Workers and the General Motors Corporation which gave the pattern for union agreements with other automobile companies; that between the Steel Workers Organizing Committee and the Carnegie-Illinois Steel Corporation, a subsidiary of the United States Steel Corporation, followed by other steel agreements; the United Rubber Workers agreement with the Firestone Tire & Rubber Co. followed by similar agreements with other rubber companies; and that between the Sinclair Oil Corporation and the Oil Workers International Union. In such agreements, the more important subjects covered

[31] Based upon 1920 data in appendix 14 and upon unofficial estimate of the Bureau of Labor Statistics for 1929.

[32] *Monthly Labor Review*, July 1937, pp. 23–24.

usually include union recognition, physical conditions and working time, wages and labor supply, employment policies, and job protection. Since strikes, lockouts, or stoppages of any sort are usually outlawed during the life of the agreement, they customarily provide machinery for the enforcement of the agreement and the settlement of disputes during its life. In various degrees, such agreements reflect the participation of labor unions in the development of the industrial policies most immediately affecting labor.

In some industries, labor unions have gone beyond the immediate problems of wages, hours, and working conditions to participate in the development of broader elements of industrial policy. In the clothing industries, for example, both the Amalgamated Clothing Workers and the International Ladies' Garment Workers Union have long records of working with the employers for stabilization of competitive conditions and efficient operation. Under the agreements in the full-fashioned-hosiery industry, the union and the employers have attempted to deal with a difficult competitive situation arising from the introduction of new machinery in certain sections of the industry. In the bituminous coal industry, a joint Mechanized Mining Commission has been established for the study of problems arising from mechanization. These and similar activities reflect the interest of labor organizations in the broader phases of industrial policy.

In addition to their activity in connection with collective bargaining and the development of broader industrial policies, individual trade-unions, like the two federations of labor, parallel the activity of business associations by seeking through appeals to public opinion and through direct pressure on government to secure the adoption of policies which are in the interest of their members. Union representatives appear frequently at national and state legislative hearings on measures dealing with wages, hours, social security, relief, public works, labor relations, and other matters of economic importance to workers.

The participation of labor organizations in the development of industrial policy and their influence on public policy make such organizations an integral part of the structure of controls. A consideration of their full significance in American society lies outside the scope of this report. As the structure of the economy becomes increasingly a matter of organized relationships and administrative controls, labor organizations take their place as major structural elements in the economy.

Farmer Organizations

Organizations of farmers constitute a third type of economic-interest grouping which is of importance to the structure of controls. Though less closely organized than either business or labor groupings, the many farm organizations, particularly the marketing and purchasing cooperatives, play a significant role in the field of agriculture and in reflecting the farm interest in the development of Government policy and in public discussion.

In terms of strictly economic activity, the most important farm organizations are the marketing and purchasing associations. In the marketing season of 1937–38 there were over 10,900 marketing or purchasing associations controlled by farmers with a combined membership of 3,400,000 and doing approximately $2,400,000,000 worth of business.

Some of the farm cooperatives, particularly milk cooperatives, play much the same collective bargaining role for farmers as is played for labor by its unions. Thus a milk cooperative may carry on negotiations with the big milk distributors as to the wholesale price of milk. Other cooperatives supervise the flow of farm products to market, as in the case of the larger fruit growers' cooperatives. For most basic farm products the cooperatives are not in a position to influence significantly price or the flow of products to market except as they reduce the purchasing or marketing margin. Other farm cooperatives purchase farm products as well as market them. Through these farmer-controlled associations, the farmers extend their influence into many activities closely related to farm production.

In addition to the farmer-controlled cooperative associations there are the National Grange, the Farmers Union, and the Farm Bureau. The membership of these organizations for 1938 is given below:

	Membership [1]
National Grange	800,000
Farm Bureau	400,000
Farmers Union	92,000

[1] Furnished by the offices of the respective organizations in Washington.

While these national farm organizations have little to do directly with the use of resources, their influence on governmental policy where it impinges on the interests of farmers is significant. Like business and labor organizations, these farm organizations, though less closely unified, constitute an important element in the structure of controls.

Consumer Organizations

The fourth major economic-interest group, that of consumers, is relatively little organized. The leading national organization, the Cooperative League of the United States, is primarily a league of consumer-controlled producing enterprises affiliating 1,770 local cooperative enterprises in 1938 and with a total membership of 965,000.[33] Other specific consumer interests, such as health and education, are reflected in national

[33] A small number of these local cooperative enterprises are producers cooperatives rather than consumer cooperatives. Data furnished by the office of the League in Washington.

organizations, but there is no major national organization representing the consumer interest as a whole and apart from producing cooperatives.

Government Units

Government units, Federal, State and local, provide the third set of nonmarket controls which, together with the market controls, constitute the essentials of the control structure. Because Government units are the primary organizations in the American economy through which the individuals and groups in the community are built into a social unity, they have powers and responsibilities which transcend those of any other type of organization, and the policies they adopt can vitally effect the use to which resources are put.

The controls which Government units can exercise arise primarily from organization, from the authority placed by society in the hands of government. To some extent they rest on the possession of the instruments of production, particularly public buildings and the public domain. Under certain circumstances they arise from the command over purchasing power. But in the main, the controls exercised by government rest on the complex social relationships which give government its special character.

Government Production

Certain of the controls exercised by government are directly concerned with Government production. The operation of the Post Office, the Army and Navy, the highway and educational systems, health and fire protection, all represent activities which in many ways parallel the productive activity of private enterprises but in which there are special advantages in Government operation. In certain areas the Government, through its productive activity, exercises controls beyond the boundaries of the particular administrative unit, influencing the market, as in the case of its handling of parcel post and in the operation of certain utility systems on a yardstick basis. But in the main, the productive activities carried on by Government units are aimed primarily at supplying specific products or services. Such activity differs in one important particular from business production, namely that of financing. Government units can charge the cost of production either directly to the individuals receiving the products or services as a business has to do, or it can spread the costs of production more widely through taxation. The latter is the procedure employed in the case of public education, fire protection, health protection, and many other services which benefit not only the immediate recipient but others as well and for which the community as a whole is taxed. In spite of this significant difference in financing, however, the controls exercised by Government units through their productive activity are essentially the same in nature as those exercised by other big administrative units. They involve administrative rather than market coordination within the administrative units and, to that extent, narrow the coordinating role of the market in much the same manner as the large corporate enterprise.

Canalizing Controls

The second major type of control exercised by government is through laws, rules, and regulations which canalize activity without administering it. The scope of this type of activity is difficult to measure and equally difficult to grasp. In 1935 there were 175,000 separate political jurisdictions [34] and, except perhaps in the case of school districts, the bulk of these exercised some controls of a canalizing character—police and fire regulations, building regulations, property protection, health protection, traffic regulation, and a host of other controls essential to the complicated activity of everyday living.

The basic importance of these types of controls to the structure of the national economy can be seen by examining a few of the more important. Fundamental to the conduct of present-day business activity are four sets of canalizing rules set up by government—the protection of property, the enforcement of contracts, the rules for bankruptcy and the laws which make possible the development of corporations and their exercise of legal powers. Without these canalizing controls exercised by government, modern business, as it is known today, would be impossible. Parallel to the protection of property is the protection of collective bargaining, each being essential to protect the basic interests of the suppliers of one of the factors of production.

In addition to the establishment of the basic rules of the game, Government units canalize specific lines of activity through the development of special regulations and regulatory bodies. The regulation of trade practices and the canalizing of industrial policies are partly the concern of State and local governments but have increasingly become a concern of the Federal Government, as business enterprises increasingly affect interstate commerce. This latter development is reflected in the creation of the Interstate Commerce Commission, the Federal Trade Commission, the Federal Communications Commission, the Federal Power Commission, the Securities and Exchange Commission, and other lesser regulatory commissions and agencies. It is not possible here to appraise the extent or effect of the canalizing and sometimes administrative controls exercised through these agencies, yet it is clear that they constitute a significant element in the structure of controls.

[34] See appendix 15.

In the field of business-labor relations, Government units have increasingly developed rules of conduct comparable to the already well-developed rules covering the relations between business units. Many State laws and the interpretations of the State courts have determined the rights of organized labor to engage in such activities as strikes, picketing, and certain types of boycotting to strengthen their bargaining position, just as the right of business to lock out its employees has long been recognized. Federal legislation and the Federal courts have further defined the activities permitted to employers and organized workers in specific respects. The importing of strikebreakers across State lines and the use of the yellow-dog contract by employers have been curbed, while the sit-down strike and secondary boycotts have similarly been outlawed. The National Labor Relations Act has brought the regulation of labor relations in industries operating in interstate commerce primarily within the sphere of the Federal Government. Under the terms of the act, the National Labor Relations Board is responsible for the protection of collective bargaining in the sphere of interstate trade and is building up a code governing business-labor relationships comparable to the code governing property relationship developed through the courts. It thereby provides a framework within which the balance of controls between employers and workers are being worked out. In areas subject to particular Federal intervention, namely the railroads and more recently the maritime industry, the Federal Government has gone farther in providing, through the National Mediation Board and the Maritime Labor Board, the specific machinery for settlement of business-labor disputes.

These various types of facilitating and regulatory activities involve the relation of local, State, and Federal Governments to all or most types of industries. As has been noted, they are not administrative in character but rather provide the framework of rules within which the activities of individuals are carried on.

Industrial Policies

A third type of control exercised by government units arises when a government agency directly participates in the development of industrial policies. This is the type of control exercised in the railroad and public utility fields in which rates are developed through the interaction of regulatory commissions, the utility enterprises, and the courts; in the shipping industry where government subsidies are given to induce an expansion in the American Merchant Marine; and in the field of agriculture in which subsidies are given to build up the soil and to limit the production of soil-depleting crops. How far public utility regulation and other controls over industrial policy on the part of government have been successful in facilitating the effective use of resources it is not the function of this report to consider. But it is clear that they constitute a significant element in the structure of controls.

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Fiscal Policies

The fourth main type of controls exercised by government which is significant to the national economy is that exercised through its fiscal policies. In this field it is primarily the fiscal policies of the Federal Government which are important. The Federal Government's responsibility for the money medium, its power to establish tariffs, and its great taxing, borrowing, and spending powers all place it in an outstanding position to influence the money flows which stimulate or dampen economic activity. Through its fiscal policies the Federal Government can, to a significant extent, convert current savings by one part of the community into current expenditures by another part, shift buying power from one group to another, and direct savings into capital formation. Whatever fiscal policies it adopts, the fiscal activity of the Federal Government is so important in relation to the whole economy that it must significantly affect its functioning.

The Relation Between Government Units and Other Elements in the Control Structure

In outlining the major controls exercised by Government units, the latter have been treated as if they were relatively independent units. But it has already been pointed out that many of the controls exercised by the organized interest groups operate through government. Similarly, some of the controls exercised by the corporate community operate through government. As a result, the policies adopted by Government units and the controls they exercise reflect to a considerable degree the balance of controls in the whole community. Government thus represents more than any other single organization, the meeting ground of both the common and the conflicting interests of different economic groups and individuals and constitutes the major focus of the structure of controls.

Conclusion

The preceding chapters on the organizational structure and the price structure disclosed the large extent to which the use of resources is not controlled by the market. In this chapter an attempt has been made to sketch the structure of the nonmarket controls which significantly affect the use of resources. The three main elements in this control structure have been outlined—the corporate community with its many ramifications and its climate of opinion; the major organizations representing the economic interests of business, labor, farmer, and consumer; and, finally, the Govern-

ment units through which the conflicting interests of different economic groups are developed into a more or less effective working compromise. These three sets of nonmarket controls combined with the market controls already discussed appear to constitute the main essentials of the control structure.

In this outline of the structure of controls, the focus has been on the character and locus of the major nonmarket controls, just as, in the chapter on the structure of prices, primary emphasis was given to the character and locus of market controls. No attempt has been made to show how the nonmarket controls actually affect the policies adopted in the use of resources or how they interoperate with the market controls. The operating effect on the use of resources of the combined market and nonmarket controls is a subject requiring intensive analysis but lying beyond the scope of this report on the structure of the American economy.

CHAPTER X.—CONCLUSION

The American people are faced with a basic national problem in the extensive idleness of men and machines. Resources of manpower and materials and skills are available to establish a much higher level of living than now exists. The serious failure to use these resources to the full is placing our democratic institutions in jeopardy. The maintenance of democracy requires that an adequate solution be found to the problem of keeping resources fully employed. The question must arise as to what national policies appropriate to a democracy can be developed which will insure reasonably full use of national resources, employment opportunities for all workers at reasonable wages, opportunities for the investment of savings with reasonable expectations of profits or a safe return, opportunities for the exercise of the organizing and managing abilities developed in modern industry, outlets for the exercise of initiative in ways which will be of advantage both to the individual and to the community.

This is a problem so broad in its scope and so basic in its character that no simple solution is likely to be found nor can a solution be found in a day or a year. If a democratic solution is to be worked out it will be the product of many minds working through a period of years. It will require an increased understanding of the problem on the part of the leaders of business, labor leaders, farm leaders, political leaders, and other leaders of public thinking. It will require continuing analysis by the technicians of different phases of the problem and a more detailed delineation of the characteristics of the national economy. It will require the careful elaboration and discussion of alternative lines of policy in order that gradually a workable solution can be developed and be gradually put into practice.

As a single small step toward the development of such a solution, an effort has been made in this report to sketch in the main structural characteristics of the American economy. This is done with the idea that such a sketch could throw light on the character of this basic national problem and might disclose the direction in which possible solutions might lie. If the report serves to clarify the problem and help provide a more effective frame of reference for the development of national policies, it will have accomplished its full purpose.

The report attempts to bring all the salient structural features of the national economy into focus in the short compass of a few hundred pages. Such a condensed summary of the economic structure necessarily lacks in detail and has to omit many things which are in themselves important yet of secondary importance to the national economy as a whole. Some essential elements of the structure are not blocked in because of the lack of data or because of the mischances of research organization. As in the case of a report on any subject, the determination of the elements to be treated as essential rests with the individuals responsible for the report and is the result of their judgment. Whatever gaps or distortions occur in this report should be eliminated through discussions and further research. A reasonable measure of general agreement as to the structural characteristics of the American economy would appear to be an essential step toward a satisfactory solution of this basic problem.

In this concluding chapter there is no advantage to be gained in summarizing the content of the foregoing chapters. Each chapter is in itself such a condensed summary of the field covered that further summary is useless. The structure stands as presented in the preceding eight chapters, each sketching in one aspect of the whole economy. It must be left to the reader to combine these separate aspects in his own mind into a unified conception of the national economy as a whole.

APPENDIX 1.—A CONSIDERATION OF THE VALIDITY OF THE BUREAU OF LABOR STATISTICS PRICE INDEXES[1]

Introduction

The Problem

The present discussion is devoted to an effort to appraise the usefulness of the Bureau of Labor Statistics indexes of wholesale prices for studies of the degree of rigidity and the amplitude of movement of the prices of the commodities to which they relate.

The validity of these indexes as tools for such an analysis has been seriously questioned. It has been pointed out that, in many markets, price changes take forms which price indexes fail to reflect. Thus, Willard L. Thorp, at a meeting of the American Economic Association in December 1935,[2] contended that price indexes could not portray important price modifications achieved through changes in collateral terms of sale, through the granting of special treatment to favored groups of customers, or through changes in the quality of the product.

In view of the fact that the Bureau of Labor Statistics wholesale price indexes have been used as a basis for analysis in this report, it is essential that these criticisms of the indexes be examined and some indication of the reliability of the Bureau of Labor Statistics series be obtained.

Nature of the Bureau of Labor Statistics Indexes

The validity of such criticism is largely dependent upon the precise nature of the Bureau of Labor Statistics indexes, and the manner in which they are compiled. The 784 individual price series which comprise the Bureau of Labor Statistics weighted price index cover an exceedingly wide range. They include figures for raw materials, for semimanufactured goods and for highly processed commodities; for standardized products and for highly specialized, trade-marked articles. Some prices in the series represent open market prices, uniform for all sellers and to all purchasers. Others are for commodities whose prices vary widely for different groups of buyers, with each sale a virtually independent transaction. For a few of the products included in the Bureau of Labor Statistics series, there are almost as many prices in actual effect at any given time as there are purchasers in the market.

In its efforts to secure price statistics adequately representative of the breadth of American industry, the Bureau of Labor Statistics has had recourse to two major sources of information. Three hundred and eighty-three, or slightly less than one-half of the total number of indexes included in the weighted average, are obtained directly from manufacturers or sales agents, usually in the form of weekly price reports. These reports quote the nominal or list price, and also specify the major terms of sale, such as trade and cash discounts.

For 367 commodities, or the bulk of the remainder, price quotations are taken directly from standard trade journals. Of the remaining 34 items, 31 are reported by boards of trade, trade associations and the like, and 3 are compiled from reports by Federal or State bureaus.

The distribution by source of principal commodity groups is revealed in table I.

TABLE I.—*Source of wholesale price quotations, February 1937*[1]

Source	Farm products	Foods	Hides and leather products	Textile products	Fuel and lighting	Metals and metal products	Building materials	Chemicals and drugs	House furnishing goods	Miscellaneous	Total
Standard trade journals	56	81	12	23	15	55	28	80	----	17	367
Manufacturers or sales agents	6	36	29	81	9	74	49	3	61	35	383
Boards of trade, associations, etc.	3	5	----	8	----	----	9	6	----	----	31
Federal or State bureaus	2	----	----	----	----	1	----	----	----	----	3
Total	67	122	41	112	24	130	86	89	61	52	784

[1] Wholesale prices, February 1937, Bureau of Labor Statistics, p. 12.

The wide variety of products included in the series virtually precludes the possibility of maintaining uniformity in the character of the indexes, even for those based upon direct reports. In general, the Bureau attempts to present, as nearly as possible, plant net prices for the usual trade sale. The price is, therefore, on an f. o. b. plant basis, with trade and cash discounts deducted. No effort is made to allow for special class discounts to favored groups of buyers, or for quantity discounts on very large purchases.

In the case of prices taken from trade papers, it is often impossible to meet these general requirements. In a large number of instances the quotations are on a delivered basis. In others, the terms of sale are omitted or inadequately stated. Consequently, it is impossible to maintain strict comparability between prices taken from trade journals and those obtained on the basis of direct reports.

The commodity to which each series applies is usually defined as precisely as possible, in order to preserve

[1] Appendix 1 was prepared by Saul Nelson.

[2] The American Economic Review, vol. 26, No. 1, supplement, March 1936, *Price Theories and Economic Realities*, by Willard L. Thorp, pp. 15–22.

price comparability through time. For nonstandard merchandise, such as clothing or machinery, it is often extremely difficult to devise such a definition. For price series taken from trade journals, the description of the commodity given in the source must necessarily be accepted by the Bureau, even though it may lack the degree of precision considered desirable.

Factors Affecting Reliability of the Bureau of Labor Statistics Indexes

The reliability of the indexes is directly conditioned by the frequency with which price changes take forms which the indexes fail to reflect, and by the extent to which such indirect changes modify the nominal, reported price.

In the vast majority of business transactions price is but one of the many elements of the sales bargain. The nominal price may be modified by any of a wide variety of discounts, allowances, or extras. Moreover, what the purchaser receives is not merely a physical commodity, but is that commodity subject to any understandings or agreements such as guarantees, services, and the like, which the seller may grant to his customer. Any change in any of these elements affects the net price—the true values exchanged—no less immediately than does a change in the nominal price level.

The most important of these indirect price variants are:

1. *Changes in the collateral terms of sale.*—Modifications in cash or trade discounts, changes in credit terms, price or quality guarantees, services performed by the seller for the buyer, freight, and advertising allowances and the like all affect the true price of a commodity no less immediately than changes in the nominal or list price.

2. *Special treatment of favored customers or groups of customers.*—Important changes in price may affect only a selected segment of the market. Special quantity discounts may be granted to very large purchasers, or the distinction may be made on the basis of function rather than of size. In some industries, the bulk of the product may be sold on the basis of long-term contracts, with the reported price quotation affecting only a small fraction of the total sales.

3. *Secret rebates and concessions.*—The allowance of secret rebates and concessions may render the reported prices and published terms of sale virtually meaningless, especially during the prevalence of a buyers' market.

4. *Geographic price variations.*—The Bureau of Labor Statistics indexes portray price variations at some specific point—usually the plant or some principal market. For some commodities, notably those in the food group, prices at more than one market are reported. Localized price reports may not, however, adequately reflect price trends throughout the nation.

5. *Changes in the product.*—The impossibility of adequately describing complex commodities renders it extremely difficult to express changes in design or in quality in terms of price.

Scope of the Investigation

Two distinct techniques of investigation were pursued in an effort to appraise the extent and importance of these indirect forms of price modification.

1. The detailed price structure of certain industries was studied. National Recovery Administration files and reports, reports and investigations of the Federal Trade Commission, and the congressional investigation of the American Retail Federation constituted the principal sources of information for this approach.

2. Bureau of Labor Statistics price series for a wide selection of commodities were compared with prices derived from data published by the Bureau of Census and the Bureau of Mines. In general, Census and Mines data closely reflect actual net returns to the producer after the deduction of all direct and indirect concessions. Consequently a comparison of this sort afforded a fairly reliable measure of the ability of the Bureau of Labor Statistics indexes to measure on an annual basis the extent of changes in net price over a period of years.

Changes in Collateral Terms of Sale

The importance of changes in collateral terms of sale was clearly recognized during the National Recovery Administration period. Industries whose codes included some form of minimum price provisions, or which established open price systems, found it necessary to guard against evasion of such provisions by exercising minute supervision over collateral terms of sale. The number of such restrictions ran well into the hundreds.

In interpreting Bureau of Labor Statistics price statistics, therefore, it is necessary to consider the possibility of important changes in price being effected through changes in terms of sale. The Bureau itself makes every effort to secure information as to the most important terms, but it would be a physical impossibility for it to analyze the price structure for each commodity included in the weighted index in complete detail.

Some of the more important terms of sale include the following:

1. *Discounts and allowances—*
(a) Cash discount.
(b) Trade discount.
(c) Quantity discount.
(d) Freight allowance.
(e) Advertising allowance.

(f) Promotional allowance.
(g) Extras, small quantities or unusual size.
(h) Trade-in allowance.
2. *Services and guarantees*—
(a) Price guarantees.
(b) Quality guarantees.
(c) Sales assistance.
3. *Other terms*—
(a) Credit terms.

The importance of each of these elements varies considerably from industry to industry. In the sale of automobiles and radios, for example, the nominal price may be greatly modified by the granting of a generous allowance on a used car or radio set. Extravagant quality guarantees were at one time a favorite method of cutting prices on automobile tires without any change in the nominal list. Similarly, in the coal industry, certain producers endeavored to evade code price restrictions by issuing guarantees of heat content which they knew were impossible of fulfillment.

The extent to which changes in terms affect the list price may be illustrated by examining a specific industry. The National Recovery Administration files contain an excellent record of the price quotations of fertilizer producers during the code period. These can be compared with the Bureau of Labor Statistics quotations for the same product.

Under the fertilizer code, all producers were required to file a complete list of their prices and terms for all grades of fertilizer. Mixed fertilizer is commonly sold on a delivered "to the farm" basis. The price quoted is uniform for a defined geographic area and freight charges are absorbed by the producer.

The price structure of the fertilizer industry is somewhat complex—though not more so than that for many other industries. The quoted list price during the code period was subject to a number of collateral terms, of which the most important were the following:

1. *Cash discounts and credit terms.*—Large discounts from the list price, ranging as high as 15 percent were allowed for fertilizer purchased on or before certain dates. Thus, one company allowed a discount of 15 percent for fertilizer purchased and paid for before March 15, 14 percent for payment before April 15, 13 percent for payment by May 15, and 12 percent for payment by June 15. In addition, a further discount of 1 percent for cash was allowed. If payment was made prior to March 1 the seller paid interest at the rate of 8 percent. For payment after July 1 the purchaser was required to pay interest at the rate of 7 percent.

2. *Trade discounts.*—Most fertilizer was distributed through agents during the code period. On cash sales these agents received a discount of 5 percent, while on credit sales, when the agent guaranteed payment of the note, he received an additional 5 percent.

3. *Quantity discounts.*—Agents received additional discounts ranging from 1 to 3 percent if they handled over 500 tons during the season. (As in the case of a few other industries, it did not matter whether the agent secured all the 500 tons from one producer or handled an aggregate of 500 tons from a number of producers. The same discount was allowed in either case.) On direct sales, consumers received quantity discounts of 3 to 5 percent.

4. *Packaging allowances and extras.*—If instead of specifying that fertilizer be packed in 200-pound burlap bags, the buyer was willing to accept delivery in bulk, he was granted a discount of from $1 to $1.50. If, on the other hand, he specified smaller bags, or preferred cotton bags to burlap bags, the price was increased from 50 cents to $2 per ton.

5. *Transportation allowances.*—If delivery was accepted at the plant, or at a railway station, instead of at the farm, varying allowances were granted, depending on the distance trucked. If, on the other hand, the quantity purchased was less than a carload, an added charge was made.

6. *Price guarantees.*—In addition to these quoted terms, it has at times been the practice in the fertilizer industry to guarantee prices against decline during the selling season. In other words, a farmer who ordered fertilizer in March would be assured the benefit of any cut in prices announced prior to, say, July. The guarantee might also insure to the buyer as low a price as that charged by any competing producer. Apparently these guarantees usually consisted of informal understandings between the agent and the purchaser.

It would be completely impracticable for the Bureau of Labor Statistics to express each one of these terms of sale in its price quotations. Instead, it reports prices for a single set of conditions. In the case of fertilizer, the price quoted is that which an agent is required to pay on cash sales. This represents a net cash price on carload lots of 200-pound bags. Average freight from the plant to the farm is deducted, thus making the price an f. o. b. plant price rather than a delivered price.

Table II compares the price quotation of a leading producer[3] with the Bureau of Labor Statistics price quotations during the code period. The grade of fertilizer in each case is the same. The price is for 3–8–3 fertilizer, which contains 8 parts of phosphorus and 3 each of potash and nitrogen to each 100 pounds of mix. The Bureau of Labor Statistics price is for the South Atlantic region as a whole, while the National Recovery Administration price is for South Carolina only.

[3] This producer was an acknowledged "price leader" in this territory. The prices and terms of most competing producers followed his with few and minor variations

TABLE II.—*Price per ton of mixed fertilizer (3–8–3 mix): comparison of National Recovery Administration and Bureau of Labor Statistics data*

[N. R. A. data—South Carolina; B. L. S. data—South Atlantic States]

	Bureau of Labor Statistics[1]	List price 200-pound bags	Agents' cash price 200-pound bags	Agents' time price 200-pound bags	List price 100-pound bags	List price white cotton bags	List price in bulk	Agents' price for 1,000 tons
1933								
December	16.75	26.25	22.05	23.62	27.25			
1934								
January	17.38	25.85	20.42	23.27	26.60	27.10	24.85	
February	17.38	25.85	20.42	23.27	26.60	27.10	24.85	
March	17.25	25.85	20.42	23.27	26.60	27.10	24.85	20.01
April	17.25	25.85	20.68	23.27	26.60	27.10	24.85	20.27
May	17.25	25.85	20.94	23.27	26.60	27.10	24.85	20.52
June	17.25	25.85	21.20	23.27	26.60	27.10	24.85	20.78
July	17.25	24.95	19.71	22.45	25.70	26.20	23.45	19.32
August	17.25	24.95	19.71	22.45	25.70	26.20	23.45	19.32
September	17.25	24.95	19.71	21.96	25.70	26.45	23.45	19.32
October	17.25	24.95	20.36	21.96	25.70	26.45	23.45	19.94
November	17.25	26.70	21.63	23.50	27.45	28.45	25.70	20.98
December	18.15	26.70	21.63	23.50	27.45	28.45	25.70	20.98
1935								
January	18.15	26.70	21.63	23.50	27.45	28.45	25.70	20.98
February	18.15	26.70	21.63	23.50	27.45	28.45	25.70	20.98
March	18.15	26.70	21.63	23.50	27.45	28.45	25.70	20.98
April	18.15	26.70	21.90	23.50	27.45	28.45	25.70	21.24

[1] Represents net cash sales in carload lots of 200-pound bags as of 15th of month.

In comparing Bureau of Labor Statistics with code prices it is necessary to remember that the former does not include freight. However, since the average freight charges during the period were uniform, price trends should be parallel. An examination of the table shows that the Bureau of Labor Statistics price represents only an approximation to the actual price behavior. This price also fails to reflect the increase of 2 percent in agents' discount which occurred in September 1934. Moreover, there is nothing in the Bureau of Labor Statistics data corresponding to the month-to-month variations occasioned by the changes in discounts which automatically occur as the various preseason discount dates are passed.

It is important to emphasize that the Bureau of Labor Statistics data relate to a specific type of transaction only. They cannot possibly express any changes in the proportion of cash to credit sales; in the ratio between direct sales to the consumer and sales through agents; in the relative frequency with which buyers qualify for quantity discounts or the like.

Considering the general trend of prices during the period as a whole, however, a close relationship is evidenced. The difference between Bureau of Labor Statistics and cash prices, representing primarily freight charges, was similar and close to the actual freight charge both at the beginning and at the end of the code period. In this case, therefore, the failure of the Bureau of Labor Statistics price data to reflect changes in collateral terms of sale accurately may not be of major importance. In the absence of adequate similar data for other industries, it is impossible to determine the extent to which this case is representative. However, an effort will be made below to present a quantitative appraisal of the extent to which changes in collateral terms of sale, combined with all other forms of indirect price modification, affect the validity of Bureau of Labor Statistics price statistics.

Special Treatment of Favored Customers or Groups of Customers

Discrimination in price between customers may range from small quantity discounts to enormous price reductions. In the case of mixed fertilizer, the maximum quantity discount was only 5 percent. In other industries, however, the price to certain customers may be less than half of that to others.[4]

Where very wide differences exist in the treatment accorded to different customers, any price quotation is necessarily of limited meaning. The price structure for bakers' yeast is an excellent example. The price for this product is not rigid in the strict sense, since frequent minor variations occur from month to month. In terms of net change, however, the reported price fluctuates within a very narrow range. The average price during 1929 was 24¢ per pound delivered, during 1932 the price was 24.7¢, and during 1936, 22.5¢.[5]

In actual practice, the Bureau of Labor Statistics price quotation relates only to a small fraction of the total market. The Standard Brands Corporation is currently charging prices to different customers ranging all the way from 14 to 25 cents, depending on the quantity purchased. Independent producers are charging as low as 8 cents, or less than one-third of the maximum and slightly more than one-third of the Bureau of Labor Statistics quotation.[6]

Yeast is far from unique in showing such wide variations between its minimum and maximum price. During the National Recovery Administration period the list price of flashlight cells for a certain company was 10 cents. The price actually paid by toy manufacturers using very large quantities was only 2.5 cents. Wholesale jobbers paid 5 cents and retail dealers 6.5 cents at the same time. Moreover, the price of a certain battery sold to a chain store was 5.5 cents when carrying the manufacturer's label, and only 2.75 cents when carrying a private label.[7]

Although the Bureau of Labor Statistics does not carry a series for flashlight batteries, it does quote

[4] The following discussion relates to conditions existing prior to the passage of the Robinson-Patman Act. This act was designed to reduce price spreads between different customers.

[5] The yeast series is not included in the weighted average of the Bureau of Labor Statistics. The omission is purely on account of the minor importance of this product and does not reflect any judgment as to the relative reliability of the data.

[6] Federal Trade Commission in the matter of Standard Brands, Inc., and Standard Brands of California, Docket 2986.

[7] The American Economic Review, Vol. 26, No. 1, supplement March 1936, *Price Theories and Economic Realities*, by Willard L. Thorp, pp. 16–17.

prices for radio B cells whose price structure is closely similar.[8] In this case, again, the complexity of the market structure seriously detracts from the usefulness of the Bureau of Labor Statistics price quotations.

Much of the apparent rigidity of the price indexes for heavy chemicals, such as sulphuric acid, is due to the fact that the price quotation applies only to a small segment of the market. The list price is the price which the small buyer pays. The price to the large customer is set by individual bargaining. The Aluminum Co. of America appears to pursue a very similar policy. This company refuses to quote a nominal price and deals with each customer on an individual basis.

The bearing of these price discriminations between customers upon the present discussion is twofold. In the first place, where the range of prices to different buyers is very wide, the Bureau of Labor Statistics quotation may apply to only a very small segment of the market. In addition, important changes in price may take the form of changes in the relationship of the prices quoted to different classes of customers, or of changes in the proportion of customers in each class.

Secret Rebates and Concessions

The reliability of any form of price quotation as a guide to actual price movements is, of course, largely conditioned by the faithfulness with which these quotations are actually observed in the course of business. In the case of some commodities, especially those sold on open markets, prices correspond exactly or closely with price quotations. In many lines of business, however, this is far less true. The nominal quotation may be very widely modified by large secret rebates or concessions granted either to a few powerful buyers, or even to the trade as a whole.

Secret Concessions to Selected Customers

It is impossible to draw any rigid line between secret concessions to favored customers and the sort of special treatment which was discussed in the preceding section. It is generally true that where very large discounts are granted to certain buyers and denied to others, such action is not widely advertised by the seller. For example, the reduced prices at which large users of sulphuric acid are able to buy are not generally publicized.

Some distinction, however, may be drawn between regularly scheduled class discounts and secret concessions. For example, the Standard Brands Co., as previously stated, maintains a regular list of quantity discounts applying to bakers' yeast. This list, however, is not rigidly adhered to. An investigation conducted by the Federal Trade Commission, reveals the frequency with which special concessions are granted. According to the testimony of officials of the company, only about 40 percent of sales conform to schedule prices. In dealing with any customer, a branch manager is free to reduce list prices, which range up to 25 cents, to as low as 16 cents in order to retain his business. Further reductions to as low as 14 cents may be granted by the central office of the company.[9]

Secret concessions to mail-order houses and other large buyers are common in many industries. In the case of rubber tires, for example, it was recently shown by the Federal Trade Commission that the Goodyear Co. sold to Sears-Roebuck on the basis of a special cost-plus contract at prices far below the nominal wholesale level reported by the Bureau of Labor Statistics.

Large special discounts—some open, others strictly secret—were very common in the sale of processed foods prior to the passage of the Robinson-Patman Act. A congressional investigation of the American Retail Federation revealed the extent of these concessions to chain stores and other very large buyers. Sometimes these price reductions were in the form of ordinary quantity discounts. At other times, they took the form of advertising or promotional allowances. In either case they amounted to very substantial modifications of the list price.[10]

In certain lines of trade, concessions take forms which it is virtually impossible to measure quantitatively. In the sale of steel products to the railroads, for example, price reductions may take the form of freight diversion. Merchandise may be specially routed so as to allow the railroad buyer considerably higher freight revenue than strictly necessary. Purchases of scrap steel from railroads afford an additional avenue for indirect concessions.

General Concessions to the Trade at Large

Frequently, wide price reductions to all customers are made without any change in the nominal quotation. This may happen for a variety of reasons. For example, an individual concern wishing to reduce prices in order to secure more business may fail to reduce its nominal list price for fear that its competitors will immediately meet, or even better its offer. However, it is almost impossible to prevent knowledge of such price cutting from spreading. As a result, its competitors usually soon offer similar concessions. In a buyers' market particularly—such as existed during the depression—the actual prices for many commodities

[8] National Recovery Administration Division of Review, *A Study of Open Price Filing in the Electrical Manufacturing Industry*, by Willard L. Thorp and A. H. Caeser, Vol. I, pp. 495 to 574.

[9] Federal Trade Commission in matter of Standard Brands, Inc., and Standard Brands of California. Docket No. 2986.

[10] The Special Committee on the Investigation of the American Retail Federation, House of Representatives, 74th Cong., 1st sess. See for example, vol. 4, pp. 207 to 243

may drop sharply while the nominal quotations are kept at a high level. Undeclared price wars of this character may be considered as analogous, in the economic field, to the undeclared wars which have recently become so popular in international affairs. Their advantages are not dissimilar; they both retain the forms of tranquility and thus facilitate a return to normal practices as soon as conditions permit. It is naturally simpler and easier to withdraw or reduce special concessions than to raise a list price.

The following examples may serve to illustrate the use of this technique:

1. *The fertilizer industry.*—Some clue to the extent to which rebates and concessions affect nominal fertilizer prices may be obtained from a report of the Federal Trade Commission.[11] According to this report, there was widespread selling of fertilizer at prices far below list during the years 1921 and 1922. The Bureau of Labor Statistics index showed no change in price between January and December 1921. It showed a substantial cut between December 1921 and January 1922, and perfectly stable price quotations through 1922. According to the Trade Commission, however: "In 1921 and 1922 price lists were published as usual, but were so high that the companies were unable to maintain such prices for any length of time." The Commission reproduced many letters taken from files of fertilizer manufacturers which reveal the extent to which rebating was practiced. During this period, for example, Swift & Co. were selling to dealers at discounts of 33.3 percent plus 5 percent off schedule, and, in addition, granting a direct rebate of $2 per ton. The American Chemical Co. instructed its North Carolina sales managers to go as far as 33.3 percent below list wherever necessary to meet competition. On April 10, 1922, at a time when the Bureau of Labor Statistics index was perfectly stable, a district manager of the American Agricultural Chemical Co. wrote to its vice president: "I think every concern operating out of Atlanta, with no exception, is making almost any price it sees fit in order to get some business * * *. All managers and division managers practically admit that there is no regular price."

Although similar documentary evidence is not available for periods subsequent to 1921 and 1922, persons close to the trade state that similar practices have recurred under similar conditions.

(2) *Salt industry.*—A parallel situation occurred in the salt industry during the latter part of 1935. Table III shows the course of nominal prices for table salt as reported by the Bureau of Labor Statistics. These price quotations show no decline from March to September 1935. Yet, according to a National Recovery Administration study, a price war started early in 1935 and discounts of as much as 30 percent were being granted by August 1935. According to this report:

> Particularly during time of depression, in efforts to bolster declining sales volume, many members of the industry offered secret prices, discounts, rebates, and other concessions * * *.
>
> * * * * *
>
> In the latter months of the code period, the practice of granting secret rebates and other secret concessions from filed prices began to develop in the industry. Filed prices were maintained at uniform levels within the various marketing areas, but actual price uniformity was disappearing. The difficulty of discovering and proving secret price concessions, plus rather apathetic support from the National Recovery Administration along compliance lines, contributed to the growth of secret pricing.
>
> * * * * *
>
> Following May 27, 1935, deviations from published prices became more and more troublesome. By August the secret prices evidently became sufficiently serious to warrant retaliation by the price leaders in the industry. Since that time, there has developed one of the worst price wars experienced in recent years by this industry. Published prices remain practically the same as they were during the code period, but discounts and rebates ranging from 20 to 30 percent are being granted to various types of buyers.[12]

Despite the existence of this price war, the nominal price quotations as reported by the Bureau of Labor Statistics showed no change at all until October 1935. The October quotations were 26 cents, or 10 percent, below the September prices; but even this reduction in the list price did not approximate the extent of the discounts which were being granted.

Evidence relating to practices of this character could doubtless be multiplied. Secret rebates and discounts may well constitute the most important single source of error detracting from the accuracy of the Bureau of Labor Statistics price data.

In industries whose National Recovery Administration codes contained direct or indirect provisions for price control, the problem of departures from list prices during 1933–35 may have been accentuated. On the one hand, code provisions tended to increase rigidity and the official character of code prices provided a basis for their enforcement. On the other hand, to the extent that a code attempted to maintain prices out of line with those which would have existed in the absence of the code, the incentive to give secret rebates or otherwise to avoid holding to the list price was enhanced. The net effect cannot be assumed to have been greater departure from list prices or greater adherence to them. In specific industries, prices for the National Recovery Administration years must be used with caution, and the evidence of National Recovery Administration studies recognized as applying to the special conditions of these years.

[11] Fertilizer Industry. Letter from the Acting Chairman of the Federal Trade Commission transmitting in response to a Senate Resolution of June 17, 1922, a report on certain phases of the fertilizer industry. S. Doc. 347, 67th Cong., 4th sess.

[12] National Recovery Administration, Division of Review—*Manufacturer's Cost of Distribution: A Study of Trade Practice Provisions in Selected N. R. A. Codes*, Irwin S. Moise and George B. Haddock; Work Materials No. 62, March 19 pp. 136, 147.

TABLE III.—*The price of salt as reported—1929 to 1936*

[American table salt—Medium grade—Wholesale price per barrel of 280 pounds delivered in Chicago]

	Relative (1926=100)
1933:	
January	99. 6
February	99. 6
March	99. 6
April	99. 6
May	99. 6
June. (New quantity discounts 2 to 10 percent.)	99. 6
July	99. 6
August	108. 8
September	111. 2
October	108. 9
November	108. 9
December	108. 9
1934:	
January	108. 9
February	108. 9
March	108. 9
April	108. 9
May	108. 9
June	108. 9
July	108. 9
August	108. 9
September. (Increase in quantity discounts.)	108. 9
October	108. 9
November	115. 7
December. (Price war begins.)	115. 7
1935:	
January	117. 1
February	117. 1
March	117. 1
April	117. 6
May	118. 5
June	118. 5
July	118. 5
August	118. 5
September. (20- to 30-percent discounts from list.)	118. 5
October	106. 6
November	106. 6
December	106. 6

Geographic Price Relations

The precise geographic point to which a quoted price applies is, of course, of primary importance in defining its meaning. A delivered price and a plant price are two distinct entities. Most of the prices reported by the Bureau of Labor Statistics fall into three categories:

1. Plant prices, with the location of the plant not specified.

2. Prices at specified basing points.

3. Delivered prices at some important market. (In the case of certain commodities—particularly foodstuffs—quotations for a number of principal markets are published.)

When the price trends for different commodities are compared, due allowance must be made for these differences in the kind of quotation. Delivered prices include the element of freight, which is, of course, quite inflexible. Consequently the amplitude of movement of delivered prices, measured in terms of percentage, is narrower than would be the movement of plant prices for the same commodity. For bulky, inexpensive commodities, the difference may be very material. For example, the average plant value per ton of lime declined 20 percent between 1929 and 1934. The average delivered price declined only 12 percent during the same period.[13]

Moreover, delivered prices at a specific market may not accurately reflect the general trend throughout the nation. For example, chart I presents a comparison between the price trend for crushed stone produced in New York State and New Jersey and the price trend for all crushed stone produced in the United States, based upon data reported by the Bureau of Mines. In addition, the chart shows the Bureau of Labor Statistics wholesale price index for crushed stone, which is quoted on the basis of delivery at New York. The Bureau of Labor Statistics index for the period of 1920–29 shows a trend closely parallel to that of the Bureau of Mines index based upon New York and New Jersey stone. The national index, however, shows a distinctly different trend. Both of the former two indexes show virtually no net change in price from 1920 to 1929. In contrast, the average price throughout the nation declined more than 20 percent during the same period.

Definition of Commodity

A major problem encountered in almost any form of price reporting is the formulation of a precise definition of the commodity to which the price series applies. A large proportion of the Bureau of Labor Statistics price indexes relate to perfectly standard commodities, such as No. 2 Red Winter Wheat, electrolytic copper, or 66° Baumé sulphuric acid. In many other cases the degree of standardization is sufficient for all practical purposes, as in the case of portland cement.

In the case of nonstandard goods such as apparel or machinery, however, the problem of definition assumes major proportions. The validity of the index in cases of this sort is conditioned by two distinct considerations.

1. Is the definition sufficiently precise to insure that the trend of the index over a period of years reflects only changes in price and not changes in the nature of the commodity?

2. Is the specific commodity selected sufficiently representative to portray adequately the price trend for all commodities in the same class?

[13] National Recovery Administration Division of Review, *Operation of the Basing Point System in the Lime Industry Code*, by T. K. Urdahl. (Based on data shown on p. 71.)

Precision of the Definition

The first problem—precision of the definition—is of basic importance in the case of such items as agricultural machinery, automobiles, and apparel. In the first two cases it is virtually impossible to secure a price series applying to exactly the same product from year to year. No two successive automobile models are alike. The same is true, though possibly to a lesser extent, of agricultural machinery. In fact, the very small number of machinery items included in the Bureau of Labor Statistics weighted index is due primarily to the nonstandard character of most types of machinery.

In the case of apparel, the Bureau of Labor Statistics has attempted to formulate definitions that would minimize the effect of style variations. Thus, 21 different series are published for shoes, including, for example, little boy's tan calf shoes, men's side leather oxfords, and women's patent leather pumps. Similarly, in the case of men's shirts, the character of the material is carefully specified. Moreover, due to the impossibility of adequately allowing for style changes in women's suits and dresses these products have been deliberately omitted.

Despite all these precautions, it is still probable that the prices reported to the Bureau of Labor Statistics fail adequately to account for changes in the style and workmanship of apparel. In the case of men's shirts, for example, defining the material alone is not an adequate criterion. Changes in style and workmanship are of at least equal importance. There has been a progressive improvement in the fabrication of men's shirts over a considerable number of years. This improvement is not, and cannot be, allowed for in the construction of the index.

Representative Character of the Indexes

In the attempt to restrict reporting to relatively standard commodities which can be precisely defined, there is danger of impairing the representative character of the index. For example, again considering men's shirts, the proportion of all shirts manufactured which are produced in accordance with Bureau of Labor Statistics specifications may be small. The price trend for shirts as a whole may differ materially from that shown for the Bureau of Labor Statistics standard.

To take another instance, price data are reported for an 8-ounce package of a corn cereal breakfast food. This series represents a single product of a single company. It is possible that the products of other companies, or even other products of the same company, may show a price trend differing substantially from that quoted for this specific item.

This problem is complicated by the presence of trademarks and private brands. In very many lines, articles bearing private brands are sold at a large discount from the price of the identical product carrying the manufacturer's nationally advertised label. The number and importance of private brands has increased very materially in recent years. Due to the stimulus of recent legislation, it is likely to increase further. Consequently, even though the price of a manufacturer's brand remains stable, the average price for all similar articles, regardless of brand, may be declining materially.

It is impossible on the basis of available data to appraise the importance of either of the factors discussed in this section. It is probably a fair statement, however, that some of the Bureau of Labor Statistics indexes fail to reflect fully changes in the quality of the product and that others apply to a restricted and possibly not sufficiently representative segment of the market.

Comparison of Price Quotations With Computed Net Values

The existence of all these indirect forms of price variation makes it essential to estimate quantitatively the extent to which they affect the validity of the Bureau of Labor Statistics price series. Statistics compiled by the Census of Manufactures and the Bureau of Mines were employed in the attempt to arrive at such a measure.

These two sources publish figures revealing both aggregate annual physical volume and dollar value of production for a considerable number of commodities. (Some of these data are available for each year, while some are compiled only for alternate years.) From these statistics, an average net value at plant or mine may be computed and compared with the corresponding Bureau of Labor Statistics price series where they cover the same commodities or groups of commodities.

Net value and price are not, of course, synonymous. Price relates to a specific, single commodity while net value represents an annual average for all products included within the classification. However, if the classification is sufficiently narrow, net value at plant or mine will not differ materially from net wholesale prices after all discounts and concessions have been deducted. In such cases, it may be reasonably expected that the movements of net value and price will be closely parallel. If the net value for any commodity be expressed in terms of an index, the movement of that index should vary but slightly from that of the Bureau of Labor Statistics index for the same product.

There are, of course, obvious difficulties in the way of comparisons of this character. The product classifications used by the Bureau of the Census and the Bureau of Mines rarely conform exactly with those used by the Bureau of Labor Statistics. However, it has been possible to select a considerable number of items for

which the classification is identical, or nearly so. For many more, despite differences in classification, it still seems possible to draw a comparison.

A second difficulty is inherent in the nature of the census figures. The Census Bureau, in issuing its blanks, does not instruct manufacturers to base "value of product" upon actual net returns from sales. Instead, value is to be computed by multiplying the number of units produced by the average price during the period. Undoubtedly, the basis of computation actually used by individual manufacturers varies considerably. Special difficulties arise when "sales" take the form of inter-branch transfers, as when a factory transfers merchandise to a regional sales branch. In such cases, "value" will be based upon the price recorded in the company's books, and may well range all the way from actual cost of manufacture to the nominal wholesale price level prevailing at the time. Nevertheless, in the majority of returns, it is probable that the reported "value" is a close approximation of the net income from sales. Moreover, census data have the advantage of covering an entire industry rather than a small selected sample. "Net value" as computed from census reports must be recognized as constituting a good approximation rather than an absolutely accurate figure. Whereas differences between the Bureau of Labor Statistics price and the census net value at any one time may not be significant, an examination of their relative behavior over a period of years should afford a valuable clue to the reliability of the Bureau of Labor Statistics data.

Comparisons for sample items have been presented in chart I. Indexes for additional commodities are compared in table IV. Except where noted, the items mentioned in the following discussion are shown in table IV. Indexes have been based upon the 1929 average as 100. This base was selected in order to show more clearly the relative extent to which the Bureau of Labor Statistics price and the computed net value declined during the depression.

In some cases, the Bureau of Labor Statistics price and the computed value show widely different trends. In others, significant but narrower differences exist. In the rest, the movement of the two indexes is virtually parallel. These three groups will be considered separately.

Cases of Wide Disparity

Very wide differences between the trend of the Bureau of Labor Statistics index and computed net value occur in the case of two standard chemical products—66° Baumé sulphuric acid (chart I) and bone black.

The Bureau of Labor Statistics indexes for both of these products are extremely rigid. In the case of sulphuric acid no change in price was reported from 1928 through 1936. The price of bone black has remained perfectly stable from 1923 through 1936. In each of these two cases the computed net value shows a totally different picture. The net value of 66° Baumé sulphuric acid dropped 20 per cent from 1929 to 1933 and that for bone black showed an approximately equal decline.

The explanation of this disparity seems clear. The Bureau of Labor Statistics prices are obtained, not from direct reports, but from trade paper quotations. These quotations may apply to very small purchases, but large quantities are sold on the basis of individual negotiations. In most cases sales are on the basis of annual contracts and the nominal quotation is significant only as the point from which bargaining starts.

A somewhat similar picture is presented in the case of petroleum asphalt. The Bureau of Labor Statistics index for this product is also rigid. It is also based upon a trade paper quotation. Although the quotation itself dropped about 16 percent during the depression the actual plant net value dropped approximately twice as far—32 percent. Moreover, the decline in net value had persisted for 4 years (from 1927 to 1931), before the nominal quotation reflected what was happening.

There is a wide discrepancy between the Bureau of Labor Statistics quotation for aluminum ingots and the price trend as computed from census data (chart I). To some extent, this may be explained by the fact that the Bureau of Labor Statistics data are for virgin aluminum, 99 percent plus pure, while census figures are for both primary and secondary metal, whose purity may fall as low as 98 percent. This difference, however, is not of major significance. The Bureau of Labor Statistics index is based upon quotations in the *American Metal Market*. The price of secondary aluminum is also reported by this publication. It is noteworthy that the census figures, which include both primary and secondary metal, are even lower than those for secondary aluminum alone. Moreover, the Aluminum Co. of America proclaims the policy of maintaining no fixed prices, but of dealing with each customer independently. It may be inferred, then, that the Bureau of Labor Statistics quotation for the virgin metal is purely nominal.

A very different market condition exists in the case of men's dress shirts (chart I). Here again the Bureau of Labor Statistics index is extremely rigid. The Bureau of Labor Statistics quotation shows only a nominal drop during the depression, while the average net value as computed from census data declined more than 36 percent from 1929 to 1933.

In this case the product classification is not identical. The Bureau of Labor Statistics data are for a shirt

made from a carefully specified material, while the census figures relate to all shirts.

The significant factor in this case is the peculiar structure of the market. Men's shirts, like many other lines of apparel, are traditionally sold in certain fixed price classes. Thus, in the retail market, there are $2.95 shirts, $2.50 shirts, $1.95 shirts, $1.69 shirts, and so on down. Corresponding to these retail prices are wholesale prices per dozen which show similar variations. Shirts are not sold at intermediate levels. The wholesale prices will be either—say, $18 or $15 per dozen, but not $16.50 per dozen. The product is manufactured to a price. During the depression a shirt of quality and workmanship which originally sold for $1.95 could be purchased by the consumer for $1.69 or less. Quotations, however, apparently remained rigid. Changes in price took the form of changes in workmanship and style, rather than in the traditionally established wholesale price range.

On the other hand, the census index undoubtedly exaggerates the extent of the price drop. During the depression there was a marked shift of consumers from the better to cheaper garments. It may be assumed safely that the average shirt purchased during 1932 was not comparable in quality with the average sold during 1929. The true course of the market probably lay somewhere between the Bureau of Labor Statistics and the census index.

Wide discrepancies also appear in the case of certain less rigid indexes. Hydrated lime and portland cement are examples of this character. Both of these indexes, while not flexible, display a moderate response to market changes. However, additional factors, such as changes in terms or special concessions, apparently exist which the Bureau of Labor Statistics data fail to reflect. The drop in plant net value during the depression as computed from Bureau of Mines data, was considerably wider than that shown by the Bureau of Labor Statistics for quoted prices. From 1929 to 1932 the Bureau of Labor Statistics index for cement declined approximately 15 percent, while that based on Bureau of Mines figures fell 30 percent. In the case of hydrated lime, the Bureau of Labor Statistics decline was 14 percent as compared to 24 percent for the Bureau of Mines data.

Even flexible prices do not appear to be exempt from this type of variation. The Bureau of Labor Statistics index shows the price of yellow pine lumber as very flexible, yet it registered a decline of only 20 percent from 1929 to 1932, whereas census data indicated a drop of 32 percent. In this case, of course, the product classification is not strictly comparable. Nevertheless, the general parallelism in the course of prices between 1919 and 1929 makes it seem probable that the comparison is reasonably valid. Moreover, there is ample evidence that lumber producers often grant special prices not in accord with listed quotations in order to dispose of their product.

In each of these cases, therefore, the Bureau of Labor Statistics index indicated an apparent rigidity greater than the true price structure warranted, and failed to reflect adequately the extent of the price decline during the depression.

Cases of Moderate Disparity

Narrower, but appreciable differences between Bureau of Labor Statistics price quotations and computed net values may be noted in a number of the cases illustrated. Thus, for polished plate glass, the Bureau of Labor Statistics publishes two series, while only one is available in the series based on the Census of Manufactures. The table shows a close general correspondence between Bureau of Labor Statistics series no. 2 and census figures. During the depression, however, the census shows a more rapid decline in prices from 1929 to 1931, than does the Bureau of Labor Statistics. By 1935 the indexes were again practically identical. Presumably, again, the Bureau of Labor Statistics quotation failed to reflect changes in terms and special concessions.

Census figures for book paper and wood screws also show a somewhat wider decline than do Bureau of Labor Statistics. In neither of these cases is there strict product comparability and, therefore, only limited reliance may be placed upon the comparison. However, from 1921 to 1931, the Bureau of Labor Statistics and Census prices for book paper run closely similar courses.

An interesting comparison is available in the case of sand-lime brick (chart I). The Bureau of Labor Statistics index for this commodity is quite rigid. Nevertheless, the comparison shows that it fully reflected the drop in net value which took place between 1929 and 1932. The decline in the Bureau of Labor Statistics index, however, took place a year later than did that in the Bureau of Mines figures. It seems likely that the price decline first took the form of indirect or secret concessions. When these become established, the quoted prices followed the full extent of the true decline.

Cases of Close Correspondence

In a very considerable number of cases, Bureau of Labor Statistics price series and net values computed from Census and Mines data show very close correspondence. Cases of this sort occur both for rigid and for flexible prices. For example, steel rails, concrete reinforcing bars, structural steel (chart I), and pig iron all show a close parallelism between the Bureau of Labor Statistics and Census prices. Other rigid, "adminis-

tered" prices such as salt cake (chart I) exhibit similar characteristics. The same is true of complex manufactured products such as farm machinery. The close correlation shown by the two series for hay loaders, grain binders, and mowers is very striking. The same may be said of such diverse commodities as mixed fertilizer, fire brick, washing machines, and window glass.

Highly flexible prices such as those for denims (chart I), canned peaches, and dried peaches, show an almost perfect correspondence between Bureau of Labor Statistics and Census figures.

In certain cases, although quantitative data are not available, there is evidence that the Bureau of Labor Statistics price quotation is entirely accurate. This is true, for example, of iron ore, the quoted price for which is known to be rigidly adhered to.

TABLE IV.—*Comparison of price indexes, Bureau of Labor Statistics and Census of Manufactures or Bureau of Mines, 1919–36*

[1929=100]

Year	Bone black		Asphalt		Hydrated lime		Portland cement	
	Bureau of Labor Statistics	Census	Bureau of Labor Statistics	Bureau of Mines	Bureau of Labor Statistics	Bureau of Mines	Bureau of Labor Statistics	Bureau of Mines
1919	100.0	108.9					110.3	115.6
1920							127.6	136.5
1921	116.9	164.3			124.0	113.6	120.6	127.7
1922					111.5	108.3	112.7	119.0
1923	100.0	105.9			121.8	121.1	117.5	128.4
1924					119.7	121.7	115.1	122.3
1925	100.0	86.2	104.5	121.8	114.8	118.8	111.8	119.7
1926			100.0	120.1	108.1	114.7	108.9	115.6
1927	100.0	92.6	100.0	125.2	105.3	110.8	105.3	109.5
1928			100.0	114.7	103.0	101.9	104.5	106.1
1929	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1930			100.0	95.3	98.7	94.5	100.3	97.3
1931	100.0	84.5	100.0	76.6	92.9	83.9	87.0	74.3
1932			83.3	68.4	85.5	76.5	84.7	68.3
1933	100.0	78.2	87.5	86.0	88.4	81.2	94.4	89.9
1934			100.0	97.1	96.2	92.6	102.2	104.2
1935	100.0	100.0	100.0	88.4	95.6	95.9	103.9	102.1
1936			100.0	89.5	92.8	96.8	104.1	102.1

Year	Lumber—yellow pine		Polished plate glass			Book paper		Woodscrews	
	Bureau of Labor Statistics	Census	Bureau of Labor Statistics [1]	Bureau of Labor Statistics [2]	Census	Bureau of Labor Statistics	Census	Bureau of Labor Statistics	Census
1919	110.2	111.9	132.1	151.3	173.9				
1920									
1921	78.2	75.7	179.0	183.5	196.4	134.0	138.2		
1922	88.4	92.2							
1923	109.7	116.2	149.3	181.7	(*)	121.7	124.7		
1924	94.6	103.5							
1925	97.2	103.1	119.2	143.6	144.5	109.0	117.5		
1926	102.0	103.4							
1927	93.3	92.6	92.2	102.6	111.1	108.7	107.8		
1928	89.5	95.9							
1929	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1930	88.9	82.1							
1931	79.0	66.2	94.3	94.8	87.8	88.5	88.6	88.5	90.2
1932									
1933	80.2	69.8	95.7	95.2	(*)	79.1	68.6	81.6	74.6
1934	101.9	84.3							
1935	95.1	71.1	70.0	67.6	69.9	92.2	78.2	75.9	67.2
1936									

* No data available.
[1] Polished glazing area, 3–5 square feet per square foot.
[2] Polished glazing area, 5–10 square feet per square foot.

TABLE IV.—*Comparison of price indexes, Bureau of Labor Statistics and Census of Manufactures or Bureau of Mines, 1919–36*—Continued

Year	Steel rails		Concrete reinforcing bars		Pig iron (Ala.)		Hay loader	
	Bureau of Labor Statistics	Census	Bureau of Labor Statistics	Census	Bureau of Labor Statistics	Census	Bureau of Labor Statistics	Census
1919	114.6	104.0	123.3	140.3				
1920	125.2		142.6					
1921	106.2	110.0	99.5	116.5			93.5	89.4
1922	94.6		85.6				74.8	(*)
1923	100.0	97.6	113.4	120.5			91.4	96.6
1924	100.0		110.4				107.0	105.2
1925	100.0	99.4	101.5	113.4			101.9	98.8
1926	100.0		98.5		139.9	124.8	101.9	103.1
1927	100.0	99.2	92.6	103.6	115.3	114.6	100.8	100.6
1928	100.0		94.5		105.7	103.2	100.8	102.2
1929	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1930	100.0		89.1		93.4	83.7	97.7	101.0
1931	100.0	99.9	81.2	85.7	81.0	76.5	96.8	103.1
1932	98.6		77.2		73.0	68.0	94.3	(*)
1933	91.5	90.3	83.2	79.0	81.5	71.2	94.3	98.5
1934	84.6		94.1		93.6	85.3		
1935	84.6	86.4	96.5	97.5	96.6	90.6		
1936					103.2	92.7		

Year	Grain binders		Mower		Mixed fertilizer		Fire brick	
	Bureau of Labor Statistics	Census	Bureau of Labor Statistics	Census	Bureau of Labor Statistics	Census	Bureau of Labor Statistics	Census
1919								
1920								
1921								
1922	84.5	78.0						
1923	95.3	83.7	95.6	90.4				
1924	107.0	101.8	108.9	104.7				
1925	100.8	95.7	100.8	96.4				
1926	100.8	93.6	100.8	95.6			96.5	103.0
1927	100.8	93.0	100.8	97.3	95.3	89.5	98.3	102.6
1928	100.8	96.5	100.8	95.6			100.0	101.8
1929	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1930	97.8	103.0	97.1	98.5			100.0	104.4
1931	97.0	97.4	97.1	98.4	84.5	84.5	94.4	97.8
1932	94.7	(*)	95.6	(*)			84.1	91.0
1933	94.7	(*)	99.9	96.2	66.3	66.7	92.9	91.2
1934	98.8	(*)					104.6	102.9
1935	100.8	97.7			72.6	78.9	104.6	105.0
1936	100.8	104.1						

Year	Washing machines		Window glass			Canned peaches		Dried peaches	
	Bureau of Labor Statistics	Census	Bureau of Labor Statistics [1]	Bureau of Labor Statistics [2]	Census	Bureau of Labor Statistics	Census	Bureau of Labor Statistics	Census
1919			156.0	182.0	172.4				
1920									
1921			140.7	164.1	143.0				
1922									
1923			101.7	105.6	(*)				
1924									
1925			78.7	90.5	102.5				
1926									
1927	137.2	117.6	84.1	87.1	86.4	85.2	78.5	83.2	85.0
1928						83.1		84.3	
1929	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1930						90.6		82.7	
1931	80.7	77.5	63.3	60.5	59.8	73.4	64.4	59.5	58.3
1932						63.9		46.5	
1933	53.5	58.9	71.2	67.3	66.0	60.5	57.1	52.5	47.5
1934						74.0		71.1	
1935			68.8	64.5	65.6	77.2	64.9	71.8	62.5
1936						70.5		72.1	

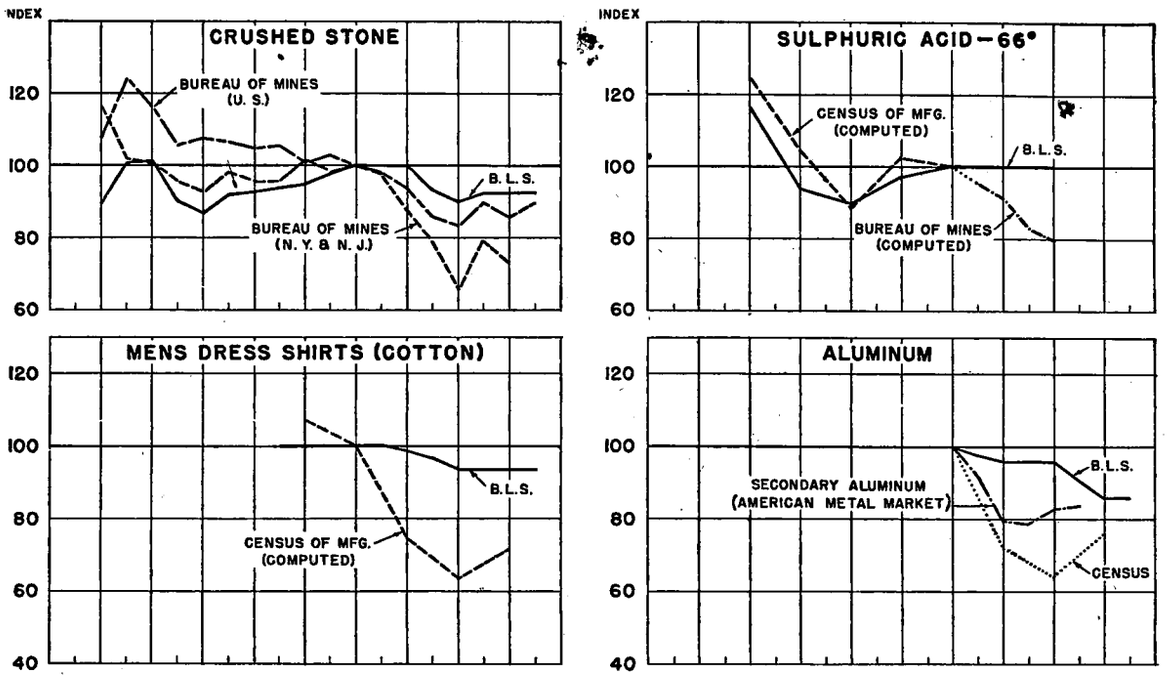
* No data available.
[1] Single—"A."
[2] Single—"B."

COMPARISON OF PRICE INDEXES

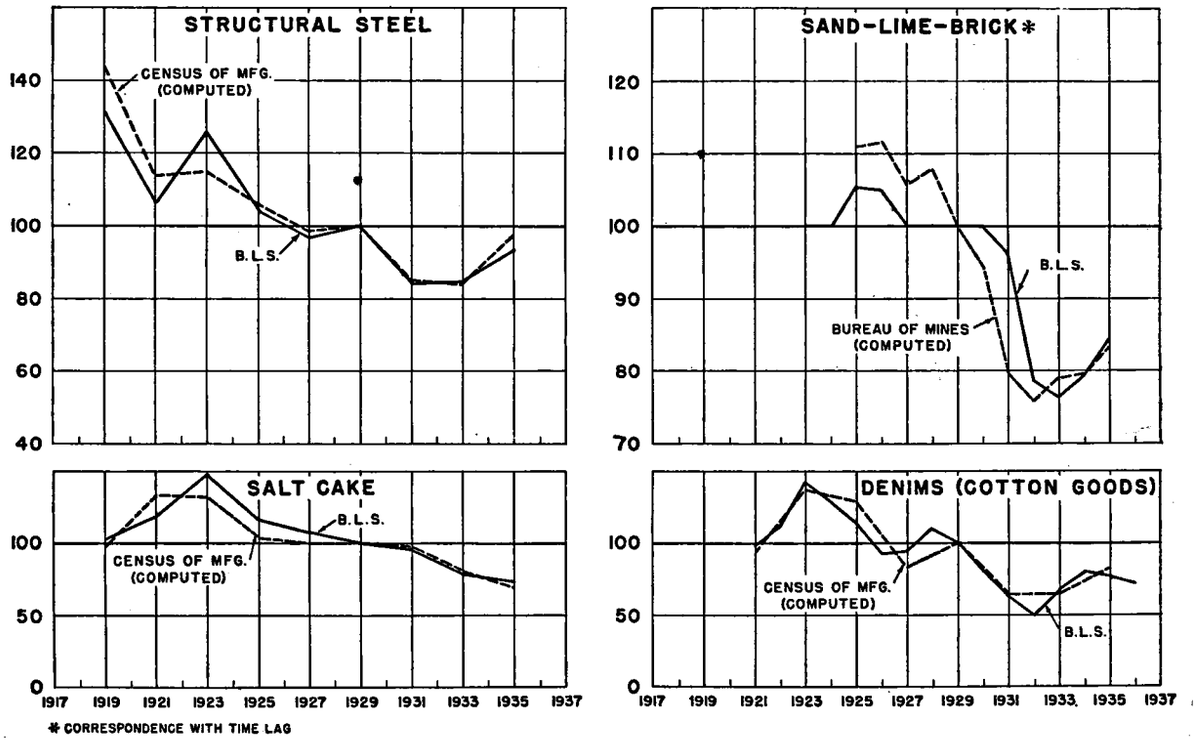
B. L. S. COMPARED WITH CENSUS OF MANUFACTURES OR BUREAU OF MINES

(1929 = 100)

EXAMPLES OF DISPARITY



EXAMPLES OF CLOSE CORRESPONDENCE



* CORRESPONDENCE WITH TIME LAG

Conclusion

On the basis of the evidence presented, it may be concluded that Bureau of Labor Statistics data fail to present an accurate picture of price movements in the case of certain commodities. This seems particularly true of heavy chemicals, such as sulphuric acid, and of other commodities such as petroleum asphalt and aluminum for which the source of information is trade paper quotations. Even where price series are based upon reports by manufacturers, the quotations may be largely nominal during periods of severe economic stress, as in the case of lime and cement. For products such as men's shirts, which are particularly hard to define precisely, the Bureau of Labor Statistics series may fall far short of accuracy.

On the other hand, it is significant that Bureau of Labor Statistics data do not appear to exaggerate the rigidity of the price structures of important commodities and commodity groups such as, for instance, steel rails and agricultural machinery. Although series based upon direct reporting are probably, on the whole, more accurate than some of those derived from trade journals, there seems no reason for generally rejecting the latter with the possible exception of the chemical group.[14] Trade paper quotations for such items as iron ore and steel rails have been shown to be reliable. For commodities sold on open markets, prices listed in trade publications may be presumed to be perfectly accurate.

These observations make the use of caution in dealing with individual price series imperative. However, they do not preclude the use of Bureau of Labor Statistics wholesale price data as statistical bases for broad economic investigations. In analyses of price rigidity and amplitude of price movement, it becomes necessary to place emphasis upon broad and consistent relationships and to avoid relying upon small differences in absolute figures. Yet, after all due allowance is made for the factors demanding caution, very marked and significant differences still remain between the behavior of rigid and flexible prices. For the statement and interpretation of such different types of price behavior, Bureau of Labor Statistics series can be regarded as furnishing an acceptable basis.

[14] The Bureau of Labor Statistics is now in the process of revising its chemical series.

APPENDIX 2[1].—WHOLESALE PRICE DATA

In the following tables, the commodities which go to make up the Bureau of Labor Statistics index of wholesale prices are classified according to various characteristics; are grouped on the basis of frequency and magnitude of price change; and are presented, group by group, in the form of indexes, running on an annual basis from 1913 to 1937.

In table I various characteristics and classifications of the 784 individual items are listed. In the first column the code numbers are indicated, by which the prices are referred to in various Bureau of Labor Statistics publications. In a number of cases where several quotations were obtained by the Bureau of Labor Statistics for the same or very similar commodities, it was found desirable to combine such quotations into one index in order to avoid weighting such items too heavily in the unweighted averages used in computing various indexes. Where this was done the new composite price is denoted by the lowest code number among the prices entering into the composite with the letter c affixed, thus: 2c, 6c. The individual items which were combined to make up such composites may be identified by referring to the notes after column 16.

A brief description of each commodity price is given in column 2. More complete specifications of the commodities are available in the mimeographed pamphlet *Wholesale Prices—Specifications of Commodities Entering Into the Composite Weighted Index*, Bureau of Labor Statistics, Division of Wholesale Prices, September 1935.

In column 3 is given the period for which fairly complete data are available. In some cases scattered data are available outside the period given, but are too scanty for ready use in further analysis. On the other hand, the absence of a month or two from the series has usually not been considered sufficient to warrant rejecting the data; the missing month has usually been supplied by interpolation.

In columns 4, 5, and 6, the commodities priced are classified according to the degree of fabrication to which they have been subjected. In column 4 the classification into raw materials and manufactured goods follows that published by the National Bureau of Economic Research in appendix II of *Economic Tendencies in the United States* by Frederick C. Mills. Not all the prices are so classified by Mills, and in a few cases the precise quotation to which the classification made in *Economic Tendencies* refers is not quite certain. Column 5 gives the classification into raw, semifinished, and finished goods according to the classification given by the Bureau of Labor Statistics, Division of Wholesale Prices, in *Wholesale Prices* for December 1937. Column 6 gives a somewhat more detailed classification prepared by the staff of the National Resources Committee. Commodities which pass through two or more stages of manufacture and so may at some time become a semifinished good are classified into raw, semifinished, and finished, designated R, S, and F, respectively. There are, however, some commodities which undergo no processing at all and are consumed substantially in the raw state. Such commodities are thus at the same time raw materials and finished goods, and are designated RF. There are also some commodities which undergo only one stage of manufacture and so never pass through the stage of being semifinished goods, at least in the open market. The raw material stage of such goods is designated RS, and the finished state SF.

Columns 7, 8, and 9 classify the items according to their durability. In general the criterion is durability under continuous use—i. e., normally rendering successive services—rather than mere absence of perishability. In column 7 the classification is that given to the corresponding Census industries (see column 16) in table 3 of *Employment and Pay Rolls* of the Bureau of Labor Statistics (e. g., the issue for October 1937). On this basis, the classification is somewhat indirect and occasionally yields anomalous results, as when matches are classed as durable. In column 8 the classification is taken from appendix I of *Economic Tendencies* in which various commodities are classified for use in production indexes rather than price indexes and the relation to the price indexes is somewhat indirect. In column 9 the classification by the staff of the National Resources Committee is given.

Column 10 classifies the items according to use, i. e., goods entering into capital equipment, producer's goods entering human consumption, and consumer goods. In column 11 the items are classified as food, clothing, and "other." Columns 12 and 13 classify the items as to source—in column 12 according to whether the source of the item is farm or nonfarm, and in column 13 according to whether the source is crop, animal, forest, or mineral. These classifications are taken from the National Bureau of Economic Research, except for the items classified as clothing and "other" which are by the staff of the National Resources Committee.

In column 14 the commodities are classified by the staff of the National Resources Committee according to source of activity, i. e., according to the industry that contributed the greatest value for that stage of

[1] Appendix 2 was prepared by William S. Vickrey.

activity. Four classifications are given, i. e., agricultural, forestry and fishing, mining, and manufacturing. For the manufactured goods the classification was made according to value added, i. e., when valued added was 30 percent or greater the commodity was classed in manufacturing, otherwise it was classified in one of the other groups.

In column 15 commodities are classified according to the degree to which the product of a manufacturer is subject to the direct competition of similar products. Where the same commodity with substantially identical specifications is obtainable from several producers, the article is classified as a standard commodity, designated S; where there are differences between the product of one producer and that of another producing substantially the same commodity, or where the producer by advertising, packaging, use of trade-marks, or other means, has succeeded in creating the illusion in the mind of the public that such differences exist, the commodity is classified as differentiated, designated D; and where differentiation of the product is carried to the extent that the products of different producers are no longer directly comparable as to price without taking into consideration possible differences in the tastes of the consumer, the commodity is classed as unique, designated U.

In column 16 the Census classification number of the industry in which the commodity is produced is given. In the case of raw materials, the source is given, i. e., agriculture, mining, or import. An item is classed as an import if the preponderance of the supply is imported regardless of whether a considerable proportion of the supply may be produced domestically. Complete descriptions of the industries to which the industry code numbers refer are given in *Industry Classifications for the Census of Manufactures, 1935 and 1937*, Bureau of Census. The 1935 numbers were used for all industries but textiles, for which the 1937 numbers were used.

In column 17 is given the number of changes in price occurring during the period from January 1926 to December 1933, there being a total of 96 monthly quotations and therefore a possible maximum of 95 changes. In the case of composites, the total number of changes in all of the prices entering into the composite was divided by the number of components and the result evened off to the nearest integer. Prices were then classified into 10 frequency groups according to the frequency of change, the group intervals being adjusted so that the prices are distributed as evenly as possible among the ten groups. Prices changing least frequently were put in group I and those changing most frequently in group X. Group X was then further subdivided into Xa and Xb by putting into group Xb those prices which had shown a change every month, or a total of 95 changes, leaving in group Xa those prices having shown 93 or 94 changes. These group numbers are listed in column 18.

In column 19 is given an index of depression sensitivity for each of the 617 items included in the frequency groups. The index is calculated by subtracting the 1932 price index from the arithmetic average of the 1929 and 1937 price indexes (all prices expressed as a percent relative of the 1929 price).[2] This measure estimates in part the influence of the nondepression factors such as were at work between 1926 and 1929. Such a measure is superior to the drop in price from 1929–32 or a rise in price from 1932–37, because any change in the price not attributable to the depression is partly averaged out. On this basis, prices are grouped into 10 groups from the least to the most sensitive. The depression sensitivity group numbers are given in column 20 for each of the 617 items.

In columns 21, 22, 23 and 24 are shown the price indexes for each of the items used in the sensitivity groups for the years 1926, 1929, 1932, and 1937, in each case the base being 1929=100.

In table II the prices are listed by frequency groups. This table also shows the range of frequency corresponding to each group and gives the depression sensitivity group number for each price.

In table III the prices are listed according to depression sensitivity groups. The range of sensitivity for each group is given, and within each group the prices are given in order of increasing sensitivity.

Table IV gives annual indexes computed from these groupings. The first 10 lines are frequency group indexes, which are simple unweighted geometric averages of the items in each frequency group, shifted from a 1926=100 to a 1926–29=100 base. Similar indexes are also given for the 10 sensitivity groups. The frequency slope is the regression coefficient obtained when the frequency group indexes for a given year are related to the group number. To retain more nearly the normal distribution of the data and to avoid the influence of the general price level upon this coefficient, the calculation was carried out in terms of logarithms, the result being expressed in percent change in price per group. The Bureau of Labor Statistics *Index of Wholesale Prices* and the Federal Reserve Board *Index of Industrial Production* shifted to a 1926–29=100 base are also given for comparison.

Table IV–A gives data for the period 1913 to 1926 similar to those in table IV except that 11 items which showed extreme and disproportionate rises in price during the war period when supplies of these commodities from Germany were cut off have been eliminated. These items are Nos. 598, 609, 611, (dyestuffs); 620, 659, 660, 661, 662, (potash salts); 632

(*Continued on Page 200*)

[2] In those cases where the 1932 price is greater than the average of 1929 and 1937 prices, the index is negative. In such cases, the 1932 price is greater than the 1929 price or the 1937 price.

TABLE I.—*Tentative price classifications*

B. L. S. code No.	Name of commodity	Price data available	Fabrication			Durability			Use, N. B. E. R.[1]	Clothing, food, and other, N. R. C.	Source		Agriculture, manufacturing, mining, forestry, and fishing, N. R. C.	Product differentiation, unique, differentiated or standard, N. R. C.	Census industry classification	Price flexibility				Price indexes			
			Raw or manufactured, N. B. E. R.	Raw, semifinished or finished		Durable, nondurable, B. L. S.	Durable, semidurable, nondurable				Farm or nonfarm, N. B. E. R.	Crop, animal, forest, or mineral, N. B. E. R.				Frequency of change 1926-33 N. R. C.		Sensitivity N. R. C		1929=100			
				B. L. S.	N. R. C.		N. B. E. R.	N. R. C.								Changes in 95 chances	Group No.	Index of depression sensitivity	Group No.	1926	1929	1932	1937
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)
	I. FARM PRODUCTS																						
	Grains																						
1	Barley, malting	1926-38	R	R	R	----	N	N	M	F	F	C	A	S	Agriculture	95	X-b	55.2	10	100.5	100.0	61.3	133.0
2c	Corn	1913-38	R	R	R	----	N	N	M	F	F	C	A	S	----do----	95	X-b	71.5	10	79.9	100.0	32.9	108.8
2	Corn, No. 2, Yellow	1913-38	R	R	R	----	N	N	M	F	F	C	A	S	----do----	Included in 2c.							
3	Corn, No. 3, Yellow	1913-38	R	R	R	----	N	N	M	F	F	C	A	S	----do----								
4	Oats, No. 2, White	1913-38	R	R	R	----	N	N	M	F	F	C	A	S	----do----	95	X-b	52.0	10	88.6	100.0	43.0	90.0
5	Rye, No. 2	1913-38	R	R	R	----	----	N	M	F	F	C	A	S	----do----	95	X-b	59.5	10	93.9	100.0	38.6	96.2
6c	Wheat	1913-38	R	R	R	----	N	N	M	F	F	C	A	S	----do----	95	X-b	54.1	10	118.2	100.0	43.7	95.6
6	Wheat, No. 2, Red Winter	1913-38	R	R	R	----	N	N	M	F	F	C	A	S	----do----								
7	Wheat, No. 2, Hard	1913-38	R	R	R	----	N	N	M	F	F	C	A	S	----do----								
8	Wheat, No. 1, Northern Spring	1913-38	R	R	R	----	N	N	M	F	F	C	A	S	----do----								
9	Wheat, No. 2, Dark Northern Spring	1913-38	R	R	R	----	N	N	M	F	F	C	A	S	----do----	Included in 6c.							
10	Wheat, No. 1, Hard White	1913-38	R	R	R	----	N	N	M	F	F	C	A	S	----do----								
11	Wheat, No. 2, Red Winter	1913-38	R	R	R	----	N	N	M	F	F	C	A	S	----do----								
	Livestock and poultry																						
12	Calves, vealers	1913-38	R	R	RS	----	N	N	M	F	F	A	A	S	----do----	94	X-a	44.0	9	82.4	100.0	40.9	69.9
13c	Cows	1913-38	R	R	RS	----	N	N	M	F	F	A	A	S	----do----	94	X-a	48.9	10	70.2	100.0	41.4	80.6
13	Cows, fair to good	1913-38	R	R	RS	----	N	N	M	F	F	A	A	S	----do----	Included in 13c.							
14	Cows, good to choice	1913-38	R	R	RS	----	N	N	M	F	F	A	A	S	----do----								
15c	Steers	1913-38	R	R	RS	----	N	N	M	F	F	A	A	S	----do----	95	X-b	45.9	9	41.6	100.0	32.6	57.0
15	Steers, fair to good	1915-38	R	R	RS	----	N	N	M	F	F	A	A	S	----do----	Included in 15c.							
16	Steers, good to choice	1916-38	R	R	RS	----	N	N	M	F	F	A	A	S	----do----								
17c	Hogs	1913-38	R	R	RS	----	N	N	M	F	F	A	A	S	----do----	94	X-a	63.0	10	121.2	100.0	37.8	101.5
17	Hogs, heavy butchers	1913-38	R	R	RS	----	N	N	M	F	F	A	A	S	----do----	Included in 17c.							
18	Hogs, light butchers	1913-38	R	R	RS	----	N	N	M	F	F	A	A	S	----do----								
19c	Sheep	1913-38	R	R	RS	----	N	N	M	F	F	A	A	S	----do----	88	IX	54.6	10	103.5	100.0	32.6	74.3
19	Ewes, natives	1913-38	R	R	RS	----	N	N	M	F	F	A	A	S	----do----	Included in 19c.							
20	Lambs, western	1926-38	R	R	RS	----	N	N	M	F	F	A	A	S	----do----	94	X-a	46.0	9	98.6	100.0	42.1	76.3
21	Wethers, fed	1913-38	R	R	RS	----	N	N	M	F	F	A	A	S	----do----	Included in 19c.							
22c	Poultry, live	1913-38	R	R	RS	----	----	N	M	F	F	A	A	S	----do----	95	X-b	28.4	7	93.8	100.0	55.0	66.7
22	Poultry, live, Chicago	1913-38	R	R	RS	----	----	N	M	F	F	A	A	S	----do----	Included in 22c.							
23	Poultry, live, New York	1913-38	R	R	RS	----	----	N	M	F	F	A	A	S	----do----								
	Other farm products																						
24c	Cotton, middling	1913-38	R	R	R	----	S	S	M	O	F	C	A	S	----do----	95	X-b	46.3	9	91.1	100.0	33.7	60.0
24	Cotton, Galveston	1913-38	R	R	R	----	S	S	M	O	F	C	A	S	----do----								
25	Cotton, New Orleans	1913-38	R	R	R	----	S	S	M	O	F	C	A	S	----do----	Included in 24c.							
26	Cotton, New York	1913-38	R	R	R	----	S	S	M	O	F	C	A	S	----do----								
27c	Eggs, fresh	1913-38	R	R	RF	----	N	N	C	F	F	A	A	S	----do----	94	X-a	30.8	7	91.3	100.0	55.2	65.9
27	Eggs, Boston	1913-38	R	R	RF	----	N	N	C	F	F	A	A	S	----do----	Included in 27c.							
28	Eggs, Chicago	1913-38	R	R	RF	----	N	N	C	F	F	A	A	S	----do----								
29	Eggs, Cincinnati	1913-38	R	R	RF	----	N	N	C	F	F	A	A	S	----do----								
30	Eggs, New Orleans	1913-38	R	R	RF	----	N	N	C	F	F	A	A	S	----do----	94	X-a	28.2	7	114.0	100.0	53.8	64.0
31	Eggs, New York	1913-38	R	R	RF	----	N	N	C	F	F	A	A	S	----do----	Included in 27c.							
32	Eggs, Philadelphia	1913-38	R	R	RF	----	N	N	C	F	F	A	A	S	----do----								
33	Eggs, San Francisco	1913-38	R	R	RF	----	N	N	C	F	F	A	A	S	----do----								
34	Apples, Chicago	1932-38	R	R	RF	----	N	N	C	F	F	C	A	S	----do----	Discarded—inadequate data.							
35	Apples, New York	1926-38	R	R	RF	----	N	N	C	F	F	C	A	S	----do----	95	X-b	22.6	5	67.6	100.0	52.0	49.3
36	Apples, Seattle	1913-38	R	R	RF	----	N	N	C	F	F	C	A	S	----do----	86	IX	45.8	9	78.2	100.0	39.6	70.7
37	Lemons	1913-38	R	R	RF	----	----	N	C	F	F	C	A	S	----do----	95	X-b	18.0	5	65.0	100.0	66.7	69.5
38	Oranges	1913-38	R	R	RF	----	----	N	C	F	F	C	A	S	----do----	95	X-b	25.3	6	91.1	100.0	58.4	67.4
39	Alfalfa hay	1913-38	R	R	R	----	----	N	M	F	F	C	A	S	----do----	91	IX	39.4	8	85.6	100.0	49.4	77.6
40c	Hay	1913-38	R	R	R	----	N	N	M	F	F	C	A	S	----do----	83	IX	29.3	7	119.0	100.0	65.2	89.0
40	Hay, clover	1913-38	R	R	R	----	N	N	M	F	F	C	A	S	----do----	Included in 40c.							
41	Hay, timothy	1913-38	R	R	R	----	N	N	M	F	F	C	A	S	----do----								
42	Hops	1913-38	R	R	R	----	----	N	M	F	F	C	A	S	----do----	94	X-a	47.4	9	172.4	100.0	100.2	195.2
43	Milk, Chicago	1913-38	R	R	RF	----	----	N	C	F	F	A	A	S	----do----	29	VI	11.4	3	94.5	100.0	73.8	70.3
44	Milk, New York	1913-38	R	R	RF	----	----	N	C	F	F	A	A	S	----do----	30	VI	30.0	7	90.7	100.0	59.6	79.1
45	Milk, San Francisco	1913-38	R	R	RF	----	----	N	C	F	F	A	A	S	----do----	13	IV	19.6	5	99.7	100.0	72.3	83.7
46	Peanuts	1913-38	R	R	RS	----	----	N	C	F	F	C	A	S	----do----	73	VIII	61.2	10	100.2	100.0	29.0	80.4
47	Alfalfa seed	1913-38	R	R	R	----	----	N	M	F	F	C	A	S	----do----	61	VIII	55.2	10	69.2	100.0	61.7	127.7
48	Clover seed	1913-38	R	R	R	----	----	N	M	F	F	C	A	S	----do----	90	IX	72.4	10	116.0	100.0	47.3	139.4
49	Flaxseed	1913-38	R	R	R	----	S	N	M	F	F	C	A	S	----do----	95	X-b	45.8	9	84.2	100.0	42.7	76.9
50	Timothy seed	1913-38	R	R	R	----	----	N	M	F	F	C	A	S	----do----	83	IX	34.0	8	122.9	100.0	55.8	79.5
51	Tobacco, leaf	1926-38	R	R	RS	----	N	N	M	O	F	C	A	S	----do----	95	X-b	68.0	10	99.2	100.0	42.1	120.2
52	Beans, dried	1913-38	R	R	RF	----	----	N	C	F	F	C	A	S	----do----	93	X-a	56.6	10	54.5	100.0	25.2	63.6
53	Onions	1913-38	R	R	RF	----	----	N	C	F	F	C	A	S	----do----	94	X-a	3.4	2	82.4	100.0	73.5	53.7
54	Sweetpotatoes	1913-38	R	R	RF	----	----	N	C	F	F	C	A	S	----do----	78	IX	44.4	9	135.3	100.0	33.3	55.5
55c	Potatoes	1913-38	R	R	RF	----	N	N	C	F	F	C	A	S	----do----	94	X-a	45.8	9	182.1	100.0	48.5	88.5
55	Potatoes, Boston	1913-38	R	R	RF	----	N	N	C	F	F	C	A	S	----do----								
56	Potatoes, Chicago	1913-38	R	R	RF	----	N	N	C	F	F	C	A	S	----do----	Included in 55c.							
57	Potatoes, New York	1913-38	R	R	RF	----	N	N	C	F	F	C	A	S	----do----								
58	Potatoes, Oregon	1913-38	R	R	RF	----	N	N	C	F	F	C	A	S	----do----	89	IX	47.4	9	122.4	100.0	49.1	92.9
59c	Wool, domestic	1913-38	R	R	RF	----	S	S	M	O	F	A	A	S	----do----	72	VIII	53.1	10	110.1	100.0	45.9	98.0
59	Wool, grease, cloth	1913-38	R	R	R	----	S	S	M	O	F	A	A	S	----do----								
60	Wool, grease, delaine	1913-38	R	R	R	----	S	S	M	O	F	A	A	S	----do----								
61	Wool, grease, half blood	1913-38	R	R	R	----	S	S	M	O	F	A	A	S	----do----								
62	Wool, grease, medium	1913-38	R	R	R	----	S	S	M	O	F	A	A	S	----do----	Included in 59c.							
63	Wool, scoured, fine	1913-38	R	R	R	----	S	S	M	O	F	A	A	S	----do----								
64	Wool, scoured, half blood	1913-38	R	R	R	----	S	S	M	O	F	A	A	S	----do----								

TABLE I.—*Tentative price classification*—Continued

B. L. S. code number	Name of commodity	Price data available	Fabrication			Durability			Use, N. B. E. R. [1]	Clothing, food, and other, N. R. C.	Source		Agriculture, manufacturing, mining, forestry, and fishing, N. R. C.	Product differentiation, unique, differentiated or standard, N. R. C.	Census industry classification	Price flexibility				Price indexes			
			Raw or manufactured, N. B. E. R.	Raw, semifinished or finished		Durable, nondurable, B. L. S.	Durable, semidurable, nondurable				Farm or nonfarm, N. B. E. R.	Crop, animal, forest, or mineral, N. B. E. R.				Frequency of change 1926–33 N. R. C.		Sensitivity N. R. C.		1929=100			
				B. L. S.	N. R. C.		N. B. E. R.	N. R. C.								Changes in 95 chances	Group number	Index of depression sensitivity	Group number	1926	1929	1932	1937
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)
	I. FARM PRODUCTS—continued																						
	Other farm products—Continued																						
65c	Wool, foreign	1913–38	R	R	R	----	S	S	M	O	F	A	A–I	S	Import	63	VIII	60.4	10	95.8	100.0	36.8	94.3
65	Wool, Argentine	1913–38	R	R	R	----	S	S	M	O	F	A	A–I	S	do	Included in 65c.							
66	Wool, Australian	1913–38	R	R	R	----	S	S	M	O	F	A	A–I	S	do								
67	Wool, Montevideo	1913–38	R	R	R	----	S	S	M	C	F	A	A–I	S	do								
	II. FOODS																						
	Dairy products																						
68c	Butter, creamery	1913–38	M	F	SF	N	----	N	C	F	F	A	A	S	103	94	X–a	44.1	9	62.7	100.0	30.6	49.4
68	Butter, Boston Extra	1913–38	M	F	SF	N	----	N	C	F	F	A	A	S	103	Included in 68c.							
69	Butter, Boston, 1st	1913–38	M	F	SF	N	----	N	C	F	F	A	A	S	103								
70	Butter, Boston, 2d	1913–38	M	F	SF	N	----	N	C	F	F	A	A	S	103								
71	Butter, Chicago, Extra	1913–38	M	F	SF	N	----	N	C	F	F	A	A	S	103								
72	Butter, Chicago, Extra, 1st	1913–38	M	F	SF	N	----	N	C	F	F	A	A	S	103								
73	Butter, Chicago, 1st	1913–38	M	F	SF	N	----	N	C	F	F	A	A	S	103								
74	Butter, Cincinnati	1913–38	M	F	SF	N	----	N	C	F	F	A	A	S	103								
75	Butter, New Orleans, Fancy	1913–38	M	F	SF	N	----	N	C	F	F	A	A	S	103								
76	Butter, New Orleans, Choice	1913–38	M	F	SF	N	----	N	C	F	F	A	A	S	103								
77	Butter, New York, Extra	1913–38	M	F	SF	N	----	N	C	F	F	A	A	S	103								
78	Butter, New York, 1st	1913–38	M	F	SF	N	----	N	C	F	F	A	A	S	103								
79	Butter, New York, 2d	1913–38	M	F	SF	N	----	N	C	F	F	A	A	S	103								
80	Butter, Philadelphia, Extra	1913–38	M	F	SF	N	----	N	C	F	F	A	A	S	103								
81	Butter, Philadelphia, Extra, 1st.	1913–38	M	F	SF	N	----	N	C	F	F	A	A	S	103								
82	Butter, Philadelphia, 1st	1913–38	M	F	SF	N	----	N	C	F	F	A	A	S	103								
83	Butter, St. Louis	1913–38	M	F	SF	N	----	N	C	F	F	A	A	S	103								
84	Butter, San Francisco, Extra	1913–38	M	F	SF	N	----	N	C	F	F	A	A	S	103								
85	Butter, San Francisco, 1st	1913–38	M	F	SF	N	----	N	C	F	F	A	A	S	103								
86c	Cheese, whole, milk	1913–38	M	F	SF	N	----	N	C	F	F	A	A	S	107	94	X–a	35.7	8	99.2	100.0	53.8	79.0
86	Cheese, Chicago	1913–38	M	F	SF	N	----	N	C	F	F	A	A	S	107	Included in 86c.							
87	Cheese, New York	1926–38	M	F	SF	N	----	N	C	F	F	A	A	S	107								
88	Cheese, San Francisco	1913–38	M	F	SF	N	----	N	C	F	F	A	A	S	107								
89	Condensed milk	1913–38	M	F	SF	N	----	N	C	F	F	A	A	D	111	38	VII	12.8	3	95.4	100.0	76.9	79.4
90	Evaporated milk	1913–38	M	F	SF	N	----	N	C	F	F	A	A	D	111	56	VIII	26.1	6	103.0	100.0	65.4	83.0
91	Powdered skim milk	1926–38	M	F	SF	N	----	N	C	F	F	A	A	S	111	42	VII	39.0	8	129.2	100.0	55.9	89.7
	Cereal products																						
92	Bread, Chicago	1913–38	M	F	F	N	----	N	C	F	F	C	M	D	102	14	IV	−4.9	1	100.0	100.0	93.7	77.7
93	Bread, Cincinnati	1913–38	M	F	F	N	----	N	C	F	F	C	M	D	102	17	V	30.2	7	100.1	100.0	64.3	89.0
94	Bread, New Orleans	1913–38	M	F	F	N	----	N	C	F	F	C	M	D	102	16	IV	34.0	8	107.5	100.0	64.1	96.2
95	Bread, New York	1913–38	M	F	F	N	----	N	C	F	F	C	M	D	102	5	II	10.3	3	105.7	100.0	90.9	102.4
96	Bread, San Francisco	1913–38	M	F	F	N	----	N	C	F	F	C	M	D	102	6	II	−1.8	1	111.4	100.0	102.6	101.7
97	Cereal, corn	1926–38	M	F	SF	N	----	N	C	F	F	C	M	U	106	1	I	−3.1	1	100.0	100.0	100.0	93.8
98	Cereal, oatmeal	1913–38	M	F	SF	N	----	N	C	F	F	C	A	D	106	95	X–b	42.6	9	98.0	100.0	58.4	101.9
99	Cereal, wheat	1926–38	M	F	SF	N	----	N	C	F	F	C	M	U	106	4	I	10.6	3	100.0	100.0	87.4	96.1
100	Crackers, soda	1913–38	M	F	F	N	----	N	C	F	F	C	M	D	102	11	III	22.9	5	133.9	100.0	82.9	111.6
101	Crackers, sweet	1926–38	M	F	F	N	----	N	C	F	F	C	M	U	102	11	III	5.6	2	104.2	100.0	96.7	104.7
102	Flour, rye	1913–38	M	F	S	N	N	N	C	F	F	C	A	S	116	95	X–b	39.7	9	89.5	100.0	50.4	80.2
103c	Flour, wheat	1913–38	M	F	S	N	N	N	C	F	F	C	A	S	116	92	IX	39.6	9	123.2	100.0	57.9	95.1
103	Flour, Standard Patent, Buffalo.	1913–38	M	F	S	N	N	N	C	F	F	C	A	S	116	Included in 103c.							
104	Flour, 1st, clear, Buffalo	1913–38	M	F	S	N	N	N	C	F	F	C	A	S	116								
105	Flour, Short Patents, Kansas City.	1913–38	M	F	S	N	N	N	C	F	F	C	A	S	116								
106	Flour, Straight, Kansas City	1913–38	M	F	S	N	N	N	C	F	F	C	A	S	116								
107	Flour, Standard Patents, Minneapolis.	1913–38	M	F	S	N	N	N	C	F	F	C	A	S	116								
108	Flour, 2d, Patents, Minneapolis.	1913–38	M	F	S	N	N	N	C	F	F	C	A	S	116								
109	Flour, Patents, Oregon	1913–38	M	F	S	N	N	N	C	F	F	C	A	S	116								
110	Flour, Shorts, Patents, St. Louis.	1913–38	M	F	S	N	N	N	C	F	F	C	A	S	116								
111	Flour, Straight, St. Louis	1913–38	M	F	S	N	N	N	C	F	F	C	A	S	116								
112	Flour, Standard Patents, Toledo	1913–38	M	F	S	N	N	N	C	F	F	C	A	S	116								
113	Hominy grits	1913–38	M	F	SF	N	----	N	C	F	F	C	A	S	106	95	X–b	77.6	10	81.4	100.0	34.0	123.1
114	Macaroni	1926–38	----	F	F	N	----	N	----	F	----	----	M	D	121	32	VI	41.0	9	118.5	100.0	65.4	112.9
115	Corn meal, white	1913–38	M	F	SF	N	----	N	C	F	F	C	A	S	116	95	X–b	77.6	10	81.4	100.0	34.0	123.1
116	Corn meal, yellow	1913–38	M	F	SF	N	----	N	C	F	F	C	A	S	116	88	IX	59.0	10	91.2	100.0	42.6	103.1
117	Pretzels	1926–38	----	F	F	N	----	N	----	F	----	----	M	D	102	10	III	12.8	3	99.2	100.0	96.6	118.8
118	Rice, Blue Rose	1915–38	M	F	SF	N	----	N	C	F	F	C	A	S	127	80	IX	38.0	8	160.5	100.0	58.4	92.8
119	Rice, Edith	1913–38	M	F	SF	N	----	N	C	F	F	C	A	S	127	72	VIII	16.2	4	154.6	100.0	73.0	78.5
	Fruits and vegetables																						
120	Canned apples	1926–38	----	F	SF	N	----	N	----	F	----	----	M	D	105	27	VI	20.3	5	84.9	100.0	75.8	92.2
121	Canned apricots	1926–38	----	F	SF	N	----	N	----	F	----	----	M	D	105	58	VIII	23.4	6	109.9	100.0	68.1	83.1
122	Canned cherries	1926–38	----	F	SF	N	----	N	----	F	----	----	M	D	105	24	VI	25.6	6	102.0	100.0	62.9	77.0
123	Canned peaches	1926–38	M	F	SF	N	----	N	C	F	F	C	M	D	105	64	VIII	24.8	6	105.2	100.0	63.9	77.3
124	Canned pears	1926–38	----	F	SF	N	----	N	----	F	----	----	M	D	105	54	VIII	23.7	6	95.6	100.0	56.3	60.0
125	Canned pineapple	1926–38	M	F	SF	N	----	N	C	F	N	C	M	D	105	25	VI	26.6	6	95.9	100.0	64.5	82.3
126	Dried apples	1913–38	----	F	SF	N	----	N	----	F	----	----	A	S	105	81	IX	39.0	8	84.4	100.0	48.4	74.9

TABLE I.—*Tentative price classification*—Continued

B. L. S. code number	Name of commodity	Price data available	Fabrication			Durability			Use, N. B. E. R. [1]	Clothing, food, and other, N. R. C.	Source		Agriculture, manufacturing, mining, forestry, and fishing, N. R. C.	Product differentiation, unique, differentiated or standard, N. R. C.	Census industry classification	Price flexibility				Price indexes 1929=100			
			Raw or manufactured, N. B. E. R.	Raw, semifinished or finished		Durable, nondurable, B. L. S.	Durable, semidurable, nondurable				Farm or nonfarm, N. B. E. R.	Crop, animal, forest, or mineral, N. B. E. R.				Frequency of change 1926–33 N. R. C.		Sensitivity N. R. C.					
				B. L. S.	N. R. C.		N. B. E. R.	N. R. C.								Changes in 95 chances	Group number	Index of depression sensitivity	Group number	1926	1929	1932	1937
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(12)	(14)	(15)	(16)	(17)	(18)	(19)	(10)	(21)	(22)	(23)	(24)
	II. FOODS—continued																						
	Fruits and vegetables—Contd.																						
127	Dried apricots	1926–38	------	F	SF	N	----	N	----	F	----	----	A	S	105	89	IX	37.2	8	137.7	100.0	42.7	59.8
128	Dried currants	1913–38	------	F	SF	N	----	N	----	F	----	----	A	S	105	37	VII	5.6	2	70.7	100.0	85.4	82.0
129	Dried peaches	1926–38	------	F	SF	N	----	N	----	F	----	----	A	S	105	89	IX	36.6	8	114.3	100.0	46.5	66.3
130	Dried prunes	1926–38	M	F	SF	N	----	N	C	F	F	C	A	S	105	92	IX	38.2	8	77.3	100.0	35.1	46.6
131	Raisins, seedless	1926–38	M	F	SF	N	----	N	C	F	F	C	A	S	105	82	IX	−1.4	1	142.2	100.0	105.8	108.7
132	Bananas	1913–38	R	R	RF	N	----	N	C	F	N	C	A–I	S	Import	50	VIII	9.0	3	138.9	100.0	97.8	113.5
133	Canned asparagus	1926–38	------	F	SF	N	----	N	----	F	----	----	M	D	105	22	V	13.3	4	101.5	100.0	86.0	98.6
134	Canned baked beans	1926–38	------	F	SF	N	----	N	----	F	----	----	M	D	105	25	VI	27.2	6	96.2	100.0	68.7	91.7
135	Canned corn	1913–38	M	F	SF	N	----	N	C	F	F	C	M	D	105	51	VIII	29.0	7	91.0	100.0	60.2	78.5
136	Canned peas	1913–38	M	F	SF	N	----	N	C	F	F	C	M	D	105	36	VII	.1	1	106.3	100.0	96.8	93.8
137	Canned spinach	1926–38	------	F	SF	N	----	N	----	F	----	----	M	D	105	55	VIII	8.6	3	99.2	100.0	87.5	92.3
138	Canned string beans	1913–38	M	F	SF	N	----	N	C	F	F	C	M	D	105	46	VII	31.2	7	76.6	100.0	51.2	64.7
139	Canned tomatoes	1913–38	M	F	SF	N	----	N	C	F	F	C	M	D	105	35	VII	16.8	4	85.5	100.0	67.1	67.9
	Meats																						
140	Beef, cured	1923–38	M	F	SF	N	N	N	C	F	F	A	A	S	123	90	IX	42.5	9	83.1	100.0	48.7	82.4
141c	Beef, fresh	1913–38	M	F	SF	N	N	N	C	F	F	A	A	S	123	74	VIII	35.8	8	71.7	100.0	60.6	92.9
141	Beef, fresh, Chicago	1913–38	M	F	SF	N	N	N	C	F	F	A	A	S	123	Included in 141c.							
142	Beef, fresh, New York	1913–38	M	F	SF	N	N	N	C	F	F	A	A	S	123								
143	Lamb, fresh	1913–38	M	F	SF	N	N	N	C	F	F	A	A	S	123	94	X–a	32.1	7	102.4	100.0	52.4	69.0
144	Mutton, fresh	1913–38	M	F	SF	N	N	N	C	F	F	A	A	S	123	94	X–a	32.2	7	102.5	100.0	50.0	64.3
145	Bacon	1913–38	M	F	SF	N	N	N	C	F	F	A	A	D	123	72	VIII	53.1	10	115.7	100.0	47.2	100.6
146	Cured pork belly cleared	1913–38	M	F	SF	N	N	N	C	F	F	A	A	S	123	87	IX	69.8	10	117.4	100.0	42.6	124.8
147	Cured pork belly rib	1913–38	M	F	SF	N	N	N	C	F	F	A	A	S	123	90	IX	74.1	10	132.6	100.0	50.3	148.8
148	Cured hams	1913–38	M	F	SF	N	N	N	C	F	F	A	A	D	123	95	X–b	42.8	9	125.9	100.0	54.5	94.6
149	Mess pork	1913–38	M	F	SF	N	N	N	C	F	F	A	A	S	123	90	IX	46.1	9	123.3	100.0	57.3	106.8
150	Pork, fresh, comp	1923–38	M	F	SF	N	N	N	C	F	F	A	A	S	123	93	X–a	57.1	10	122.2	100.0	42.7	99.6
151	Veal, fresh	1913–38	M	F	SF	N	N	N	C	F	F	A	A	S	123	95	X–b	42.6	9	82.0	100.0	39.7	64.6
152	Poultry, dressed, Chicago	1926–38	M	F	SF	N	----	N	C	F	F	A	A	S	126	85	IX	27.4	6	96.4	100.0	57.0	68.9
153	Poultry, dressed, New York	1913–38	M	F	SF	N	----	N	C	F	F	A	A	S	126	93	X–a	26.8	6	97.8	100.0	54.7	62.9
	Other foods																						
154	Ginger ale	1926–38	------	F	F	N	----	N	----	F	----	----	M	U	101	2	I	−.1	1	99.8	100.0	82.5	64.8
155	Grape juice	1926–38	------	F	SF	N	----	N	----	F	----	----	M	U	105	10	III	17.6	5	100.0	100.0	71.7	78.5
156	Plain soda	1926–38	------	F	F	N	----	N	----	F	----	----	M	U	101	4	I	1.6	2	100.0	100.0	94.5	92.3
157	Cocoa beans	1913–38	R	R	RS	----	----	N	M	F	N	C	I	S	Import	95	X–b	25.4	6	116.7	100.0	60.1	71.1
158	Powdered cocoa	1926–38	------	F	SF	N	----	N	----	F	----	----	M	D	109	9	III	11.0	3	100.0	100.0	72.5	67.1
159	Coffee, Rio	1913–38	R	R	RS	----	----	N	C	F	N	C	A–I	S	Import	94	X–a	26.8	6	115.6	100.0	51.2	56.0
160	Coffee, Santos	1913–38	R	R	RS	----	----	N	C	F	N	C	A–I	S	do	94	X–a	26.6	6	100.9	100.0	48.4	50.1
161	Copra	1913–38	R	R	R	----	----	N	M	F	N	C	A–I	S	do	87	IX	47.9	10	130.9	100.0	43.6	83.0
162	Canned salmon, pink	1926–38	M	F	SF	N	----	N	C	F	N	O	M	D	104	30	VI	25.6	6	89.0	100.0	61.1	73.3
163	Canned salmon, red	1913–38	M	F	SF	N	----	N	C	F	N	O	M	D	104	58	VIII	25.4	6	122.7	100.0	68.6	87.9
164	Pickled cod	1913–38	M	F	SF	N	----	N	C	F	N	O	F	S	104	56	VIII	27.6	7	91.9	100.0	65.3	85.9
165	Pickled herring	1913–38	M	F	SF	N	----	N	C	F	N	O	F	S	104	60	VIII	14.2	4	85.3	100.0	55.9	40.2
166	Salt mackerel	1926–38	M	F	SF	N	----	N	C	F	N	O	F	S	104	58	VIII	42.7	9	74.5	100.0	42.0	69.4
167	Smoked salmon	1913–38	M	F	SF	N	----	N	C	F	N	O	F	S	104	54	VIII	27.6	7	81.2	100.0	56.5	68.3
168	Glucose	1913–38	M	F	S	N	----	N	M	F	F	C	M	S	113	43	VII	35.4	8	87.5	100.0	64.9	100.5
169	Grape jam	1926–38	------	F	SF	N	----	N	----	F	----	----	M	S	105	17	V	11.4	3	116.4	100.0	65.5	53.9
170	Lard	1913–38	M	F	SF	N	----	N	C	F	F	A	A	S	123	94	X–a	56.8	10	125.6	100.0	42.1	97.9
171	Molasses	1913–38	M	F	SF	N	----	N	C	F	F	C	I	S	130	17	V	8.8	3	98.9	100.0	83.9	85.3
172	Oleomargarine	1913–38	M	F	F	N	----	N	C	F	F	O	A	D	124	40	VII	38.6	8	97.1	100.0	41.4	60.1
173	Oleo oil	1913–38	M	F	S	N	----	N	M	F	F	A	A–I	S	120	74	VIII	55.0	10	110.4	100.0	51.8	113.5
174	Peanut butter	1926–38	------	F	SF	N	----	N	----	F	----	----	M	D	117	22	V	42.7	9	99.0	100.0	53.1	91.6
175	Black pepper	1913–38	R	R	SF	----	----	N	C	F	N	C	M	S	Import	94	X–a	29.8	7	74.3	100.0	29.1	17.8
176	Salt	1913–38	M	F	SF	N	----	N	C	F	N	M	M	S	630	14	IV	1.6	2	99.1	100.0	105.9	114.9
177	Canned soup (tomato)	1926–38	------	F	SF	N	----	N	----	F	----	----	M	U	105	17	V	7.5	2	99.9	100.0	92.0	99.0
178	Corn starch	1913–38	------	F	SF	N	----	N	----	F	----	----	M	D	113	17	V	27.1	6	100.0	100.0	61.7	77.6
179	Sugar, granulated	1913–38	M	F	F	N	N	N	C	F	F	C	M	S	131	92	IX	17.7	5	108.5	100.0	79.2	93.8
180	Sugar, raw	1913–38	R	S	S	N	N	N	M	F	F	C	A–I	S	130	94	X–a	18.2	5	115.5	100.0	77.7	91.8
181	Tallow (edible)	1913–38	------	F	S	N	----	N	----	F	----	----	A	S	123	93	X–a	58.8	10	106.8	100.0	39.2	96.0
182	Formosa tea	1913–38	M	F	RF	----	----	N	C	F	N	C	A–I	S	Import	22	V	35.3	8	111.5	100.0	58.1	86.8
183	Coconut oil	1913–38	M	S	S	----	----	N	M	F	N	C	A–I	S	do	81	IX	45.9	9	125.0	100.0	53.1	98.0
184	Corn oil	1913–38	M	F	S	N	----	N	C	F	F	C	A	S	113	61	VIII	50.2	10	116.4	100.0	48.4	97.3
185	Cottonseed oil	1913–38	M	S	S	N	----	N	M	F	F	C	A	S	120	93	X–a	58.0	10	122.2	100.0	39.5	95.1
186	Olive oil	1913–38	M	F	SF	N	----	N	C	F	N	C	A–I	S	120	37	VII	23.2	5	88.7	100.0	82.3	110.9
187	Peanut oil	1916–38	------	S	S	N	----	N	----	F	----	----	A	S	120	76	VIII	57.8	10	125.6	100.0	39.9	95.5
188	Soybean oil	1913–38	------	S	S	N	----	N	----	F	----	----	A	S	120	65	VIII	55.8	10	105.4	100.0	35.3	82.1
189	Cider vinegar	1913–38	M	F	SF	N	----	N	C	F	F	C	M	S	132	35	VII	20.0	5	96.7	100.0	66.1	72.2
	III. HIDES AND LEATHER PRODUCTS																						
	Shoes																						
190c	Children's shoes	1913–38	M	F	F	N	----	S	C	C	F	A	M	U	904	11	III	22.5	5	90.3	100.0	65.5	76.0
190	Boy's shoes	1913–38	M	F	F	N	----	S	C	C	F	A	M	U	904	Included in 190c.							
191	Child's shoes	1913–38	M	F	F	N	----	S	C	C	F	A	M	U	904	9	III	2.9	2	71.8	100.0	78.6	63.0
192	Misses' shoes	1926–38	M	F	F	N	----	S	C	C	F	A	M	U	904	Included in 190c.							
193	Youth's shoes	1926–38	M	F	F	N	----	S	C	C	F	A	M	U	904	10	III	15.5	4	108.6	100.0	79.2	89.4
194c	Men's shoes, calf	1913–38	M	F	F	N	----	S	C	C	F	A	M	U	904	16	IV	19.4	5	100.8	100.0	86.2	111.2
194	Shoes, calf, blucher	1913–38	M	F	F	N	----	S	C	C	F	A	M	U	904								
195	Shoes, calf 4A	1913–38	M	F	F	N	----	S	C	C	F	A	M	U	904	Included in 194c.							
196	Shoes, cord tip	1926–38	M	F	F	N	----	S	C	C	F	A	M	U	904								

TABLE I.—*Tentative price classification*—Continued

B. L. S. code number	Name of commodity	Price data available	Fabrication			Durability			Use, N. B. E. R.[1]	Clothing, food, and other, N. R. C.	Source			Product differentiation, unique, differentiated or standard, N. R. C.	Census industry classification	Price flexibility				Price indexes			
			Raw or manufactured, N. B. E. R.	Raw, semifinished or finished		Durable, nondurable, B. L. S.	Durable, semidurable, nondurable				Farm or nonfarm, N. B. E. R.	Crop, animal, forest, or mineral, N. B. E. R.	Agriculture, manufacturing, mining, forestry, and fishing, N. R. C.			Frequency of change 1926–33 N. R. C.		Sensitivity N. R. C.		1929=100			
				B. L. S.	N. R. C.		N. B. E. R.	N. R. C.								Changes in 96 chances	Group number	Index of depression sensitivity	Group number	1926	1929	1932	1937
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)
	III. HIDES AND LEATHES PRODUTS—continued																						
	Shoes—Continued																						
197	Shoes, dress	1926–38	M	F	F	N		S	C	C	F	A	M	U	904	11	III	24.6	6	89.4	100.0	97.0	143.3
198	Shoes, series 1	1913–38	M	F	F	N		S	C	C	F	A	M	U	904	Included in 194c.							
199	Shoes, series 2	1913–38	M	F	F	N		S	C	C	F	A	M	U	904								
200	Shoes, side, oxford	1926–38	M	F	F	N		S	C	C	F	A	M	U	904								
201c	Shoes, men's	1913–38	M	F	F	N		S	C	C	F	A	M	U	904	22	V	18.6	5	95.1	100.0	87.0	111.2
201	Shoes, kid	1913–38	M	F	F	N		S	C	C	F	A	M	U	904	Included in 201c.							
202c	Shoes	1913–38	M	F	F	N		S	C	C	F	A	M	U	904	44	VII	25.2	6	86.4	100.0	67.1	84.5
202	Shoes, work	1926–38	M	F	F	N		S	C	C	F	A	M	U	904	Included in 202c.							
203	Shoes, elk	1913–38	M	F	F	N		S	C	C	F	A	M	U	904								
204	Shoes, brown	1913–38	M	F	F	N		S	C	C	F	A	M	U	904	Included in 201c.							
205c	Women's shoes	1913–38	M	F	F	N		S	C	C	F	A	M	U	904	21	V	23.0	5	105.8	100.0	79.8	105.7
205	Shoes, blucher oxford	1926–38	M	F	F	N		S	C	C	F	A	M	U	904	Included in 205c.							
206c	Shoes, women's	1913–38	M	F	F	N		S	C	C	F	A	M	U	904	12	IV	12.4	3	93.5	100.0	90.5	105.8
206	Shoes, strap	1926–38	M	F	F	N		S	C	C	F	A	M	U	904	Included in 206c.							
207	Patent leather pumps	1926–38	M	F	F	N		S	C	C	F	A	M	U	904	Included in 205c.							
208	Oxford pumps	1926–38	M	F	F	N		S	C	C	F	A	M	U	904	14	IV	20.0	5	104.9	100.0	63.9	67.8
209	Kid pumps	1913–38	M	F	F	N		S	C	C	F	A	M	U	904	Included in 206c.							
210	Shoes, elk, colors	1913–38	M	F	F	N		S	C	C	F	A	M	U	904	Included in 205c.							
	Hides and skins																						
211	Cowhides	1913–38	R	R	S	N		S	M	O	F	A	A	S	123	86	IX	60.6	10	82.3	100.0	36.2	93.7
212c	Steer hides	1913–38	R	R	S	N		S	M	O	F	A	A	S	123	95	X–b	65.6	10	82.4	100.0	36.2	103.5
212	Steer hides, native	1913–38	R	R	S	N		S	M	O	F	A	A	S	123	Included in 212c.							
213	Steer hides, Texas	1913–38	R	R	S	N		S	M	O	F	A	A	S	123								
214	Calfskins	1913–38	R	R	S	N		S	M	O	F	A	A	S	123	90	IX	67.5	10	86.4	100.0	30.4	95.8
215	Goat skins	1913–38	R	R	S	N		S	M	O	N	A	A	S	123	77	VIII	42.7	9	96.2	100.0	55.2	95.8
216	Kip skins	1913–38	R	R	S	N		S	M	O	F	A	A	S	123	84	IX	55.9	10	83.1	100.0	34.9	81.6
217	Sheepskins	1926–38	R	R	S	N		S	M	O	F	A	A	S	123	90	IX	77.0	10	107.4	100.0	25.5	105.0
	Leather																						
218	Chrome leather	1928–38	M	S	S	N		S	M	O	F	A	M	S	907	Discarded—Inadequate data.							
219	Glazed kid leather	1913–38	M	S	S	N		S	M	O	N	A	M	S	907	20	V	32.8	7	93.1	100.0	60.1	85.8
220	Harness leather	1926–38	M	S	S	N		S	M	O	F	A	M	S	907	30	VI	22.4	5	86.7	100.0	68.0	80.7
221	Side chrome leather	1913–38	M	S	S	N		S	M	O	F	A	M	S	907	49	VII	36.4	8	88.0	100.0	56.3	85.4
222c	Sole leather	1913–38	M	S	S	N		S	M	O	F	A	M	S	907	65	VIII	35.8	8	81.0	100.0	52.4	76.4
222	Oak bends	1913–38	M	S	S	N		S	M	O	F	A	M	S	907	Included in 222c.							
223	Oak scoured backs	1913–38	M	S	S	N		S	M	O	F	A	M	S	907								
224	Union back leather	1913–38	M	S	S	N		S	M	O	F	A	M	S	907								
225	Leather belting	1926–38		F	F	N		S		C			M	S	901	7	II	7.4	2	105.0	100.0	87.5	89.8
226	Men's gloves	1913–38	M	F	F	N		S	C	C	F	A	M	U	905	4	I	6.3	2	100.0	100.0	83.3	79.2
227	Women's gloves	1913–38	M	F	F	N		S	C	C	F	A	M	U	905	5	II	9.4	3	93.7	100.0	87.4	93.7
228	Harness	1913–38	M	F	F	N		S	P	O	F	A	M	D	909	19	V	10.8	3	92.1	100.0	87.1	95.9
229	Suitcases	1913–38		F	F	N		S		O			M	U	910	14	IV	23.8	6	88.4	100.0	77.4	102.3
230	Traveling bags	1913–38		F	F	N		S		O			M	U	910	14	IV	24.5	6	97.4	100.0	75.3	99.6
	IV. TEXTILES																						
	Clothing																						
231	Soft collars	1926–38		F	F	N	S	S		C			M	D	213	4	I	24.5	6	159.0	100.0	70.9	90.8
232	Stiff collars	1926–38		F	F	N	S	S		C			M	D	213	1	I	−3.6	1	92.8	100.0	107.2	107.2
233	Men's cotton kerchiefs	1930–38		F	F	N	S	S		C			M	S	217	Discarded—Inadequate data.							
234	Women's cotton kerchiefs	1930–38		F	F	N	S	S		C			M	S	217								
235	Men's linen kerchiefs	1929–38		F	F	N	S	S		C			M	D	217								
236	Women's linen kerchiefs	1930–38		F	F	N	S	S		C			M	D	217								
237	Hats, finished	1926–36		F	F	N	S	S		C			M	U	206	9	III	1937 data lacking.					
238	Hats, unfinished	1926–36		F	S	N	S	S		C			M	S	206	11	III						
239	Overalls	1926–38		F	F	N	S	S		C			M	U	213	36	VII	49.9	9	104.5	100.0	61.8	115.4
240	Overcoats	1926–38		F	F	N	S	S		C			M	U	215	6	II	25.6	6	120.3	100.0	99.9	137.9
241	Dress shirts	1926–38		F	F	N	S	S		C			M	D	213	2	I	0	1	100.0	100.0	96.7	93.3
242	Work shirts	1926–38		F	F	N	S	S		C			M	D	213	16	IV	30.1	7	103.2	100.0	68.6	97.4
243	Boys' 4-piece suits	1926–38		F	F	N	S	S		C			M	U	215	11	III	32.0	7	100.0	100.0	72.6	109.2
244	Men's 3-piece suits	1926–38		F	F	N	S	S		C			M	U	215	10	III	33.2	8	117.5	100.0	77.6	121.5
245	Men's 4-piece suits	1926–38		F	F	N	S	S		C			M	U	215	11	IV–a	38.0	8	110.5	100.0	69.1	114.1
246	Youth's 4-piece suits			F	F	N	S	S		C			M	U	215	Discarded inadvertently.							
247	Topcoats	1926–36		F	F	N	S	S		C			M	U	215	9	III	25.0	6	121.7	100.0	77.6	105.1
248	Boys' knickers	1926–36		F	F	N	S	S		C			M	U	215	17	V	49.4	10	117.0	100.0	59.4	117.7
249	Men's dress trousers	1926–38		F	F	N	S	S		C			M	U	215	20	V	31.4	7	110.4	100.0	69.6	101.9
250	Men's work trousers	1926–38		F	F	N	S	S		C			M	D	213	11	III	29.0	7	122.2	100.0	68.3	94.5
	Cotton goods																						
251	Broadcloth	1929–38		F	S	N	S	S		C			M	S	203	Discarded—Inadequate data.							
252	Damask	1926–38		F	S	N	S	S		C			M	S	203	15	IV	26.8	6	100.0	100.0	79.1	111.9
253	Denim	1913–38	M	F	S	N	S	S	C	O	F	C	M	S	203	64	VIII	38.8	8	93.6	100.0	50.4	78.4
254	Drill, heavy	1929–38	M	F	S	N	S	S	C	O	F	C	M	S	203	Discarded—Inadequate data.							
255	Drill, light	1913–38	M	F	S	N	S	S	C	O	F	C	M	S	203	68	VIII	43.8	9	102.0	100.0	44.1	75.8
256	Duck, army	1913–38	M	F	S	N	S	S	C	O	F	C	M	S	203	70	VIII	38.8	8	93.8	100.0	51.4	80.4
257	Duck, wide	1913–38	M	F	S	N	S	S	C	O	F	C	M	S	203	82	IX	42.0	9	95.7	100.0	53.0	89.9
258	Flannel, bleached	1926–38	M	F	S	N	S	S	C	C	F	C	M	S	203	23	VI	34.0	8	94.2	100.0	60.5	89.0
259	Flannel, beige	1913–38	M	F	S	N	S	S	C	C	F	C	M	S	203	37	VII	37.1	8	90.4	100.0	51.8	77.8

TABLE I.—*Tentative price classification*—Continued

B. L. S. code number	Name of commodity	Price data available	Fabrication			Durability			Use, N. B. E. R.	Clothing, food, and other, N. R. C.	Source		Agriculture, manufacturing, mining, forestry, and fishing, N. R. C.	Product differentiation, unique, differentiated or standard, N. R. C.	Census industry classification	Price flexibility				Price indexes			
			Raw or manufactured, N.B.E.R.	Raw, semifinished or finished		Durable, nondurable, B.L.S.	Durable, semidurable, nondurable				Farm or nonfarm, N.B.E.R.	Crop, animal, forest, or mineral, N.B.E.R.				Frequency of change 1926–33 N. R. C.		Sensitivity N. R. C.		1929=100			
				B. L. S.	N. R. C.		N. B. E. R.	N. R. C.								Changes in 95 chances	Group number	Index of depression sensitivity	Group number	1926	1929	1932	1937
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)
	IV. TEXTILES—continued																						
	Cotton goods—Continued																						
260	Gingham	1913–38	M	F	S	N	S	S	C	C	F	C	M	S	203	19	V	30.2	9	85.7	100.0	58.8	78.1
261c	Muslin	1913–38	M	F	S	N	S	S	C	C	F	C	M	S	203	51	VIII	32.9	7	101.8	100.0	56.6	79.0
261	Muslin No. 1, 80 x 92	1913–38	M	F	S	N	S	S	C	C	F	C	M	S	203	Included in 261c.							
262	Muslin No. 2, 80 x 80	1913–38	M	F	S	N	S	S	C	C	F	C	M	S	203								
263	Muslin No. 3, 80 x 80	1913–38	M	F	S	N	S	S	C	C	F	C	M	S	203								
264	Muslin No. 4, 96 x 100	1913–38	M	F	S	N	S	S	C	C	F	C	M	S	203								
265	Osnaburg	1926–38	----	F	S	N	S	S	----	O	----	----	M	S	203	15	IV	22.4	5	97.4	100.0	67.2	79.3
266	Percale	1913–38	M	F	S	N	S	S	C	C	F	C	M	S	203	68	IX	47.5	9	82.1	100.0	43.5	82.0
267	Print cloth, 27-inch	1913–38	M	S	S	N	S	S	C	C	F	C	M	S	203	33	VI	32.6	7	95.6	100.0	58.5	82.2
268	Print cloth, 38½-inch	1926–38	M	S	S	N	S	S	C	C	F	C	M	S	203	93	X-a	46.0	9	99.6	100.0	50.0	91.9
269	Filling sateen	1926–38	----	F	S	N	S	S	----	O	----	----	M	S	203	95	X-b	45.0	9	101.3	100.0	47.2	84.3
270c	Sheeting, bleached	1913–38	M	F	S	N	S	S	C	O	F	C	M	S	203	13	IV	26.6	6	113.0	100.0	73.2	99.5
270	Sheeting, light	1913–38	M	F	S	N	S	S	C	O	F	C	M	S	203	40	VII	34.5	8	98.2	100.0	54.4	77.8
271	Sheeting, heavy	1926–38	M	F	S	N	S	S	C	O	F	C	M	S	203	Included in 270c.							
271	Sheeting, brown	1913–38	M	F	S	N	S	S	C	O	F	C	M	S	203	64	VIII	43.8	9	103.1	100.0	50.0	87.5
272	Sheeting, heavy	1913–38	M	F	S	N	S	S	C	O	F	C	M	S	203								
273	Sheeting, medium	1913–38	M	F	S	N	S	S	C	O	F	C	M	S	203	Included in 272 c.							
274	Sheeting, light	1913–38	M	F	S	N	S	S	C	O	F	C	M	S	203								
275	Shirting, madras	1926–38	----	F	S	N	S	S	----	O	----	----	M	S	203	23	VI	18.8	5	105.6	100.0	72.1	81.7
276	Shirting, percale	1926–38	----	F	S	N	S	S	----	O	----	----	M	S	203	57	VIII	35.6	8	102.8	100.0	60.3	91.7
277	Ticking	1913–38	----	F	S	N	S	S	----	O	----	----	M	S	203	38	VII	41.6	9	93.3	100.0	50.7	84.6
278	Tire cord	1926–38	----	S	S	N	S	S	----	O	----	----	M	S	203	90	IX	37.6	8	90.6	100.0	47.9	71.1
279	Tire builders	1926–38	----	S	S	N	S	S	----	O	----	----	M	S	203	86	IX	41.9	9	96.2	100.0	43.8	71.4
280	Toweling	1926–38	----	F	S	N	S	S	----	O	----	----	M	S	203	24	VI	27.6	7	122.7	100.0	72.4	100.0
281c	Yarn, carded	1913 38	M	S	S	N	S	S	M	O	F	C	M	S	203	92	IX	43.1	9	100.4	100.0	49.1	84.4
281	Yarn, 10/1, North	1913–38	M	S	S	N	S	S	M	O	F	C	M	S	203	Included in 281 c.							
282	Yarn, 22/1, North	1913–38	M	S	S	N	S	S	M	O	F	C	M	S	203								
283	Yarn, 40's, South	1913–38	M	S	S	N	S	S	M	O	F	C	M	S	203								
284c	Yarn, twisted	1913–38	M	S	S	N	S	S	M	O	F	C	M	S	203	94	X-a	45.8	9	98.6	100.0	47.0	85.6
284	Yarn, 20/2	1913–38	M	S	S	N	S	S	M	O	F	C	M	S	203	Included in 284 c.							
285	Yarn, 40/2	1913–38	M	S	S	N	S	S	M	O	F	C	M	S	203								
	Knit goods																						
286	Hose, men's cotton	1913–38	M	F	F	N	S	S	C	C	F	C	M	U	207	24	VI	40.4	9	101.5	100.0	63.6	107.9
287	Hose, women's, mercerized	1913–38	M	F	F	N	S	S	C	C	F	C	M	U	207	31	VI	34.2	8	106.6	100.0	60.2	88.8
288	Hose, women's, rayon	1924–38	M	F	F	N	S	S	C	C	N	O	M	U	207	35	VII	27.7	7	122.2	100.0	47.3	50.0
289	Hose, men's, silk	1913–38	M	F	F	N	S	S	C	C	N	A	M	U	207	24	VI	18.1	5	124.5	100.0	59.4	55.0
290	Hose, women's, silk	1913–38	M	F	F	N	S	S	C	C	N	A	M	D	207	35	VII	32.0	7	120.2	100.0	47.2	58.5
291	Underwear, men's cotton	1913–38	M	F	F	N	S	S	C	C	F	C	M	D	207	27	VI	27.4	6	109.4	100.0	73.9	102.7
292	Union suits, women's, cotton	1913–38	M	F	F	N	S	S	C	C	F	C	M	D	207	13	IV	28.6	7	104.0	100.0	67.9	92.9
293	Union suits, men's, wool	1913–38	M	F	F	N	S	S	C	C	F	A	M	D	207	4	I	4.2	2	102.2	100.0	95.4	92.1
294	Underwear, men's wool, 2 pc.	1913–38	M	F	F	N	S	S	C	C	F	A	M	D	207	12	IV	18.3	5	110.7	100.0	82.6	101.8
295c	Rayon	1913–38	M	S	S	N	S	S	M	C	N	F	M	S	629	22	V	22.6	5	146.2	100.0	51.6	48.5
295	Rayon, 150, 1st	1913–38	M	S	S	N	S	S	M	C	N	F	M	S	629	Included in 295 c.							
296	Rayon, 150, 2d	1913–38	M	S	S	N	S	S	M	C	N	F	M	S	629								
297	Rayon, 300, 1st	1913–38	M	S	S	N	S	S	M	C	N	F	M	S	629								
298	Rayon, 300, 2d	1913–38	M	S	S	N	S	S	M	C	N	F	M	S	629								
299c	Raw silk	1913–38	R	R	R	N	S	S	M	C	N	A	A–I	S	Import	94	X-a	35.6	8	123.9	100.0	32.5	36.2
299	Silk, Canton	1913–38	R	R	R	N	S	S	M	C	N	A	A–I	S	----do----	Included in 299 c.							
300	Silk, Japan, white	1926–38	R	R	R	N	S	S	M	C	N	A	A–I	S	----do----								
301	Silk, Japan, double extra	1913–38	R	R	R	N	S	S	M	C	N	A	A–I	S	----do----								
302	Silk, Japan, yellow	1926–38	R	R	R	N	S	S	M	C	N	A	A–I	S	----do----								
303c	Silk, yarn, domestic	1913–38	M	S	S	N	S	S	M	C	N	A	M	S	209	35	VII	19.8	5	132.6	100.0	62.1	63.9
303	Silk, yarn, 62/1	1913–38	M	S	S	N	S	S	M	C	N	A	M	S	209	Included in 303 c.							
304	Silk yarn, 60/2	1913–38	M	S	S	N	S	S	M	C	N	A	M	S	209								
305	Silk yarn, imported	1913–38	M	S	S	N	S	S	M	C	N	A	M–I	S	209	21	V	18.5	5	128.4	100.0	75.1	87.7
306c	Silk yarn, thrown	1926–38	----	S	S	N	S	S	----	C	----	----	M	S	209	93	X-a	31.2	7	111.6	100.0	41.3	44.9
306	Silk yarn, crepe	1926–28	----	S	S	N	S	S	----	C	----	----	M	S	209	Included in 306 c.							
307	Silk yarn, organzine	1926–38	----	S	S	N	S	S	----	C	----	----	M	S	209								
308	Silk yarn, tram	1926–38	----	S	S	N	S	S	----	C	----	----	M	S	209								
	Woolen and worsted goods																						
309	Wool broadcloth	1913–38	M	F	S	N	S	S	----	C	----	----	M	S	212	15	IV	28.4	7	105.5	100.0	67.5	91.8
310	Wool crepe	1923–38	M	F	S	N	S	S	----	C	----	----	M	S	212	28	VI	31.8	7	96.8	100.0	61.7	87.0
311	Flannel	1913–38	M	F	S	N	S	S	----	C	----	----	M	S	212	26	VI	26.2	6	113.1	100.0	69.7	91.7
312	Suiting, worsted	1926–38	M	F	S	N	S	S	C	C	F	A	M	S	212	17	V	44.3	9	108.9	100.0	46.0	80.6
313	Serge	1913–38	M	F	S	N	S	S	----	C	----	----	M	S	212	26	VI	32.3	7	106.0	100.0	68.3	101.2
314	Sicilian cloth	1913–38	M	F	S	N	S	S	C	C	F	O	M	S	212	19	V	20.0	5	90.5	100.0	84.3	108.6
315	Flannel, 7-ounce	1913–38	M	F	S	N	S	S	----	C	----	----	M	S	212	14	IV	17.6	5	102.2	100.0	74.9	84.9
316	Overcoating, heavy	1913–38	M	F	S	N	S	S	C	C	F	A	M	S	212	21	V	36.6	8	101.1	100.0	68.9	111.0
317	Overcoating, top	1923–38	M	F	S	N	S	S	C	C	F	A	M	S	212	23	VI	39.9	9	107.9	100.0	68.7	117.2
318c	Suiting, serge	1913–38	M	F	S	N	S	S	C	C	F	A	M	S	212	32	VI	35.6	8	105.9	100.0	65.1	101.3
318	Suiting, serge, 15-ounce	1913–38	M	F	S	N	S	S	C	C	F	A	M	S	212								
319	Suiting, serge, 16-ounce	1926–38	M	F	S	N	S	S	C	C	F	A	M	S	212	Included in 318 c.							
320	Uniform serge, fine	1926–38	M	F	S	N	S	S	C	C	F	A	M	S	212								
321	Uniform serge, medium	1926–38	M	F	S	N	S	S	C	C	F	A	M	S	212								
322	Uniform serge, unfinished	1923–38	M	F	S	N	S	S	C	C	F	A	M	S	212	30	VI	37.7	8	102.1	100.0	63.2	101.8
323	Trousering	----	----	F	S	N	S	S	----	C	----	----	M	S	212	Missing.							
324	Yarn, 2/32 stock	1913–38	M	S	S	N	S	S	M	O	F	A	M	S	212	54	VIII	40.4	9	96.2	100.0	55.9	92.6
325c	Yarn, weaving	1913–38	M	S	S	N	S	S	M	O	F	A	M	S	212	72	VIII	40.8	9	105.5	100.0	58.4	98.5
325	Yarn, half blood	1913–38	M	S	S	N	S	S	M	O	F	A	M	S	212	Included in 325 c.							
326	Yarn, fine	1913–38	M	S	S	N	S	S	M	O	F	A	M	S	212								

TABLE I.—*Tentative price classification*—Continued

B. L. S. code number	Name of commodity	Price data available	Fabrication			Durability			Use, N. B. E. R.[1]	Clothing, food, and other, N. R. C.	Source			Product differentiation, unique, differentiated or standard, N. R. C.	Census industry classification	Price flexibility				Price indexes			
			Raw or manufactured, N. B. E. R.	Raw, semifinished or finished		Durable, nondurable, B. L. S.	Durable, semidurable, nondurable				Farm or nonfarm, N. B. E. R.	Crop, animal, forest, or mineral, N. B. E. R.	Agriculture, manufacturing, mining, forestry, and fishing, N. R. C.			Frequency of change 1926–33 N. R. C.		Sensitivity N. R. C.		1929=100			
				B. L. S.	N. R. C.		N. B. E. R.	N. R. C.								Changes in 95 chances	Group number	Index of depression sensitivity	Group number	1926	1929	1932	1937
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)
	IV. TEXTILES—continued																						
	Other textile products																						
327	Burlap	1913–38	M	F	S	N	----	S	M	O	N	C	M	S	202	93	X–a	30.8	7	107.2	100.0	50.8	63.3
328	Hemp	1913–38	R	R	RS	N	----	S	P	O	N	C	M	S	Import	92	IX	61.2	10	131.4	100.0	35.1	92.5
329	Jute	1913–38	----	R	R	N	----	S	----	O	----	----	A–I	S	do	83	IX	40.6	9	124.2	100.0	41.6	64.5
330	Artificial leather, heavy	1926–38	----	S	S	N	----	S	----	O	----	----	M	S	220	15	IV	4.2	2	98.1	100.0	84.8	78.0
331	Artificial leather, light	1926–38	----	S	S	N	----	S	----	O	----	----	M	S	220	14	IV	6.8	2	98.1	100.0	82.4	78.5
332	Cotton rope	1926–38	----	F	F	N	----	S	----	O	----	----	M	S	203	56	VIII	35.2	8	110.4	100.0	54.6	79.6
333	Manila rope	1926–38	----	F	SF	N	----	S	----	O	----	----	M	S	202	19	V	21.6	5	110.9	100.0	70.0	83.3
334	Sisal rope	1926–38	----	F	SF	N	----	S	----	O	----	----	M	S	202	15	IV	20.8	5	108.9	100.0	68.5	78.5
335	Sisal	1913–38	----	R	RS	N	----	S	----	O	----	----	A–I	S	Import	45	VII	57.2	10	120.5	100.0	30.7	75.7
336	Cotton thread	1913–38	M	F	S	N	----	S	M	O	F	C	M	S	203	5	II	−18.2	1	100.0	100.0	95.9	55.3
337	Linen thread	1913–38	----	F	S	N	----	S	----	O	----	----	M	S	202	6	II	9.8	3	99.7	100.0	90.4	100.4
338	Binder twine	1913–38	M	F	SF	N	----	N	M	O	N	C	M	S	202	14	IV	28.5	7	122.9	100.0	59.2	75.4
339	Cotton twine	1926–38	----	F	F	N	----	N	----	O	----	----	M	S	203	81	IX	45.0	9	88.7	100.0	44.5	79.1
340	Hard fiber twine	1926–38	----	F	SF	N	----	N	----	O	----	----	M	S	202	20	V	40.2	9	112.1	100.0	51.3	83.0
341c	Jute yarn	1926–38	----	S	S	N	----	S	----	O	----	----	M	S	202	18	V	22.5	5	121.4	100.0	68.7	82.4
341	Jute yarn No. 1	1926–38	----	S	S	N	----	S	----	O	----	----	M	S	202	Included in 341c.							
342	Jute yarn No. 2	1926–38	----	S	S	----	----	S	----	O	----	----	M	S	202								
	V. FUEL AND LIGHTING																						
	Anthracite																						
343	Anthracite, chestnut	1923–38	R	R	RF	----	N	N	C	O	N	M	Mi	S	Mining	38	VII	−3.9	1	106.8	100.0	94.6	81.4
344	Anthracite, egg	1923–38	R	R	RF	----	N	N	C	O	N	M	Mi	S	do	39	VII	−2.0	1	105.6	100.0	92.7	81.5
345	Anthracite, pea	1923–38	R	R	RF	----	N	N	C	O	N	M	Mi	S	do	38	VII	−8.8	1	116.0	100.0	108.4	99.3
	Bituminous																						
346	Soft coal, mine run	1923–38	R	R	R	----	N	N	M	O	N	M	Mi	S	do	24	VI	12.3	3	109.2	100.0	92.0	108.6
347	Soft coal, sizes	1923–38	R	R	RF	----	N	N	M	O	N	M	Mi	S	do	49	VII	17.6	5	109.4	100.0	83.9	103.0
348	Soft coal, screening	1923–38	R	R	R	----	N	N	M	O	N	M	Mi	S	do	35	VII	13.6	4	111.2	100.0	94.1	115.5
	Coke																						
349	Beehive coke	1913–38	M	F	S	----	N	N	P	O	N	M	Mi	S	701	74	VIII	52.5	10	147.7	100.0	76.4	157.8
350c	Retort coke	1913–38	M	F	S	----	N	N	P	O	N	M	Mi	S	701	21	VI	23.7	6	118.2	100.0	90.8	129.0
350	Retort coke, Alabama	1922–38	M	F	S	----	N	N	P	O	N	M	Mi	S	701								
351	Retort coke, New Jersey	1913–38	M	F	S	----	N	N	P	O	N	M	Mi	S	701	Included in 350c.							
352	Retort coke, Chicago	1922–38	M	F	S	----	N	N	P	O	N	M	Mi	S	701								
	Electricity																						
353	Electricity	1926–38	----	F	S	----	----	N	----	O	----	----	----	S	Service								
	Gas															Discarded—Data is average realization, not price.							
354	Gas	1929–38	M	F	SF	----	N	N	C	O	N	M	----	S	703								
	Petroleum products																						
355	Fuel oil, Oklahoma	1913–38	M	F	SF	----	----	N	M	O	N	M	Mi	S	705	89	IX	52.6	10	177.0	100.0	58.2	121.6
356	Fuel oil, Pennsylvania	1913–38	M	F	SF	----	----	N	M	O	N	M	Mi	S	705	89	IX	30.2	7	134.0	100.0	65.8	92.0
357	Gasoline, natural, Oklahoma	1921–38	R	F	SF	----	N	N	M	O	N	M	Mi	D	705	94	X–a	44.2	9	140.1	100.0	34.7	57.7
358	Gasoline, California	1925–38	M	F	SF	----	----	N	C	O	N	M	Mi	D	705	87	IX	31.7	7	151.5	100.0	72.9	109.2
359c	Gasoline, Eastern	1913–38	M	F	SF	----	----	N	C	O	N	M	Mi	D	705	94	X–a	24.8	6	139.1	100.0	61.2	72.0
359	Gasoline, Northern Texas	1913–38	M	F	SF	----	----	N	C	O	N	M	Mi	D	705								
360	Gasoline, Oklahoma	1913–38	M	F	SF	----	----	N	C	O	N	M	Mi	D	705	Included in 359c.							
361	Gasoline, Pennsylvania	1913–38	M	F	SF	----	----	N	C	O	N	M	Mi	D	705								
362	Kerosene, Standard	1913–38	M	F	SF	----	----	N	C	O	N	M	Mi	S	705	43	VII	16.5	4	110.3	100.0	70.7	74.4
363	Kerosene, white	1913–38	M	F	SF	----	----	N	C	O	N	M	Mi	S	705	86	IX	20.8	5	141.2	100.0	65.0	71.6
364	Petroleum, California	1913–38	R	R	RS	----	N	N	M	O	N	M	Mi	S	705	19	V	19.5	5	127.6	100.0	78.4	95.8
365	Petroleum, Kansas	1913–38	R	R	RS	----	N	N	M	O	N	M	Mi	S	705	45	VII	31.2	7	152.9	100.0	65.7	93.9
366	Petroleum, Pennsylvania	1913–38	R	R	RS	----	N	N	M	O	N	M	Mi	S	705	60	VIII	33.3	8	95.6	100.0	49.7	66.0
	VI. METALS AND METAL PRODUCTS																						
	Agricultural implements																						
367	Grain binder	1913–37[2]	----	F	F	D	----	D	----	O	----	----	M	U	1301	2	I	7.8	3	100.8	100.0	94.7	105.0
368	Cultivator	1913–37[2]	----	F	F	D	----	D	----	O	----	----	M	U	1301	3	I	12.2	3	108.1	100.0	96.4	117.3
369	Grain drill	1913–37[2]	----	F	F	D	----	D	----	O	----	----	M	U	1301	1	I	11.8	3	101.0	100.0	100.0	123.6
370	Engine, 3 horsepower	1913–37[2]	----	F	F	D	----	D	----	O	----	----	M	U	1304	1	I	4.8	2	101.6	100.0	95.3	100.3
371	Hay forks	1926–38	----	F	F	D	----	D	----	O	----	----	M	D	1125	4	I	11.2	3	100.0	100.0	90.4	103.3
372	Disk harrow	1926–37[2]	----	F	F	D	----	D	----	O	----	----	M	U	1301	3	I	12.0	3	104.2	100.0	92.7	109.3
373	Pegtooth harrow	1913–37[2]	----	F	F	D	----	D	----	O	----	----	M	U	1301	4	I	17.2	4	112.7	100.0	90.3	115.1
374	Spring-tooth harrow	1913–37[2]	----	F	F	D	----	D	----	O	----	----	M	U	1301	5	II	17.2	4	128.4	100.0	91.3	116.9
375	Harvester, thresher	1926–37[2]	----	F	F	D	----	D	----	O	----	----	M	U	1301	1	I	−2.4	1	100.7	100.0	98.1	91.5
376	Hoes	1926–38	----	F	F	D	----	D	----	O	----	----	M	D	1125	4	I	8.6	3	100.0	100.0	92.0	101.2
377	Hay loader	1913–37[2]	----	F	F	D	----	D	----	O	----	----	M	U	1301	3	I	10.9	3	101.9	100.0	94.3	110.4
378	Hay mower	1913–37[2]	----	F	F	D	----	D	----	O	----	----	M	U	1301	2	I	13.0	4	100.8	100.0	95.6	117.3
379	Corn picker	1913–37[2]	----	F	F	D	----	D	----	O	----	----	M	U	1301	4	I	−7.8	1	116.6	100.0	96.3	77.0
380	Corn planter	1913–37[2]	----	F	F	D	----	D	----	O	----	----	M	U	1301	0	I	6.0	2	100.0	100.0	100.0	112.1

TABLE I.—*Tentative price classification*—Continued

B. L. S. code number	Name of commodity	Price data available	Fabrication			Durability			Use, N. B. E. R.[1]	Clothing, food, and other, N. R. C.	Source		Agriculture, manufacturing, mining, forestry, and fishing, N. R. C.	Product differentiation, unique, differentiated or standard, N. R. C.	Census industry classification	Price flexibility				Price indexes			
			Raw or manufactured, N. B. E. R.	Raw, semifinished or finished		Durable, nondurable, B. L. S.	Durable, semidurable, nondurable				Farm or nonfarm, N. B. E. R.	Crop, animal, forest, or mineral, N. B. E. R.				Frequency of change 1926–33 N. R. C.		Sensitivity N. R. C.		1929=100			
																Changes in 95 changes	Group number	Index of depression sensitivity	Group number	1926	1929	1932	1937
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)
	VI. METALS AND METAL PRODUCTS—continued																						
	Agricultural implements—Con.																						
381	Tractor plow	1913–37[2]		F	F	D		D		O			M	U	1301	0	I	8.4	3	100.0	100.0	100.0	116.9
382	1-horse plow	1913–37[2]		F	F	D		D		O			M	U	1301	6	II	21.7	5	101.6	100.0	88.3	120.0
383	2-horse plow	1913–37[2]		F	F	D		D		O			M	U	1301	5	II	13.3	4	105.5	100.0	83.9	94.4
384	Pump	1926–38		F	F	D		D		O			M	U	1309	5	II	20.4	5	110.4	100.0	78.6	98.1
385	Hand rake	1926–38		F	F	D		D		O			M	D	1125	4	I	9.4	3	100.0	100.0	90.8	100.3
386	Self-dump rake	1913–37[2]		F	F	D		D		O			M	U	1301	1	I	10.3	3	105.5	100.0	100.0	120.6
387	Side delivery rake	1913–37[2]		F	F	D		D		O			M	U	1301	4	I	14.0	4	102.0	100.0	94.8	117.6
388	Cream separator	1913–37[2]		F	F	D		D		O			M	U	1305	5	II	9.7	3	98.4	100.0	91.9	103.7
389	Corn sheller	1913–37		F	F	D		D	P	O	N	M	M	D	1301	0	I	17.8	5	100.0	100.0	100.0	135.7
390	Shovels	1913–38	M	F	F	D		D		O			M	D	1125	5	II	9.7	3	93.9	100.0	91.7	102.8
391	Spades	1926–38		F	F	D		D		O			M	D	1125	3	I	8.0	3	100.0	100.0	115.0	145.9
392	Manure spreader	1913–37		F	F	D		D		O			M	U	1301	2	I	11.2	3	100.0	100.0	93.4	109.2
393	Grain thresher	1926–37[2]		F	F	D		D		O			M	U	1301	2	I	7.0	2	107.4	100.0	95.3	104.6
394	Tractor, 10–20 horsepower	1913–37[2]		F	F	D		D		O			M	U	1301	2	I	14.2	4	100.0	100.0	88.6	105.5
395	Tractor, 15–30 horsepower	1926–37[2]		F	F	D		D		O			M	U	1301	5	II	15.7	4	100.0	100.0	74.2	79.8
396	Wagon, 2-horse	1913–37[2]		F	F	D		D		O			M	U	1404	6	II	13.0	4	100.0	100.0	86.7	99.4
397	Windmill	1926–38		F	F	D		D		O			M	U	1304	6	II	13.0	4	104.4	100.0	91.1	108.1
	Iron and steel																						
398	Angle bars	1914–38	M	F	S	D		D	P	O	N	M	M	S	1112	2	I	1.4	2	100.0	100.0	99.0	100.7
399	Augers	1913–38	M	F	F	D		D	P	O	N	M	M	D	1103	0	I	0	1	100.0	100.0	100.0	100.0
400	Axes	1926–38	M	F	F	D		D	P	O	N	M	M	D	1103	6	II	16.9	4	100.0	100.0	80.9	95.6
401	Bar iron, Chicago	1925–38	M	S	S	D		D	P	O	N	M	M	S	1112	28	VI	26.4	6	98.5	100.0	81.3	115.3
402	Bar iron, Pittsburgh	1913–38	M	S	S	D		D	P	O	N	M	M	S	1112	4	I	.6	2	109.1	100.0	100.0	101.1
403	Reinforcing bars	1913–38	M	F	S	D		D	P	O	N	M	M	S	1112	39	VII	33.2	8	98.5	100.0	77.0	120.3
404	Merchant bars	1913–38	M	S	S	D		D	P	O	N	M	M	S	1112	38	VII	30.6	7	103.7	100.0	82.0	125.1
405	Steel sheet bars	1913–38		S	S	D		D		O			M	S	1112	29	VI	27.5	7	102.9	100.0	74.6	104.2
406	Cold finished bars	1919–38		S	S	D		D		O			M	S	1112	36	VII	32.8	7	108.3	100.0	79.7	125.0
407	Steel barrels	1926–38		F	F	D		D		O			M	S	1120	9	III	25.6	6	100.0	100.0	77.8	106.7
408	Steel billets	1913–38	M	S	S	D	D	D	P	O	N	M	M	S	1112	28	VI	26.0	6	101.0	100.0	76.6	105.3
409	Boiler tubes	1926–38		F	S	D		D		O			M	S	1119	8	III	1.4	2	96.4	100.0	102.3	107.4
410	Machine bolts	1926–38		F	S	D		D		O			M	S	1101	13	IV	22.6	5	89.0	100.0	81.8	108.9
411	Plow bolts	1925–38	M	F	S	D		D	P	O	N	M	M	S	1101	17	V	26.2	6	92.4	100.0	70.0	92.3
412	Stove bolts	1926–38		F	S	D		D		O			M	S	1101	17	V	25.7	6	100.5	100.0	82.4	116.2
413	Track bolts	1914–38		F	S	D		D		O			M	S	1101	15	IV	15.2	4	108.1	100.0	89.7	109.9
414	Butts (hinges)	1913–38	M	F	S	D		D	P	O	N	M	M	S	1109	29	VI	18.2	5	103.2	100.0	88.1	112.7
415	Garbage cans	1913–38		F	S	D		D		O			M	S	1123	6	II	2.0	2	101.7	100.0	91.9	87.8
416	Malleable castings	1926–38		S	S	D	D	D		O			M	S	1322	24	VI	14.0	4	121.2	100.0	77.6	83.2
417	Chisels	1913–38	M	F	F	D		D	P	O	N	M	M	D	1103	2	I	1.8	2	100.0	100.0	100.0	103.6
418	Files	1913–38	M	F	F	D		D	P	O	N	M	M	D	1105	1	I	.5	2	100.0	100.0	100.0	101.0
419	Hammers	1926–38	M	F	F	D		D	P	O	N	M	M	D	1125	7	II	23.6	6	100.0	100.0	70.2	87.7
420	Hatchets	1926–38		F	F	D		D		O			M	D	1103	7	II	19.3	5	100.0	100.0	81.9	102.4
421	Corn knives	1926–38		F	F	D		D		O			M	D	1103	3	I	9.4	3	100.0	100.0	99.7	118.1
422	Door knobs	1913–38	M	F	S	D		D	P	O	N	M	M	S	1109	16	IV	23.8	6	91.9	100.0	59.2	65.9
423	Mortise locks	1913–38	M	F	S	D		D	P	O	N	M	M	S	1109	19	V	11.2	3	87.3	100.0	74.5	71.4
424	Wire nails	1913–38	M	F	S	D		D	P	O	N	M	M	S	1113	41	VII	25.2	6	103.1	100.0	76.8	103.9
425c	Mesabi ore	1913–38	R	R	R	D	D	D	P	O	N	M	Mi	S	Mining	2	I	3.5	2	95.8	100.0	101.3	109.6
425	Bessemer ore	1913–38	R	R	R	----	D	D	P	O	N	M	Mi	S	----do----	Included in 425c.							
426	Non-Bessemer ore	1913–38	R	R	R	----	D	D	P	O	N	M	Mi	S	----do----								
427c	Pig iron	1913–38	R	S	S	----	D	D	P	O	N	M	Mi	S	1110	48	VII	31.4	7	102.5	100.0	80.8	124.4
427	Pig iron, basic	1913–38	R	S	S	----	D	D	P	O	N	M	Mi	S	1110	Included in 427c.							
428	Pig iron, Bessemer	1913–38	R	S	S	D	D	D	P	O	N	M	Mi	S	1110								
429	Ferromanganese	1913–38	R	S	S	D	----	D	P	O	N	M	Mi	S	1110	20	V	28.5	7	90.7	100.0	67.9	92.8
430	Foundry iron, Pittsburgh	1913–38	R	S	S	D	D	D	P	O	N	M	Mi	S	1110	Included in 427c.							
431	Foundry iron, Birmingham	1913–38	R	S	S	D	D	D	P	O	N	M	Mi	S	1110	35	VII	41.6	9	139.9	100.0	73.0	129.1
432	Malleable iron	1913–38	R	S	S	D	D	D	P	O	N	M	Mi	S	1110	Included in 427c.							
433	Spiegeleisen	1913–38	R	S	S	D	----	D	P	O	N	M	Mi	S	1110	29	VI	19.2	5	104.0	100.0	78.8	96.0
434	Cast iron pipe	1913–38	M	F	S	D	D	D	P	O	N	M	M	S	1102	62	VIII	50.7	10	140.1	100.0	70.3	142.0
435	Black steel pipe	1913–38	M	F	S	D	D	D	P	O	N	M	M	S	1128	9	III	4.2	2	100.0	100.0	92.7	93.9
436	Galvanized pipe	1913–38	M	F	S	D	D	D	P	O	N	M	M	S	1128	9	III	2.0	2	100.0	100.0	94.0	92.0
437	Planes, jack	1913–38	M	F	F	D	----	D	P	O	N	M	M	D	1103	7	II	26.1	6	100.0	100.0	69.2	90.6
438	Steel plates	1913–38	M	F	S	D	----	D	P	O	N	M	M	S	1112	40	VII	25.7	6	97.4	100.0	81.8	115.0
439	Steel rails	1913–38	M	F	S	D	----	D	P	O	N	M	M	S	1112	4	I	.1	1	100.0	100.0	98.6	97.4
440	Rivets, large	1926–38		F	S	D	----	D		O			M	S	1101	30	VI	34.4	8	83.1	100.0	73.3	115.4
441	Rivets, small	1926–38		F	S	D	----	D		O			M	S	1101	15	IV	14.0	4	99.3	100.0	94.9	117.8
442	Wire rods	1913–38		S	S	D	----	D		O			M	S	1112	24	VI	16.6	4	108.5	100.0	89.2	111.6
443	Crosscut saws	1913–38	M	F	F	D	----	D	P	O	N	M	M	D	1116	7	II	3.0	2	101.2	100.0	96.0	98.0
444	Hand saws	1913–38	M	F	F	D	----	D	P	O	N	M	M	D	1116	5	II	6.0	2	100.0	100.0	93.6	99.3
445	Steel scrap	1913–38	R	R	R	----	----	D	P	O	N	M	M	S	----	85	IX	66.0	10	91.2	100.0	42.2	116.5
446	Annealed sheets	1913–38	M	F	S	D	----	D	P	O	N	M	M	S	1112	70	VIII	25.9	6	106.0	100.0	78.3	108.4
447	Auto body sheets	1915–38	M	F	S	D	----	D	P	O	N	M	M	S	1112	57	VIII	24.0	6	104.7	100.0	69.1	86.1
448	Galvanized sheets	1913–38	----	F	S	D	----	D	----	O	----	----	M	S	1112	64	VIII	22.7	5	110.4	100.0	79.4	104.2
449	Skelp	1913–38	M	S	S	D	----	D	P	O	N	M	M	S	1112	18	V	20.7	5	102.2	100.0	84.4	110.2
450	Track spikes	1926–38	----	F	S	D	----	D	----	O	----	----	M	S	1113	17	V	14.4	4	104.2	100.0	91.0	110.9
451	Cold rolled steel	1913–38	----	S	S	D	----	D	----	O	----	----	M	S	1112	61	VIII	35.6	8	130.4	100.0	70.4	112.1
452	Structural steel	1913–38	M	F	S	D	----	D	P	O	N	M	M	S	1112	32	VI	25.2	6	108.5	100.0	89.2	111.6
453	Terneplate	1913–38	M	F	S	D	----	D	P	O	N	M	M	S	1112	13	IV	15.0	4	105.0	100.0	85.3	100.6
454	Tie plates	1916–38	M	F	S	D	----	D	P	O	N	M	M	S	1112	18	V	17.4	4	107.5	100.0	85.3	105.4
455	Tin plate	1913–38	M	F	S	D	----	D	P	O	N	M	M	S	1112	10	III	14.6	4	102.8	100.0	88.1	105.5
456	Vises	1913–38	M	F	F	D	----	D	P	O	N	M	M	D	1125	2	I	3.0	2	109.9	100.0	100.0	105.9
457c	Wire	1913–38	M	F	S	D	----	D	P	O	N	M	M	S	1127	35	VII	17.0	4	100.9	100.0	86.4	106.8

TABLE I.—*Tentative price classification*—Continued

B. L. S. code number	Name of commodity	Price data available	Fabrication			Durability			Use, N. B. E. R.[1]	Clothing, food, and other, N. R. C.	Source		Agriculture manufacturing, mining, forestry, and fishing, N. R. C.	Product differentiation, unique, differentiated or standard, N. R. C.	Census industry classification	Price flexibility				Price indexes			
			Raw or manufactured, N. B. E. R.	Raw, semifinished or finished		Durable, nondurable, B. L. S.	Durable, semidurable, nondurable				Farm or nonfarm, N. B. E. R.	Crop, animal, forest, or mineral, N. B. E. R.				Frequency of change 1926–33 N. R. C.		Sensitivity N. R. C.		1929=100			
				B. L. S.	N. R. C.		N. B. E. R.	N. R. C.								Changes in 95 changes	Group number	Index of depression sensitivity	Group number	1926	1929	1932	1937
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)
	VI. METALS AND METAL PRODUCTS—continued																						
	Iron and steel—Continued																						
457	Annealed wire	1913–38	M	F	S	D	----	D	P	O	N	M	M	S	1127	Included in 457c.							
458	Barbed galvanized wire	1913–38	M	F	F	D	----	D	P	O	N	M	M	S	1127								
459	Galvanized wire	1913–38	M	F	F	D	----	D	P	O	N	M	M	S	1127								
460	Woven fence wire	1913–38	M	F	F	D	----	D	P	O	N	M	M	S	1127								
461	Wood screws	1913–38	M	F	S	D	----	D	P	O	N	M	M	S	1117	9	III	16.9	4	100.0	100.0	88.5	110.8
																39	VII	29.8	7	84.1	100.0	76.3	112.2
	Motor vehicles																						
462c	Passenger cars	1923–38	------	F	F	D	P	D	----	O	----	----	M	U	1408	Discarded—Items not comparable year to year.							
462	Buick	1923–38	------	F	F	D	D	D	----	O	----	----	M	U	1408								
463	Cadillac	1923–38	------	F	F	D	D	D	----	O	----	----	M	U	1408								
464	Chevrolet	1923–38	------	F	F	D	D	D	----	O	----	----	M	U	1408	Separate data not available.							
465	Dodge	1923–38	------	F	F	D	D	D	----	O	----	----	M	U	1408								
466	Ford	1923–38	------	F	F	D	D	D	----	O	----	----	M	U	1408								
467	Packard	1923–38	------	F	F	D	D	D	----	O	----	----	M	U	1408								
468	Trucks	1926–38	------	F	F	D	D	D	----	O	----	----	M	U	1408	Discarded—Items not comparable year to year.							
	Nonferrous metals																						
469	Aluminum	1913–38	R	S	R	D	----	D	P	O	N	M	Mi	S	608	13	IV	−3.8	1	112.9	100.0	95.8	83.9
470	Antimony	1913–38	R	S	R	D	----	D	P	O	N	M	Mi	S	608	94	X-a	73.9	10	178.3	100.0	62.9	173.6
471	Babbitt metal	1926–38	------	S	S	D	D	D	----	O	----	----	M	S	1212	17	V	42.9	9	100.4	100.0	74.2	134.2
472	Copper, electrolytic	1913–38	R	S	S	D	D	D	P	O	N	M	Mi	S	1215	80	IX	55.6	10	76.3	100.0	30.8	72.8
473	Lead, soft	1913–38	R	S	S	D	D	D	P	O	N	M	Mi	S	1216	82	IX	47.4	9	123.6	100.0	46.7	88.3
474	Nickel, cathode	1926–38	R	S	S	D	----	D	P	O	N	M	Mi-I	S	Import	2	I	0	1	111.5	100.0	100.0	100.0
475	Lead pipe	1913–38	M	F	S	D	D	D	P	O	N	M	M	S	1212	70	VIII	35.4	8	119.8	100.0	63.0	96.9
476	Mercury	1913–38	R	S	R	D	----	D	P	O	N	M	Mi	S	Mining	83	IX	37.4	8	74.7	100.0	58.2	91.3
477	Brass rods	1925–38	------	S	S	D	D	D	----	O	----	----	M	S	1212	67	VIII	39.3	8	79.1	100.0	48.1	74.8
478	Copper rods	1925–38	------	S	S	D	D	D	----	O	----	----	M	S	1212	72	VIII	37.4	8	84.0	100.0	48.6	72.0
479	Brass sheets	1913–38	M	F	S	D	D	D	P	O	N	M	M	S	1212	67	VIII	37.8	8	81.8	100.0	53.6	82.9
480	Copper sheets	1913–38	M	F	S	D	D	D	P	O	N	M	M	S	1212	68	VIII	32.9	7	79.7	100.0	56.6	79.0
481	Zinc sheets	1913–38	M	F	S	D	D	D	P	O	N	M	M	S	1212	34	VI	16.0	4	115.1	100.0	88.0	108.1
482	Silver	1913–38	M	S	S	----	D	D	P	O	N	M	Mi	S	Mining	95	X-b	39.2	8	117.1	100.0	53.0	84.5
483	Solder	1926–38	------	F	S	D	D	D	----	O	----	----	M	S	1212	75	VIII	56.2	10	134.6	100.0	50.9	114.1
484	Tin	1913–38	R	S	S	----	D	D	P	O	N	M	Mi-I	S	Import	95	X-b	61.6	10	144.7	100.0	48.6	120.5
485	Brass tubes	1925–38	------	F	S	D	D	D	----	O	----	----	M	S	1212	68	VIII	34.1	8	84.1	100.0	54.9	78.0
486	Brass wire	1925–38	------	F	S	D	D	D	----	O	----	----	M	S	1126	67	VIII	38.8	8	82.2	100.0	52.4	82.3
487	Copper wire	1913–38	M	F	S	D	D	D	P	O	N	M	M	S	1126	67	VIII	53.5	10	79.6	100.0	39.6	86.2
488	Zinc pig	1913–38	R	S	R	D	D	D	P	O	N	M	Mi	S	1218	88	IX	52.8	10	112.7	100.0	47.6	100.8
	Plumbing and heating																						
489	Heating boilers	1926–38	------	F	S	D	----	D	----	O	----	----	M	D	1321	Discarded—Items not comparable year to year.							
490	Range boilers	1926–38	------	F	S	D	----	D	----	O	----	----	M	D	1114	29	VI	16.0	4	101.3	100.0	93.5	119.6
491	Water closets	1926–38	------	F	S	D	----	D	----	O	----	----	M	U	1017	35	VII	29.2	7	96.0	100.0	51.2	60.7
492	Lavatories	1926–38	------	F	S	D	----	D	----	O	----	----	M	U	1017	44	VII	13.1	4	112.5	100.0	78.5	83.2
493	Radiation	1926–38	------	F	S	D	----	D	----	O	----	----	M	D	1119	24	VI	34.0	8	84.7	100.0	59.0	85.9
494	Sinks	1926–38	------	F	S	D	----	D	----	O	----	----	M	U	1114	22	V	6.5	2	123.5	100.0	77.9	68.8
495	Bathtubs	1926–38	------	F	S	D	----	D	----	O	----	----	M	U	1114	26	VI	16.8	4	123.8	100.0	74.4	82.5
496	Laundry tubs	1926–38	------	F	S	D	----	D	----	O	----	----	M	D	1005	16	IV	20.4	5	96.4	100.0	68.8	78.4
	VII. BUILDING MATERIALS																						
	Brick and tile																						
497	Concrete blocks	1926–38	------	F	S	D	D	D	----	O	----	----	M	S	1005	2	I	5.0	2	88.3	100.0	79.9	69.8
498	Common brick	1913–38	M	F	S	D	D	D	P	O	N	M	M	S	1004	36	VII	30.7	7	153.4	100.0	89.0	139.4
	Red brick	----------	M	----	S	D	D	D	P	O	N	M	M	S	1004	Not included in Bureau of Labor Statistics index.							
499	Fire brick	1926–38	M	F	S	D	D	D	P	O	N	M	M	S	1004	11	III	23.9	6	96.5	100.0	84.1	116.0
500	Face brick	1926–38	M	F	S	D	D	D	P	O	N	M	M	S	1004	18	V	15.1	4	119.6	100.0	89.8	109.8
501	Paving brick	1913–38	M	F	S	D	D	D	P	O	N	M	M	S	1004	19	V	18.2	5	99.5	100.0	74.7	85.9
502	Sand lime brick	1913–38	M	F	S	D	D	D	P	O	N	M	M	S	1018	7	II	14.6	4	104.9	100.0	78.6	86.3
503	Silica brick	1926–38	M	F	S	D	D	D	P	O	N	M	M	S	1004	11	III	24.2	6	95.3	100.0	84.1	116.5
504	Drain tile	1915–38	M	F	S	D	D	D	P	O	N	M	M	S	1004	11	III	29.8	7	108.0	100.0	71.3	102.3
505	Floor tile	1926–38	M	F	S	D	D	D	P	O	N	M	M	S	1004	7	II	43.8	9	100.0	100.0	55.2	97.9
506	Hollow building tile	1913–38	M	F	S	D	D	D	P	O	N	M	M	S	1004	12	IV	33.2	8	103.0	100.0	63.1	92.7
507	Roofing tile	1926–38	M	F	S	D	D	D	P	O	N	M	M	S	1005	7	II	2.4	2	109.4	100.0	95.2	95.2
508	Wall tile	1926–38	M	F	S	D	D	D	P	O	N	M	M	S	1004	6	II	12.6	3	100.0	100.0	62.6	50.4
	Cement																						
509	Portland cement	1913–38	M	F	S	D	D	D	P	O	N	M	M	S	1002	15	IV	17.4	4	108.9	100.0	84.7	104.1
	Buffington cement	----------	M	----	S	D	D	D	P	O	N	M	M	S	1002	Not included in Bureau of Labor Statistics index.							
	Northampton cement	----------	M	----	S	D	D	D	P	O	N	M	M	S	1002								
	Lumber																						
510	Douglas fir lath	1926–38	M	F	S	D	----	D	P	O	N	F	F	S	311	91	IX	28.8	7	110.0	100.0	74.5	106.7
511	Yellow pine lath	1913–38	M	F	S	D	----	D	P	O	N	F	F	S	311	89	IX	52.8	10	136.2	100.0	54.5	114.7
512	Red cedar	1926–38	------	F	S	D	----	D	----	O	----	----	F	S	311	27	VI	22.8	5	108.6	100.0	78.5	102.5
513	Chestnut	1926–38	------	F	S	D	----	D	----	O	----	----	F	S	311	12	IV	29.2	7	122.1	100.0	85.5	129.5
514	Cypress	1926–38	M	F	S	D	----	D	P	O	N	F	F	S	311	24	VI	26.5	6	116.3	100.0	82.8	118.6

TABLE I.—*Tentative price classification*—Continued

B. L. S. code number	Name of commodity	Price data available	Fabrication			Durability			Use, N. B. E. R. [1]	Clothing, food, and other, N. R. C.	Source		Agriculture manufacturing, mining, forestry, and fishing, N. R. C.	Product differentiation, unique, differentiated or standard, N. R. C.	Census industry classification	Price flexibility				Price indexes			
			Raw or manufactured, N. B. E. R.	Raw, semifinished or finished		Durable, nondurable, B. L. S.	Durable, semidurable nondurable				Farm or nonfarm, N. B. E. R.	Crop, animal, forest, or mineral, N. B. E. R.				Frequency of change 1926–33 N. R. C.		Sensitivity N. R. C.		1929=100			
				B. L. S.	N. R. C.		N. B. E. R.	N. R. C.								Changes in 95 changes	Group number	Index of depression sensitivity	Group number	1926	1929	1932	1937
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)
	VII. BUILDING MATERIALS—con.																						
	Lumber—Continued																						
515	Douglas fir, 1c	1913–38	M	F	S	D	----	D	P	O	N	F	F	S	311	91	IX	55.8	10	90.1	100.0	51.4	114.5
516	Douglas fir, B	1913–38	M	F	S	D	----	D	P	O	N	F	F	S	311	91	IX	53.4	10	100.3	100.0	46.9	100.5
517	Gum lumber	1913–38	M	F	S	D	----	D	P	O	N	F	F	S	311	59	VIII	45.2	9	97.4	100.0	52.0	94.3
518	Hemlock	1913–38	M	F	S	D	----	D	P	O	N	F	F	S	311	39	VII	20.1	5	94.4	100.0	77.2	94.6
519	Maple	1913–38	M	F	S	D	----	D	P	O	N	F	F	S	311	36	VII	47.0	9	101.9	100.0	52.5	99.0
520	Oak	1913–38	M	F	S	D	----	D	P	O	N	F	F	S	311	37	VII	23.9	6	114.5	100.0	72.3	92.4
521	White Pine	1913–38	M	F	S	D	----	D	P	O	N	F	F	S	311	38	VII	17.3	4	103.3	100.0	80.3	95.2
522	Yellow pine flooring	1913–38	M	F	S	D	----	D	P	O	N	F	F	S	314	92	IX	58.6	10	120.3	100.0	49.6	116.5
523	Yellow pine timbers	1030–35	M	F	S	D	----	D	P	O	N	F	F	S	311	Discarded—Inadequate data.							
524	Ponderosa pine	1926–38	M	F	S	D	----	D	P	O	N	F	F	S	311	39	VII	38.6	8	98.4	100.0	64.5	106.2
525	Poplar	1913–38	M	F	S	D	----	D	P	O	N	F	F	S	311	32	VI	30.9	7	107.4	100.0	66.1	94.0
526	Redwood	1926–38	----	F	S	D	----	D	----	O	----	----	F	S	311	9	III	28.6	7	98.3	100.0	70.6	98.3
527	Spruce	1913–38	M	F	S	D	----	D	P	O	N	F	F	S	311	76	VIII	100.1	10	100.1	100.0	64.2	98.1
528	Cedar shingles	1913–38	M	F	S	D	----	D	P	O	N	F	F	S	311	86	IX	46.6	9	90.7	100.0	60.8	114.9
529	Cypress shingles	1913–38	M	F	S	D	----	D	P	O	N	F	F	S	311	22	V	46.0	9	101.3	100.0	57.6	107.3
	Paint and paint materials																						
530	Enamel	1926–38	------	F	F	N	S	S	----	O	----	----	M	D	626	5	II	8.3	3	100.0	100.0	83.3	83.2
531	Inside flat paint	1926–38	------	F	F	N	S	S	----	O	----	----	M	D	626	12	IV	2.7	2	114.9	100.0	91.6	88.6
532	Outside white paint	1926–38	------	F	F	N	S	S	----	O	----	----	M	D	626	10	III	17.5	4	100.7	100.0	78.8	92.6
533	Porch and deck paint	1926–38	------	F	F	N	S	S	----	O	----	----	M	D	626	10	III	11.6	3	95.7	100.0	82.5	88.3
534	Roof and barn paint	1926–38	------	F	F	N	S	S	----	O	----	----	M	D	626	6	II	11.3	3	100.0	100.0	86.0	94.6
535	Floor varnish	1926–38	------	F	F	N	S	S	----	O	----	----	M	D	626	6	II	11.4	3	100.0	100.0	86.2	95.3
536	Barytes	1913–38	------	S	R	N	----	S	----	O	----	----	Mi	S	Mining	2	I	—.8	1	111.5	100.0	100.0	98.3
537	Butyl acetate	1926–38	------	S	S	N	----	S	----	O	----	----	M	S	608	41	VII	3.8	2	115.3	100.0	75.9	59.4
538	Bone black	1913–38	------	F	S	N	----	S	----	O	----	----	M	S	606	0	I	7.2	2	100.0	100.0	100.0	114.4
539	Carbon	1926–38	------	S	S	N	----	S	----	O	----	----	M	S	606	18	V	38.7	8	102.8	100.0	36.1	49.6
540	Iron oxide, black	1926–38	------	S	S	N	----	S	----	O	----	----	M	S	626	4	I	11.3	3	105.0	100.0	77.5	77.6
541	Lamp black	1913–38	------	F	S	N	----	S	----	O	----	----	M	S	606	7	II	—.6	1	105.7	100.0	85.8	70.5
542	Prussian blue	1926–38	------	S	S	N	----	S	----	O	----	----	M	S	626	10	III	1.8	2	94.4	100.0	102.1	107.9
543	Chrome green	1926–38	------	S	S	N	----	S	----	O	----	----	M	S	626	6	II	8.8	3	102.9	100.0	85.2	88.1
544	Chrome yellow	1926–38	------	S	S	N	----	S	----	O	----	----	M	S	626	21	V	1.0	2	102.9	100.0	94.5	91.0
545	Ethyl acetate	1926–38	------	S	S	N	----	S	----	O	----	----	M	S	608	29	VI	8.7	3	68.0	100.0	66.3	50.0
546	Copal gum	1913–38	----	S	R	N	----	S	----	O	----	----	M–I	S	Import	29	VI	24.0	6	115.2	100.0	72.1	92.2
547	Red lead	1913–38	M	F	S	N	S	S	P	O	N	M	M	S	626	61	VIII	30.9	7	114.0	100.0	65.5	92.8
548	White lead	1913–38	M	F	S	N	S	S	P	O	N	M	M	S	626	15	IV	9.3	3	110.7	100.0	87.2	93.0
549	Litharge	1913–38	M	F	S	N	S	S	P	O	N	M	M	S	626	63	VIII	34.3	8	120.9	100.0	61.7	92.0
550	Lithopone	1913–38	M	F	S	N	S	S	P	O	N	M	M	S	626	3	I	6.7	2	104.4	100.0	85.7	84.8
551	Chinawood oil	1913–38	----	S	R	----	----	N	----	O	----	----	A–I	S	Import	85	IX	.61.8	10	95.4	100.0	42.9	109.3
552	Linseed oil	1913–38	M	S	S	N	----	N	P	O	F	C	A	S	623	92	IX	42.4	9	91.0	100.0	51.5	87.9
553	Putty	1913–38	----	F	S	N	----	N	----	O	----	----	M	S	626	17	V	27.2	6	27.2	100.0	65.1	84.1
554	Rosin, grade B	1913–38	M	S	S	N	----	N	P	O	N	F	F	S	317	94	X-a	61.9	10	148.4	100.0	39.5	102.8
	Rosin, grade H	----	M	S	S	N	----	N	P	O	N	F	F	S	317	Not included in Bureau of Labor Statistics index.							
555	Shellac	1913–38	M	F	S	N	----	N	P	O	N	F	M	S	626	87	IX	40.6	9	82.0	100.0	24.8	30.9
556	Turpentine, southern	1913–38	M	S	S	N	----	N	P	O	N	F	F	S	317	95	Xb	6.7	2	169.2	100.0	78.5	70.4
	Turpentine, Savannah	----	M	S	S	N	----	N	P	O	N	F	F	S	317	Not included in Bureau of Labor Statistics index.							
557	Whiting	1926–38	----	S	R	----	S	S	----	O	----	----	M	S	Mining	1	I	3.7	2	125.0	100.0	100.0	107.4
558	Zinc oxide	1913–38	M	F	S	N	S	S	P	O	N	M	M	S	626	10	III	9.3	3	112.1	100.0	86.0	90.6
	Other building materials																						
559	Asphalt	1918–38	M	F	S	----	----	D	P	O	N	M	Mi	S	705	3	I	16.7	4	100.0	100.0	83.3	100.0
560	Plasterboard	1926–38	------	F	S	D	----	D	----	O	----	----	M	D	1020	3	I	—8.6	1	112.2	100.0	105.3	93.4
561	Wallboard	1926–38	------	F	S	D	----	D	----	O	----	----	M	D	1020	9	III	5.6	2	120.8	100.0	90.2	91.7
562	Doors	1926–38	------	F	S	D	----	D	----	O	----	----	M	S	314	14	IV	27.8	7	98.4	100.0	77.9	111.3
563	Doorframes	1926–38	------	F	S	D	----	D	----	O	----	----	M	S	314	7	II	15.7	4	101.9	100.0	83.5	98.4
564	Window frames	1926–38	------	F	S	D	----	D	----	O	----	----	M	S	314	8	III	15.7	4	104.0	100.0	83.5	98.4
565c	Plate glass	1913–38	M	F	S	D	----	D	P	O	N	M	M	S	1008	6	II	—6.1	1	118.8	100.0	94.5	76.7
565	Plate glass 3–5 square feet	1913–38	M	F	S	D	----	D	P	O	N	M	M	S	1008	Included in 565c.							
566	Plate glass 5–10 square feet	1913–38	M	F	S	D	----	D	P	O	N	M	M	S	1008								
567c	Window glass	1913–38	M	F	S	D	----	D	P	O	N	M	M	S	1008	13	IV	23.0	5	91.9	100.0	64.7	75.4
567	Window glass A	1913–38	M	F	S	D	----	D	P	O	N	M	M	S	1008	Included in 567c.							
568	Window glass B	1913–38	M	F	S	D	----	D	P	O	N	M	M	S	1008								
569	Gravel	1913–38	R	R	R	----	----	D	P	O	N	M	Mi	S	Quarrying	13	IV	12.6	3	103.8	100.0	86.3	97.8
570	Quicklime	1913–38	M	F	S	D	D	D	P	O	N	N	M	S	1013	34	VI	7.8	3	112.5	100.0	80.8	89.2
571	Slaked lime	1913–38	M	F	S	D	D	D	P	O	N	M	M	S	1013	14	IV	11.8	3	108.1	100.0	85.5	94.6
572	Sewer pipe	1913–38	------	F	S	D	----	D	----	O	----	----	M	S	1005	13	IV	13.8	4	132.1	100.0	81.9	91.5
573	Plaster	1926–38	------	S	S	D	----	D	----	O	----	----	M	S	1020	8	III	—20.6	1	141.2	100.0	158.9	176.6
574c	Prepared roofing	1936–38	------	F	S	----	----	D	----	O	----	----	M	D	1638	37	VII	13.0	4	130.7	100.0	94.1	114.2
574	Individual prepared shingles	1926–38	------	F	S	----	----	D	----	O	----	----	M	D	1638								
575	Prepared roofing, medium	1626–38	------	F	S	----	----	D	----	O	----	----	M	D	1638	Included in 574c.							
576	Prepared roofing, slate	1926–38	------	F	S	----	----	D	----	O	----	----	M	D	1638								
577	Strip shingles	1926–38	------	F	S	----	----	D	----	O	----	----	M	D	1638								
578	Slate	1913–38	M	F	S	----	----	D	P	O	N	M	Mi	S	1638	41	VII	13.6	4	144.9	100.0	107.4	142.0
579	Sand	1913–38	R	R	R	----	----	D	P	O	N	M	Mi	S	Quarrying	6	II	18.0	5	100.0	100.0	62.6	61.1
580	Window sash	1926–38	----	F	S	D	----	D	----	O	----	----	M	S	314	14	IV	13.6	4	108.3	100.0	92.0	111.1
581	Stone, crushed	1913–38	R	R	R	----	----	D	P	O	N	M	Mi	S	Quarrying	12	IV	36.8	8	100.0	100.0	70.6	114.8
582	Tar	1926–38	------	S	S	N	----	D	----	O	----	----	Mi	S	633	7	II	.3	1	93.3	100.0	93.2	87.0
																22	V	29.6	7	130.7	100.0	71.6	102.5

TABLE I.—*Tentative price classification*—Continued

B. L. S. code number	Name of commodity	Price data available	Fabrication			Durability					Source				Census industry classification	Price flexibility				Price indexes			
			Raw or manufactured, N. B. E. R.	Raw, semifinished or finished		Durable, nondurable, B. L. S.	Durable, semidurable, nondurable		Use, N. B. E. R.[1]	Clothing, food, and other, N. R. C.	Farm or nonfarm, N. B. E. R.	Crop, animal, forest, or mineral, N. B. E. R.	Agriculture, manufacturing, mining, forestry, and fishing, N. R. C.	Product differentiation, unique, differentiated or standard, N. R. C.		Frequency of change 1926–33 N. R. C.		Sensitivity N. R. C.		1929=100			
				B. L. S.	N. R. C.		N. B. E. R.	N. R. C.								Changes in 96 chances	Group number	Index of depression sensitivity	Group number	1926	1929	1932	1937
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)
	VIII. CHEMICALS AND DRUGS																						
	Chemicals																						
583	Acetic acid	1913–38		F	S	N		N		O			M	S	608	21	V	14.1	4	84.0	100.0	67.1	62.4
584	Boric acid	1913–38		F	F	N		N		O			M	S	608	11	III	11.6	3	150.2	100.0	85.0	93.2
585	Carbon dioxide, liquid	1913–38		F	S	N		N		O			M	S	608	0	I	0	1	100.0	100.0	100.0	100.0
586	Muriatic acid	1913–38		F	S	N		N		O			M	S	608	6	II	1.2	2	84.5	100.0	100.0	102.5
587	Nitric acid	1913–38		F	S	N		N		O			M	S	608	5	II	0	1	98.6	100.0	100.0	100.0
588	Oleic acid	1913–38	M	F	S	N		N	M	O	F	A	M	S	608	42	VII	44.0	9	94.6	100.0	58.3	104.6
589	Phosphoric acid	1933–38		F	S	N		N		O			M	S	608	Discarded—Inadequate data.							
590	Salicylic acid	1913–38		F	S	N		N		O			M	S	608	4	I	0	1	85.5	100.0	100.0	100.0
591	Stearic acid	1913–38		F	S	N		N		O			M	S	608	41	VII	33.5	8	88.8	100.0	57.1	81.2
592	Sulphuric acid	1913–38	M	F	S	N		N	M	O	N	M	M	S	608	4	I	1.2	2	93.5	100.0	100.0	102.5
593	Denatured alcohol	1913–38	M	F	S	N		N	M	O	F	C	M	S	608	49	VII	8.0	3	64.4	100.0	78.0	71.9
594	Wood alcohol	1913–38		F	S	N		N		O			M	S	633	28	VI	17.0	4	111.4	100.0	64.8	63.5
595	Aluminum sulphate	1913–38	M	F	S	N		N	M	O	N	M	M	S	608	4	I	8.9	3	100.0	100.0	89.3	96.4
596	Anhydrous ammonia	1913–38	M	F	S	N		N	M	O	N	M	M	S	608	18	V	−3.6	1	93.9	100.0	110.8	114.2
597	Aqua ammonia	1926–38	M	F	S	N		N	M	O	N	M	M	S	608	17	V	−5.0	1	131.6	100.0	100.0	90.0
598	Anilin oil	1913–38		F	S	N		N		O			M	S	608	13	IV	−6.6	1	109.4	100.0	106.6	100.0
599	Arsenic, white	1913–38		F	S	N		N		O			M	S	608	7	II	−13.5	1	87.5	100.0	101.0	75.0
600	Baking powder, 1 pound	1926–38		F	F	N		N		O	N		M	D	603	7	II	−8.8	1	111.6	100.0	94.8	72.1
601	Baking powder, 10 pounds	1926–38		F	S	N		N		O	N		M	D	603	4	I	−2.8	1	100.0	100.0	96.3	86.9
602	Benzine	1913–38	M	F	S	N		N	M	O	N	M	M	S	705	24	VI	−3.0	1	106.6	100.0	88.2	70.5
603	Bleaching powder	1913–38	M	F	S	N		N	M	O	N	M	M	S	609	4	I	12.5	3	100.0	100.0	87.5	100.0
604	Borax	1913–38	M	F	S	N		N	M	O	N	M	M	S	608	10	III	12.3	3	176.1	100.0	91.9	88.4
605	Calcium acetate	1913–38		F	S	N		N		O			M	S	608	15	IV	19.9	5	72.9	100.0	73.5	46.8
606	Calcium arsenate	1921–38		F	S	N		N		O			M	S	608	23	VI	14.8	4	105.2	100.0	80.1	89.8
607	Calcium carbide	1926–38		F	S	N		N		O			M	S	608	2	I	0	1	102.0	100.0	100.0	100.0
608	Calcium chloride	1913–38		F	S	N		N		O			M	S	608	6	II	4.1	2	105.0	100.0	90.0	88.2
609	Coal tar, black	1913–38	M	F	S	N		S	M	O	N	M	M	S	608	4	I	0	1	98.3	100.0	100.0	100.0
610	Coal tar, brown	1913–38	M	F	S	N		S	M	O	N	M	M	S	608	7	II	.4	1	84.9	100.0	99.6	100.0
611	Coal tar, indigo	1913–38	M	F	S	N		S	M	O	N	M	M	S	608	2	I	0	1	93.4	100.0	100.0	100.0
612	Coal tar, nigrosine	1913–38	M	F	S	N		S	M	O	N	M	M	S	608	8	III	16.9	4	91.2	100.0	68.1	70.0
613	Copperas	1913–38		F	S	N		N		O			M	S	608	12	IV	8.6	3	95.4	100.0	87.5	92.2
614	Copper sulphate	1913–38		F	S	N		N		O			M	S	608	56	VIII	44.4	9	79.6	100.0	48.7	86.3
615	Creosote	1913–38	M	F	S	N		N	M	O	N	F	M	S	633	10	III	19.4	5	93.9	100.0	74.8	88.4
616	Formaldehyde	1913–38		F	S	N		N		O			M	S	608	21	V	15.7	4	106.2	100.0	65.9	63.2
617	Logwood extract	1926–38		F	S	N		N		O			M	S	602	14	IV	27.9	7	89.9	100.0	81.7	119.2
618	Naphthalene	1913–38		F	S	N		N		O			M	S	608	16	IV	24.8	6	122.2	100.0	105.7	161.1
619	Pine oil	1926–38		S	S	N		N		O			M	S	633	36	VII	8.5	3	98.5	100.0	92.8	102.6
620	Caustic potash	1913–38		F	S	N		N		O			M	S	608	9	III	4.3	2	104.3	100.0	91.2	91.4
621	Quebracho extract	1926–38		F	S	N		N		O			M	S	632	23	VI	42.0	9	99.4	100.0	46.2	76.4
622	Sal soda	1913–38		F	S	N		N		O			M	S	608	9	III	2.2	2	107.3	100.0	106.1	116.6
623	Salt cake	1913–38		F	S	N		N		O			M	S	630	22	V	5.6	2	120.3	100.0	82.3	75.8
624	Granulated salt	1913–38	M	F	RF	N		N	C	O	N	M	M	S	630	9	III	−2.2	1	113.8	100.0	103.9	103.4
625	Soda ash	1913–38	M	F	S	N		N	M	O	N	M	M	S	608	13	IV	5.2	2	106.3	100.0	87.8	86.0
626	Sodium bicarbonate	1913–38	M	F	F	N		N	M	O	N	M	M	S	608	3	I	1.6	2	95.0	100.0	92.5	88.1
627	Caustic soda	1913–38	M	F	S	N		N	M	O	N	M	M	S	608	16	IV	3.6	2	108.5	100.0	88.4	84.1
628	Sodium silicate	1913–38	M	F	S	N		N	M	O	N	M	M	S	608	7	II	0	1	111.4	100.0	107.1	114.3
629	Sodium sulphide	1926–38		F	S	N		N		O			M	S	608	11	III	−4.3	1	108.1	100.0	104.2	99.8
630	Crude sulphur	1913–38	R	R	R			N	M	O	N	M	M	S	Mining	3	I	0	1	101.2	100.0	100.0	100.0
631	Tallow, packers'	1913–38	M	F	S	N		N	M	O	F	A	A	S	123	90	IX	61.0	16	102.7	100.0	37.6	97.2
632	Toluene	1913–38		F	S	N		N		O			M	S	608	10	III	12.5	3	87.5	100.0	75.0	75.0
633	Palm kernel oil	1913–38		S	S			N		O			A–I	S	Import	65	VIII	28.6	7	119.2	100.0	57.1	71.5
634	Palm niger oil	1913–38	M	S	S			N	M	O	N	C	A–I	S	do	88	IX	44.8	9	108.3	100.0	39.0	67.5
	Drugs and pharmaceuticals																						
635	Citric acid	1913–38		F	S	N		N		O			M	S	608	24	VI	9.6	3	97.2	100.0	67.2	53.7
636	Tartaric acid	1913–38		F	S	N		N		O			M	S	608	46	VII	20.6	5	76.2	100.0	60.2	61.6
637	Grain alcohol	1913–38	M	F	S	N		N	M	F	F	C	M	S	133	22	V	42.2	9	177.0	100.0	91.0	166.4
638	Caffeine	1926–38		F	S	N		N		O			M	S	611	21	V	9.8	3	119.6	100.0	80.5	80.7
639	Camphor	1913–38	M	S	SF	N		N	M	O	N	F	M	S	Import	85	IX	27.4	6	120.2	100.0	67.1	89.1
640	Castor oil	1913–38	M	F	SF	N		N	C	O	F	C	M	S	625	42	VII	15.2	4	98.1	100.0	74.7	79.8
641	Chlorine, liquid	1926–38		F	S	N		N		O			M	S	610	18	V	29.3	7	135.3	100.0	57.1	72.8
642	Chloroform	1926–38		F	S	N		N		O			M	S	608	5	II	14.7	2	106.2	100.0	88.4	106.2
643	Cream of tartar	1913–38		F	SF	N		N		F			M	S	608	42	VII	17.1	4	106.2	100.0	88.4	106.2
644	Epsom salts	1913–38		F	SF	N		N		O			M	S	608	6	II	−7.1	1	98.9	100.0	103.2	92.2
645	Glycerin, chemically pure	1913–38	M	F	S	N		N	M	O	F	O	M	S	608	48	VII	56.0	10	190.8	100.0	73.7	159.5
646	Iodine	1913–38		F	S	N		N		O			M	S	608	14	IV	−10.8	1	100.0	100.0	77.0	32.3
647	Menthol	1913–38		F	S			N		O			M–I	S	Menthol	89	IX	26.2	6	100.8	100.0	55.8	64.1
648	Opium	1913–38		S	S			N	C	O	N	M	M–I	S	Import	10	III	.4	1	96.5	100.0	95.8	92.5
649	Hydrogen peroxide	1913–38	M	F	F	N		N		O			M	S	608	4	I	6.0	2	99.5	100.0	90.7	93.5
650	Phenol	1913–38		F	S	N		N		O			M	S	608	17	V	−4.0	1	143.3	100.0	103.7	99.4
651	Potassium iodide	1926–38		F	S	N		N		O			M	S	608	22	V	−18.3	1	111.5	100.0	82.5	28.4
652	Quinine sulphate	1913–38		F	F	N		N		O			M	S	611	15	IV	17.2	4	107.6	100.0	99.0	132.4
653	Sodium phosphate	1913–38		F	S	N		N		O			M	S	608	17	V	−.2	1	100.0	100.0	82.8	65.3
654	Strychnine	1926–38		F	S	N		N		O			M	S	611	13	IV	3.2	2	89.8	100.0	83.7	73.7
655	Zinc chloride	1913–38		F	S	N		N		O			M	S	608	15	IV	4.8	2	101.4	100.0	84.4	78.4
	Fertilizer materials																						
656	Ammonium sulphate	1913–38	M	F	S	N		N	P	O	N	M	M	S	614	70	VIII	36.7	8	118.8	100.0	40.3	54.0
657	Bones, ground	1913–38		F	S	N		N		O			A	S	614	38	VII	33.8	8	93.0	100.0	51.8	71.3
658	Phosphate rock	1913–38	R	R	R	N		N	P	O	N	M	Mi	S	614	10	III	−20.2	1	101.3	100.0	100.0	59.7
659	Kainit, 20 percent	1913–38		F	S	N		N		O			M	S	614	9	III	5.6	2	91.5	100.0	101.4	113.9

TABLE I.—*Tentative price classification*—Continued

B. L. S. code number	Name of commodity	Price data available	Fabrication		Durability			Use, I. N. B. E. R.	Clothing, food, and other, N. R. C.	Source		Agriculture, manufacturing, mining, forestry, and fishing, N. R. C.	Product differentiation, unique, differentiated or standard, N. R. C.	Census industry classification	Price flexibility				Price indexes			
			Raw or manufactured, N. B. E. R.	Raw, semifinished or finished	Durable, nondurable, B. L. S.	Durable, semidurable, nondurable				Farm or nonfarm, N. B. E. R.	Crop, animal, forest, or mineral, N. B. E. R.				Frequency of change 1926–33 N. R. C.		Sensitivity N. R. C.		1929=100			
				B. L. S.		N. B. E. R.	N. R. C.								Changes in 95 chances	Group number	Index of depression sensitivity	Group number	1926	1929	1932	1937
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)
	VIII. CHEMICALS AND DRUGS—continued																						
	Fertilizer materials—Continued																						
660	Manure salts, 20 percent	1913–38		F	S	N		N		O			M	S	614	10	III	1.5	2	94.5	100.0	98.2	99.4
661	Muriate of potash, 80 percent	1913–38	M	F	S	N		N	P	O	N	M	M	S	614	6	II	−13.3	1	95.9	100.0	101.4	76.2
662	Sulphate of potash, 90 percent	1913–38		F	S	N		N	P	O			M	S	614	10	III	−11.3	1	96.7	100.0	100.3	78.0
663	Sodium nitrate	1913–38	R	R	R	N		N	P	O	N	M	M	S	614	60	VIII	9.2	3	118.2	100.0	73.5	65.4
664	Superphosphate	1913–38	M	F	S	N		N	P	O	N	M	M	S	614	36	VII	17.2	4	98.6	100.0	74.8	83.9
665	Tankage	1913–38	R	R	S	N		N	P	O	F	A	A	S	123	57	VIII	63.8	10	95.9	100.0	30.3	88.2
	Fertilizer, mixed																						
666c	Fertilizer	1913–38	M	F	S	N		N	P	O	N	M	M	D	614	42	VII	14.8	4	103.7	100.0	71.9	73.4
666	Fertilizer, Middle Atlantic	1913–38	M	F	S	N		N	P	O	N	M	M	D	614	Included in 666c.							
667c	Fertilizer	1913–38	M	F	S	N		N	P	O	N	M	M	D	614	22	V	17.6	5	104.6	100.0	73.2	81.6
667	Fertilizer, midwest	1913–38	M	F	S	N		N	P	O	N	M	M	D	614	Included in 667c.							
668	Fertilizer, northeast	1913–38	M	F	S	N		N	P	O	N	M	M	D	614	Included in 666c.							
669	Fertilizer, South Atlantic	1913–38	M	F	S	N		N	P	O	N	M	M	D	614	Included in 667c.							
670	Fertilizer, South Atlantic	1913–38	M	F	S	N		N	P	O	N	M	M	D	614	Included in 666c.							
671	Fertilizer, southwest	1913–38	M	F	S	N		N	P	O			M	D	614	Included in 666c.							
	IX. HOUSE FURNISHING GOODS																						
	Furnishings																						
672	Blankets, cotton colored	1913–38	M	F	F	N		D	C	O	F	C	M	D	203	21	V	36.2	8	113.3	100.0	55.2	82.9
673	Blankets, cotton warp	1926–38		F	F	N		D		O			M	D	203	15	IV	38.4	8	113.9	100.0	63.3	103.3
674	Blankets, wool	1913–38		F	F	N		D		O			M	D	212	15	IV	34.9	8	101.2	100.0	70.9	111.6
675	Comforters	1926–38		F	F	N		D		O			M	D	218	16	IV	28.7	7	133.3	100.0	65.3	88.0
676	Carvers	1913–38	M	F	F	D		D	C	O	N	M	M	D	1103	0	I	4.7	2	100.0	100.0	100.0	109.4
677	Knives and forks	1913–38	M	F	F	D		D	C	O	N	M	M	D	1213	2	I	−.3	1	100.0	100.0	96.0	91.4
678	Axminster carpets	1913–38	M	F	F	N		D	C	O	F	A	M	U	201	7	II	28.1	7	108.2	100.0	70.2	96.6
679	Brussels carpets	1913–38	M	F	F	N		D	C	O	F	A	M	U	201	6	II	22.8	5	103.0	100.0	81.7	108.9
680	Wilton carpets	1913–38	M	F	F	N		D	C	O	F	A	M	U	201	9	III	24.2	6	111.0	100.0	84.0	116.4
681	Felt-base printed carpets	1926–38		F	F	N		D		O			M	D	222	7	II	9.5	3	92.7	100.0	83.8	86.6
682	Felt-base rugs	1926–38		F	F	N		D		O			M	D	222	9	III	23.2	5	126.6	100.0	62.5	71.4
683	Linoleum, inlaid	1926–38		F	F	N		D		O			M	D	222	13	IV	23.4	6	90.6	100.0	69.7	86.1
684	Linoleum, plain	1926–38		F	F	N		D		O			M	D	222	11	III	15.4	4	108.2	100.0	86.7	104.2
685	Electric irons, automatic	1926–38		F	F	D		D		O			M	U	1303	7	II	17.2	4	112.9	100.0	65.8	66.0
686	Electric irons, plain	1926–38		F	F	D		D		O			M	U	1303	8	III	9.8	3	152.0	100.0	75.8	71.1
687	Electric ironers	1926–38		F	F	D		D		O			M	U	1315	2	I	6.0	2	100.0	100.0	87.9	87.9
688	Oilcloth, shelf	1926–38		F	F	N		S		O			M	S	220	17	V	24.2	6	99.1	100.0	69.3	87.1
689	Oilcloth, table	1926–38		F	F	N		S		O			M	S	220	17	V	23.6	6	99.8	100.0	71.0	89.3
690	Oilcloth, wall	1926–38		F	F	N		S		O			M	S	220	7	II	14.4	4	113.0	100.0	80.7	90.1
691	Pails, galvanized iron	1913–38		F	F	D		D		O			M	D	1109	47	VII	39.8	9	102.0	100.0	71.1	121.8
692	Pillowcases	1926–38		F	F	N		S		O			M	D	218	43	VII	27.4	6	95.7	100.0	60.6	76.1
693	Sewing machines, electric	1923–38	M	F	F	D		D	C	O	N	M	M	U	1312	5	II	13.0	4	91.7	100.0	78.2	82.4
694	Sewing machines, treadle	1913–38	M	F	F	D		D	C	O	N	M	M	U	1312	4	I	14.2	4	95.0	100.0	84.9	98.3
695	Window shades	1926–38		F	F	N		D		O			M	D	1651	14	IV	20.0	5	110.7	100.0	70.7	81.5
696	Sheets	1926–38		F	F	N		S		O			M	D	218	43	VII	35.0	8	96.6	100.0	52.1	74.1
697	Coal range	1913–38	M	F	F	D		D	C	O	N	M	M	U	1121	Discarded—Items not comparable, year to year.							
698	Electric range	1926–38	M	F	F	D		D	C	O	N	M	M	U	1303	4	I	9.5	3	117.8	100.0	78.8	76.6
699	Gas range	1913–38	M	F	F	D		D	C	O	N	M	M	U	1121	Discarded—Inadequate data.							
700	Oil range	1913–38	M	F	F	D		D	C	O	N	M	M	U	1121	Discarded—Items not comparable, year to year.							
701	Tablecloths	1926–38		F	F	N		S		O			M	D	218	11	III	28.8	7	103.1	100.0	70.8	99.1
702c	Dinner sets	1924–38	M	F	F	D		D	C	O	N	M	M	U	1017	1	I	21.8	5	105.5	100.0	95.6	134.8
702	Dinner sets	1924–38	M	F	F	D		D	C	O	N	M	M	U	1017	Included in 702c.							
703	Dinner sets, 3 spray	1924–38	M	F	F	D		D	C	O	N	M	M	U	1017								
704	Glass nappies	1913–38		F	F	D		D		O			M	D	1008	3	I	10.0	3	100.0	100.0	100.0	120.0
705	Glass pitchers	1913–38	M	F	F	D		D	C	O	N	M	M	D	1008	7	II	17.9	5	96.8	100.0	101.7	139.2
706	Plates, granite	1913–38		F	F	D		D		O			M	D	1017	5	II	−5.4	1	116.7	100.0	100.0	89.3
707	Cups and saucers, granite	1913–38		F	F	D		D		O			M	D	1017	5	II	−6.0	1	116.7	100.0	100.0	88.0
708	Tumblers	1913–38		F	F	D		D		O			M	D	1008	6	II	27.2	6	101.8	100.0	83.3	120.9
709	Galvanized iron tubs	1913–38	M	F	F	D		D		O			M	D	1109	50	VIII	39.5	9	103.2	100.0	70.3	119.7
710	Vacuum cleaners	1924–38		F	F	D		D		O			M	U	1303	8	III	4.4	2	124.5	100.0	80.0	63.9
711	Washing machines	1926–38		F	F	D		D		O			M	U	1315	8	III	13.2	4	137.2	100.0	65.0	56.4
	Furniture																						
712	Metal beds	1926–38		F	F	D		D		O			M	U	309	Discarded—Items not comparable, year to year.							
713	Wooden beds	1913–38	M	F	F	D		D	C	O	N	F	M	U	309								
714	Bedroom benches	1913–38		F	F	D		D		O			M	U	309								
715	Bedroom chairs	1913–38	M	F	F	D		D	C	O	N	F	M	U	309								
716	Dressers, vanity table	1913–38	M	F	F	D		D	C	O	N	F	M	U	309								
717	Mattresses	1926–38		F	F	N		D		O			M	U	309								
718	Bed springs, coil	1926–38		F	F	D		D		O			M	U	309								
719	Buffets, serving tables	1913–38	M	F	F	D		D	C	O	N	F	M	U	309								
720	Dining room chairs	1913–38	M	F	F	D		D	C	O	N	F	M	U	309								
721	Dining room tables	1913–38	M	F	F	D		D	C	O	N	F	M	U	309								
722	Kitchen cabinets	1925–38	M	F	F	D		D	C	O	N	(O)	M	U	309								
723	Kitchen chairs	1913–38	M	F	F	D		D	C	O	N	F	M	U	309								
724	Electric refrigerators	1932–38		F	F	D		D		O			M	U	309								
725	Kitchen tables	1925–38	M	F	F	D		D	C	O	N	(O)	M	U	309								
726	Living room chairs	1925–38	M	F	F	D		D	C	O	N	F	M	U	309								
727	Davenports	1913–38	M	F	F	D		D	C	O	N	F	M	U	309								
728	Living room tables	1913–38	M	F	F	D		D	C	O	N	F	M	U	309								

TABLE I.—*Tentative price classification*—Continued

B. L. S. code number	Name of commodity	Price data available	Fabrication			Durability			Use, N. B. E. R.	Clothing, food, and other, N. R. C.	Source		Agriculture, manufacturing, mining, forestry, and fishing, N. R. C.	Product differentiation, unique, differentiated or standard, N. R. C.	Census industry classification	Price flexibility				Price indexes			
			Raw or manufactured, N. B. E. R.	Raw, semifinished or finished		Durable, nondurable, B. L. S.	Durable, semidurable, nondurable				Farm or nonfarm, N. B. E. R.	Crop, animal, forest, or mineral, N. B. E. R.				Frequency of change 1926–33 N. R. C.		Sensitivity N. R. C.		1929=100			
				B. L. S.	N. R. C.		N. B. E. R.	N. R. C.								Changes in 95 chances	Group number	Index of depression sensitivity	Group number	1926	1929	1932	1937
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)
	IX. HOUSE FURNISHING GOODS—continued																						
	Furniture—Continued																						
729	Office chairs, side	1926–38	.....	F	F	D	...	D	...	O	...	...	M	D	309								
730	Office chairs, swivel	1926–38	.....	F	F	D	...	D	...	O	...	...	M	D	309								
731	Flat top desks	1926–38	.....	F	F	D	...	D	...	O	...	...	M	D	309								
732	Typewriter desks	1926–38	.....	F	F	D	...	D	...	O	...	...	M	D	309								
	X. MISCELLANEOUS															Discarded—Items not comparable year to year.							
	Automobile tires and tubes																						
733	Balloon tires	1926–38	M	F	F	N	...	S	C	O	N	C	M	D	803								
734	Truck and bus tires	1926–38	M	F	F	N	...	S	C	O	N	C	M	D	803								
735	Inner tubes	1926–38	.....	F	F	N	...	S	...	O	...	...	M	D	803								
	Cattle feed																						
736	Bran	1913–38	.....	F	S	N	...	N	...	O	...	...	A	S	113	95	X–b	61.6	10	86.8	100.0	37.2	97.7
737	Cottonseed meal	1913–38	.....	F	S	N	...	N	...	O	...	...	A	S	622	90	IX	53.8	10	74.1	100.0	34.1	75.8
738	Linseed meal	1913–38	.....	F	S	N	...	N	...	O	...	...	A	S	623	84	IX	31.6	7	86.6	100.0	53.9	71.1
739	Middlings	1913–38	.....	F	S	N	...	N	...	O	...	...	A	S	113	94	X–a	65.3	10	84.5	100.0	35.4	101.1
	Paper and pulp																						
740	Boxboard, chip	1913–37[2]	M	F	S	N	...	N	C	O	N	F	M	S	407	32	VI	39.2	8	116.1	100.0	70.6	119.6
741	Boxboard, manila lined	1913–37[2]	M	F	S	N	...	N	C	O	N	F	M	S	407	37	VII	34.0	8	113.0	100.0	76.6	921.1
742	Boxboard, 85-pound liner	1913–37[2]	M	F	S	N	...	N	C	O	N	F	M	S	407	25	VI	31.8	7	115.6	100.0	65.3	44.3
743	Book paper	1921–38	.....	F	S	N	...	SD	...	O	...	...	M	S	407	11	III	25.6	6	108.7	100.0	76.5	68.35
744	Newsprint paper	1926–38	M	F	S	N	...	N	M	O	N	F	M	S	407	8	III	3.0	2	115.7	100.0	81.2	134.3
745	Tissue paper	1921–38	.....	F	F	N	...	N	...	O	...	...	M	S	407	8	III	31.0	7	106.6	100.0	86.1	1.10
746	Wrapping paper	1913–38	M	F	F	N	...	N	M	O	N	C	M	S	407	10	III	0	1	120.9	100.0	100 0	100.1
747	Wood pulp, kraft	1926–38	R	S	S	N	...	N	M	O	N	F	M	S	410	25	VI	38.6	8	111.0	100.0	65.9	108.9
748	Wood pulp, sulphite	1913–38	R	S	S	N	...	N	M	O	N	F	M	S	410	22	V	51.5	10	113.0	100.0	61.9	126.8
749	Wood pulp, mechanical	1913–38	R	S	S	N	...	N	M	O	N	F	M	S	410	24	VI	22.1	5	111.2	100.0	77.5	99.2
750	Wood pulp, soda	1921–38	R	S	S	N	...	N	M	O	N	F	M	S	410	22	V	23.8	6	121.8	100.0	74.3	96.1
	Crude rubber																						
751c	Rubber, crude	1913–38	R	R	R	N	...	S	M	O	N	F	A–I	S	Import	94	X–a	81.8	10	238.1	100.0	18.1	99.8
751	Rubber, amber	1926–38	R	R	R	N	...	S	M	O	N	F	A–I	S	....do....	Included in 751c.							
752	Lastex crepe	1926–38	R	R	R	N	...	S	M	O	N	F	M–I	S	....do....								
753	Rubber, plantation	1913–38	R	R	R	N	...	S	M	O	N	F	A–I	S	....do....								
	Other miscellaneous																						
754	Wooden barrels	1926–38	.....	F	F	D	...	S	...	O	...	...	M	S	306	25	VI	19.6	5	98.0	100.0	74.2	87.6
755	Dry batteries	1926–38	.....	F	F	D	...	S	...	O	...	...	M	D	1303	4	I	−2.8	1	103.7	100.0	100.0	94.5
756	Storage batteries	1926–38	.....	F	F	D	...	D	...	O	...	...	M	D	1303	13	IV	12.5	3	123.2	100.0	75.1	75.2
757	Metal caskets	1926–38	.....	F	F	D	...	D	...	O	...	...	M	D	305	6	II	13.2	4	111.5	100.0	82.1	90.6
758	Wood caskets	1926–38	.....	F	F	D	...	D	...	O	...	...	M	D	305	7	II	10.4	3	102.5	100.0	83.7	88.1
759	Cigar boxes	1926–38	.....	F	S	D	...	N	...	O	...	...	M	S	303	4	I	2.1	2	100.0	100.0	87.5	79.2
760	Matches, regular	1926–38	.....	F	F	D	...	N	...	O	...	...	M	S	312	22	V	−10.2	1	131.4	100.0	121.0	121.7
761	Safety matches	1926–38	.....	F	F	D	...	N	...	O	...	...	M	S	312	5	II	−5.6	1	109.9	100.0	118.8	126.4
762	Plate glass mirrors	1926–38	.....	F	F	D	...	D	...	O	...	...	M	S	1016	7	II	72.6	10	100.0	100.0	66.9	159.1
763	Cylinder oil, Oklahoma	1913–38	M	F	F	N	...	N	M	O	N	M	Mi	S	705	51	VIII	17.8	5	67.8	100.0	65.3	66.2
764	Cylinder oil, Pennsylvania	1913–38	M	F	F	N	...	N	M	O	N	M	Mi	S	705	87	IX	26.7	6	74.0	100.0	49.8	53.0
765	Neutral oil, Gulf	1913–38	M	F	F	N	...	N	M	O	N	M	Mi	S	705	59	VIII	22.8	5	126.4	100.0	65.1	75.9
766	Neutral oil, Pennsylvania	1913–38	M	F	F	N	...	N	M	O	N	M	Mi	S	705	85	IX	33.4	8	104.0	100.0	61.1	89.1
767	Asbestos pipe coverings	1926–38	M	F	S	D	...	D	P	O	N	M	M	S	1001	6	II	21.6	5	108.7	100.0	87.0	117.1
768	Rubber heels, men's	1926–38	.....	F	S	N	...	S	...	O	...	...	M	D	802	12	IV	23.4	6	133.9	100.0	70.0	86.9
769	Rubber heels, women's	1926–38	.....	F	S	N	...	S	...	O	...	...	M	D	802	12	IV	10.4	3	144.5	100.0	91.0	102.9
770	Rubber hose	1926–38	.....	F	F	N	...	S	...	O	...	...	M	D	802	10	III	18.8	5	132.8	100.0	90.3	118.2
771	Men's rubbers	1926–38	.....	...	F	N	...	S	...	O	...	...	M	D	801	8	III	23.3	6	110.9	100.0	75.6	87.9
772	Shipping case	1926–38	.....	F	F	D	...	N	...	O	...	...	M	S	305	2	I	4.8	2	100.0	100.0	100.0	90.3
773	Soap chips	1926–37[2]	.....	F	F	N	...	N	...	O	...	...	M	D	631	28	VI	45.8	9	129.0	100.0	65.9	123.4
774	Laundry soap, pound	1913–37[2]	M	F	F	N	...	N	C	O	F	O	M	D	631	14	IV	31.6	7	95.1	100.0	58.0	79.3
775	Laundry soap, 100 cakes	1913–37[2]	M	F	F	N	...	N	C	O	F	O	M	D	631	4	I	−1.4	1	100.0	100.0	93.3	83.8
776	Soap powder	1926–37[2]	.....	F	F	N	...	N	...	O	...	...	M	D	631	25	VI	47.0	9	110.5	100.0	56.2	106.5
777	Toilet soap	1926–37[2]	.....	F	F	N	...	N	...	O	...	...	M	U	631	1	I	7.3	2	100.0	100.0	93.8	102.2
778	Laundry starch	1913–38	M	F	F	...	...	N	C	O	F	C	M	S	113	19	V	21.1	5	100.9	100.0	78.9	100 0
779	Cigarettes	1926–38	.....	F	F	N	N	N	...	O	...	...	M	U	1652	9	III	−10.9	1	104.8	100.0	111.9	102.0
780	Cigars	1926–38	.....	F	F	N	N	N	...	O	...	...	M	U	1608	Discarded—Item classified by price.							
781	Plug tobacco	1913–38	M	F	F	N	N	N	C	O	F	C	M	U	1647	2	I	0	1	100.0	100.0	96.1	2.25
782	Smoking tobacco	1913–38	M	F	F	N	N	N	C	O	F	C	M	U	1647	2	I	19.2	5	100.0	100.0	61.5	9.61
783	Snuff	1926–37	.....	F	F	N	N	N	...	O	...	...	M	U	1647	Discarded—Inadequate data.							
784	Paraffin	1926–38	.....	S	F	N	...	N	...	O	...	...	M	S	705	84	IX	39.4	8	144.9	100.0	54.6	8.8

[1] P: Goods entering into capital equipment; M: Producer goods destined for human consumption; C: Consumer goods. The class Producers' Goods as given in *Economic Tendencies* is merely the sum of P and M.

[2] Slight change in specification, January 1938.

(Continued from page 187)

(toluene); 650 (phenol); and 590 (salicylic acid). At the outbreak of the war Germany was the only country having a developed technique for the production of these dyestuffs; the chief source of the world's potassium salts was the salt beds of Stassfurt; the remaining three items were imported in considerable volume before the war, and their position as raw materials for explosives and munitions greatly increased the demand. These items showed an increase in price of over 500 percent during the war period. The effect of the elimination of these items is particularly noticeable in group III where most of them occur.

TABLE II.—*Frequency groups*

[Prices grouped according to frequency of change]

Code No.	Description	Sensitivity group	Code No.	Description	Sensitivity group
GROUP I (0-4 CHANGES)					
97	Corn flakes	1	425c	Iron ore	2
99	Wheat cereal	3	439	Steel rails	1
154	Ginger ale	1	456	Vises	2
156	Sodas	2	474	Nickel	1
226	Gloves, men's, mocha	2	497	Concrete blocks	2
231	Collars, men's, soft	6	536	Barytes, western	1
232	Collars, men's, stiff	1	538	Bone black	2
241	Men's dress shirts	1	540	Iron oxide	3
293	Underwear, men's	2	550	Lithopone, domestic	2
367	Grain binder	3	557	Whiting, imp. chalk	2
368	Cultivator, riding	3	559	Asphalt, bulk	4
369	Grain drill	3	560	Plasterboard	1
370	Engine, 3-horsepower	2	585	Carbon dioxide liquid	1
371	Forks, hay	3	590	Salicylic acid	1
372	Disk harrow	3	592	Acid, sulphuric	2
373	Harrow	4	595	Aluminum sulphate	3
375	Combination harvester-thresher	1	601	Baking powder	1
			603	Bleaching powder	3
376	Hoe, garden	3	607	Calcium carbide	1
377	Hay loader	3	609	Coal tar, black	1
378	Mower	4	611	Coal tar, indigo	1
379	Corn pickers	1	626	Sodium bicarbonate	2
380	Corn planter	2	630	Sulphur, crude	1
381	Plow tractor	3	649	Peroxide of hydrogen	2
385	Rake, 14 teeth	3	676	Carvers, 8-inch	2
386	Rake, self-dumping	3	677	Knives and forks	1
387	Rake, side delivery	4	687	Ironers, electric	2
389	Corn sheller	5	694	Sewing machines	4
391	Spade	3	698	Ranges, electric	3
392	Manure spread	3	702c	Dinner sets, 100 pieces	5
393	Grain thresher	2	704	Nappies, common	3
394	Tractor, 10-20 horsepower	4	755	Batteries, radio, dry	1
			759	Cigar boxes	2
398	Angle irons	2	772	Shipping cases	2
399	Augers	1	775	Soap, laundry	1
402	Bar iron	2	777	Toilet soap	2
417	Chisels	2	781	Tobacco, plug	1
418	Files, 8-inch	2	782	Tobacco, smoking	5
421	Knives, corn	3			
GROUP II (5-7 CHANGES)					
95	Bread	3	543	Chrome	3
96	do	1	563	Door frames	4
225	Leather belting	2	565c	Glass	1
227	Gloves	3	578	Slate	5
240	Overcoats	6	581	Crushed stone	1
336	Cotton thread	1	586	Acid, muriatic	2
337	Linen shoe thread	3	587	Acid, nitric	1
374	Harrow	4	599	Arsenious oxide	1
382	Plows	5	600	Baking powder	1
383	do	4	608	Calcium chloride	2
384	Pumps	5	610	Sulphur brown	1
388	Cream separator	3	628	Sodium silicate	1
390	Shovels	3	642	Chloroform	2
395	Farm tractor	4	644	Epsom salts	1
396	Wagon	4	661	Potash, muriate of	1
397	Windmill	4	678	Carpets	7
400	Axe	4	679	do	5
415	Sanitary cans	4	681	Linoleum	3
419	Hammers	6	685	Electric irons	4
420	Hatchets	5	690	Wall oilcloth	4
437	Planes	6	693	Sewing machines	4
443	Saws	2	705	Pitchers	5
444	do	2	706	Plates	1
502	Brick, common	4	707	Tea cups and saucers	1
505	Floor tiles	9	708	Tumblers	6
507	Cement roofing, tile	2	757	Caskets, metal	4
508	Wall tile	3	758	Caskets, wood	3
530	Enamel	3	761	Matches	1
534	Roof and barn paint	3	762	Plate glass mirror	10
535	Varnish	3	767	Asbestos pipe cover	5
541	Lampblack, green, light	1			

TABLE II.—*Frequency groups*—Continued

Code No.	Description	Sensitivity group	Code No.	Description	Sensitivity group
GROUP III (8-11 CHANGES)					
100	Crackers	5	573	Plaster	1
101	Sugar cookies	2	584	Acid, boric	3
117	Butter pretzels	3	604	Borax	3
155	Grape juice	5	612	Indigo	4
158	Cocoa	3	615	Creosote oil	5
190c	Shoes, small boys'	5	620	Potash, caustic	2
191	Shoes, child's	2	622	Sodium carbonate	2
193	Shoes, youth's	4	624	Salt, granulated	1
197	Shoes, men's	6	629	Sodium sulphide	1
243	Boys' suits	7	632	Toluene	3
244	Suits, men's	8	648	Opium	1
247	Topcoats	6	658	Phosphate rock	1
250	Men's work pants	7	659	Kainit	2
407	Steel barrels	6	660	Manure salts	2
409	Boiler tubes	2	662	Potassium sulphate	1
435	Pipe	2	680	Carpets	6
436	Pipe, galvanized steel	2	682	Linoleum, rug	5
455	Tin plate	4	684	Linoleum	4
460	Wire fencing	4	686	Electric irons	3
499	Fire brick	6	701	Tablecloths	7
503	Silica brick	6	710	Vacuum cleaner	2
504	Drain tile	7	711	Electric washing machine	4
526	California redwood	7	743	Book paper	6
532	House paint	4	744	Paper, newsprint	2
533	Porch and deck paint	3	745	Tissue paper	7
542	Prussian blue	2	746	Paper, wrapping	1
558	Zinc oxide	3	770	Garden hose	5
561	Building board	2	771	Rubbers, men's	6
564	Window frames	4	779	Cigarettes	1
GROUP IV (12-16 CHANGES)					
45	Milk, fresh	5	513	Lumber, chestnut	7
92	Bread	1	531	Inside flat paint	2
94	do	8	548	White lead	3
176	Salt	2	562	Doors	7
194c	Shoes, men's	5	567c	Glass	5
206c	Shoes, women's	3	569	Gravel	3
208	do	5	571	Lime, hydrated	3
229	Suitcases	6	572	Sewer pipe	4
230	Traveling bags	6	579	Sand	4
242	Shirts	7	580	Window sash	8
245	Suits	8	598	Anilin oil	1
252	Table damask	6	605	Calcium acetate	5
264	Nainsook	5	613	Copperas	3
269	Filling sateen	6	617	Logwood extracts	7
292	Ladies' union suits	7	618	Napthalene	6
294	Men's union suits	5	625	Soda ash	2
309	Women's dress goods	7	627	Caustic soda	2
315	Flannel	5	646	Iodine	1
330	Artificial leather	2	652	Quinine	4
331	do	2	654	Strychnine	2
334	Rope, sisal	5	655	Zinc chloride	2
338	Binder twine	7	673	Blankets	8
410	Machine bolts	5	674	do	8
413	Track bolts	4	675	Comforters	7
422	Door knobs	6	683	Linoleum	6
441	Small rivets	4	695	Window shades	5
453	Terne plate	4	756	Storage battery	3
469	Aluminum, ingot	1	768	Rubber heels	6
496	Laundry tubs	5	769	do	3
506	Hollow tile	8	774	Soap	7
509	Cement	4			
GROUP V (17-22 CHANGES)					
93	Bread	7	454	Tie plate steel	4
133	Canned asparagus	4	471	Babbitt metal	9
169	Jelly	3	494	Sinks	4
171	Molasses	3	500	Brick, silica	4
174	Peanut butter	9	501	Paving blocks	5
177	Canned soup	2	529	Shingles, cypress	9
178	Cornstarch	6	539	Carbon black	8
182	Tea	8	544	Chrome yellow	2
201c	Shoes, men's	5	553	Putty	6
205c	Shoes, women's	5	582	Tar	7
219	Leather, glazed kid	7	583	Acid, acetic	4
228	Harness	3	596	Ammonia	1
248	Boys' knee pants	10	597	Aqua ammonia	1
249	Men's pants	7	616	Formaldehyde	4
260	Gingham	9	623	Salt cake	2
295c	Rayon	5	637	Alcohol	9
305	Spun silk	5	638	Caffeine	3
312	Suiting	9	641	Chlorine	7
314	Women's dress goods	5	650	Phenol	1
316	Overcoating	8	651	Potassium iodide	1
333	Rope, manila	5	653	Sodium phosphate	1
340	Twine	9	667c	Fertilizer	5
341c	Carpet yarn	5	672	Blankets	8
364	Petroleum	5	688	Oilcloth	6
411	Plow bolts	6	689	do	6
412	Stove bolts	6	748	Wood pulp	10
423	Locks	3	750	do	6
429	Ferromanganese	7	760	Matches	1
449	Steel skelp	5	778	Starch	5
450	Spikes	4			

TABLE II.—*Frequency groups*—Continued

Code No.	Description	Sensitivity group	Code No.	Description	Sensitivity group
	GROUP VI (23-34 CHANGES)				
43	Milk, fresh	3	408	Steel billets	6
44	do	7	414	Butts	5
114	Macaroni and spaghetti	9	416	Malleable iron castings	4
120	Apples, canned	5	433	Spiegeleisen	5
122	Cherries, canned	6	440	Rivets, large	8
125	Canned pineapple	6	442	Wire rods	4
134	Canned vegetables	6	452	Steel, structural	6
162	Pink salmon	6	481	Zinc sheets	4
220	Harness leather	5	490	Range boiler	7
258	Cotton flannel	8	493	Radiation	2
266	Percale	7	495	Bathtubs	4
275	Woven madras	5	512	Siding, cedar	5
280	Toweling	7	514	Lumber, cypress	6
286	Hose, men's	9	525	Lumber, poplar	7
287	Hosiery	8	545	Ethyl acetate	3
289	do	5	546	Copal	6
291	Underwear, men's, 2 pc	6	570	Quicklime	3
310	Crepe	7	594	Methanol	4
311	Flannel	6	602	Benzene	1
313	Women's dress goods	7	606	Calcium arsenate	4
317	Overcoating	9	621	Quebracho extract	9
318c	Suitings	8	635	Citric acid	3
322	Unfinished worsted, suiting	8	740	Box boards	8
			742	Box board	7
346	Coal, mine run, bituminous	3	747	Wood pulp	8
			749	Mechanical pulp	5
350c	Coke	6	754	Barrels, wood	5
401	Bar iron	6	773	Soap flakes	9
405	Steel bars, Pittsburgh	7	776	Powdered soap	9
	GROUP VII (35-49 CHANGES)				
89	Milk, condensed	3	427c	Pig iron	7
91	Powdered skimmed milk	8	431	do	9
128	Currants	2	438	Steel plates	6
136	Peas	1	457c	Wire fence	4
138	String beans, canned	7	461	Wood screws	7
139	Tomatoes	4	491	Water closets	4
168	Glucose	8	492	Lavatories	8
172	Oleomargarine	8	498	Brick, common	7
186	Vegetable oil	5	518	Lumber, hemlock	5
189	Vinegar	5	519	Lumber, maple	9
202c	Shoes, men's	6	520	Lumber, oak	6
221	Leather, side chrome	8	521	Lumber, white pine	4
239	Overalls	9	524	Ponderosa pine	8
259	Cotton flannel	8	537	Butyl acetate	2
270c	Sheeting	8	574c	Prepared roofing	4
277	Ticking	9	577	do	4
288	Hosiery, women's rayon	7	588	Red oil	9
290	Hosiery, women's silk	7	591	Acid, stearic	2
303c	Spun silk	5	593	Alcohol, denatured	4
335	Sisal	10	619	Pine oil	3
343	Coal, anthracite	1	636	Acid, tartaric	5
344	do	1	640	Castor oil	4
345	do	1	643	Cream of tartar	4
347	Coal, sized, bituminous	5	645	Glycerine	10
348	Coal, screenings, bituminous	4	657	Bones	8
			664	Superphosphate	4
362	Kerosene	4	666c	Fertilizer	4
365	Petroleum	7	691	Pails	9
403	Reinforcing bars	8	692	Pillowcases	6
404	Steel bars	7	696	Sheets	8
406	Bar steel, cold finish	7	741	Box board	8
424	Nails	6			
	GROUP VIII (50-77 CHANGES)				
46	Peanuts	10	165	Fish, salt herring	4
47	Seed, alfalfa	10	166	Fish, salt, mackerel	9
59c	Wool	10	167	Salmon, smoked	7
65c	do	10	173	Oleo oil	10
90	Milk, evaporated	6	184	Corn oil	10
119	Rice	4	187	Peanut oil	10
121	Canned apricots	6	188	Soybean oil	10
123	Canned peaches	6	215	Goatskins	9
124	Canned pears	6	222c	Leather, oak	8
132	Bananas	3	253	Denims	8
135	Canned corn	7	255	Drillings	9
137	Canned spinach	3	256	Duck	8
141c	Meat, fresh	8	261c	Muslin	7
145	Bacon	10	272c	Sheeting	9
163	Fish, canned salmon	6	276	Percale	8
164	Fish, pickled cod	7	324	Worsted yarns	9

TABLE II.—*Frequency groups*—Continued

Code No.	Description	Sensitivity group	Code No.	Description	Sensitivity group
	GROUP VIII (50-77 CHANGES)—Continued				
325c	Yarn, wool	9	485	Brass tube	8
332	Cotton rope	8	486	Brass wire	8
349	Coke	10	487	Copper wire	10
366	Petroleum	8	517	Lumber, gum	9
434	Pipe	10	527	Lumber, spruce	8
446	Steel sheets	6	547	Pigments	7
447	Automobil ebody sheets	6	549	Litharge	8
448	Sheets, steel	5	614	Copper sulphate	9
451	Cold rolled strips	8	633	Oil, palm kernel	7
475	Lead pipe	8	656	Ammonia	8
477	Brass rods	8	663	Chile saltpeter	3
478	Drawn copper rods	8	665	Tankage	10
479	Brass sheets	8	709	Tubs	9
480	Copper sheets	7	763	Lubricating oil	5
483	Solder	10	765	Neutral oil	5
	GROUP IX (78-92 CHANGES)				
19c	Sheep	10	281c	Cotton yarn	9
36	Apples	9	328	Hemp	10
39	Hay	8	329	Jute	9
40c	do	7	339	Twine	9
48	Seed	10	355	Fuel oil	10
50	do	8	356	do	7
54	Potatoes	9	358	Gasoline	7
58	do	9	363	Kerosene	5
103c	Flour	9	445	Steel, scrap	10
116	Corn meal	10	472	Copper, ingot	10
118	Rice	8	473	Lead, pig	9
126	Apples, dried	8	476	Quicksilver	8
127	Apricots, dried	8	488	Zinc, pig	10
129	Peaches, dried	8	510	Lumber, lath	7
130	Prunes	8	511	do	10
131	Raisins	1	515	Lumber, sheathing	10
140	Beef, cured	9	516	Lumber, siding	10
146	Pork, salted	10	522	Pine, flooring	4
147	Pork, dry, salted	10	528	Lumber, shingles	9
149	Mess pork	9	551	China wood oil	10
152	Dressed poultry	6	552	Linseed oil, raw	9
161	Copra	10	555	Shellac	9
179	Sugar	5	631	Tallow, Packer's	10
183	Coconut oil, crude	9	634	Palm niger oil	9
211	Cowhides	10	639	Camphor	6
214	Calfskins	10	647	Menthol	6
216	Hides, kip	10	737	Cottonseed meal	10
217	Sheep pelts	10	738	Linseed meal	7
257	Duck	9	764	Cylinder oil	6
265	Osnaburg	9	766	Neutral oil	8
278	Tire fabrics	8	784	Paraffin wax	8
279	do	9			
	GROUP X (93-95 CHANGES)				
1	Barley	10	144	Mutton, dressed	7
2c	Corn	10	148	Smoked ham	9
4	Oats	10	150	Pork, fresh	10
5	Rye	10	151	Veal, fresh	9
6c	Wheat	10	153	Dressed poultry	6
12	Calves	9	157	Cocoa beans	6
13c	Cows	10	159	Coffee, Brazil	6
15c	Steers	9	160	Coffee, Santos	6
17c	Hogs	10	170	Lard	10
20	Lambs	9	175	Pepper	7
22c	Poultry	7	180	Sugar	5
24c	Cotton	9	181	Tallow, edible	10
27c	Eggs	7	185	Cottonseed oil	10
30	do	7	212c	Hides	10
35	Apples	5	267	Print cloths	9
37	Lemons	5	268	do	9
38	Oranges	6	284c	Cotton yarn	9
42	Hops	9	299c	Raw silk	8
49	Flaxseed	9	306c	Silk yarns	7
51	Tobacco	10	327	Burlap	7
52	Beans, dried	10	357	Gasoline, natural	9
53	Onions	2	359c	Gasoline	6
55c	Potatoes	9	470	Antimony	10
68c	Butter	9	482	Silver	8
86c	Cheese	8	484	Tin	10
98	Oatmeal	9	554	Rosin	10
102	Flour	9	556	Turpentine	2
113	Hominy grits	10	736	Millfeed	10
115	Corn meal	10	739	do	10
143	Lamb	7	751c	Rubber, crude	10

TABLE III.—*Sensitivity groups*

[Prices grouped according to index of depression sensitivity]

Code No.	Item	Code No.	Item
	GROUP 1 (SENSITIVITY −20.6–0.4 PERCENT)		
573	Plaster.	601	Baking powder.
658	Phosphate rock, 68 percent.	375	Combine thresher.
651	Potash, iodine.	624	Salt.
336	Cotton thread.	344	Coal.
599	Arsenic.	96	Bread.
661	Potash, muriate.	775	Soap, laundry.
662	Sulphate of potassium.	131	Raisins.
779	Cigarettes.	536	Barytes, ground.
646	Iodine.	541	Lampblack.
760	Matches, nonsafety.	677	Knives and forks.
600	Baking powder.	653	Soda phosphate.
345	Coal.	154	Ginger ale.
560	Board, plaster.	746	Paper, wrapping.
379	Corn picker.	628	Sodium silicate.
644	Epsom salts.	587	Acid, nitric.
598	Coal-tar products.	609	Coal-tar products.
565c	Glass, plate.	590	Coal tar, salicylic acid.
707	Teas, cups, saucers.	630	Sulphur, crude.
761	Matches, safety.	607	Calcium carbide.
706	Plates, granite.	241	Shirts, men's.
597	Ammonia, aqua.	474	Nickel, electrode cathodes.
92	Bread.	611	Coal tar, indigo paste.
629	Soda sulphide.	781	Tobacco, plug.
650	Phenol, carbolic acid.	585	Carbon dioxide.
343	Coal.	399	Augers.
469	Aluminum.	439	Rails, steel.
596	Ammonia, anhydrous.	136	Peas, canned.
232	Collars, men's.	581	Crushed stone.
97	Corn flakes.	610	Coal-tar products.
602	Benzene.	648	Opium.
755	Batteries, radio.		
	GROUP 2 (SENSITIVITY 0.5–7.5 PERCENT)		
418	Files, metal.	293	Underwear, men's.
402	Bar iron.	435	Pipe, steel.
544	Chrome yellow.	330	Artificial leather.
592	Acid, sulphuric.	710	Vacuum cleaner.
586	Acid, muriatic.	620	Potash, caustic.
398	Angle bars, steel.	676	Carvers, stag.
409	Boiler tubes.	772	Shipping cases.
660	Manure salts.	370	Engine, agriculture.
626	Sodium bicarbonate.	655	Zinc chloride.
156	Sodas.	497	Concrete blocks.
176	Salt.	625	Soda ash.
417	Chisels.	659	Kainit.
542	Paint.	561	Board, building, wall.
415	Sanitary cans.	101	Cookies, sugar.
436	Pipe, steel.	128	Currants, dried.
759	Cigar boxes.	623	Salt cake, ground.
622	Soda, carbonate.	380	Corn planter.
507	Cement roofing tile.	687	Ironers, electric.
531	Paint, inside.	649	Peroxide of hydrogen.
191	Shoes, child's.	444	Saws.
456	Vises.	226	Gloves, men's.
443	Saws.	494	Sinks.
744	Paper, newsprint.	550	Lithopone.
654	Alkaloids, strychnine.	556	Turpentine.
53	Onions.	331	Artificial leather
425c	Iron ore.	393	Grain thresher.
627	Soda, caustic.	538	Bone black.
557	Whiting, imp. chalk.	777	Soap, toilet.
537	Acetate, butyl.	225	Leather belting.
608	Calcium, chloride.	177	Soup, canned.
	GROUP 3 (SENSITIVITY 7.8–12.8 PERCENT)		
367	Grain binder.	95	Bread.
570	Lime, building.	758	Caskets, wood.
391	Spade, garden.	769	Rubber heels.
593	Alcohol, denatured.	99	Wheat cereal.
530	Enamel, paint.	228	Harness, set.
381	Plow tractor.	377	Hay loader.
619	Oil, pine.	158	Cocoa.
613	Copperas.	371	Forks, hay.
376	Hoe, garden.	392	Manure spreader.
137	Spinach, canned.	423	Locks.
545	Ethyl, acetate.	540	Iron oxide.
543	Chrome green, light.	534	Roof and barn paint.
171	Molasses.	535	Varnish.
595	Alum, sulphate.	169	Jelly, grape.
132	Bananas.	43	Milk.
663	Soda, nitrate.	533	Paint, porch.
558	Zinc, oxide.	584	Acid, boric.
548	Lead, carbonate.	369	Grain drill.
385	Rake, steel.	571	Lime, hydrated.
421	Cork knives.	372	Harrow, disk.
227	Gloves, unlined.	368	Cultivator.
698	Ranges, electric.	604	Borax.

TABLE III.—*Sensitivity groups*—Continued

Code No.	Item	Code No.	Item
	GROUP 3 (SENSITIVITY 7.8–12.8 PERCENT)—Continued		
681	Linoleum.	346	Coal.
635	Citric acid, crystals.	206c	Shoes, women's.
388	Cream separator.	603	Bleaching powder.
390	Shovels.	632	Coal tar, toluene.
337	Shoe thread.	756	Storage battery.
686	Heating appliances.	508	Wall tile, glazed.
638	Alkaloids.	569	Gravel, ton.
704	Nappies.	117	Pretzels, butter.
386	Rake, self-dumping.	89	Milk, condensed.
	GROUP 4 (SENSITIVITY 13.0–17.5 PERCENT)		
378	Mower.	640	Castor oil.
693	Electric sewing machine.	684	Linoleum.
397	Windmill, steel.	193	Shoes, youths'.
396	Wagon.	395	Farm tractor.
574c	Roofing.	563	Door frames.
492	Lavatories.	564	Window frames.
757	Caskets, metal.	616	Formaldehyde.
711	Washing machine.	490	Range boiler.
383	Plows, walking.	481	Zinc, sheet.
133	Asparagus, canned.	119	Rice, clean.
579	Sand, building.	362	Kerosene.
348	Coal.	442	Wire rods.
577	Roofing, shingles.	559	Asphalt, bulk.
572	Pipe, sewer.	139	Tomatoes, canned.
387	Rake.	495	Bathtubs.
441	Rivets.	400	Axes.
416	Iron castings.	460	Fencing, wire.
583	Acetic acid.	612	Coal tar, jet.
394	Tractor.	457c	Wire.
694	Sewing-machine treadle.	594	Methanol.
165	Fish, herring.	643	Cream of tartar.
690	Wall oilcloth.	374	Harrow, 17-tooth.
450	Spikes.	373	Harrow, peg-tooth.
502	Brick, sandlime.	652	Quinine, sulphate.
455	Tin plate.	685	Heating appliances, electric iron
642	Chloroform.	664	Superphosphate.
606	Calcium arsenate.	521	Lumber, pine.
666c	Fertilizer.	454	Steel, tie plate.
453	Terneplate.	509	Cement, portland.
500	Brick, front.	532	Paint, house.
413	Track bolts.		
	GROUP 5 (SENSITIVITY 17.6–23.2 PERCENT)		
155	Grape juice.	189	Vinegar, cider.
315	Flannel.	518	Lumber, hemlock.
667c	Fertilizer.	120	Apples, canned.
347	Coal.	384	Pumps, agriculture.
179	Sugar, granulated.	496	Laundry tubs.
389	Corn sheller.	636	Acid, tartaric.
763	Oil, lubricating.	449	Steel skelp.
705	Pitchers.	334	Rope, sisal.
578	Slate, roofing.	363	Kerosene.
37	Lemons.	778	Starch, laundry.
289	Hosiery, silk.	767	Plate glass, mirror.
414	Butts, steel.	333	Rope, manila.
501	Paving blocks.	382	Plows, walking.
180	Sugar, raw.	702c	Dinner sets.
294	Underwear, worsted.	749	Wood pulp.
201c	Shoes.	264	Nainsook, muslin.
305	Spun silk.	220	Harness leather.
770	Garden hose.	190c	Shoes.
275	Madras, woven.	341c	Carpet yarn, jute.
782	Tobacco, smoking.	410	Machine bolts.
433	Pig iron.	295c	Rayon.
420	Hatchet.	35	Apples.
615	Creosote oil.	448	Sheets, galvanized steel.
194c	Shoes, men's.	512	Siding, red cedar.
364	Petroleum, crude.	679	Carpets, Brussels.
45	Milk.	765	Oil, neutral.
754	Barrel.	100	Crackers, soda.
303c	Silk, spun.	567c	Glass, window.
605	Calcium lime.	205c	Shoes, women's.
208	Shoes, women's.	682	Linoleum, rug.
314	Dress goods, cotton.	186	Olive oil, edible.
695	Window shades.		
	GROUP 6 (SENSITIVITY 23.3–27.4 PERCENT)		
771	Rubbers, men's.	743	Book paper.
768	Rubber heels.	407	Steel barrels.
683	Linoleum, inlaid.	240	Overcoat, heavy.
121	Apricots, canned.	122	Cherries, canned.
419	Hammer.	162	Salmon, pink.
689	Oil cloths, table.	412	Stove bolts.
350c	Coke.	438	Steel plates.
124	Pears, canned.	446	Steel sheets.
229	Suitcase.	408	Steel billets.
422	Door knobs, metal.	437	Planes, jackplane.
750	Soda, bleached.	90	Milk, evaporated.
499	Firebrick.	411	Plow bolts.

TABLE III.—*Sensitivity groups*—Continued

Code No.	Item	Code No.	Item
	GROUP 6 (SENSITIVITY 23.3–27.4 PERCENT)		
520	Lumber, oak.	311	Dress goods, wool.
546	Copal, manila.	647	Menthol.
447	Auto body sheets.	401	Bar iron.
680	Carpets, Wilton.	514	Cypress.
503	Silica brick.	125	Pineapples, canned.
688	Oil cloths.	269	Filling sateen.
231	Collars, men's.	160	Coffee.
230	Traveling bags.	764	Cylinder oil.
197	Shoes, men's.	153	Poultry, fresh.
123	Peaches, canned.	252	Table damask.
618	Napthalene.	159	Coffee.
359c	Gasoline.	178	Corn starch.
247	Topcoats.	708	Tumblers.
452	Steel, structural.	553	Putty.
202c	Shoes, men's.	134	Beans, canned.
424	Nails, wire.	291	Underwear, cotton.
38	Oranges.	639	Camphor.
163	Salmon, canned.	152	Poultry.
157	Cocoa beans.	692	Pillowcases.
	GROUP 7 (SENSITIVITY 27.5–32.9 PERCENT)		
405	Steel, sheet bars.	93	Bread.
280	Toweling, cotton.	260	Gingham.
167	Fish, salmon.	356	Fuel oil.
164	Fish, cod, canned.	404	Steel, merchant bars.
288	Hosiery, rayon.	498	Brick, common.
562	Doors, pine.	327	Burlap.
617	Logwood extract.	27c	Eggs.
678	Carpets, Axminster.	525	Lumber, poplar.
30	Eggs.	547	Pigments, red lead.
309	Dress goods, women's.	745	Tissue paper.
22c	Poultry, live.	306c	Silk yarn.
338	Twine, binder.	365	Petroleum, crude.
429	Pig iron.	138	Beans, string.
526	California redwood.	249	Pants, men's.
292	Underwear, cotton.	427c	Pig iron.
633	Oil, palm, crude.	774	Soap.
675	Comforters, sateen.	738	Linseed meal.
701	Tablecloths.	358	Gasoline.
510	Lumber, fir.	742	Box board.
250	Men's work pants.	310	Flannel, wool.
135	Corn, canned.	243	Boys' suits, wool.
513	Lumber, chestnut.	290	Hosiery, silk.
491	Water closets.	143	Lamb, fresh.
641	Chlorine.	144	Mutton, dressed.
40c	Hay	313	Dress goods.
582	Tar, pine.	266	Percale.
461	Wood screws.	219	Leather.
504	Drain tile, clay.	409	Steel bars.
175	Pepper, black.	261c	Muslin.
44	Milk.	480	Copper sheet.
242	Shirts.		
	GROUP 8 (SENSITIVITY 33.2–39.4 PERCENT)		
506	Tile, hollow.	672	Blankets, cotton.
403	Reinforcing bars.	221	Leather, tanned.
244	Men's suits.	316	Overcoating.
366	Petroleum, crude.	129	Peaches, dried.
766	Neutral oil.	656	Ammonia, sulphate.
591	Acid, stearic, distilled.	580	Window sash.
657	Bones, ground.	259	Cotton flannel.
258	Cotton flannel.	127	Apricots, dried.
493	Radiator.	478	Copper rods.
741	Box boards.	476	Quicksilver, flask.
94	Bread.	278	Tire fabrics.
50	Seed, timothy.	322	Suitings.
485	Yellow brass tube.	479	Brass.
287	Hosiery, cotton.	245	Suits, serge.
549	Litharge, powdered.	118	Rice, clean.
440	Rivets, large ½-inch.	130	Prunes, dried.
270c	Sheeting, bleached.	673	Blankets, cotton.
527	Lumber, spruce.	172	Oleomargarine.
674	Blankets.	524	Lumber, ponderosa pine.
696	Sheets.	747	Wood pulp.
332	Cotton rope, awning.	539	Carbon black.
182	Tea, Formosa.	486	Brass wire.
168	Glucose, corn syrup.	253	Denims, cotton.

TABLE III.—*Sensitivity groups*—Continued

Code No.	Item	Code No.	Item
	GROUP 8 (SENSITIVITY 33.2–39.4 PERCENT)—Continued		
475	Lead, pipe.	256	Duck.
276	Percale, print.	91	Milk, powdered.
318c	Suitings.	126	Apples, evaporated.
451	Steel strips.	740	Box board, chip.
299c	Raw silk.	482	Silver bar.
86c	Cheese.	477	Yellow brass rods.
222c	Leather.	39	Hay, alfalfa.
141c	Meat, beef.	784	Paraffin wax.
	GROUP 9 (SENSITIVITY 39.5–47.5 PERCENT)		
709	Tubs, galvanized iron.	588	Oil, red, oleic acid.
103c	Flour, wheat.	12	Calves.
102	Flour, rye.	68c	Butter.
691	Pails, galvanized iron.	357	Gasoline.
317	Overcoating, wool.	312	Suiting.
340	Twine, Java sisal.	614	Copper sulphate.
286	Hosiery, cotton.	54	Potatoes, sweet.
324	Yarns, worsted.	634	Palm oil.
329	Jute, raw.	339	Cotton twine.
555	Shellac.	268	Print cloths.
325c	Woolen yarn.	517	Lumber, gum.
114	Macaroni and spaghetti.	773	Soap flakes.
431	Pig iron.	36	Apples.
277	Ticking.	55c	Potatoes, white.
279	Tire fabrics.	284c	Cotton yarn.
621	Quebracho extract.	49	Flaxseed.
257	Duck.	239	Overalls, cotton.
637	Alcohol, ethyl.	183	Coconut oil, crude.
552	Linseed oil, raw.	15c	Steers.
140	Beef, cured.	529	Cypress shingles.
151	Veal, fresh.	267	Print cloths.
98	Oatmeal.	20	Lambs.
174	Peanut butter.	149	Mess pork.
166	Fish, mackerel.	24c	Cotton, Middling.
215	Goatskins.	528	Lumber, cedar shingles.
148	Pork, hams.	776	Powdered soap.
471	Babbit metal.	519	Lumber, maple.
281c	Cotton yarn.	58	Potatoes, white.
505	Floor tiles.	473	Lead, pig.
272c	Sheeting.	42	Hops.
255	Drillings, cotton.	265	Osnaburg.
	GROUP 10 (SENSITIVITY 47.9–81.8 PERCENT)		
161	Copra, dried.	185	Cottonseed oil.
13c	Cows.	522	Lumber, pine.
248	Pants, boys' wool.	181	Tallow, edible.
184	Vegetable oil, corn.	116	Corn meal.
434	Pipe, cast-iron.	5	Rye.
748	Wood pulp, unbleached.	65c	Wool.
4	Oats.	211	Cowhides.
47	Seed, alfalfa.	631	Tallow.
349	Coke.	46	Peanuts.
355	Fuel oil.	328	Hemp, manila.
511	Lumber, pine, lath.	484	Tin, pig.
488	Zinc, pig.	736	Millfeed, bran.
145	Bacon.	551	China wood oil.
59c	Wool.	554	Rosin, yard basis.
516	Lumber, fir.	17c	Hogs.
487	Copper wire.	665	Tankage, ton.
737	Cottonseed meal.	739	Millfeed.
6c	Wheat.	212c	Hides, steers.
19c	Sheep.	445	Steel, scrap.
173	Oleo oil.	214	Calfskins.
1	Barley, malting.	51	Tobacco, leaf.
472	Copper, ingot.	146	Pork, cured.
188	Vegetable oil, soybean.	2c	Corn.
515	Lumber, fir.	48	Seed, clover.
216	Kips.	762	Asbestos pipe covering.
645	Glycerin.	470	Antimony.
483	Solder.	147	Pork, cured.
52	Beans, dried.	217	Sheep pelts.
170	Lard.	115	Corn meal.
150	Pork, hams.	113	Hominy grits.
335	Sisal.	751c	Rubber, crude.
187	Peanut oil, crude.		

TABLE IV.—*Annual price data—1913–37*

FREQUENCY GROUP INDEXES—1926-29=100

Group No.	1913	1914	1915	1916	1917	1918	1919	1920	1921	1922	1923	1924	1925	1926	1927	1928	1929	1930	1931	1932	1933	1934	1935	1936	1937
I	64.9	67.1	76.1	94.7	105.2	124.0	118.5	128.5	114.4	97.2	103.7	104.8	101.7	101.0	100.2	99.7	98.9	97.7	96.4	93.1	91.6	94.2	95.3	95.8	98.1
II	58.0	58.6	65.5	80.1	100.2	116.1	117.2	134.1	115.3	99.8	105.1	104.2	101.5	101.4	100.3	99.7	98.7	95.9	90.5	85.2	83.2	87.6	86.6	87.7	92.5
III	71.7	75.1	110.7	151.9	180.1	191.2	173.0	177.7	123.4	99.8	105.1	103.9	101.9	103.7	100.4	98.9	97.0	95.4	90.0	82.1	81.7	87.4	87.3	87.3	92.0
IV	57.8	58.0	68.2	87.1	106.2	123.4	121.1	147.4	111.4	98.8	104.2	104.1	103.4	102.9	99.2	99.7	98.4	94.2	84.2	76.6	77.7	84.6	82.5	84.8	90.2
V	63.9	64.7	72.1	96.0	119.2	136.5	130.8	157.6	110.6	103.2	114.4	110.5	109.5	104.4	100.9	98.0	97.1	89.8	79.3	70.6	72.2	80.3	80.1	80.7	85.9
VI	66.4	63.0	66.6	92.6	124.5	137.0	132.2	175.9	106.0	102.6	119.9	108.7	106.2	102.5	100.3	98.8	98.5	91.6	80.7	69.8	74.6	82.2	81.8	82.6	91.3
VII	72.1	69.0	71.9	95.7	128.2	151.3	146.6	171.6	108.5	100.7	111.2	105.6	105.7	101.8	99.4	99.8	98.9	90.0	76.8	68.3	71.2	78.5	79.0	80.5	88.7
VIII	70.2	66.6	70.6	93.2	130.3	149.1	143.4	157.2	93.4	97.3	107.8	105.5	107.3	101.9	98.0	99.6	100.7	88.0	71.3	56.4	63.0	72.7	76.1	78.3	87.1
IX	70.7	68.6	71.4	90.0	123.4	141.8	154.6	160.6	83.1	94.0	99.7	103.8	113.2	105.4	96.3	98.7	99.7	82.2	61.5	47.7	57.2	70.6	75.0	78.5	85.8
X	72.8	71.6	72.7	88.4	118.9	134.8	144.4	139.9	79.3	87.2	91.8	93.7	108.0	100.6	99.2	101.2	98.9	76.8	56.5	44.7	50.8	62.2	69.2	71.0	77.8
X-a	74.4	72.5	71.2	91.6	119.9	131.8	146.5	139.5	77.9	86.6	92.3	92.9	110.1	105.7	98.8	99.2	98.7	73.2	53.9	43.3	47.1	55.3	63.1	66.0	71.1
X-b	71.4	71.0	75.4	84.9	118.0	140.1	142.8	141.5	81.8	88.7	91.4	95.6	105.9	94.4	100.0	104.2	102.0	81.9	60.2	47.8	56.1	72.7	78.2	78.5	87.5
FREQUENCY SLOPE—1926-29=0—PERCENT PER GROUP																									
m_1	1.71	.80	−1.23	−1.24	.97	.90	2.09	1.19	−4.33	−.60	−.65	−.55	.87	.06	−.30	.03	.18	−2.26	−5.27	−7.50	−5.57	−3.78	−2.80	−2.54	−1.73
BUREAU OF LABOR STATISTICS WHOLESALE PRICE INDEX—1926-29=100																									
P	72.1	70.3	71.8	88.3	121.3	135.6	143.1	159.4	100.8	99.8	103.9	101.3	106.9	103.3	98.5	99.8	98.4	89.2	75.4	66.9	68.0	77.3	82.6	83.4	89.1
FEDERAL RESERVE BOARD INDEX OF INDUSTRIAL PRODUCTION—1926-29=100																									
F. R. B.	[1] 63	[1] 51	[1] 65	[1] 83	[1] 85	[1] 80	75	73	60	77	91	83	94	97	95	100	107	87	73	58	68	71	81	95	99

[1] Extrapolated from index of *Standard Statistics Co.*

TABLE IV-A.—*Annual price data—1913–26*

[11 war items eliminated]

FREQUENCY GROUP INDEXES—1926-29=100

Group No.	1913	1914	1915	1916	1917	1918	1919	1920	1921	1922	1923	1924	1925	1925
I	63.4	63.7	66.6	81.3	94.1	113.5	112.1	121.6	110.1	93.1	102.1	103.9	101.4	101.0
II	57.3	57.8	61.8	74.3	93.7	109.7	113.2	131.3	115.5	100.5	106.1	105.0	102.0	101.4
III	68.8	69.2	75.9	100.0	130.7	140.5	138.9	150.5	119.7	102.5	107.9	107.4	104.4	103.7
IV	57.8	57.0	64.8	84.0	104.8	122.2	120.0	147.1	111.1	98.9	104.0	104.0	103.3	102.9
V	63.3	62.9	66.2	89.4	115.0	132.6	133.3	162.3	112.6	104.2	112.4	109.8	109.5	104.4
VI	65.6	62.3	65.8	91.4	123.0	135.2	130.6	173.7	104.7	102.3	119.5	108.4	105.9	102.5
VII	71.9	68.8	71.7	95.3	127.7	150.7	146.0	171.0	107.9	100.7	110.6	105.5	106.1	101.8
VIII	70.6	67.0	71.0	93.6	130.5	149.8	144.1	159.1	94.3	97.8	107.8	105.8	108.3	101.9
IX	71.2	69.0	72.0	91.1	124.6	142.8	155.3	161.5	84.4	95.2	101.1	104.6	113.8	105.4
X	72.2	71.0	72.0	87.6	117.8	133.5	143.1	138.6	78.6	86.5	92.1	94.2	107.7	100.6
X-a	73.3	71.4	70.1	90.3	118.1	129.8	144.3	137.5	76.7	85.4	93.0	93.8	109.8	105.7
X-b	71.0	70.7	75.1	84.5	118.0	139.5	142.1	140.8	81.4	88.3	91.0	95.1	105.4	94.4
FREQUENCY SLOPE—1926-29=0—PERCENT PER GROUP														
m_1	2.12	1.63	1.13	1.30	2.92	2.54	3.19	1.81	−4.06	−.91	−.90	−.77	.81	−.06
BUREAU OF LABOR STATISTICS WHOLESALE PRICE INDEX—1926-29=100														
P	72.1	70.3	71.8	88.3	121.3	135.6	143.1	159.4	100.8	99.8	103.9	101.3	106.9	103.3
FEDERAL RESERVE BOARD INDEX OF INDUSTRIAL PRODUCTION—1926-29=100														
F. R. B.	[1] 63	[1] 51	[1] 65	[1] 83	[1] 85	[1] 80	75	78	60	77	91	86	94	97

[1] Extrapolated from index of *Standard Statistics Co.*

APPENDIX 3.—EFFECT OF DIFFERENTIATION UPON RIGIDITY AND AMPLITUDE OF PRICE MOVEMENT [1]

The price behavior of trade-marked and standardized products [2] is here examined with a view to discovering the relationship, if any, between product differentiation and the flexibility and sensitivity of prices. For this purpose, the relationship between frequency of price change and amplitude of price movement is here considered for the standard and trade-marked goods which are included in the Bureau of Labor Statistics wholesale price series.

In general, trade-marked or highly differentiated products tend to have highly rigid price structures. When the trade-marked products included in the Bureau of Labor Statistics series are grouped on the basis of frequency of price change according to the classification given in appendix 2, table II, one-half of all the price series for trade-marked products are to be found in groups I and II. Not a single trade-marked or highly differentiated commodity is to be found in the three most flexible price groups—groups VIII to X, inclusive.

In order to see whether the relationship between rigidity and amplitude of price movements is the same for trade-marked and for standard products, prices whose flexibility is similar are compared on the basis of sensitivity. For this purpose the average price [3] of trade-marked, semidifferentiated and standard products falling within each of the frequency groups in appendix 2, table II, which included any trade-marked products, were computed, group by group, for each year during the period 1926 to 1936.

This computation reveals a very striking difference in behavior between the prices of standard and of trade-marked products of approximately the same degree of flexibility. The chart illustrates this difference. In each case the price of trade-marked products shows a significantly greater amplitude of movement than does the price of the standard products of the same frequency of price change. The trade-marked products consistently show a more rapid decline during the depression and a sharper rise subsequently than did the standard products in the same price group. Table I expresses this comparison in terms of percentage decline between 1929 and 1932 and percentage rise from 1932 to 1936. In every group but one, trade-marked products show a significantly sharper price decline during the depression,

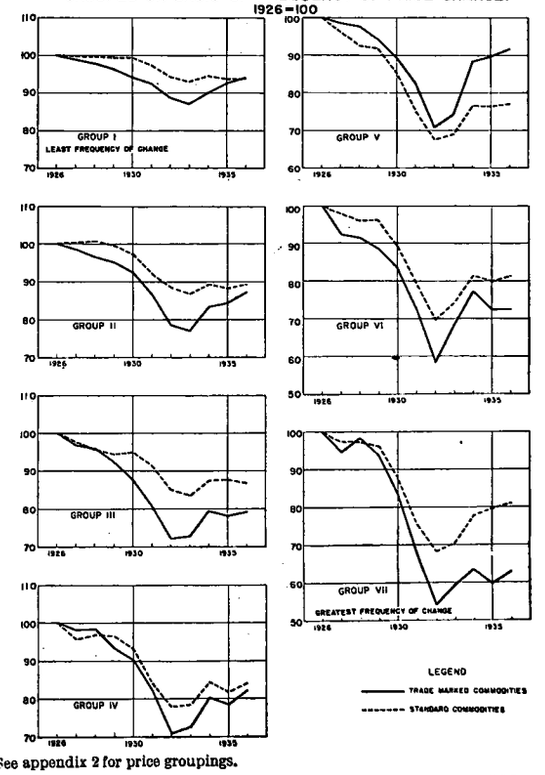
TABLE I.—*Comparison of standard and trade-marked commodities in each price frequency group, 1929–32, 1932–36.*

Frequency Group	Percent decline 1929 to 1932		Percent rise 1932 to 1936	
	Trade-marked	Standard	Trade-marked	Standard
I	8.0	5.3	6.0	−0.4
II	17.5	11.1	11.1	.8
III	22.0	10.0	9.8	2.2
IV	23.9	19.2	15.8	8.0
V	24.7	26.4	29.5	13.7
VI	34.0	27.4	23.9	16.3
VII	42.3	29.0	16.5	18.6
Mean	24.6	18.3	16.1	8.5

Source: Appendix 2, table I.

and in the remaining group the difference is small. Taking the average of the seven groups, trade-marked products declined 24.6 percent as against 18.3 percent for standard products. During the rise, behavior was even more sharply distinguished. The rise for trade-marked products was substantially greater than for

COMPARISON OF PRICES OF TRADE MARKED AND STANDARD COMMODITIES GROUPED ON BASIS OF FREQUENCY OF PRICE CHANGE.



See appendix 2 for price groupings.

[1] Appendix 3 was prepared by Saul Nelson.

[2] With few exceptions, standardized commodities are those classified as standard and trade-marked commodities are those classified as unique or differentiated, in appendix 2, table I, column 15.

[3] Geometric averages were used.

standard products in every group but one. The average for the seven groups showed a rise of 16.1 percent for trade-marked articles as against only 8.5 percent for standard products.

Perhaps the most striking feature of this relationship is the consistency with which it expresses itself. This consistency manifestly precludes any possibility that purely chance factors are operating to cause this difference in behavior.

It is important to emphasize that, even for trade-marked products, a marked correlation exists between frequency of change and amplitude of movement. Table I shows that the decline in price experienced by trade-marked products during the depression increased sharply and regularly with frequency of change. In each case, however, the extent of the decline was of approximately the same order as that suffered by standard commodities whose apparent flexibility, judged only by frequency of price change, was considerably greater. Trade-marking thus appears to carry with it the power to postpone but not to avoid the making of price adjustments to meet changing competitive conditions. The rigidity displayed by the prices of trade-marked articles and that of the prices for standard commodities thus seems to be, to a degree, different in kind.

If the price of a standard product changes but rarely, it is probable that the total amplitude of its fluctuations is also narrow. If, on the other hand, comparatively few price changes are recorded for trade-marked commodities, it is still entirely possible that it will respond fully, though with some delay, to changing general economic conditions. This behavior suggests that the ability of producers of standard products to control the frequency of price change is associated with the ability to restrict actual price fluctuations within narrow limits. Trade-marking, on the other hand, appears to permit stability of price quotations in the absence of the ability to limit the amplitude of price fluctuations.

APPENDIX 4.—PUBLIC UTILITY PRICES [1]

The statistical information available in the public utility field leaves much to be desired. While it has been possible to collect selling price series for most of the major public utilities, these series for the most part relate only to the country as a whole or to a sample thereof, and thus possess the frailties that characterize any over-all average. In some cases it has been impossible to obtain even a single price series for the entire period of years. In other cases, notably the telephone industry, it has been possible to secure an index for only a single state or area; and for one important industry, motor transport, no worthwhile data are available. Satisfactory series for water transportation are also lacking. Moreover, it has been impossible to obtain adequate data for certain divisions of the utility markets; thus the electric, gas and telephone data relate only to the residential sales of those services. In the case of certain of the measures employed, the accuracy of the data themselves is only approximate as a measure of average price behavior. This is especially true of railroad freight rates.

There is a further inherent deficiency in virtually all of the price statistics presented. The unit of service chosen for such industries as freight transportation or residential telephone service, is not a constant during a period of time. Quality factors, such as speed, convenience, safety and regularity of service are inevitably modified, so that precisely the same thing is not being purchased over a period of years. While it has been impossible to make allowance for changes of this sort in the price series which are presented, it should be recognized that an influence is operative which in many cases amounts to a reduction in price in that a better quality of service is obtained. Changes in quality, however, are usually gradual and of significance only over a period of years rather than during a short-run cyclical period of price fluctuation. Moreover, the same criticism may be advanced toward a large number of price data included in such measurements as the wholesale price and cost of living series of the Bureau of Labor Statistics, with the result that when different price series are compared there is a tendency for errors to be mutually compensatory.

Table I gives in summary the results for each series for 1929, 1932, and 1936.

Table II gives an index of freight rates for 1900 to 1936. To our knowledge there has never been published an accurate index of the freight rate level. It has been customary to employ the revenue per freight ton-mile as a crude approximation of movements in the level of freight rates, but this index is subject to error in several respects. The changes in average revenue per ton-mile may result not only from adjustments in freight rates, but also from changes in the average distance for which commodities are transported,[2] and shifts in the composition of traffic between high and low revenue commodities. Either an increase in the averge length of haul, or a greater proportion of low revenue traffic will tend to reduce the average revenue per ton-mile. A fourth and probably less important variable in the situation is the changing distribution of originated traffic between different sections of the country. Inasmuch as the rate level is not uniform through the United States, an increase in the relative proportion of low rate eastern territory traffic, for example, would operate to lower the revenue per ton-mile.

An adjustment has therefore been prepared which involves a partial correction for two of these factors, the change in length of haul and the shifting commodity composition of traffic. Adjustment for changes in length of haul was made as follows: (1) The average distance of haul for all tonnage carried by the railroad network (i. e., by the railroads treated as one system) was tabulated for the period 1900–1936; (2) A composite progression rate schedule, showing the general effect of distance on the amount charged, was obtained from the Interstate Commerce Commission.[3] This progression rate schedule is not precisely accurate for any rate area, commodity group, or year, but is thought to be roughly representative of the effect of distance upon the level of charges.[4]

From the composite rate schedule a hypothetical total revenue for each length of haul was then computed. Inasmuch as freight rates progress in blocks or steps each comprising a number of miles, it was necessary to interpolate to find a charge for the average haul for each distance in (1) above. It was assumed that for each rate-distance block the rate was centered at the midpoint of the block. (3) This hypothetical revenue, divided by the average length of haul in each year, provided a revenue per ton-mile for each year. (4) This annual revenue per ton-mile was then indexed,

[1] Appendix 4 was prepared by John D. Sumner, assisted by R. G. Lorenz.

[2] The freight rate is typically based upon a tapering principle, by which the total charge increases much more slowly than does the distance of carriage.

[3] The Interstate Commerce Commission should not be held responsible for the methods employed in the computation of this index, although members of the staff were generous with advice and suggestions.

[4] The representativeness of the schedule is probably less for pre-war than for post-war years.

using 1926 as a base. The index thus obtained constituted a correction factor showing roughly the extent to which, assuming no changes in the level of freight rates as such, or in the composition of traffic, actual revenue per ton mile would have changed, due solely to changes in the average length of haul.

Adjustments for changes in the commodity composition of traffic hauled were computed in the following manner: The tonnage originating on Class I railroads was tabulated, broken down according to the six-fold classification of the Interstate Commerce Commission. This classification includes carload shipments of agricultural, animal, mineral, forest and manufacturing and miscellaneous products and less-than-carload freight. The percentage of each commodity group to the total, was then computed and a ton-mile revenue, constant for all years, was assumed for each of the commodity groups. These revenue data, suggested by the Bureau of Statistics of the Interstate Commerce Commission, are believed to be fairly representative of differences between the commodity groups. The assumed ton-mile revenues were as follows: Products of agriculture, 1.142 cents; products of animals, 1.958 cents; products of mines, .802 cent; products of forests, .853 cent; manufacturing and miscellaneous, 1.369 cents; and less-than-carload, 4.155 cents. Using the percentage composition of traffic for each year for weighting purposes, a theoretical average revenue per ton-mile was computed to take account of changes in the relative importance of each major commodity group. This revenue per ton-mile was then indexed, using 1926 as a base. This index provides a correction factor showing the extent to which, assuming no change in the level of freight rates or length of haul, average revenue per ton-mile might be expected to vary, due to changes in the composition of traffic.

The two adjusted indexes were then multiplied together to obtain a combined correction factor. The actual revenue per ton-mile, tabulated from the annual *Statistics of Railways in the United States*, was then divided by the correction factor for each year and the result indexed on a 1926 basis.

Several objections can be brought against each of these two adjustments.

Against the adjustment for length of haul, the following objections may be made:

(*a*) When there is a shift in the relative importance of the major commodity groups, there is usually an accompanying change in the average length of haul. If one makes adjustment for these shifts in commodity composition of traffic, this adjustment must be made on the basis of the average revenue per ton-mile, which in turn partially reflects the average haul of that commodity. A partial duplication results from making another adjustment for changes in the average length of haul. The net result of this error may tend either unduly to increase or decrease the index.

(*b*) The average length of haul during the period was increased in part as a result of changes in the method of reporting traffic. Greater use of through billing and increases in the dimensions of individual railroads have contributed to an apparent increase in haul which did not actually take place. That is, a shipment going from point A to point B may previously have been counted as two originated shipments on account of transfer from one railroad to another, but later is counted as one shipment. Informed sources consider this fictitious increase to be of minor importance.

(*c*) The rate schedule is not a straight-line progression, but rises more sharply on the short hauls, and approaches the horizontal on the long hauls. The average haul is around 300 miles. At this point, the rise in revenue per marginal ton-mile is less sharp than at shorter hauls. In recent years the lengthened haul is due largely to loss of short-haul traffic to the trucks. Obviously, this means a greater shrinkage in average revenue per ton-mile than can be compensated for by corrections for the lengthened haul at the 300-mile point. This influence is somewhat counterbalanced by a rising length of haul due to the increase of very long hauls, where the rise in marginal revenue per ton-mile is even smaller than at 300 miles.

(*d*) The assumed progression scale of freight charges, while believed to be substantially representative of the true progression, is not for any year, nor for all rate areas, identical with it.

The adjustment for the changing commodity composition of traffic is subject to the following major defects:

(*a*) The adjustment made is incomplete in that it was impossible to correct for shifts in the relative importance of high and low revenue freight *within* each of the six major commodity groups. A relative increase in the tonnage of manufactured and miscellaneous products, for example, tends to increase actual revenue per ton-mile for all freight traffic because this group of commodities moves at a higher than average revenue per ton-mile. This *apparent* rise in freight rates is eliminated by the correction factor described above, but only to the extent that the relative increase of traffic in manufactured products did not occur in products *within* that group which were carried at a higher (or lower) revenue per ton-mile than the assumed average of the manufactured products as a whole. Thus, if the increase in major group tonnage is solely due to an increase of high revenue commodities within the group, the correction is incomplete because it does not *sufficiently* deflate the actual revenue per ton-mile of all freight traffic. The rise in the latter resulted partly from an increase in the relative importance of a

high revenue group—manufactured products; this rise the correction factor eliminates. In part, however, the rise was caused by an increase of manufactured products transported at a revenue per ton-mile higher than the assumed average of their group; this increase is not eliminated by the correction factor, and, in view of the inadequacy of available data, cannot be.

It is difficult to judge the quantitative importance of this factor. While no correction can be made for the changes within each major commodity category, these shifts are undoubtedly not all in the same direction. In consequence the errors offset one another to some extent. It is improbable, however, that changes in the composition of each of the major categories of railroad traffic, due both to the evolution of the national economy and to the development of rival forms of transportation, are sufficiently random in character for the effects to cancel out entirely

(*b*) Originating tonnage of various commodities is not necessarily in the same proportion as the ton-miles of those commodities. The effect of this is to assign greater weight in the index to the commodity groups with the shorter hauls (and hence higher revenues per ton-mile) than would be the case if adequate data were available for the ton-mile significance of each group.

(*c*) The commodity statistics were taken from the data for Class I railroads only. If Class II and III railroads were included, the result would undoubtedly be somewhat different. Class II and III railroads probably originate and carry a larger proportion of bulky, low revenue traffic. But they carry only a small proportion of the total traffic in any case, and cannot affect the results substantially.

The quantitative significance of these various defects in the adjusted index cannot be accurately determined from existing data. To a certain extent the direction of error seems clear. There seems little doubt, for example, that the length of haul has increased in part by virtue of the loss of short-haul traffic to motor trucks, and that the imperfect adjustment in this respect tends to overstate declines in rate levels. The opposite effect may result from inadequate allowances for other imperfections described above. All that is claimed for this adjusted index is that it shows the direction of error in the unadjusted revenue per ton-mile index of freight rates, and gives some indication of the probable extent of that error. Moreover, its behavior seems to show more accurately the effect of the major freight rate level cases decided by the Interstate Commerce Commission during the 1930's [5] than does the unadjusted index of average revenue per ton-mile.

The use of an average freight rate index necessarily obscures the highly divergent behavior of thousands of particular class and commodity rates which together constitute the rate structure. Among agricultural commodities, for example, a striking contrast exists between the generally stable behavior of livestock rates, and rates on cotton which declined over 40 percent from 1926 to 1935.[6] As stated by the Interstate Commerce Commission in 1933, "The lowering of rates, however, has not been uniform, many rates not having been reduced at all since 1922, and others having been reduced as much as 50 percent or more." [7]

Table III shows revenue per passenger-mile and number of passenger-miles for class I railroads, 1911–36. Revenue per passenger mile is believed to be a fairly accurate index of passenger rates. Changes in rates are not perfectly measured by this index. Changes in the distribution of traffic between regular and special-rate travel, between low and high rate areas, and related changes, as well as changes in rates, affect the average revenue per passenger-mile.

Table IV presents an index of fares from 1913, and of fares and volume of traffic from 1917 to 1936, for street railways.

Table V shows indexes of the residential price of manufactured gas, 1913–36, and the volume of residential consumption, 1929–36. The series is not entirely homogeneous. For the period 1923–36, inclusive, it represents data published by the Bureau of Labor Statistics,[8] which are based on the cost of 30.6 and 10.6 therms, respectively, of gas in 25 cities. This thermal basis of prices insures accuracy in the sense that virtually no change is involved in the quality of the service purchased. The amount, 30.6 therms, is deemed characteristic of the use of gas for cooking and water-heating purposes, while 10.6 therms is typical of range use only. To this index has been spliced an earlier index of the Bureau of Labor Statistics of the cost of 3,000 cubic feet of manufactured gas for household use in selected cities.[9] The behavior of the spliced series in overlapping years is so similar that there seems to be little inaccuracy involved in the combination of the two.

Table VI presents data on local telephone rates and use. Unfortunately, there is no available index of telephone rate behavior for the entire United States; an index of local telephone rates for the State of Wisconsin has therefore been used. Prepared from data supplied by the Wisconsin Public Service Commission, it represents the price in some 55 Wisconsin cities, weighted

[5] *The 15 Percent Case*, 1931, 178 I. C. C. 539, 179 I. C. C 215, and 191 I. C. C. 361, permitted emergency increases in freight charges beginning Jan. 4, 1932. Again, in *Emergency Freight Charges, 1935*, 208 I. C. C. 4 and 215 I. C. C. 439 (1936), the Interstate Commerce Commission permitted emergency increases in freight rates until December 31, 1936. The effects of later adjustments, of course, are not relevant to this record which ends with 1936.

[6] U. S. Department of Agriculture, *Agricultural Statistics*, 1936, p. 407.

[7] General Rate Level Investigation, 1933, 195 I. C. C. 5 (1933), p. 67.

[8] *Changes in the Retail Price of Gas, 1923–36*, Bulletin 628, Washington, 1936.

[9] Bureau of Labor Statistics, bulletins on *Retail Prices*, annual.

according to population and class of residential telephone service. The index, while representing rate behavior in only one State, is believed to be fairly representative, particularly for the period since the War. The rate behavior shown in this index checks with the following comment in the congressional report on communications companies:

> From information available, the trend of rate changes of all telephone companies during the 11-year period from January 1, 1922, to December 31, 1932, was upward, in the case of local exchange rates. Most of the increases, however, occurred during the first 5 years of this period, or during the years 1922 to 1926, inclusive. An upward movement in toll rates also occurred during the years 1922 to 1926, inclusive, followed by some reductions. It is significant that, since 1929, rates, for the most part, have been stationary * * *.
>
> Approximately 1,034 rate changes were made by the 22 large regional telephone companies of the Bell System during the 11-year period from January 1, 1922, to December 31, 1932, 797 of the changes affecting local rates and 237 of the changes affecting toll rates. Approximately 501 of the changes affecting local rates were in the nature of increases and approximately 296 were reductions. Of the 237 changes affecting toll rates approximately 83 were in the nature of increases and 154 were reductions. Thirty-seven of the rate reductions were involuntary.
>
> The effect of these rate changes was an upward revision of rates, as hereinbefore pointed out with reference to most telephone companies, increases having been accomplished principally during the years 1922 to 1926, inclusive.[10]

A further check was obtained by examining the annual reports of the American Telephone & Telegraph Co. for the years 1930 to 1934, inclusive. If one takes account of all the rate reductions referred to in these reports and includes as reductions all cases referred to as pending before courts or commissions, the resultant reduction amounts to less than 2 percent of the total operating revenues of the Bell System in 1934.

A sample index of pipe line rates on crude petroleum is presented in table VII. The index is based on the rates charged by the Sinclair Pipe Line Co. and its predecessor companies between points in Oklahoma and Kansas in the mid-continent field to Whiting (Chicago refining district), Wood River (St. Louis district), and Cleveland. The rates to these points have been combined in a simple arithmetic average. While restricted in its composition, the index is believed to be fairly representative of pipe line rate behavior from the important mid-continent field to northeastern points. A similar, but somewhat more inclusive, tabulation was employed by the Federal Trade Commission in 1927.[11] There seems to be a high degree of uniformity in the movement of pipe line rates on crude petroleum. The index presented, however, is not representative of the movement of crude oil from the Gulf Coast to eastern refining points by waterway shipment, nor is it necessarily representative of pipe line rates in the California and other producing areas.

The data on the price of electricity presented in tables VIII and IX represent the average cost of 25, 100, and 250 kilowatt-hours in selected cities; the Federal Power Commission deems these amounts representative of the use of electricity for lighting and small appliances, plus refrigeration and for these two plus cooking, respectively.[12] The data for 1924–1936 are taken from the Commission's study of rate trends in 132 cities of 50,000 or more population.[13] To these price series have been spliced data drawn from a study by Mr. W. G. Vincent [14] of rate trends in the 51 cities included in an index formerly compiled by the Bureau of Labor Statistics.[15] The methods employed in Mr. Vincent's study are said to be identical with those used by the Federal Power Commission.[16] While the number of cities is smaller, this study includes approximately 80 percent of the population covered in the report of the Commission. The latter investigation shows a somewhat sharper downward trend in the overlapping years 1924–36 than does the Vincent study.

The index of the price of 25 kilowatt-hours is applicable to the largest number of residential users, although due to the promotional character of electric rate structures, it is a less sensitive index than those for 100 and 250 kilowatt-hours. Each of these average price indexes conceal many variations in rate behavior.[17] During the 1930's the reductions in residential rates appear to have been greater than those for either commercial or industrial power.[18]

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[10] 73d Cong., 2d sess., H. R. 1273, part III, No. 1, Washington, 1934, pp. 932 to 933.

[11] *Petroleum Industry, Prices, Profits, and Competition*, 70th Cong.. 1st sess., S. Doc. 61, Washington, 1928, pp. 36, et. seq.

[12] *Trends in Residential Rates*, Washington, 1937, p. 21.

[13] *Ibid.*, p. 21. These cities contain a population of 37,533,000—88 percent of the population of cities of 50,000 or more inhabitants, and 46 percent of the urban population in communities of 2, 500 or more inhabitants.

[14] "Rate Reductions," *Edison Electric Institute Bulletin*, June 1936, p. 217. Mr. Vincent is a vice president of the Pacific Gas and Electric Company.

[15] The Bureau now publishes in its retail price bulletins the price of specified typical amounts of electricity in selected cities. The older index was based upon the price of varying most popular consumption amounts of electricity. Inasmuch as electricity rates vary with consumption volume, this method is inadequate as a measure of rate changes only.

[16] The average is weighted according to the population of the cities in 1930; their total population in that year approximated 30,000,000. Three cities were omitted, 1908–16. "In order to determine the trend of domestic rates over a long period I secured for each of the 51 cities listed * * * the amount charged in that city for the same monthly consumption (domestic) used by the Federal Power Commission in its rate survey and under the same specifications, as of Jan. 1 of each year * * *." W. G. Vincent, *op. cit.* The data were secured directly from the companies, p. 224.

[17] A careful measurement of price reductions for specified quantities of electricity from 1930 to 1933 is presented by L. G. Cannon and D. F. Estes, "The Trend of Electric Utility Rates: 1930-33," *Journal of Land and Public Utility Economics*, November 1934, p. 359. The material presented in this article shows reductions of 4.6, 6.4, and 8.8 percent in the cost of 25, 50, and 100 kilowatt-hours, respectively, of residential consumption. Reductions in the cost of 100 kilowatt-hours ranges from no change to as high as 30 percent (Delaware) in the various States.

[18] In the commercial or small power market reductions were 5.3, 6.3, and 4.6 percent for 145, 1,440, and 4,500 kilowatt-hours, respectively. In the case of industrial or large light and power, the decreases were 2.1, 3.2, and 4.2 percent for quantities of 7,200, 48,600, and 432,000 kilowatt-hours, respectively. Again there was a great deal of divergence in rate behavior between the several States. *Ibid.*

Table X shows postal rates from 1919 to 1936 and volume of postal matter carried from 1927 to 1936.

Table XI shows for scheduled air transport revenue per passenger-mile, passengers, and passenger-miles, 1926–36.

TABLE I.—*Percent change in price and consumption of selected public utility services, 1929, 1932, 1936* [1]

[1929=100]

Type of service	Index of price			Index of consumption		
	1929	1932	1936	1929	1932	1936
Railroad freight	100.0	101.9	96.2	100.0	52.3	75.8
Railroad passenger	100.0	79.0	65.5	100.0	54.6	72.1
Street railways	100.0	103.3	102.9	100.0	68.8	69.9
10.6 therms manufactured gas	100.0	99.8	100.2	100.0	94.0	79.7
Residential telephone service [2]	100.0	101.2	100.8	100.0	84.5	87.1
Pipe lines	100.0	100.0	87.9	100.0	(4)	(4)
25-kw.-hr. electricity [3]	100.0	96.6	86.7	100.0	120.7	156.5
Postal service	100.0	115.7	123.0	100.0	77.6	82.4
Air passenger service [5]	100.0	50.8	47.5	100.0	354.8	1,217.2

[1] Derived from subsequent tables. Consumption indexes are not strictly comparable to price indexes, but provide a rough basis of comparison. It is not implied, however, that changes in consumption are due solely, or even largely, to changes in price.
[2] Price data for Wisconsin only; consumption data for the entire national Bell Telephone System, and connecting lines.
[3] Price index from Table VIII, is for 25 kilowatt-hours.
[4] Not available.
[5] Passenger-miles in 1929 estimated by assuming average miles per passenger same as in 1930.

TABLE II.—*Index numbers of adjusted and unadjusted revenue per ton-mile, and of revenue ton-miles, all steam railroads, 1900–36* [1]

[1926=100]

Year ended	Revenue per ton-mile	Adjusted revenue per ton-mile [2]	Revenue ton-miles
June 30			
1900	66.5	56.6	31.6
1901	68.4	59.3	32.9
1902	69.1	57.8	35.2
1903	69.6	58.2	38.7
1904	71.2	59.8	39.0
1905	69.9	58.8	41.7
1906	68.3	58.0	48.2
1907	69.3	59.5	52.9
1908	68.8	61.0	48.8
1909	69.6	61.3	48.9
1910	68.7	61.2	57.0
1911	69.1	60.7	56.7
1912	67.9	59.9	59.0
1913	66.5	58.9	67.4
1914	67.2	59.8	64.6
1915	67.1	59.1	61.9
1916	65.6	59.1	76.8
Dec. 31			
1916	65.6	59.8	81.8
1917	66.4	62.2	89.0
1918	78.7	74.7	91.4
1919	90.1	84.8	82.1
1920	97.5	93.4	92.5
1921	118.1	111.8	69.2
1922	108.9	103.2	76.5
1923	103.3	100.2	93.0
1924	103.3	100.2	87.6
1925	101.6	99.6	93.3
1926	100.0	100.0	100.0
1927	99.9	100.0	96.6
1928	99.8	100.1	97.5
1929	99.3	100.0	100.6
1930	98.0	98.8	86.2
1931	96.9	99.9	69.5
1932	96.4	101.9	52.6
1933	92.1	98.0	56.0
1934	90.2	95.8	60.4
1935	91.1	97.7	63.4
1936	89.8	96.2	76.3

[1] Railroad data were compiled from Interstate Commerce Commission, *Statistics of Railways in the United States*, Washington, annual.
[2] Average revenue per ton-mile, adjusted for changes in average length of haul and for changes in the commodity composition of traffic, as described in accompanying text.

TABLE III.—*Average revenue per passenger-mile and number of passenger-miles, class I railroads, 1911–36* [1]

[1926=100]

Year ended	Revenue per passenger-mile (cents)						Passenger-miles (000's)					
	Total	Index	Noncommutation	Index	Commutation	Index	Total	Index	Noncommutation	Index	Commutation	Index
June 30												
1911	1.96	66.7					32,371,445	91.2				
1912	1.98	67.3					32,316,263	91.1				
1913	2.00	68.0					33,875,086	95.5				
1914	1.98	67.3					34,566,985	97.4				
1915	1.98	67.3					31,789,928	89.6				
1916	2.00	68.0					33,645,908	94.8				
Dec. 31												
1916	2.04	69.4					34,585,952	97.5				
1917	2.09	71.1					39,476,859	111.3				
1918	2.41	82.0					42,676,579	120.3				
1919	2.54	86.4					46,358,304	130.7				
1920	2.74	93.2					46,848,668	132.1				
1921	3.09	105.1					37,312,586	105.2				
1922	3.03	103.1	3.43	102.4	1.10	97.3	35,469,962	100.0	29,381,998	101.7	6,131,784	92.8
1923	3.02	102.7	3.41	101.8	1.09	96.5	37,956,895	107.0	31,607,400	109.4	6,400,779	96.9
1924	2.98	101.4	3.38	100.9	1.10	97.3	36,090,836	101.7	29,716,926	102.8	6,406,831	97.0
1925	2.94	100.0	3.34	99.7	1.11	98.2	35,950,223	101.3	29,367,787	101.6	6,592,186	99.8
1926	2.94	100.0	3.35	100.0	1.13	100.0	35,477,525	100.0	28,894,554	100.0	6,604,623	100.0
1927	2.90	98.6	3.34	99.7	1.11	98.2	33,649,706	94.8	27,006,452	93.5	6,649,871	100.7
1928	2.85	96.9	3.31	98.8	1.11	98.2	31,601,342	89.1	24,990,575	86.5	6,625,723	100.3
1929	2.81	95.5	3.29	98.2	1.11	98.2	31,074,135	87.6	24,180,151	83.7	6,898,473	104.4
1930	2.72	92.5	3.25	97.0	1.09	96.5	26,814,825	75.6	20,154,997	69.8	6,669,110	101.0
1931	2.51	85.4	3.06	91.3	1.06	93.8	21,894,421	61.7	15,876,665	54.9	6,017,959	91.1
1932	2.22	75.5	2.70	80.6	1.07	94.7	16,971,044	47.8	11,998,137	41.5	4,985,708	75.5
1933	2.01	68.4	2.35	70.1	1.08	95.6	16,340,510	46.1	12,035,444	41.7	4,308,206	65.2
1934	1.92	65.3	2.17	64.8	1.09	96.5	18,033,309	50.8	13,873,079	48.0	4,163,032	63.0
1935	1.93	65.6	2.18	65.1	1.09	96.5	18,475,572	52.1	14,357,441	49.7	4,118,131	62.4
1936	1.84	62.6	2.02	60.3	1.06	93.8	22,416,061	63.2	18,228,350	63.4	4,187,710	63.4

[1] Computed from Interstate Commerce Commission, *Statistics of Railways in the United States*, Washington, annual. The 1936 data are from the Commission's monthly statement, *Revenue Traffic Statistics of Class I Steam Railways*, December 1936.

TABLE IV.—*Street-railway fares and passenger volume, 1913–36*

[Indexes 1926=100]

Year	Fares			Number of passengers [2]	
	American Transit Association		Richey index of fares [2]	In thousands	Index
	Average fare (cents) [1]	Index of fares			
1913			65.8		
1914			65.8		
1915			65.9		
1916			65.9		
1917	5.048	66.8	66.2	14,506,915	95.3
1918	5.633	74.5	69.9	14,243,415	93.6
1919	6.208	82.1	79.5	14,915,994	98.0
1920	7.027	93.0	90.3	15,540,715	102.1
1921	7.238	96.4	98.0	14,574,439	95.7
1922	7.311	96.7	96.1	15,331,400	100.7
1923	7.136	94.4	94.1	15,650,000	102.8
1924	7.343	97.1	95.6	15,312,000	100.6
1925	7.445	98.5	98.9	15,167,000	99.6
1926	7.559	100.0	100.0	15,225,000	100.0
1927	7.649	101.2	101.0	14,901,435	97.9
1928	7.847	103.8	102.4	14,521,000	95.4
1929	8.012	106.0	103.4	14,363,000	94.3
1930	8.402	111.2	105.3	13,088,000	86.0
1931	8.196	108.4	106.1	11,611,000	76.3
1932	8.212	108.6	106.8	9,888,535	64.9
1933	8.153	107.9	107.0	9,285,500	61.0
1934	8.139	107.7	106.4	9,778,300	64.2
1935	8.110	107.3	106.4	9,729,000	63.9
1936			106.4	10,038,000	65.9

[1] This is an unweighted average of monthly cash fares for street railway or bus service in cities of 25,000 or more population. There is a variation in the number of cities; in 1932, 320 cities were included, while in 1936 there were 268. The data are compiled by the American Transit Association, formerly the American Street Railway Association, and are published in the annual supplement of the *Survey of Current Business*, U. S. Department of Commerce, Washington.

[2] An average, including all cities of 50,000 or more population, except New York. The average is weighted according to population, the 1930 census having been used back to 1926. Prepared by Mr. Richey, an engineer, this series appears in Moody's *Public Utilities*. It is here changed from Richey's base, 1913, to a 1926 base.

[3] These data are taken from Moody's *Public Utilities*. The statistics for 1917, 1922, 1927 and 1932 are from the *Census of Street Railways;* the statistics for the remaining years were obtained from the American Transit Association.

TABLE V.—*Index numbers of residential price of typical amounts of manufactured gas in 25 cities 1913–26;* [1] *total and per customer residential consumption of manufactured and mixed gas in identical cities, 1929–36.* [2]

[1926=100]

Year	Price indexes			Consumption	
	3,000 cubic feet	10.6 therms	30.6 therms	Total residential consumption (millions of cubic feet)	Per capita residential consumption (millions of cubic feet)
1913	77.6	(3)	(3)		
1914	77.5	(3)	(3)		
1915	76.0	(3)	(3)		
1916	75.1	(3)	(3)		
1917	74.3	(3)	(3)		
1918	77.6	(3)	(3)		
1919	84.9	(3)	(3)		
1920	89.0	(3)	(3)		
1921	107.0	(3)	(3)		
1922	103.7	(3)	(3)		
1923	102.1	100.2	100.2		
1924	101.2	100.6	100.3		
1925	100.5	100.5	100.2		
1926	100.0	100.0	100.0		
1927	99.6	100.0	99.8		
1928	99.2	100.1	99.4		
1929	99.2	100.0	99.2	255,841	28.0
1930	96.2	100.7	98.2	257,583	27.7
1931	93.9	100.0	97.5	253,068	27.3
1932	93.9	99.8	95.1	240,495	26.7
1933	93.1	99.0	93.0	223,110	25.7
1934	93.1	99.2	93.0	216,507	24.6
1935	(3)	100.8	94.4	207,451	23.2
1936	(3)	100.2	91.9	204,007	22.6

[1] Price indexes based on thermal quantities from U. S. Bureau of Labor Statistics, bulletin No. 628, *Changes in Retail Prices of Gas, 1923–36*. Washington, 1937.

[2] Compiled from data in the *Annual Statistics of the Manufactured Gas Industry*, American Gas Association, New York, 1937.

[3] Not available.

TABLE VI.—*Amounts and index numbers of Wisconsin residentia telephone rates and of national usage, 1913–36* [1]

[1926=100]

Year	Wisconsin telephone rates		Telephones per 1,000 United States population	
	Rates	Index	Number	Index
1913	$1.83	75.3	84.3	55.6
1914	1.83	75.3	88.3	58.6
1915	1.83	75.3	92.3	61.2
1916	1.76	72.4	97.7	64.8
1917	1.77	72.8	102.5	68.0
1918	1.77	72.8	106.1	70.4
1919	1.80	74.1	112.3	74.5
1920	2.03	83.5	118.3	78.4
1921	2.10	86.4	123.7	82.0
1922	2.37	97.5	127.9	84.8
1923	2.37	97.5	134.5	89.2
1924	2.38	97.9	140.5	93.2
1925	2.39	98.4	145.6	96.6
1926	2.43	100.0	150.8	100.0
1927	2.45	100.8	155.4	103.1
1928	2.46	101.2	160.2	106.2
1929	2.46	101.2	164.2	108.9
1930	2.47	101.6	163.3	108.3
1931	2.47	101.6	157.9	104.7
1932	2.49	102.3	138.8	92.0
1933	2.49	102.3	132.3	87.7
1934	2.48	102.2	132.7	88.0
1935	2.48	102.1	136.1	90.3
1936	2.48	102.0	143.0	94.8

[1] Rates were compiled from data supplied by the Wisconsin Public Service Commission, representing a weighted average of 51 cities and three types of service. Telephone usage data were computed from number of telephones owned by and connecting with the Bell system and annual population estimates, both of which are published in U. S. Department of Commerce *Statistical Abstract* annually.

TABLE VII.—*Pipe-line rates on crude petroleum from Oklahoma and Kansas points to major refining centers, 1915–36* [1]

[1926=100]

Year	Index of unweighted average	Cleveland		St Louis [2]		Whiting [3]	
		Cents per barrel	Index	Cents per barrel	Index	Cents per barrel	Index
1915	91.8	58	92.8	34	91.3	42	91.3
1916	91.8	58	92.8	34	91.3	42	91.3
1917	91.8	58	92.8	34	91.3	42	91.3
1918	91.8	58	92.8	34	91.3	42	91.3
1919	91.8	58	92.8	34	91.3	42	91.3
1920	123.7	72.50	116.0	52.50	140.9	52.50	114.1
1921	123.7	72.50	116.0	52.50	140.9	52.50	114.1
1922	100.5	63.50	101.6	37.25	100.0	46	100.0
1923	100.5	63.50	101.6	37.25	101.0	46	100.0
1924	100.5	63.50	101.6	37.25	100.0	46	100.0
1925	100.5	63.50	101.6	37.25	100.0	46	100.0
1926	100.0	62.50	100.0	37.25	100.0	46	100.0
1927	100.0	62.50	100.0	37.25	100.0	46	100.0
1928	100.0	62.50	100.0	37.25	100.0	46	100.0
1929	100.0	62.50	100.0	37.25	100.0	46	100.0
1930	100.0	62.50	100.0	37.25	100.0	46	100.0
1931	100.0	62.50	100.0	37.25	100.0	46	100.0
1932	100.0	62.50	100.0	37.25	100.0	46	100.0
1933	100.0	62.50	100.0	37.25	100.0	46	100.0
1934	87.9	55	88.0	32.25	86.6	41	89.1
1935	87.9	55	88.0	32.25	86.6	41	89.1
1936	87.9	55	88.0	32.25	86.6	41	89.1

[1] Compiled from tariffs filed with the Interstate Commerce Commission by the Sinclair Prairie Pipe Line Company, and predecessor and related companies. The rates are for trunk-line movements only; gathering charges are excluded. For years 1923–36, inclusive, origin points in Texas are included under blanket tariffs for Oklahoma, Kansas, and Texas origin points.

[2] To Wood River, adjacent to St. Louis

[3] In the Chicago refining area. In 1932–36 the tariff used is to East Chicago, adjacent to Whiting.

TABLE VIII.—*Average price per kilowatt-hour for residential consumption of 25, 100, and 250 kilowatt-hours of electricity in cities of 50,000 or more population; total residential consumption and kilowatt-hours per consumer in the United States, 1924–36* [1]

[1926=100]

Year [2]	Average price per kilowatt-hour (cents) [3]						Consumption			
	25 kw.-hr.	Index	100 kw.-hr.	Index	250 kw.-hr.	Index	Residential consumption in kw.-hr.		Kilowatt-hour per customer per year	
							Amount	Index	Amt.	Index
1913	------	------	------	------	------	------	----------	------	264	61.7
1914	------	------	------	------	------	------	----------	------	268	62.6
1915	------	------	------	------	------	------	----------	------	260	60.7
1916	------	------	------	------	------	------	----------	------	265	61.9
1917	------	------	------	------	------	------	----------	------	268	62.6
1918	------	------	------	------	------	------	----------	------	272	63.6
1919	------	------	------	------	------	------	----------	------	293	68.5
1920	------	------	------	------	------	------	2,950,000	43.9	339	79.2
1921	------	------	------	------	------	------	3,275,000	48.7	347	81.1
1922	------	------	------	------	------	------	3,670,000	54.6	359	83.9
1923	------	------	------	------	------	------	4,420,000	65.7	368	86.0
1924	7.7	103.2	6.2	105.6	5.3	106.3	5,270,000	78.3	378	88.3
1925	7.5	101.0	6.0	102.5	5.2	103.0	5,930,000	88.2	398	93.0
1926	7.4	100.0	5.9	100.0	5.0	100.0	6,727,605	100.0	428	100.0
1927	7.2	97.3	5.6	95.4	4.8	95.0	7,538,338	112.1	444	103.7
1928	7.0	94.6	5.3	91.2	4.5	89.5	8,419,628	125.2	466	108.9
1929	6.9	93.0	5.1	87.6	4.3	85.0	9,525,725	141.6	477	111.4
1930	6.8	91.3	5.0	85.1	4.2	82.6	10,702,475	159.1	548	128.0
1931	6.8	90.8	4.7	80.7	3.8	76.2	11,372,580	169.1	580	135.5
1932	6.7	89.8	4.7	79.4	3.8	74.9	11,493,892	170.9	597	139.5
1933	6.5	87.6	4.6	78.2	3.7	73.6	11,358,806	168.9	593	138.6
1934	6.3	84.9	4.5	76.3	3.6	71.4	12,232,748	181.9	624	145.8
1935	6.2	83.0	4.3	73.9	3.3	66.9	13,496,232	200.6	669	156.3
1936	6.0	80.6	4.2	71.4	3.1	61.6	14,908,000	221.6	719	168.0

[1] Price data compiled from Federal Power Commission, *Trends in Residential Rates from 1924 to 1936*, Washington, 1937. Total consumption data from Edison Electric Institute, *Statistical Bulletin* No. 4, New York, 1937, for years 1926–36; for earlier years data are those appearing in Moody's *Public Utilities*, the *Electrical World* being credited as the source. Average consumption data were compiled from the Edison Electric Institute, cited above.

[2] The price data for the years 1924–34 are as of October 1. The 1935 price is an average of the prices for Jan. 1, 1935 and Jan. 1, 1936; the 1936 price is that for July 1, 1936.

[3] The data are averages weighted according to population, for 150 utilities operating in 132 cities, which include 88 percent of the population in the cities of 50,000 or more persons. The cities included contain 46 percent of the population living in communities of 250 or more persons. Page 21 of the report cited above: "When two or more utilities serve in the same city, the rates of each of the utilities for which this city is the 'major' city served by the utility are shown, and as a result the bills of 150 utilities are reported for the 132 cities."

TABLE IX.—*Amount and index numbers of average price per kilowatt-hour for residential consumption of 25, 100, and 250 kilowatt-hours of electricity, 51 cities in the United States: 1906–36* [1]

[1926=100]

Year	25 kw.-hr.		100 kw.-hr.		250 kw.-hr.	
	Amount	Index	Amount	Index	Amount	Index
1906	11.1	154.2	10.3	183.9	9.9	194.1
1907	10.6	147.2	9.9	176.8	9.5	186.3
1908	10.5	145.8	9.7	173.2	9.3	182.4
1909	10.1	140.3	9.4	167.9	9.0	176.5
1910	10.1	140.3	9.2	164.3	8.8	172.5
1911	10.0	138.9	8.7	155.4	8.5	166.7
1912	9.5	131.9	8.5	151.8	8.3	162.7
1913	9.1	126.4	8.0	142.9	7.8	152.9
1914	8.9	123.6	7.7	137.5	7.4	145.1
1915	8.8	122.2	7.6	135.7	7.3	143.1
1916	8.3	115.3	6.9	123.2	6.5	127.5
1917	7.6	105.6	6.2	110.7	5.9	115.7
1918	7.5	104.2	6.0	107.1	5.7	111.8
1919	7.6	105.6	6.1	108.9	5.6	109.8
1920	7.7	106.9	6.0	107.1	5.6	109.8
1921	8.0	111.1	6.3	112.5	5.8	113.7
1922	7.8	108.3	6.1	108.9	5.7	111.8
1923	7.6	105.6	6.1	108.9	5.7	111.8
1924	7.5	104.2	5.8	103.6	5.4	105.9
1925	7.4	102.8	5.7	101.8	5.2	102.0
1926	7.2	100.0	5.6	100.0	5.1	100.0
1927	7.2	100.0	5.5	98.2	5.0	98.0
1928	7.0	97.2	5.3	94.6	4.8	94.1
1929	6.8	94.4	5.2	92.9	4.5	88.2
1930	6.7	93.1	5.0	89.3	4.3	84.3
1931	6.6	91.7	4.9	87.5	4.2	82.4
1932	6.6	91.7	4.6	82.1	3.8	74.5
1933	6.5	90.3	4.5	80.4	3.8	74.5
1934	6.3	87.5	4.5	78.6	3.7	72.5
1935	6.2	86.1	4.4	78.6	3.6	70.6
1936	6.0	83.3	4.2	75.0	3.1	60.8

[1] The price data were presented by Vice President W. G. Vincent of the Pacific Gas and Electric Company in an article entitled "Rate Reductions," *Edison Electric Institute Bulletin*, June 1936. The 51 cities are those that were employed by the Bureau of Labor Statistics in its computation (discontinued November 1934) of the cost of most popular consumption amounts of electricity, appearing in its retail price bulletins; the method followed duplicates that of the Federal Power Commission in its computation of typical bills.

TABLE X.—*Index numbers of United States postal rates and amounts and index numbers of pounds of matter carried; 1919–35.* [1]

[1926=100]

Year [2]	Index of Postal rates	Pounds of postal matter	
		Amount (000,000's)	Index 1927=100
1919	93.9	----------	----------
1920	94.6	----------	----------
1921	95.1	----------	----------
1922	95.4	----------	----------
1923	95.4	----------	----------
1924	95.8	----------	----------
1925	97.6	----------	----------
1926	100.0	----------	----------
1927	100.9	6,356	100.0
1928	100.1	6,416	100.9
1929	99.3	6,490	102.1
1930	99.3	6,704	105.5
1931	99.3	6,043	95.1
1932	114.9	5,040	79.3
1933	126.5	4,345	68.4
1934	122.3	4,233	66.6
1935	122.1	4,578	72.0
1936	122.1	5,350	84.1

[1] Postal rates computed from U. S. Post Office Department *Postage Rates, 1789–1930, Abstracts of Laws Passed*, and *Ibid*, annual supplements, 1931–36; a weighted average was used. Pounds of matter carried compiled from U. S. Post Office Department *Reports of the Postmaster General*, annually. See *Patterns of Resource Use*, National Resources Committee, 1938, p. 95.

[2] Adjusted from the fiscal to calendar year by a 2-year average.

TABLE XI.—*Amount and index numbers of revenue per passenger-mile, of number of passengers, and of passenger miles, scheduled air transport* [1]

[1930=100]

Year	Average revenue per passenger-mile		Number of passengers		Passenger miles	
	Amount (cents)	Index	Amount	Index	Amount	Index
1926	12.0	144.5	5,782	1.5	(2)	(2)
1927	10.6	127.6	8,661	2.3	(2)	(2)
1928	11.0	132.5	47,840	12.8	(2)	(2)
1929	12.0	144.5	159,751	42.6	(2)	(2)
1930	8.3	100.0	374,935	100.0	84,014,572	100.0
1931	6.7	80.6	469,981	125.3	106,442,375	126.7
1932	6.1	73.4	474,279	126.5	127,038,798	151.2
1933	6.1	73.4	493,141	131.5	173,492,119	206.5
1934	5.9	71.1	461,743	123.2	187,858,629	223.6
1935	5.7	68.6	746,946	199.2	313,905,508	373.6
1936	5.7	68.6	1,020,931	272.3	435,740,253	518.7

[1] Compiled from the *Air Commerce Bulletin*, U. S. Department of Commerce, Washington, June 15, 1937, pp. 262–264.

[2] Not available.

APPENDIX 5.[1]—THE RELATION OF TARIFFS TO THE PRICE STRUCTURE

In the following tables, the relation between tariffs and wholesale prices is set forth in the effort to throw light on the effects of tariffs upon price behavior. In presenting the rates contained in the tariff schedules, note should be made of factors other than the height of the protection afforded by the rates which may affect the importation of goods.

It is convenient to group the more disguised protective measures which act along with and in addition to the custom duties themselves, under the title of "administrative" protection.[2] Here we find that the administration of customs, formalities, rules regarding marks of origin, veterinary and sanitary regulations, food and drug regulations, laws concerning the assessment of ad valorem duties, and the process of classification of imports all contribute to the national policy of controlling the flow of goods in international trade. Instances can be cited where the charges for the formalities at the custom border have more than doubled the ad valorem equivalent of the statutory tariff rate.[3] Also, many times in many different countries the shibboleth of public health has been used to justify actual prohibition or discrimination in regard to imports of food and similar products.[4] Another, but quite different, form of administrative protection arises out of the technical problem of classifying goods for entry. The gamut of "commercial designation," "legislative intent," "chief use," "in chief value of," "similitude clause," etc., must be run and during such procedure imports may be held up indefinitely.[5] In fact, the uncertainty involved in the awaited decision as well as the cost of bond, etc. may inhibit importation more than if an even higher but certain rate had been applied in the first case.

It seems pertinent to point out that in some cases a very low tariff rate on one commodity will furnish more protection than a high rate (ad valorem equivalent) on another commodity. In a situation where there is a slight or no difference between the imported cost and the cost of the domestic article a very low ad valorem rate might give much more protection than a considerably higher rate levied on another commodity which had a large differential of disadvantage to the foreign-made goods. A usual type of this sort of thing occurs where the cost of transportation of one commodity is much greater per unit of dollar value than the cost of transportation of another article.[6]

Another factor which complicates a study of the relationship between the tariff and prices is one which arises out of the existence of both ad valorem and specific customs rates in the United States tariff schedules. The specific duty, which is a fixed sum of money to be paid on some stated unit of quantity of a commodity, presents more difficulties in this analysis than the ad valorem rate, which is a fixed percentage of the value of the imported article. The specific rate acts as a regressive tax in the case where there are several qualities of a commodity imported, i. e., the cheaper qualities tend to get a greater amount (percentage) of protection per unit of value than the more expensive items. In some cases this is offset in part by levying a larger specific duty on the dearer goods and to the extent that such a procedure is followed the specific duty approaches the ad valorem duty in character. It is also of great significance that the weight of the specific duty varies inversely with the price level and particularly that it varies inversely with the price changes of the commodity upon which it is levied. It is true, of course, that the ad valorem type of duty presents difficult problems of appraisement and therefore considerable room for the operation of administrative protection activities. However, its very percentage character prevents it from having such a fluctuating protective role as the specific duty.

In spite of these difficulties, a comparison of wholesale prices [7] in the United States with the tariff protection of the commodities to which the prices refer should throw some light on the relation between price behavior and protection. In order that this material might be in such form as to reveal any possible connection between tariff rates and price flexibility, the wholesale prices have been arranged in groups according to their relative frequency of change and their relative magnitude of change. For this purpose, the procedure described in Appendix 2 and the groupings shown in tables II and

[1] Appendix 5 was prepared by Edward C. Welsh.

[2] Cf., E. M. Winslow, *Administrative Protectionism, Explorations in Economics*, McGraw-Hill Book Co., Inc., N. Y., 1937; also Josef Gruntzel, *Economic Protectionism*, 1916; also, B. A. Levett, *Through the Customs Maze*, N. Y., 1923.

[3] For instance, on a port cargo of less than 200 tons destined for Portuguese West Indies, the following consular charges were levied (in English pounds): Rotterdam 4, Antwerp 2, Dunkerque 1, Middlesborough 2, Hull 2, London 2. 1.10, Port Said, 1, Suez, 4. See *World Trade*, I. C. C., April 1932.

[4] Cf., *World Trade Barriers in Relation to America Agriculture*, Senate Document No. 70, 1933; Sir Frederick Leith-Ross, "Report of the Economic Committee of the League of Nations on Agricultural Protectionism; *Board of Trade Journal* (Gr. Br.) London, May 1937; etc.

[5] Cf. "*American Importer*," November 1934; September 1934; *World Trade*, May 1932; *U. S. Customs Encyclopedia*, 1934, etc.

[6] For instance, a case of South African apples, weighing 46 pounds, was sent from London to the continent of Europe, a distance of 650 miles. The invoice value was $1.64 and total cost was $6.22. Transport costs were 75.76 percent of total costs. Imports of certain commodities, such as cement and certain fresh vegetables, are restricted to certain areas of a country, usually along the coast or border, largely because of the low unit values of such goods and of the high proportion which transportation costs are of total delivered costs. See Doc. No. 180, 72d Cong.

[7] Bureau of Labor Statistics wholesale prices.

III of Appendix 2 were used. In a few instances, items in the Bureau of Labor Statistics wholesale price series which were combined to form a single item in the tables in Appendix 2 carry different tariff rates. In these cases, the separate items are presented in the following tables in place of the composite items which appear in appendix 2 and this fact is noted on the tables.

In table I the items are grouped into 10 groups on the basis of frequency of price change. This grouping corresponds to, and follows the order of Appendix 2, table II.

In table II, the items are grouped into 10 groups on the basis of price sensitivity. This grouping corresponds to, and follows the order of Appendix 2, table III. By reference to Appendix 2, table II, it is possible to see in which sensitivity groups the items in each frequency group are to be found.

The procedure for deriving the tariff rate on items corresponding to the items in the Bureau of Labor Statistics wholesale price series was as follows:

(1) The commodities in the Bureau of Labor Statistics series were checked in order that further information about the particular nature of each item might be obtained. Description, adequate for accurate tariff classification, was not available in every instance.

(2) With this information to be used as a guide, the Tariff Act of 1930 was used for ascertaining the probable paragraph and rate of the tariff applicable to each commodity.

(3) Next, the United States Department of Commerce publication, *Statistical Classification of Imports into the United States* was used as a more accurate check on the tariff rates. In some of the more complicated instances, recent Treasury Decisions of the Customs Court were obtained to clarify problems of classification. The coding system used in the above mentioned Commerce publication was followed and recorded so that each item could be located more readily in further examination.

(4) An arithmetic mean of the annual wholesale prices of each of the 734 items was figured for the years 1930 to 1936 inclusive (the years during which the 1930 tariff act has been in force). The purpose of this average was to aid in more accurate classification of those commodities on which the duties vary according to the value of the item, e. g., "valued not over $2 a dozen" and "valued over $2 a dozen" (61548 and 61549). It appeared that an average of these prices over a period of years was a better basis for such classification than the prices for any one year.

(5) Then, by aid of the code numbers obtained in the Department of Commerce publication, further classification checking was done with the more detailed Tariff Commission publication, *Comparative Statistics of Imports Into the United States for Consumption* (11 volumes 1931–35) and also with the annual publication, *Foreign Commerce and Navigation of the United States.*

(6) Each item was then checked to ascertain if and to what extent it was affected by the reciprocal trade agreement changes. Each such change was noted.

(7) Using the afore-mentioned Tariff Commission publication for 1931–35 and the latest publication of the same title for the year 1936, the specific duties were translated into equivalent ad volorem rates for each commodity dutiable at specific rates. In cases of combination rates (both specific and ad valorem) the equivalent ad valorem rate shows such combination. The procedure was as follows: The total amount of duty collected on a particular commodity in each of the years studied was compared with the total value of this commodity imported during this particular year. This gave the ad valorem equivalent for a specific duty levied. In cases where there was a combination (specific and ad valorem) duty levied, the number of items, or the volume imported was multiplied by the specific duty; the percentage which this figure was of the total value imported was derived and that percentage was then added to the ad valorem duty quoted to obtain the ad valorem equivalent of the whole duty. In recording these equivalent ad valorem rates for the years in which the Tariff Act of 1930 has been in force, the spread or range of the rates from high to low years was taken rather than an average, since the fluctuation of the weight of the duty is significant, and also since an average would distort the picture.

Tables I and II show the results of the procedure just listed. Column 2 in the tables gives the code number of the different items as they are listed in the Bureau of Labor Statistics wholesale price series. Column 4 gives the code numbers used for corresponding items in the Department of Commerce publication, *Statistical Classification of Imports into the United States*, and in the Tariff Commission publication, *Comparative Statistics of Imports into the United States for Consumption.* The code numbers are given without decimal points as they are arranged without reference to decimal points in the *Statistical Classification.* Columns 5 and 6 give the paragraph in which the item appears and the rate according to the Tariff Act of 1930. In cases where a rate appears in parentheses the rate so enclosed is the changed rate according to the reciprocal trade agreements. Column 7 gives in terms of ad valorem equivalents the range of protection arising from the variations in price and the modification brought about by rate changes made by trade agreements.

The following tariff classification of these commodities should not be used as a final analysis for importers because of inadequate description of the separate items as well as the existence of changes arising out of trade agreements and Treasury decisions.

TABLE I.[1]—*Bureau of Labor Statistics wholesale price series, grouped according to frequency of price change, with tariff information on the listed or similar commodities for years 1931–36, inclusive*

GROUP I

No.	Bureau of Labor Statistics [2] code No.	Commodity with brief description	Tariff information			
			Code No.	Tariff paragraph	Tariff rate	Equivalent ad valorem range
1	97	Corn flakes	10917	732	20% (15%)	15–20.
2	99	Wheat cereal	10917	732	20% (15%)	15–20.
3	154	Ginger ale	17500	808	15¢ gal	13–17.
4	156	Sodas	17760	808	15¢ gal	13–17.
5	226	Gloves, men's mocha, unlined	04120	1532	50% (min.)	62–73.
6	231	Collars, men's soft	31135	919	37.5%	37½.
7	232	Collars, men's stiff	31135	919	37.5%	37½.
8	241	Shirts, men's dress, broadcloth	31131	919	45%	45.
9	293	Underwear, men's, 60 percent wool, 40 percent cotton	36371	1114c	50¢ lb. and 50% (30%)	45–65.
10	367	Grain binder, 6-foot, with bundle carriage	78919	1604	Free	Free.
11	368	Cultivator, riding, 8 shovels, pin break	78600	1604	do	Do.
12	369	Grain drill, 12 by 7, plain single disk	78915	1604	do	Do.
13	370	Engine, 3 horsepower, agricultural implement	78919	1604	do	Do.
14	371	Forks, hay, 3 tines	61589	373	30% (15%)	15–30.
15	372	Harrow, disk, 14 by 16, with scrapers	78900	1604	Free	Free.
16	373	Harrow, peg-tooth	78900	1604	do	Do.
17	375	Combine thresher, 10-foot, motor-driven	78800	1604	do	Do.
18	376	Hoe, garden, 7-inch	61589	373	30% (15%)	15–30.
19	377	Hay loader, 6-foot, windrow with carriage	78919	1604	Free	Free.
20	378	Mower, 5-foot, regular lift	78903	1604	do	Do.
21	379	Corn picker	78918	1604	do	Do.
22	380	Corn planter, 30-inch open wheels, 80 rods	78915	1604	do	Do.
23	381	Plow tractor, 14-inch	78910	1604	do	Do.
24	385	Rake, 14 teeth, steel	61589	373	30% (15%)	15–30.
25	386	Rake, self-dump, 10-foot, 26 teeth	78902	1604	Free	Free.
26	387	Rake, side delivery	78902	1604	do	Do.
27	389	Corn sheller, power, 2-hole	78915	1604	do	Do.
28	391	Spade, garden	61581	373	30%	30.
29	392	Manure spreader	78919	1604	Free	Free.
30	393	Grain thresher, steel, 22 by 38, complete	78904	1604	do	Do.
31	394	Tractor, 10–20 horsepower	78700	1604	do	Do.
32	398	Angle bars, steel	60810	312	0.2¢ lb	15–27.
33	399	Augers, 1-inch	61572	396	45%	45.
34	402	Bar iron, refined, per pound	60213	303	0.8¢ lb. (0.5¢ lb.)	16–26.
35	417	Chisels, 1-inch	61572	396	45%	45.
36	418	Files, metal, 8-inch	61534	362	77.5¢ doz. (45¢ doz.)	11–30.
37	421	Cork knives, 15 pounds to dozen	61585	373	30% (20%)	20–30.
38	425c	Iron ore	60010	1700	Free	Free.
39	439	Rails, steel	60901	322	0.1¢ lb	7–11.
40	456	Vises	61575	396	45%	45.
41	474	Nickel electrolytic cathode, 98–99 percent	65420	389	25%	25.
42	497	Concrete blocks, plain, 8 by 8 by 16 inches	54245	214	30%	30.
43	536	Barytes, ground	84021	67	$7.50 ton	55–78.
44	538	Bone black, powdered	09913	69	20%	20.
45	540	Iron oxide, black	84001	73	10%	10.
46	550	Lithopone	84100	77	1.75¢ lb. (1.5¢ lb.)	48–65.
47	557	Whiting, imported chalk	84025	20	0.4¢ lb. (0.2¢ lb.)	72–171.
48	559	Asphalt, bulk	53940	1710	Free	Free.
49	560	Board, plaster	41090	1803	do	Do.
50	585	Carbon dioxide, liquid	82212	1	1¢ lb	1–2.
51	590	Coal-tar products, salicylic acid	80202	27a	7¢ lb. and 40%	45–46.
52	592	Acid, sulphuric, 66°	82060	1601	Free	Free.
53	595	Aluminum sulphate	838140	6	0.2¢ lb	2–11.
54	601	Baking powder, 6–10-pound cans, in case	83430	1766	Free	Free.
55	603	Bleaching powder	83100	14	0.3¢ lb	9–11.
56	607	Calcium carbide	82471	16	1¢ lb	27–48.
57	609	Coal-tar products, black	80509	28a	7¢ lb. and 45%	50–51.
58	611	Coal-tar products, indigo, 20 percent paste	80509	28a	7¢ lb. and 45 %	50–51.
59	626	Sodium bicarbonate	83430	1766	Free	Free.
60	630	Sulphur, crude	59334	1777	do	Do.
61	649	Peroxide of hydrogen, 4-ounce bottle	838622	5	25%	25.
62	676	Carvers, stag handles, 9-inch	61308	355	8¢ each and 45%	69–77.
63	677	Knives, and forks, cocobola handles	61351	355	8¢ each and 45%	69–77.
64	687	Ironers, electric, automatic, 30-inch roll	70999	353	35%	35.
65	694	Sewing machines, treadle	75510	372	15%	15.
66	698	Ranges, electric	70926	353	35% (25%)	25–35.
67	702c	Dinner sets	53502	212	10¢ doz. and 70%	84–93.
68	704	Nappies, common, 4-inch	52762	218 f	60%	60.
69	755	Batteries, radio; dry "A"	70921	353	35%	35.
70	759	Cigar boxes, veneer	42060	405	20%	20.
71	772	Shipping cases, rough, pine	42069	407	15%	15.
72	776	Soap, laundry	87199	80	15%	15.
73	777	Soap, toilet, 3- to 3½-ounce	87122	80	30%	30.
74	781	Tobacco, plug, 11-ounce plug	26299	603	55¢ lb	29–67.
75	782	Tobacco, smoking, gross of 1-ounce bags	26299	603	55¢ lb	29–67.

GROUP II

1	95	Bread, loaf before baking	10790	1623	Free	Free.
2	96	do	10790	1623	do	Do.
3	225	Leather belting, 1-inch	06999	1531	35%	35.
4	227	Gloves, unlined, short cuff	04120	1532a	50%	50.
5	240	Overcoat, 30-ounce, 3-button, yoke lined, heavy	36401	1115a	50¢ lb. and 50%	56–58.
6	336	Cotton thread, 6-cord, white 100 yards	30300	902	20%	20.
7	337	Shoe thread, linen, per pound, 10's	32723	1004b	40%	40.
8	374	Harrow, 17-tooth	78900	1604	Free	Free.
9	382	Plows, walking, 1-horse	78600	1604	do	Do.
10	383	Plows, walking, 2-horse	78600	1604	do	Do.
11	384	Pumps, agricultural, pitcher spout	78919	1604	do	Do.
12	388	Cream separator, valued over $50	77200	372	25% (12½%)	12½–25.

[1] The grouping in this table corresponds to that given in appendix 2, table II.
[2] For description of items whose number is followed by "c", see appendix 2, table I.

TABLE I.—*Bureau of Labor Statistics wholesale price series, grouped according to frequency of price change, with tariff information on the listed or similar commodities for years 1931–36, inclusive*—Continued

GROUP II—Continued

No.	Bureau of Labor Statistics code No.	Commodity with brief description	Tariff information			
			Code No.	Tariff paragraph	Tariff rate	Equivalent ad valorem range (percent)
13	390	Shovels, cast-steel, black, longhandle	61581	373	30%	30.
14	395	Farm tractor, 15–30 horsepower	78700	1604	Free	Free.
15	396	Wagon, 2-horse, agricultural	78908	1604	do	Do.
16	397	Windmill, steel, 8-foot diameter, aeromotor	78919	1604	do	Do.
17	400	Axes, single-bit, 3½–4½ pounds	61569	396	45%	45.
18	415	Sanitary cans, tin	62095	339	40%	40.
19	419	Hammer, 1-pound	61575	396	45%	45.
20	420	Hatchet	61569	396	45%	45.
21	437	Planes, jackplane	61572	396	45%	45.
22	443	Saws, cross-cut, 6-foot	61518	340	20% (15%)	15–20.
23	444	Saws, 26-inches, skewback	61518	340	20% (15%)	15–20.
24	502	Brick, sandlime, per 1,000	53906	201b	$1.25 per M	4–11.
25	505	Floor tiles, ceramic unglazed	53811	202a	50%	50.
26	507	Cement roofing tile, 9 by 15	53805	202	60%	60.
27	508	Wall tile, glazed	53813	202a	50%	50.
28	530	Enamel, paint	84318	66	25%	25.
29	534	Roof and barn paint, red	84319	66	25%	25.
30	535	Varnish	84413	75	25%	25.
31	541	Lampblack	84202	71	20%	20.
32	543	Chrome green, light	84213	70	20%	20.
33	563	Door frames	42899	412	33.3%	33⅓.
34	[3] 565	Glass, plate, polished, 3–5 square feet	52201	222a	17¢ (11.3¢ sq. ft.)	5–78.
35	[3] 566	Glass, plate, polished, 5–10 square feet	52203	222a	19.75¢ (13.2¢ sq. ft.)	64–103.
36	578	Slate, roofing, 10 by 20-inch	51114	235	25%	25.
37	581	Crushed stone, 1½-inch	54229	214	30%	30.
38	586	Acid, muriatic, 20°	82112	1601	Free	Free.
39	587	Acid, nitric, 42°	82115	1601	do	Do.
40	599	Arsenic, powdered arsenious oxide	82010	1614	do	Do.
41	600	Baking powder, case of 24 1-pound cans	83430	1766	do	Do.
42	608	Calcium, chloride, 73–75 percent	83710	1641	do	Do.
43	610	Coal-tar products, brown colors, sulphur	80508	28a	7¢ lb. and 45%	50–53 (50–51).
44	628	Sodium silicate, 40°	83539	81	0.357¢ lb	9–19 (9–18).
45	642	Chloroform	838310	18	4¢ lb	1–2.
46	644	Epsom salts, in barrels	83126	49	0.75¢ lb	115–132.
47	661	Potash, muriate, 80–85 percent, KC	85210	1745	Free	Free.
48	678	Carpets, Axminister, ¾-yard, wool	36711	1117a	60%	60.
49	679	Carpets, Brussels, 5-frame, wool	36712	1117a	60%	60.
50	681	Linoleum, felt base, 2 yards wide	39810	1020	35%	35.
51	685	Heating appliances, electric irons	70907	339	40%	40.
52	690	Wall oilcloth, plain tints	39714	907	40% (30%)	30–40.
53	693	Electric sewing machines	70999	353	35%	35.
54	705	Pitchers, ½-gallon, glass	52762	218f	60%	60.
55	706	Plates, white, granite, 7-inch	53710	211	10¢ doz. and 45%	64–79.
56	707	Teacups, saucers, granite	53710	211	10¢ doz. and 45%	64–79.
57	708	Tumblers, 8–10-ounce	52762	218f	60%	60.
58	757	Caskets, metal	67999	397	45%	45.
59	758	Caskets, wood	42899	412	33.3%	33⅓.
60	761	Matches, safety	97700	1516	20¢ gross (17.5¢)	45–109.
61	762	Asbestos pipe covering	55280	1501d	25%	25.
62	767	Plate glass mirror, 12 by 24-inch, beveled	52300	223	45%	45.

GROUP III

1	100	Crackers, plain soda	10751	733	30%	30.
2	101	Cookies, sugar	10751	733	30%	30.
3	117	Pretzels, butter	10751	733	30%	30.
4	155	Grape juice, case of 2 dozen pints	17740	806a	70¢ gal	42–116.
5	158	Cocoa, ½-pound cans	15021	777a	3¢ lb. (1.5¢ lb.)	12–27.
6	190c	Shoes	03519	1530e	20%	20.
7	191	Shoes, child's	03539	1530e	20%	20.
8	193	Shoes, youth's	03519	1530e	20%	20.
9	197	Shoes, men's calf	03509	1530e	20%	20.
10	243	Boys' suits, all wool, 12–14-ounces	36401	1115a	50¢ lb. and 50%	56–58.
11	244	Men's suits, 13-ounce serge	36401	1115a	50¢ lb. and 50%	56–58.
12	247	Topcoats, 18-ounce	36401	1115a	50¢ lb. and 50%	56–58.
13	250	Men's work pants, 2.65 yards to pound	31123	917	45%	45.
14	407	Steel barrels, weight 43 pounds, 35 gallons	62099	397	45%	35.
15	409	Boiler tubes, cold-drawn steel	60928	328	25%	25.
16	435	Pipe, steel, ¾-inch	60928	328	25%	25.
17	436	Pipe, steel, galvanized	60928	328	25%	25.
18	455	Tin plate, 14 by 20 inches, base 100 pounds	60601	310	1¢ per lb	9–34.
19	460	Fencing, woven wire	61052	317	5¢ per lb	20–30.
20	499	Fire brick	53905	201a	25% (15%)	15–25.
21	503	Silica brick	53906	201b	$1.25 per M	4–11.
22	504	Drain tile, clay, 1,000 feet	53832	202a	70%	70.
23	526	California redwood, 4 by 4, dressed or rough	41199	1803	Free	Free.
24	532	Paint, house	84319	66	25%	25.
25	533	Paint, porch and deck	84319	66	25%	25.
26	542	Paint, prussian blue	84210	68	8¢ lb	34–44.
27	558	Zinc, oxide	84110	77	1.75¢ lb	28–40.
28	561	Board, building wall	41090	1803	Free	Free.
29	564	Window frames	42899	412	33.3%	33⅓.
30	573	Plaster	51930	205a	$1.40 ton	9–18.
31	584	Acid, boric	82210	1	1¢ lb	12–22
32	604	Borax, crystals, granulated	83518	81	.125¢ lb	1.
33	612	Coal-tar products, jet	80508	28a	7¢ lb. and 45%	50–53 (50–51).
34	615	Creosote oil	80000	1651	Free	Free.
35	620	Potash, caustic, 88–92 percent	83250	78	1¢ lb	14–19.
36	622	Soda, carbonate, sal	83523	81	.25¢ lb	5–8.
37	624	Salt, sodium chloride	57241	81	0.07¢ lb	56–81.
38	629	Soda sulphide, 30 percent crystals	83547	81	.375¢ lb	20–26.
39	632	Coal tar products, toluene	80115	1651	Free	Free.

[3] Items 565–566 appear in appendix 2, table II, combined into 565c.

TABLE I.—*Bureau of Labor Statistics wholesale price series, grouped according to frequency of price change, with tariff information on the listed or similar commodities for years 1931–36, inclusive*—Continued

GROUP III—Continued

No.	Bureau of Labor Statistics code No.	Commodity with brief description	Tariff information			
			Code No.	Tariff paragraph	Tariff rate	Equivalent ad valorem range (percent)
40	648	Opium	22060	59	$3 lb.	64–142.
41	658	Phosphate rock, 68 percent	65198	1740	Free	Free.
42	659	Kainit, 12.4 percent	85230	1745	do	Do.
43	660	Manure salts, 20 percent	85240	1685	do	Do.
44	662	Sulphate of potash, 90–95 percent	85250	1745	do	Do.
45	680	Carpets, Wilton	36714	1117a	60%	60.
46	682	Linoleum, rug, felt base, 9 by 12	39810	1020	35%	35.
47	684	Linoleum	39810	1020	35%	35.
48	686	Heating appliances, electric irons	70907	339	40%	40.
49	701	Tablecloths, 64 by 64	30823	910	30%	30.
50	710	Vacuum cleaner, without attachments	70690	353	35%	35.
51	711	Washing machine, electric, enamel	70999	353	35%	35.
52	743	Book paper, per 100 pounds	47120	1410	.25¢ lb. and 10%	18–22.
53	744	Paper newsprint, rolls	47110	1772	Free	Free.
54	745	Tissue paper, white	47289	1404	6¢ lb. and 20%	31–39.
55	746	Paper, wrapping, manila, jute	47230	1409	30% (25%)	25–30.
56	770	Garden hose, ⅝-inch, 2-braid, foot	20672	1537b	25%	25.
57	771	Rubbers, men's	20311	1537b	25%	25.
58	779	Cigarettes, per 1,000	26230	605	$4.50 lb. and 25%	101–121.
		GROUP IV				
1	45	Milk, 3.6 percent butter fat	00380	707	6.5¢ gal	22–43.
2	92	Bread, before baking	10790	1623	Free	Free.
3	94	do	10790	1623	do	Do.
4	176	Salt, 280-pound barrels	57240	81	11¢ lb.	15–28.
5	194c	Shoes, men's	03509	1530e	20%	20.
6	206c	Shoes, women's	03529	1530e	20%	20.
7	208	do	03529	1530e	20%	20.
8	229	Suitcases	06920	1531	35%	35.
9	230	Traveling bags	06920	1531	35%	35.
10	242	Shirts, 3.85 yards to pound	31131	919	45%	45.
11	245	Suits, serge, 15-ounce	36401	1115a	50¢ lb. and 50%	56–58.
12	252	Table damask, cotton, 1.92 yards per pound	30823	910	30%	30.
13	264	Nainsook, muslin, cotton	3050's	904b	60¢ lb.	34–43.
14	269	Filling sateen, 36-inch, 4.37 yards to pound	3060900	904c	47½%	47½.
15	292	Underwear, cotton, 12 pounds	31123	917	45%	45.
16	294	Underwear, 33 percent worsted, 16 pounds to dozen	36371	1114c	50¢ lb. and 50% (30%)	45–65.
17	309	Dress goods, women's 9½-ounce, wool	36051	1109a	50¢ lb. and 55%	86–87.
18	315	Flannel, wool 6¼-ounce 54-inch	36050	1109a	50¢ lb. and 50%	105–113.
19	330	Artificial leather, 17½-ounce, 1.32	32370	923	40%	40.
20	331	Artificial leather, 7-ounce, 3.60	32370	923	40%	40.
21	334	Rope, sisal, ¾-inch diameter	34170	1005a	2¢ (1¢ lb.)	16–24.
22	338	Twine, binder, sisal, 50-pound bale	34171	1005a	2¢ and 15% (1¢ lb. and 7½%)	37.6–40.
23	410	Machine bolts	62050	330	1¢ per lb.	25–35.
24	413	Track bolts	62050	330	1¢ lb.	25–35.
25	422	Door knobs, metal	62099	397	45%	45.
26	441	Rivets, small, 7/16-inch	62054	332	1¢ lb.	8–35.
27	453	Terneplate, 20 by 28-inch, base 300 pounds	60603	310	1¢ per lb.	9–34.
28	469	Aluminum, 98–99 percent	63020	374	4¢ per lb.	21–25.
29	496	Laundry tubs, cement composition, 48 by 24 inches	54227	214	30%	30.
30	506	Tile, hollow, building	53832	202a	70%	70.
31	509	Cement, portland, barrel	51810	205b	0.06¢ lb. (0.045¢ lb.)	18–30.
32	513	Lumber, chestnut, 4 by 4 common	41199	1803	Free	Free.
33	531	Paint, inside flat, house	84319	66	25%	25.
34	548	Lead, carbonate, white, in oil	84219	72	2.5¢ lb. (2.1¢ lb.)	21–34.
35	562	Doors, pine	42899	412	33.3%	33⅓.
36	567c	Glass, window	520's	219	Various per lb.	37–50.
37	569	Gravel, ton	53958	1775	Free	Free.
38	571	Lime, hydrated	51710	203	.12¢ (.08¢ per lb.)	17–25.
39	572	Pipe, sewer, 8-inch C/L (iron)	60910	327	25% (15%)	15–25.
40	579	Sand, building	53957	1775	Free	Free.
41	580	Window sash, white pine	42899	412	33.3%	33⅓.
42	598	Coal tar products, anilin oil	80478	27a1	7¢ lb. and 40%	42–46.
43	605	Calcium lime, acetate	82470	16	1¢ lb.	40–44.
44	613	Copperas	83717	1675	Free	Free.
45	617	Logwood extract, solid	23315	38	15%	15.
46	618	Coal-tar products, naphthalene, flake, pound	80108	1651	Free	Free.
47	625	Soda ash, 58 percent	83523	81	0.25¢ lb.	5–8.
48	627	Soda caustic, 76 percent	83533	81	0.5¢ lb.	3–4.
49	646	Iodine, resublimed	838630	44	10¢ lb.	(Negligible imports.)
50	652	Quinine, sulphate, 100-ounce tins	81020	1748	Free	Free.
51	654	Alkaloids, strychnine	81120	86	20¢ per oz.	No information 1931–35.
52	655	Zinc chloride, granular	838933	93	1.3¢ lb.	35–45.
53	673	Blankets, cotton, part wool, 3½-pound	30843	911a		30.
54	674	Blankets, 4–5 pound	36104	1111	33¢ and 37½%	65–67.
55	675	Comforters, sateen cover, woolfilling	36104	1111	33¢ and 37½%	65–67.
56	683	Linoleum, inlaid	39800	1020	42%	42.
57	695	Window shades, 6 foot by 36 inches, water color	39715	907	30%	30.
58	756	Storage battery, 13-plate	70920	320	40%	40.
59	768	Rubber heels	20984	1537b	25%	25.
60	769	do	20984	1537b	25%	25.
61	774	Soap, 100-11-ounce cakes	87199	80	15%	15.
		GROUP V				
1	93	Bread, before baking	10790	1623	Free	Free.
2	133	Asparagus, canned 2½'s	12390	775	35%	35.
3	169	Jelly, grape, 8½, 6 to case	13295	751	35%	35.
4	171	Molasses, per gallon, average sugar content	16352	502	$1.35 per 100 gal.	20–28.4.
5	174	Peanut butter, 50-pound tins	13809	759	7¢ lb.	21–50 (negligible).
6	177	Soup, canned, tomato, 1-pound, 1-ounce	12531	775	35%	35.

TABLE I.—*Bureau of Labor Statistics wholesale price series, grouped according to frequency of price change, with tariff information on the listed or similar commodities for years 1931–36, inclusive*—Continued

GROUP V—Continued

No.	Bureau of Labor Statistics code No.	Commodity with brief description	Tariff information			
			Code No.	Tariff paragraph	Tariff rate	Equivalent ad valorem range (percent)
7	178	Corn starch, 48 1-pound packages	28150	83	1.5¢ per lb.	2–77.
8	182	Tea, Formosa	15210	1783	Free	Free.
9	201c	Shoes	03509	1530e	20%	20.
10	205c	Shoes, women's	03529	1530e	20%	20.
11	219	Leather, kid, glazed	03335	1530c	25%	25.
12	228	Harness, set	06993	1530f	15%	15.
13	248	Pants, boy's wool	36400	1115a	33¢ and 45%	58–61.
14	249	Pants, men's, serge, 12½-ounce	36401	1115a	50¢ lb. and 50%	56–58.
15	260	Gingham, 6.37 yards to pound (bleached)	305's	904	Various	34–43.
16	295c	Rayon	38304	1306	45¢ lb. and 60% (45%)	75–102 (75–82).
17	305	Spun silk, 200/2 gray	37053	1202	40%	40.
18	312	Suiting, 12-ounce, 56-inch	36051	1109a	50¢ lb. and 55%	86–87.
19	314	Dress goods, cotton warp	36032	1109	50¢ lb. and 55%	77–85 (77–81).
20	316	Overcoating, per yard, 28-ounce	36051	1109	50¢ lb. and 55%	86–94 (86–87).
21	333	Rope, manila, 1-pound, ¾-inch diameter	34175	1005b	40% (20%)	20–40.
22	340	Twine, Java sisal	34175	1005b	40% (20%)	20–40.
23	341c	Carpet yarn, jute, 14–16	32441	1003	4¢ lb.	59.6–63.
24	364	Petroleum, crude, barrel	50510	1733	Free	Free.
25	411	Plow bolts, 2 by ⅜ inch	62050	330	1¢ lb.	25–35.
26	412	Stove bolts	62050	330	1¢ lb.	25–35.
27	423	Locks, 3½-inch sets	62080	384	$2 doz. and 20%	45–55.
28	429	Pig iron, ferromanganese, 80 percent	60031	301	$1 12.5 tons	3–4.
29	449	Steel skelp, grooved	60390	307	0.5¢ lb. (.35¢ lb.)	28–53.
30	450	Spikes, ½-inch and more	61120	331	0.4¢ lb.	11–17.
31	454	Steel, tie plate	60905	322	0.25¢ lb.	9–24.
32	471	Babbit metal, per pound	65061	392	2.125¢ lb.	2–7.
33	494	Sinks	62099	397	45%	45.
34	500	Brick, front, light-colored	53907	201b	5%	5.
35	501	Paving blocks, 3½-inch	53906	201b	$1.25 per M	4–12 (4–10).
36	529	Cypress shingles	41922	1760	Free	Free.
37	539	Carbon black	84201	71	20%	20.
38	544	Chrome yellow	84213	70	25%	25.
39	553	Putty, 1–5-pound tins	84026	20	0.75¢ lb. (0.5¢ lb.)	30–73.
40	582	Tar, pine	21193	97	1¢ lb.	8–18 (10–18).
41	583	Acetic acid, 28 percent	82000	1	1.375¢ lb.	3–42.
42	596	Ammonia, anhydrous	82432	7	2.5¢ lb.	(No imports.)
43	597	Ammonia, aqua	82432	7	2.5¢ lb.	Do.
44	616	Formaldehyde	838610	40	8¢ lb.	31–32 (negligible).
45	623	Salt cake, ground	83350	1766	Free	Free.
46	637	Alcohol, ethyl, grain, 188 proof	82313	4	15¢ gal.	3–12.
47	638	Alkaloids, caffeine	81110	15	$1.25 lb. (90¢ lb.)	200 (negligible).
48	641	Chlorine	830's			(Negligible imports.)
49	650	Phenol, carbolic acid	80200	27b	3.5¢ lb. and 20%	33–63.
50	651	Potash, iodine	83306	78	25¢ lb.	9–19.
51	653	Soda phosphate	83420	81	1.5¢ (1¢ lb.)	6–27.
52	667c	Fertilizer	85000	1685	Free	Free.
53	672	Blankets, cotton, 2-pound	30843	911a	30%	30.
54	688	Oil cloths, 12-inch	39714	907	30%	30.
55	689	Oil cloths, table	39714	907	30%	30.
56	748	Wood pulp, unbleached	46000	1716	Free	Free.
57	750	Soda, bleached, wood pulp	46090	1716	do.	Do.
58	760	Matches, nonsafety	97700	1516	20¢ (17.5¢ gross)	45–109.
59	778	Starch, laundry	28159	83	1.5¢ lb.	20–49.

GROUP VI

1	43	Milk, 3.5 percent	00380	707	6.5¢ gal.	22–43.
2	44	Milk, 3.7 percent	00380	707	6.5¢ gal.	22–43.
3	114	Macaroni and spaghetti (tins)	10771	725	3¢ lb.	18–22.
4	120	Apples, canned, 10's	13302	734	2.5¢ lb.	13–70.
5	122	Cherries, canned, 2½'s, 24 to case	13170	737	9.5¢ lb. and 40% (20%)	72–113 (95–113).
6	125	Pineapples, canned, 2½'s	13091	747	2¢ lb.	40–72.
7	134	Beans, canned, 18 ounces	12392	765	3¢ lb.	30–65 (46–65).
8	162	Salmon, pink, No. 1, 48 to case	00671	718b	25%	25.
9	220	Harness leather	03030	1530b(3)	12½% (10%)	10–12½.
10	258	Cotton flannel, bleached, 4.5 yards per pound	305's	904	Various	34–43.
11	266	Percale, gray, yard 38½ inches wide	305's	904b	do.	34–43.
12	275	Madras, woven, 4.6 yards per pound (bleached)	305's	904	do.	34–43.
13	280	Toweling, cotton, 4-ounce (bleached)	305's	904	do.	34–43.
14	286	Hosiery, cotton, 164-needle	31101	916a	50%	50.
15	287	Hosiery, cotton, 220-needle, 5-ounce	31101	916a	50%	50.
16	289	Hosiery, silk, 240-needle	37370	1208	60%	60.
17	291	Underwear, cotton, 12–12½ pounds	31121	917	45% (30%)	30–45.
18	310	Flannel, wool	36032	1109	50¢ lb. and 55%	77–85 (77–81).
19	311	Dress goods, women's wool	36032	1109	50¢ lb. and 55%	77–85 (77–81).
20	313	do.	36032	1109	50¢ lb. and 55%	77–85 (77–81).
21	317	Overcoating, wool, 18-ounce	36051	1109	50¢ lb. and 55%	86–94 (86–87).
22	318c	Suitings, serge	36030	1109	50¢ lb. and 50%	85–86.
23	322	Suitings, 12-ounce serge	36030	1109	50¢ lb. and 50%	85–86.
24	346	Coal	50000	1650	Free	Free.
25	350c	Coke	50080	1650	do.	Do.
26	401	Bar iron	60213	303	0.8¢ (0.5¢ lb.)	16–26.
27	405	Steel, sheet bars	60080	304	0.3¢ lb. (0.25¢ lb.)	20–44.
28	408	Steel billets	60421	304	0.5¢ lb. (0.4¢ lb.)	20–23.
29	414	Butts, wrought steel, plated	62070	397	45%	45.
30	416	Iron castings, malleable	61138	327	20%	20.
31	433	Pig iron	60030	301	$1.125 ton	7–12.
32	440	Rivets, large ½-inch and more	62054	332	1¢ lb.	8–35.
33	442	Wire rods	60360	315	0.3¢ lb. (0.25¢ lb.)	20–23.
34	452	Steel, structural shapes	60910	312	0.2¢ lb.	15–27.
35	481	Zinc, sheet	65590	394	2¢ lb.	27–48.
36	490	Range boiler, galvanized, sheet steel	62099	397	45%	45.
37	493	Radiator	62099	397	45%	45.

TABLE I.—*Bureau of Labor Statistics wholesale price series, grouped according to frequency of price change, with tariff information on the listed or similar commodities for years 1931–36, inclusive*—Continued

GROUP VI—Continued

No.	Bureau of Labor Statistics code No.	Commodity with brief description	Tariff information			
			Code No.	Tariff paragraph	Tariff rate	Equivalent ad valorem range (percent)
38	495	Bath tubs	62099	397	45%	45.
39	512	Siding, ¾ by 8 inches, red cedar	41199	1803(1)	Free	Free.
40	514	Cypress, 4 by 4 inches, M feet	41199	1803(1)	do	Do.
41	525	Lumber, poplar	41199	1803	do	Do.
42	545	Ethyl acetate, anhydrous	838430	37	3¢ lb	(Negligible).
43	546	Copal, Manila	21099	1686	Free	Free.
44	570	Lime, building	51712	203	0.10¢ lb. (0.07¢)	14–22 (16–22).
45	594	Menthanol, wood alcohol, 95 percent	82316	4	18¢ gal	5–57 (5–30 Neg.).
46	602	Benzine	80103	1651	Free	Free.
47	606	Calcium arsenate	83709	1642	do	Do.
48	621	Quebracho extract, solid, 63 percent	23440	38	15%	15.
49	635	Citric acid, crystals	82216	1	17¢ lb	56–137 (79–137).
50	740	Box board, chip	46929	1750	Free	Free.
51	742	Box board, ton, 85 pounds	41199	1803(1)	do	Do.
52	747	Wood pulp, unbleached	46000	1716	do	Do.
53	749	do	46000	1716	do	Do.
54	754	Barrel, red oak, unlined	42067	407	15%	15.
55	773	Soap flakes, laundry	87199	80	15%	15.
56	776	Powdered soap, laundry	87199	80	15%	15.
		GROUP VII				
1	89	Milk, condensed, sweet, 48 14-oz	00401	708a	2.75¢ lb	42–63.
2	91	Milk, powdered skim	00411	708b	3¢ lb	33–77 (33–67).
3	128	Currants, dried, 50-pound box	13210	742	2¢ lb	32–39.
4	136	Peas, canned, 2-pound can	12363	769	2¢ lb. (1.5¢)	8–37 (21–37).
5	138	Beans, string, canned, 2's	12392	765	3¢ lb	46–65.
6	139	Tomatoes, canned, No. 3	12380	772	50%	50.
7	168	Glucose, corn sirup, 42°	16542	503	2¢ lb	17–35.
8	172	Oleomargarine, uncolored	00365	709	14¢ lb	74–139.
9	186	Olive oil, edible	14240	53	8¢ lb	59–82 (60–82).
10	189	Vinegar, cider	12540	738	8¢ pf. gal	27–39.
11	202c	Shoes, men's	03509	1530e	20%	20.
12	221	Leather, tanned	03041	1530b(4)	15%	15.
13	239	Overalls, cotton	31135	919	37.5%	37.5.
14	259	Cotton flannel, unbleached	304's	904b	Various	36.8–50.3.
15	270c	Sheeting, bleached, 10/4	305	904	do	34–43.
16	277	Ticking, 2.05 yards to pound	304's	904b	do	36.8–50.3.
17	288	Hosiery, rayon, 39 gage	38401	1309	45¢ lb. and 65%	75–117.
18	290	Hosiery, silk, 7-thread	37370	1208	60%	60.
19	303c	Silk, spun	37050	1202	40%	40.
20	335	Sisal	34010	1684	Free	Free.
21	343	Coal	50000	1650	do	Do.
22	344	do	50000	1650	do	Do.
23	345	do	50000	1650	do	Do.
24	347	do	50000	1650	do	Do.
25	348	do	50000	1650	do	Do.
26	362	Kerosene	50650	1733	do	Do.
27	365	Petroleum, crude	50510	1733	do	Do.
28	403	Reinforcing bars, ¾-inch rolled	60051	304	0.3¢ lb (0.25¢ lb.)	20–45.
29	404	Steel, merchant bars	60081	304	0.5¢ lb. (0.4¢ lb.)	19–26.
30	406	Steel bars, cold-rolled, finished	60081	315	0.525¢ lb	20–21 (negligible)
31	424	Nails, wire	61121	331	15%	15.
32	427c	Pig iron	60030	301	$1.125 ton	7–12.
33	431	Pig iron, No. 2	60030	301	do	7–12.
34	438	Steel plates, ¼ inch	60551	304	0.5¢ lb. (0.4¢)	16–34.
35	[4] 457	Wire, annealed, fence, No. 6–9	67980	316a	25%	25.
36	[4] 458	Wire, galvanized, barbed	60930	1800	Free	Free.
37	[4] 459	Wire, galvanized, No. 9	61051	317	0.5¢ lb	22–30.
38	461	Woodscrews, No. 10, 1-inch iron	62082	338	25%	25.
39	491	Water closets, metal, enameled	61415	339	5¢ lb. and 30%	36–59.
40	492	Lavatories, each	61415	339	5¢ lb. and 30% (and 15%)	36–59.
41	498	Brick, common building	53906	201b	$1.25 M	4–11 (4–10).
42	518	Lumber, hemlock	41050	401	$1 M bd. ft. (50¢)	20–46.
43	519	Lumber, maple, hard	41194	402	8% (4%)	4–8.
44	520	Lumber, oak	41199	1803	Free	Free.
45	521	Lumber, pine, white	41070	401	$1 M bd. ft. (50¢)	17–18.
46	524	Lumber, ponderosa pine	41070	401	$1 M bd. ft. (50¢)	17–18.
47	537	Acetate, butyl	838421	37	7¢ lb	(No imports, 1931–35).
48	[5] 574	Roofing, prepared	55200	1501c	0.75¢ lb. (0.6¢ lb)	55–61.
49	[5] 575	do	55200	1501c	0.75¢ lb. (0.6¢ lb.)	55–61.
50	[5] 576	Roofing, slate-surfaced shingles	51114	235	25%	25.
51	577	Roofing, prepared shingles	55200	1501c	0.75¢ lb. (0.6¢ lb.)	55–61.
52	588	Oil, red, oleic acid	08216	1	20%	20.
53	591	Acid, stearic, distilled	08200	1	25%	25.
54	593	Alcohol, denatured, 188 proof	82310	4	15¢ gal	7–113.
55	619	Oil, pine, distilled	22943	58	25%	25.
56	636	Acid, tartaric, crystals	82070	1	8¢ lb	36–57 (36–48).
57	640	Castor oil	22602	53	3¢ lb	33–68 (40–68).
58	643	Cream of tartar, powdered	83230	9	5¢ lb	12–51 (12–50).
59	645	Glycerin	82910	42	2¢ lb. (1.66¢ lb.)	6–33 (17–33).
60	657	Bones, ground, 60 percent bone phosphate	85110	1627	Free	Free.
61	664	Superphosphate, 16 percent basis	85193	1740	do	Do.
62	666c	Fertilizer	85593	1685	do	Do.
63	691	Pails, galvanized iron, 10-quart	62099	397	45%	45.
64	692	Pillowcases, 64 by 64	30860	911b	25%	25.
65	696	Sheets	30860	911b	25%	25.
66	741	Boxboards, Manila lined chip	46929	1750	Free	Free.

[4] Items 457, 458, and 459 appear in appendix 2, table II, combined into No. 457c.
[5] Items 574, 575, and 576 appear in appendix 2, table II, combined into No. 574c.

TABLE I.—*Bureau of Labor Statistics wholesale price series, grouped according to frequency of price change, with tariff information on the listed or similar commodities for years 1931–36, inclusive*—Continued

GROUP VIII

No.	Bureau of Labor Statistics code No.	Commodity with brief description	Tariff information			
			Code No.	Tariff paragraph	Tariff rate	Equivalent ad valorem range (percent)
1	46	Peanuts	13680	759	4.25¢ lb.	144–209.
2	47	Seed, alfalfa	24010	763	8¢ (4¢ lb.)	30–108 (40).
3	59c	Wool, unwashed	35060	1101a	24¢ lb.	112–139.
4	[6] 65	Wool, grease basis	35060	1101a	24¢ lb.	112–139.
5	[6] 66	Wool, scoured, 56's	35213	1102b	37½¢ lb.	110–131.
6	[6] 67	Wool, grease basis, 50's, pound	35200	1102b	34¢ lb.	80–139.
7	90	Milk, evaporated, 48, 16 ounces in case	00400	708a	1.8¢ lb.	17–48.
8	119	Rice, clean	10530	727	2.5¢ lb.	85–117.
9	121	Apricots, canned	13315	735	35%	35.
10	123	Peaches, canned	13365	745	35%	35.
11	124	Pears, canned	13369	749	35%	35.
12	132	Bananas	13010	1618	Free	Free.
13	135	Corn, canned	12499	775	35%	35.
14	137	Spinach, canned	12499	775	35%	35.
15	141c	Meat, beef	00180	701	6¢ lb.	49–87 (49–73).
16	145	Bacon	00300	703	3.25¢ lb.	11–16.
17	163	Fish, salmon, canned	00671	718b	25%	25.
18	164	Fish, cod, canned (salmon)	00675	718b	25%	25.
19	165	Fish, herring, canned	00712	719(4)	25%	25.
20	166	Fish, mackerel, canned	00722	719(4)	25%	25.
21	167	Fish, salmon, smoked	00750	720a	25%	25.
22	173	Oleo oil	00362	701	1¢ lb.	6–16.
23	184	Vegetable oil, corn, crude	14220	53	20%	20.
24	187	Peanut oil, crude	14270	54	4¢ lb.	65–96.
25	188	Vegetable oil, soybean, crude	22550	54	3.5¢ lb.	70–127 (79–127).
26	215	Goatskins	02410	1765	Free	Free.
27	222c	Leather	03000	1530b(1)	12½%	12½.
28	253	Denims, cotton, 2.2 yards to pound	305	904	Various	34–43.
29	255	Drillings, cotton, 2.85 yards to pound	305	904	do	34–43.
30	256	Duck, 8 ounces, base price 25¢	305	904	do	34–43.
31	261c	Muslin, bleached	305's	904b	do	34–43.
32	[7] 272	Sheeting, brown, 2.85 yards to pound	304's	904b	do	36.8–50.3.
33	[7] 273	Sheeting, 4/4, 3.72 yards to pound	305	904	do	34–43.
34	[7] 274	Sheeting, 4/4, 4 yards to pound	305	904	do	34–43.
35	276	Percale, print, 4.75 yards to pound	305	904	do	34–43.
36	324	Yarns, worsted, white	35701	1107	40¢ lb. and 45%	77–82.
37	[8] 325	Woolen yarn, 2/40	35754	1107	40¢ lb. and 45%	75–80.
38	[8] 326	Woolen yarn, 2/50	35755	1107	40¢ lb. and 50%	65–72.
39	332	Cotton rope, awning	32370	923	Free	Free.
40	349	Coke	50080	1650	do	Do.
41	366	Petroleum, crude	50510	1733	do	Do.
42	434	Pipe, cast-iron, 6-inch	60910	327	25% (15%)	15–25.
43	446	Steel sheets, cold-rolled, annealed	605462	309	0.95¢ lb. (0.80¢ lb.)	31–50.
44	447	Auto body sheets, No. 20	60552	304	30% (20%)	20–30.
45	448	Sheets, galvanized, steel	60548	309	2¢ lb. and 20%	22–26.
46	451	Steel strips, cold rolled	60969	313	2¢ lb. and 25%	26–29.
47	475	Lead, pipe	65090	392	2.375¢ lb.	34–54.
48	477	Yellow brass rods, ⅝- to 2¾-inch, rod	64580	381	4¢ lb.	11–66.
49	478	Copper rods, round, 1¼- to 3-inch	64300	381	2.5¢ lb. and 4¢ lb.	7–20.
50	479	Brass, 2- to 8-inch sheets	64580	381	4¢ lb.	11–66.
51	480	Copper sheet, hot rolled	64300	381	2.5¢ lb. and 4¢ lb.	7–20.
52	483	Solder	65061	392	2.125¢ lb.	2–7.
53	485	Yellow brass tube, seamless	64583	381	8¢ lb. and 4¢ lb.	32–67.
54	486	Brass wire, round	64586	316a	25%	25.
55	487	Copper wire, No. 8	64308	316a	25%	25.
56	517	Lumber, gum, plain sap, 4 by 4	41199	1803	Free	Free.
57	527	Lumber, spruce	41060	401	$1 M bd. ft. (50¢)	17–26.
58	547	Pigments, red lead, dry	84217	72	2.75¢ lb.	31–71.
59	549	Litharge, powdered	84215	72	2.5¢ lb.	(Negligible imports 1931–35).
60	614	Copper sulphate, blue vitreol, 99 percent	82630	1659	Free	Free.
61	633	Oil, palm, crude	14260	54	1¢ lb.	22–33.
62	656	Ammonia, sulphate	838110	6	0.75¢ lb.	3–11.
63	663	Soda, nitrate, Chili saltpeter	85060	1766	Free	Free.
64	665	Tankage, ton	09750	1780	do	Do.
65	709	Tubs, galvanized iron	62099	397	45%	45.
66	763	Oil, lubricating	50750	1733	Free	Free.
67	765	Oil, neutral	50750	1733	do	Do.

GROUP IX

1	19c	Sheep	00120	702	$3 ea.	25–55.
2	36	Apples	13110	734	25¢ bu. of 50 lb. (15¢)	85–28 (14–28).
3	39	Hay, alfalfa	11010	779	$5 ton	40–72 (50–72).
4	40c	Hay	11010	779	$5 ton ($3)	41–72 (50–72).
5	48	Seed, clover	24010	763	8¢ lb.	40–108.
6	50	Seed, timothy	24130	763	2¢ lb. (1¢)	10–31.
7	54	Potatoes, sweet	12119	774	50%	50.
8	58	Potatoes, white	12041	771	0.75¢ lb.	43–89 (53–89).
9	103c	Flour, wheat	10720	729	0.104¢ lb.	30–196.
10	116	Corn meal, granulated	10919	724	0.5¢ lb.	4–42.
11	118	Rice, clean	10530	727	2½¢ lb.	85–117.
12	126	Apples, evaporated	13301	734	2¢ lb.	7–37.
13	127	Apricots, dried	13312	735	2¢ lb.	17–23.
14	129	Peaches, dried	13362	745	2¢ lb.	Negligible.
15	130	Prunes, dried	13352	748	2¢ lb.	13–22.
16	131	Raisins	13190	742	2¢ lb.	18–25 (18–24).
17	140	Beef, cured, 200-pound barrel	00290	706	6¢ lb.	29–76 (29–70).
18	146	Pork, cured	00310	703	3.25¢ lb.	11–16.
19	147	do	00310	703	3.25¢ lb.	8–12 (8–11).
20	149	Mess pork, 200-pound barrel	00310	703	3.25¢ lb.	8–12 (8–11).

[6] Items 65, 66, and 67 appear in appendix 2, table II, combined into No. 65c.
[7] Items 272, 273, and 274 appear in appendix 2, table II, combined into No. 272c.
[8] Items 325 and 326 appear in appendix 2, table II, combined into No. 325c.

TABLE 1.—*Bureau of Labor Statistics wholesale price series, grouped according to frequency of price change, with tariff information on the listed or similar commodities for years 1931–36, inclusive*—Continued

GROUP IX—Continued

No.	Bureau of Labor Statistics code No.	Commodity with brief description	Tariff information			
			Code No.	Tariff paragraph	Tariff rate	Equivalent ad valorem range (percent)
21	152	Poultry, dressed	00259	712	10¢ lb. (6¢ lb.)	25–43 (31–43).
22	161	Copra, dried	22320	1727	Free	Free.
23	179	Sugar, granulated	16196	501	2.5¢ lb. (1.875¢)	47–223.
24	183	Coconut oil, crude	22425	54	2¢ lb	14–35.
25	211	Cow hides	02010	1530a	10%	10.
26	214	Calf skins, 8–15 pounds	02070	1530a	10%	10.
27	216	Kips	02050	1530a	10%	10.
28	217	Sheep pelts	02320	1765	Free	Free.
29	257	Duck, No. 8, 36-inch, base price 64 cents	305	904	Various	34–43.
30	265	Osnaburg, 30-inch, 7-ounce	305	904	do	34–43.
31	278	Tire fabrics	32326	904e	25%	25.
32	279	Tire fabrics, carded, 10–5	32326	904e	25%	25.
33	[1] 281	Cotton yarn, carded	302's	901	Various	28–33.
34	[1] 282	Cotton yarn, 22–1 cones	302's	901b		
35	[1] 283	Cotton yarn, single, 40/1	301040	901a	17%	17.
36	328	Hemp, manila	39012	1504a	15%	15.
37	329	Jute, raw	32410	1684	Free	Free.
38	339	Cotton twine	32370	923	40%	40.
39	355	Fuel oil, 24–26 gravity	50550	1733	Free	Free.
40	356	Fuel oil, 36–40 gravity	50550	1733	do	Do.
41	358	Gasoline, 54–58 gravity	50610	1733	do	Do.
42	363	Kerosene	50650	1733	do	Do.
43	445	Steel, scrap, old material	60040	301	75¢ ton	5–12.
44	472	Copper, ingot, electrolytic	64170	1658	Free	Free.
45	473	Lead, pig, desilverized	65050	392	2.125¢ lb	69–168.
46	476	Quicksilver, flask, 1/75	66620	386	25¢ lb	21–69.
47	488	Zinc, pig	65582	394	1.75¢ lb	52–65.
48	510	Lumber, fir	41040	401	$1 M bd. ft. (50¢)	17–35.
49	511	Lumber, pine, lath, ⅜-inch	41070	401	$1 M bd. ft. (50¢)	17–18.
50	515	Lumber, fir	41040	401	$1 M bd. ft. (50¢)	17–35.
51	516	do	41040	401	$1 M bd. ft. (50¢)	17–35.
52	522	Lumber, pine	41070	401	$1 M bd. ft. (50¢)	17–18.
53	528	Lumber, cedar shingles	41921	1760	Free	Free.
54	551	China wood oil	22606	53	20%	20.
55	552	Linseed oil, raw	22540	53	4.5¢ lb	77–124.
56	555	Shellac	21072	1707	Free	Free.
57	631	Tallow	08155	701	0.5¢ lb	8–16 (11–16).
58	634	Palm oil	22430	1732	Free	Free.
59	639	Camphor, 100-pound cases	82580	51	1¢ lb	3–5.
60	647	Menthol	81270	51	50¢ lb	19–25.
61	737	Cottonseed meal	11140	730	0.3¢ lb	27–57.
62	738	Linseed meal	11150	730	0.3¢ lb	22–39 (28–39).
63	764	Cylinder oil	50750	1733	Free	Free.
64	766	Neutral oil	50750	1733	do	Do.
65	784	Paraffin wax	50760	1733	do	Do.

GROUP X

1	1	Barley, malting, bushel of 48 pounds	10200	722	20¢ bu	23–60.
2	2c	Corn	10310	724	25¢ bu	47–57.
3	4	Oats, bushel of 32 pounds	10410	726	16¢ bu	42–100.
4	5	Rye, bushel of 56 pounds	10440	728	15¢ bu	10–32.
5	6c	Wheat, bushel of 60 pounds	10665	729	42¢ bu	43–84.
6	12	Calves	00100	701	2.5¢ lb. (1.5¢ lb.)	16–89 (46–89).
7	13c	Cows	00101	701	3¢ lb. (2¢)	40–67.
8	15c	Steers	00105	701	3¢ lb. (2¢ lb.)	40–67.
9	17c	Hogs	00130	703	2¢ lb	16–28.
10	20	Lambs	00120	702	$3 ea	25–55.
11	22c	Poultry, live	00150	711	8¢ lb. (4¢ lb.)	16–29.
12	24c	Cotton, middling	30021	783	7¢ lb	39–75 (44–75).
13	27c	Eggs	00880	713	10¢ doz	54–74.
14	30	do	00880	713	10¢ doz	54–74.
15	35	Apples	13110	734	25¢ bu. (15¢ bu.)	8.5–28 (14–28).
16	37	Lemons	13030	743	2.5¢ lb	90–113 (90–108).
17	38	Oranges, 126–200	13330	743	1¢ lb	21–38.
18	42	Hops	28100	780	24¢ lb	39–176.
19	49	Flaxseed, bushel of 56 pounds	22330	762	65¢ bu	56–99 (61–99).
20	51	Tobacco, leaf	26050	601	35¢ lb	66–115.
21	52	Beans, dried	11920	765	3¢ lb	98–133.
22	53	Onions	12080	770	2.5¢ lb	113–188.
23	55c	Potatoes, white	12041	771	0.75¢ lb	43–89 (53–89).
24	68c	Butter	00440	709	14¢ lb	53–89.
25	86c	Cheese	00469	710	7¢ lb	44–52 (47–52).
26	98	Oatmeal	10922	726	0.80¢ lb	9–17.
27	102	Flour, rye	10926	728	0.45¢ lb	8–35 (10–35).
28	113	Hominy grits	10919	724	0.50¢ lb	4–42.
29	115	Corn meal	10919	725	0.50¢ lb	4–42.
30	143	Lamb, fresh	00220	702	7¢ lb	39–117.
31	144	Mutton, dressed	00210	702	5¢ lb	35–102.
32	148	Pork, hams	00300	703	3.25¢ lb	11–16.
33	150	do	00300	703	3.25¢ lb	11–16.
34	151	Veal, fresh	00190	701	6¢ lb	61–160.
35	153	Poultry, fresh, 48–54 pounds to dozen	00254	712	10¢ lb. (6¢)	25–43 (31–43).
36	157	Cocoa beans	15010	1653	Free	Free.
37	159	Coffee	15110	1654	do	Do.
38	160	do	15110	1654	do	Do.
39	170	Lard	00360	703	3¢ lb	12–27 (12–26).
40	175	Pepper, black	15512	781	5¢ lb	11–25 (11–19).
41	180	Sugar, raw, 96°	16196	501	2.5¢ lb (1.875¢)	47–223.
42	181	Tallow, edible	08155	701	0.5¢ lb	8–16 (11–16).
43	185	Cottonseed oil	14231	54	3¢ lb	63–66.
44	212c	Hides, steers	02010	1530a	10%	10.

[1] Items 281, 282, and 283 appear in appendix 2, table II, combined into No. 281c

TABLE I.—*Bureau of Labor Statistics wholesale price series, grouped according to frequency of price change, with tariff information on the listed or similar commodities for years 1931–36, inclusive*—Continued

GROUP X—Continued

No.	Bureau of Labor Statistics code No.	Commodity with brief description	Tariff information			
			Code No.	Tariff paragraph	Tariff rate	Equivalent ad valorem range (percent)
45	267	Print cloths, 7.6 yards to pound, 27-inch	305	904	Various	34–43.
46	268	Print cloths	305	904	do	34–43.
47	284c	Cotton yarn	302's	901b	do	28–33.
48	299c	Raw silk	37020	1763	Free	Free.
49	306c	Silk yarn, thrown	37992	1203	20%	20.
50	327	Burlap	32470	1008	1¢ lb	14–15.
51	357	Gasoline	50610	1733	Free	Free.
52	359c	do	50610	1733	do	Do.
53	470	Antimony	66511	376	2¢ lb	18–56.
54	482	Silver bar		1638	Free	Free.
55	484	Tin, pig	65510	1786	do	Do.
56	554	Rosin, yard basis	21891	90	5%	5.
57	556	Turpentine	21190	90	5%	5.
58	736	Millfeed, bran	11902	730	10%	10.
59	739	Millfeed	11902	730	10%	10.
60	751c	Rubber, crude	20110	1697	Free	Free.

TABLE II.[1]—*Bureau of Labor Statistics wholesale price series, grouped according to depression sensitivity, with tariff information on the listed or similar commodities for years 1931–36 inclusive*

GROUP 1

No.	Bureau of Labor Statistics[2] Code No.	Commodity with brief description	Tariff information			
			Code No.	Paragraph	Tariff rate	Equivalent ad valorem range (percent)
1	573	Plaster	51930	205a	$1.40 ton	9–18.
2	658	Phosphate rock, 68 percent	65198	1740	Free	Free.
3	651	Potash, iodine	83306	78	25¢ lb	9–19.
4	336	Cotton thread, 6-cord, white, 100 yards	30300	902	20%	20.
5	599	Arsenic, powdered arsenious oxide	82010	1614	Free	Free.
6	661	Potash, muriate, 80–85 percent K. C. L.	85210	1745	do	Do.
7	662	Sulphate of potash, 90–95 percent	85250	1745	do	Do.
8	779	Cigarettes, per thousand	26230	605	$4.50 lb. and 25%	101–121.
9	646	Iodine, resublimed	838630	44	10¢ lb	(Negligible imports.)
10	760	Matches, nonsafety	97700	1516	20¢ (17.5¢ gross)	45–109.
11	600	Baking-powder, case of 21 1-pound cans	83430	1766	Free	Free.
12	345	Coal	50000	1650	do	Do.
13	560	Board, plaster	41090	1803	do	Do.
14	379	Corn picker	78918	1604	do	Do.
15	644	Epsom salts, in barrels	83126	49	75¢ lb	115–132.
16	598	Coal-tar products, anilin oil	80478	27al	7¢ lb. and 40%	42–46.
17	565c	Glass, plate, polished	52201	222a	17¢ (11.3¢ sq. ft.)	5–78.
18	707	Teacups, saucers, granite	53710	211	10¢ doz. and 45%	64–79.
19	761	Matches, safety	97700	1516	20¢ gross (17.5¢)	45–109.
20	706	Plates, white, granite, 7-inch	53710	211	10¢ doz. and 45%	64–79.
21	597	Ammonia, aqua	82432	7	2.5¢ lb	(No imports.)
22	92	Bread, before baking	10790	1623	Free	Free.
23	629	Soda sulphide, 30 percent crystals	83547	81	0.375¢ lb	20–26.
24	650	Phenol, carbolic acid	80200	27b	3.5¢ lb. and 20%	33–63.
25	343	Coal	50000	1650	Free	Free.
26	469	Aluminum, 98–99 percent	63020	374	4¢ per lb	21–25.
27	596	Ammonia, anhydrous	82432	7	2.5¢ lb	(No imports.)
28	232	Collars, men's stiff	31135	919	37.5%	37½.
29	97	Corn flakes	10917	732	20% (15%)	15–20.
30	602	Benzine	80103	1651	Free	Free.
31	755	Batteries, radio, dry "A"	70921	353	35%	35.
32	601	Baking powder, six 10-pound cans in case	83430	1766	Free	Free.
33	375	Combine thresher, 10-foot, motor driven	78800	1604	do	Do.
34	624	Salt, sodium chloride	57241	81	0.07¢ lb	56–81.
35	344	Coal	50000	1650	Free	Free.
36	96	Bread, loaf before baking	10790	1623	do	Do.
37	775	Soap, laundry	87199	80	15%	15.
38	131	Raisins	13190	742	2¢ lb	18–25 (18–24).
39	536	Barytes, ground	84021	67	$7.50 ton	55–78.
40	541	Lampblack	84202	71	20%	20.
41	677	Knives and forks, cocobola handles	61351	355	8¢ each and 45%	69–77.
42	653	Soda phosphate	83420	81	1.5¢ (1¢ lb.)	6–27.
43	154	Ginger ale	17500	808	15¢ gal	13–17.
44	746	Paper, wrapping, manila, jute	47230	1409	30% (25%)	25–30.
45	628	Sodium silicate, 40°	83539	81	0.375¢ lb	9–19 (9–18).
46	587	Acid, nitric, 42°	82115	1601	Free	Free.
47	609	Coal-tar products, black	80509	28a	7¢ lb. and 45%	50–51.
48	590	Coal-tar products, salicylic acid	80202	27a	7¢ lb. and 40%	45–46.
49	630	Sulphur, crude	59334	1777	Free	Free.
50	607	Calcium carbide	82471	16	1¢ lb	27–48.
51	241	Shirts, men's dress, broadcloth	31131	919	45%	45.
52	474	Nickel electrolytic cathode, 98–99 percent	65420	389	25%	25.
53	611	Coal-tar products, indigo, 20 percent paste	80509	28a	7¢ lb. and 45%	50–51.
54	781	Tobacco, plug, 11-ounce plug	26299	603	55¢ lb	29–67.
55	585	Carbon dioxide, liquid	82212	1	1¢ lb	1–2.

[1] The grouping in this table corresponds to that given in appendix 2, table III.
[2] For description of items whose number is followed by "c," see appendix 2, p. 1.

TABLE II.—*Bureau of Labor Statistics wholesale price series, grouped according to depression sensitivity, with tariff information on the listed or similar commodities for years 1931–36 inclusive*—Continued

GROUP 1—Continued

No.	Bureau of Labor Statistics Code No.	Commodity with brief description	Tariff information			
			Code No.	Paragraph	Tariff rate	Equivalent ad valorem range (percent)
56	399	Augers, 1 inch	61572	396	45%	45.
57	439	Rails, steel	60901	322	0.1¢ lb	7–11.
58	136	Peas, canned, 2-pound can	12363	769	2¢ lb. (1.5¢)	8–37 (21–37).
59	581	Crushed stone, 1½-inch	54229	214	30%	30.
60	610	Coal-tar products, Brown colors, sulphur	80508	28a	7¢ lb. and 45%	50–53 (50–51).
61	648	Opium	22060	59	$3 lb	64–142.
		GROUP 2				
1	418	Files, metal, 8-inch	61534	362	77.5¢ doz. (45¢ doz.)	11–30.
2	402	Bar iron, refined, per pound	60213	303	0.8¢ lb. (0.5¢ lb.)	16–26.
3	544	Chrome yellow	84213	70	25%	25.
4	592	Acid, Sulphuric, 66 degrees	82060	1601	Free	Free.
5	586	Acid, muriatic, 20 degrees	82112	1601	do	Do.
6	398	Angle bars, steel	60810	312	0.2¢ lb	15–27.
7	409	Boiler tubes, cold drawn steel	60928	328	25%	25.
8	660	Manure salts, 20 percent	85240	1685	Free	Free.
9	626	Sodium bicarbonate	83430	1766	do	Do.
10	156	Sodas	17760	808	15¢ gal	13–17.
11	176	Salt, 280-pound barrels	57240	81	11¢ lb	15–28.
12	417	Chisels, 1-inch	61572	396	45%	45.
13	542	Paint, prussian blue	84210	68	8¢ lb	34–44.
14	415	Sanitary cans, tin	62095	339	40%	40.
15	436	Pipe, steel, galvanized	60928	328	25%	25.
16	759	Cigar boxes, veneer	42090	405	20%	20.
17	622	Soda, carbonate, sal	83523	81	0.25¢ lb	5–8.
18	507	Cement, roofing tile, 9 by 15	53805	202	60%	60.
19	531	Paint, inside flat, house	84319	66	25%	25.
20	191	Shoes, children's	03539	1530e	20%	20.
21	456	Vises	61575	396	45%	45.
22	443	Saws, cross-cut, 6-foot	61518	340	20% (15%)	15–20.
23	744	Paper, newsprint, rolls	47110	1772	Free	Free.
24	654	Alkaloids, strychnine	81120	86	20¢ per oz	No information 1931–35.
25	425c	Iron ore	60010	1700	Free	Free.
26	53	Onions	12080	770	2.5¢ lb	113–188.
27	627	Soda caustic, 76 percent	83533	81	0.5¢ lb	3–4.
28	557	Whiting, imported chalk	84025	20	0.4¢ lb. (0.2¢ lb)	72–171.
29	537	Acetate, butyl	838421	37	7¢ lb	(No imports 1931–35.)
30	608	Calcium, chloride, 73–75 percent	83710	1641	Free	Free.
31	293	Underwear, men's, 60 percent wool, 40 percent cotton	36371	1114c	50¢ lb. and 50% (30%)	45–65.
32	435	Pipe, steel, ¾-inch	60928	328	25%	25.
33	330	Artificial leather, 17½-ounce, 1.32	32370	923	40%	40.
34	710	Vacuum cleaner, without attachments	70690	353	35%	35.
35	620	Potash, caustic, 88–92 percent	83250	78	1¢ lb	14–19.
36	676	Carvers, stag handles, 9-inch	61308	355	8¢ each and 45%	69–77.
37	772	Shipping cases, rough, pine	42069	407	15%	15.
38	370	Engine, 3-horsepower, agricultural implement	78919	1604	Free	Free.
39	655	Zinc chloride, granular	838933	93	1.3¢ lb	35–45.
40	497	Concrete blocks, plain, 8 by 8 by 16 inches	54245	214	30%	30.
41	625	Soda ash, 58 percent	83523	81	0.25¢ lb	5–8.
42	659	Kainit, 12.4 percent	85230	1745	Free	Free.
43	561	Board, building wall	41090	1803	do	Do.
44	101	Cookies, sugar	10751	733	30%	30.
45	128	Currants, dried, 50-pound box	13210	742	2¢ lb	32–39.
46	623	Salt cake, ground	83350	1766	Free	Free.
47	380	Corn planter, 30-inch open wheels, 80 rods	78915	1604	do	Do.
48	687	Ironers, electric, automatic, 30-inch roll	70999	353	35%	35.
49	649	Peroxide of hydrogen, 4-ounce bottle	838622	5	25%	25.
50	444	Saws, 26-inch, skewback	61518	340	20% (15%)	15–20.
51	226	Gloves, men's mocha, unlined	04120	1532	50% (min.)	62–73.
52	494	Sinks	62099	397	45%	45.
53	550	Lithopone	84100	77	1.75¢ lb. (1.5¢ lb.)	48–65.
54	556	Turpentine	21190	90	5%	5.
55	331	Artificial leather, 7-ounce, 3.60	32370	923	40%	40.
56	393	Grain thresher, steel, 22 by 38 complete	78904	1604	Free	Free.
57	538	Bone black, powdered	09913	69	20%	20.
58	777	Soap, toilet, 3 to 3½ ounces	87122	80	30%	30.
59	225	Leather belting, 1-inch	06999	1531	35%	35.
60	177	Soup, canned, tomato, 1-pound, 1-ounce	12531	775	35%	35.
		GROUP 3				
1	367	Grain binder, 6-foot, with bundle carrier	78919	1604	Free	Free.
2	570	Lime, building	51712	203	10¢ per 100 lbs. (7¢)	14–22 (16–22).
3	391	Spade, garden	61581	373	30%	30.
4	593	Alcohol, denatured, 188 proof	82310	4	15¢ gal	7–113.
5	530	Enamel, paint	84318	66	25%	25.
6	381	Plow tractor, 14 inches	78910	1604	Free	Free.
7	619	Oil, pine, distilled	22943	58	25%	25.
8	613	Copperas	83717	1675	Free	Free.
9	376	Hoe, garden, 7-inch	61589	373	30% (15%)	15–30.
10	137	Spinach, canned	12499	775	35%	35.
11	545	Ethyl acetate, anhydrous	838430	37	3¢ lb	(Negligible.)
12	543	Chrome green, light	84213	70	20%	20.
13	171	Molasses, per gallon, average sugar content	16352	502	$1.35 per 100 gal	20–28.4.
14	595	Aluminum sulphate	838140	6	0.2¢ lb	2–11.
15	132	Bananas	13010	1618	Free	Free.
16	663	Soda, nitrate, Chili saltpeter	85060	1766	do	Do.
17	558	Zinc, oxide	84110	77	1.75¢ lb	28–40.
18	548	Lead, carbonate, white, in oil	84219	72	2.5¢ lb. (2.1¢ lb.)	21–34.
19	385	Rake, 14 teeth, steel	61589	373	30% (15%)	15–30.

TABLE II.—*Bureau of Labor Statistics wholesale price series, grouped according to depression sensitivity, with tariff information on the listed or similar commodities for years 1931–36 inclusive*—Continued

GROUP 3—Continued

No.	Bureau of Labor Statistics Code No.	Commodity with brief description	Tariff information			
			Code No.	Paragraph	Tariff rate	Equivalent ad valorem range (percent)
20	421	Cork knives, 15 pounds to dozen	61585	373	30% (20%)	20–30.
21	227	Gloves, unlined, short cuff	04120	1532a	50%	50.
22	698	Ranges, electric	70926	353	35% (25%)	25–35.
23	681	Linoleum, felt base, 2 yards wide	39810	1020	35%	35.
24	635	Citric acid, crystals	82216	1	17¢ lb	56–137 (79–137).
25	388	Cream separator, valued over $50	77200	372	25% (12½%)	12½–25.
26	390	Shovels, cast steel, black, long handle	61581	373	30%	30.
27	337	Shoe thread, linen, per pound, 10's	32723	1004b	40%	40.
28	686	Heating appliances, electric irons	70907	339	40%	40.
29	638	Alkaloids, caffeine	81110	15	$1.25 lb. (90¢ lb.)	200 (negligible).
30	704	Nappies, common, 4-inch	52762	218f	60%	60.
31	386	Rake, self-dump, 10 feet, 26 teeth	78902	1604	Free	Free.
32	95	Bread, loaf before baking	10790	1623	do	Do.
33	758	Caskets, wood	42899	412	33.3%	33⅓.
34	769	Rubber heels	20984	1537b	25%	25.
35	99	Wheat cereal	10917	732	20% (15%)	15–20.
36	228	Harness, set	06993	1530f	15%	15.
37	377	Hay loader, 6-foot windrow, with carriage	78919	1604	Free	Free.
38	158	Cocoa, ½-pound cans	15021	777a	3¢ lb. (1.5¢ lb.)	12–27.
39	371	Forks, hay, 3 tines	61589	373	30% (15%)	15–30.
40	392	Manure spreader	78919	1604	Free	Free.
41	423	Locks, 3½-inch sets	62080	384	$2 doz. and 20%	45–55.
42	540	Iron oxide, black	84001	73	10%	10.
43	534	Roof and barn paint, red	84319	66	25%	25.
44	535	Varnish	84413	75	25%	25.
45	169	Jelly, grape, 8½, 6 to case	13295	751	35%	35.
46	43	Milk, 3.5 percent	00380	707	6.5¢ gal	22–43.
47	533	Paint, porch and deck	84319	66	25%	25.
48	584	Acid, boric	82210	1	1¢ lb	12–22.
49	369	Grain drill, 12 by 7, plain single disk	78915	1604	Free	Free.
50	571	Lime, hydrated	51710	203	.12 (0.08 per lb.)	17–25.
51	372	Harrow, disk, 14 by 16 with scrapers	78900	1604	Free	Free.
52	368	Cultivator, riding, 8 shovels, pin break	78600	1604	do	Do.
53	604	Borax, crystals, granulated	83518	81	0.125¢ lb	1.
54	346	Coal	50000	1650	Free	Free.
55	206c	Shoes, women's	03529	1530e	20%	20.
56	603	Bleaching powder	83100	14	0.3¢ lb	9–11.
57	632	Coal-tar products, toluene	80115	1651	Free	Free.
58	756	Storage battery, 13-plate	70920	320	40%	40.
59	508	Wall tile, glazed	53813	202a	50%	50.
60	569	Gravel, ton	53958	1775	Free	Free.
61	117	Pretzels, butter	10751	733	30%	30.
62	89	Milk, condensed, sweet, 48 14-ounce	00401	708a	2.75¢ lb	42–63.

GROUP 4

1	378	Mower, 5-foot, regular lift	78903	1304	Free	Free.
2	693	Electric sewing machines	70999	353	35%	35.
3	397	Windmill, steel, 8-foot diameter, aeromotor	78919	1604	Free	Free.
4	396	Wagon, 2-horse, agriculture	78908	1604	do	Do.
5	574c	Roofing	55200	1501c	0.75¢ per lb. (0.6¢)	55–61.
6	492	Lavatories, each	61415	339	5¢ lb. and 30% (and 15%)	36–59.
7	757	Caskets, metal	67999	397	45%	45.
8	711	Washing machine, electric enamel	70999	353	35%	35.
9	383	Plows, walking, 2-horse	78600	1604	Free	Free.
10	133	Asparagus, canned, 2½'s	12390	775	35%	35.
11	579	Sand, building	53957	1775	Free	Free.
12	348	Coal	50000	1650	do	Do.
13	577	Roofing, prepared shingles	55200	1501c	0.75¢ lb. (0.6¢)	55–61.
14	572	Pipe, sewer, 8-inch, c/1, foot (iron)	60910	327	25% (15%)	15–25.
15	387	Rake, side delivery	78902	1604	Free	Free.
16	441	Rivets, small, 7/16 inch	62054	332	1¢ lb	8–35.
17	416	Iron castings, malleable	61138	327	20%	20.
18	583	Acetic acid, 28 percent	82000	1	1.375¢ lb	3–42.
19	394	Tractor, 10–20 horsepower	78700	1604	Free	Free.
20	694	Sewing machines, treadle	75510	372	15%	15.
21	165	Fish, herring, canned	00712	719(4)	25%	25.
22	690	Wall oilcloth, plain tints	39714	907	40% (30%)	30–40.
23	450	Spikes, ½ inch and more	61120	331	0.4¢ lb	11–17.
24	502	Brick, sandlime, per thousand	53906	201b	$1.25 per M	4–11.
25	455	Tin plate, 14 by 20 inches, base 100 pounds	60601	310	1¢ per lb	9–34.
26	642	Chloroform	838310	18	4¢ per lb	1–2.
27	606	Calcium arsenate	83709	1642	Free	Free.
28	666c	Fertilizer	85593	1685	do	Do.
29	453	Terneplate, 20 by 28 inches, base 300 pounds	60603	310	1¢ per lb	9–34.
30	500	Brick, front, light-colored	53907	201b	5%	5.
31	413	Track bolts	62050	330	1¢ lb	25–35.
32	640	Castor oil	22602	53	3¢ lb	33–68 (40–68).
33	684	Linoleum	39810	1020	35%	35.
34	193	Shoes, youths'	03519	1530e	20%	20.
35	395	Farm tractor, 15/30 horsepower	78700	1604	Free	Free.
36	563	Door frames	42899	412	33.3%	33⅓.
37	564	Window frames	42899	412	33.3%	33⅓.
38	616	Formaldehyde	838610	40	8¢ lb	31–32 (negligible).
39	490	Range boiler, galvanized, sheet steel	62099	397	45%	45.
40	481	Zinc, sheet	65590	394	2¢ lb	27–48.
41	119	Rice, clean	10530	727	2.5¢ lb	85–117.
42	362	Kerosene	50650	1733	Free	Free.
43	442	Wire rods	60360	315	0.3¢ lb. (.25¢ lb.)	20–23.
44	559	Asphalt, bulk	53940	1710	Free	Free.
45	139	Tomatoes, canned, No. 3	12380	772	50%	50.
46	495	Bath tubs	62099	397	45%	45.
47	400	Axes, single bit, 3½–4½ pounds	61569	396	45%	45.
48	460	Fencing, woven wire	61052	317	0.5¢ per lb	20–30.
49	612	Coal-tar products, jet	80508	28a	7¢ lb. and 45%	50–53 (50–51).
50	457c	Wire	67980	316a	25%	25.

TABLE II.—*Bureau of Labor Statistics wholesale price series, grouped according to depression sensitivity, with tariff information on the listed or similar commodities for years 1931–36 inclusive*—Continued

GROUP 4—Continued

No.	Tureau of Labor Statistics No.	Commodity with brief description	Tariff information			
			Code No.	Paragraph	Tariff rate	Equivalent ad valorem range (percent)
51	594	Menthanol, wood alcohol, 95 percent	82316	4	18¢ gal	5–57 (5–30 negligible).
52	643	Cream of tartar, powdered	83230	9	5¢ lb	12–51 (12–50).
53	374	Harrow, 17-tooth	78900	1604	Free	Free.
54	373	Harrow, peg-tooth	78900	1604	do	Do.
55	652	Quinine, sulphate, 100-ounce tins	81020	1748	do	Do.
56	685	Heating appliances, electric irons	70907	339	40%	40.
57	664	Super-phosphate, 16 percent basis	85193	1740	Free	Free.
58	521	Lumber, pine, white	41070	401	$1 M bd. ft. (50¢)	17–18.
59	454	Steel, tie plate	60905	322	0.25¢ lb	9–24.
60	509	Cement, portland, barrel	51810	205b	0.06¢ (0.045¢ lb)	18–30.
61	532	Paint, house	84319	66	25%	25.
		GROUP 5				
1	155	Grape juice, case of 2 dozen pints	17740	806a	70¢ gal	42–116.
2	315	Flannel, wool 6½ ounces, 54 inches	36050	1109a	50¢ lb. and 50%	105–113.
3	667c	Fertilizer	85000	1685	Free	Free.
4	347	Coal	50000	1650	do	Do.
5	179	Sugar, granulated	16196	501	2.5¢ lb. (1.875¢)	47–223.
6	389	Corn sheller, power, two-hole	78915	1604	Free	Free.
7	763	Oil, lubricating	50750	1733	do	Do.
8	705	Pitchers, ½-gallon, glass	52762	218f	60%	60.
9	578	Slate, roofing, 10- by 20-inch	51114	235	25%	25.
10	37	Lemons	13030	743	2.5¢ lb	90–113 (90–108).
11	289	Hosiery, silk, 240-needle	37370	1208	60%	60.
12	414	Butts, wrought steel, plated	62070	397	45%	45.
13	501	Paving blocks, 3½-inch	53906	201b	$1.25 per M	4–12 (4–10).
14	180	Sugar, raw, 96°	16196	501	2.5¢ lb. (1.875¢)	47–223.
15	294	Underwear, 33 percent worsted, 16 pounds to dozen	36371	1114c	50¢ lb. and 50% (30%)	45–65.
16	201c	Shoes	03509	1530e	20%	20.
17	305	Spun silk, 200/2 gray	37053	1202	40%	40.
18	770	Garden hose, ⅝-inch, 2-braid, foot	20672	1537b	25%	25.
19	275	Madras, woven, 4.6 yards, pound (bleached)	305's	904	Various	34–43.
20	782	Tobacco, smoking, gross of 1-ounce bags	26299	603	55¢ lb	29–67.
21	433	Pig iron	60030	301	$1.12½ ton	7–12.
22	420	Hatchet	61569	396	45%	45.
23	615	Creosote oil	80000	1651	Free	Free.
24	194c	Shoes, men's	03509	1530e	20%	20.
25	364	Petroleum, crude, barrels	50510	1733	Free	Free.
26	45	Milk, 3.6 percent butterfat	00380	707	6.5¢ gal	22–43.
27	754	Barrel, red oak, unlined	42067	407	15%	15.
28	303c	Silk, spun	37050	1202	40%	40.
29	605	Calcium lime, acetate	82470	16	1¢ lb	40–44.
30	208	Shoes, women's	03529	1530e	20 %	20.
31	314	Dress goods, cotton warp	36032	1109	50¢ lb. and 55%	77–85 (77–81).
32	695	Window shades, 6 feet by 36 inches, water color	39715	907	30%	30.
33	189	Vinegar, cider	12540	738	8¢ pf. gal	27–39.
34	518	Lumber, hemlock	41050	401	$1 M bd. ft. (50¢)	20–46.
35	120	Apples, canned, 10's	13302	734	2.5¢ lb	13–70.
36	384	Pumps, agriculture, pitcher spout	78919	1604	Free	Free.
37	496	Laundry tubs, cement composition, 48 by 24 inches	54227	214	30%	30.
38	636	Acid, tartaric, crystals	82070	1	8¢ lb	36–57 (36–48).
39	449	Steel skelp, grooved	60390	307	0.5¢ lb. (0.35¢ lb.)	28–53.
40	334	Rope, sisal, ¾ inch diameter	34170	1005a	2¢ (1¢ lb.)	16–24.
41	363	Kerosene	50650	1733	Free	Free.
42	778	Starch, laundry	28159	83	1.5¢ lb	20–49.
43	767	Plate glass mirror, 12 by 24 inches, beveled	52300	223	45%	45.
44	333	Rope, manila, 1 pound, ¾ inch diameter	34175	1005b	40% (20%)	20–40.
45	382	Plows, walking, 1-horse	78600	1604	Free	Free.
46	702c	Dinner sets	53502	212	10¢ doz. and 70%	84–93.
47	749	Wood pulp, unbleached	46000	1716	Free	Free.
48	264	Nainsook, muslin, cotton	3050's	904b	60¢ lb	34–43.
49	220	Harness leather	03030	1530b(3)	12½% (10%)	10–12½.
50	190c	Shoes	03519	1530e	20%	20.
51	341c	Carpet yarn, jute, 14–16	32441	1003	4¢ lb	59.6–63.
52	410	Machine bolts	62050	330	1¢ per lb	25–35.
53	295c	Rayon	38340	1306	45¢ lb. and 60% (45%)	75–102 (75–82).
54	35	Apples	13110	734	25¢ bu. (15¢ bu.)	8.5–28 (14–28).
55	448	Sheets, galvanized, steel	60548	309	2¢ lb. and 20%	22–26.
56	512	Siding, ¾ inch by 8 inches, red cedar	41199	1803(1)	Free	Free.
57	679	Carpets, brussels, 5-frame, wool	36712	1117a	60%	60.
58	765	Oil, neutral	50750	1733	Free	Free.
59	100	Crackers, plain soda	10751	733	30%	30.
60	567c	Glass, window	520's	219	Various per lb	37–50.
61	205c	Shoes, women's	03529	1530e	20%	20.
62	682	Linoleum, rug, felt base, 9 by 12	39810	1020	35%	35.
63	186	Olive oil, edible	14240	53	8¢ lb	59–82 (60–82).
		GROUP 6				
1	771	Rubbers, men's	20311	1537b	25%	25.
2	768	Rubber heels	20984	1537b	25%	25.
3	683	Linoleum, inlaid	39800	1020	42%	42.
4	121	Apricots, canned	13315	735	35%	35.
5	419	Hammer, 1-pound	61575	396	45%	45.
6	689	Oil cloths, table	39714	907	30%	30.
7	350c	Coke	50080	1650	Free	Free.
8	124	Pears, canned	13369	749	35%	35.
9	229	Suitcase	06920	1531	35%	35.
10	422	Door knobs, metal	62099	397	45%	45.
11	750	Soda, bleached, wood pulp	46090	1716	Free	Free.

TABLE II.—*Bureau of Labor Statistics wholesale price series, grouped according to depression sensitivity, with tariff information on the listed or similar commodities for years 1931–36 inclusive*—Continued

GROUP 6—Continued

No.	Bureau of Labor Statistics No.	Commodity with brief description	Tariff information			
			Code No.	Paragraph	Tariff rate	Equivalent ad valorem range (percent
12	499	Fire brick	53905	201a	25% (15%)	15–25.
13	520	Lumber, oak	41199	1803	Free	Free.
14	546	Copal, manila	21099	1686	do	Do.
15	447	Auto body sheets, No. 20	60552	304	30% (20%)	20–30.
16	680	Carpets, Wilton	36714	1117a	60%	60.
17	503	Silica brick	53906	201b	$1.25 per M	4–11.
18	688	Oil cloths, 12-inch	39714	907	30%	30.
19	231	Collars, men's soft	31135	919	37.5%	37½.
20	230	Traveling bags	06920	1531	35%	35.
21	197	Shoes, men's calf	03509	1530e	20%	20.
22	123	Peaches, canned	13365	745	35%	35.
23	618	Coal-tar products, naphthalene, flake, pound	80108	1651	Free	Free.
24	359c	Gasoline	50610	1733	do	Do.
25	247	Topcoats, 18-ounce	36401	1115a	50¢ lb. and 50%	56–58.
26	452	Steel, structural shapes	60810	312	0.2¢ lb.	15–27.
27	202c	Shoes, men's	03509	1530e	20%	20.
28	424	Nails, wire	61121	331	15%	15.
29	38	Oranges, 126–200	13330	743	1¢ lb.	21–38.
30	163	Fish, salmon, canned	00671	718b	25%	25.
31	157	Cocoa beans	15010	1653	Free	Free.
32	743	Book paper, per 100 pounds	47120	1410	0.25¢ lb. and 10%	18–22.
33	407	Steel barrels, weight 43 pounds, 35 gallons	62099	397	45%	35.
34	240	Overcoat, 30-ounce 3-button, yoke lined, heavy	36401	1115a	50¢ lb. and 50%	56–68.
35	122	Cherries, canned 2½'s, 24 to case	13170	737	9.5¢ lb. and 40% (20%)	72–113 (95–113).
36	162	Salmon, pink, No. 1, 48 to case	00671	718b	25%	25.
37	412	Stove bolts	62050	330	1¢ lb.	25–35.
38	438	Steel plates, 1/4-inch	60551	304	0.5¢ lb. (1/10¢)	16–34.
39	446	Steel sheets, cold-rolled, annealed	605462	309	0.95¢ lb. (0.80¢ lb.)	31–50.
40	408	Steel billets	60421	304	0.5¢ lb. (0.4¢ lb.)	20–23.
41	437	Planes, jackplane	61572	396	45%	45.
42	90	Milk, evaporated, 48 16-ounce in case	00400	708a	1.8¢ lb.	17–48.
43	411	Plow bolts, 2 inches by ⅜ inch	62050	330	1¢ lb.	25–35.
44	311	Dress goods, women's wool	36032	1109	50¢ lb. and 55%	77–85 (77–81).
45	647	Menthol	81270	51	50¢ lb.	19–25.
46	401	Bar iron	60213	303	0.8¢ (½¢ lb.)	16–26.
47	514	Cypress, 4 by 4 inches, 1,000 feet	41199	1803(1)	Free	Free.
48	125	Pineapples, canned, 2½'s	13091	747	2¢ lb.	40–72.
49	269	Filling sateen, 36 inches, 4.37 yards to pound	3060900	904c	47½%	47½.
50	160	Coffee	15110	1654	Free	Free.
51	764	Cylinder oil	50750	1733	do	Do.
52	153	Poultry, fresh, 48–54 pounds to dozen	00254	712	10¢ lb. (6¢)	25–43 (31–43).
53	252	Table damask, cotton, 1.92 yards per pound	30823	910	30%	30.
54	159	Coffee	15110	1654	Free	Free.
55	178	Corn starch, 48 1-pound packages	28150	83	1.5¢ per lb.	2–77.
56	708	Tumblers, 8–10 ounces	52762	218f	60%	60.
57	553	Putty, 1–5 pound tins	84026	20	0.75¢ lb. (0.5¢ lb.)	30–73.
58	134	Beans, canned, 18 ounces	12392	765	3¢ lb.	30–65 (46–65).
59	291	Underwear, cotton, 12–12½ pounds	31121	917	45% (30%)	30–45.
60	639	Camphor, 100-pound cases	82580	51	1¢ lb.	3–5.
61	152	Poultry, dressed	00259	712	10¢ lb. (6¢ lb.)	25–43 (31–43).
62	692	Pillow cases, 64 by 64	30860	911b	2 %	25.

GROUP 7

1	405	Steel, sheet bars	60080	304	0.3¢ lb. (0.25¢ lb.)	20–44.
2	280	Toweling, cotton, 4-ounce (bleached)	305's	904	Various	34–43.
3	167	Fish, salmon, smoked	00750	720a	25%	25.
4	164	Fish, cod, canned (salmon)	00675	718b	25%	25.
5	288	Hosiery, rayon, 39-gage	38401	1309	45¢ lb. and 65%	75–117.
6	562	Doors, pine	42899	412	33.3%	33⅓.
7	617	Logwood extract, solid	23315	38	15%	15.
8	678	Carpets, Axminster, ¾ yard wool	36711	1117a	60%	60.
9	30	Eggs	00880	713	10¢ doz.	54–74.
10	309	Dress goods, women's 9½-ounce, wool	36051	1109a	50¢ lb. and 55%	86–87.
11	22c	Poultry, live	00150	711	8¢ lb. (4¢ lb.)	16–29.
12	338	Twine, binder, sisal, 50-pound bale	34171	1005a	2¢ and 15% (1¢ lb. and 7½%)	37.6–40.
13	429	Pig iron, ferromanganese, 80%	60031	301	$1.125 ton	3–4.
14	526	California redwood, 4 by 4, dressed or rough	41199	1803	Free	Free.
15	292	Underwear, cotton, 12-pound	31123	917	45%	45.
16	633	Oil, palm, crude	14260	54	1¢ lb.	22–33.
17	675	Comforters, sateen cover, woolfilling	36104	1111	33¢ and 37½%	65–67.
18	701	Tablecloths, 64 by 64	30823	910	30%	30.
19	510	Lumber, fir	41040	401	$1 M bd. ft. (50¢)	17–35.
20	250	Men's work pants, 2.65 yards to pound	31123	917	45%	45.
21	135	Corn, canned	12499	775	35%	35.
22	513	Lumber, chestnut, 4 by 4, common	41199	1803	Free	Free.
23	491	Water closets, metal, enameled	61415	339	5¢ lb. and 30%	36–59.
24	641	Chlorine	830's			(Negligible imports.)
25	40c	Hay	11010	779	$5 ton ($3)	41–72 (50–72).
26	582	Tar, pine	21193	97	1¢ lb.	8–18 (10–18).
27	461	Wood screws, No. 10, 1-inch iron	62082	338	25%	25.
28	504	Drain tile, clay, 1,000 feet	53832	202a	70%	70.
29	175	Pepper, black	15512	781	5¢ lb.	11–25 (11–19).
30	44	Milk, 3.7 percent	00380	707	6.5¢ gal.	22–43.
31	242	Shirts, 3.85 yards to pound	31131	919	45%	45.
32	93	Bread, before baking	10790	1623	Free	Free.
33	260	Gingham, 6.37 yards per pound (bleached)	305's	904	Various	34–43.
34	356	Fuel oil, 36–40	50550	1733	Free	Free.
35	404	Steel, merchant bars	60081	304	0.5¢ lb. (0.4¢ lb.)	19–26.
36	498	Brick, common building	53906	201b	$1.25 M	4–11 (4–10).
37	327	Burlap	32470	1008	1¢ lb.	14–15.
38	27c	Eggs	00880	713	10¢ doz.	54–74.

TABLE II.—*Bureau of Labor Statistics wholesale price series, grouped according to depression sensitivity, with tariff information on the listed or similar commodities for years 1931–36 inclusive*—Continued

GROUP 7—Continued

No.	Bureau of Labor Statistics No.	Commodity with brief description	Tariff information			
			Code No.	Paragraph	Tariff rate	Equivalent ad valorem range (percent)
39	525	Lumber, poplar	41199	1803	Free	Free.
40	547	Pigments, red lead, dry	84217	72	2.75¢ lb	31–71.
41	745	Tissue paper, white	47289	1404	6¢ lb. and 20%	31–39.
42	306c	Silk yarn, thrown	37092	1203	20%	20.
43	365	Petroleum, crude	50510	1733	Free	Free.
44	138	Beans, canned, string, 2's	12392	765	3¢ lb	46–65.
45	249	Pants, men's serge, 12½-ounce	36401	1115a	50¢ lb. and 50%	56–58.
46	427c	Pig iron	60030	301	$1.125 ton	7–12.
47	774	Soap, 100 11-ounce cakes	87199	80	15%	15.
48	738	Linseed meal	11150	730	3¢ lb	22–39 (28–39).
49	358	Gasoline, 54–58	50610	1733	Free	Free.
50	742	Box board ton, 85 lb	41199	1803(1)	do	Do.
51	310	Flannel, wool	36032	1109	50¢ lb. and 55%	77–85 (77–81).
52	243	Boy's suits, all wool, 12–14-ounce	36401	1115a	50¢ lb. and 50%	56–58.
53	290	Hosiery, silk, 7-thread	37370	1208	60%	60.
54	143	Lamb, fresh	00220	702	7¢ lb	39–117.
55	144	Mutton, dressed	00210	702	5¢ lb	35–102.
56	313	Dress goods, women's wool	36032	1109	50¢ lb. and 55%	77–85 (77–81).
57	266	Percale, gray, yard 38½-inches wide	305's	904b	Various	34–43.
58	219	Leather, kid, glazed	03335	1530c	25%	25.
59	406	Steel bars, cold-rolled, finished	60081	315	0.525¢ lb	20–21 (neg.).
60	261c	Muslin, bleached	305's	904b	Various	34–43.
61	480	Copper sheet, hot-rolled	64300	381	2.5¢ lb. and 4¢ lb	7–20.

GROUP 8

1	506	Tile, hollow, building	53832	202a	70%	70.
2	403	Reinforcing bars, ¾-inch rolled	60051	304	3¢ lb. (0.25¢)	20–45.
3	244	Men's suits, 13-ounce serge	36401	1115a	50¢ lb. and 50%	56–58.
4	366	Petroleum, crude	50510	1733	Free	Free.
5	766	Neutral oil	50750	1733	do	Do.
6	591	Acid, stearic, distilled	08200	1	25%	25.
7	657	Bones, ground, 60 percent bone phosphate	85110	1627	Free	Free.
8	258	Cotton flannel, bleached, 4.5 yards per pound	305's	904	Various	34–43.
9	493	Radiator	62099	397	45%	45.
10	741	Boxboards, Manila lined chip	46929	1750	Free	Free.
11	94	Bread, before baking	10790	1623	do	Do.
12	50	Seed, timothy	24130	763	2¢ lb. (1¢)	10–31.
13	485	Yellow brass tube, seamless	64583	381	8¢ lb. and 4¢ lb	32–67.
14	287	Hosiery, cotton, 220-needle, 5-ounce	31101	916a	50%	50.
15	549	Litharge, powered	84215	72	2.5¢ lb	(Negligible 1931–35.)
16	440	Rivets, large ½-inch and more	62054	332	1¢ lb	8–35.
17	270c	Sheeting, bleached, 10/4	305	904	Various	34–43.
18	527	Lumber, spruce	41060	401	$1 M bd. ft. (50¢)	17–26.
19	674	Blankets, 4–5 pounds	36104	1111	33¢ and 37½%	65–67.
20	696	Sheets	30860	911b	25%	25.
21	332	Cotton rope, awning	32370	923	Free	Free.
22	182	Tea, Formosa	15210	1783	do	Do.
23	168	Glucose, corn sirup, 42°	16542	503	2¢ lb	17–35.
24	475	Lead, pipe	65090	392	2.375¢ lb	34–54.
25	276	Percale, print, 4.75 yards to pound	305	904	Various	34–43.
26	318c	Suitings, serge	36030	1109	50¢ lb. and 50%	85–86.
27	451	Steel strips, cold-rolled	60969	313	2¢ lb. and 25%	26–29.
28	299c	Raw silk	37020	1763	Free	Free.
29	86c	Cheese	00469	710	7¢ lb	44–52 (47–52).
30	222c	Leather	03000	1530b(1)	12½%	12½.
31	141c	Meat, beef	00180	701	6¢ lb	49–87 (49–73).
32	672	Blankets, cotton, 2 pounds	30843	911a	30%	30.
33	221	Leather, tanned	03041	1530b(4)	15%	15.
34	316	Overcoating, per yard, 28-ounce	36051	1109	50¢ lb. and 55%	86–94 (86–87).
35	129	Peaches, dried	13362	745	2¢ lb	Negligible.
36	656	Ammonia, sulphate	838110	6	75¢ lb	3–11.
37	580	Window sash, white pine	42899	412	33.3%	33⅓.
38	259	Cotton flannel, unbleached	304's	904b	Various	36.8–50.3.
39	127	Apricots, dried	13312	735	2¢ lb	17–23.
40	478	Copper rods, round, 1¼–3-inch	64300	381	2½¢ lb. and 4¢ lb	7–20.
41	476	Quicksilver, flask, 1/75	66620	386	25¢ lb	21–69.
42	278	Tire fabrics	32326	904e	25%	25.
43	322	Suitings, 12-ounce serge	36030	1109	50¢ lb. and 50%	85–86.
44	245	Suits, serge, 15-ounce	36401	1115a	50¢ lb. and 50%	56–58.
45	118	Rice, clean	10530	727	2½¢ lb	85–117.
46	130	Prunes, dried	13352	748	2¢ lb	13–22.
47	673	Blankets, cotton, part wool, 3½-pound	30843	911a		30.
48	172	Oleomargarine, uncolored	00365	709	14¢ lb	74–139.
49	524	Lumber, ponderosa pine	41070	401	$1 M bd. ft. (50¢)	17–18.
50	747	Wood pulp, unbleached	46000	1716	Free	Free.
51	539	Carbon black	84201	71	20%	20.
52	486	Brass wire, round	64586	316a	25%	25.
53	253	Denims, cotton, 2.2 yards to pound	305	904	Various	34–43.
54	256	Duck, 8-ounce, base price 0.25¢	305	904	do	34–43.
55	91	Milk, powdered skim	00411	708b	3¢ lb	33–77 (33–67).
56	126	Apples, evaporated	13301	734	2¢ lb	7–37.
57	740	Boxboard, chip	46929	1750	Free	Free.
58	482	Silver bar		1638	do	Do.
59	477	Yellow brass rods, ⅝ to 2¾-inch, rod	64580	381	4¢ lb	11–66.
60	39	Hay, alfalfa	11010	779	$5 ton	40–72 (50–72).
61	784	Paraffin wax	50760	1733	Free	Free.
62	479	Brass, 2 to 8-inch sheets	64580	381	4¢ lb	11–66.

TABLE II.—*Bureau of Labor Statistics wholesale price series, grouped according to depression sensitivity, with tariff information on the listed or similar commodities for years 1931–36 inclusive*—Continued

GROUP 9

No.	Bureau of Labor Statistics No.	Commodity with brief description	Tariff information			
			Code No.	Paragraph	Tariff rate	Equivalent ad valorem range (percent)
1	709	Tubs, galvanized iron	62099	397	45%	45.
2	103c	Flour, wheat	10720	729	$1.04 100 lbs.	30–196.
3	102	Flour, rye	10926	728	45¢ 100 lbs.	8–35 (10–35).
4	691	Pails, galvanized iron, 10-quart	62099	397	45%	45.
5	317	Overcoating, wool, 18-ounce	36051	1109	50¢ lb. and 55%	86–94 (86–87).
6	340	Twine, java sisal	34175	1005b	40% (20%)	20–40.
7	286	Hosiery, cotton, 164-needle	31101	916a	50%	50.
8	324	Yarns, worsted, white	35701	1107	40¢ lb. and 45%	77–82.
9	329	Jute, raw	32410	1684	Free	Free.
10	555	Shellac	21072	1707	do	Do.
11	325c	Woolen yarn	35754	1107	40¢ lb. and 45%	75–80.
12	114	Macaroni and spaghetti (tins)	10771	725	3¢ lb.	18–22.
13	431	Pig iron, No. 2	60030	301	$1.125 ton	7–12.
14	277	Ticking, 2.05 yards to pound	304's	904b	Various	36.8–50.3.
15	279	Tire fabrics, carded, 10–5	32326	904e	25%	25.
16	621	Quebracho extract, solid, 63 percent	23440	38	15%	15.
17	257	Duck No. 8, 36-inch, base price 64 cents	305	904	Various	34–43.
18	637	Alcohol, ethyl, grain, 188 proof	82313	4	15¢ gal.	3–12.
19	552	Linseed oil, raw	22540	53	4.5¢ lb.	77–124.
20	140	Beef, cured, 200-pound barrel	00290	706	6¢ lb.	29–76 (29–70).
21	151	Veal, fresh	00190	701	do	61–160.
22	98	Oatmeal	10922	726	80¢ 100 lbs.	9–17.
23	174	Peanut butter, 50-pound tins	13809	759	7¢ lb.	21–50 (negligible).
24	166	Fish, mackerel, canned	00722	719(4)	25%	25.
25	215	Goatskins	02410	1765	Free	Free.
26	148	Pork, hams	00300	703	3.25¢ lb.	11–16.
27	471	Babbit metal, per pound	65061	392	2.125¢ lb.	2–7.
28	281c	Cotton yarn	302's	901	Various	28–33.
29	505	Floor tiles, ceramic unglazed	53811	202a	50%	50.
30	272c	Sheeting	304's	904b	Various	36.8–50.3.
31	255	Drillings, cotton, 2.85 yards to pound	305	904	do	34–43.
32	588	Oil red, oleic acid	08216	1	20%	20.
33	12	Calves	00100	701	2.5¢ lb. (1.5¢)	16–89 (46–89).
34	68c	Butter	00440	709	14¢ lb.	53–89.
35	357	Gasoline	50610	1733	Free	Free.
36	312	Suiting, 12-ounce, 56-inch	36051	1109a	50¢ lb. and 55%	86–87.
37	614	Copper sulphate, blue vitriol 99 percent	82630	1659	Free	Free.
38	54	Potatoes, sweet	12119	774	50%	50.
39	634	Palm oil	22430	1732	Free	Free.
40	339	Cotton twine	32370	923	40%	40.
41	268	Print cloths	305	904	Various	34–43.
42	517	Lumber, gum, plain sap, 4 by 4	41199	1803	Free	Free.
43	773	Soap flakes, laundry	87199	80	15%	15.
44	36	Apples	13110	734	25¢ bu. of 50 lbs. (15¢)	85–28 (14–28).
45	55c	Potatoes, white	12041	771	75¢ 100 lbs.	43–89 (53–89).
46	284c	Cotton yarn	302's	901b	Various	28–33.
47	49	Flaxseed, bushel of 56 pounds	22330	762	65¢ bu.	56–99 (61–99).
48	239	Overalls, cotton	31135	919	37.5%	37.5.
49	183	Coconut oil, crude	22425	54	2¢ lb.	14–35.
50	15c	Steers	00105	701	3¢ lb. (2¢ lb.)	40–67.
51	529	Cypress, shingles	41922	1760	Free	Free.
52	267	Print cloths 7.6 yards to pound, 27-inch	305	904	Various	34–43.
53	20	Lambs	00120	702	$3 each	25–55.
54	149	Mess pork, 200-pound barrel	00310	703	3.25¢	8–12 (8–11).
55	24c	Cotton, middling	30021	783	7¢ lb.	39–76 (44–75).
56	528	Lumber, cedar shingles	41921	1760	Free	Free.
57	776	Powdered soap, laundry	87199	80	15%	15.
58	519	Lumber, maple, hard	41194	402	8% (4%)	4–8.
59	58	Potatoes, white	12041	771	0.75¢ lb.	43–89 (53–89).
60	473	Lead, pig, desilverized	65050	392	2.125¢ lb.	69–168.
61	42	Hops	28100	780	24¢ lb.	39–176.
62	265	Osnaburg, 30-inch, 7-ounce	305	904	Various	34–43.

GROUP 10

1	161	Copra, dried	22320	1727	Free	Free.
2	13c	Cows	00101	701	3¢ lb. (2¢)	40–67.
3	248	Pants, boys', wool	36400	1115a	33¢ and 45%	58–61.
4	184	Vegetable oil, corn, crude	14220	53	20%	20.
5	434	Pipe, cast-iron 6-inch	60910	327	25% (15%)	15–25.
6	748	Wood pulp, unbleached	46000	1716	Free	Free.
7	4	Oats, bushel of 32 pounds	10410	726	16¢ bu.	42–100.
8	47	Seed, alfalfa	24010	763	8¢ (4¢ lb.)	30–108 (40).
9	349	Coke	50080	1650	Free	Free.
10	355	Fuel oil, 24–26 gravity	50550	1733	do	Do.
11	511	Lumber, pine, lath, ¾-inch	41070	401	$1 M bd. ft. (50¢)	17–18.
12	488	Zinc, pig	65582	394	$1.75 lb.	52–65.
13	145	Bacon	00300	703	3.25¢ lb.	11–16.
14	59c	Wool	35060	1101a	0.24¢ lb.	112–139.
15	516	Lumber, fir	41040	401	$1 M bd. ft. (50¢)	17–35.
16	487	Copper wire, No. 8	64308	316a	25%	25.
17	737	Cottonseed meal	11140	730	3¢ lb.	27–57.
18	6c	Wheat, bushel of 60 pounds	10665	729	42¢ bu.	43–84.
19	19c	Sheep	00120	702	$3 each	25–55.
20	173	Oleo oil	00362	701	1¢ lb.	6–16.
21	1	Barley, malting, bushel of 48 pounds	10200	722	20¢ bu.	23–60.
22	472	Copper, ingot, electrolytic	64170	1658	Free	Free.
23	188	Vegetable oil, soybean, crude	22550	54	3.5¢ lb.	70–127 (79–127).
24	515	Lumber, fir	41040	401	$1 M bd. ft. (50¢)	17–35.
25	216	Kips	02050	153a	10%	10.
26	645	Glycerin	82910	42	2¢ lb. (1.66¢ lb.)	6–33 (17–33).
27	483	Solder	65061	392	2.125¢ lb.	2–7.

TABLE II.[1]—*Bureau of Labor Statistics wholesale price series, grouped according to depression sensitivity, with tariff information on the lis or similar commodities for years 1931–36 inclusive*—Continued

GROUP 10—Continued

No.	Bureau of Labor Statistics No.	Commodity with brief description	Tariff information			
			Code No.	Paragraph	Tariff rate	Equivalent ad valorem range (percent)
28	52	Beans, dried	11920	765	3¢ lb	98–133.
29	170	Lard	00360	703	3¢ lb	12–27 (12–26).
30	150	Pork, hams	00300	703	3.25¢ lb	11–16.
31	335	Sisal	34010	1684	Free	Free.
32	187	Peanut oil, crude	14270	54	4¢ lb	65–96.
33	185	Cottonseed oil	14231	54	3¢ lb	63–66.
34	522	Lumber, pine	41070	401	$1 M bd. ft. (50¢)	17–18.
35	181	Tallow, edible	08155	701	5¢ lb	8–16 (11–16).
36	116	Corn meal, granulated	10919	724	5¢ lb	4–42.
37	5	Rye, bushel of 56 pounds	10440	728	15¢ bu	10–32.
38	65c	Wool	35060	1101a	24¢ lb	112–139.
39	211	Cow hides	02010	1530a	10%	10.
40	631	Tallow	08155	701	0.5¢ lb	8–16 (11–16).
41	46	Peanuts	13680	759	4.25¢ lb	144–209.
42	328	Hemp, manila	39012	1504a	15%	15.
43	484	Tin, pig	65510	1786	Free	Free.
44	736	Millfeed, bran	11902	730	10%	10.
45	551	China wood oil	22606	53	20%	20.
46	554	Rosin, yard basis	21891	90	5%	5.
47	17c	Hogs	00130	703	2¢ lb	16–28.
48	665	Tankage, ton	09750	1780	Free	Free.
49	739	Millfeed	11902	730	10%	10.
50	212c	Hides, steers	02010	1530a	10%	10.
51	445	Steel, scrap, old material	60040	301	75¢ ton	5–12.
52	214	Calfskins, 8–15 pounds	02070	1530a	10%	10.
53	51	Tobacco, leaf	26050	601	35¢ lb	66–115.
54	146	Pork, cured	00310	703	3.25¢ lb	11–16.
55	2c	Corn	10310	724	25¢ bu	47–57.
56	48	Seed, clover	24010	763	8¢ lb	40–108.
57	762	Asbestos pipe covering	55280	1501d	25%	25.
58	470	Antimony	66511	376	2¢ lb	18–56.
59	147	Pork, cured	00310	703	3.25¢ lb	8–12 (8–11).
60	217	Sheep pelts	02320	1765	Free	Free.
61	115	Corn meal	10919	725	.50¢ lb	4–42.
62	113	Hominy grits	10919	724	.50¢ lb	4–42.
63	751c	Rubber, crude	20110	1697	Free	Free.

APPENDIX 6.—CHANGES IN HOURLY EARNINGS, WEEKLY HOURS, AND EMPLOYMENT 1929, 1932-36[1]

The Character of the Data

Until recent years the data on hourly earnings for industrial workers and weekly hours worked have been unsatisfactory both from the point of view of the number of industries covered and the frequency with which they were covered. The Bureau of Labor Statistics made various spot studies in certain industries but no attempt was made to establish a continuous series. In 1932 the Bureau began to make good the deficiencies by collecting monthly figures on earnings and hours for a considerable range of manufacturing industries and some nonmanufacturing industries. The early results of this new venture were, of course, less satisfactory than the later.

In this study both the earlier and later figures collected by the Bureau of Labor Statistics, up to 1936, were compared with estimates for 1929 in order to show the changes which had occurred over the period. The 1929 estimates were based on the employment and pay-roll data which the United States Bureau of Labor Statistics had been collecting for one week in each month for some years before 1929. By dividing the pay-roll figures by the employment figures weekly earnings were obtained. Data on weekly hours worked, however, were not available in the Bureau's records. These were obtained by multiplying the prevailing hours worked as reported by the Census for 1929 with the percent of full time worked as reported by the Bureau. Having the weekly earnings and the weekly hours, the hourly earnings were derived by simple division.

Wage and Employment Results, 1929, 1932-36

Table I presents hourly earnings, weekly hours worked, weekly earnings, workers employed, and man-hours worked for 44 manufacturing industries in 1929, and annually from 1932 to 1936. The 44 industries include 15 industries, as defined by the Census, which employed, in 1935, over 100,000 persons each, 30 which employed from 25,000 to 100,000 each, and 9 under 25,000. All combined these industries employed 4,359,000 wage earners or 60 percent of all wage earners employed in manufacturing.[2] The large and medium-sized industries included in the table employed more than two-thirds of the wage earners employed by the large and medium-sized industries listed in appendix 7. The small industries included in the table covered less than 10 percent of the wage earners employed by industries employing less than 25,000 persons.

The hourly earnings in 1929 in each of the 44 industries were derived, as just indicated, by dividing weekly earnings as computed from the employment and payroll figures of the Bureau of Labor Statistics by the weekly hours as computed from the Census and Bureau figures. Another possible method calculating hourly earnings was to divide the Census wages by annual man-hours as derived by multiplying the weekly hours (obtained as described above) first by 52 and then by the average number employed. The results obtained by the first method are compared with the results obtained by this second method in table I–A. In 38 of the 44 industries, the hourly earnings as calculated by the second method are within 10 percent of the figures obtained by the first; in the remaining six industries they are subject to serious question. However, no conclusions from the results on all these industries have been drawn in this report which assume a greater reliability of these figures than that indicated above.

In table II, the industries are combined, first on the basis of durable goods industries, and semi- and nondurable goods industries, and then, on the basis of concentration. Industries in which the four largest enterprises employed at least 30 percent of all workers are considered concentrated; the others, not concentrated. The hourly earnings for all industries in each class are unweighted averages. Weighted averages can be derived from table I on the basis of the number employed in each industry. There is no significant difference, however, between the two types of averages.

[1] Appendix 6 was prepared by Edward B. Mittelman, assisted by Nancy Hart and Paul A. Fischer.

[2] Some of the industries for which wage data are presented combine two or more industries separately reported in the *Census of Manufactures* for 1935, and some exclude industries separately reported, at one time or another, between 1929 and 1935. The 44 industries given in table I are equivalent to more than 44 on the basis of the Census classification. Thus the number of wage earners in any one of the 44 industries in table I might not coincide with the number in the Census industry having the same name.

TABLE I.—*Hourly earnings, weekly hours, weekly earnings, workers employed, man-hours worked in certain selected industries, 1929, 1932–36*

Industry—Classifications	1929		1932		1933		1934		1935		1936	
	Estimated figure	Index	Estimated figure	Index	Estimated figure	Index	Estimated figure	Index	Estimated figure	Index	Estimated figure	Index
Iron and steel and their products, not including machinery:												
Blast furnaces, steel works, and rolling mills:												
Hourly earnings (cents)	65.5	100.0	52.7	80.5	53.1	81.1	63.2	96.5	66.4	101.4	67.1	102.4
Weekly hours	49.1	100.0	26.1	53.2	32.5	66.2	30.5	62.1	34.9	71.1	40.9	83.3
Weekly earnings (dollars)	32.16	100.0	13.75	42.8	17.26	53.7	19.28	60.0	23.17	72.0	27.44	85.3
Workers employed	419,534	100.0	234,939	56.0	288,945	68.9	346,955	82.7	374,808	89.3	436,315	104.0
Man-hours worked	20,599,119	100.0	6,131,908	29.8	9,390,712	45.6	10,582,128	51.4	13,080,799	63.5	17,845,284	86.6
Cast-iron pipe:												
Hourly earnings (cents)	54.2	100.0	44.4	81.9	45.3	83.6	48.9	90.2	49.0	90.4	49.3	91.0
Weekly hours	43.1	100.0	32.5	75.4	29.7	68.9	29.7	68.9	31.0	71.9	38.2	88.6
Weekly earnings (dollars)	23.36	100.0	14.43	61.8	13.45	57.6	14.52	62.2	15.19	65.0	18.83	80.6
Workers employed	19,741	100.0	10,404	52.7	9,454	47.9	13,029	66.0	13,543	68.6	16,879	85.5
Man-hours worked	850,837	100.0	338,130	39.7	280,784	33.0	386,961	45.5	419,833	49.3	644,778	75.8
Hardware:												
Hourly earnings (cents)	52.9	100.0	50.6	95.7	46.5	87.9	53.8	101.7	54.9	103.8	55.8	105.5
Weekly hours	49.0	100.0	31.4	64.1	35.2	71.8	33.1	67.6	37.1	75.7	40.3	82.2
Weekly earnings (dollars)	25.92	100.0	15.89	61.3	16.37	63.2	17.81	68.7	20.37	78.6	22.49	86.8
Workers employed	52,306	100.0	30,285	57.9	32,550	62.2	41,269	78.9	41,473	79.3	45,454	86.9
Man-hours worked	2,562,994	100.0	950,949	37.1	1,145,760	44.7	1,366,004	53.3	1,538,648	60.0	1,831,796	71.5
Steam and hot-water heating apparatus and steam fittings:												
Hourly earnings (cents)	62.8	100.0	54.3	86.5	51.6	82.2	58.9	93.8	59.1	94.1	59.1	94.1
Weekly hours	46.5	100.0	30.7	66.0	33.5	72.0	34.5	74.2	37.3	80.2	41.4	89.0
Weekly earnings (dollars)	29.20	100.0	16.67	57.1	17.29	59.2	20.32	69.6	22.04	75.5	24.47	83.8
Workers employed	39,621	100.0	20,484	51.7	22,301	56.3	22,980	58.0	27,081	68.4	34,906	88.1
Man-hours worked	1,842,376	100.0	628,859	34.1	747,084	40.6	792,810	43.0	1,010,121	54.8	1,445,108	78.4
Stoves:												
Hourly earnings (cents)	62.1	100.0	49.8	80.2	48.2	77.6	53.8	86.6	56.4	90.8	58.2	93.7
Weekly hours	45.3	100.0	32.9	72.6	35.7	78.8	35.1	77.5	38.0	83.9	41.7	92.1
Weekly earnings (dollars)	28.13	100.0	16.38	58.2	17.21	61.2	18.88	67.1	21.43	76.2	24.27	86.3
Workers employed	46,616	100.0	25,825	55.4	30,193	64.8	37,712	80.9	41,739	89.5	45,078	96.7
Man-hours worked	2,111,705	100.0	849,642	40.2	1,077,890	51.0	1,323,691	62.7	1,586,082	75.1	1,879,753	89.0
Structural and ornamental work:												
Hourly earnings (cents)	59.2	100.0	54.3	91.7	48.0	81.1	57.9	97.8	58.6	99.0	58.4	98.6
Weekly hours	51.0	100.0	32.2	63.1	32.8	64.3	33.3	65.3	35.2	69.0	41.7	81.8
Weekly earnings (dollars)	30.19	100.0	17.48	57.9	15.74	52.1	19.28	63.9	20.63	68.3	24.35	80.7
Workers employed	54,947	100.0	24,561	44.7	21,377	38.9	26,924	49.0	27,243	49.6	34,562	62.9
Man-hours worked	2,802,297	100.0	790,864	28.2	701,166	25.0	896,569	32.0	958,954	34.2	1,441,235	51.4
Machinery, not including transportation equipment:												
Agricultural implements: [1]												
Hourly earnings (cents)	59.2	100.0	48.4	81.8	46.7	78.9	54.1	91.4	59.2	100.0	61.0	103.0
Weekly hours	50.2	100.0	31.8	63.3	33.7	67.1	36.5	72.7	39.5	78.7	39.7	79.1
Weekly earnings (dollars)	29.72	100.0	15.39	51.8	15.74	53.0	19.75	66.5	23.38	78.7	24.22	81.5

See footnotes at end of table.

TABLE I.—*Hourly earnings, weekly hours, weekly earnings, workers employed, man-hours worked in certain selected industries, 1929, 1932–36*—Continued

Industry—Classifications	1929		1932		1933		1934		1935		1936	
	Estimated figure	Index	Estimated figure	Index	Estimated figure	Index	Estimated figure	Index	Estimated figure	Index	Estimated figure	Index
Machinery, not including transportation equipment—Continued.												
Agricultural implements—Continued.												
Workers employed	41,663	100.0	10,374	24.9	11,140	26.7	18,790	45.1	26,450	63.5	28,914	69.4
Man-hours worked	2,091,483	100.0	329,893	15.8	375,418	17.9	685,835	32.8	1,044,775	50.0	1,147,886	54.9
Electrical machinery, apparatus, and supplies:												
Hourly earnings (cents)	63.7	100.0	59.3	93.1	57.1	89.6	61.1	95.9	62.3	97.8	62.4	98.0
Weekly hours	47.8	100.0	30.9	64.6	33.1	69.2	33.3	69.7	36.8	77.0	39.9	83.5
Weekly earnings (dollars)	30.45	100.0	18.32	60.2	18.90	62.1	20.35	66.8	22.93	75.3	24.90	81.8
Workers employed	277,942	100.0	132,300	47.6	130,857	47.1	158,427	57.0	179,641	64.6	199,840	71.9
Man-hours worked	13,285,628	100.0	4,088,070	30.8	4,331,367	32.6	5,275,619	39.7	6,610,789	49.8	7,973,616	60.0
Foundry and machine-shop products: [1]												
Hourly earnings (cents)	63.5	100.0	55.1	86.8	53.2	83.8	58.7	92.4	59.9	94.3	60.1	94.6
Weekly hours	48.6	100.0	30.0	61.7	32.7	67.3	34.7	71.4	37.8	77.8	42.4	87.2
Weekly earnings (dollars)	30.86	100.0	16.53	53.6	17.40	56.4	20.37	66.0	22.64	73.4	25.48	82.6
Workers employed	454,441	100.0	208,588	45.9	219,517	48.3	291,297	64.1	316,167	69.6	381,730	84.0
Man-hours worked	22,085,833	100.0	6,257,640	28.3	7,178,206	32.5	10,108,006	45.8	11,951,113	54.1	16,185,352	73.3
Machine tools:												
Hourly earnings (cents)	64.1	100.0	60.4	94.2	56.8	88.6	60.4	94.2	62.4	97.3	63.6	99.2
Weekly hours	51.3	100.0	31.0	60.4	33.9	66.1	37.2	72.5	41.5	80.9	44.6	86.9
Weekly earnings (dollars)	32.88	100.0	18.72	56.9	19.26	58.6	22.47	68.3	25.90	78.8	28.37	86.3
Workers employed	47,391	100.0	11,943	25.2	12,714	26.8	21,421	45.2	28,165	59.4	36,633	77.3
Man-hours worked	2,431,158	100.0	370,233	15.2	431,005	17.7	796,861	32.8	1,168,848	48.1	1,633,832	67.2
Radios and phonographs:												
Hourly earnings (cents)	[2] 48.2	100.0	46.8	97.1	44.7	92.7	54.0	112.0	54.2	112.4	54.0	112.0
Weekly hours	[3] 48.4	100.0	36.5	75.4	36.7	75.8	33.7	69.6	35.9	74.2	37.3	77.1
Weekly earnings (dollars)	23.33	100.0	17.08	73.2	16.40	70.3	18.20	78.0	19.46	83.4	20.14	86.3
Workers employed	65,196	100.0	25,622	39.3	32,879	50.4	50,266	77.1	44,792	68.7	49,549	76.0
Man-hours worked	3,155,486	100.0	935,203	29.6	1,206,659	38.2	1,693,964	53.7	1,608,033	51.0	1,848,178	58.6
Transportation equipment:												
Automobiles:												
Hourly earnings (cents)	69.1	100.0	[4] 62.8	90.9	59.3	85.8	69.0	99.9	73.5	106.4	77.0	111.4
Weekly hours	47.6	100.0	[4] 31.9	67.0	35.2	73.9	33.6	70.6	37.3	78.4	38.5	80.9
Weekly earnings (dollars)	32.89	100.0	20.03	60.9	20.87	63.5	23.18	70.5	27.42	83.4	29.64	90.1
Workers employed	447,448	100.0	243,412	54.4	243,614	54.4	356,169	79.6	387,801	86.7	371,829	83.1
Man-hours worked	21,298,525	100.0	7,764,843	36.5	8,575,213	40.3	11,967,278	56.2	14,464,977	67.9	14,315,416	67.2
Shipbuilding:												
Hourly earnings (cents)	64.6	100.0	63.5	98.3	60.8	94.1	72.8	112.7	75.1	116.3	76.2	118.0
Weekly hours	46.5	100.0	34.4	74.0	31.0	66.7	31.0	66.7	32.7	70.3	35.7	76.8
Weekly earnings (dollars)	30.04	100.0	21.84	72.7	18.85	62.7	22.57	75.1	24.56	81.8	27.20	90.5
Workers employed	55,089	100.0	36,249	65.8	30,885	56.1	40,546	73.6	44,830	81.4	58,449	106.1
Man-hours worked	2,561,638	100.0	1,246,966	48.7	957,435	37.4	1,256,926	49.1	1,465,941	57.2	2,086,629	81.5
Nonferrous metals and their products:												
Brass, bronze, and copper products:												
Hourly earnings (cents)	56.9	100.0	50.7	89.1	49.5	87.0	56.1	98.6	57.9	101.8	59.5	104.6
Weekly hours	50.1	100.0	32.6	65.1	36.0	71.9	35.8	71.5	39.3	78.4	41.6	83.0
Weekly earnings (dollars)	28.51	100.0	16.53	58.0	17.82	62.5	20.08	70.4	22.75	79.8	24.75	86.8
Workers employed	79,183	100.0	40,700	51.4	47,784	60.3	56,457	71.3	62,935	79.5	71,581	90.4
Man-hours worked	3,967,068	100.0	1,326,820	33.4	1,720,224	43.4	2,021,161	50.9	2,473,346	62.3	2,977,770	75.1
Silverware and plated ware:												
Hourly earnings (cents)	[5] 61.5	100.0	51.1	83.1	47.8	77.7	54.4	88.5	58.0	94.3	58.4	95.0
Weekly hours	[5] 47.3	100.0	36.7	77.6	37.1	78.4	36.8	77.8	37.3	78.9	39.0	82.5
Weekly earnings (dollars)	29.09	100.0	18.75	64.5	17.73	60.9	20.02	68.8	21.63	74.4	22.78	78.3
Workers employed	15,735	100.0	9,126	58.0	9,177	58.3	10,716	68.1	10,194	64.8	9,079	57.7
Man-hours worked	744,266	100.0	334,924	45.0	340,467	45.7	394,349	53.0	380,236	51.1	354,081	47.6
Stamped and enameled ware:												
Hourly earnings (cents)	48.3	100.0	41.8	86.5	42.0	87.0	49.9	103.3	50.8	105.2	51.8	107.2
Weekly hours	49.4	100.0	38.5	77.9	37.5	75.9	35.6	72.1	38.0	76.9	41.0	83.0
Weekly earnings (dollars)	23.86	100.0	16.09	67.4	15.75	66.0	17.76	74.4	19.30	80.9	21.24	89.0
Workers employed	40,000	100.0	26,400	66.0	32,302	80.8	42,360	105.9	50,014	125.0	57,120	142.8
Man-hours	1,976,000	100.0	1,016,400	51.4	1,211,325	61.3	1,508,016	76.3	1,900,532	96.2	2,341,920	118.5
Lumber and allied products:												
Lumber: Millwork:												
Hourly earnings (cents)	49.3	100.0	41.1	83.4	39.7	80.5	45.5	92.3	44.9	91.1	46.8	94.9
Weekly hours	47.7	100.0	34.6	72.5	36.1	75.7	34.7	72.7	38.8	81.3	43.3	90.8
Weekly earnings (dollars)	23.51	100.0	14.22	60.5	14.33	60.9	15.78	67.1	17.42	74.1	20.26	86.1
Workers employed	90,134	100.0	37,315	41.4	35,383	39.3	39,298	43.6	48,297	53.6	59,128	65.6
Man-hours	4,299,392	100.0	1,291,099	30.0	1,277,507	29.7	1,363,641	31.7	1,873,924	43.6	2,560,242	59.5
Lumber: Sawmills:												
Hourly earnings (cents)	39.6	100.0	32.9	83.1	34.3	86.6	43.5	109.8	44.9	113.4	46.7	117.9
Weekly hours	52.0	100.0	36.3	69.8	37.4	71.9	33.5	64.4	37.4	71.9	41.5	79.8
Weekly earnings (dollars)	20.59	100.0	11.94	58.0	12.83	62.3	14.57	70.8	16.79	81.5	19.38	94.1
Workers employed	419,084	100.0	151,289	36.1	189,367	45.2	230,915	55.1	255,230	60.9	293,778	70.1
Man-hours worked	21,792,368	100.0	5,491,791	25.2	7,082,326	32.5	7,735,652	35.5	9,545,602	43.8	12,191,787	55.9
Stone, clay, and glass products:												
Brick, tile, and terra cotta:												
Hourly earnings (cents)	49.3	100.0	38.8	78.7	36.7	74.4	43.7	88.6	45.0	91.3	45.3	91.9
Weekly hours	49.4	100.0	31.7	64.2	32.2	65.2	31.8	64.4	25.8	52.2	41.9	84.8
Weekly earnings (dollars)	24.35	100.0	12.30	50.5	11.82	48.5	13.90	57.1	11.61	47.7	18.98	77.9
Workers employed	93,657	100.0	32,593	34.8	31,944	34.1	39,242	41.9	44,583	47.6	60,783	64.9
Man-hours worked	4,626,656	100.0	1,033,198	22.3	1,028,597	22.2	1,247,896	27.0	1,150,241	24.9	2,546,808	55.0
Cement:												
Hourly earnings (cents)	54.2	100.0	44.1	81.4	46.7	86.2	56.2	103.7	57.2	105.5	57.9	106.8
Weekly hours	53.6	100.0	39.8	74.3	34.1	63.6	32.8	61.2	33.9	63.2	38.5	71.8
Weekly earnings (dollars)	29.05	100.0	17.55	60.4	15.92	54.8	18.43	63.4	19.39	66.7	22.29	76.7
Workers employed	33,368	100.0	16,918	50.7	15,829	47.4	19,854	59.5	20,698	62.0	23,691	71.0
Man-hours worked	1,788,525	100.0	673,336	37.6	539,769	30.2	651,211	36.4	701,662	39.2	912,104	51.0
Glass:												
Hourly earnings (cents)	53.9	100.0	47.8	88.7	48.2	89.4	55.7	103.3	58.4	108.3	60.9	113.0
Weekly hours	48.2	100.0	37.3	77.4	35.9	74.5	33.8	70.1	35.4	73.4	36.8	76.3
Weekly earnings (dollars)	25.98	100.0	17.83	68.6	17.30	66.6	18.83	72.5	20.67	79.6	22.41	86.3
Workers employed	67,527	100.0	41,597	61.6	49,797	73.7	63,881	94.6	67,138	99.4	68,675	101.7
Man-hours worked	3,254,801	100.0	1,551,568	47.7	1,787,712	54.9	2,159,178	66.3	2,376,685	73.0	2,527,240	77.6

See footnotes at end of table.

TABLE I.—*Hourly earnings, weekly hours, weekly earnings, workers employed, man-hours worked in certain selected industries, 1929, 1932–36*—Continued

Industry—Classifications	1929		1932		1933		1934		1935		1936	
	Estimated figure	Index	Estimated figure	Index	Estimated figure	Index	Estimated figure	Ind	Estimated figure	Index	Estimated figure	Index
Textiles and their products:												
Carpets and rugs:												
Hourly earnings (cents)	52.8	100.0	45.4	86.0	45.5	86.2	55.0	104.2	56.4	106.8	56.3	106.6
Weekly hours	47.9	100.0	31.6	66.0	36.7	76.6	31.2	65.1	36.5	76.2	36.7	76.6
Weekly earnings (dollars)	25.29	100.0	14.35	56.7	16.70	66.0	17.16	67.9	20.59	81.4	20.66	81.7
Workers employed	32,623	100.0	17,943	55.0	21,296	65.3	23,325	71.5	27,633	84.7	28,904	88.6
Man-hours worked	1,562,642	100.0	566,999	36.3	781,563	50.0	727,740	46.6	1,008,604	64.5	1,060,777	67.9
Cotton goods:												
Hourly earnings (cents)	30.6	100.0	23.9	78.1	27.7	90.5	37.6	122.9	37.7	123.2	36.8	120.3
Weekly hours	51.1	100.0	44.5	87.1	41.4	81.0	33.4	65.4	34.6	67.7	37.5	73.4
Weekly earnings (dollars)	15.64	100.0	10.64	68.0	11.47	73.3	12.56	80.3	13.04	83.4	13.80	88.2
Workers employed	424,916	100.0	296,591	69.8	379,445	89.3	393,472	92.6	369,062	86.9	381,999	89.9
Man-hours worked	21,713,208	100.0	13,198,300	60.8	15,709,023	72.3	13,141,965	60.5	12,769,545	58.8	14,324,962	66.0
Dyeing and finishing textiles:												
Hourly earnings (cents)	52.4	100.0	41.9	80.0	42.5	81.1	52.3	99.8	53.5	102.1	51.7	98.7
Weekly hours	47.4	100.0	44.5	93.9	42.4	89.5	34.2	72.2	35.3	74.5	38.9	82.1
Weekly earnings (dollars)	24.84	100.0	18.65	75.1	18.02	72.5	17.89	72.0	18.89	76.0	20.11	81.0
Workers employed	79,327	100.0	60,447	76.2	66,309	83.6	71,315	89.9	71,380	90.0	67,190	84.7
Man-hours worked	3,760,100	100.0	2,689,892	71.5	2,811,502	74.8	2,438,973	64.9	2,519,714	67.0	2,613,691	69.5
Knit goods:												
Hourly earnings (cents)	39.0	100.0	32.8	84.1	36.5	93.6	46.4	119.0	47.9	122.8	47.4	121.5
Weekly hours	49.6	100.0	42.8	86.3	39.6	79.8	33.8	68.1	34.6	69.8	36.4	73.4
Weekly earnings (dollars)	19.34	100.0	14.04	72.6	14.45	74.7	15.68	81.1	16.57	85.7	17.25	89.2
Workers employed	208,488	100.0	174,296	83.6	189,698	91.0	204,944	98.3	219,776	105.4	232,464	111.5
Man-hours worked	10,341,005	100.0	7,459,869	72.1	7,512,041	72.6	6,927,107	67.0	7,604,250	73.5	8,461,690	81.8
Silk and rayon goods:												
Hourly earnings (cents)	43.1	100.0	34.3	79.6	35.6	82.6	44.3	102.8	44.7	103.7	42.6	98.8
Weekly hours	49.1	100.0	38.7	78.8	37.1	75.6	33.4	68.0	34.8	70.9	36.2	73.7
Weekly earnings (dollars)	21.16	100.0	13.27	62.7	13.21	62.4	14.80	69.9	15.56	73.5	15.42	72.9
Workers employed	130,467	100.0	93,023	71.3	110,322	84.6	119,899	91.9	125,908	96.5	121,073	92.8
Man-hours worked	6,405,930	100.0	3,599,990	56.2	4,092,946	63.9	4,004,627	62.5	4,381,598	68.4	4,382,843	68.4
Woolen and worsted goods:												
Hourly earnings (cents)	46.9	100.0	38.0	81.0	39.6	84.4	49.3	105.1	49.3	105.1	50.1	106.8
Weekly hours	47.5	100.0	42.8	90.1	41.3	86.9	33.3	70.1	36.8	77.5	36.2	76.2
Weekly earnings (dollars)	22.28	100.0	16.26	73.0	16.35	73.4	16.42	73.7	18.14	81.4	18.14	81.4
Workers employed	146,959	100.0	99,638	67.8	127,227	86.6	119,331	81.2	161,115	109.6	156,952	106.8
Man-hours worked	6,980,552	100.0	4,264,506	61.1	5,254,475	75.3	3,973,722	56.9	5,929,032	84.9	5,681,662	81.4
Clothing, men's [8]												
Hourly earnings (cents)	[7] 71.6	100.0	[8] 50.6	70.7	(9)	-------	58.0	81.0	59.5	83.1	56.0	78.2
Weekly hours	[7] 39.2	100.0	[8] 37.3	95.2	(9)	-------	27.8	70.9	30.4	77.6	32.2	82.1
Weekly earnings (dollars)	28.07	100.0	18.87	67.2	-------	-------	16.12	57.4	18.09	64.4	18.03	64.2
Workers employed	188,069	100.0	144,625	76.9	164,047	87.2	178,289	94.8	196,417	104.4	207,816	110.5
Man-hours worked	7,372,305	100.0	5,394,512	73.2	-------	-------	4,956,434	67.2	5,971,077	81.0	6,691,675	90.8
Leather and its manufactures:												
Boots and shoes:												
Hourly earnings (cents)	46.2	100.0	[10] 41.2	89.2	-------	(9)	(9)	-------	51.2	110.8	49.9	108.0
Weekly hours	46.8	100.0	[10] 40.4	86.3	-------	(9)	(9)	-------	35.5	75.9	35.6	76.1
Weekly earnings (dollars)	21.62	100.0	16.64	77.0	-------	-------	-------	-------	18.18	84.1	17.76	82.1
Workers employed	205,640	100.0	179,729	87.4	190,914	92.8	202,144	98.3	202,113	98.3	201,938	98.2
Man-hours worked	9,623,952	100.0	7,261,052	75.4	-------	-------	-------	-------	7,175,012	74.6	7,188,993	74.7
Leather:												
Hourly earnings (cents)	51.2	100.0	42.9	83.8	44.6	87.1	53.6	104.7	56.2	109.8	56.0	109.4
Weekly hours	49.8	100.0	42.0	84.3	41.1	82.5	36.8	73.9	38.2	76.7	39.2	78.7
Weekly earnings (dollars)	25.50	100.0	18.02	70.7	18.33	71.9	19.72	77.4	21.47	84.2	21.95	86.1
Workers employed	49,932	100.0	37,699	75.5	44,191	88.5	49,083	98.3	50,877	101.9	50,831	101.8
Man-hours worked	2,486,614	100.0	1,583,358	63.7	1,816,250	73.0	1,806,254	72.6	1,943,501	78.2	1,992,575	80.1
Food and kindred products:												
Confectionery:												
Hourly earnings (cents)	38.5	100.0	35.1	91.2	36.6	95.1	41.8	108.6	43.6	113.2	41.8	108.6
Weekly hours	48.2	100.0	41.3	85.7	37.2	77.2	36.3	75.3	36.7	76.1	39.5	82.0
Weekly earnings (dollars)	18.56	100.0	14.50	78.1	13.62	73.4	15.17	81.7	16.00	86.2	16.51	89.0
Workers employed	63,501	100.0	46,673	73.5	50,609	79.7	51,563	81.2	52,109	82.1	51,118	80.5
Man-hours worked	3,060,748	100.0	1,927,595	63.0	1,882,655	61.5	1,871,737	61.2	1,912,400	62.5	2,019,161	66.0
Flour:												
Hourly earnings (cents)	52.8	100.0	45.3	85.8	46.0	87.1	53.5	101.3	54.8	103.8	53.6	101.5
Weekly hours	51.1	100.0	47.9	93.7	43.4	84.9	38.6	75.5	39.4	77.1	43.8	85.7
Weekly earnings (dollars)	26.98	100.0	21.70	80.4	19.96	74.0	20.65	76.5	21.59	80.0	23.48	87.0
Workers employed	27,028	100.0	22,028	81.5	23,207	85.9	26,596	98.4	26,495	98.0	26,244	97.1
Man-hours worked	1,381,131	100.0	1,055,141	76.4	1,007,184	72.9	1,026,606	74.3	1,043,903	75.6	1,149,487	83.2
Ice cream:												
Hourly earnings (cents)	61.2	100.0	54.1	88.4	52.3	85.5	56.2	91.8	55.1	90.0	55.5	90.7
Weekly hours	54.3	100.0	51.8	95.4	47.6	87.7	44.1	81.2	45.5	83.8	47.4	87.3
Weekly earnings (dollars)	33.23	100.0	28.02	84.3	24.90	74.9	24.78	74.6	25.07	75.4	26.31	79.2
Workers employed	22,399	100.0	15,075	67.3	14,367	64.1	16,844	75.2	17,308	77.3	18,166	81.1
Man-hours worked	1,213,266	100.0	780,885	64.2	683,869	56.2	742,820	61.1	787,514	64.7	861,068	70.8
Slaughtering and meat packing:												
Hourly earnings (cents)	53.5	100.0	46.5	86.9	46.2	86.4	53.5	100.0	56.0	104.7	56.5	105.6
Weekly hours	48.9	100.0	46.3	94.7	43.3	88.5	40.8	83.4	40.3	82.4	42.2	86.3
Weekly earnings (dollars)	26.16	100.0	21.53	82.3	20.00	76.5	21.83	83.4	22.57	86.3	23.84	91.1
Workers employed	122,505	100.0	102,169	83.4	113,193	92.4	140,023	114.3	116,620	95.2	127,773	104.3
Man-hours worked	5,990,494	100.0	4,730,425	79.0	4,901,257	81.8	5,712,938	95.4	4,699,786	78.5	5,392,021	90.0
Tobacco manufactures:												
Chewing, smoking, and snuff:												
Hourly earnings (cents)	[11] 39.5	100.0	32.1	81.3	34.2	86.6	39.0	98.7	43.2	109.4	44.4	112.4
Weekly hours	48.3	100.0	42.4	87.8	38.8	80.3	34.5	71.4	34.9	72.3	35.7	73.9
Weekly earnings (dollars)	19.08	100.0	13.61	71.3	13.27	69.5	13.46	70.5	15.08	79.0	15.85	83.1
Workers employed	10,811	100.0	11,287	104.4	10,223	94.6	10,746	99.4	10,077	93.2	10,152	93.9
Man-hours worked	522,171	100.0	478,569	91.6	396,652	76.0	370,737	71.0	351,687	67.4	362,426	69.4
Cigars and cigarettes:												
Hourly earnings (cents)	35.6	100.0	31.7	89.0	32.3	90.7	36.7	103.1	39.5	111.0	40.5	113.8
Weekly hours	47.0	100.0	39.2	83.4	38.4	81.7	35.4	75.3	35.0	74.5	35.7	76.0
Weekly earnings (dollars)	16.73	100.0	12.43	74.3	12.40	74.1	12.99	77.6	13.82	82.7	14.46	86.4
Workers employed	105,308	100.0	79,508	75.5	77,102	73.2	83,825	79.6	80,466	76.4	82,983	78.8
Man-hours worked	4,949,476	100.0	3,116,714	63.0	2,960,717	59.8	2,967,405	60.0	2,816,310	56.9	2,962,493	59.9

See footnotes at end of table.

TABLE I.—*Hourly earnings, weekly hours, weekly earnings, workers employed, man-hours worked in certain selected industries, 1929, 1932–36*—Continued

Industry—Classifications	1929		1932		1933		1934		1935		1936	
	Estimated figure	Index	Estimated figure	Index	Estimated figure	Index	Estimated figure	Index	Estimated figure	Index	Estimated figure	Index
Paper and printing:												
Boxes, paper:												
Hourly earnings (cents)	47.3	100.0	44.4	93.9	43.5	92.0	49.6	104.9	49.7	105.1	48.1	101.7
Weekly hours	48.8	100.0	41.5	85.0	39.4	80.7	36.6	75.0	38.1	78.1	40.9	83.8
Weekly earnings (dollars)	23.08	100.0	18.43	79.9	17.14	74.3	18.15	78.6	18.94	82.1	19.67	85.2
Workers employed	55,654	100.0	41,796	75.1	47,220	84.8	53,094	95.4	55,276	99.3	58,047	104.3
Man-hours worked	2,715,915	100.0	1,734,534	63.9	1,860,468	68.5	1,943,240	71.6	2,106,016	77.5	2,374,122	87.4
Paper and pulp:												
Hourly earnings (cents)	56.1	100.0	45.2	80.6	44.3	79.0	51.5	91.8	52.9	94.3	53.7	95.7
Weekly hours	48.9	100.0	41.2	84.3	40.6	83.0	36.4	74.4	38.9	79.6	41.6	85.1
Weekly earnings (dollars)	27.43	100.0	18.62	67.9	17.99	65.6	18.75	68.4	20.58	75.0	22.34	81.4
Workers employed	128,049	100.0	98,854	77.2	107,298	83.8	123,823	96.7	126,971	99.2	127,665	99.7
Man-hours worked	6,261,596	100.0	4,072,785	65.0	4,356,299	69.6	4,507,157	72.0	4,939,172	78.9	5,310,864	84.8
Printing and publishing—newspaper and periodical:												
Hourly earnings (cents)	84.7	100.0	77.6	91.6	76.5	90.3	84.5	99.8	89.2	105.3	92.2	108.9
Weekly hours	47.5	100.0	42.6	89.7	39.6	83.4	37.3	78.5	36.9	77.7	37.0	77.9
Weekly earnings (dollars)	40.23	100.0	33.06	82.2	30.29	75.3	31.52	78.3	32.92	81.8	34.11	84.8
Workers employed	129,660	100.0	108,525	83.7	109,087	84.1	116,564	89.9	118,684	91.5	124,474	96.0
Man-hours worked	6,158,850	100.0	4,623,165	75.1	4,319,845	70.1	4,347,837	70.6	4,379,440	71.1	4,605,538	74.8
Chemicals and allied products, and petroleum refining:												
Chemicals:												
Hourly earnings (cents)	[12] 54.6	100.0	54.5	99.8	56.6	103.7	61.6	112.8	63.6	116.5	65.3	119.6
Weekly hours	[12] 51.6	100.0	42.4	82.2	41.0	79.5	38.6	74.8	39.7	76.9	40.6	78.7
Weekly earnings (dollars)	28.17	100.0	23.11	82.0	23.21	82.4	23.78	84.4	25.25	89.6	26.51	94.1
Workers employed	62,199	100.0	43,291	69.6	53,190	85.5	65,931	106.0	65,838	105.9	70,782	113.8
Man-hours worked	3,209,468	100.0	1,835,538	57.2	2,180,790	67.9	2,544,937	79.3	2,613,769	81.4	2,873,749	89.5
Fertilizers:												
Hourly earnings (cents)	36.0	100.0	30.8	85.6	27.8	77.2	36.3	100.8	35.4	98.3	35.9	99.7
Weekly hours	53.2	100.0	42.3	79.5	41.1	77.3	33.5	63.0	34.1	64.1	39.5	74.2
Weekly earnings (dollars)	19.15	100.0	13.03	68.0	11.43	59.7	12.16	63.5	12.07	63.0	14.18	74.0
Workers employed	20,926	100.0	10,421	49.8	13,063	62.4	17,662	84.4	17,473	83.5	16,762	80.1
Man-hours worked	1,113,263	100.0	440,808	39.6	536,889	48.2	591,677	53.1	595,829	53.5	662,099	59.5
Petroleum refining:												
Hourly earnings (cents)	64.7	100.0	63.2	97.7	65.5	101.2	75.0	115.9	80.1	123.8	82.7	127.8
Weekly hours	51.3	100.0	42.2	82.3	37.9	73.9	34.9	68.0	35.0	68.2	35.8	69.8
Weekly earnings (dollars)	33.19	100.0	26.67	80.4	24.82	74.8	26.18	78.9	28.04	84.5	29.61	89.2
Workers employed	80,598	100.0	63,913	79.3	69,047	85.7	77,533	96.2	77,402	96.0	79,226	98.3
Man-hours worked	4,134,575	100.0	2,697,129	65.2	2,616,881	63.3	2,705,902	65.4	2,709,070	65.5	2,836,291	68.6
Rayon and allied products:												
Hourly earnings (cents)	42.1	100.0	39.8	94.5	42.3	100.5	50.3	119.5	51.4	122.1	53.2	126.4
Weekly hours	49.2	100.0	43.5	88.4	41.2	83.7	37.0	75.2	37.9	77.0	38.6	78.5
Weekly earnings (dollars)	20.71	100.0	17.31	83.6	17.43	84.2	18.61	89.9	19.48	94.1	20.54	99.2
Workers employed	39,106	100.0	34,296	87.7	44,306	113.3	46,888	119.9	50,550	129.3	50,564	129.3
Man-hours worked	1,924,015	100.0	1,491,876	77.5	1,825,407	94.9	1,734,856	90.2	1,915,845	99.6	1,951,770	101.4
Rubber products:												
Rubber tires and inner tubes:												
Hourly earnings (cents)	67.3	100.0	62.5	92.9	64.2	95.4	77.9	115.8	84.2	125.1	87.3	129.7
Weekly hours	44.5	100.0	32.5	73.0	31.6	71.0	30.7	69.0	32.3	72.6	35.4	79.6
Weekly earnings (dollars)	29.95	100.0	20.31	67.8	20.29	67.7	23.92	79.9	27.20	90.8	30.90	103.2
Workers employed	83,263	100.0	45,295	54.4	52,976	63.6	60,199	72.3	57,128	68.6	58,700	70.5
Man-hours worked	3,705,204	100.0	1,472,088	39.7	1,674,042	45.2	1,848,109	49.9	1,845,234	49.8	2,077,980	56.1

[1] As of 1929, 1931, 1933 census classifications and carried forward for later years on a comparable basis.

[2] Phonographs only.

[3] Radios only for March to December.

[4] Wages and Hours in the Motor Vehicle Industry, 1932, *Monthly Labor Review*, June 1933, p. 1371.

[5] Compiled from data reported by the Silverware Manufacturers Institute to NRA, Division of Research and Planning, reproduced in *Wages and Hours in American Industry*, NRA Source Material in 3 volumes, by Solomon Barkin and Anne Page, Labor Studies Section, Vol. III, p. 1117, Division of Review, Washington, D. C., 1936.

[6] Includes clothing (except work), men's and clothing, work, men's on the census basis for 1929 and 1931, and carried forward for later years on a comparable basis.

[7] *Wages and Hours in the Men's Clothing Industry, 1928, Bulletin 503*, U. S. Bureau of Labor Statistics, p. 48; Ibid. 1930, Bulletin 557, p. 49.

[8] *Wages and Hours of Labor in the Men's Clothing Industry 1932, Bulletin 594*, U. S. Bureau of Labor Statistics, p. 39.

[9] Not available.

[10] *Wages and Hours in the Boot and Shoe Industry, 1910–1932, Bulletin 579*, U. S. Bureau of Labor Statistics, p. 78.

[11] *Cigarette, Snuff, Chewing, and Smoking Tobacco Manufacturing Industry*, by Donald Yakeley, p. 53; mss. Miscellaneous NRA files 1934, p. 65. This source was used because it appeared to be more reliable than the figure derived from the procedure generally followed. The figure derived from that procedure was 33.7 cents. This was less than the hourly earnings in cigars and cigarettes, and the relationship generally is the other way around.

[12] The NRA results based on data supplied by Chemical Alliance, Inc., involving 36,237 workers in 1929 and 23,597 in 1932 gave 55.4 cents for 1929 and 52.3 cents for 1932 and 51.3 hours for 1929 and 41.0 hours for 1932. *Wages and Hours in American Industry*, NRA Source Material in 3 volumes, by Solomon Barkin and Anne Page, Labor Studies Section, Vol. I, pp. 213, 218, Division of Review, Washington, D. C., 1936.

TABLE I–A.—*Hourly earnings for 1929 according to this study (Table I) and according to the Census*

INDUSTRY—CLASSIFICATIONS	Hourly earnings according to this study (cents)	Hourly earnings according to the Census	Ratio of Census hourly earnings to hourly earnings of this study (percent)
Iron and steel and their products, not including machinery:			
Blast furnaces, steel works, and rolling mills	65.5	68.2	104.1
Cast-iron pipe	54.2	51.0	94.1
Hardware	52.9	50.8	96.0
Steam and hot-water heating apparatus and steam fittings	62.8	61.6	98.1
Stoves	62.1	59.3	95.5
Structural and ornamental work	59.2	60.2	101.7
Machinery, not including transportation equipment:			
Agricultural implements	59.2	54.2	91.6
Electrical machinery, apparatus, and supplies	63.7	56.6	88.9
Foundry and machine-shop products	63.5	60.7	95.6
Machine tools	64.1	60.4	94.2
Radios and phonographs	48.2	50.9	105.6
Transportation equipment:			
Automobiles	69.1	66.3	95.9
Shipbuilding	64.6	66.3	102.6
Nonferrous metals and their products:			
Brass, bronze, and copper products	56.9	56.7	99.6
Silverware and plated ware	61.5	58.3	94.8
Stamped and enameled ware	48.3	48.8	101.0
Lumber and allied products:			
Lumber: millwork	49.3	52.1	105.7
Lumber: sawmills	39.6	37.2	93.9
Stone, clay, and glass products:			
Brick, tile and terra cotta	49.3	44.6	90.5
Cement	54.2	52.5	96.9
Glass	53.9	51.9	96.3
Textiles and their products:			
Carpets and rugs	52.8	49.2	93.2
Cotton goods	30.6	28.7	93.8
Dyeing and finishing	52.4	48.2	92.0
Knit goods	39.0	39.2	100.5
Silk and rayon goods	43.1	41.3	95.8
Woolen and worsted goods	46.9	45.2	96.4
Clothing, men's	71.6	53.8	75.1
Leather and its manufactures:			
Boots and shoes	46.2	44.4	96.1
Leather	51.2	49.0	95.7
Food and kindred products:			
Confectionery	38.5	35.5	92.2
Flour	52.8	48.8	92.4
Ice cream	61.2	53.4	87.3
Slaughtering and meat packing	53.5	53.2	99.4
Tobacco manufactures:			
Chewing, smoking, and snuff	39.5	33.0	83.5
Cigars and cigarettes	35.6	33.3	93.5
Paper and printing:			
Boxes, paper	47.3	40.4	85.4
Paper and pulp	56.1	53.2	94.8
Printing and publishing—newspaper and periodical	84.7	79.1	93.4
Chemicals and allied products, and petroleum refining:			
Chemicals	54.6	56.7	103.8
Fertilizers	36.0	30.9	85.8
Petroleum refining	64.7	61.0	94.3
Rayon and allied products	42.1	44.7	106.2
Rubber products:			
Rubber tires and inner tubes	67.3	66.0	98.1

Source: Table I and *U. S. Census of Manufactures, 1929.*

TABLE I–B.—*Classification of industries by durability of product and degree of concentration—1935* [1]

DURABLE GOODS INDUSTRIES

More than 30 percent of all workers in employ of 4 largest enterprises:
- Automobiles 72.4
- Agricultural implements 70.0
- Silver and plated ware 50.4
- Blast furnaces, steel works, and rolling mills 46.5
- Ship building 45.2
- Steam and hot water heating apparatus 41.1
- Electrical machinery, apparatus, and supplies 39.7
- Radios and phonographs 37.6
- Brass, bronze, and copper products 37.4
- Glass 37.1
- Cast-iron pipe 35.7
- Hardware 34.4
- Cement 30.7

Less than 30 percent of all workers in employ of 4 largest enterprises:
- Structural and ornamental work 24.8
- Brick, tile, and terra cotta 14.7
- Machine tools 14.1
- Stoves 13.9
- Foundry and machine shop products 13.9
- Stamped and enameled ware 9.3
- Lumber:
  - Millwork 5.1
  - Sawmills 3.9

SEMIDURABLE AND NONDURABLE GOODS INDUSTRIES

More than 30 percent of all workers in employ of 4 largest enterprises:
- Rubber tires 79.4
- Rayon and allied products 74.8
- Carpets and rugs 57.9
- Chewing and smoking tobacco and snuff 51.9
- Slaughtering and meat packing 38.7
- Petroleum refining 38.2
- Cigars and cigarettes 37.0
- Chemicals 34.9
- Fertilizers 31.3

Less than 30 percent of all workers in employ of 4 largest enterprises:
- Ice cream 26.6
- Woolen and worsted goods 22.4
- Boots and shoes 21.0
- Flour 19.5
- Leather 18.9
- Dyeing and finishing, textiles 15.8
- Paper and pulp 14.9
- Newspaper printing and publishing 14.1
- Silk and rayon goods 11.0
- Confectionery 9.8
- Cotton goods 9.2
- Paper boxes 8.8
- Men's clothing 6.4
- Knit goods 5.3

[1] Based on appendix 7, table I.

Table II.—Employment, hourly earnings, and hours worked in manufacturing industries, 1929, 1932, and 1936, by durability of product and degree of concentration

Industries	1929			1932			1936		
	Number employed	Hourly earnings (cents)	Man-hours worked	Number employed	Hourly earnings (cents)	Man-hours worked	Number employed	Hourly earnings (cents)	Man-hours worked
DURABLE CONCENTRATED									
Total	1,614,353	59.0	78,002,746	852,410	52.0	26,301,469	1,415,161	61.4	55,909,886
Blast furnaces	419,534	65.5	20,599,119	234,939	52.7	6,131,908	436,315	67.1	17,845,284
Cast-iron pipe	19,741	54.2	850,837	10,404	44.4	338,130	16,879	49.3	644,778
Hardware	52,306	52.9	2,562,994	30,285	50.6	950,949	45,454	55.8	1,831,796
Steam and hot-water apparatus	39,621	62.8	1,842,376	20,484	54.3	628,859	34,906	59.1	1,445,108
Agricultural implements	41,663	59.2	2,091,483	10,374	48.4	329,893	28,914	61.0	1,147,886
Electrical machinery	277,942	63.7	13,285,628	132,300	59.3	4,088,070	199,840	62.4	7,973,616
Radios and phonographs	65,196	48.2	3,155,486	25,622	46.8	935,203	49,549	54.0	1,848,178
Automobiles	447,448	69.1	21,298,525	243,412	62.8	7,764,843	371,829	77.0	14,315,416
Shipbuilding	55,089	64.6	2,561,638	36,249	63.5	1,246,966	58,449	76.2	2,086,629
Brass, bronze, etc	79,183	56.9	3,967,068	40,700	50.7	1,326,820	71,581	59.5	2,977,770
Silverware	15,735	61.5	744,266	9,126	51.1	334,924	9,079	58.4	354,081
Cement	33,368	54.2	1,788,525	16,918	44.1	673,336	23,691	57.9	912,104
Glass	67,527	53.9	3,254,801	41,597	47.8	1,551,568	68,675	60.9	2,527,240
DURABLE NOT CONCENTRATED									
Total	1,246,270	54.4	62,125,409	518,514	46.8	17,100,867	968,812	53.9	40,780,929
Stoves	46,616	62.1	2,111,705	25,825	49.8	849,642	45,078	58.2	1,879,753
Structural work	54,947	59.2	2,802,297	24,561	54.3	790,864	34,562	58.4	1,441,235
Foundry and machine shops	454,441	63.5	22,085,833	208,588	55.1	6,257,640	381,730	60.1	16,185,352
Machine tools	47,391	64.1	2,431,158	11,943	60.4	370,233	36,633	63.6	1,633,832
Stamped and enamelware	40,000	48.3	1,976,000	26,400	41.8	1,016,400	57,120	51.8	2,341,920
Lumber: Millwork	90,134	49.3	4,299,392	37,315	41.1	1,291,099	59,128	46.8	2,560,242
Lumber: Sawmills	419,084	39.6	21,792,368	151,289	32.9	5,491,791	293,778	46.7	12,191,787
Brick, tile, and terra cotta	93,657	49.3	4,626,656	32,593	38.8	1,033,198	60,783	45.3	2,546,808
SEMI- AND NON-DURABLE CONCENTRATED									
Total	557,337	49.6	27,111,308	408,123	45.2	16,830,146	525,846	58.0	20,179,606
Carpets	32,623	52.8	1,562,642	17,943	45.4	566,999	28,904	56.3	1,060,777
Meat packing	122,505	53.5	5,990,494	102,169	46.5	4,730,425	127,773	56.5	5,392,021
Chewing tobacco	10,811	39.5	522,171	11,287	32.1	478,569	10,152	44.4	362,426
Cigars and cigarettes	105,308	35.6	4,949,476	79,508	31.7	3,116,714	82,983	40.5	2,962,493
Chemicals	62,199	54.6	3,209,468	43,291	54.5	1,835,538	70,782	65.3	2,873,749
Fertilizers	20,926	36.0	1,113,263	10,421	30.8	440,808	16,762	35.9	662,099
Petroleum refining	80,596	64.7	4,134,575	63,913	63.2	2,697,129	79,226	82.7	2,836,291
Rayon and allied products	39,106	42.1	1,924,015	34,296	39.8	1,491,876	50,564	53.2	1,951,770
Rubber tires	83,263	67.3	3,705,204	45,295	62.5	1,472,088	58,700	87.3	2,077,980
SEMI- AND NON-DURABLE NOT CONCENTRATED									
Total	1,860,089	51.5	89,478,172	1,418,999	43.4	59,645,584	1,825,977	52.5	67,658,331
Cotton goods	424,916	30.6	21,713,208	296,591	23.9	13,198,300	381,999	36.8	14,324,962
Dyeing and finishing	79,327	52.4	3,760,100	60,447	41.9	2,689,892	67,190	51.7	2,613,691
Knit goods	208,488	39.0	10,341,005	174,296	32.8	7,459,869	232,464	47.4	8,461,690
Silk and rayon products	130,467	43.1	6,405,930	93,023	34.3	3,599,990	121,073	42.6	4,382,843
Woolen and worsted products	146,959	46.9	6,980,552	99,638	38.0	4,264,506	156,952	50.1	5,681,662
Men's clothing	188,069	71.6	7,372,305	144,625	50.6	5,394,512	207,816	56.0	6,691,675
Boots and shoes	205,640	46.2	9,623,952	179,729	41.2	7,261,052	201,938	49.9	7,188,993
Leather	49,932	51.2	2,486,614	37,699	42.9	1,583,358	50,831	56.0	1,992,575
Confectionery	63,501	38.5	3,060,748	46,673	35.1	1,927,595	51,118	41.8	2,019,161
Flour	27,028	52.8	1,381,131	22,028	45.3	1,055,141	26,244	53.6	1,149,487
Ice cream	22,399	61.2	1,216,266	15,075	54.1	780,885	18,166	55.5	861,068
Paper boxes	55,654	47.3	2,715,915	41,796	44.4	1,734,534	53,047	48.1	2,374,122
Paper and pulp	128,049	56.1	6,261,596	98,854	45.2	4,072,785	127,665	53.7	5,310,864
Printing and publishing—newspapers	129,660	84.7	6,158,850	108,525	77.6	4,623,165	124,474	92.2	4,605,538

Source: Tables I and I-B.

TABLE II-A.—*Index of employment, hourly earnings, and hours worked in manufacturing industries, 1929, 1932, and 1936, by durability of product and degree of concentration*

	1929			1932			1936		
	Number employed	Hourly earnings	Man-hours worked	Number employed	Hourly earnings	Man-hours worked	Number employed	Hourly earnings	Man-hours worked
Durable concentrated	100.0	100.0	100.0	52.8	88.1	33.7	87.7	104.1	71.7
Durable not concentrated	100.0	100.0	100.0	41.6	86.0	27.5	77.7	99.1	65.6
Total durable	100.0	100.0	100.0	47.9	87.4	31.0	83.3	102.3	69.0
Semi- and non-durable concentrated	100.0	100.0	100.0	73.2	91.1	62.1	94.3	116.9	74.4
Semi- and non-durable not concentrated	100.0	100.0	100.0	76.3	84.3	66.7	98.2	101.9	75.6
Total semi- and non-durable	100.0	100.0	100.0	75.6	86.8	65.6	97.3	107.7	75.3
All industries	100.0	100.0	100.0	60.6	87.0	46.7	89.7	104.8	71.9

APPENDIX 7.—DATA ON LARGEST FOUR AND LARGEST EIGHT PRODUCERS IN EACH MANUFACTURING INDUSTRY, 1935 [1]

This Appendix presents the results of a study of unpublished Census compilations made available through the courtesy of the Bureau of the Census. The National Resources Committee assumes full responsibility for the accuracy of the statistics presented in this study, and the Bureau of the Census assumes responsibility for the presentation of the figures in such a manner as to avoid disclosing, even approximately, any information pertaining to an individual company or concern.

In order to measure concentration within each of the Census industries, the reports of all establishments in each industry under a common ownership were combined, and treated as those of a single producer. Information is shown for the four and eight most important producers in each of 275 Census industry classifications.

Special tabulations were prepared from the 1935 Census of Manufactures data, ranking all the producers within each industry according to three criteria, namely, value of products, total persons employed (wage earners plus salaried employees) and "value added by manufacture" within the industry. In the tables presented, industries are grouped according to size based on total number of persons employed. Those employing 100,000 or more persons in 1935 appear in the first section of the tables, those employing between 25,000 and 100,000 are shown in the second section of the tables, and those employing less than 25,000 persons appear in the third section. Within each of these groups on table I, industries are arranged according to the proportion of the total persons employed in each industry by the four producers employing the greatest number of persons in the industry. In table II industries are arranged according to the proportion of the value of product of each industry contributed by the largest four producers in the industry. In many of the industries, the ranking of the eight largest producers by value of products and by "value added by manufacture" was the same. Table III shows only those industries in which the largest four or the largest eight producers ranked according to "value added by manufacture" differed from those in the table showing producers ranked according to value of products.

Six small industries were so concentrated that the data for the largest four and the largest eight producers could not be shown without approximate disclosure of information held confidential by the Bureau of the Census. These industries are listed separately in table III.

In certain industries, particularly the textile industries, the practice by some manufacturers of letting out work on a contract basis to independent contract shops occasions slight distortion in the relationship between total persons employed and number of wage earners and the value of product, cost of materials, and "value added by manufacture."

In each table data are shown indicating the activity of the largest four and the largest eight producers as reflected in the following items along with the percent which these constitute of the total industry.

1. Number of persons employed (salaried employees and average number of wage earners).
2. Wages and salaries.
3. Wage earners.
4. Wages.
5. Value of product.
6. Cost of materials, containers, fuel, and purchased electric energy.
7. Value added by manufacture.

In these tables, the Census Bureau definition of terms is employed. Where noncensus terms are used in the tables the exact meaning is given in the general description of terms below:

1. *Number of persons employed.*—The figures for the number of "persons employed" as used in this report is the sum of the number of salaried employees as of December 15, and the average number of wage earners for the year. These figures do not include data for persons employed in central administrative offices or proprietors and firm members.

2. *Number of wage earners.*—The figures for the number of wage earners is the quotient of the total man-months reported to the Bureau of the Census, divided by 12, resulting in an average for the year.

3. *Wages.*—The figures shown for this item represent the total amount paid to wage earners during the year.

4. *Value of product.*—The amounts under this heading are the values, at the factory or plant, of all commodities produced (or, for some industries, receipts for work done) during the census year, whether sold, transferred to other plants, or held in stock.

5. *Cost of materials, etc.*—The amounts under this heading include the following census categories: materials, mill and shop supplies and containers, fuel, and purchased electric energy used during the period covered.

6. *Value added by manufacture.*—This figure is calculated by subtracting the cost of materials, supplies, containers, fuel, and purchased electric energy from the value of products.

[1] Appendix 7 was prepared by Grace W. Knott, assisted by Ruth Rosenwald.

7. *Establishment.*—The term "establishment" is used here with the same meaning as that adopted by the Census Bureau. As a rule it signifies a single plant or factory. In a few cases it refers to two or more plants operated under a common ownership and located in the same city, or in the same county but in

TABLE I.—*Concentration in manufacturing ind*

[Values in thous

Industry number	Industry	Largest four producers															
		Persons employed		Wages and salaries		Wage earners		Wages		Value of product		Cost of materials, etc.[1]		Value added by manufacture[2]		Number of establishments	
		Number	Percent of industry	Amount	Percent of industry	Number	Percent of industry	Amount	Percent of industry	Amount	Percent of industry	Amount	Percent of industry	Amount	Percent of industry	Number	Percent of industry
		21 LARGE INDUSTRIES[3]															
1408	Motor vehicles, not including motorcycles	118, 557	72. 4	186, 393	74. 7	108, 793	74. 0	167, 622	77. 2	2, 080, 334	87. 0	1, 594, 924	88. 0	485, 410	84. 3	40	33. 0
1407	Motor-vehicle bodies and motor-vehicle parts.	161, 924	62. 0	241, 401	64. 9	152, 881	63. 5	223, 579	68. 1	1, 076, 150	69. 4	733, 285	73. 1	342, 865	62. 6	42	5. 1
1112	Steel-works and rolling-mill products	179, 282	46. 0	237, 606	46. 3	166, 280	46. 2	206, 616	47. 0	951, 819	49. 3	578, 380	52. 1	373, 439	45. 5	76	19. 2
1303	Electrical machinery, apparatus, and supplies.	88, 641	39. 7	126, 599	43. 7	69, 721	38. 8	86, 073	43. 5	426, 276	44. 4	142, 079	38. 3	284, 197	48. 2	106	7. 6
123	Meat packing, wholesale	53, 636	38. 7	95, 639	53. 1	41, 301	35. 4	73, 259	53. 7	1, 313, 029	55. 6	1, 151, 767	56. 7	161, 262	48. 5	94	7. 7
1502	Railroad repair shops, steam	51, 974	36. 0	70, 771	35. 4	48, 833	36. 0	63, 063	35. 2	133, 989	36. 0	63, 203	37. 2	70, 786	35. 1	119	28. 6
212	Wool and hair manufactures	39, 446	22. 4	37, 765	21. 3	37, 474	22. 5	33, 969	22. 3	164, 186	23. 1	105, 342	24. 4	58, 844	21. 1	36	5. 2
904	Boots and shoes, other than rubber	45, 502	21. 0	41, 804	21. 0	43, 872	21. 7	39, 432	23. 0	158, 822	24. 7	86, 407	25. 9	72, 415	23. 3	66	6. 4
105	Canned and dried fruits and vegetables; preserves, jellies, fruit butters, pickles, and sauces.	20, 600	16. 3	17, 549	19. 5	19, 475	16. 7	14, 857	21. 1	147, 587	22. 7	78, 645	19. 2	68, 942	28. 7	86	3. 1
102	Bread and other bakery products	38, 364	16. 0	49, 838	17. 3	35, 608	16. 3	44, 448	17. 9	222, 898	18. 0	102, 176	15. 2	120, 722	21. 4	259	1. 4
510	Printing and publishing, newspaper and periodical.	33, 003	14. 1	70, 728	17. 0	17, 499	14. 7	35, 574	18. 4	242, 195	20. 3	57, 626	24. 6	184, 569	19. 3	55	. 5
407	Paper	15, 195	13. 2	17, 190	12. 2	13, 652	13. 2	14, 200	12. 9	98, 519	13. 8	59, 637	13. 9	38, 882	13. 8	42	7. 1
213	Men's cotton garments	14, 050	10. 9	9, 735	11. 2	13, 405	11. 0	8, 722	11. 8	35, 140	10. 6	17, 333	9. 5	17, 807	12. 0	48	4. 1
203	Cotton manufactures	36, 253	9. 2	26, 263	9. 5	35, 430	9. 2	24, 581	9. 9	82, 831	8. 0	49, 169	7. 8	33, 662	8. 3	25	2. 0
1305	Machinery, not elsewhere classified	11, 927	8. 4	17, 628	8. 8	9, 402	8. 6	12, 867	9. 8	40, 033	6. 9	13, 227	6. 1	26, 806	7. 4	12	. 5
215	Men's, youths', and boys' clothing, not elsewhere classified.	10, 260	6. 1	11, 269	6. 5	9, 416	6. 1	9, 635	6. 6	27, 651	4. 5	12, 592	4. 3	15, 059	4. 6	16	. 5
309	Furniture, including store and office fixtures.	7, 877	5. 4	6, 793	4. 7	7, 303	5. 6	5, 926	5. 2	23, 192	5. 3	11, 657	5. 6	11, 535	5. 1	17	. 6
234	Knit goods	12, 252	5. 3	13, 178	6. 1	11, 728	5. 3	12, 243	6. 7	29, 996	4. 9	10, 439	3. 5	19, 557	6. 3	13	. 7
508	Printing and publishing, book, music, and job.	7, 940	4. 8	11, 986	4. 7	6, 632	5. 2	8, 795	5. 2	30, 876	4. 4	7, 745	4. 0	23, 131	4. 6	10	. 1
311	Lumber and timber products, not elsewhere classified.	10, 444	3. 9	10, 538	5. 0	10, 050	3. 9	9, 780	5. 3	24, 752	4. 5	7, 661	3. 7	17, 091	5. 0	17	. 3
216	Women's, misses', and children's apparel, n. e. c.	5, 870	2. 0	3, 865	1. 2	5, 662	2. 2	3, 352	1. 4	16, 631	1. 3	8, 627	1. 4	8, 004	1. 2	11	. 1
		44 MEDIUM INDUSTRIES[3]															
1652	Cigarettes	23, 478	90. 3	19, 653	89. 1	22, 156	90. 6	16, 425	89. 7	723, 262	89. 7	570, 348	89. 0	152, 914	92. 5	9	31. 0
803	Rubber tires and inner tubes	52, 172	79. 4	80, 787	83. 2	45, 644	79. 9	66, 080	84. 4	361, 202	80. 9	213, 723	80. 5	147, 479	81. 7	12	28. 6
629	Rayon and allied products	40. 507	74. 8	43, 755	74. 7	38, 299	75. 8	38, 980	76. 9	137, 520	74. 3	46, 742	72. 5	90, 778	75. 2	15	46. 9
1123	Tin cans and other tinware, not elsewhere classified.	22, 209	70. 1	26, 072	70. 3	19, 015	69. 2	19, 656	70. 6	234, 086	80. 1	167, 258	81. 1	66, 827	77. 4	75	36. 8
1301	Agricultural implements	42, 765	70. 0	57, 892	73. 6	37, 155	70. 3	48, 306	75. 1	210, 972	72. 4	102, 000	73. 2	108, 972	71. 8	22	9. 1
201	Carpets and rugs	17, 234	52. 2	18, 995	52. 4	16, 031	52. 6	16, 191	53. 2	65, 185	51. 1	29, 356	47. 0	35, 829	55. 0	8	6. 5
1410	Ship and boat building, steel and wooden, including repair work.	23, 157	45. 2	31, 447	44. 7	20, 272	45. 2	24, 875	44. 9	69, 392	44. 8	27, 106	44. 8	42, 286	44. 8	17	3. 1
1310	Refrigerators and refrigerating and ice-making apparatus.	19, 162	44. 8	24, 279	47. 0	17, 202	46. 3	20, 136	49. 8	103, 318	46. 1	51, 440	44. 2	51, 878	48. 1	7	2. 5
1119	Steam and hot-water heating apparatus and steam fittings.	13, 195	41. 1	15, 724	40. 7	11, 579	42. 7	12, 729	44. 2	43, 206	38. 7	13, 802	36. 9	29, 404	39. 6	15	5. 5
705	Petroleum refining	35, 246	38. 3	56, 061	39. 1	30, 007	38. 8	43, 620	39. 8	701, 298	38. 2	573, 791	38. 8	127, 507	35. 4	64	16. 2
1319	Radio apparatus and phonographs	19, 587	37. 6	22, 645	39. 2	16, 162	36. 1	15, 571	36. 3	54, 349	27. 0	24, 306	23. 4	30, 043	30. 8	9	4. 6
1212	Nonferrous-metal alloys, products, except aluminum, n. e. c.	27, 267	37. 4	34, 323	36. 6	23, 631	37. 6	27, 215	37. 8	142, 358	36. 2	83, 287	37. 9	59, 071	34. 0	22	2. 0
1008	Glass	27, 236	37. 1	34, 540	40. 2	24, 731	36. 8	29, 344	41. 1	127, 435	44. 9	45, 574	41. 4	81, 861	47. 1	38	17. 8
608	Chemicals, not elsewhere classified	28, 004	34. 9	42, 016	35. 9	23, 417	35. 6	30, 692	38. 1	240, 293	35. 9	109, 103	33. 2	131, 190	38. 6	73	12. 8
1109	Hardware, not elsewhere classified	16, 346	34. 4	20, 138	37. 1	14, 479	34. 9	17, 005	40. 1	53, 689	36. 3	19, 331	33. 7	34, 358	38. 0	9	2. 2
1608	Cigars	17, 342	29. 6	11, 703	30. 1	16, 691	29. 6	10, 202	30. 5	58, 225	38. 5	30, 481	39. 2	37, 744	37. 8	25	3. 6
626	Paints, pigments, and varnishes	10, 828	28. 0	14, 559	25. 7	8, 587	31. 0	10, 381	32. 2	134, 129	32. 2	69, 409	29. 9	64, 720	34. 9	50	4. 7
703	Gas, manufactured, illuminating and heating.	6, 956	27. 7	11, 094	29. 4	6, 197	31. 5	9, 411	34. 1	107, 776	31. 2	26, 088	26. 7	81, 688	32. 9	57	11. 0
1127	Wirework, not elsewhere classified	7, 968	27. 7	8, 992	26. 6	7, 334	29. 1	7, 574	29. 8	25, 485	21. 7	11, 307	20. 3	14, 178	22. 9	10	1. 9
1304	Engines, turbines, water wheels, and windmills.	7, 301	26. 2	11, 455	29. 7	5, 655	25. 7	7, 887	29. 4	28, 899	28. 9	10, 286	24. 5	18, 613	32. 1	4	2. 6
1122	Structural and ornamental metal work, made in plants not operated in connection with rolling mills.	8, 622	24. 8	9, 656	22. 6	7, 414	27. 2	7, 319	26. 0	39, 000	24. 3	25, 141	27. 2	13, 859	20. 3	21	1. 9
410	Pulp (wood and other fiber)	6, 216	24. 2	6, 775	24. 0	5, 794	24. 5	5, 877	25. 1	37, 875	22. 7	21, 893	22. 8	15, 982	22. 5	31	16. 5
1322	Foundries	19, 967	20. 5	28, 553	24. 7	19, 560	21. 8	27, 627	28. 0	60, 223	24. 1	22, 169	24. 7	38, 054	23. 7	6	. 5
1318	Machine-tool accessories and machinists' precision tools.	5, 547	20. 3	9, 026	20. 2	5, 036	21. 8	7, 838	22. 8	20, 196	20. 9	7, 538	28. 0	12, 658	18. 1	6	. 8
116	Flour and other grain-mill products	6, 593	19. 5	8, 768	20. 9	5, 621	21. 2	6, 890	25. 4	248, 250	29. 1	206, 868	28. 9	41, 382	30. 2	40	1. 8
907	Leather: tanned, curried, and finished	10, 362	18. 9	13, 512	20. 3	9, 644	19. 0	11, 804	21. 1	67, 071	21. 8	41, 386	20. 9	25, 685	23. 3	27	7. 1
802	Rubber goods other than tires, inner tubes, and boots and shoes.	8, 706	18. 7	10, 767	20. 5	7, 560	18. 7	8, 555	21. 7	33, 024	18. 5	16, 069	19. 5	16, 955	17. 6	11	2. 7
209	Rayon manufactures	13, 700	18. 6	10, 738	17. 2	13, 432	19. 1	9, 931	18. 1	37, 912	18. 6	23, 975	21. 2	13, 937	15. 2	22	4. 9
1017	Pottery including porcelain ware	5, 667	18. 1	6, 359	18. 9	5, 413	18. 8	5, 613	20. 0	12, 458	18. 7	3, 545	19. 7	8, 913	18. 2	7	2. 8

For footnotes, see end of table.

different municipalities or unincorporated places having fewer than 10,000 inhabitants.

8. *Producer.*—The term "producer" is used in this report to include all establishments within an industry which are under common ownership, regardless of the location of individual establishments.

ustries, 1935, based on number of persons employed

ands of dollars]

Largest eight producers																	
Persons employed		Wages and salaries		Wage earners		Wages		Value of product		Cost of materials, etc.[1]		Value added by manufacture[2]		Number of establishments			Industry number
Number	Percent of industry	Amount	Percent of industry	Number	Percent of industry	Amount	Percent of industry	Amount	Percent of industry	Amount	Percent of industry	Amount	Percent of industry	Number	Percent of industry		
21 LARGE INDUSTRIES*																	
142,527	87.1	220,960	88.6	130,365	88.7	197,069	90.8	2,252,640	94.2	1,719,112	94.8	533,528	92.5	47	38.8	Motor vehicles, not including motorcycles.	1408
184,214	70.5	273,762	73.6	172,319	71.6	249,422	76.0	1,191,506	76.8	798,298	79.6	393,208	71.8	55	6.7	Motor-vehicle bodies and motor-vehicle parts.	1407
228,660	58.7	308,231	60.1	212,668	59.1	269,844	61.4	1,231,382	63.8	744,344	67.0	487,038	59.3	95	24.0	Steel-works and rolling-mill products	1112
103,850	46.5	147,677	50.9	82,376	45.8	101,408	51.2	502,278	52.3	176,621	47.6	325,657	55.2	124	8.9	Electrical machinery, apparatus, and supplies.	1303
65,616	47.3	109,898	61.0	51,430	44.1	84,063	61.6	1,500,135	63.5	1,312,604	64.7	187,431	56.4	113	9.2	Meat packing, wholesale	123
76,791	53.2	106,855	53.4	72,101	53.1	95,436	53.2	199,765	53.7	92,882	54.6	106,883	53.0	181	43.5	Railroad repair shops, steam	1502
50,349	28.6	49,353	27.9	47,778	28.7	44,050	28.9	233,745	32.9	150,452	34.9	83,293	29.9	65	9.3	Wool and hair manufactures	212
56,019	25.9	53,134	26.6	53,934	26.7	49,611	28.9	198,183	30.8	108,038	32.4	90,145	29.0	83	8.1	Boots and shoes, other than rubber	904
23,849	18.9	20,856	23.2	22,373	19.2	17,424	24.7	197,627	30.4	119,905	29.3	77,722	32.3	108	3.9	Canned and dried fruits and vegetables; preserves, jellies, fruit butters, pickles, and sauces.	105
52,427	21.9	67,399	23.4	48,263	22.1	59,115	23.7	316,718	25.6	154,539	23.0	162,179	28.7	348	1.8	Bread and other bakery products	102
40,021	17.1	84,084	20.2	22,354	18.8	43,225	22.4	303,971	25.5	73,072	31.2	230,899	24.1	59	.7	Printing and publishing, newspaper and periodical.	510
22,166	19.3	26,157	18.6	19,826	19.2	21,478	19.5	153,715	21.6	90,983	21.2	62,732	22.2	63	10.6	Paper	407
22,554	17.5	14,204	16.4	21,770	17.9	12,933	17.5	55,728	16.8	30,288	16.6	25,554	17.1	80	6.8	Men's cotton garments	213
58,735	14.8	40,090	14.5	57,557	15.0	37,688	15.2	144,572	14.0	90,805	14.5	53,767	13.3	58	4.7	Cotton manufactures	203
16,648	11.7	24,331	12.1	13,003	11.8	17,888	13.6	64,175	11.0	24,002	11.0	40,173	11.0	23	.9	Machinery, not elsewhere classified	1305
15,812	9.4	17,048	9.8	14,638	9.5	14,646	10.1	45,576	7.4	21,247	7.3	24,329	7.5	26	.8	Men's, youths', and boys' clothing, not elsewhere classified.	215
11,841	8.0	11,426	7.9	10,801	8.3	9,638	8.5	38,303	8.8	19,064	9.2	19,239	8.5	22	.7	Furniture, including store and office fixtures.	309
20,216	8.7	20,210	9.4	19,183	8.7	18,387	10.0	51,687	8.5	21,369	7.2	30,318	9.7	26	1.4	Knit goods	234
10,863	6.5	16,677	6.5	8,357	6.6	11,688	6.9	45,175	6.5	11,163	5.7	34,012	6.7	53	.5	Printing and publishing, book, music, and job.	508
17,191	6.4	18,387	8.8	16,418	6.4	16,704	9.1	42,012	7.6	12,997	6.2	29,015	8.4	26	.4	Lumber and timber products, not elsewhere classified.	311
9,871	3.4	6,527	2.1	9,564	3.7	5,853	2.4	28,216	2.2	14,522	2.3	13,694	2.1	21	.2	Women's, misses', and children's apparel, n. e. c.	216
44 MEDIUM INDUSTRIES*																	
25,795	99.2	21,786	98.8	24,285	99.3	18,182	99.3	801,602	99.4	637,296	99.4	164,306	99.4	14	48.3	Cigarettes	1652
57,716	87.8	87,996	90.6	50,330	88.1	71,678	91.6	403,364	90.4	238,038	89.7	165,326	91.6	16	38.1	Rubber tires and inner tubes	803
48,411	89.4	52,157	89.0	45,477	90.0	45,641	90.0	167,006	90.2	57,555	89.2	109,451	90.7	20	62.5	Rayon and allied products	629
23,532	74.3	27,549	74.3	20,214	73.5	20,788	74.7	250,288	85.6	180,567	87.6	69,720	80.7	87	42.7	Tin cans and other tinware, not elsewhere classified.	1123
51,915	85.0	68,780	87.5	45,125	85.4	57,258	89.0	255,564	87.7	123,357	88.5	132,207	87.1	33	13.7	Agricultural implements	1301
22,124	67.0	24,187	66.7	20,630	67.7	20,816	68.4	87,049	68.2	41,122	65.9	45,927	70.5	15	12.2	Carpets and rugs	201
32,620	63.6	44,997	64.0	28,352	63.2	35,382	63.8	100,158	64.7	40,688	67.3	59,470	63.0	26	4.7	Ship and boat building, steel and wooden, including repair work.	1410
24,951	58.4	29,881	57.9	22,256	59.9	24,446	60.4	130,087	58.0	67,124	57.7	62,963	58.4	11	4.0	Refrigerators and refrigerating and ice-making apparatus.	1301
16,497	51.4	19,488	50.4	14,417	53.2	15,617	54.2	54,991	49.2	17,751	47.4	37,240	50.1	26	9.5	Steam and hot-water heating apparatus and steam fittings.	1119
53,375	58.0	83,778	58.4	45,719	59.1	66,135	60.3	1,082,484	58.9	870,741	58.9	211,743	58.8	94	23.8	Petroleum refining	705
23,605	45.3	26,451	45.8	19,735	44.1	18,679	43.5	77,569	38.6	37,511	36.2	40,058	41.1	13	6.6	Radio apparatus and phonographs	1319
35,153	48.2	43,753	46.6	30,443	48.4	34,653	48.1	206,019	52.4	125,494	57.1	80,525	46.4	63	5.7	Nonferrous-metal alloys, products, except aluminum, n. e. c.	1212
35,875	48.9	45,304	52.8	32,570	38.5	38,069	53.3	173,266	61.0	70,572	64.2	102,694	59.0	49	23.0	Glass	1008
38,171	47.5	55,991	47.8	31,663	48.1	40,105	49.8	324,614	48.5	148,460	45.1	176,154	51.9	90	15.8	Chemicals, not elsewhere classified	608
20,775	43.7	25,082	46.2	18,297	44.1	20,677	48.8	67,230	45.5	25,041	43.6	42,189	46.7	15	3.7	Hardware, not elsewhere classified	1109
23,244	39.7	15,558	40.1	22,280	39.8	13,660	40.8	76,660	50.7	40,964	52.6	35,696	48.6	35	4.7	Cigars	1608
13,557	35.1	18,318	32.3	10,697	38.6	12,856	39.9	174,168	41.8	93,994	40.5	80,174	43.3	70	6.5	Paints, pigments, and varnishes	626
11,621	46.3	18,507	49.0	9,967	50.6	14,897	53.9	193,962	56.1	51,847	53.0	142,115	57.3	109	21.0	Gas, manufactured, illuminating and heating.	703
10,418	36.2	12,359	36.6	9,395	37.3	10,052	39.5	41,481	35.3	19,251	34.6	22,230	35.9	25	4.7	Wirework, not elsewhere classified	1127
11,378	40.9	17,268	44.7	8,928	40.5	12,106	45.1	47,233	47.2	20,683	49.2	26,550	45.8	9	6.0	Engines, turbines, water wheels, and windmills.	1304
10,483	30.1	12,203	28.6	8,913	32.7	9,106	32.3	50,622	31.5	32,551	35.2	18,071	26.5	28	2.5	Structural and ornamental metal work, made in plants not operated in connection with rolling mills.	1122
7,968	31.0	9,004	31.9	7,357	31.1	7,646	32.7	57,669	34.5	34,575	35.9	23,094	32.5	39	20.7	Pulp (wood and other fiber)	410
26,117	26.8	35,239	30.5	25,130	28.0	33,122	33.6	82,311	32.9	30,284	33.7	52,027	32.4	48	3.8	Foundries	1322
7,657	28.1	12,724	28.5	6,817	29.5	10,606	30.8	29,771	30.7	10,334	38.4	19,437	27.8	12	1.6	Machine-tool accessories and machinists' precision tools.	1318
8,738	25.8	11,745	28.1	7,189	27.1	8,642	31.9	315,798	37.0	265,403	37.1	50,395	36.8	93	4.2	Flour and other grain-mill products	116
16,239	29.6	20,448	30.7	15,108	29.7	17,679	31.7	105,753	34.3	66,697	33.7	39,056	35.4	51	13.3	Leather: tanned, curried, and finished	907
12,230	26.3	15,117	28.8	10,539	26.1	11,972	30.4	50,943	28.5	25,107	30.5	25,836	26.9	15	3.6	Rubber goods other than tires, inner tubes, and boots and shoes.	803
19,503	26.5	15,500	24.8	18,977	27.0	14,110	25.7	53,918	26.4	33,120	29.3	20,798	22.7	28	6.3	Rayon manufactures	209
8,589	27.5	9,549	28.3	8,103	28.1	8,329	29.7	19,424	29.1	5,214	29.0	14,210	29.1	12	4.7	Pottery, including porcelain ware	1017

TABLE I.—*Concentration in manufacturing industries,*

[Values in thous

Industry number	Industry	Largest four producers															
		Persons employed		Wages and salaries		Wage earners		Wages		Value of product		Cost of materials, etc.[1]		Value aded by manufacturer[2]		Number of establishments	
		Number	Percent of industry	Amount	Percent of industry	Number	Percent of industry	Amount	Percent of industry	Amount	Percent of industry	Amount	Percent of industry	Amount	Percent of industry	Number	Percent of industry
		44 MEDIUM INDUSTRIES—Continued															
611	Drugs and medicines	5,510	17.5	7,742	17.5	4,630	20.9	5,298	24.1	68,151	23.4	15,753	18.9	52,398	25.1	15	1.5
204	Dyeing and finishing cotton, rayon, and silk.	12,653	15.9	12,457	14.7	11,454	16.1	9,912	15.0	30,275	13.5	14,174	13.9	16,101	13.2	10	1.9
408	Paper goods, not elsewhere classified	5,142	15.6	5,706	14.4	4,397	16.0	4,283	16.2	25,946	13.2	12,657	11.5	13,289	15.5	10	1.8
1004	Clay products (other than pottery) and nonclay refractories.	7,256	14.8	5,661	12.9	6,989	15.6	5,121	14.8	21,412	19.2	8,537	22.5	12,875	17.6	51	4.8
1307	Machine tools	4,994	14.0	8,060	15.4	3,729	13.2	5,760	15.5	16,181	13.3	4,517	12.4	11,664	13.6	4	1.5
1121	Stoves and ranges (other than electric) and warm-air furnaces.	6,676	13.9	8,177	14.4	6,175	14.8	7,170	16.2	24,339	13.1	10,074	13.2	14,265	13.0	9	1.6
119	Ice, manufactured	3,543	13.3	4,468	12.8	2,861	15.1	3,331	16.2	24,957	19.5	4,572	16.3	20,385	20.3	413	10.7
304	Boxes, wooden, except cigar boxes	2,804	11.2	2,283	11.9	2,591	11.2	1,832	12.2	8,359	13.2	4,500	14.0	3,859	12.4	38	5.7
112	Confectionery	5,721	9.9	5,350	10.3	5,296	10.2	4,274	10.9	31,960	12.3	17,019	11.1	14,941	14.1	6	.5
210	Silk manufactures	5,527	9.4	4,375	9.3	5,104	9.2	3,668	9.1	8,189	5.5	2,711	3.9	5,478	6.8	7	1.1
1129	Stamped and pressed metal products; enameling, japanning, and lacquering.	5,266	9.3	6,527	9.7	4,622	9.3	5,027	9.8	25,060	12.0	13,104	13.0	11,956	11.1	8	1.1
1326	Machine shops	8,980	9.0	11,957	8.9	7,674	9.3	9,402	9.6	30,326	7.2	10,495	6.1	19,831	8.0	10	.3
134	Liquors, malt	4,227	8.8	8,117	9.8	3,567	9.1	6,824	10.2	49,293	11.8	14,811	10.6	34,482	12.3	6	.9
402	Boxes, paper, not elsewhere classified	5,564	8.8	6,331	9.0	4,802	8.7	4,851	9.6	42,031	14.1	28,464	16.9	13,567	10.4	39	3.2
314	Planing-mill products (including general millwork), made in planing mills not connected with sawmills.	2,911	5.1	2,736	4.8	2,584	5.4	2,255	5.3	9,104	4.6	4,823	4.4	4,281	4.9	16	.6
		210 SMALL INDUSTRIES[3]															
[3]1314	Typewriters and parts																
1010	Graphite, ground and refined	303	93.5	390	92.9	247	96.5	250	95.8	1,834	86.4	773	82.1	1,061	89.9	4	44.4
[3]624	Oils, essential																
602	Ammunition and related products	5,801	91.8	5,988	89.7	5,207	93.0	4,794	93.6	24,136	91.7	9,580	93.9	14,556	90.4	7	53.8
1609	Combs and hairpins, other than metal and rubber.	242	87.7	246	89.5	215	90.3	177	91.7	622	88.1	281	89.2	341	87.2	4	36.4
623	Oil, cake, and meal, linseed	2,273	87.6	2,760	87.3	2,092	89.0	2,373	89.6	52,978	87.9	42,938	88.0	10,040	87.6	17	68.0
[3]1003	China firing and decorating, not done in potteries.																
222	Asphalted-felt-base floor covering; linoleum.	5,854	84.9	7,791	83.3	5,479	85.5	6,931	85.5	42,752	81.6	18,941	79.1	23,811	83.7	9	56.3
1115	Safes and vaults	395	84.4	1,087	84.9	685	84.7	682	85.3	2,808	84.8	992	82.3	1,816	86.1	4	28.6
619	Ink, writing	433	83.5	589	83.0	322	85.4	320	84.2	2,808	83.0	1,135	80.2	1,673	85.1	4	18.2
1105	Files	2,671	83.0	3,159	82.9	2,456	84.3	2,604	85.4	7,879	85.8	1,917	85.8	5,962	85.8	6	27.3
612	Drug grinding	582	82.2	832	83.4	491	83.2	479	79.7	5,195	87.8	2,983	88.3	2,212	87.2	7	33.3
124	Oleomargarine, not made in meat-packing establishments.	1,241	82.1	1,614	81.0	975	82.9	1,105	84.8	25,615	79.1	18,127	77.8	7,488	82.2	6	42.8
1312	Sewing machines and attachments	7,135	82.0	9,334	80.6	6,288	83.7	7,596	83.9	17,857	78.9	4,800	79.6	12,057	72.5	5	12.8
613	Explosives	4,256	80.6	6,024	80.7	3,753	82.1	4,776	84.6	33,351	82.0	13,892	81.7	19,459	82.2	37	50.0
1636	Photographic apparatus and materials and projection apparatus.	12,396	80.2	18,541	79.9	9,754	81.3	13,005	82.3	57,395	77.6	12,978	49.7	44,417	92.9	6	5.1
1106	Firearms	4,296	78.6	5,254	79.9	3,808	78.4	4,482	81.5	10,670	81.9	2,680	79.1	7,990	82.9	6	27.3
801	Boots and shoes, rubber	15,163	78.3	15,759	79.4	13,457	78.0	12,794	79.4	43,243	81.3	16,895	81.5	26,348	81.2	6	50.0
1206	Fire extinguishers, chemical	856	77.4	1,166	79.5	642	79.7	800	82.9	4,121	77.2	1,883	76.2	2,238	78.0	4	16.0
606	Bone black, carbon black, and lamp black	1,569	77.0	1,905	78.4	1,413	77.3	1,544	79.7	12,000	81.0	4,088	76.7	7,912	83.5	41	74.5
610	Compressed and liquefied gases	4,379	76.9	5,892	72.2	2,982	78.7	3,373	76.5	33,244	79.1	9,016	80.2	24,228	78.7	239	72.4
1201	Aluminum products	16,911	76.6	19,418	75.7	14,819	76.9	15,732	77.4	79,036	76.0	44,946	76.9	34,090	74.7	16	9.4
307	Cork products	2,555	75.8	2,601	74.0	2,338	77.1	2,141	77.1	10,729	76.7	5,531	78.8	5,198	74.6	7	20.6
1208	Gold leaf and foil	466	74.2	391	71.9	427	76.7	301	74.7	1,135	63.6	598	62.3	537	65.2	5	18.5
113	Corn sirup, corn sugar, corn oil, and starch	6,256	72.6	8,922	75.1	5,290	72.1	6,289	74.5	80,058	77.2	53,710	76.4	26,348	79.0	16	44.4
108	Chewing gum	1,827	70.6	2,342	75.1	1,722	74.4	1,990	82.3	43,450	91.0	13,034	87.0	30,416	92.8	5	19.2
1641	Soda fountains and accessories	1,038	70.3	1,648	70.8	788	71.9	1,058	73.7	6,039	73.5	3,086	74.8	2,953	72.2	8	16.7
403	Cardboard, not made in paper mills	553	69.2	760	69.8	448	71.3	482	75.2	2,288	61.9	1,215	62.5	1,073	61.4	4	25.0
1116	Saws	2,868	69.0	3,435	65.6	2,417	70.6	2,627	70.4	8,653	63.4	2,567	61.9	6,086	64.0	9	11.0
1222	Watchcases	1,628	68.9	2,108	68.7	1,399	69.4	1,654	71.0	4,066	58.2	1,286	46.6	2,780	65.8	4	13.8
1001	Asbestos products other than steam packing, pipe, and boiler covering.	7,555	68.7	8,113	67.8	6,715	69.8	6,497	69.9	24,089	63.1	10,830	63.1	13,259	63.1	14	19.5
1022	Gypsum products	2,650	68.0	2,987	66.2	2,357	69.7	2,425	70.4	19,804	75.3	6,278	70.4	13,526	77.8	33	45.8
120	Shortenings, vegetable cooking oils and salad oils.	3,919	66.5	4,459	65.5	3,207	66.2	3,129	66.5	146,797	69.0	123,574	69.4	23,223	66.8	24	50.0
312	Matches	3,630	66.1	3,680	67.0	3,354	66.1	3,183	67.8	21,400	70.3	14,039	73.7	7,361	64.6	9	37.5
1631	Optical goods	7,717	65.5	10,295	69.2	6,142	63.5	7,152	69.2	20,767	61.9	5,609	50.7	15,158	67.3	7	7.0
1211	Needles, pins, hooks and eyes, and slide and snap fasteners.	7,326	64.9	7,881	63.2	6,608	65.4	6,258	66.0	20,804	63.4	5,409	58.3	15,395	65.4	5	10.0
131	Sugar refining, cane	9,813	64.3	11,921	69.4	8,932	64.5	9,749	70.1	262,388	69.6	231,740	68.9	30,648	74.7	10	55.6
1021	Abrasive wheels, stones, paper, and cloth and related products.	5,589	64.3	8,761	68.4	4,342	64.1	5,964	71.4	36,065	66.9	12,544	60.5	23,521	71.0	5	5.3
1405	Cars, electric and steam railroad	15,770	64.2	20,019	63.1	13,748	64.0	16,219	63.0	72,099	71.7	45,631	73.9	26,468	68.2	54	36.0
109	Chocolate and cocoa products, not including confectionery.	6,008	64.0	6,446	62.2	5,353	64.6	5,175	64.7	63,058	67.8	45,874	69.1	17,184	64.5	4	9.1
106	Cereal preparations	5,862	63.7	7,537	65.4	5,221	66.2	6,085	71.4	98,213	67.0	51,848	62.9	46,365	72.2	8	7.3
603	Baking powder, yeast, and other leavening compounds.	2,133	63.6	4,285	67.7	1,690	63.4	2,954	69.1	18,458	57.1	7,867	54.6	10,591	59.0	11	23.9
503	Engraving, chasing, etching, and diesinking.	1,696	63.6	2,088	59.7	1,426	64.8	1,511	61.7	4,766	62.2	2,100	77.9	2,666	53.7	4	4.0
631	Soap	10,795	63.3	13,800	61.6	9,042	65.0	10,468	68.2	175,870	73.5	102,529	73.5	73,341	73.5	18	7.6
129	Sugar, beet	6,730	62.3	8,225	65.6	5,678	61.5	6,161	66.0	64,737	68.0	48,761	68.5	15,976	66.5	46	59.7
1634	Pens, fountain and stylographic; pen points, gold, steel, and brass.	2,812	61.6	2,849	59.7	2,311	61.1	2,092	61.0	12,595	70.4	3,690	63.8	8,905	73.6	4	7.8

For footnotes, see end of table.

1935, based on number of persons employed—Continued

ands of dollars]

Largest eight producers																Industry	Industry number
Persons employed		Wages and salaries		Wage earners		Wages		Value of product		Cost of materials, etc.[1]		Value added by manufacturer [1]		Number of establishments			
Number	Percent of industry	Amount	Percent of industry	Number	Percent of industry	Amount	Percent of industry	Amount	Percent of industry	Amount	Percent of industry	Amount	Percent of industry	Number	Percent of industry		
44 MEDIUM INDUSTRIES—Continued																	
7,581	24.1	10,645	24.0	6,063	27.4	6,551	29.8	97,109	33.3	21,866	26.2	75,243	36.1	27	2.6	Drugs and medicines	611
18,747	23.6	18,793	22.1	16,813	23.6	14,901	22.5	49,608	22.2	25,138	24.6	24,470	20.1	20	3.8	Dyeing and finishing cotton, rayon, and silk.	204
7,034	21.3	8,313	21.0	5,957	21.7	6,088	23.0	46,484	23.7	25,955	23.6	20,529	23.9	22	4.0	Paper goods, not elsewhere classified	408
9,696	19.7	8,363	19.0	9,152	20.5	7,097	20.5	29,598	26.6	11,578	30.5	18,020	24.6	63	5.9	Clay products (other than pottery) and nonclay refractories.	1004
7,851	22.1	12,056	23.0	6,009	21.3	8,594	23.1	28,599	23.5	8,394	23.1	20,205	23.6	9	3.5	Machine tools	1307
9,202	19.1	12,096	21.3	8,321	19.9	10,414	23.5	42,645	23.0	14,899	19.6	27,746	25.3	15	2.7	Stoves and ranges (other than electric) and warm-air furnaces.	1121
4,755	17.9	6,113	17.5	3,760	19.8	4,510	21.9	35,893	28.0	6,949	24.8	28,944	28.8	563	14.6	Ice, manufactured	119
4,179	16.7	3,580	18.7	3,874	16.8	2,939	19.6	13,799	21.8	7,324	22.8	6,475	20.8	51	7.7	Boxes, wooden, except cigar boxes	304
9,172	15.8	8,948	17.3	8,268	15.9	6,845	17.4	51,827	19.9	29,435	19.2	22,392	21.1	16	1.2	Confectionery	112
9,503	16.2	7,474	15.9	8,893	16.0	6,311	15.6	22,007	14.7	11,712	16.8	10,295	12.8	13	2.0	Silk manufactures	210
8,370	14.8	10,392	15.4	7,390	14.8	8,038	15.7	38,802	18.6	20,320	20.1	18,482	17.2	12	1.7	Stamped and pressed metal products; enameling, japanning, and lacquering.	1129
13,008	13.1	17,664	13.1	11,141	13.5	13,873	14.2	61,157	14.6	28,649	16.6	32,508	13.2	20	.6	Machine shops	1326
6,037	12.6	11,776	14.2	5,187	13.2	9,057	14.9	74,187	17.7	22,703	16.2	51,484	18.4	11	1.7	Liquors, malt	134
8,398	13.3	9,651	13.8	7,390	13.4	7,582	15.0	61,913	20.7	41,455	24.6	20,458	15.7	52	4.3	Boxes, paper, not elsewhere classified	402
4,225	7.4	4,195	7.3	3,703	7.7	3,416	8.1	15,952	8.1	9,503	8.7	6,449	7.4	29	1.1	Planing-mill products (including general millwork), made in planing mills not connected with sawmills.	314
210 SMALL INDUSTRIES																	
16,834	99.5	18,686	99.4	15,333	99.6	16,579	99.7	33,609	99.3	8,563	99.2	25,046	99.3	14	70.0	Typewriters and parts	[3] 1314
[4] 324	100.0	420	100.0	256	100.0	261	100.0	2,122	100.0	942	100.0	1,180	100.0	9	100.0	Graphite, ground and refined	1010
218	93.2	429	95.1	158	95.2	211	96.3	3,472	98.0	2,575	99.0	897	95.4	8	66.7	Oils, essential	[3] 624
[4] 6,320	100.0	6,676	100.0	5,599	100.0	5,121	100.0	26,307	100.0	10,200	100.0	16,107	100.0	13	100.0	Ammunition and related products	602
265	96.0	268	97.5	229	96.2	189	97.9	685	97.0	310	98.4	375	95.9	8	72.8	Combs and hairpins, other than metal and rubber.	1609
2,495	96.2	3,017	95.4	2,277	96.9	2,562	96.7	57,273	95.0	46,324	94.9	10,949	95.6	21	84.0	Oil, cake, and meal, linseed	623
278	87.1	284	88.8	246	88.5	197	87.9	1,132	89.3	586	90.9	546	87.8	8	42.1	China firing and decorating, not done in potteries.	[3] 1003
[4] 6,895	100.0	9,350	100.0	6,410	100.0	8,105	100.0	52,398	100.0	23,942	100.0	28,456	100.0	16	100.0	Asphalted-felt-base floor covering; linoleum.	222
1,031	97.2	1,246	97.3	789	97.5	782	97.8	3,229	97.5	1,172	97.3	2,057	97.5	8	57.2	Safes and vaults	1115
483	93.2	667	94.0	355	94.2	357	93.9	3,167	93.6	1,320	93.3	1,847	93.9	8	36.4	Ink, writing	619
3,039	94.4	3,612	94.8	2,759	94.7	2,912	95.5	8,713	94.9	2,112	94.6	6,601	95.0	10	45.5	Files	1105
661	93.4	940	94.2	556	94.2	565	94.0	5,719	96.7	3,275	96.9	2,444	96.3	12	57.1	Drug grinding	612
1,418	93.8	1,875	94.1	1,111	94.5	1,238	95.0	31,110	96.0	22,298	95.7	8,812	96.7	10	71.4	Oleomargarine, not made in meat-packing establishments.	124
8,088	93.0	10,810	93.4	7,006	93.3	8,457	93.4	20,471	90.4	5,396	89.5	14,075	84.7	9	23.1	Sewing machines and attachments	1312
4,790	90.7	6,797	91.1	4,178	91.4	5,251	93.0	37,845	93.1	15,807	93.0	22,038	93.1	43	58.1	Explosives	613
13,256	85.8	20,086	86.7	10,370	86.4	13,921	88.1	62,821	84.9	15,325	58.6	47,496	99.3	15	12.7	Photographic apparatus and materials and projection apparatus.	1636
5,044	92.3	6,041	91.8	4,498	92.6	5,105	92.9	12,037	92.4	3,163	93.4	8,874	92.1	10	45.5	Firearms	1106
[4] 19,377	100.0	19,837	100.0	17,246	100.0	16,113	100.0	53,162	100.0	20,730	100.0	32,432	100.0	12	100.0	Boots and shoes, rubber	801
951	85.9	1,302	88.8	716	88.8	878	91.0	4,660	87.2	2,098	84.9	2,562	89.3	8	32.0	Fire extinguishers, chemical	1206
1,847	90.6	2,203	90.7	1,664	91.0	1,777	91.7	13,615	91.9	4,879	91.5	8,736	92.2	46	83.6	Bone black, carbon black, and lamp black	606
4,771	83.8	6,559	80.4	3,232	85.3	3,701	84.0	36,178	86.1	9,665	86.0	26,513	86.1	262	79.4	Compressed and liquefied gases	610
18,330	83.0	21,139	82.4	16,115	83.6	17,103	84.1	87,060	83.7	49,215	84.2	37,845	82.9	20	11.8	Aluminum products	1201
2,976	88.3	3,070	87.4	2,711	89.4	2,485	89.5	12,612	90.2	6,442	91.8	6,170	88.6	11	32.4	Cork products	307
556	88.5	483	88.8	492	88.3	353	87.6	1,559	87.4	830	86.5	729	88.5	9	33.3	Gold leaf and foil	1208
8,002	92.9	11,130	93.7	6,807	92.8	7,934	94.0	98,469	95.0	66,608	94.8	31,861	95.5	20	55.6	Corn sirup, corn sugar, corn oil, and starch	113
2,184	84.4	2,750	88.2	2,001	86.4	2,222	91.9	46,499	97.4	14,364	95.9	32,135	98.0	9	34.6	Chewing gum	108
1,161	78.6	1,829	78.6	867	79.1	1,146	79.8	6,603	80.4	3,341	81.0	3,262	79.8	12	25.0	Soda fountains and accessories	1641
689	86.2	972	89.3	539	85.8	565	88.1	3,296	89.2	1,765	90.7	1,531	87.6	9	56.2	Cardboard, not made in paper mills	403
3,186	76.7	3,961	75.6	2,673	78.0	2,923	78.3	10,413	76.3	3,145	75.9	7,268	76.5	15	18.3	Saws	1116
2,030	85.9	2,631	85.7	1,734	86.0	2,022	86.8	5,635	80.7	2,103	76.2	3,532	83.6	8	27.6	Watchcases	1222
8,859	80.6	9,430	78.8	7,920	82.3	7,585	81.6	29,921	78.4	13,662	79.6	16,259	77.4	19	26.4	Asbestos products other than steam packing, pipe, and boiler covering.	1001
3,101	79.6	3,536	78.3	2,748	81.3	2,833	82.2	22,723	86.4	7,623	85.5	15,100	86.9	42	58.3	Gypsum products	1022
4,900	83.1	5,626	82.7	3,997	82.5	3,880	82.4	182,643	85.9	153,630	86.3	29,013	83.4	31	64.6	Shortenings, vegetable cooking oils and salad oils.	120
4,797	87.3	4,755	86.6	4,478	88.2	4,152	88.5	27,789	91.3	17,646	92.7	10,143	89.0	15	62.5	Matches	312
8,473	71.9	11,195	75.3	6,808	70.4	7,792	75.4	23,739	70.7	6,818	61.6	16,921	75.1	13	13.0	Optical goods	1631
8,189	72.5	8,978	72.0	7,311	72.4	6,955	73.3	25,018	76.2	6,582	70.9	18,436	78.3	9	18.0	Needles, pins, hooks and eyes, and slide and snap fasteners.	1211
12,830	84.1	15,004	87.3	11,609	83.9	12,158	87.4	333,122	88.3	295,772	88.0	37,350	91.0	14	77.8	Sugar refining, cane	131
6,160	70.9	9,433	73.7	4,814	71.0	6,454	77.3	39,291	72.9	13,910	67.1	25,381	76.6	9	9.6	Abrasive wheels, stones, paper, and cloth, and related products.	1021
18,928	77.1	24,317	76.6	16,687	77.7	20,059	77.9	84,473	84.0	53,792	87.2	30,681	79.0	72	48.0	Cars, electric and steam railroad	1405
7,243	77.2	7,763	74.9	6,458	77.9	6,156	77.0	72,144	77.5	52,026	78.3	20,118	75.5	8	18.2	Chocolate and cocoa products, not including confectionery.	109
6,851	74.4	8,706	75.5	6,085	77.1	6,963	81.7	120,562	82.2	65,054	78.9	55,508	86.4	15	13.6	Cereal preparations	106
2,760	82.3	5,403	85.4	2,202	82.6	3,679	86.0	25,650	79.3	10,833	75.2	14,817	82.6	15	32.6	Baking powder, yeast, and other leavening compounds.	603
2,021	75.8	2,534	72.4	1,703	77.4	1,798	73.4	5,773	75.4	2,371	87.9	3,402	68.5	8	8.0	Engraving, chasing, etching, and diesinking.	503
12,368	72.5	16,173	72.2	10,394	74.7	12,038	78.5	198,804	83.1	114,921	82.4	83,883	84.1	24	10.1	Soap	631
9,181	85.0	10,906	87.0	7,844	85.0	8,201	87.8	85,081	89.4	64,082	90.1	20,999	87.4	62	80.5	Sugar, beet	129
3,632	79.5	3,767	79.0	3,014	79.7	2,763	80.6	14,777	82.6	4,167	72.1	10,610	87.7	8	15.6	Pens, fountain and stylographic; pen points, gold, steel, and brass.	1634

TABLE I.—*Concentration in manufacturing industries,*

[Values in thou

Industry number	Industry	Largest four producers															
		Persons employed		Wages and salaries		Wage earners		Wages		Value of product		Cost of materials, etc.[1]		Value added by manufacture[2]		Number of establishments	
		Number	Percent of industry	Amount	Percent of industry	Number	Percent of industry	Amount	Percent of industry	Amount	Percent of industry	Amount	Percent of industry	Amount	Percent of industry	Number	Percent of industry
		210 SMALL INDUSTRIES—Continued															
1637	Pipes (tobacco)	1,475	60.6	1,701	62.3	1,372	61.2	1,480	64.9	3,812	61.7	1,122	57.8	2,690	63.5	5	17.2
605	Bluing	58	59.2	125	78.1	34	58.6	41	74.5	776	85.1	224	78.3	552	88.2	6	40.0
1409	Motorcycles, bicycles, and parts	3,402	58.9	4,044	61.6	2,957	58.1	3,248	62.3	13,640	59.0	7,293	56.9	6,347	61.8	6	26.1
607	Candles	520	57.8	616	57.2	419	58.8	353	58.9	2,877	60.8	1,432	59.7	1,445	61.9	4	17.4
615	Fireworks and allied products	1,075	57.8	1,150	55.8	944	59.4	765	58.4	3,333	51.2	1,413	53.8	1,920	49.6	10	19.3
1110	Blast-furnace products	9,623	57.6	13,226	58.2	8,703	57.4	10,811	57.2	235,579	62.9	191,943	63.9	43,636	58.9	30	41.7
1218	Smelting and refining, zinc	5,464	56.5	7,441	59.6	4,937	55.8	5,986	58.0	41,617	60.2	26,082	59.9	15,535	60.7	9	34.6
220	Artificial leather; oil cloth	2,431	56.4	3,099	55.4	2,059	56.4	2,415	57.5	19,814	57.7	13,209	57.0	6,605	59.3	7	21.2
1629	Musical instruments: Organs	422	55.7	495	54.7	359	58.5	339	55.5	911	53.7	310	53.8	601	53.5	4	14.3
2051	Felt goods, except woven felts	2,212	55.7	2,413	54.7	2,052	57.4	2,015	58.6	14,530	61.3	8,090	59.9	6,440	63.1	9	22.5
1611	Dentists' equipment and supplies	2,493	55.6	3,087	52.6	2,104	59.8	2,222	61.2	11,542	50.3	3,097	34.0	8,445	61.0	7	8.0
1020	Wallboard and plaster, building insulation, floor composition.	2,972	55.2	2,684	48.4	2,666	57.7	2,103	53.4	12,878	54.0	3,940	43.9	8,938	60.1	5	4.0
1315	Washing machines, wringers, driers, and ironing machines.	5,492	53.5	7,381	58.5	4,639	53.0	5,926	60.2	34,879	55.9	20,147	54.4	14,732	57.9	6	14.6
1630	Muscial instruments: Pianos	2,435	53.0	2,611	53.2	2,195	53.4	2,170	53.0	6,477	51.1	2,242	40.0	4,235	59.7	4	11.1
308	Excelsior	474	52.2	401	59.4	438	52.7	313	58.8	1,591	65.1	612	59.4	979	69.3	9	18.8
1647	Tobacco (chewing and smoking) and snuff	5,739	51.9	4,834	46.3	5,378	53.4	4,091	53.6	75,396	55.7	54,760	60.9	20,636	45.3	8	7.0
1644	Steam and other packing, pipe and boiler covering, gaskets, n. e. c.	2,965	51.5	3,310	46.9	2,576	53.9	2,492	52.6	11,367	46.9	5,807	49.4	5,560	44.5	9	7.3
1113	Nails, spikes, etc	1,290	51.5	1,530	50.2	1,160	53.2	1,263	54.4	4,669	48.3	2,015	46.6	2,654	49.8	6	14.0
1645	Surgical and orthopedic appliances and related products.	4,727	50.6	5,319	49.4	3,700	52.2	3,163	50.3	41,293	66.9	28,020	77.6	13,273	51.7	10	3.3
1213	Silverware and plated ware	5,980	50.4	6,879	48.3	5,162	50.6	5,633	50.8	24,524	56.6	7,296	47.9	17,228	61.2	9	6.5
133	Liquors, distilled	4,814	50.0	5,027	44.4	4,395	53.9	4,387	52.5	77,937	51.0	38,533	50.4	39,404	51.6	15	11.4
1203	Collapsible tubes	1,066	49.9	1,191	51.6	1,002	51.0	972	55.5	4,147	48.8	2,496	50.3	1,651	46.6	4	25.0
310	Lasts and related products	870	49.8	1,219	47.5	766	51.2	996	52.1	2,787	50.5	724	49.7	2,063	50.8	13	27.1
1403	Carriages and sleds, children's	2,680	49.1	2,797	51.7	2,491	50.6	2,471	56.6	7,302	47.0	3,473	46.8	3,829	47.3	6	10.9
1209	Gold, silver, and platinum, refining and alloying.	744	49.1	1,195	45.1	545	54.4	663	50.3	50,168	64.3	47,746	66.5	2,422	38.6	5	3.7
1654	Wool pulling	461	48.5	555	45.0	419	48.4	461	47.3	5,481	44.2	4,207	46.7	1,274	37.5	4	23.5
1627	Musical-instrument parts and materials: Piano and organ	667	48.4	627	43.0	616	50.6	480	46.6	1,254	39.4	495	40.5	759	38.7	4	11.8
1311	Scales and balances	1,576	48.2	2,033	48.5	1,179	47.8	1,254	47.6	6,919	51.7	1,854	49.0	5,065	52.7	5	8.9
1401	Aircraft and parts	7,131	47.8	11,280	52.5	5,436	47.8	8,211	55.2	24,435	53.9	7,681	54.8	16,754	53.5	8	10.1
633	Wood distillation and charcoal manufacture.	2,050	47.5	1,961	52.1	1,776	46.6	1,443	51.3	8,555	53.5	3,663	46.2	4,892	60.8	7	11.6
404	Card cutting and designing	1,655	47.3	1,981	49.3	1,447	49.0	1,534	53.9	11,061	64.2	5,233	68.0	5,828	61.2	5	6.6
630	Salt	2,619	47.2	3,255	50.9	2,352	47.3	2,588	53.0	17,920	60.3	6,413	58.7	11,507	61.2	15	31.3
1633	Pencils, lead (including mechanical), and crayons.	2,857	46.9	3,098	49.0	2,451	47.3	2,187	51.6	8,973	44.9	3,740	45.3	5,233	44.6	5	10.6
1202	Clocks, watches, time-recording devices, materials, parts.	9,412	46.4	10,006	44.3	8,712	48.3	8,536	46.7	20,548	33.6	6,101	27.1	14,447	37.4	5	6.6
1638	Roofing, built-up and roll; asphalt shingles; roof coatings.	3,414	46.4	3,878	44.6	3,051	47.1	3,053	45.7	32,581	42.8	18,310	42.6	14,271	43.0	20	18.5
1018	Sand-lime brick	124	46.1	145	54.1	110	48.5	113	56.8	413	63.1	185	68.5	228	59.2	4	20.0
2171	Gloves and mittens, cloth or cloth and leather combined.	3,868	46.0	2,135	41.5	3,781	47.0	2,011	44.8	8,323	43.9	4,631	45.0	3,692	42.7	22	19.2
411	Wall paper	2,242	45.9	2,479	41.4	2,012	47.2	2,023	45.1	8,068	41.0	4,150	42.0	3,918	40.1	8	20.0
1217	Smelting and refining, nonferrous metals other than silver, gold, and platinum.	2,075	45.8	2,427	40.1	1,747	48.4	1,674	73.1	25,979	41.5	20,868	40.1	5,111	48.1	16	16.1
1603	Artists' materials	238	45.3	309	43.4	150	42.9	139	41.3	1,234	50.8	738	60.4	496	41.0	4	8.5
2173	Suspenders, garters, and other elastic woven products.	1,324	45.0	1,372	48.5	1,209	44.5	888	45.4	8,034	54.8	4,368	51.4	3,666	59.5	4	5.4
1120	Steel barrels, kegs, and drums	2,898	44.7	3,218	42.2	2,646	45.9	2,667	45.7	12,829	37.0	7,455	35.4	5,374	39.5	7	10.9
1632	Paving materials: Blocks and mixtures	1,181	44.4	1,642	46.0	1,136	50.9	1,503	59.8	7,962	44.5	4,689	47.0	3,273	41.4	26	19.7
111	Condensed and evaporated milk	4,358	44.1	4,485	41.1	3,859	45.6	3,618	43.5	73,218	42.7	53,956	41.2	19,262	47.5	168	36.0
122	Malt	750	43.7	1,505	42.0	644	44.8	1,040	44.3	33,536	44.6	25,255	44.8	8,281	44.3	13	24.1
1617	Hair work	270	43.7	361	46.6	228	45.5	178	40.7	1,200	43.8	303	29.1	897	52.9	4	9.3
1404	Carriages, wagons, sleighs, and sleds	798	42.9	788	44.6	688	43.2	576	44.8	3,052	44.6	1,603	43.6	1,449	45.9	4	8.9
1108	Galvanizing and other coating	598	42.6	760	40.4	549	45.7	480	37.8	1,791	34.5	471	23.5	1,320	41.4	4	6.2
1128	Wrought pipe, welded and heavy riveted	5,021	42.6	6,301	42.8	4,671	43.6	5,377	45.6	34,710	47.0	20,152	48.0	14,558	45.7	8	16.7
1616	Furs, dressed and dyed	2,997	42.6	4,022	41.9	2,890	44.9	3,355	44.4	6,486	30.4	1,762	27.1	4,724	31.9	7	4.2
1622	Jewelry and instrument cases	1,088	42.5	1,105	42.1	998	43.1	842	42.5	2,214	34.8	693	29.5	1,521	37.9	4	5.5
618	Ink, printing	1,405	42.0	2,318	37.9	1,057	44.6	1,429	44.2	16,500	47.5	10,131	54.5	6,369	39.9	41	21.5
1623	Lapidary work	85	41.9	132	44.8	72	47.0	96	47.7	507	24.7	291	23.5	216	26.6	4	6.7
616	Glue and gelatin	1,633	41.8	2,038	39.3	1,446	44.4	1,570	44.4	10,177	36.1	4,845	32.1	5,332	40.7	12	16.2
701	Coke-oven products	7,682	41.7	10,451	40.6	6,870	41.2	8,543	39.6	116,463	48.8	90,908	50.4	25,555	43.9	20	22.7
136	Liquors, rectified or blended	2,974	41.6	2,324	34.5	2,860	48.6	2,135	47.2	41,873	42.2	20,532	36.2	21,341	50.3	6	2.3
127	Rice cleaning and polishing	1,061	40.7	980	36.8	825	40.7	468	35.7	16,131	36.6	11,887	34.7	4,244	42.9	17	25.0
1118	Springs, steel, except wire	1,460	40.6	1,969	42.7	1,357	43.1	1,674	46.9	9,774	53.6	6,640	60.1	3,134	43.6	4	8.2
303	Boxes, cigar, wooden and part wooden	1,355	40.2	973	38.3	1,312	41.3	809	40.5	2,517	40.9	817	36.7	1,700	43.2	11	15.3
1628	Musical instruments and parts and materials, n. e. c.	1,394	39.6	1,739	41.2	1,080	37.7	1,197	39.8	3,514	38.8	844	30.9	2,670	42.2	4	4.3
132	Vinegar and cider	500	39.5	606	40.3	435	42.0	432	43.1	3,440	40.4	2,054	43.2	1,386	36.9	26	20.8
1653	Beauty-shop equipment, except furniture	1,039	39.0	1,146	37.5	875	40.2	717	36.4	3,571	28.5	1,562	31.1	2,009	26.8	4	4.9
319	Wood preserving	3,816	38.8	2,909	35.0	3,633	40.4	2,562	38.6	40,599	50.5	32,184	53.9	8,415	40.8	55	29.7
1614	Foundry supplies	222	38.4	409	44.5	150	37.5	187	41.9	1,850	28.4	836	24.3	1,014	33.0	7	15.2
1649	Umbrellas, parasols, and canes	922	37.9	842	37.1	860	39.3	655	38.3	2,959	29.3	1,435	23.4	1,524	38.6	4	4.8
1224	Jewelers' findings and materials	1,169	37.7	1,312	33.9	1,064	40.0	1,039	38.1	4,146	24.2	2,200	20.1	1,946	31.3	4	5.5
1313	Textile machinery and parts	8,342	36.8	10,255	34.5	7,280	38.2	8,007	37.7	18,487	26.9	7,405	32.0	11,082	24.2	6	1.7
625	Oils not elsewhere classified	831	36.7	1,084	36.9	692	39.1	785	43.3	17,028	40.8	10,671	36.9	6,357	49.7	10	9.5
1607	Carbon paper and inked ribbons	716	36.6	1,080	35.9	524	36.8	571	35.0	4,861	33.1	2,676	35.7	2,185	30.4	4	7.1
1126	Wire drawn from purchased rods	8,761	36.2	11,592	37.7	8,135	37.8	9,892	40.5	51,262	40.2	28,396	41.5	22,866	38.8	15	17.0

For footnotes, see end of table.

1935, based on number of persons employed—Continued

sands of dollars]

Largest eight producers																Industry	Industry number
Persons employed		Wages and salaries		Wage earners		Wages		Value of product		Cost of materials, etc.[1]		Value added by manufacture[2]		Number of establishments			
Number	Percent of industry	Amount	Percent of industry	Number	Percent of industry	Amount	Percent of industry	Amount	Percent of industry	Amount	Percent of industry	Amount	Percent of industry	Number	Percent of industry		
210 SMALL INDUSTRIES—Continued																	
1,907	78.4	2,247	82.3	1,761	78.6	1,894	83.0	5,004	81.0	1,501	77.3	3,503	82.7	9	31.0	Pipes (tobacco)	1637
98	100.0	160	100.0	58	100.0	55	100.0	912	100.0	286	100.0	626	100.0	15	100.0	Bluing	605
4,693	81.3	5,414	82.5	4,126	81.0	4,366	83.7	19,495	84.4	10,969	85.6	8,526	83.0	10	43.5	Motorcycles, bicycles, and parts	1409
697	77.4	873	81.1	553	77.6	485	81.0	3,895	82.3	1,936	80.7	1,959	83.9	8	34.8	Candles	607
1,410	75.8	1,558	75.6	1,234	77.7	1,017	77.7	4,972	76.4	2,007	76.4	2,965	76.5	20	38.5	Fireworks and allied products	615
12,071	72.3	16,956	74.6	11,012	72.6	14,166	74.9	310,230	82.8	250,691	83.4	59,539	80.4	40	55.5	Blast-furnace products	1110
7,653	79.1	10,193	81.6	6,982	79.0	8,386	81.3	56,821	82.2	36,114	82.9	20,707	81.0	15	57.7	Smelting and refining, zinc	1218
3,186	73.9	4,083	72.9	2,737	75.0	3,218	76.6	25,872	75.4	17,819	76.9	8,053	72.3	11	33.3	Artificial leather; oil cloth	220
593	78.3	721	79.6	489	79.6	490	80.2	1,316	77.5	448	77.8	868	77.3	8	28.6	Musical instruments: Organs	1629
3,071	77.3	3,372	76.5	2,813	78.7	2,728	79.3	19,193	81.0	10,759	79.7	8,434	82.7	14	35.0	Felt goods, except woven felts	2051
3,024	68.7	3,881	66.1	2,573	73.2	2,679	73.8	13,885	60.5	3,734	41.0	10,151	73.3	12	13.8	Dentists' equipment and supplies	1611
3,832	71.1	3,787	68.3	3,427	74.2	2,958	75.1	16,716	70.1	5,442	60.6	11,274	75.8	9	7.3	Wallboard and plaster, building insulation, floor composition.	1020
7,922	77.1	10,163	80.6	6,795	77.7	8,127	82.5	49,726	79.7	29,567	79.9	20,159	79.3	11	26.8	Washing machines, wringers, driers, and ironing machines.	1315
3,364	73.2	3,644	74.2	3,009	73.2	3,076	75.2	9,617	75.8	3,988	71.2	5,629	79.4	8	22.2	Musical instruments: Pianos	1630
564	62.1	480	71.1	515	62.0	374	70.3	1,867	76.4	741	71.9	1,126	79.7	13	27.1	Excelsior	308
8,067	73.0	7,665	73.4	7,412	73.6	5,929	77.7	114,197	84.3	76,276	84.8	37,921	83.3	16	13.9	Tobacco (chewing and smoking) and snuff	1647
3,782	65.7	4,221	59.8	3,309	69.3	3,219	67.9	15,159	62.5	7,886	67.1	7,273	58.2	14	11.3	Steam and other packing, pipe and boiler covering, gaskets, n. e. c.	1644
1,631	65.1	2,023	66.3	1,445	66.3	1,596	68.8	6,125	63.4	2,604	60.2	3,521	66.1	10	23.3	Nails, spikes, etc.	1113
5,456	58.4	6,233	57.9	4,207	59.3	3,638	57.9	46,388	75.1	30,044	83.2	16,344	63.7	15	4.9	Surgical and orthopedic appliances and related products.	1645
7,411	62.5	8,610	60.5	6,392	62.7	6,805	61.4	29,484	68.0	9,326	61.2	20,158	71.6	13	9.4	Silverware and plated ware	1213
6,250	64.9	6,832	60.3	5,574	68.4	5,759	68.9	109,203	71.4	53,329	69.7	55,874	73.1	19	14.5	Liquors, distilled	133
1,685	78.8	1,842	79.8	1,556	79.3	1,427	81.5	6,749	79.4	3,973	80.0	2,776	78.4	8	50.0	Collapsible tubes	1203
1,107	63.4	1,660	64.7	956	63.9	1,257	65.8	3,714	67.3	952	65.3	2,762	68.0	17	35.4	Lasts and related products	310
3,428	62.8	3,581	66.2	3,179	64.6	3,041	69.7	9,979	64.3	4,742	63.9	5,237	64.7	10	18.2	Carriages and sleds, children's	1403
891	58.8	1,467	55.4	619	61.8	768	58.3	61,955	79.4	58,414	81.4	3,541	56.5	9	10.2	Gold, silver, and platinum, refining and alloying.	1209
721	75.8	930	75.4	662	76.4	777	79.7	9,759	78.7	7,452	82.7	2,307	68.0	8	47.0	Wool pulling	1654
1,005	73.0	1,007	69.1	925	76.0	747	72.6	2,157	67.7	811	66.3	1,346	68.6	8	23.6	Musical-instrument parts and materials: Piano and organ.	1627
2,149	65.7	2,830	67.5	1,591	64.5	1,720	65.3	9,751	72.9	2,626	69.4	7,125	74.2	9	16.1	Scales and balances	1311
9,851	66.0	15,362	71.5	7,418	65.2	10,884	73.1	33,008	72.8	10,127	72.3	22,881	73.0	13	16.4	Aircraft and parts	1401
2,783	64.5	2,474	65.8	2,465	64.7	1,861	66.1	10,592	66.3	4,705	59.4	5,887	73.2	11	18.3	Wood distillation and charcoal manufacture.	633
2,167	61.9	2,609	64.9	1,829	62.0	1,919	67.4	13,377	77.7	6,168	80.1	7,209	75.7	10	13.2	Card cutting and designing	404
3,719	67.0	4,203	65.7	3,348	67.3	3,295	67.5	23,254	78.2	8,309	76.0	14,945	79.5	20	41.7	Salt	630
4,201	68.9	4,543	71.8	3,551	68.5	3,062	72.3	13,338	66.7	5,327	64.5	8,011	68.2	9	19.1	Pencils, lead (including mechanical), and crayons.	1633
13,819	68.1	14,794	65.5	12,464	69.1	12,291	67.2	36,141	59.1	13,679	60.7	22,462	58.1	12	15.8	Clocks, watches, time-recording devices, materials, parts.	1202
4,993	67.8	5,787	66.6	4,544	70.1	4,768	71.3	51,929	68.2	29,992	69.8	21,937	66.1	29	26.8	Roofing, built-up and roll; asphalt shingles; roof coatings.	1638
188	69.9	198	73.9	164	72.2	148	74.4	518	79.2	222	82.2	296	76.9	8	40.0	Sand-lime brick	1018
4,872	57.9	2,715	52.8	4,747	59.0	2,494	55.6	10,198	53.8	5,636	54.8	4,559	52.7	27	23.5	Gloves and mittens, cloth or cloth and leather combined.	2171
3,043	62.3	3,497	58.5	2,690	63.1	2,754	61.4	11,574	58.9	5,986	60.5	5,588	57.2	12	30.0	Wall paper	411
2,540	56.1	3,127	51.7	2,118	58.7	2,074	90.5	38,081	60.8	31,655	60.9	6,426	60.5	20	20.2	Smelting and refining, nonferrous metals other than silver, gold, and platinum.	1217
296	56.3	446	62.6	189	54.0	191	56.7	1,634	67.2	876	71.7	758	62.7	8	17.0	Artists' materials	1603
1,908	60.3	1,792	63.3	1,629	59.9	1,163	59.5	9,637	65.7	5,316	62.6	4,321	70.1	8	10.8	Suspenders, garters, and other elastic woven products.	2173
4,107	63.4	4,688	61.5	3,686	64.0	3,714	63.6	19,724	56.9	11,636	55.3	8,088	59.4	18	28.1	Steel barrels, kegs, and drums	1120
1,622	61.0	2,116	59.3	1,496	67.1	1,814	72.2	10,775	60.2	6,161	61.7	4,614	58.4	45	34.1	Paving materials: Blocks and mixtures	1632
5,912	59.8	6,024	55.2	5,222	61.7	4,821	58.0	107,514	62.7	83,466	63.7	24,048	59.3	212	45.4	Condensed and evaporated milk	111
1,042	60.7	2,188	61.1	878	61.0	1,412	60.1	49,208	65.5	37,713	66.9	11,495	61.5	18	33.3	Malt	122
374	60.5	477	61.5	310	61.8	246	56.2	1,745	63.7	618	59.4	1,127	66.4	8	18.6	Hair work	1617
1,121	60.3	1,116	63.2	960	60.3	808	62.9	4,621	67.5	2,485	67.5	2,136	67.6	8	17.8	Carriages, wagons, sleighs, and sleds	1404
840	59.8	1,026	54.4	758	63.1	689	54.3	2,920	56.2	1,178	58.8	1,742	54.6	8	12.4	Galvanizing and other coating	1108
6,808	57.7	8,995	61.1	6,232	58.1	7,459	63.2	47,853	64.8	26,860	64.0	20,993	65.9	13	27.1	Wrought pipe, welded and heavy riveted	1128
3,746	53.3	5,066	52.8	3,616	56.2	4,094	54.2	8,236	38.6	2,204	33.9	6,032	40.7	11	6.6	Furs, dressed and dyed	1616
1,481	57.8	1,563	59.6	1,349	58.3	1,164	58.8	3,533	55.5	1,267	53.9	2,266	56.5	8	11.1	Jewelry and instrument cases	1622
1,847	55.2	3,153	51.5	1,390	58.2	1,896	58.6	21,034	60.9	12,356	66.5	8,678	54.4	49	25.7	Ink, printing	618
112	55.2	169	57.3	90	58.8	116	57.7	620	30.2	344	27.8	276	34.0	8	13.3	Lapidary work	1623
2,387	61.1	3,064	59.0	2,103	64.6	2,332	66.0	16,397	58.2	8,127	53.9	8,270	63.2	19	25.7	Glue and gelatin	616
11,209	60.8	15,644	60.8	10,094	60.5	12,973	60.1	162,543	68.1	124,548	69.0	37,995	65.3	34	38.6	Coke-oven products	701
3,591	50.2	2,983	44.3	3,386	57.6	2,613	57.7	55,945	56.4	29,243	51.6	26,702	62.9	13	5.0	Liquors, rectified or blended	136
1,325	50.8	1,330	49.9	1,038	51.2	678	51.7	23,278	52.8	17,719	51.8	5,559	56.2	21	30.9	Rice cleaning and polishing	127
2,237	62.2	2,834	61.5	2,045	65.0	2,375	66.6	12,967	71.1	8,537	77.3	4,430	61.6	8	16.4	Springs, steel, except wire	1118
1,880	55.8	1,414	55.7	1,806	56.9	1,134	56.7	3,626	58.9	1,311	58.9	2,315	58.8	15	20.8	Boxes, cigar, wooden and part wooden	303
1,810	51.4	2,418	57.2	1,424	49.7	1,695	56.3	4,945	54.6	1,312	48.1	3,633	57.4	8	8.6	Musical instruments and parts and materials, n. e. c.	1628
661	52.2	853	56.7	568	54.8	589	58.8	4,838	56.8	2,830	59.5	2,008	53.4	33	26.4	Vinegar and cider	132
1,464	55.0	1,583	51.8	1,246	57.2	1,029	52.3	6,947	55.5	2,667	53.2	4,280	57.0	8	9.8	Beauty-shop equipment, except furniture	1653
4,629	47.1	3,785	45.6	4,374	48.7	3,279	49.4	48,373	60.2	38,376	64.2	9,997	48.5	65	35.1	Wood preserving	319
345	59.7	569	61.9	258	64.5	309	69.3	4,466	68.5	2,390	69.4	2,076	67.5	11	23.9	Foundry supplies	1614
1,238	50.9	1,157	51.0	1,144	52.3	883	51.6	4,426	43.9	2,358	38.4	2,068	52.4	8	9.6	Umbrellas, parasols, and canes	1649
1,701	54.9	1,981	51.3	1,494	56.1	1,465	53.7	7,221	42.1	4,205	38.4	3,016	48.5	8	11.0	Jewelers' findings and materials	1224
11,380	50.2	14,515	48.8	9,611	50.4	10,835	51.0	31,597	45.9	10,330	44.7	21,267	46.5	14	4.0	Textile machinery and parts	1313
1,141	50.4	1,432	48.7	972	54.9	1,044	57.6	24,084	57.7	16,671	57.6	7,413	58.0	15	14.2	Oils not elsewhere classified	625
1,145	58.6	1,740	57.8	843	59.2	963	59.1	8,194	55.8	4,019	53.6	4,175	58.0	8	14.3	Carbon paper and inked ribbons	1607
11,914	49.2	15,527	50.5	10,985	51.0	13,201	54.0	68,849	54.0	37,178	54.3	31,671	53.8	20	22.7	Wire drawn from purchased rods	1126

TABLE I.—*Concentration in manufacturing industries,*

[Values in thou

Industry number	Industry	Largest four producers															
		Persons employed		Wages and salaries		Wage earners		Wages		Value of product		Cost of materials, etc.[1]		Value added by manufacturer[2]		Number of establishments	
		Number	Percent of industry	Amount	Percent of industry	Number	Percent of industry	Amount	Percent of industry	Amount	Percent of industry	Amount	Percent of industry	Amount	Percent of industry	Number	Percent of industry
		210 SMALL INDUSTRIES—Continued															
1102	Cast-iron pipe and fittings	5,191	35.6	3,975	31.3	4,939	36.5	3,443	33.2	14,258	37.6	5,602	37.9	8,656	37.5	14	19.7
405	Envelopes	3,757	35.2	4,422	33.2	3,230	35.7	3,196	35.2	14,663	33.6	7,847	37.8	6,816	29.8	17	10.3
1642	Sporting and athletic goods, not including firearms or ammunition.	3,934	34.8	4,311	35.8	3,359	34.7	3,341	37.0	12,267	35.2	6,205	37.4	6,062	33.2	10	5.1
2172	Handkerchiefs	1,799	34.1	1,333	32.5	1,721	35.2	1,154	35.8	5,338	29.0	3,070	32.3	2,268	25.4	5	5.6
1324	Cranes, and dredging, excavating, and road-building machinery.	4,868	34.0	6,800	35.0	3,784	35.0	4,629	36.9	17,882	28.5	7,532	26.2	10,350	30.4	8	6.3
126	Poultry dressing and packing, wholesale	3,213	33.9	2,157	30.2	2,765	34.2	1,543	30.5	27,363	29.4	23,066	30.1	4,300	26.4	166	29.5
1101	Bolts, nuts, washers, and rivets	4,859	33.6	6,189	34.1	4,302	34.4	4,860	36.3	16,754	29.2	8,488	29.3	8,266	29.2	13	9.5
622	Oil, cake, and meal, cottonseed	5,247	33.5	3,245	30.6	4,574	34.6	2,004	33.9	60,852	32.4	53,808	33.5	7,044	25.8	105	22.9
901	Belting and packing, leather	1,004	33.1	1,085	27.0	874	37.0	806	32.0	7,900	36.7	4,118	35.6	3,782	37.9	5	2.7
208	Lace goods	2,904	33.0	3,729	34.5	2,582	32.9	3,023	34.8	9,988	36.3	3,151	32.6	6,837	38.3	5	8.9
401	Bags, paper, exclusive of those made in paper mills.	3,274	32.6	2,982	28.4	3,090	33.9	2,556	31.8	21,806	33.3	13,692	32.9	8,114	34.1	14	13.1
1114	Plumbers' supplies	7,297	31.8	8,381	31.2	6,652	33.1	7,365	34.5	25,939	34.3	10,095	31.7	15,844	36.2	10	4.0
1302	Cash registers, adding and calculating machines, business machines.	7,361	31.6	9,947	29.5	5,666	30.7	7,079	29.9	18,598	19.6	5,086	36.9	13,512	16.7	7	7.5
614	Fertilizers	6,482	31.3	5,273	31.0	5,734	32.9	3,882	35.4	36,356	25.9	24,018	25.7	12,338	26.2	105	15.7
617	Grease and tallow, not including lubricating greases.	1,772	31.0	2,249	29.2	1,416	29.7	1,582	29.4	11,424	28.7	5,827	26.2	5,597	31.7	18	7.0
1104	Doors, shutters, and window sash and frames, molding, etc.	1,855	30.9	2,359	30.4	1,374	30.3	1,490	29.3	6,708	29.5	2,972	29.8	3,736	29.2	7	5.3
1002	Cement	7,161	30.7	7,361	26.8	6,508	31.5	5,868	28.1	35,179	29.2	12,107	28.2	23,072	29.8	37	24.2
632	Tanning materials, natural dyestuffs, mordants, etc.	1,091	30.6	1,309	23.2	883	33.3	786	29.8	10,482	31.2	6,355	32.2	4,127	29.6	21	13.7
1651	Window shades (textile and paper) and fixtures.	1,125	30.5	1,169	28.5	993	33.1	854	31.5	4,884	24.0	2,603	21.3	2,281	28.1	5	1.6
621	Mucilage, paste, other adhesives, excluding glue and rubber cement.	143	30.1	236	31.9	79	29.6	81	28.0	1,084	29.8	533	32.4	551	27.7	4	6.1
1325	Printers' machinery and equipment	3,878	30.0	6,018	29.4	3,013	30.5	4,347	32.0	15,362	29.8	2,807	21.5	12,555	32.6	5	2.1
202	Cordage and twine; jute goods; linen goods	5,989	29.3	4,539	24.8	5,452	29.3	3,556	25.5	20,727	30.1	10,388	30.1	10,339	30.1	16	10.8
318	Window and door screens and weatherstrip	675	29.0	703	26.3	608	32.4	467	26.8	1,960	22.6	889	21.7	1,071	23.5	5	3.5
1016	Mirrors and other glass products	3,550	29.0	4,468	32.0	3,332	31.2	4,005	36.8	37,745	54.9	14,953	51.3	22,792	57.6	5	0.9
604	Blacking, stains, and dressings	627	28.8	838	25.7	505	33.7	458	31.2	6,830	38.1	3,375	40.2	3,455	36.2	5	3.0
1620	Instruments and apparatus, professional, scientific, commercial and industrial.	5,739	28.7	7,838	28.1	4,465	29.4	5,175	29.5	18,783	27.5	5,410	26.3	13,373	28.0	10	3.6
206	Hats, felt and straw, except millinery	7,161	28.7	8,717	30.3	6,668	28.9	7,613	31.5	22,050	23.7	8,992	18.5	13,058	29.4	5	1.7
1501	Railroad repair shops, electric	5,931	28.2	9,946	33.0	5,418	27.7	8,771	32.5	15,636	32.3	5,546	31.9	10,090	32.6	16	6.2
128	Sausage, meat puddings, headcheese, etc.	2,963	27.4	3,103	22.5	2,707	29.5	2,588	25.7	45,707	35.1	39,330	38.0	6,377	23.9	131	16.2
504	Engraving, steel, copperplate and wood, and plate printing	1,766	26.6	2,982	31.8	1,539	29.0	2,325	35.7	6,444	32.0	1,104	24.0	5,340	34.4	6	1.6
118	Ice cream	6,400	26.6	9,005	28.4	4,696	27.1	5,624	29.4	68,587	32.7	30,319	30.0	38,268	35.3	165	6.7
1613	Feathers, plumes, and manufactures thereof	179	26.5	148	24.2	165	28.8	119	28.1	304	18.5	108	17.7	196	18.9	4	5.5
219	Fabricated textile products	5,457	26.1	5,235	25.0	4,811	27.0	3,695	25.8	50,771	34.4	40,895	38.3	9,876	24.2	34	4.3
909	Saddlery, harness, and whips	980	26.0	971	25.0	903	27.9	795	27.2	3,376	25.3	2,077	26.9	1,299	23.1	4	2.5
130	Sugar, cane, not including products of refineries	959	25.8	554	24.5	729	24.8	430	28.1	8,229	31.3	5,559	30.4	2,670	33.4	11	14.9
1605	Brushes other than rubber	2,101	25.7	2,386	25.9	1,744	25.6	1,539	25.6	13,152	31.2	3,865	20.8	9,287	36.4	6	2.4
512	Stereotyping and electrotyping, not done in printing establishments	1,519	25.5	4,327	31.0	1,049	23.8	2,023	23.9	9,693	36.0	1,260	33.9	8,433	36.4	11	5.4
1601	Artificial and preserved flowers and plants	909	25.3	712	21.4	862	26.9	608	23.3	1,759	19.6	773	23.4	986	17.3	5	2.6
1624	Mattresses and bedsprings, n. e. c.	4,464	24.9	5,145	26.0	3,925	25.4	4,044	27.5	21,879	25.8	12,327	25.2	9,552	26.6	13	1.5
902	Boot and shoe cut stock and findings	4,965	24.5	5,152	24.2	4,657	25.5	4,618	27.5	33,518	30.0	24,270	31.9	9,248	26.1	24	4.8
107	Cheese	1,212	24.0	1,251	25.6	990	22.8	913	23.2	17,931	18.1	14,313	17.0	3,618	24.4	149	5.8
1117	Screw-machine products and wood screws	4,138	23.9	4,803	21.8	3,644	24.3	3,850	22.9	13,467	21.4	6,710	25.2	6,757	18.5	8	2.7
315	Synthetic-resin, cellulose plastic, etc., n. e. c.	3,371	23.5	3,730	24.2	3,035	23.8	3,115	25.8	13,865	27.6	6,370	30.0	7,495	25.8	14	9.2
704	Lubricating greases, not made in petroleum refineries	753	23.4	1,048	21.1	473	24.5	541	23.7	8,020	22.2	4,946	23.8	3,083	20.1	6	3.3
1646	Theatrical scenery and stage equipment	90	22.8	179	25.8	62	22.2	106	24.3	491	25.3	226	30.2	265	22.3	4	8.3
1125	Tools, not including edge tools, machine tools, files, or saws	3,427	22.8	3,817	20.8	2,925	23.1	2,912	21.9	12,571	23.9	4,657	25.0	7,904	23.4	13	3.8
320	Wood turned and shaped and other wooden goods, n. e. c.	5,185	21.8	4,186	20.4	4,867	22.6	3,714	23.1	14,109	23.6	6,940	26.6	7,169	21.3	13	1.7
609	Cleaning and polishing preparations	965	21.7	1,431	21.0	696	24.6	879	29.0	10,376	24.5	4,258	24.6	6,118	24.3	4	1.0
1019	Statuary and art goods (excluding concrete), factory product.	193	21.5	277	25.3	146	20.3	174	21.7	936	32.4	127	13.0	819	36.8	4	3.8
1309	Pumps (hand and power) and pumping equipment.	4,227	21.2	6,536	24.2	3,144	21.0	4,361	25.2	17,722	20.4	6,194	17.6	11,528	22.3	4	1.2
135	Liquors, vinous	655	21.0	677	18.7	550	23.6	420	19.9	7,185	19.7	2,446	16.0	4,739	22.4	6	1.9
306	Cooperage	2,222	20.8	2,222	22.6	2,071	20.9	1,904	23.8	9,261	19.9	5,829	19.5	3,432	20.6	26	6.4
1103	Cutlery (not including silver and plated cutlery) and edge tools.	3,095	20.0	3,617	20.3	2,759	20.1	2,665	19.7	17,927	35.0	3,676	23.2	14,251	36.9	5	1.9
1618	Hand stamps and stencils and brands	616	19.8	721	17.4	496	22.0	491	19.4	1,681	18.0	560	21.1	1,121	16.8	8	2.9
117	Food preparations not elsewhere classified	3,401	19.6	3,154	16.3	3,108	22.0	2,639	21.8	75,135	33.7	65,526	41.3	9,609	15.0	169	16.2
104	Canned and cured fish, crabs, shrimps, oysters and clams.	2,775	19.4	1,728	20.9	2,618	19.6	1,306	20.7	16,310	26.9	9,390	24.0	6,920	32.3	8	2.9
1321	Boiler shops	3,228	19.2	4,406	20.1	2,399	18.1	2,820	19.1	14,369	19.6	7,170	20.0	7,199	19.3	7	1.7
305	Caskets, coffins, burial cases, and other morticians' goods.	3,094	19.2	3,758	19.2	2,849	20.7	3,127	22.6	11,551	17.6	5,060	17.2	6,491	17.9	25	4.6
1015	Minerals and earths, ground or otherwise treated.	936	18.9	927	17.5	831	19.5	703	19.5	3,348	15.5	1,252	14.4	2,096	16.3	11	6.9
910	Trunks, suitcases, and bags	1,441	18.8	1,328	16.1	1,360	20.4	1,139	18.0	4,764	16.9	2,453	16.4	2,311	17.3	5	1.6
103	Butter	4,629	18.6	4,583	17.2	3,581	19.4	2,978	17.0	86,266	17.2	71,712	17.0	14,554	18.6	160	4.6
628	Perfumes, cosmetics, and other toilet preparations.	2,348	17.9	2,596	16.1	1,768	18.3	1,643	19.2	25,636	21.4	9,348	21.0	16,288	21.7	6	1.1

For footnotes, see end of table.

1935, based on number of persons employed—Continued

sands of dollars]

Largest eight producers																Industry	Industry number
Persons employed		Wages and salaries		Wage earners		Wages		Value of product		Cost of materials, etc.[1]		Value added by manufacture[2]		Number of establishments			
Number	Percent of industry	Amount	Percent of industry	Number	Percent of industry	Amount	Percent of industry	Amount	Percent of industry	Amount	Percent of industry	Amount	Percent of industry	Number	Percent of industry		
210 SMALL INDUSTRIES—Continued																	
7,994	54.8	7,041	55.5	7,420	54.8	5,738	55.3	23,859	63.0	9,291	62.8	14,568	63.1	21	29.6	Cast-iron pipe and fittings	1102
4,694	44.0	5,551	41.7	4,045	44.8	4,038	44.4	18,626	42.7	9,728	46.9	8,898	38.9	25	15.1	Envelopes	405
5,085	45.0	5,404	44.9	4,402	45.5	4,211	46.7	16,439	47.2	7,921	47.8	8,518	46.6	15	7.7	Sporting and athletic goods, not including firearms or ammunition.	1642
2,589	49.1	1,970	48.0	2,473	50.6	1,622	50.4	8,259	44.8	4,721	49.7	3,538	39.6	9	10.1	Handkerchiefs	2172
6,983	48.7	9,621	49.5	5,418	50.1	6,658	53.0	27,943	44.5	12,235	42.5	15,708	46.1	12	9.4	Cranes, and dredging, excavating, and road-building machinery.	1324
4,008	42.3	2,740	38.4	3,467	42.9	1,991	39.3	36,246	39.0	30,736	40.1	5,510	33.8	193	34.3	Poultry dressing and packing, wholesale	126
7,779	53.4	9,836	54.1	6,870	54.9	7,601	56.8	27,718	48.3	14,360	49.5	13,358	47.1	19	13.9	Bolts, nuts, washers, and rivets	1101
6,522	41.6	4,280	40.3	5,621	42.5	2,543	43.0	81,750	43.5	69,907	43.5	11,843	43.3	143	31.2	Oil, cake, and meal, cottonseed	622
1,390	45.8	1,534	38.2	1,216	51.5	1,176	46.7	11,483	53.4	6,135	53.1	5,348	53.6	10	5.4	Belting and packing, leather	901
4,952	56.2	6,109	56.5	4,350	55.4	4,912	56.6	16,368	59.5	5,232	54.1	11,136	62.4	9	16.1	Lace goods	208
4,402	43.8	4,161	39.7	4,129	45.3	3,516	43.7	31,944	48.7	20,386	48.9	11,558	48.5	24	22.4	Bags, paper, exclusive of those made in paper mills.	401
9,871	43.0	11,217	41.8	8,894	44.2	9,600	45.0	34,144	45.1	13,362	42.0	20,782	47.5	16	6.3	Plumbers' supplies	1114
9,519	40.8	13,027	38.6	7,370	39.9	9,210	38.9	29,715	31.4	7,218	52.4	22,497	27.8	13	14.0	Cash registers, adding and calculating machines, business machines.	1302
9,326	45.1	7,293	42.8	8,292	47.5	5,363	48.9	58,356	41.6	39,760	42.6	18,596	39.5	168	25.1	Fertilizers	614
2,280	39.9	2,833	36.8	1,863	39.1	2,004	37.2	14,630	36.7	7,803	35.1	6,827	38.7	24	9.3	Grease and tallow, not including lubricating greases.	617
2,777	46.4	3,532	45.5	2,132	47.0	2,308	45.3	11,148	49.0	4,769	47.9	6,379	49.9	12	9.0	Doors, shutters, and window sash and frames, molding, etc.	1104
10,114	43.4	11,233	40.9	9,243	44.7	9,277	44.4	53,820	44.7	17,686	41.2	36,144	46.7	60	39.2	Cement	1002
1,705	47.9	2,265	40.1	1,387	52.3	1,311	49.7	14,919	44.4	9,009	45.7	5,910	42.4	28	18.2	Tanning materials, natural dyestuffs, mordants, etc.	632
1,618	43.8	1,806	44.0	1,407	46.9	1,247	46.0	9,403	46.3	5,932	48.6	3,471	42.8	25	7.8	Window shades (textile and paper) and fixtures.	1651
214	45.0	349	47.1	127	47.6	142	49.1	1,930	53.1	877	53.3	1,053	53.0	8	12.2	Mucilage, paste, other adhesives, excluding glue and rubber cement.	621
6,224	48.1	9,920	48.4	4,754	48.1	6,929	51.0	24,456	47.4	5,100	39.1	19,356	50.3	10	4.2	Printers' machinery and equipment	1325
8,530	41.8	7,236	39.6	7,726	41.5	5,551	39.8	30,684	44.6	14,950	43.3	15,734	45.8	21	14.2	Cordage and twine; jute goods; linen goods	202
918	39.4	994	37.2	789	42.1	634	36.4	3,556	41.0	1,653	40.3	1,903	41.7	10	7.0	Window and door screens and weather strip	318
4,202	34.3	5,213	37.3	3,909	36.6	4,574	42.0	41,095	59.8	16,683	57.2	24,412	61.7	14	2.6	Mirrors and other glass products	1016
889	40.8	1,153	35.4	718	47.9	646	44.0	8,948	48.9	4,228	50.4	4,720	49.5	9	5.4	Blacking, stains, and dressings	604
8,356	41.7	11,414	40.9	6,506	42.8	7,534	42.9	29,383	43.0	9,156	44.6	20,227	42.3	16	5.7	Instruments and apparatus, professional, scientific, commercial, and industrial.	1620
9,315	37.3	11,493	40.0	8,647	37.5	10,007	41.4	31,462	33.8	13,912	28.6	17,550	39.5	11	3.7	Hats, felt and straw, except millinery	206
8,606	41.0	13,369	44.3	7,927	40.6	11,845	43.9	21,222	44.0	7,533	43.3	13,749	44.4	66	25.5	Railroad repair shops, electric	1501
3,360	31.1	3,703	26.8	3,046	33.2	2,957	29.3	50,221	38.6	42,776	41.4	7,445	27.9	135	16.7	Sausage, meat puddings, headcheese, etc	128
2,175	32.7	3,657	39.0	1,829	34.5	2,739	42.0	8,048	40.0	1,437	31.3	6,611	42.6	10	2.6	Engraving, steel, copperplate, and wood, and plate printing.	504
7,113	29.6	9,957	31.4	5,262	30.4	6,252	32.7	79,071	37.7	35,045	34.6	44,026	40.6	181	7.4	Ice cream	118
269	39.9	243	39.7	241	42.1	182	43.0	473	28.8	149	24.4	324	31.3	8	11.0	Feathers, plumes, and manufactures thereof	1613
6,698	32.0	6,398	30.5	5,971	33.5	4,614	32.2	70,354	47.7	56,886	53.3	13,468	33.0	41	5.2	Fabricated textile products	219
1,340	35.5	1,365	35.2	1,209	37.4	1,096	37.5	5,043	37.8	3,114	40.3	1,929	34.3	8	5.0	Saddlery, harness, and whips	909
1,400	37.7	946	41.9	1,094	37.2	685	44.8	12,385	47.1	8,537	46.7	3,848	48.2	16	21.6	Sugar, cane, not including products of refineries.	130
3,231	39.5	3,676	40.0	2,677	39.3	2,402	40.0	18,321	43.5	6,273	33.7	12,048	47.2	11	4.4	Brushes, other than rubber	1605
2,128	35.7	5,708	40.9	1,482	33.6	2,967	35.1	12,371	46.0	1,559	41.9	10,812	46.7	16	7.8	Stereotyping and electrotyping, not done in printing establishments.	512
1,198	33.3	1,156	34.8	1,120	34.9	995	38.1	2,848	31.7	1,071	32.4	1,777	31.2	9	4.7	Artificial and preserved flowers and plants	1601
5,295	29.6	6,128	31.0	4,659	30.2	4,789	32.6	26,458	31.2	15,275	31.2	11,183	31.2	30	3.6	Mattresses and bedsprings, n. e. c	1624
5,821	28.7	6,225	29.3	5,434	29.7	5,480	32.7	46,846	42.0	35,911	47.2	10,935	30.8	32	6.4	Boot and shoe cut stock and findings	902
1,426	28.2	1,500	30.7	1,177	27.1	1,123	28.5	22,245	22.5	17,829	21.2	4,416	29.8	189	7.3	Cheese	107
6,083	35.2	7,277	33.0	5,286	35.2	5,752	34.2	20,725	32.9	9,854	37.1	10,871	29.8	12	4.0	Screw-machine products and wood screws	1117
5,251	36.6	5,963	38.6	4,689	36.8	4,845	40.1	22,326	44.4	10,011	47.1	12,315	42.4	20	13.1	Synthetic resin, cellulose plastic, etc., n. e. c	315
1,072	33.3	1,469	29.6	725	37.5	834	36.5	14,472	40.1	9,166	44.1	5,306	34.6	13	7.2	Lubricating greases, not made in petroleum refineries.	704
151	38.3	335	48.3	109	39.1	212	48.6	832	43.6	335	44.8	497	41.8	8	16.6	Theatrical scenery and stage equipment	1646
5,131	34.1	5,827	31.7	4,428	35.0	4,483	33.7	18,981	36.1	6,878	36.8	12,103	35.8	17	5.0	Tools, not including edge tools, machine tools, files, or saws.	1125
6,489	27.2	5,318	25.9	6,044	28.1	4,594	28.6	17,076	28.6	8,259	31.7	8,817	26.2	27	3.6	Wood turned and shaped and other wooden goods, n. e. c.	320
1,442	32.5	2,142	31.5	1,020	36.1	1,226	40.4	14,502	34.2	5,603	32.4	8,899	35.4	8	2.0	Cleaning and polishing preparations	609
320	35.7	469	42.9	255	35.5	320	39.9	1,333	46.1	250	37.5	1,083	48.7	8	7.6	Statuary and art goods (excluding concrete), factory products.	1019
6,185	31.0	9,019	33.4	4,628	30.9	5,950	34.3	30,643	35.2	11,038	31.3	19,615	37.9	9	2.8	Pumps (hand and power) and pumping equipment.	1309
829	26.5	975	26.9	689	29.5	598	28.4	13,703	37.6	5,740	37.5	7,963	37.7	11	3.5	Liquors, vinous	135
3,641	34.1	3,610	36.7	3,451	34.9	3,140	39.3	18,845	40.5	12,668	42.3	6,177	37.2	88	21.6	Cooperage	306
4,475	28.9	5,103	28.6	4,022	29.3	3,802	28.1	23,121	45.2	4,394	34.9	18,727	48.5	10	3.8	Cutlery (not including silver and plated cutlery) and edge tools.	1103
929	29.8	1,132	27.3	747	33.1	783	30.9	2,696	28.9	882	33.2	1,814	27.2	15	5.4	Hand stamps and stencils and brands	1618
4,783	27.6	4,750	24.6	4,249	30.1	3,646	30.1	97,543	43.8	80,391	50.7	17,152	26.7	186	18.1	Food preparations not elsewhere classified	117
3,836	26.8	2,718	32.9	3,602	27.0	2,059	32.6	23,462	38.7	14,447	36.9	9,015	42.1	16	5.8	Canned and cured fish, crabs, shrimps, oysters, and clams.	104
4,638	27.6	6,351	29.0	3,575	26.9	4,228	28.6	23,914	32.7	11,816	32.9	12,098	32.5	14	3.4	Boiler shops	1321
3,970	24.6	4,872	24.9	3,625	26.3	3,983	22.8	15,457	23.5	6,825	23.2	8,632	23.8	30	5.5	Caskets, coffins, burial cases, and other morticians' goods.	305
1,579	31.9	1,664	31.4	1,396	32.8	1,222	33.8	5,882	27.3	2,134	24.6	3,748	29.1	18	11.2	Minerals and earths, ground or otherwise treated.	1015
2,066	27.0	2,109	25.5	1,907	28.6	1,692	26.7	7,451	26.4	3,824	25.6	3,627	27.2	10	3.2	Trunks, suitcases, and bags	910
6,833	27.4	7,039	26.4	5,154	27.9	4,477	25.6	128,750	25.7	107,407	25.4	21,343	27.3	244	7.0	Butter	103
3,344	25.5	3,756	23.3	2,640	27.3	2,460	28.7	48,655	40.7	15,499	34.8	33,156	44.2	10	1.8	Perfumes, cosmetics, and other toilet preparations.	628

TABLE I.—*Concentration in manufacturing industries,*

[Values in thou

Industry number	Industry	Largest four producers															
		Persons employed		Wages and salaries		Wage earners		Wages		Value of product		Cost of materials, etc.[1]		Value added by manufacture[2]		Number of establishments	
		Number	Percent of industry	Amount	Percent of industry	Number	Percent of industry	Amount	Percent of industry	Amount	Percent of industry	Amount	Percent of industry	Amount	Percent of industry	Number	Percent of industry
		210 SMALL INDUSTRIES—Continued															
1604	Brooms	812	17.8	661	17.6	769	18.5	537	17.5	2,329	16.2	1,048	14.0	1,281	18.7	4	1.1
1207	Lighting equipment	3,560	17.7	4,668	19.2	3,278	19.7	4,035	23.4	19,434	22.7	10,478	26.3	8,956	19.6	4	.8
1107	Forgings, iron and steel	2,436	17.6	10,388	53.8	2,112	17.2	9,622	63.7	13,657	20.6	6,979	20.1	6,678	21.1	13	7.0
1013	Lime	1,463	17.6	1,434	18.9	1,350	18.0	1,208	20.0	5,036	21.6	1,716	19.2	3,320	23.1	18	9.5
906	Leather goods not elsewhere classified	1,224	17.3	1,284	17.2	1,057	17.6	1,000	18.4	4,855	18.4	2,149	16.2	2,706	20.7	4	1.0
1648	Toys, games, and playground equipment	2,936	16.9	2,845	17.5	2,718	17.7	2,311	19.1	8,289	15.9	3,281	13.9	5,008	17.6	7	1.8
301	Baskets and rattan and willowware, not including furniture.	1,627	16.9	821	14.4	1,565	17.4	713	15.5	2,138	14.8	949	16.6	1,189	13.6	8	3.9
313	Mirror and picture frames	528	16.5	553	15.6	488	18.2	429	16.8	1,541	15.6	645	15.5	896	15.8	4	2.4
1606	Buttons	1,857	16.3	1,774	16.9	1,715	16.6	1,446	17.7	3,904	13.9	1,638	14.8	2,266	13.4	8	2.7
905	Gloves and mittens, leather	1,617	15.3	1,567	15.7	1,547	15.8	1,395	16.4	4,036	14.3	1,782	13.3	2,254	15.3	4	1.8
506	Lithographing	3,330	15.3	4,966	14.1	2,800	15.8	3,723	15.4	13,097	14.2	4,593	15.3	8,504	13.7	10	2.6
114	Feeds, prepared, for animals and fowls	2,355	15.3	2,780	15.1	1,779	15.4	1,837	16.6	62,533	21.7	49,172	21.3	13,361	23.0	45	4.8
115	Flavoring extracts, sirups, and related products.	670	14.7	853	12.7	499	17.2	403	15.2	32,133	47.4	10,751	36.8	21,382	55.3	11	2.7
121	Macaroni, spaghetti, vermicelli, and noodles	970	13.9	1,108	15.2	876	14.6	858	16.2	7,325	15.4	4,652	14.6	2,673	16.9	5	1.5
627	Insecticides and fungicides, etc., n. e. c	733	13.4	941	11.8	546	15.7	593	17.5	6,776	12.7	3,897	16.0	2,879	9.9	6	1.1
1210	Jewelry	2,521	12.2	2,671	10.8	2,331	13.6	2,295	12.9	6,730	9.5	2,675	8.8	4,055	10.0	4	.4
211	Waste and related products	1,284	12.1	1,263	11.6	1,144	12.4	866	11.8	9,378	14.2	5,518	13.1	3,860	16.2	12	3.8
501	Bookbinding and blank-book making	2,838	11.7	3,639	12.0	2,384	11.7	2,707	12.4	9,812	13.4	3,062	14.5	6,750	12.9	8	.8
1014	Marble, granite, slate, and other stone, cut and shaped.	2,028	11.0	1,716	7.8	1,784	11.7	1,319	8.1	4,020	7.1	1,657	9.1	2,363	6.2	16	1.1
1204	Sheet-metal work, not specifically classified	2,362	10.8	2,990	10.4	1,946	11.2	2,270	11.6	19,018	17.4	11,568	20.0	7,450	14.4	5	.4
1612	Miscellaneous articles not elsewhere classified.	1,714	10.4	2,049	12.6	1,535	10.8	1,562	13.2	5,533	11.1	1,950	9.4	3,583	12.4	4	.6
507	Photoengraving, not done in printing establishments.	1,316	10.2	3,257	10.7	1,076	11.4	2,586	12.1	7,017	13.2	1,657	21.1	5,360	11.8	8	1.2
214	Furnishing goods, men's	2,506	10.1	1,480	6.8	2,377	10.5	1,274	7.4	5,440	6.1	3,101	6.5	2,339	5.6	6	.7
1625	Models and patterns, not including paper patterns.	485	9.8	966	11.9	382	9.3	619	10.1	1,797	11.8	623	19.5	1,174	9.7	6	1.0
1640	Signs and advertising novelties	1,719	9.7	2,093	9.2	1,475	10.8	1,567	10.5	5,311	8.6	1,794	8.5	3,517	8.8	41	3.8
908	Pocketbooks, purses, and cardcases	1,196	9.5	1,165	10.0	1,086	9.5	834	9.0	3,191	7.4	1,345	6.0	1,846	8.9	5	1.6
1205	Electroplating	689	9.5	810	9.0	612	9.8	627	9.0	2,268	12.4	805	17.5	1,463	10.7	7	1.3
218	Housefurnishings	1,356	8.1	1,171	7.6	1,237	8.6	999	9.2	6,318	7.3	3,673	6.6	2,645	8.4	6	7.8
1005	Concrete products	799	7.5	894	7.4	674	8.0	661	8.4	3,656	8.1	1,535	7.6	2,121	8.5	29	2.4
221	Embroideries; trimmings; stamped art goods.	721	5.3	848	5.8	642	5.4	511	4.8	2,657	5.7	1,497	7.6	1,160	4.3	6	.5
101	Beverages, nonalcoholic	976	4.4	1,328	4.5	818	4.9	934	5.4	12,942	8.1	3,943	6.3	8,999	9.3	68	2.1
1615	Fur goods	341	2.1	699	2.4	294	2.4	548	2.6	3,397	2.4	2,257	2.5	1,140	2.1	4	.2

* Large industries, those employing more than 100,000 persons; medum industries, those employing 25,000 to 100,000 persons; small industries, those employing less than 25,000 persons.

[1] Includes cost of materials, mill and shop supplies, containers, fuel, and purchased electric energy.

[2] Value of products less cost of materials, containers, fuel, and purchased electric energy.

TABLE II.—*Concentration in manufacturing*

[Value in thou

21 LARGE IN

Industry No.	Industry	Largest four producers															
		Persons employed		Wages and salaries		Wage earners		Wages		Value of product		Cost of materials, etc.[1]		Value added by manufacture[2]		Number of establishments	
		Number	Percent of industry	Amount	Percent of industry	Number	Percent of industry	Amount	Percent of industry	Amount	Percent of industry	Amount	Percent of industry	Amount	Percent of industry	Number	Percent of industry
1408	Motor vehicles, not including motorcycles	118,059	72.1	185,984	74.6	108,550	73.9	167,735	77.3	2,088,047	87.3	1,600,084	88.2	487,963	84.6	40	33.0
1407	Motor-vehicle bodies and motor-vehicle parts.	161,924	62.0	241,401	64.9	152,881	63.5	223,579	68.1	1,076,150	69.4	733,285	73.1	342,865	62.6	42	5.1
123	Meat packing, wholesale	53,636	38.7	95,639	53.1	41,301	35.4	73,259	53.7	1,313,029	55.6	1,151,767	56.7	161,262	48.5	94	7.7
1112	Steel-works and rolling-mill products	179,282	46.0	237,606	46.3	166,280	46.2	206,616	47.0	951,819	49.3	578,380	52.1	373,439	45.5	76	19.2
1303	Electrical machinery, apparatus, and supplies.	88,641	39.7	126,599	43.7	69,721	38.8	86,073	43.5	426,276	44.4	142,079	38.3	284,197	48.2	106	7.6
1502	Railroad repair shops, steam	51,400	35.6	72,043	36.0	48,147	35.5	64,230	35.8	139,183	37.4	67,124	39.5	72,059	35.7	114	27.4
904	Boots and shoes, other than rubber	45,401	21.0	42,944	21.5	43,715	21.6	40,459	23.6	167,051	26.0	92,661	27.8	74,390	23.9	68	6.6
212	Wool and hair manufactures	36,746	20.9	35,212	19.9	34,892	21.0	31,453	20.6	171,721	24.2	114,467	26.5	57,254	20.5	47	6.7

For footnotes, see end of table.

1935, based on number of persons employed—Continued

sands of dollars]

Largest eight producers																Industry	Industry number
Persons employed		Wages and salaries		Wage earners		Wages		Value of product		Cost of materials, etc.[1]		Value added by manufacturer [2]		Number of establishments			
Number	Percent of industry	Amount	Percent of industry	Number	Percent of industry	Amount	Percent of industry	Amount	Percent of industry	Amount	Percent of industry	Amount	Percent of industry	Number	Percent of industry		
210 SMALL INDUSTRIES—Continued																	
1,108	24.3	933	24.9	1,046	25.2	773	25.2	3,297	23.0	1,486	19.9	1,811	26.4	8	2.3	Brooms	1604
5,290	26.3	7,025	28.9	4,652	27.9	5,570	32.3	29,831	34.8	13,750	34.5	16,081	35.1	8	1.6	Lighting equipment	1207
4,088	29.5	12,775	66.2	3,641	29.7	11,608	76.8	21,531	32.5	11,251	32.4	10,280	32.5	19	10.3	Forgings, iron and steel	1107
2,332	28.1	2,213	29.1	2,158	28.8	1,882	31.1	8,079	34.6	2,968	33.3	5,111	35.5	29	15.3	Lime	1013
1,566	22.1	1,695	22.7	1,341	22.3	1,260	23.2	6,997	26.5	3,238	24.4	3,759	28.7	8	2.0	Leather goods not elsewhere classified	906
4,432	25.5	4,444	27.3	4,016	26.1	3,515	29.0	13,366	25.6	5,854	24.8	7,512	26.4	11	2.9	Toys, games, and playground equipment	1648
2,336	24.3	1,458	25.6	2,219	24.6	1,176	25.5	3,710	25.6	1,461	25.5	2,249	25.7	14	6.9	Baskets and rattan and willowware, not including furniture.	301
877	27.4	1,021	28.8	756	28.2	756	29.6	3,076	31.2	1,452	34.8	1,624	28.6	8	4.8	Mirror and picture frames	313
2,942	25.9	2,852	27.1	2,700	26.2	2,302	28.2	7,579	27.0	2,937	26.5	4,642	27.4	15	5.1	Buttons	1606
2,563	24.2	2,500	25.0	2,428	24.8	2,215	26.0	6,527	23.2	3,009	22.4	3,518	23.9	8	3.6	Gloves and mittens, leather	905
5,228	24.0	7,936	22.5	4,266	24.1	5,720	23.7	20,615	22.4	7,042	23.5	13,573	21.9	14	3.6	Lithographing	506
3,371	21.8	4,194	22.8	2,562	22.1	2,689	24.3	99,058	34.3	79,453	34.4	19,605	33.8	62	6.6	Feeds, prepared, for animals and fowls	114
903	19.8	1,353	20.2	623	21.5	538	20.3	36,629	54.0	12,610	43.2	24,019	62.1	16	3.9	Flavoring extracts, sirups, and related products.	115
1,672	24.0	1,834	25.2	1,522	25.3	1,439	27.1	12,574	26.4	8,093	25.4	4,481	28.4	9	2.7	Macaroni, spaghetti, vermicelli, and noodles	121
1,114	20.4	1,494	18.8	801	23.1	825	24.3	10,274	19.2	5,522	22.7	4,752	16.3	14	2.6	Insecticides and fungicides, etc., n. e. c.	627
3,291	15.9	3,710	15.0	2,972	17.4	3,016	16.9	10,945	15.4	4,410	14.6	6,535	16.1	8	.8	Jewelry	1210
1,879	17.2	1,988	18.2	1,679	18.2	1,331	18.1	15,934	24.1	10,680	25.3	5,254	22.1	16	5.1	Waste and related products	211
4,124	17.0	5,412	17.9	3,408	16.7	3,862	17.7	15,111	20.6	4,874	23.1	10,237	19.6	14	1.4	Bookbinding and blank-book making	501
2,825	15.3	2,805	12.7	2,485	16.3	2,163	13.4	7,827	13.9	2,993	16.4	4,834	12.6	24	1.7	Marble, granite, slate, and other stone, cut and shaped.	1014
3,184	14.6	4,148	14.4	2,511	14.5	2,810	14.4	28,905	26.4	28,408	31.9	10,497	20.4	39	2.8	Sheet-metal work, not specifically classified	1204
2,782	16.9	3,079	18.9	2,472	17.4	2,359	19.9	9,268	18.7	3,675	17.8	5,593	19.3	10	1.5	Miscellaneous articles not elsewhere classified.	1612
1,999	15.4	4,959	16.3	1,633	17.4	3,927	18.4	10,758	20.2	2,802	35.7	7,956	17.5	13	2.0	Photoengraving, not done in printing establishments.	50
3,908	15.8	2,441	11.3	3,728	16.5	2,151	12.5	9,414	10.5	5,532	11.5	3,882	9.3	10	1.2	Furnishing goods, men's	214
749	15.1	1,392	17.2	611	14.9	952	15.5	2,446	16.0	729	22.8	1,717	14.2	10	1.7	Models and patterns, not including paper patterns.	1625
2,735	15.4	3,352	14.8	2,270	16.6	2,463	16.5	9,035	14.7	3,122	14.7	5,913	14.7	51	4.7	Signs and advertising novelties	1640
2,020	16.1	1,936	16.6	1,879	16.5	1,488	16.1	6,512	15.1	3,306	14.8	3,206	15.5	10	3.2	Pocketbooks, purses, and card cases	908
1,127	15.6	1,362	15.2	1,021	16.4	1,083	15.6	3,237	17.7	1,061	23.1	2,176	15.9	11	2.0	Electroplating	1205
2,218	13.3	1,932	12.6	1,997	13.9	1,531	14.1	11,056	12.7	7,104	12.8	3,952	12.5	20	25.9	Housefurnishings	218
1,228	11.6	1,507	12.4	1,034	12.3	1,041	13.3	5,102	11.3	1,996	9.9	3,106	12.5	47	3.8	Concrete products	1005
1,154	8.4	1,339	9.1	1,010	8.5	809	7.5	5,163	11.2	3,018	15.4	2,145	8.0	10	.9	Embroideries; trimmings; stamped art goods.	221
1,317	5.9	1,854	6.3	1,089	6.5	1,164	6.7	21,079	13.2	7,102	11.4	13,977	14.4	87	2.7	Beverages, nonalcoholic	101
493	3.0	1,012	3.5	431	3.4	816	3.9	6,414	4.5	4,535	5.1	1,879	3.4	8	.4	Fur goods	1615

[1] The data for the largest 4 enterprises are combined with those for the largest 8 enterprises in order to avoid approximate disclosures of individual data.
[2] The data for the "remainder" of the industry are included in the data for the largest 8 enterprises in order to avoid approximate disclosures of individual data.

industries, 1935, based on value of products

sands of dollars]

DUSTRIES *

Largest eight producers																Industry	Industry
Persons employed		Wages and salaries		Wage earners		Wages		Value of product		Cost of materials, etc.[1]		Value added by manufacture [2]		Number of establishments			
Number	Percent of industry	Amount	Percent of industry	Number	Percent of industry	Amount	Percent of industry	Amount	Percent of industry	Amount	Percent of industry	Amount	Percent of industry	Number	Percent of industry		
142,527	87.1	220,960	88.6	130,365	88.7	197,069	90.8	2,252,640	94.2	1,719,112	94.8	533,528	92.5	47	38.8	Motor vehicles, not including motorcycles	1408
184,214	70.5	273,762	73.6	172,319	71.6	249,422	76.0	1,191,506	76.8	798,298	79.6	393,208	71.8	55	6.7	Motor-vehicle bodies and motor-vehicle parts.	1407
65,616	47.3	109,898	61.0	51,430	44.1	84,063	61.6	1,500,135	63.5	1,312,604	64.7	187,531	56.4	113	9.2	Meat packing, wholesale	123
228,660	58.7	308,231	60.1	212,668	59.1	269,844	61.4	1,231,382	63.8	744,344	67.0	487,038	59.3	95	24.0	Steel-works and rolling-mill products	1112
103,860	46.5	147,677	50.9	82,376	45.8	101,408	51.2	502,278	52.3	176,621	47.6	325,657	55.2	124	8.9	Electrical machinery, apparatus, and supplies.	1303
76,791	53.2	106,855	53.4	72,101	53.1	95,436	53.2	199,765	53.7	92,882	54.6	106,883	53.0	181	43.5	Railroad repair shops, steam	1502
56,091	25.9	53,134	26.6	53,934	26.7	49,611	28.9	198,183	30.8	108,038	32.4	90,145	29.0	83	8.1	Boots and shoes, other than rubber	904
50,349	28.6	49,353	27.9	47,778	28.7	44,050	28.9	233,745	32.9	150,452	34.9	83,293	29.8	65	9.3	Wool and hair manufactures	212

TABLE II.—*Concentration in manufacturing indus*

[Values in thou

Industry number	Industry	Largest four producers															
		Persons employed		Wages and salaries		Wage earners		Wages		Value of product		Cost of materials, etc.[1]		Value added by manufacturer[2]		Number of establishments	
		Number	Percent of industry	Amount	Percent of industry	Number	Percent of industry	Amount	Percent of industry	Amount	Percent of industry	Amount	Percent of industry	Amount	Percent of industry	Number	Percent of industry
		21 LARGE INDUSTRIES—Continued															
105	Canned and dried fruits and vegetables; preserves, jellies, fruit butters, pickles, and sauces.	20,600	16.3	17,549	10.5	19,475	16.7	14,857	21.1	147,587	22.7	78,645	19.2	68,942	28.7	86	1.3
510	Printing and publishing, newspaper and periodical.	33,003	14.1	70,728	17.0	17,499	14.7	35,574	18.4	242,195	20.3	57,626	24.6	184,569	19.3	55	.6
102	Bread and other bakery products	37,800	15.8	48,068	16.7	34,671	15.9	41,875	16.8	225,220	18.2	102,073	15.2	123,147	21.8	225	1.2
407	Paper	14,873	13.0	17,090	12.2	13,542	13.1	14,382	13.1	104,697	14.7	62,304	14.5	42,393	15.0	38	6.4
203	Cotton manufactures	32,875	8.3	23,567	8.5	32 032	8.4	21,941	8.9	86,477	8.4	54,542	8.7	31,935	7.9	25	2.0
213	Men's cotton garments	11,633	9.0	7,786	8.9	11,182	9.2	7,035	9.5	31,025	7.5	19,215	10.5	11,810	8.0	48	4.1
1305	Machinery, n. e. c.	10,762	7.6	15,976	7.9	8,237	7.5	11,368	8.6	40,655	7.0	14,595	6.7	26,059	7.2	11	.5
309	Furniture, including store and office fixtures.	7,553	5.1	7,165	4.9	6,999	5.4	6,200	5.5	24,225	5.6	11,741	5.6	12,484	5.5	16	.5
234	Knit goods	11,979	5.1	13,089	6.1	11,233	5.1	11,801	6.4	32,174	5.3	12,550	4.3	19,624	6.3	13	.7
215	Men's, youths', and boys' clothing, n. e. c.	8,639	5.2	9,568	5.5	7,999	5.2	8,056	5.6	31,274	5.1	16,500	5.6	14,774	4.5	13	.5
311	Lumber and timber products, n. e. c.	10,158	3.8	11,716	5.6	9,734	3.8	10,838	5.9	25,927	4.7	6,588	3.2	19,339	5.6	14	.2
508	Printing and publishing, book, music, and job.	7,940	4.8	11,986	4.7	6,632	5.2	8,795	5.2	30,876	4.4	7,745	4.0	23,131	4.6	10	.1
216	Women's, misses', and children's apparel, n. e. c.	4,005	1.4	2,833	.9	3,824	1.5	2,435	1.0	17,954	1.4	8,312	1.3	9,642	1.5	11	.1
		44 MEDIUM INDUSTRIES*															
1652	Cigarettes	23,478	90.3	19,653	89.1	22,156	90.6	16,425	89.7	723,262	89.7	570,348	89.0	152,914	92.5	9	31.0
803	Rubber tires and inner tubes	52,172	79.4	80,787	83.2	45,644	79.9	66,080	84.4	361,202	80.9	213,723	80.5	147,479	81.7	12	28.6
1123	Tin cans and other tinware, n. e. c.	21,739	68.6	25,610	69.1	18,597	67.6	19,295	69.3	236,371	80.8	169,333	82.2	67,038	77.6	76	37.3
629	Rayon and allied products	40,507	74.8	43,755	74.7	38,299	75.8	38,980	76.9	137,520	74.3	46,742	72.5	90,778	75.2	15	46.9
1301	Agricultural implements	42,765	70.0	57,892	73.6	37,155	70.3	48,306	75.1	210,972	72.4	102,000	73.2	108,972	71.8	22	9.1
201	Carpets and rugs	17,234	52.2	18,995	52.4	16,031	52.6	16,191	53.2	65,185	51.1	29,356	47.0	35,829	55.0	8	6.5
1310	Refrigerators and refrigerating and ice-making apparatus.	19,162	44.8	24,279	47.0	17,202	46.3	20,136	49.8	103,318	46.1	51,440	44.2	51,878	48.1	7	2.5
1008	Glass	27,236	37.1	34,540	40.2	24,731	36.8	29,344	41.1	127,435	44.9	45,574	41.4	81,861	47.1	38	17.8
1410	Ship and boatbuilding, steel and wooden, including repair work.	23,157	45.2	31,447	44.7	20,272	45.2	24,875	44.9	69,392	44.8	27,106	44.8	42,286	44.8	17	3.1
1119	Steam and hot-water heating apparatus and steam fittings.	13,195	41.1	15,724	40.7	11,579	42.7	12,729	44.2	43,206	38.7	13,802	36.9	29,404	39.6	15	5.5
1608	Cigars	17,342	29.6	11,703	30.1	16,591	29.6	10,202	30.5	58,225	38.5	30,481	39.2	27,744	37.8	25	3.6
705	Petroleum refining	35,246	38.3	56,061	39.1	30,007	38.8	43,620	39.8	701,298	38.2	573,791	38.8	127,507	35.4	64	16.2
1212	Nonferrous-metal alloys, products, excluding aluminum, n. e. c.	23,893	32.8	29,992	31.9	20,898	33.2	24,082	33.4	148,489	37.8	95,194	43.3	53,295	30.7	54	4.9
703	Gas, manufactured, illuminating and heating.	6,418	25.6	10,827	28.7	5,727	29.1	9,095	33.0	130,216	37.6	34,710	35.5	95,506	38.5	14	2.7
608	Chemicals, n. e. c.	26,968	33.6	39,816	34.0	22,812	34.6	29,749	37.0	248,022	37.1	115,246	35.0	132,776	39.1	60	10.5
1109	Hardware, n. e. c.	16,307	34.3	20,155	37.1	14,301	34.5	16,661	39.3	53,767	36.4	19,473	33.9	34,294	38.0	10	2.5
626	Paints, pigments, and varnishes	10,310	26.7	14,446	25.5	8,089	29.2	10,129	31.4	134,806	32.3	71,802	30.9	63,004	34.0	42	3.9
1304	Engines, turbines, water wheels, and windmills.	6,984	25.1	11,263	29.2	5,391	24.4	7,697	28.7	30,743	30.7	12,888	30.6	17,855	30.8	4	2.7
116	Flour and other grain mill products	6,406	18.9	8,597	20.5	5,386	20.3	6,660	24.6	250,460	29.4	210,194	29.4	40,266	29.4	41	1.9
1319	Radio apparatus and phonographs	17,695	33.9	21,126	36.6	14,414	32.2	14,390	33.5	57,450	28.6	27,117	26.2	30,333	31.1	6	3.0
1322	Foundries	19,877	20.4	23,112	24.3	19,513	21.8	27,179	27.6	63,139	25.2	23,803	26.5	39,336	24.5	29	2.3
1122	Structural and ornamental metal work**	7,959	22.9	9,228	21.6	6,941	25.5	7,251	25.7	39,370	24.5	26,762	28.9	12,608	18.5	21	1.9
611	Drugs and medicines	5,510	17.5	7,742	17.5	4,630	20.9	5,298	24.1	68,151	23.4	15,753	18 9	52,398	25.1	15	1.5
1127	Wirework, n. e. c.	6,662	23.1	8,193	24.2	5,925	23.5	6,669	26.2	27,124	23.1	11,862	21.3	15,262	24.6	19	3.5
410	Pulp (wood and other fiber)	6,216	24.2	6,775	24.0	5,794	24.5	5,877	25.1	37,875	22.7	21,893	22.8	15,982	22.5	31	16.5
907	Leather: Tanned, curried, and finished	10,166	18.5	13,110	19.7	9,381	18.4	11,404	20.4	69,405	22.5	44,144	22.3	25,251	22.9	29	7.6
1318	Machine-tool accessories and machinists' precision tools.	5,256	19.3	9,174	20.5	4,740	20.5	7,848	22.8	21,097	21.8	7,766	28.9	13,331	19.1	5	.7
119	Ice, manufactured	3,450	13.0	4,559	13.0	2,891	15.2	3,465	16.8	26,531	20.7	4,824	17.2	21,707	21.6	409	10.6
1004	Clay products (other than pottery) and nonclay refractories.	7,103	14.4	5,531	12.6	6,835	15.3	4,975	14.4	21,419	19.3	8,629	22.7	12,790	17.5	46	4.3
802	Rubber goods other than tires, inner tubes, and boots and shoes.	8,561	18.4	10,553	20.1	7,296	18.1	8,139	20.7	34,336	19.2	17,041	20.7	17,325	18.0	10	2.4
1017	Pottery, including porcelain ware	5,465	17.5	6,014	17.8	5,167	17.9	5,326	19.0	12,674	19.0	3,337	18.6	9,337	19.1	7	2.7
209	Rayon manufactures	13,700	18.6	10,738	17.2	13,432	19.1	9,931	18.1	37,912	18.5	23,975	21.2	13,937	15.2	22	4.9
1121	Stoves and ranges (other than electric) and warm-air furnaces.	5,487	11.4	7,224	12.7	5,050	12.1	6,344	14.3	29,768	16.1	10,422	13.7	19,346	17.6	8	1.4
408	Paper goods, n. e. c.	4,826	14.6	5,517	13.9	4,098	14.9	4,083	15.4	27,883	14.2	15,448	14.0	12,435	14.5	11	2.0
402	Boxes, paper, n. e. c.	5,564	8.8	6,331	9.0	4,802	8.7	4,851	9.6	42,031	14.1	28,464	16.9	13,567	10.4	39	3.2
204	Dyeing and finishing cotton, rayon, and silk	11,819	14.9	10,511	12.3	10,973	15.4	8,761	13.2	30,972	13.9	17,274	16.9	13,698	11.3	8	1.5
304	Boxes, wooden, except cigar boxes	2,111	8.4	2,091	10.9	1,911	8.3	1,672	11.1	8,779	13.9	4,782	14.9	3,997	12.8	36	5.4
1307	Machine tools	4,625	13.0	7,449	14.2	3,236	11.5	4,977	13.4	16,785	13.8	4,284	11.8	12,501	14.6	4	1.6
112	Confectionery	5,484	9.4	5,156	10.0	5,059	9.7	4,116	10.5	32,594	12.5	18,334	11.9	14,260	13.4	4	.3
1129	Stamped and pressed metal products; enameling, japanning, and lacquering.	5,266	9.3	6,527	9.7	4,622	9.3	5,027	9.8	25,060	12.0	13,104	13.0	11,956	11.1	8	1.1
134	Liquors, malt	4,227	8.8	8,117	9.8	3,567	9.1	6,224	10.2	49,293	11.8	14,811	10.6	34,482	12.3	6	.9
210	Silk manufactures	4,520	7.8	4,265	9.1	4,149	7.4	3,537	8.7	17,196	11.5	11,196	16.1	6,000	7.5	6	.9
1326	Machine shops	7,711	7.8	11,001	8.2	6,381	7.7	8,338	8.5	36,546	8.7	17,601	10.2	18,945	7.7	11	.4
314	Planing-mill products (including general millwork), made in planing mills not connected with sawmills.	2,911	5.1	2,736	4.8	2,584	5.4	2,255	5.3	9,104	4.6	4,823	4.4	4,281	4.9	16	.6
		210 SMALL INDUSTRIES*															
314	Typewriters and parts																
624	Oils, essential																
108	Chewing gum	1,802	69.7	2,323	74.5	1,683	72.7	1,960	81.1	43,958	92.0	13,117	87.5	30,841	94.1	5	19.2

For footnotes, see end of table.

tries, 1935, based on value of products—Continued

sands of dollars]

Largest eight producers															Industry	Industry number
Persons employed		Wages and salaries		Wage earners		Wages		Value of product		Cost of materials, etc.[1]		Value added by manufacture[2]		Number of establishments		
Number	Percent of industry	Amount	Percent of industry	Number	Percent of industry	Amount	Percent of industry	Amount	Percent of industry	Amount	Percent of industry	Amount	Percent of industry	Number	Percent of industry	
21 LARGE INDUSTRIES—Continued																
23,849	18.9	20,856	23.2	22,373	19.2	17,424	24.7	197,627	30.4	119,905	29.3	77,722	32.3	108	3.9	Canned and dried fruits and vegetables; preserves, jellies, fruit butters, pickles and sauces. 105
40,021	17.1	84,084	20.2	22,354	18.8	43,225	22.4	303,971	25.5	73,072	31.2	230,899	24.1	59	.7	Printing and publishing, newspaper and periodical. 510
52,427	21.9	67,399	23.4	48,263	22.1	59,115	23.7	316,718	25.6	154,539	23.0	162,179	28.7	348	1.8	Bread and other bakery products 102
22,166	19.3	26,157	18.6	19,826	19.2	21,478	19.5	153,715	21.6	90,983	21.2	62,732	22.2	63	10.6	Paper 407
57,760	14.6	40,547	14.6	56,471	14.8	38,042	15.4	148,119	14.4	93,459	14.9	54,660	13.5	58	4.7	Cotton manufactures 203
21,861	17.0	14,514	16.7	20,959	17.2	13,040	17.6	55,974	16.9	34,426	18.8	21,548	14.5	72	6.1	Men's cotton garments 213
16,648	11.7	24,331	12.1	13,003	11.8	17,888	13.6	64,175	11.0	24,002	11.0	40,173	11.0	23	.9	Machinery n. e. c 1305
11,841	8.0	11,426	7.9	10,801	8.3	9,638	8.5	38,303	8.8	19,064	9.2	19,239	8.5	22	.7	Furniture, including store and office fixtures. 309
20,216	8.7	20,210	9.4	19,183	8.7	18,387	10.0	51,687	8.5	21,369	7.2	30,318	9.7	26	1.4	Knit goods 234
12,510	7.5	14,896	8.6	11,408	7.4	12,408	8.6	54,052	8.8	27,179	9.3	26,873	8.3	20	.7	Men's, youths', and boys' clothing, n. e. c 215
17,191	6.4	18,387	8.8	16,418	6.4	16,704	9.1	42,012	7.6	12,997	6.2	29,015	8.4	26	.4	Lumber and timber products, n. e. c 311
10,863	6.5	16,677	6.5	8,357	6.6	11,688	6.9	45,175	6.5	11,163	5.7	34,012	6.7	53	.5	Printing and publishing, book, music, and job. 508
8,664	3.0	6,114	2.0	8,262	3.2	5,242	2.2	30,371	2.4	15,233	2.4	15,138	2.3	19	.2	Women's, misses', and children's apparel, n. e. c. 216
44 MEDIUM INDUSTRIES[3]																
25,795	99.2	21,786	98.8	24,285	99.3	18,182	99.3	801,602	99.4	637,206	99.4	16,306	99.4	14	48.3	Cigarettes 1652
57,716	87.8	87,996	90.6	50,330	88.1	71,678	91.6	403,364	90.4	238,038	89.7	165,326	91.6	16	38.1	Rubber tires and inner tubes 803
23,532	74.3	27,549	74.3	20,214	73.5	20,788	74.7	250,288	85.6	180,567	87.6	69,720	80.7	87	42.7	Tin cans and other tinware, n. e. c 1123
48,411	89.4	52,157	89.0	45,477	90.0	45,641	90.0	167,006	90.2	57,555	89.2	109,451	90.7	20	62.5	Rayon and allied products 629
51,915	85.0	68,780	87.5	45,125	85.4	57,258	89.0	255,564	87.7	123,357	88.5	132,207	87.1	33	13.7	Agricultural implements 1301
22,124	67.0	24,187	66.7	20,630	67.7	20,816	68.4	87,049	68.2	41,122	65.9	45,927	70.5	15	12.2	Carpets and rugs 201
24,951	58.4	29,881	57.9	22,256	59.9	24,446	60.4	130,087	58.0	67,124	57.7	62,963	58.4	11	4.0	Refrigerators and refrigerating and ice-making apparatus. 1310
35,875	48.9	45,304	52.8	32,570	48.5	38,069	53.3	173,266	61.0	70,572	64.2	102,694	59.0	49	23.0	Glass 1008
32,620	63.6	44,997	64.0	28,352	63.2	35,382	63.8	100,158	64.7	40,688	67.3	59,470	63.0	26	4.7	Ship and boat building, steel and wooden, including repair work. 1410
16,497	51.4	19,488	50.4	14,417	53.2	15,617	54.2	54,991	49.2	17,751	47.4	37,240	50.1	26	9.5	Steam and hot-water heating apparatus and steam fittings. 1119
23,244	39.7	15,558	40.1	22,280	39.8	13,660	40.8	76,660	50.7	40,964	52.6	35,696	48.6	35	4.7	Cigars 1608
53,375	58.0	83,778	58.4	45,719	59.1	66,135	60.3	1,082,484	58.9	870,741	58.9	211,743	58.8	94	23.8	Petroleum refining 705
35,153	48.2	43,753	46.6	30,443	48.4	34,653	48.1	206,019	52.4	125,494	57.1	80,525	46.4	63	5.7	Nonferrous-metal alloys, products, excluding aluminum, n. e. c. 1212
11,621	46.3	18,507	49.0	9,967	50.6	14,897	53.9	193,962	56.1	51,847	53.0	142,115	57.3	109	21.0	Gas, manufactured, illuminating and heating. 703
38,171	47.5	55,991	47.8	31,663	48.1	40,105	49.8	324,614	48.5	148,460	45.1	176,154	51.9	90	15.8	Chemicals, n. e. c 608
20,775	43.7	25,082	46.2	18,297	44.1	20,677	48.8	67,230	45.5	25,041	43.6	42,189	46.7	15	3.7	Hardware, n. e. c 1109
13,557	35.1	18,318	32.3	10,697	38.6	12,856	39.9	174,168	41.8	93,994	40.5	80,174	43.3	70	6.5	Paints, pigments, and varnishes 626
11,378	40.9	17,268	44.7	8,928	40.5	12,106	45.1	47,233	47.2	20,683	49.2	26,550	45.8	9	6.0	Engines, turbines, water wheels, and windmills. 1304
8,738	25.8	11,745	38.1	7,189	27.1	8,642	31.9	315,798	37.0	265,403	37.1	50,395	36.8	93	4.2	Flour and other grain mill products 116
23,605	45.2	26,451	45.8	19,735	44.1	18,679	43.5	77,569	38.6	37,511	36.2	40,058	41.1	13	6.6	Radio apparatus and phonographs 1319
26,117	26.8	35,239	30.5	25,130	28.0	33,122	33.6	92,311	32.9	30,284	33.7	52,027	32.4	48	3.8	Foundries 1322
10,483	30.1	12,203	28.6	8,913	32.7	9,106	32.3	50,622	31.5	32,551	35.2	18,071	26.5	28	2.5	Structural and ornamental metal work** 1122
7,581	24.1	10,645	24.0	6,063	27.4	6,551	29.8	97,109	33.3	21,866	26.2	75,243	36.1	27	2.6	Drugs and medicines 611
10,418	36.2	12,359	36.6	9,395	37.3	10,052	39.5	41,481	35.3	19,251	34.6	22,230	35.9	25	4.7	Wirework, n. e. c 1127
7,968	31.0	9,004	31.9	7,357	31.1	7,646	32.7	57,669	34.5	34,575	35.9	23,094	32.5	39	20.7	Pulp (wood and other fiber) 410
16,239	29.6	20,448	30.7	15,180	29.7	17,679	31.7	105,753	34.3	66,697	33.7	39,056	35.4	51	13.3	Leather: Tanned, curried, and finished 907
7,657	28.1	12,724	28.5	6,817	29.5	10,606	30.8	29,771	30.7	10,334	38.4	19,437	27.8	12	1.6	Machine-tool accessories and machinists' precision tools. 1318
4,755	17.9	6,113	17.5	3,760	19.8	4,510	21.9	35,893	28.0	6,949	24.8	28,944	28.8	563	14.6	Ice, manufactured 119
9,696	19.7	8,363	19.0	9,152	20.5	7,097	20.5	29,598	26.6	11,578	30.5	18,020	24.6	63	5.9	Clay products (other than pottery) and nonclay refractories. 1004
12,230	26.3	15,117	28.8	10,539	26.1	11,972	30.4	50,943	28.5	25,107	30.5	25,836	26.9	15	3.6	Rubber goods other than tires, inner tubes, and boots and shoes. 802
8,589	27.5	9,549	28.3	8,103	38.1	8,329	29.7	19,424	29.1	5,214	29.0	14,210	29.1	12	4.7	Pottery, including porcelain ware 1017
18,789	25.5	15,538	24.9	18,267	26.0	14,182	25.8	55,422	27.1	35,013	31.0	20,409	22.3	27	6.0	Rayon manufactures 209
9,202	19.1	12,096	21.3	8,321	19.9	10,414	23.5	42,645	23.0	14,899	19.6	27,746	25.3	15	2.7	Stoves and ranges (other than electric) and warm-air furnaces. 1121
7,034	21.3	8,313	21.0	5,957	21.7	6,088	23.0	46,484	23.7	25,955	23.6	20,529	23.9	22	4.0	Paper goods, n. e. c 408
8,398	13.3	9,651	13.8	7,390	13.4	7,582	15.0	61,913	20.7	41,455	24.6	20,458	15.7	52	4.3	Boxes, paper, n. e. c 402
17,630	22.2	17,974	21.1	15,932	22.3	13,843	20.9	49,879	22.3	26,037	25.5	23,842	23.7	17	3.3	Dyeing and finishing cotton, rayon, and silk 204
4,179	16.7	3,580	18.7	3,874	16.8	2,939	19.6	13,799	21.8	7,324	22.8	6,475	20.8	51	7.7	Boxes, wooden, except cigar boxes 304
7,851	22.1	12,056	23.0	6,009	21.3	8,594	23.1	28,599	23.5	8,394	23.1	20,205	23.6	9	3.5	Machine tools 1307
9,172	15.8	8,948	17.3	8,268	15.9	6,845	17.4	51,827	19.9	29,435	19.2	22,392	21.1	16	1.2	Confectionery 112
8,370	14.8	10,392	15.4	7,390	14.8	8,038	15.7	38,802	18.6	20,320	20.1	18,482	17.2	12	1.7	Stamped and pressed metal products; enameling, japanning and lacquering. 1129
6,037	12.6	11,776	14.2	5,187	13.2	9,057	14.9	74,187	17.7	22,703	16.2	51,484	18.4	11	1.7	Liquors, malt 134
6,128	10.5	5,788	12.3	5,623	10.1	4,735	11.7	27,637	18.5	16,622	23.9	11,015	13.8	11	1.7	Silk manufactures 210
13,008	13.1	17,664	13.1	11,141	13.5	13,873	14.2	61,157	14.6	28,649	16.6	32,508	13.2	20	.7	Machine shops 1326
4,225	7.4	4,195	7.3	3,703	7.7	3,416	8.1	15,952	8.1	9,503	8.7	6,449	7.4	29	1.1	Planing-mill products (including general millwork), made in planing mills not connected with sawmills. 314
210 SMALL INDUSTRIES[3]																
16,834	99.5	18,686	99.4	15,333	99.6	16,579	99.7	33,609	99.3	8,563	99.2	25,046	99.3	14	70.0	Typewriters and parts[4] 1314
214	91.5	430	95.3	154	92.8	210	95.9	3,481	98.3	2,577	99.0	904	96.2	8	66.7	Oils, essential[4] 624
2,184	84.4	2,750	88.2	2,001	86.4	2,222	91.9	46,499	97.3	14,364	95.9	32,135	98.0	9	34.6	Chewing gum 108

TABLE II.—*Concentration in manufacturing indus*

[Values in thou

Industry number	Industry	Largest four producers															
		Persons employed		Wages and salaries		Wage earners		Wages		Value of product		Cost of materials, etc.[1]		Value added by manufacturer[2]		Number of establishments	
		Number	Percent of industry	Amount	Percent of industry	Number	Percent of industry	Amount	Percent of industry	Amount	Percent of industry	Amount	Percent of industry	Amount	Percent of industry	Number	Percent of industry
		210 SMALL INDUSURIES—Continued															
602	Ammunition and related products	5,801	91.8	5,988	89.7	5,207	93.0	4,794	93.6	24,136	91.7	9,580	93.9	14,556	90.4	7	53.8
31003	China firing and decorating, not done in potteries.																
1609	Combs and hairpins, other than metal and rubber.	242	87.7	246	89.5	215	90.3	177	91.7	622	88.1	281	89.2	341	87.2	4	36.4
623	Oil, cake, and meal, linseed	2,273	87.6	2,760	87.3	2,092	89.0	2,373	89.5	52,978	87.9	42,938	88.0	10,040	87.6	17	68.0
612	Drug grinding	582	82.2	832	83.4	491	83.2	479	79.7	5,195	87.8	2,983	88.3	2,212	87.2	7	33.3
1010	Graphite, ground and refined	303	93.5	390	92.9	247	96.5	250	95.8	1,834	86.4	773	82.1	1,061	89.9	4	44.4
1105	Files	2,671	83.0	3,159	82.9	2,456	84.3	2,604	85.4	7,879	85.8	1,917	85.8	5,962	85.8	6	27.3
605	Bluing	58	59.2	125	78.1	34	58.6	41	74.5	776	85.1	224	78.3	552	88.2	6	40.0
1115	Safes and vaults	895	84.4	1,087	84.9	685	84.7	682	85.3	2,808	84.8	992	82.4	1,816	86.1	4	28.6
619	Ink, writing	433	83.5	589	83.0	322	85.4	320	84.2	2,808	83.0	1,135	80.2	1,673	85.1	4	18.2
613	Explosives	4,256	80.6	6,024	80.7	3,753	82.1	4,776	84.6	33,351	82.0	13,892	81.7	19,459	82.2	37	50.0
1106	Firearms	4,296	78.6	5,254	79.9	3,808	78.4	4,482	81.5	10,670	81.9	2,680	79.1	7,990	82.9	6	27.3
801	Boots and shoes, rubber	14,863	76.7	15,694	79.1	13,162	76.3	12,703	78.8	43,498	81.8	16,912	81.6	26,586	82.0	6	50.0
222	Asphalted-felt-base floor covering; linoleum	5,854	84.9	7,791	83.3	5,479	85.5	6,931	85.5	42,752	81.6	18,941	79.1	23,811	83.7	9	56.3
606	Bone black, carbon black, and lampblack	1,569	76.9	1,905	78.5	1,413	77.3	1,544	79.7	12,000	81.0	4,088	76.7	7,912	83.5	41	74.5
113	Corn sirup, corn sugar, corn oil, and tarch	6,168	71.6	8,813	74.2	5,156	70.3	6,143	72.8	82,079	79.2	54,780	78.0	27,299	81.8	16	44.4
610	Compressed and liquefied gases	4,350	76.4	5,880	72.1	2,948	77.8	3,343	75.8	33,279	79.2	8,878	79.0	24,401	79.3	243	73.6
124	Oleomargarine, not made in meat-packing establishments.	1,241	82.1	1,614	81.0	975	82.9	1,105	84.8	25,615	79.1	18,127	77.8	7,488	82.2	6	42.8
1312	Sewing machines and attachments	7,135	82.0	9,334	80.6	6,288	83.7	7,596	83.9	17,857	78.9	4,800	79.6	12,057	72.5	5	12.8
1636	Photographic apparatus and materials and projection apparatus.	11,835	76.9	18,003	77.7	9,452	78.8	12,699	80.4	57,628	77.9	13,665	52.3	43,963	91.9	7	5.9
1206	Fire extinguishers, chemical	856	77.4	1,166	79.5	642	79.7	800	82.9	4,121	77.1	1,883	76.2	2,238	78.0	4	16.0
307	Cork products	2,553	75.8	2,630	74.9	2,337	77.1	2,162	77.9	10,755	76.9	5,438	77.5	5,317	76.3	7	20.6
1022	Gypsum products	2,642	67.8	3,001	66.5	2,340	69.2	2,421	70.3	20,004	76.1	6,386	71.6	13,618	78.4	34	47.2
1201	Aluminum products	16,911	76.6	19,418	75.7	14,819	76.9	15,732	77.4	79,036	76.0	44,946	76.9	34,090	74.7	16	9.4
1208	Gold leaf and foil	459	73.1	400	73.5	406	72.9	295	73.2	1,347	75.5	713	74.3	634	77.0	5	18.5
1641	Soda fountains and accessories	1,021	69.1	1,632	70.1	774	70.6	1,050	73.1	6,074	74.0	3,100	75.2	2,974	72.8	8	16.7
631	Soap	10,795	63.3	13,800	61.6	9,042	65.0	10,468	68.2	175,870	73.5	102,529	73.5	73,341	73.5	18	7.6
1405	Cars, electric and steam railroad	15,770	64.2	20,019	63.1	13,748	64.0	16,219	63.0	72,099	71.7	45,631	73.9	26,458	68.2	54	36.0
1634	Pens, fountain and stylographic; pen points, gold, steel, brass.	2,812	61.6	2,849	59.7	2,311	61.1	2,092	61.0	12,595	70.4	3,690	63.8	8,905	73.6	4	7.8
312	Matches	3,630	66.1	3,680	67.0	3,354	66.1	3,183	67.8	21,400	70.3	14,039	73.7	7,361	64.6	9	37.5
131	Sugar refining, cane	9,813	64.3	11,921	69.4	8,932	64.5	9,749	70.1	262,388	69.6	231,740	68.9	30,648	74.7	10	55.6
120	Shortenings, vegetable cooking oils, and salad oils.	3,919	66.5	4,459	65.5	3,207	66.2	3,129	66.5	146,797	69.0	123,574	69.4	23,223	66.8	24	50.0
129	Sugar, beet	6,512	60.3	8,152	65.1	5,470	59.3	6,081	65.1	65,447	68.8	49,190	69.1	16,257	67.7	42	54.5
106	Cereal preparations	5,676	61.7	7,295	63.3	5,015	63.6	5,819	63.3	99,910	68.1	56,390	68.4	43,520	67.7	8	7.3
109	Chocolate and cocoa products, not including confectionery.	6,008	64.0	6,446	62.2	5,353	64.6	5,175	64.7	63,058	67.8	45,874	69.1	17,184	64.5	4	9.1
1021	Abrasive wheels, stones, paper, cloth, and related products.	5,500	63.3	8,690	67.9	4,277	63.1	5,943	71.2	36,280	67.4	12,515	60.4	23,765	71.7	6	6.4
1645	Surgical and orthopedic appliances and related products.	4,697	50.3	5,412	50.3	3,591	50.6	3,116	49.6	41,552	67.3	27,327	75.7	14,225	55.4	9	2.9
308	Excelsior	469	51.6	400	59.2	436	52.5	320	60.1	1,638	67.0	337	61.8	1,001	70.9	9	18.8
404	Card cutting and designing	1,640	46.8	1,946	48.4	1,407	47.7	1,527	53.7	11,384	66.1	5,301	68.9	6,083	63.9	6	7.9
1110	Blast-furnace products	9,535	57.1	13,445	59.2	8,644	57.0	11,180	59.1	247,203	66.0	195,882	65.2	51,321	69.3	29	40.3
1209	Gold, silver, and platinum, refining and alloying.	677	44.7	1,173	44.3	467	46.6	615	46.7	50,763	65.1	47,925	66.8	2,838	45.3	5	5.7
1218	Smelting and refining, zinc	5,393	55.7	7,366	59.0	4,858	54.9	5,924	57.5	44,225	64.0	28,384	65.1	15,841	61.9	10	38.5
1647	Tobacco (chewing and smoking) and snuff	5,641	51.0	5,189	49.7	5,229	51.9	4,282	56.1	86,023	63.5	58,992	65.6	27,031	59.4	10	8.7
1116	Saws	2,868	69.0	3,435	65.6	2,417	70.6	2,627	70.4	8,653	63.4	2,567	61.9	6,086	64.0	9	11.0
1211	Needles, pins, hooks and eyes, slide and snap fasteners.	7,326	64.9	7,881	63.2	6,608	65.4	6,258	66.0	20,804	63.4	5,409	58.3	15,395	65.4	5	10.0
1018	Sand-lime brick	124	46.1	145	54.1	110	48.5	113	56.8	413	63.1	185	68.5	228	59.2	4	20.0
1001	Asbestos, other than steam packing and pipe and boiler covering.	7,555	68.7	8,113	67.8	6,715	69.8	6,497	69.9	24,089	63.1	10,830	63.1	13,259	63.1	14	19.5
1631	Optical goods	7,509	63.7	10,137	68.2	5,919	61.2	6,962	67.4	20,939	62.3	5,710	51.6	15,229	67.6	7	7.0
1637	Pipes (tobacco)	1,443	59.3	1,728	63.3	1,345	60.0	1,500	65.7	3,944	62.2	1,093	56.3	2,751	65.0	5	17.2
503	Engraving, chasing, etching, and die-sinking.	1,696	63.6	2,088	59.7	1,426	64.8	1,511	61.7	4,766	62.2	2,100	77.9	2,666	53.7	4	4.0
403	Cardboard, not made in paper mills	553	69.2	760	69.8	448	71.3	482	75.2	2,288	61.9	1,215	62.5	1,073	61.4	4	25.0
2051	Felt goods, except woven felts	2,212	55.7	2,413	54.7	2,052	57.4	2,015	58.6	14,530	61.3	8,090	59.9	6,440	63.1	9	22.5
607	Candles	468	52.0	618	57.4	364	51.1	327	54.6	2,892	61.1	1,466	61.1	1,426	61.1	4	17.4
1409	Motorcycles, bicycles, and parts	3,280	56.9	3,868	58.9	2,902	57.0	3,147	60.4	13,990	60.6	7,836	61.2	6,154	59.9	6	26.1
630	Salt	2,619	47.2	3,255	50.9	2,352	47.3	2,588	53.0	17,920	60.3	6,413	58.7	11,507	61.2	15	31.3
1222	Watchcases	1,445	61.1	1,934	63.0	1,198	59.4	1,464	62.9	4,069	58.3	1,507	54.6	2,562	60.7	4	13.8
220	Artificial leather; oil cloth	2,369	55.0	3,072	54.8	2,031	55.6	2,461	58.6	19,814	57.7	13,234	57.1	6,580	59.1	7	21.2
603	Baking powder, yeast, and other leavening compounds.	2,133	63.5	4,285	67.8	1,690	63.4	2,954	69.1	18,458	57.1	7,867	54.7	10,591	59.0	11	23.9
1629	Musical instruments: organs	404	53.4	494	54.5	337	54.9	338	55.3	968	57.0	308	53.5	660	58.8	4	14.3
1213	Silverware and plated ware	5,980	50.4	6,879	48.3	5,162	50.6	5,633	50.8	24,524	56.6	7,296	47.9	17,228	61.2	9	6.5
1315	Washing machines, wringers, driers, ironing machines.	5,019	48.9	6,532	51.8	4,288	49.1	5,307	53.9	34,936	56.0	20,639	55.8	14,297	56.2	6	14.6
1016	Mirrors and other glass products made of purchased glass.	3,361	27.4	4,354	31.2	3,163	29.6	3,911	35.9	38,095	55.4	15,195	52.1	22,900	57.9	5	.9
2173	Suspenders, garters, and other elastic woven products.	1,424	45.0	1,372	48.5	1,209	44.5	888	45.4	8,034	54.8	4,368	51.4	3,666	59.5	4	5.4
1311	Scales and balances	1,480	45.2	1,989	47.4	1,076	43.6	1,178	44.7	7,341	54.8	1,921	50.7	5,420	56.5	5	8.9
1020	Wallboard and plaster, except gypsum	2,972	55.2	2,684	48.4	2,666	57.7	2,103	53.4	12,878	54.0	3,940	43.9	8,938	60.1	5	4.0
1401	Aircraft and parts	7,131	47.8	11,280	52.5	5,436	47.8	8,211	55.2	24,435	53.9	7,681	54.8	16,754	53.5	8	10.1
1118	Springs, steel, except wire	1,460	40.6	1,969	42.7	1,357	43.1	1,674	46.9	9,774	53.6	6,640	60.1	3,134	43.6	4	8.2
633	Wood distillation and charcoal manufacture	2,050	47.5	1,961	52.2	1,776	46.7	1,443	51.3	8,555	53.5	3,663	46.2	4,892	60.7	7	11.6
1203	Collapsible tubes	1,040	48.6	1,198	51.9	973	49.6	934	53.4	4,493	52.8	2,636	53.1	1,857	52.5	4	25.0
615	Fireworks	923	49.6	1,135	55.1	792	49.9	723	55.2	3,435	52.8	1,459	55.5	1,976	51.0	10	19.3
1654	Wool pulling	406	42.7	567	46.0	377	43.5	504	51.7	6,506	52.5	5,324	59.1	1,182	34.8	4	23.5

For footnotes, see end of table.

tries, 1935, based on value of products—Continued

sands of dollars]

Largest eight producers																Industry	Industry number
Persons employed		Wages and salaries		Wage earners		Wages		Value of product		Cost of materials, etc.[1]		Value added by manufacture[2]		Number of establishments			
Number	Percent of industry	Amount	Percent of industry	Number	Percent of industry	Amount	Percent of industry	Amount	Percent of industry	Amount	Percent of industry	Amount	Percent of industry	Number	Percent of industry		
210 SMALL INDUSTRIES—Continued																	
[4] 6,320	100.0	6,676	100.0	5,599	100.0	5,121	100.0	26,307	100.0	10,200	100.0	16,107	100.0	13	100.0	Ammunition and related products	602
278	87.1	284	88.8	246	88.5	197	87.9	1,132	89.3	586	90.9	546	87.8	8	42.1	China firing and decorating, not done in potteries.	[3] 1003
265	96.0	268	97.5	229	96.2	189	97.9	685	97.0	310	98.4	375	95.9	8	72.8	Combs and hairpins, other than metal and rubber.	1609
2,476	95.5	3,030	95.8	2,247	95.6	2,547	96.1	58,592	97.2	47,411	97.1	11,181	97.6	21	84.0	Oil, cake, and meal, linseed	623
661	93.4	940	94.2	556	94.2	565	94.0	5,719	96.7	3,275	96.9	2,444	96.3	12	57.1	Drug grinding	612
[4] 324	100.0	420	100.0	256	100.0	261	100.0	2,122	100.0	942	100.0	1,180	100.0	9	100.0	Graphite, ground and refined	1010
3,039	94.4	3,612	94.8	2,759	94.7	2,912	95.5	8,713	94.9	2,112	94.6	6,601	95.0	10	45.5	Files	1105
[4] 98	100.0	160	100.0	58	100.0	55	100.0	912	100.0	286	100.0	626	100.0	15	100.0	Bluing	605
1,021	96.3	1,234	96.4	780	96.4	770	96.3	3,230	97.5	1,172	97.3	2,058	97.6	8	57.2	Safes and vaults	1115
483	93.2	667	94.0	355	94.2	357	93.9	3,167	93.6	1,320	93.3	1,847	93.9	8	36.4	Ink, writing	619
4,790	90.7	6,797	91.1	4,178	91.4	5,251	93.0	37,845	93.1	15,807	93.0	22,038	93.1	43	58.1	Explosives	613
5,044	92.3	6,041	91.8	4,498	92.6	5,105	92.9	12,037	92.4	3,163	93.4	8,874	92.1	10	45.5	Firearms	1106
[4] 19,377	100.0	19,837	100.0	17,246	100.0	16,113	100.0	53,162	100.0	20,730	100.0	32,432	100.0	12	100.0	Boots and shoes, rubber	801
[4] 6,895	100.0	9,350	100.0	6,410	100.0	8,105	100.0	52,398	100.0	23,942	100.0	28,456	100.0	16	100.0	Asphalted-felt-base floor covering; linoleum	222
1,829	89.7	2,185	90.0	1,648	90.2	1,762	91.0	13,645	92.1	4,746	89.0	8,899	93.9	46	83.6	Bone black, carbon black, and lampblack	606
8,002	92.9	11,130	93.7	6,807	92.8	7,934	94.4	98,469	95.0	66,608	94.8	31,861	95.5	20	55.6	Corn sirup, corn sugar, corn oil, and starch	113
4,767	83.8	6,596	80.9	3,215	84.9	3,697	83.9	36,553	87.0	9,758	86.8	26,795	87.1	264	80.0	Compressed and liquefied gases	610
1,418	93.8	1,875	94.1	1,111	94.5	1,238	95.0	31,110	96.0	22,298	95.7	8,812	96.7	10	71.4	Oleomargarine, not made in meat-packing establishments.	124
8,088	93.0	10,810	93.4	7,006	93.3	8,457	93.4	20,471	90.4	5,396	89.5	14,075	84.7	9	23.1	Sewing machines and attachments	1312
13,256	85.8	20,086	86.7	10,370	86.4	13,921	88.1	62,821	84.9	15,325	58.6	47,496	99.3	15	12.7	Photographic apparatus and materials and projection apparatus.	1636
943	85.3	1,289	87.9	709	88.0	874	90.6	4,664	87.3	2,110	85.4	2,554	89.0	8	32.0	Fire extinguishers, chemical	1206
2,976	88.3	3,070	87.4	2,711	89.4	2,485	89.5	12,612	90.2	6,442	91.8	6,170	88.6	11	32.4	Cork products	307
3,101	79.6	3,536	78.3	2,748	81.3	2,833	82.2	22,723	86.4	7,623	85.5	15,100	86.9	42	58.3	Gypsum products	1022
18,330	83.0	21,139	82.4	16,115	83.6	17,103	84.1	87,060	83.7	49,215	84.2	37,845	82.9	20	11.8	Aluminum products	1201
556	88.5	483	88.8	492	88.3	353	87.6	1,559	87.4	830	86.5	729	88.5	9	33.3	Gold leaf and foil	1208
1,161	78.6	1,829	78.6	867	79.1	1,146	79.8	6,603	80.4	3,341	81.0	3,262	79.8	12	25.0	Soda fountains and accessories	1641
12,368	72.5	16,173	72.2	10,394	74.7	12,038	78.5	198,804	83.1	114,921	82.4	83,883	84.1	24	10.1	Soap	631
18,928	77.1	24,317	76.6	16,687	77.7	20,059	77.9	84,473	84.0	53,792	87.2	30,681	79.0	72	48.0	Cars, electric and steam railroad	1405
3,480	76.2	3,657	76.7	2,861	75.7	2,646	77.2	14,016	82.8	4,303	74.4	10,513	86.9	8	15.6	Pens, fountain and stylographic; pen points, gold, steel, brass.	1634
4,797	87.3	4,755	86.6	4,478	88.2	4,152	88.5	27,789	91.3	17,646	92.7	10,143	89.0	15	62.5	Matches	312
12,830	84.1	15,004	87.3	11,609	83.9	12,158	87.4	333,122	88.3	295,772	88.0	37,350	91.0	14	77.8	Sugar refining, cane	131
4,900	83.1	5,626	82.7	3,997	82.5	3,880	82.4	182,643	85.9	153,630	86.3	29,013	83.4	31	64.6	Shortenings, vegetable cooking oils, and salad oils.	120
9,181	85.0	10,906	87.0	7,844	85.0	8,201	87.8	85,081	89.4	64,082	90.1	20,999	87.4	62	80.5	Sugar, beet	129
6,851	74.4	8,706	75.5	6,085	77.1	6,963	81.7	120,562	82.2	65,054	78.9	55,508	86.4	15	13.6	Cereal preparations	106
7,243	77.2	7,763	74.9	6,458	77.9	6,156	77.0	72,144	77.5	52,026	78.3	20,118	75.5	8	18.2	Chocolate and cocoa products, not including confectionery.	109
6,048	69.6	9,414	73.5	4,712	69.5	6,440	77.1	40,014	74.3	14,248	68.7	25,766	77.8	10	10.6	Abrasive wheels, stones, paper, cloth, and related products.	1021
5,456	58.4	6,233	57.9	4,207	59.3	3,638	57.9	46,388	75.1	30,044	83.2	16,344	63.7	15	4.9	Surgical and orthopedic appliances and related products.	1645
564	62.1	480	71.1	515	62.0	374	70.3	1,867	76.4	741	71.9	1,126	79.7	13	27.1	Excelsior	308
2,167	61.9	2,609	64.9	1,829	62.0	1,919	67.4	13,377	77.7	6,168	80.1	7,209	75.7	10	13.2	Card cutting and designing	404
12,071	72.3	16,956	74.6	11,012	72.6	14,166	74.9	310,230	82.8	250,691	83.4	59,539	80.4	40	55.5	Blast-furnace products	1110
891	58.8	1,467	55.4	619	61.8	768	58.3	61,955	79.4	58,414	81.4	3,541	56.5	9	10.2	Gold, silver, and platinum, refining and alloying.	1029
7,653	79.1	10,193	81.6	6,982	79.0	8,386	81.3	56,821	82.2	36,114	82.9	20,707	81.0	15	57.7	Smelting and refining, zinc	1218
8,067	73.0	7,665	73.4	7,412	73.6	5,929	77.7	114,197	84.3	76,276	84.8	37,921	83.3	16	13.9	Tobacco (chewing and smoking) and snuff	1647
3,186	76.7	3,961	75.6	2,673	78.0	2,923	78.3	10,413	76.3	3,145	75.9	7,268	76.5	15	18.3	Saws	1116
8,189	72.5	8,978	72.0	7,311	72.4	6,955	73.3	25,018	76.2	6,582	70.9	18,436	78.3	9	18.0	Needles, pins, hooks and eyes, slide and snap fasteners.	1211
188	69.9	198	73.9	164	72.2	148	74.4	518	79.2	222	82.2	296	76.9	8	40.0	Sand-lime brick	1018
8,859	80.6	9,430	78.8	7,920	82.3	7,585	81.6	29,921	78.4	13,662	79.6	16,259	77.4	19	26.4	Asbestos, other than steam packing and pipe and boiler covering.	1001
8,473	71.9	11,195	75.3	6,808	70.4	7,792	75.4	23,739	70.7	6,818	61.6	16,921	75.1	13	13.0	Optical goods	1631
1,866	76.7	2,261	82.8	1,720	76.8	1,885	82.6	5,046	81.7	1,512	77.9	3,534	83.5	9	31.0	Pipes (tobacco)	1637
2,021	75.8	2,534	72.4	1,703	77.4	1,798	73.4	5,773	75.4	2,371	87.9	3,402	68.5	8	8.0	Engraving, chasing, etching, and die-sinking.	503
689	86.2	972	89.3	539	85.8	565	88.1	3,296	89.2	1,765	90.7	1,531	87.6	9	56.2	Cardboard, not made in paper mills	403
3,071	77.3	3,372	76.5	2,813	78.7	2,728	79.3	19,193	81.0	10,759	79.7	8,434	82.7	14	35.0	Felt goods, except woven felts	2051
697	77.4	873	81.1	553	77.6	485	81.0	3,895	82.3	1,936	80.7	1,959	83.9	8	34.8	Candles	607
4,460	77.3	5,311	80.9	3,912	76.8	4,258	81.7	20,789	90.1	12,117	94.6	8,672	84.4	10	43.5	Motorcycles, bicycles, and parts	1409
3,719	67.0	4,203	65.7	3,348	67.3	3,295	67.5	23,254	78.2	8,309	76.0	14,945	79.5	20	41.7	Salt	630
2,030	85.9	2,631	85.7	1,734	86.0	2,022	86.8	5,635	80.7	2,103	76.2	3,532	83.6	8	27.6	Watchcases	1222
3,186	73.9	4,083	72.9	2,737	75.0	3,218	76.6	25,872	75.4	17,819	76.9	8,053	72.3	11	33.3	Artificial leather; oil cloth	220
2,712	80.8	5,122	81.0	2,181	81.8	3,519	82.3	26,806	82.9	11,935	82.9	14,871	82.9	15	32.6	Baking powder, yeast, and other leavening compounds.	603
593	78.3	721	79.6	489	79.6	490	80.2	1,316	77.5	448	77.8	868	77.3	8	28.6	Musical instruments: organs	1629
7,411	62.5	8,610	60.5	6,392	62.7	6,805	61.4	29,484	68.0	9,326	61.2	20,158	71.6	13	9.4	Silverware and plated ware	1213
7,922	77.1	10,163	80.6	6,795	77.7	8,127	82.5	49,726	79.7	29,567	79.9	20,159	79.3	11	26.8	Washing machines, wringers, driers, ironing machines.	1315
4,202	34.3	5,213	37.3	3,909	36.6	4,574	42.0	41,095	59.8	16,683	57.2	24,412	61.7	14	2.6	Mirrors and other glass products made of purchased glass.	1016
1,893	59.8	1,795	63.4	1,620	59.6	1,170	59.8	9,921	67.7	5,519	65.0	4,402	71.4	8	10.8	Suspenders, garters, and other elastic woven products.	2173
2,051	62.7	2,735	65.2	1,504	60.9	1,659	63.0	9,758	72.9	2,578	68.1	7,180	74.8	9	16.1	Scales and balances	1311
3,832	71.1	3,787	68.3	3,427	74.2	2,958	75.1	16,716	70.1	5,442	60.6	11,274	75.8	9	7.3	Wallboard and plaster, except gypsum	1020
9,851	66.0	15,362	71.5	7,418	65.2	10,884	73.1	33,008	72.8	10,127	72.3	22,881	73.0	13	16.4	Aircraft and parts	1401
2,237	62.2	2,834	61.5	2,045	65.0	2,375	66.6	12,967	71.1	8,537	77.3	4,430	61.6	8	16.4	Springs, steel, except wire	1118
2,680	62.1	2,515	66.9	2,367	62.2	1,917	68.1	10,895	68.2	4,993	63.0	5,902	73.3	11	18.3	Wood distillation and charcoal manufacture	633
1,685	78.8	1,842	79.8	1,556	79.3	1,427	81.5	6,749	79.4	3,973	80.0	2,776	78.4	8	50.0	Collapsible tubes	1203
1,410	75.8	1,558	75.6	1,234	77.7	1,017	77.7	4,972	76.4	2,007	76.4	2,965	76.5	20	38.5	Fireworks	615
721	75.8	930	75.4	662	76.4	777	79.7	9,759	78.7	7,452	82.7	2,307	68.0	8	47.0	Wool pulling	1654

TABLE II.—*Concentration in manufacturing indus*

[Values in thou

Industry number	Industry	Largest four producers															
		Persons employed		Wages and salaries		Wage earners		Wages		Value of product		Cost of materials, etc.[1]		Value added by manufacture[2]		Number of establishments	
		Number	Percent of industry	Amount	Percent of industry	Number	Percent of industry	Amount	Percent of industry	Amount	Percent of industry	Amount	Percent of industry	Amount	Percent of industry	Number	Percent of industry
		210 SMALL INDUSTRIES—Continued															
1603	Artists' materials	134	35.0	271	38.0	116	33.1	125	37.1	1,271	52.3	774	63.4	497	41.1	4	8.5
1614	Foundry supplies	173	29.9	291	31.6	124	31.0	164	36.8	3,392	52.0	1,858	53.9	1,534	49.9	5	10.9
1611	Dentists' equipment and supplies	2,292	51.1	2,914	49.6	1,889	53.7	2,010	55.4	11,847	51.6	3,833	42.0	8,014	57.9	7	8.0
133	Liquors, distilled	4,231	44.0	4,469	39.4	3,850	47.2	3,891	46.5	78,231	51.2	36,631	47.9	41,600	54.5	13	9.9
310	Lasts and related products	835	47.8	1,190	46.4	731	48.9	950	49.7	2,827	51.2	716	49.1	2,111	52.0	13	27.1
1630	Musical instruments: pianos	2,435	53.0	2,611	53.2	2,195	53.4	2,170	53.0	6,477	51.1	2,242	40.0	4,235	59.7	4	11.1
319	Wood preserving	3,816	38.8	2,909	35.0	3,633	40.4	2,562	38.6	40,599	50.5	32,184	53.9	8,415	40.8	55	29.7
618	Ink, printing	1,346	40.2	2,327	38.0	1,006	42.4	1,449	44.8	16,919	49.0	10,162	54.7	6,757	42.4	42	22.0
1632	Paving materials, blocks (except brick and stone) and mixtures.	1,061	39.9	1,527	42.8	989	44.3	1,335	53.1	8,754	48.9	5,036	50.5	3,718	47.1	31	23.5
701	Coke-oven products	7,682	41.7	10,451	40.6	6,870	41.2	8,543	39.6	116,463	48.8	90,908	50.4	25,555	43.9	20	22.7
1617	Hair work	231	37.4	332	42.8	189	37.7	152	34.8	1,326	48.5	447	43.0	879	51.8	4	9.3
1113	Nails, spikes, etc.	1,290	51.5	1,530	50.2	1,160	53.2	1,263	54.4	4,669	48.3	2,015	46.6	2,654	49.8	6	14.0
115	Flavoring extracts, flavoring sirups, and related products.	499	10.9	537	12.5	320	11.0	360	13.6	32,369	47.7	10,809	37.0	21,560	55.7	12	2.9
1128	Wrought pipe, welded and heavy riveted	4,679	39.7	6,054	41.1	4,375	40.8	5,302	45.0	34,991	47.4	20,255	48.2	14,736	46.3	8	16.7
1403	Carriages and sleds, children's	2,680	49.1	2,797	51.7	2,491	50.6	2,471	56.6	7,302	47.0	3,473	46.8	3,829	47.3	6	10.9
1644	Steam and other packing, pipe and boiler covering, and gaskets, n. e. c.	2,965	51.5	3,310	46.9	2,576	53.9	2,492	52.6	11,367	46.9	5,807	49.4	5,560	44.5	9	7.3
1404	Carriages, wagons, sleighs, and sleds	721	38.8	754	42.7	611	38.4	564	43.9	3,134	45.8	1,806	49.1	1,328	42.0	4	8.9
1633	Pencils, lead (including mechanical), and crayons.	2,857	46.9	3,098	49.0	2,451	47.3	2,187	51.7	8,973	44.9	3,740	45.3	5,233	44.6	5	10.6
122	Malt	750	43.7	1,505	42.0	644	44.8	1,040	44.3	33,536	44.6	25,255	44.8	8,281	44.3	13	24.1
111	Condensed and evaporated milk	3,960	40.0	4,153	38.1	3,494	41.3	3,301	39.7	76,536	44.6	58,539	44.7	17,997	44.4	111	23.8
2171	Gloves and mittens, cloth or cloth and leather combined.	3,868	46.0	2,135	41.6	3,781	46.9	2,011	44.8	8,323	43.9	4,631	45.0	3,692	42.7	22	19.2
1638	Roofing, built-up and roll; asphalt shingles; roof coatings.	3,414	46.4	3,878	44.6	3,051	47.1	3,053	45.7	32,581	42.8	18,310	42.6	14,271	43.0	20	18.5
625	Oils not elsewhere classified	779	34.4	1,012	34.4	666	37.6	777	42.8	17,800	42.6	12,855	44.4	4,945	38.7	10	9.4
1217	Smelting and refining, nonferrous metals, n. e. c.	2,039	45.0	2,431	40.2	1,700	47.1	1,631	71.2	26,691	42.6	21,639	41.6	5,052	47.6	16	16.1
1102	Cast-iron pipe and fittings	4,879	33.5	4,037	31.8	4,571	33.8	3,365	32.4	16,056	42.4	6,665	45.0	9,391	40.7	12	16.9
136	Liquors, rectified or blended	2,974	41.6	2,324	34.5	2,860	48.6	2,135	47.2	41,873	42.2	20,532	36.2	21,341	50.3	6	2.3
303	Boxes, cigar, wooden and part wooden	1,264	37.5	1,017	40.0	1,211	38.2	803	40.1	2,591	42.1	780	35.0	1,811	46.0	11	15.2
1628	Musical instruments and parts and materials, n.e. c.	1,378	39.1	1,854	43.9	1,074	37.5	1,298	43.1	3,762	41.5	963	35.3	2,799	44.2	4	4.3
1627	Musical-instrument parts and materials: piano and organ.	637	46.3	600	41.2	587	48.2	459	44.6	1,319	41.4	529	43.2	790	40.3	4	11.8
411	Wall paper	2,208	45.2	2,505	41.9	1,950	45.7	1,998	44.5	8,145	41.4	4,232	42.8	3,913	40.1	8	20.0
1224	Jewelers' findings and materials	611	19.7	927	24.0	533	20.0	693	25.4	6,988	40.7	5,317	48.5	1,671	26.9	4	5.5
132	Vinegar and cider	500	39.5	606	40.3	435	42.0	432	43.1	3,440	40.4	2,054	43.2	1,386	36.9	26	20.8
1126	Wire drawn from purchased rods	8,761	36.2	11,592	37.7	8,135	37.8	9,892	40.5	51,262	40.2	28,396	41.5	22,866	38.8	15	17.0
901	Belting and packing, leather	966	31.8	1,014	25.3	859	36.4	791	31.4	8,581	39.9	4,651	40.3	3,930	39.4	6	3.2
1653	Beauty-shop equipment, except furniture	970	36.5	966	31.6	853	39.1	666	33.8	4,955	39.6	2,001	39.9	2,954	39.3	4	4.9
604	Blacking, stains, and dressings	581	26.7	773	23.7	471	31.4	419	28.6	7,027	39.2	3,393	40.5	3,634	38.1	5	3.0
127	Rice cleaning and polishing	1,023	39.2	993	37.3	800	39.5	483	36.8	17,018	38.6	12,488	36.5	4,530	45.8	16	23.5
208	Lace goods	2,896	32.9	3,784	35.0	2,589	33.0	3,067	35.4	10,492	38.2	3,227	33.4	7,265	40.7	4	7.2
1202	Clocks, watches, etc., materials and parts except watchcases.	7,515	37.0	8,521	37.7	6,905	38.3	7,172	39.2	23,058	37.7	9,635	42.7	13,423	34.7	8	10.5
1623	Lapidary work	68	33.5	116	39.3	60	39.3	93	46.2	771	37.6	535	43.2	236	29.1	4	6.6
616	Glue and gelatin	1,492	38.1	1,857	35.7	1,325	40.8	1,430	40.5	10,494	37.3	5,154	34.2	5,340	40.9	14	18.9
219	Fabricated textile products, n. e. c.	5,432	26.0	5,288	25.2	4,791	26.9	3,758	26.2	54,925	37.2	44,034	41.2	10,891	26.7	33	4.2
1108	Galvanizing and other coating	577	41.1	747	39.6	526	43.8	477	37.6	1,926	37.1	630	31.5	1,296	40.6	4	6.2
1120	Steel barrels, kegs, and drums	2,898	44.7	3,218	42.2	2,646	45.9	2,667	45.7	12,829	37.0	7,455	35.4	5,374	39.5	7	10.9
1103	Cutlery (not including silver and plated cutlery) and edge tools.	2,742	17.7	3,152	17.7	2,450	17.8	2,320	17.1	18,548	36.3	3,438	27.3	15,110	39.1	5	1.9
1642	Sporting and athletic goods, not including firearms or ammunition.	3,837	34.0	4,020	33.4	3,336	34.5	3,191	35.4	12,536	36.0	6,484	39.1	6,052	33.1	10	5.1
512	Stereotyping and electrotyping, not done in printing establishments.	1,519	25.5	4,327	31.0	1,049	23.8	2,023	23.9	9,693	36.0	1,260	33.9	8,433	36.4	11	5.4
1607	Carbon paper and inked ribbons	679	34.7	1,103	36.6	505	35.4	591	36.3	5,230	35.6	2,732	36.4	2,498	34.7	4	7.1
621	Mucilage, paste, and other adhesives, except glue and rubber cement.	128	26.9	226	30.5	79	29.6	92	31.8	1,293	35.6	497	30.2	796	40.0	4	6.1
1613	Feathers, plumes, and manufactures thereof	139	20.6	155	25.4	121	21.1	99	23.4	578	35.1	300	49.1	278	26.9	4	5.5
128	Sausage, meat puddings, headcheese, etc.	2,963	27.4	3,103	22.5	2,707	29.5	2,588	25.7	45,707	35.1	39,330	38.0	8,377	23.9	131	16.2
1622	Jewelry and instrument cases	1,088	42.5	1,105	42.1	998	43.1	842	42.5	2,214	34.8	693	29.5	1,521	37.9	4	5.5
401	Bags, paper, exclusive of those made in paper mills.	3,175	31.6	2,728	26.0	3,032	33.2	2,456	30.6	22,790	34.8	14,647	35.1	8,143	34.2	14	15.1
1019	Statuary and art goods (except concrete), factory product.	182	20.3	291	26.6	135	18.8	183	22.8	999	34.6	158	23.7	841	37.8	4	3.8
1114	Plumbers' supplies, not including pipe or vitreous-china sanitary ware.	7,297	31.8	8,381	31.2	6,652	33.1	7,365	34.5	25,939	34.3	10,095	31.7	15,844	36.2	10	4.0
1651	Window shades (textile and paper) and fixtures.	1,010	27.3	1,132	27.6	840	28.0	700	25.8	6,920	34.0	4,626	37.9	2,294	28.3	21	6.6
632	Tanning materials, natural dyestuffs, mordants, etc.	1,086	30.5	1,379	24.4	855	32.3	818	31.1	11,417	33.9	7,036	35.7	4,381	31.4	20	13.0
504	Engraving, steel, copper-plate, and wood, and plate printing.	1,615	24.3	2,999	32.0	1,372	25.9	2,274	34.9	6,820	33.9	1,165	25.4	5,655	36.4	6	1.6
117	Food preparations not elsewhere classified	3,401	19.6	3,154	16.3	3,108	22.0	2,639	21.8	75,135	33.7	65,526	41.3	9,609	15.0	167	16.2
1101	Bolts, nuts, washers, and rivets	4,738	32.5	6,099	33.5	4,147	33.2	4,614	34.5	19,285	33.6	10,445	36.0	8,840	31.1	15	10.9
405	Envelopes	3,757	35.2	4,422	33.2	3,230	35.7	3,196	35.2	14,663	33.6	7,847	37.8	6,816	29.8	17	10.3
130	Sugar, cane; not including products of refineries.	896	24.1	605	26.8	662	22.5	430	28.1	8,811	33.5	6,065	33.2	2,746	34.4	9	12.2
1104	Doors, shutters, and window sash and frames, molding, and trim, metal.	1,692	28.3	2,213	28.5	1,315	29.0	1,458	28.6	7,564	33.3	3,407	34.2	4,157	32.5	7	5.2
1605	Brushes, other than rubber	1,682	20.5	2,054	22.3	1,291	19.0	1,117	18.6	14,018	33.3	4,105	22.1	9,913	38.9	6	2.4
622	Oil, cake, and meal, cottonseed	4,935	31.5	3,244	30.6	4,272	32.3	1,959	33.1	61,849	32.9	52,989	33.0	8,860	32.4	108	23.6
118	Ice cream	6,400	26.6	9,005	28.4	4,696	27.1	5,624	29.4	68,587	32.7	30,319	30.0	38,268	35.3	165	6.7

For footnotes, see end of table.

tries, 1935, based on value of products—Continued

sands of dollars]

Large eight producers															Industry	Industry number
Persons employed		Wages and salaries		Wage earners		Wages		Value of product		Cost of materials, etc.[1]		Value added by manufacturer [2]		Number of establishments			
Number	Percent of industry	Amount	Percent of industry	Number	Percent of industry	Amount	Percent of industry	Amount	Percent of industry	Amount	Percent of industry	Amount	Percent of industry	Number	Percent of industry		
210 SMALL INDUSTRIES—Continued																	
296	56.3	446	62.6	189	54.0	191	56.7	1,634	67.2	876	71.7	758	62.7	8	17.0	Artists' materials	1603
334	57.8	549	59.7	244	61.0	292	65.5	4,675	71.7	2,377	69.0	2,298	74.8	11	23.9	Foundry supplies	1614
2,739	61.1	3,568	60.8	2,185	62.1	2,286	63.0	15,519	67.6	5,838	64.0	9,681	69.9	11	12.6	Dentists' equipment and supplies	1611
6,250	64.9	6,832	60.3	5,574	68.4	5,759	68.9	109,203	71.4	53,329	69.7	55,874	73.1	19	14.5	Liquors, distilled	133
1,107	63.4	1,660	64.7	956	63.9	1,257	65.8	3,714	67.3	952	65.3	2,762	68.0	17	35.4	Lasts and related products	310
3,364	73.2	3,644	74.2	3,009	73.2	3,076	75.2	9,617	75.8	3,988	71.2	5,629	79.4	8	22.2	Musical instruments: pianos	1630
4,629	47.1	3,785	45.6	4,374	48.7	3,279	49.4	48,373	60.2	38,376	64.2	9,997	48.5	65	35.1	Wood preserving	319
1,847	55.2	3,153	51.5	1,380	58.2	1,896	58.6	21,034	60.9	12,356	66.5	8,678	54.4	49	25.7	Ink, printing	618
1,502	56.5	2,136	59.8	1,367	61.3	1,738	69.1	11,358	63.5	6,545	65.6	4,813	60.9	36	27.3	Paving materials, blocks (except brick and stone) and mixtures.	1632
11,209	60.8	15,644	60.8	10,094	60.5	12,973	60.1	162,543	68.1	124,548	69.0	37,995	65.3	34	38.6	Coke-oven products	701
364	58.9	480	61.9	299	59.6	242	55.3	1,768	64.6	602	57.9	1,166	68.7	8	18.6	Hair work	1617
1,591	63.5	1,995	65.4	1,411	64.8	1,576	67.9	6,266	64.9	2,735	63.2	3,531	66.3	10	23.3	Nails, spikes, etc	1113
903	19.8	1,353	20.2	623	21.6	538	20.3	36,629	54.0	12,610	43.2	24,019	62.1	16	3.9	Flavoring extracts, flavoring sirups, and related products.	115
6,808	57.7	8,995	61.1	6,232	58.1	7,459	62.3	47,853	64.8	26,860	64.0	20,993	65.9	13	27.1	Wrought pipe, welded and heavy riveted	1128
3,423	62.8	3,581	66.2	3,179	64.6	3,041	69.7	9,979	64.3	4,742	63.9	5,237	64.7	10	18.2	Carriages and sleds, children's	1403
3,782	65.7	4,221	59.8	3,309	69.3	3,219	67.9	15,159	62.5	7,886	67.1	7,273	58.2	14	11.3	Steam and other packing, pipe and boiler covering, and gaskets, n. e. c.	1644
1,121	60.3	1,116	63.2	960	60.3	808	62.9	4,621	67.5	2,485	67.5	2,136	67.6	8	17.8	Carriages, wagons, sleighs, and sleds	1404
3,982	65.3	4,469	70.6	3,338	64.4	2,972	70.2	13,356	66.8	5,374	65.1	7,981	68.0	9	19.1	Pencils, lead (including mechanical), and crayons.	1633
1,042	60.7	2,188	61.1	878	61.0	1,412	60.1	49,208	65.5	37,713	66.9	11,495	61.5	18	33.3	Malt	122
5,912	59.8	6,024	55.2	5,222	61.7	4,821	58.0	107,514	62.7	83,466	63.7	24,048	59.3	212	45.4	Condensed and evaporated milk	111
4,678	55.6	2,650	51.6	4,567	56.7	2,466	54.9	10,615	56.0	5,796	56.3	4,819	55.7	27	23.5	Gloves and mittens, cloth or cloth and leather combined.	2171
4,993	67.8	5,787	66.6	4,544	70.1	4,768	71.3	51,929	68.2	29,992	69.8	21,937	66.1	29	26.8	Roofing, built-up and roll; asphalt shingles; roof coatings.	1638
1,122	49.5	1,456	49.5	940	53.1	1,053	53.0	26,453	63.4	18,568	64.1	7,885	61.7	17	16.0	Oils not elsewhere classified	625
2,540	56.1	3,127	51.7	2,118	58.7	2,074	90.5	38,081	60.8	31,655	60.9	6,426	60.5	20	20.2	Smelting and refining, nonferrous metals, n. e. c.	1217
7,994	54.8	7,041	55.5	7,420	54.8	5,738	55.3	23,859	63.0	9,291	62.8	14,568	63.1	21	29.6	Cast-iron pipe and fittings	1102
3,591	50.2	2,983	44.3	3,386	57.6	2,613	57.7	55,945	56.4	29,243	51.6	26,702	62.9	13	5.0	Liquors, rectified or blended	136
1,880	55.8	1,414	55.6	1,806	56.9	1,134	56.7	3,626	58.9	1,311	58.9	2,315	58.8	15	20.8	Boxes, cigar, wooden and part wooden	303
1,810	51.4	2,418	57.2	1,424	49.7	1,695	56.3	4,945	54.6	1,312	48.1	3,633	57.4	8	8.6	Musical instruments and parts and materials, n. e. c.	1628
1,005	73.0	1,007	69.1	925	76.0	747	72.6	2,157	67.7	811	66.3	1,346	68.6	8	23.6	Musical-instrument parts and materials: piano and organ.	162.
3,043	62.3	3,497	53.5	2,690	63.1	2,754	61.4	11,574	58.9	5,986	60.5	5,588	57.2	12	30.0	Wall paper	411
1,284	41.4	1,782	36.1	1,136	42.7	1,312	48.1	10,354	60.3	7,390	67.5	2,964	47.7	8	11.0	Jewelers' findings and materials	1224
661	52.2	853	56.7	568	54.8	589	58.8	4,838	56.8	2,830	59.5	2,008	53.4	33	26.4	Vinegar and cider	132
11,914	49.2	15,527	50.5	10,985	51.0	13,201	54.0	68,849	54.0	37,178	54.3	31,671	53.8	20	22.7	Wire drawn from purchased rods	1126
1,390	45.8	1,534	38.2	1,216	51.5	1,176	46.7	11,483	53.4	6,135	53.1	5,348	53.6	10	5.3	Belting and packing, leather	901
1,375	51.7	1,456	47.7	1,183	54.3	968	49.2	7,418	59.2	2,823	56.3	4,595	61.2	8	9.8	Beauty-shop equipment, except furniture	1653
872	40.0	1,178	36.1	691	46.1	632	43.1	9,015	50.3	4,173	49.8	4,842	50.7	9	5.4	Blacking, stains, and dressings	604
1,325	50.8	1,330	49.9	1,038	51.3	678	51.7	23,278	52.8	17,719	51.8	5,559	56.2	21	30.9	Rice cleaning and polishing	127
4,952	56.2	6,109	56.5	4,350	55.4	4,912	56.6	16,368	59.5	5,232	54.1	11,136	62.4	9	16.1	Lace goods	208
13,819	68.1	14,794	65.5	12,464	69.1	12,291	67.2	36,141	59.1	13,679	60.7	22,462	58.1	12	15.8	Clocks, watches, etc., materials and parts except watchcases.	1202
85	41.9	146	49.5	70	45.8	107	53.2	1,115	54.4	790	63.8	325	40.1	8	13.3	Lapidary work	1623
2,198	56.2	2,823	54.3	1,934	59.5	2,116	59.9	16,448	58.4	8,564	56.8	7,884	60.3	20	27.0	Glue and gelatin	616
6,698	32.0	6,398	30.5	5,971	33.5	4,614	32.2	70,354	47.7	56,886	53.3	13,468	33.0	41	5.0	Fabricated textile products, n. e. c.	219
840	59.8	1,026	54.4	758	63.1	689	54.3	2,920	56.2	1,178	58.8	1,742	54.6	8	12.4	Galvanizing and other coating	1108
4,107	63.4	4,688	61.5	3,686	64.0	3,714	63.6	19,724	56.9	11,636	55.3	8,088	59.4	18	28.1	Steel barrels, kegs, and drums	1120
4,475	28.9	5,103	28.6	4,022	29.3	3,802	28.1	23,121	45.2	4,394	34.9	18,727	48.5	10	3.8	Cutlery (not including silver and plated cutlery) and edge tools.	1103
5,085	45.0	5,404	44.9	4,402	45.5	4,211	46.7	16,439	47.2	7,921	47.8	8,518	46.6	15	7.7	Sporting and athletic goods, not including firearms or ammunition.	1642
2,128	35.7	5,708	40.9	1,482	33.6	2,967	35.1	12,371	46.0	1,559	41.9	10,812	46.7	16	7.8	Stereotyping and electrotyping, not done in printing establishments.	512
1,124	57.5	1,751	58.1	818	57.4	929	57.0	8,293	56.4	4,146	55.3	4,147	57.6	8	14.3	Carbon paper and inked ribbons	1607
209	43.9	348	47.0	121	45.3	140	48.4	1,976	54.4	885	53.8	1,091	54.9	8	12.2	Mucilage, paste, and other adhesives, except glue and rubber cement.	621
242	35.9	258	42.2	209	36.5	167	39.5	776	47.2	359	58.8	417	40.3	8	11.0	Feathers, plumes, and manufactures thereof	1613
3,360	31.1	3,703	26.8	3,046	33.2	2,957	29.3	50,221	38.6	42,776	41.4	7,445	27.9	135	16.7	Sausage, meat puddings, headcheese, etc	128
1,481	57.8	1,563	59.6	1,349	58.3	1,164	58.8	3,533	55.5	1,267	53.9	2,266	56.5	8	11.1	Jewelry and instrument cases	1622
4,402	43.8	4,161	39.7	4,129	45.3	3,516	43.7	31,944	48.7	20,386	48.9	11,558	48.5	24	22.4	Bags, paper, exclusive of those made in paper mills.	401
320	35.7	469	42.9	255	35.5	320	39 9	1,333	46.1	250	37.5	1,083	48.7	8	7.6	Statuary and art goods (except concrete), factory product.	1019
9,871	43.0	11,217	41.8	8,894	44.2	9,600	45.0	34,144	45.1	13,362	42.0	20,782	47.5	16	6.3	Plumbers' supplies, not including pipe or vitreous-china sanitary ware.	111
1,604	43.4	1,788	43.6	1,396	46.5	1,247	46.0	9,782	48.1	6,488	53.1	3,294	40.6	25	7.8	Window shades (textile and paper) and fixtures.	1651
1,549	43.5	2,314	40.9	1,211	45.7	1,172	44.5	15,956	47.4	9,793	49.7	6,163	44.2	26	16.9	Tanning materials, natural dyestuffs, mordants, etc.	632
2,175	32.7	3,657	39.0	1,829	34.5	2,739	42.0	8,048	40.0	1,437	31.3	6,611	42.6	10	2.6	Engraving, steel, copperplate, and wood and plate printing.	504
4,783	27.6	4,750	24.6	4,249	30.1	3,646	30.1	97,543	43.8	80,391	50.7	17,152	26.7	186	18.1	Food preparations not elsewhere classified	117
7,779	53.4	9,836	54.1	6,870	54.9	7,601	56.8	27,718	48.3	14,360	49.5	13,358	47.1	19	13.9	Bolts, nuts, washers, and rivets	1101
4,694	44.0	5,551	41.7	4,045	44.8	4,038	44.4	18,626	42.7	9,728	46.9	8,898	38.9	25	15.1	Envelopes	405
1,400	37.7	946	41.9	1,094	37.2	685	44.8	12,385	47.1	8,537	46.7	3,848	48.2	16	21.6	Sugar, cane, not including products of refineries.	130
2,777	46.4	3,532	45.5	2,132	47.0	2,308	45.3	11,148	49.0	4,769	47.9	6,379	49.9	12	9.0	Doors, shutters, and window sash and frames, molding, and trim, metal.	1104
3,047	37.2	3,533	38.4	2,492	36.6	2,208	36.8	20,347	48.3	7,077	38.1	13,270	52.0	11	4.4	Brushes, other than rubber	1605
6,522	41.6	4,280	40.3	5,621	42.5	2,543	43.0	81,750	43.5	69,907	43.5	11,843	43.3	143	31.2	Oil, cake, and meal, cottonseed	622
7,113	29.6	9,957	31.4	5,262	30.4	6,252	32.7	79,071	37.7	35,045	34.6	44,026	40.6	181	7.4	Ice cream	118

TABLE II.—*Concentration in manufacturing indus*

[Values in thou

Industry number	Industry	Largest four producers															
		Persons employed		Wages and salaries		Wage earners		Wages		Value of product		Cost of materials, etc.[1]		Value added by manufacture[2]		Number of establishments	
		Number	Percent of industry	Amount	Percent of industry	Number	Percent of industry	Amount	Percent of industry	Amount	Percent of industry	Amount	Percent of industry	Number	Percent of industry	Number	Percent of industry
		210 SMALL INDUSTRIES—Continued															
1325	Printers' machinery and equipment	3,846	29.7	6,016	29.3	3,027	30.6	4,372	32.2	16,752	32.5	2,814	21.6	13,938	36.2	6	2.5
1501	Railroad repair shops, electric	5,931	28.2	9,946	33.0	5,418	27.7	8,771	32.5	15,636	32.3	5,546	31.9	10,090	32.6	16	6.2
902	Boot and shoe cut stock and findings	4,323	21.3	4,787	22.5	4,045	22.1	4,263	25.4	35,940	32.2	27,407	36.0	8,533	24.0	23	4.6
2172	Handkerchiefs	1,558	29.6	1,207	29.4	1,486	30.4	998	31.1	5,872	31.8	3,697	38.9	2,175	24.3	5	5.6
202	Cordage and twine; jute goods; linen goods	5,978	29.3	5,020	27.5	5,349	28.7	3,755	26.9	21,521	31.3	9,945	28.8	11,576	33.7	13	8.8
1649	Umbrellas, parasols, and canes	914	37.6	833	36.7	854	39.0	638	37.3	3,116	30.9	1,641	26.7	1,475	37.4	4	4.8
126	Poultry dressing and packing, wholesale	3,099	32.7	2,056	28.8	2,710	33.5	1,516	29.9	28,313	30.5	24,051	31.4	4,262	26.1	135	24.0
1646	Theatrical scenery and stage equipment	82	20.8	212	30.5	60	21.5	136	31.1	580	29.9	245	32.7	335	28.2	4	8.3
1002	Cement	6,863	29.4	7,233	26.3	6,188	29.9	5,731	27.4	36,053	29.9	12,540	29.2	23,513	30.4	37	24.2
1313	Textile machinery and parts	7,871	34.7	10,544	35.5	6,632	34.8	7,857	37.0	20,224	29.4	7,129	30.9	13,095	28.6	5	1.4
1324	Cranes and dredging, excavating, and road-building machinery	4,219	29.4	6,038	31.1	3,354	31.0	4,106	32.7	18,420	29.3	7,820	27.2	10,600	31.1	8	6.3
617	Grease and tallow, not including lubricating greases	1,772	31.0	2,249	29.2	1,416	29.8	1,582	29.4	11,424	28.7	5,827	26.3	5,597	31.7	18	6.9
1620	Instruments and apparatus, professional, scientific, commercial, and industrial	5,558	27.8	7,784	27.9	4,404	29.0	5,196	29.6	19,251	28.2	5,931	28.9	13,320	27.9	10	3.6
609	Cleaning and polishing preparations	852	19.2	1,393	20.5	566	20.0	770	25.4	11,868	28.0	4,750	27.5	7,118	28.3	4	1.0
315	Synthetic-resin, cellulose-plastic, etc., n. e. c.	3,371	23.5	3,730	24.2	3,035	23.8	3,115	25.8	13,865	27.6	6,370	30.0	7,495	25.8	14	9.2
1616	Furs, dressed and dyed	2,386	34.0	3,046	31.7	2,301	35.8	2,591	34.3	5,818	27.3	1,848	28.4	3,970	26.8	12	7.2
318	Window and door screens and weather strip	590	25.3	605	22.6	528	28.2	399	22.9	2,334	26.9	1,153	28.1	1,181	25.9	6	4.3
104	Canned and cured fish, crabs, shrimps, oysters, and clams	2,775	19.4	1,728	20.9	2,618	19.6	1,306	20.7	16,310	26.9	9,390	24.0	6,920	32.2	8	2.9
135	Liquors, vinous	617	19.8	632	17.5	518	22.2	384	18.2	9,777	26.8	3,704	24.2	6,073	28.7	7	2.2
704	Lubricating greases, not made in petroleum refineries	667	20.7	927	18.7	410	21.2	457	20.0	9,379	26.0	5,643	27.2	3,736	24.4	7	3.9
909	Saddlery, harness, and whips	866	22.9	943	24.3	795	24.6	759	26.0	3,465	26.0	2,171	28.1	1,294	23.0	4	2.5
614	Fertilizers	6,482	31.3	5,273	31.0	5,734	32.9	3,882	35.4	36,356	25.9	24,018	25.7	12,338	26.2	105	15.7
306	Cooperage	2,133	20.0	2,008	20.4	2,025	20.5	1,770	22.2	12,066	25.9	8,164	27.3	3,902	23.5	77	18.9
1624	Mattresses and bed springs, n. e. c	4,464	24.9	5,145	26.0	3,925	25.4	4,044	27.5	21,879	25.8	12,327	25.2	9,552	26.6	13	1.5
628	Perfumes, cosmetics, and other toilet preparations	2,115	16.1	2,356	14.6	1,614	16.7	1,518	17.7	30,271	25.3	10,958	24.6	19,313	25.8	6	1.1
1207	Lighting equipment	3,492	17.4	4,663	19.2	3,176	19.0	3,996	23.2	20,895	24.4	10,924	27.4	9,971	21.8	4	.8
1125	Tools, not including edge tools, machine tools, files, or saws	3,383	22.5	3,913	21.3	2,881	22.8	2,971	22.3	12,574	23.9	4,628	24.8	7,946	23.5	13	3.8
206	Hats, felt and straw, except millinery	7,161	28.7	8,717	30.3	6,668	28.9	7,613	31.5	22,050	23.7	8,992	18.5	13,058	29.4	5	1.7
320	Wood turned and shaped and other wooden goods, n. e. c	5,185	21.8	4,186	20.4	4,867	22.6	3,714	23.1	14,109	23.6	6,940	26.6	7,169	21.3	13	1.7
114	Feeds, prepared, for animals and fowls	1,900	12.3	2,516	13.7	1,492	12.9	1,611	14.6	66,391	23.0	53,548	23.2	12,843	22.2	39	4.2
1013	Lime	1,332	16.0	1,425	18.8	1,227	16.4	1,207	20.0	5,311	22.7	1,900	21.3	3,411	23.7	17	9.0
1309	Pumps (hand and power) and pumping equipment	4,116	20.6	6,308	23.4	3,065	20.5	4,155	24.0	19,714	22.7	7,224	20.5	12,490	24.1	5	1.6
1117	Screw-machine products and wood screws	3,754	21.7	4,789	21.7	3,262	21.7	3,881	23.1	13,958	22.2	7,010	26.4	6,948	19.0	6	2.0
1321	Boiler shops	2,986	17.8	4,258	19.4	2,205	16.6	2,773	18.8	16,174	22.1	7,547	21.0	8,627	23.2	7	1.7
1601	Artificial and preserved flowers and plants	906	25.2	883	26.6	865	26.9	794	30.4	1,953	21.7	644	19.5	1,309	23.0	5	2.6
1302	Cash registers, adding and calculating machines, and other business machines	5,742	24.6	8,308	24.6	4,368	23.6	5,693	24.0	20,200	21.3	4,566	33.1	15,634	19.3	7	7.5
1107	Forgings, iron and steel	2,389	17.2	10,464	54.2	2,107	17.2	9,746	64.5	13,932	21.0	7,515	21.6	6,417	20.3	13	7.0
906	Leather goods not elsewhere classified	1,175	16.6	1,175	15.7	1,002	16.7	876	16.1	5,046	19.1	2,301	17.3	2,745	21.0	4	1.0
1015	Minerals and earths, ground or otherwise treated	719	14.5	853	16.1	595	14.0	582	16.1	4,067	18.8	2,009	23.1	2,058	16.0	12	7.5
107	Cheese	1,160	23.0	1,245	25.5	964	22.2	938	23.8	18,360	18.6	14,759	17.6	3,601	24.3	158	6.1
1618	Hand stamps and stencils and brands	566	18.2	683	16.5	439	19.4	450	17.7	1,685	18.1	587	22.1	1,098	16.5	8	2.9
1204	Sheet-metal work, not specifically classified	2,368	10.8	2,993	10.4	1,909	11.0	2,175	11.1	19,531	17.8	12,231	21.2	7,300	14.2	16	1.1
305	Caskets, coffins, burial cases, and other morticians' goods	3,094	19.2	3,758	19.2	2,849	20.7	3,127	22.6	11,551	17.6	5,060	17.2	6,491	17.9	25	4.6
910	Trunks, suitcases, and bags	1,345	17.6	1,281	15.5	1,250	18.8	1,051	16.6	4,842	17.2	2,592	17.4	2,250	16.9	5	1.6
103	Butter	4,629	18.6	4,583	17.2	3,581	19.4	2,978	17.0	86,266	17.2	71,712	17.0	14,554	18.6	160	4.6
313	Mirror and picture frames	483	15.1	578	16.3	402	15.0	439	17.2	1,679	17.0	746	17.9	933	16.4	4	2.3
627	Insecticides and fungicides, etc., n. e. c	491	9.0	633	7.9	369	10.6	361	10.6	8,847	16.6	3,834	15.8	5,013	17.3	4	.6
1648	Toys, n. e. c., games and playground equipment	2,894	16.7	2,758	17.0	2,671	17.4	2,317	19.1	8,688	16.6	3,578	15.2	5,110	18.0	7	1.9
1604	Brooms	812	17.8	661	17.6	769	18.5	537	17.5	2,329	16.2	1,048	14.0	1,281	18.7	4	1.1
121	Macaroni, spaghetti, vermicelli, and noodles	949	13.6	1,079	14.8	857	14.3	846	15.9	7,664	16.1	4,588	14.4	3,076	19.5	5	1.5
1606	Buttons	1,664	14.6	1,706	16.2	1,527	14.8	1,436	17.6	4,313	15.4	1,621	14.6	2,692	15.9	6	2.0
301	Baskets and rattan and willow ware, not including furniture	1,571	16.4	854	15.0	1,511	16.8	732	15.9	2,192	15.1	926	16.1	1,266	14.5	9	4.4
211	Waste and related products	1,197	11.3	1,188	10.9	1,105	12.0	854	11.6	9,815	14.9	6,358	15.1	3,457	14.6	12	3.8
905	Gloves and mittens, leather	1,457	13.7	1,427	14.3	1,389	14.2	1,275	15.0	4,056	14.4	1,788	13.3	2,268	15.4	4	1.8
506	Lithographing	3,330	15.3	4,966	14.1	2,800	15.8	3,723	15.4	13,097	14.2	4,593	15.3	8,504	13.7	10	2.6
501	Bookbinding and blank-book making	2,518	10.4	3,198	10.6	2,014	9.9	2,231	10.2	10,019	13.7	3,204	15.2	6,815	13.1	8	.8
507	Photoengraving, not done in printing establishments	1,283	9.9	3,420	11.3	1,073	11.4	2,812	13.2	7,078	13.3	1,602	20.4	5,476	12.0	8	1.2
1205	Electroplating	689	9.5	810	9.0	612	9.8	627	9.0	2,268	12.4	805	17.5	1,463	10.7	7	1.3
1625	Models and patterns, not including paper patterns	485	9.8	966	11.9	382	9.3	619	10.1	1,797	11.7	623	19.5	1,174	9.7	6	1.0
1612	Miscellaneous articles, n. e. c	1,602	9.7	1,897	11.6	1,376	9.7	1,357	11.5	5,754	11.6	2,103	10.2	3,651	12.6	4	.6
1005	Concrete products	560	5.2	729	6.0	449	5.4	509	6.5	4,583	10.2	2,337	11.7	2,246	9.0	29	2.4
221	Embroideries; trimmings (not made in textile mills); etc.	441	3.2	672	4.6	373	3.1	365	3.4	4,546	9.8	3,045	15.5	1,501	5.6	6	.5
1210	Jewelry	2,521	12.2	2,671	10.8	2,331	13.6	2,295	12.9	6,730	9.5	2,675	8.8	4,055	10.0	4	.4
1014	Marble, granite, slate, and other stone, cut and shaped	1,729	9.4	1,554	7.0	1,549	10.2	1,261	7.8	5,332	9.5	2,242	12.3	3,090	8.0	17	1.2
1540	Signs and advertising novelties	1,658	9.4	1,981	8.7	1,437	10.5	1,508	10.1	5,644	9.2	2,141	10.1	3,503	8.7	41	3.8
101	Beverages, nonalcoholic	957	4.3	1,338	4.5	801	4.8	876	5.1	13,929	8.7	4,268	6.8	9,661	10.0	62	1.9

For footnotes, see end of table.

tries, 1935, based on value of products—Continued

sands of dollars]

Largest eight producers																Industry	Industry number
Persons employed		Wages and salaries		Wage earners		Wages		Value of product		Cost of materials, etc.[1]		Value added by manufacture [2]		Number of establishments			
Number	Percent of industry	Amount	Percent of industry	Number	Percent of industry	Amount	Percent of industry	Amount	Percent of industry	Amount	Percent of industry	Amount	Percent of industry	Number	Percent of industry		
210 SMALL INDUSTRIES—Continued																	
6,224	48.1	9,920	48.4	4,754	48.1	6,929	51.0	24,456	47.4	5,100	39.1	19,356	50.3	10	4.2	Printers' machinery and equipment	1325
8,606	41.0	13,369	44.3	7,927	40.6	11,845	43.9	21,282	44.0	7,533	43.3	13,749	44.4	66	25.5	Railroad repair shops, electric	1501
5,821	28.7	6,225	29.3	5,434	29.7	5,480	32.7	46,846	42.0	35,911	47.2	10,935	30.8	32	6.4	Boot and shoe cut stock and findings	902
2,490	47.3	2,053	50.0	2,337	47.8	1,623	50.5	9,022	48.9	5,373	56.5	3,649	40.8	9	10.1	Handkerchiefs	2172
8,530	41.8	7,236	39.6	7,726	41.5	5,551	39.8	30,684	44.6	14,950	43.3	15,734	45.8	21	14.2	Cordage and twine; jute goods; linen goods	202
1,238	50.9	1,157	51.0	1,144	52.3	883	51.6	4,426	43.9	2,358	38.4	2,068	52.4	8	9.6	Umbrellas, parasols, and canes	1649
4,008	42.3	2,740	38.4	3,467	42.9	1,991	39.3	36,246	39.0	30,736	40.1	5,510	33.8	193	34.3	Poultry dressing and packing, wholesale	126
145	36.8	341	49.1	100	35.8	203	46.4	878	45.3	373	49.8	505	42.5	8	16.6	Theatrical scenery and stage equipment	1646
10,114	43.4	11,233	40.9	9,245	44.7	9,277	44.4	53,830	44.7	17,686	41.2	36,144	46.7	60	39.2	Cement	1002
11,380	50.2	14,515	48.8	9,611	50.4	10,835	51.0	31,597	45.9	10,330	44.7	21,267	46.5	14	4.0	Textile machinery and parts	1313
6,983	48.7	9,621	49.5	5,418	50.1	6,658	53.0	27,943	44.5	12,235	42.5	15,708	46.1	12	9.4	Cranes and dredging, excavating and road-building machinery	1324
2,182	38.2	2,846	37.0	1,761	37.0	1,999	37.1	15,084	37.9	8,257	37.2	6,827	38.7	26	10.0	Grease and tallow, not including lubricating greases	617
8,356	41.7	11,414	40.9	6,506	42.8	7,534	42.9	29,383	43.0	9,156	44.6	20,227	42.3	16	5.7	Instruments and apparatus, professional, scientific, commercial, and industrial	1620
1,187	26.8	1,950	28.7	744	26.3	945	31.2	16,936	39.9	6,205	35.9	10,731	42.7	8	2.0	Cleaning and polishing preparations	609
5,251	36.6	5,963	38.6	4,689	36.8	4,845	40.1	22,326	44.4	10,011	47.1	12,315	42.4	20	13.1	Synthetic-resin, cellulose-plastic, etc., n. e. c	315
2,591	36.9	3,458	36.0	2,469	38.4	2,841	37.6	8,560	40.1	2,996	46.0	5,564	37.5	16	9.6	Furs, dressed and dyed	1616
918	39.4	994	37.2	789	42.1	634	36.4	3,556	41.0	1,653	40.3	1,903	41.7	10	7.1	Window and door screens and weather strip	318
3,836	26.8	2,718	32.9	3,602	27.0	2,059	32.6	23,462	38.7	14,447	36.9	9,015	42.1	16	5.8	Canned and cured fish, crabs, shrimps, oysters, and clams	104
829	26.5	975	26.9	689	29.5	598	28.4	13,703	37.6	5,740	37.5	7,963	37.7	11	3.5	Liquors, vinous	135
1,072	33.3	1,469	29.6	725	37.5	834	36.5	14,472	40.1	9,166	44.1	5,306	34.6	13	7.2	Lubricating greases, not made in petroleum refineries	704
1,340	35.5	1,365	35.2	1,209	37.4	1,096	37.5	5,043	37.8	3,114	40.3	1,929	34.3	8	5.0	Saddlery, harness, and whips	909
9,326	45.1	7,293	42.8	8,292	47.5	5,363	48.9	58,356	41.6	39,760	42.6	18,596	39.5	168	25.1	Fertilizers	614
3,641	34.1	3,610	36.7	3,451	34.9	3,140	39.3	18,845	40.5	12,668	42.3	6,177	37.2	88	21.6	Cooperage	306
5,295	29.6	6,128	31.0	4,659	30.2	4,789	32.6	26,458	31.2	15,275	31.2	11,183	31.2	30	3.6	Mattresses and bed springs, n. e. c	1624
3,344	25.5	3,756	23.3	2,640	27.3	2,460	28.7	48,655	40.7	15,499	34.8	33,156	44.2	10	1.8	Perfumes, cosmetics, and other toilet preparations	628
5,290	26.3	7,025	28.9	4,652	27.9	5,570	32.3	29,831	34.8	13,750	34.5	16,081	35.1	8	1.6	Lighting equipment	1207
5,131	34.1	5,827	31.7	4,428	35.0	4,483	33.7	18,981	36.1	6,878	36.8	12,103	35.8	17	5.0	Tools, not including edge tools, machine tools, files, or saws	1125
9,315	37.3	11,493	40.0	8,647	37.5	10,007	41.4	31,462	33.8	13,912	28.6	17,550	39.5	11	3.7	Hats, felt and straw, except millinery	206
6,489	27.2	5,318	25.9	6,044	28.1	4,594	28.6	17,076	28.6	8,259	31.7	8,817	26.2	27	3.6	Wood turned and shaped and other wooden goods, n. e. c	320
3,371	21.8	4,194	22.8	2,562	22.1	2,689	24.3	99,058	34.3	79,453	34.4	19,605	33.8	62	6.6	Feeds, prepared, for animals and fowls	114
2,274	27.4	2,192	28.9	2,114	28.2	1,880	31.1	8,379	35.9	2,998	33.6	5,381	37.4	28	14.8	Lime	1013
6,185	31.0	9,019	33.4	4,628	30.9	5,950	34.3	30,643	35.2	11,038	31.3	19,605	37.9	9	2.8	Pumps (hand and power) and pumping equipment	1309
6,083	35.2	7,277	33.0	5,286	35.2	5,752	34.2	20,725	32.9	9,854	37.1	10,871	29.8	12	4.0	Screw-machine products and wood screws	1117
4,638	27.6	6,351	29.0	3,575	26.9	4,228	28.6	23,914	32.7	11,816	32.9	12,098	32.5	14	3.4	Boiler shops	1321
1,125	31.3	1,136	34.2	1,043	32.5	958	36.7	3,166	35.2	1,315	39.8	1,851	32.5	9	4.7	Artificial and preserved flowers and plants	1601
9,519	40.8	13,027	38.6	7,370	39.9	9,210	38.9	29,750	31.4	7,218	52.4	22,497	27.8	13	14.0	Cash registers, adding and calculating machines and other business machines	1302
4,088	29.5	12,775	66.2	3,641	29.7	11,608	76.8	21,531	32.5	11,251	32.4	10,280	32.5	19	10.3	Forgings, iron and steel	1107
1,566	22.1	1,695	22.7	1,341	22.3	1 260	23.2	6,997	26.5	3,238	24.4	3,759	28.7	8	2.0	Leather goods not elsewhere classified	906
1,257	25.4	1,404	26.5	1,080	25.4	996	27.6	6,944	32.2	3,292	37.9	3,652	28.4	19	11.8	Minerals and earths, ground or otherwise treated	1015
1,426	28.2	1,500	30.7	1,177	27.1	1,123	28.5	22,245	22.5	17,829	21.2	4,416	29.8	189	7.3	Cheese	107
929	29.8	1,132	27.3	747	33.1	783	30.9	2,696	28.9	882	33.2	1,814	27.2	15	5.4	Hand stamps and stencils and brands	1618
3,184	14.6	4,148	14.4	2,511	14.5	2,810	14.4	28,905	26.4	18,408	31.9	10,497	20.4	39	2.8	Sheet-metal work, not specifically classified	1204
3,970	24.6	4,872	24.9	3,625	26.3	3,983	28.8	15,457	23.5	6,825	25.2	8,632	23.8	30	5.5	Caskets, coffins, burial cases, and other morticians' goods	305
2,066	27.0	2,109	25.5	1,907	28.6	1,692	26.7	7,451	26.4	3,824	25.6	3,627	27.2	10	3.2	Trunks, suitcases, and bags	910
6,833	27.4	7,039	26.4	5,154	27.9	4,477	25.6	128,750	25.7	107,407	25.4	21,343	27.3	244	7.0	Butter	103
877	27.4	1,021	28.8	756	28.2	756	29.6	3,076	31.2	1,452	34.8	1,624	28.6	8	4.7	Mirror and picture frames	313
851	15.6	1,139	14.3	649	18.7	693	20.4	14,462	27.1	6,325	26.0	8,137	28.0	14	2.6	Insecticides and fungicides, etc., n. e. c	627
4,432	25.5	4,444	27.3	4,016	26.1	3,515	29.0	13,366	25.6	5,854	24.8	7,512	26.4	11	2.9	Toys, n. e. c., games, and playground equipment	1648
1,108	24.3	933	24.9	1,046	25.2	773	25.2	3,297	23.0	1,486	19.9	1,811	26.4	8	2.3	Brooms	1604
1,672	24.0	1,834	25.2	1,522	25.3	1,439	27.1	12,574	26.4	8,093	25.4	4,481	28.4	9	2.7	Macaroni, spaghetti, vermicelli, and noodles	121
2,942	25.9	2,852	27.1	2,700	26.2	2,302	28.2	7,579	27.0	2,937	26.5	4,642	27.4	15	5.1	Buttons	1606
2,336	24.3	1,458	25.6	2,219	24.6	1,176	25.5	3,710	25.6	1,461	25.5	2,249	25.7	14	6.9	Baskets and rattan and willow ware, not including furniture	301
1,879	17.7	1,988	18.2	1,679	18.2	1,331	18.1	15,934	24.1	10,680	25.3	5,254	22.1	16	5.1	Waste and related products	211
2,563	24.2	2,500	25.0	2,428	24.8	2,215	26.1	6,527	23.2	3,009	22.4	3,518	23.9	8	3.6	Gloves and mittens, leather	905
5,228	24.0	7,936	22.5	4,266	24.1	5,720	23.7	20,615	22.4	7,042	23.5	13,573	21.9	14	3.6	Lithographing	506
4,124	17.0	5,412	17.9	3,408	16.7	3,862	17.7	15,111	20.6	4,874	23.1	10,237	19.6	14	1.4	Bookbinding and blank-book making	501
1,999	15.4	4,959	16.3	1,633	17.4	3,927	18.4	10,758	20.2	2,802	35.7	7,956	17.5	13	2.0	Photoengraving, not done in printing establishments	507
1,127	15.6	1,362	15.2	1,021	16.4	1,083	15.6	3,237	17.7	1,061	23.1	2,176	15.9	11	2.0	Electroplating	1205
707	14.3	1,353	16.7	576	14.0	926	15.1	2,557	16.7	766	24.0	1,791	14.8	10	1.7	Models and patterns, not including paper patterns	1625
2,782	16.9	3,079	18.9	2,472	17.4	2,359	19.9	9,268	18.7	3,675	17.8	5,593	19.3	10	1.5	Miscellaneous articles, n. e. c	1612
884	8.3	1,152	9.5	737	8.8	816	10.4	6,882	15.3	3,652	18.2	3,230	13.0	44	3.6	Concrete products	1005
906	6.6	1,102	7.5	758	6.4	605	5.6	6,812	14.7	4,625	23.6	2,187	8.2	10	.9	Embroideries; trimmings (not made in textile mills); etc.	221
3,291	15.9	3,710	15.0	2,972	17.4	3,016	16.9	10,945	15.4	4,410	14.6	6,535	16.1	8	.8	Jewelry	1210
2,825	15.3	2,805	12.7	2,485	16.3	2,163	13.4	7,827	13.9	2,993	16.4	4,834	12.6	24	1.7	Marble, granite, slate, and other stone, cut and shaped	1014
2,735	15.5	3,352	14.8	2,270	16.6	2,463	16.5	9,035	14.7	3,122	14.7	5,913	14.7	51	4.7	Signs and advertising novelties	1640
1,317	5.9	1,854	6.3	1,089	6.5	1,164	6.7	21,079	13.2	7,102	11.4	13,977	14.4	87	2.7	Beverages, nonalcoholic	101

TABLE II.—*Concentration in manufacturing indus*

[Values in thou

Industry number	Industry	Largest four producers															
		Persons employed		Wages and salaries		Wage earners		Wages		Value of product		Cost of materials, etc.[1]		Value aded by manufacturer[2]		Number of establishments	
		Number	Percent of industry	Amount	Percent of industry	Number	Percent of industry	Amount	Percent of industry	Amount	Percent of industry	Amount	Percent of industry	Amount	Percent of industry	Number	Percent of industry
		210 SMALL INDUSTRIES—Continued															
908	Pocketbooks, purses, and cardcases	1,034	8.2	906	7.8	993	8.7	787	8.5	3,632	8.4	1,984	8.9	1,618	7.9	5	1.6
214	Furnishing goods, men's	1,375	5.6	1,077	5.0	1,305	5.7	920	5.4	6,949	7.7	3,796	7.9	3,153	7.6	4	.5
218	Housefurnishings	1,353	8.1	1,233	8.0	1,231	8.6	1,017	9.4	6,688	7.7	4,259	7.7	2,429	7.7	6	7.8
1615	Fur goods	273	1.7	584	2.0	232	1.8	466	2.2	3,768	2.6	2,786	3.1	982	1.8	4	.2

* Large industries, those employing more than 100,000 persons; medium industries, those employing 25,000 to 100,000 persons; small industries, those employing less than 25,000 persons.

[1] Includes cost of materials, mill and shop supplies, containers, fuel, and purchased electric energy.

[2] Value of products less cost of materials, containers, fuel, and purchased electric energy.

TABLE III.—*Concentration in manufacturing indus*

[Values in thou

8 LARGE IN

Industry No.	Industry	Largest 4 producers															
		Persons employed		Wages and salaries		Wage earners		Wages		Value of product		Cost of materials, etc.[1]		Value added by manufacture[2]		Number of establishments	
		Number	Percent of industry	Amount	Percent of industry	Number	Percent of industry	Amount	Percent of industry	Amount	Percent of industry	Amount	Percent of industry	Amount	Percent of industry	Number	Percent of industry
212	Wool and hair manufactures	37,509	21.3	36,434	20.6	35,547	21.4	32,273	21.2	165,458	23.3	102,679	23.8	62,779	22.5	37	5.3
213	Men's cotton garments	13,679	10.6	9,043	10.4	13,059	10.7	8,046	10.9	29,112	8.8	15,815	8.6	13,297	9.0	49	4.2
203	Cotton manufactures	36,253	9.2	26,263	9.5	35,430	9.2	24,581	9.9	82,831	8.0	49,169	7.8	33,662	8.4	25	2.0
1305	Machinery not elsewhere classified	11,927	8.4	17,628	8.8	9,402	8.6	12,867	9.8	40,033	6.9	13,227	6.1	26,806	7.4	12	.5
309	Furniture, including store and office fixtures	7,235	4.9	6,797	4.7	6,564	5.0	5,772	5.1	24,106	5.5	11,400	5.5	12,706	5.6	16	.5
215	Mon's, youths', and boys' clothing, n. e. c.	8,956	5.3	9,851	5.6	8,183	5.3	8,334	5.7	31,233	5.0	14,640	5.0	16,593	5.2	14	.5
508	Printing and publishing, book, music, and job.	7,893	4.7	12,128	4.7	6,450	5.1	8,997	5.3	30,290	4.4	6,818	3.5	23,472	4.6	10	.1
216	Women's, misses', and children's apparel, n. e. c.	5,223	1.8	3,533	1.2	5,042	1.9	3,162	1.3	17,943	1.4	7,794	1.3	10,149	1.6	10	.1
		20 MEDIUM INDUSTRIES*															
1410	Ship and boat building, steel and wooden, including repair work.	21,898	42.7	31,062	44.2	19,403	43.2	25,137	45.3	69,014	44.6	25,615	42.4	43,399	46.0	20	3.6
1109	Hardware not elsewhere classified	16,346	34.4	20,138	37.1	14,479	34.9	17,005	40.1	53,689	36.3	19,331	33.7	34,358	38.0	9	2.2
705	Petroleum refining	32,404	35.2	52,235	36.4	27,379	35.3	40,420	36.9	621,662	33.8	491,824	33.3	129,838	36.1	52	13.2
626	Paints, pigments, and varnishes	10,828	28.0	14,559	25.7	8,587	31.0	10,381	32.2	134,129	32.2	69,409	29.9	64,720	34.9	50	4.7
1319	Radio apparatus and phonographs	18,910	36.3	21,997	38.1	15,539	34.7	15,014	35.0	57,368	28.5	25,729	24.8	31,639	32.5	8	4.0
1304	Engines, turbines, water wheels, and windmills.	7,301	26.2	11,455	29.7	5,655	25.7	7,887	29.4	28,899	28.9	10,286	24.5	18,613	32.1	4	2.6
1127	Wirework not elsewhere classified	6,750	23.5	8,675	25.7	5,960	23.7	6,903	27.1	26,192	22.3	10,215	18.4	15,977	25.8	10	1.9
1322	Foundries	19,017	19.5	27,134	23.5	18,659	20.8	26,341	27.7	62,856	25.1	23,122	25.7	39,734	24.7	28	2.2
907	Leather: tanned, curried, and finished	10,362	18.9	13,512	20.3	9,644	18.9	11,804	21.2	67,071	21.8	41,386	20.9	25,685	23.3	27	7.0
1122	Structural and ornamental metal work	8,622	24.8	9,656	22.6	7,414	27.2	7,319	26.0	39,000	34.3	25,141	27.2	13,859	20.3	21	1.9
1318	Machine-tool accessories and machinists' precision tools.	5,393	19.8	8,987	20.1	4,954	21.4	7,906	23.0	20,897	21.6	7,439	27.6	13,458	19.2	4	.5
1004	Clay products, other than pottery	7,256	14.7	5,661	12.9	6,989	15.7	5,121	14.8	21,412	19.2	8,537	22.5	12,875	17.6	51	4.8
209	Rayon manufactures	12,702	17.2	9,556	15.3	12,484	17.8	8,741	15.9	35,455	17.3	21,104	18.7	14,351	15.7	19	4.2
408	Paper goods not elsewhere classified	5,142	15.6	5,706	14.4	4,397	16.0	4,283	16.2	25,946	13.2	12,657	11.5	13,289	15.5	10	1.8
112	Confectionery	5,721	9.9	5,350	10.3	5,296	10.2	4,274	10.9	31,960	12.3	17,019	11.1	14,941	14.1	6	.5
304	Boxes, wooden, except cigar boxes	2,045	8.2	2,169	11.3	1,816	7.9	1,697	11.3	8,758	13.8	4,553	14.2	4,205	13.5	39	5.9
204	Dyeing and finishing cotton, rayon, and silk.	11,016	13.9	12,030	14.1	9,621	13.5	9,088	13.7	26,293	11.8	10,003	9.8	16,290	13.4	10	1.9
210	Silk manufactures	4,990	8.5	4,535	9.7	4,588	8.2	3,808	9.4	12,782	8.5	5,840	8.4	6,942	8.6	5	.8
1326	Machine shops	8,564	8.6	11,868	8.8	7,130	8.6	9,149	9.4	31,391	7.5	10,304	6.0	21,087	8.6	8	.3
314	Planing-mill products (including general millwork).	2,858	5.0	2,636	4.6	2,553	5.3	2,160	5.1	8,964	4.6	4,605	4.2	4,359	5.0	18	.7
		109 SMALL INDUSTRIES*															
1636	Photographic apparatus and materials and projection apparatus.	12,396	80.2	18,541	79.9	9,754	81.3	13,005	82.3	57,395	77.6	12,978	49.7	44,417	92.9	6	5.1

For footnotes, see end of table.

tries, 1935, based on value of products—Continued

sands of dollars]

Largest eight producers														Industry	Industry number
Persons employed		Wages and salaries		Wage earners		Wages		Value of product		Cost of materials, etc.[1]		Value added by manufacture [2]		Number of establishments			
Number	Percent of industry	Amount	Percent of industry	Number	Percent of industry	Amount	Percent of industry	Amount	Percent of industry	Amount	Percent of industry	Amount	Percent of industry	Number	Percent of industry		
210 SMALL INDUSTRIES—Continued																	
1,732	13.8	1,615	13.9	1,591	13.9	1,291	14.0	6,795	15.8	3,579	16.1	3,216	15.5	9	2.8	Pocketbooks, purses, and cardcases	908
2,772	11.2	2,067	9.6	2,635	11.6	1,767	10.3	11,635	13.0	6,464	13.5	5,171	12.4	8	1.0	Furnishing goods, men's	214
2,218	13.3	1,932	12.6	1,997	13.9	1,531	14.1	11,056	12.7	7,104	12.8	3,952	12.5	20	25.9	Housefurnishings	218
493	3.0	1,012	3.5	431	3.4	816	3.9	6,414	4.5	4,535	5.1	1,879	3.4	8	.4	Fur goods	1615

[1] The data for the largest 4 enterprises are combined with those for the largest 8 enterprises in order to avoid approximate disclosures of individual data.
[4] The data for the "remainder" of the industry are included in the data for the largest 8 enterprises in order to avoid approximate disclosures of individual data.

tries, 1935, based on value added by manufacture

sands of dollars]

DUSTRIES*

Largest 8 producers														Industry	Industry No.
Persons employed		Wages and salaries		Wage earners		Wages		Value of product		Cost of materials, etc.[1]		Value added by manufacture [2]		Number of establishments			
Number	Percent of industry	Amount	Percent of industry	Number	Percent of industry	Amount	Percent of industry	Amount	Percent of industry	Amount	Percent of industry	Amount	Percent of industry	Number	Percent of industry		
50,349	28.6	49,353	27.9	47,778	28.7	44,050	28.9	233,745	32.9	150,452	34.9	83,293	29.8	65	9.3	Wool and hair manufactures	212
21,861	17.0	14,514	16.7	20,959	17.2	13,040	17.7	55,974	16.9	34,426	18.8	21,548	14.5	72	6.1	Men's cotton garments	213
57,275	14.5	40,380	14.6	55,992	14.6	37,796	15.2	146,334	14.2	90,278	14.4	56,056	13.9	54	4.4	Cotton manufactures	203
16,648	11.7	24,331	12.1	13,003	11.8	17,888	13.6	64,175	11.0	24,002	11.0	40,173	11.0	23	.9	Machinery not elsewhere classified	1305
11,841	8.0	11,426	7.9	10,801	8.2	9,638	8.5	38,303	8.8	19,064	9.2	19,239	8.5	22	.7	Furniture, including store and office fixtures	309
12,698	7.5	14,135	8.1	11,481	7.4	11,785	8.1	51,964	8.4	24,260	8.3	27,704	8.6	23	.8	Men's, youths', and boys' clothing, n. e. c.	215
10,863	6.5	16,677	6.5	8,357	6.6	11,688	6.9	45,175	6.5	11,163	5.7	34,012	6.7	53	.5	Printing and publishing, book, music, and job.	508
7,841	2.7	5,842	1.9	7,412	2.8	4,965	2.0	29,609	2.3	13,810	2.2	15,799	2.4	18	.2	Women's, misses', and children's apparel, n. e. c.	216
20 MEDIUM INDUSTRIES*																	
32,620	63.6	44,997	64.0	28,352	63.2	35,382	63.8	100,158	64.7	40,688	67.3	59,470	63.0	26	4.7	Ship and boat building, steel and wooden, including repair work.	1410
20,775	43.7	25,082	46.2	18,297	44.1	20,677	48.8	67,230	45.5	25,041	43.6	42,189	46.7	15	3.7	Hardware not elsewhere classified	1109
53,375	58.0	83,778	58.4	45,719	59.0	66,135	60.3	1,082,484	58.9	870,741	58.9	211,743	58.8	94	23.8	Petroleum refining	705
13,557	35.1	18,318	32.3	10,697	38.6	12,856	39.9	174,168	41.8	93,994	40.5	80,174	43.3	70	6.5	Paints, pigments, and varnishes	626
23,605	45.3	26,451	45.8	19,735	44.1	18,679	43.5	77,569	38.6	37,511	36.2	40,058	41.1	13	6.6	Radio apparatus and phonographs	1319
11,378	40.9	17,268	44.7	8,928	40.5	12,106	45.1	47,233	47.2	20,683	49.2	26,550	45.8	9	6.0	Engines, turbines, water wheels, and windmills.	1304
10,418	36.2	12,359	36.6	9,395	37.3	10,052	39.5	41,481	35.3	19,251	34.6	22,230	35.9	25	4.7	Wirework not elsewhere classified	1127
26,117	26.8	35,239	30.5	25,130	28.0	33,122	33.6	82,311	32.9	30,284	33.7	52,027	32.4	48	3.8	Foundries	1322
16,239	29.6	20,448	30.7	15,108	29.7	17,679	31.7	105,753	34.3	66,607	33.7	39,056	35.4	51	13.3	Leather: tanned, curried, and finished	907
10,463	30.1	12,203	28.6	8,913	32.7	9,106	32.3	50,622	31.5	32,551	35.2	18,071	26.5	28	2.5	Structural and ornamental metal work	1122
7,657	28.1	12,724	28.5	6,817	29.5	10,606	30.8	29,771	30.7	10,334	38.4	19,437	27.8	12	1.6	Machine-tool accessories and machinists' precision tools.	1318
9,696	19.7	8,363	19.0	9,152	20.5	7,097	20.5	29,598	26.6	11,578	30.5	18,020	24.6	63	5.9	Clay products, other than pottery	1004
18,477	25.0	14,391	23.0	17,966	25.6	13,039	23.7	52,506	25.6	30,851	27.3	21,655	23.7	27	6.0	Rayon manufactures	209
7,034	21.3	8,313	21.0	5,957	21.7	6,088	23.0	46,484	23.7	25,955	23.6	20,529	23.9	22	4.0	Paper goods not elsewhere classified	408
9,172	15.8	8,948	17.3	8,268	15.9	6,845	17.4	51,827	19.9	29,435	19.2	22,392	21.1	16	1.2	Confectionery	112
4,179	16.7	3,580	18.7	3,874	16.8	2,939	19.6	13,799	21.8	7,324	22.8	6,475	20.8	51	4.7	Boxes, wooden, except cigar boxes	304
18,036	22.7	19,170	22.5	16,074	22.5	14,571	22.0	48,254	21.6	23,661	23.2	24,593	20.2	20	3.8	Dyeing and finishing cotton, rayon, and silk.	204
7,678	13.1	6,812	14.5	7,071	12.7	5,595	13.8	25,021	16.7	12,511	18.0	12,510	15.6	10	1.6	Silk manufactures	210
13,008	13.1	17,664	13.1	11,141	13.5	13,873	14.2	61,157	14.6	28,649	16.6	32,508	13.2	20	.7	Machine shops	1326
4,225	7.4	4,195	7.3	3,703	7.7	3,416	8.1	15,952	8.1	9,503	8.7	6,449	7.4	29	1.1	Planing-mill products (including general millwork).	314
109 SMALL INDUSTRIES*																	
13,256	85.8	20,086	86.7	10,370	86.4	13,921	88.1	62,821	84.9	15,325	58.6	47,496	99.3	15	12.7	Photographic apparatus and materials and projection apparatus.	1636

TABLE III.—*Concentration in manufacturing industries,*

[Values in thou

Industry number	Industry	Largest four producers															
		Persons employed		Wages and salaries		Wage earners		Wages		Value of product		Cost of materials, etc.[1]		Value added by manufacture.[2]		Number of establishments	
		Number	Percent of industry	Amount	Percent of industry	Number	Percent of industry	Amount	Percent of industry	Amount	Percent of industry	Amount	Percent of industry	Amount	Percent of industry	Number	Percent of industry
		109 SMALL INDUSTRIES—Continued															
602	Ammunition and related products	5,650	89.4	5,930	88.8	5,058	90.3	4,687	91.5	24,107	91.6	9,418	92.3	14,689	91.2	7	53.8
613	Explosives	4,103	77.7	5,830	78.1	3,654	79.9	4,708	83.4	33,178	81.6	13,428	79.0	19,750	83.4	36	48.6
1106	Firearms	4,296	78.6	5,254	79.9	3,808	78.4	4,482	81.5	10,670	81.9	2,680	79.1	7,990	82.9	6	27.3
1206	Fire extinguishers, chemical	810	73.2	1,120	76.4	618	76.7	781	81.0	4,097	76.6	1,822	74.1	2,265	78.9	4	16.0
1201	Aluminum products	16,817	76.2	19,410	75.7	14,697	76.2	15,673	77.1	78,789	75.7	44,379	76.0	34,410	75.4	16	9.4
631	Soap	10,005	58.6	13,306	59.4	8,319	59.8	9,809	64.0	171,847	71.8	97,169	69.7	74,678	74.9	17	7.2
1634	Pens, fountain and stylographic; pen points, gold, steel, brass.	2,812	61.6	2,849	59.7	2,311	61.1	2,092	61.0	12,595	70.4	3,690	63.8	8,905	73.6	4	7.8
1641	Soda fountains and accessories	1,027	69.5	1,649	70.8	775	70.7	1,056	73.6	6,071	73.9	3,079	74.7	2,992	73.2	8	16.7
1312	Sewing machines and attachments	7,135	82.0	9,334	80.6	6,288	83.7	7,596	83.9	17,857	78.9	4,800	79.6	12,057	72.6	5	12.9
106	Cereal preparations	5,862	63.7	7,537	65.4	5,221	66.2	6,085	71.4	98,213	67.0	51,848	62.9	46,365	72.2	8	7.3
129	Sugar, beet	6,095	56.4	7,692	61.4	5,168	56.0	5,751	61.6	63,011	66.2	46,315	65.1	16,696	69.5	45	58.4
1222	Watchcases	1,628	68.9	2,108	68.7	1,399	69.4	1,654	71.0	4,066	58.2	1,286	45.6	2,780	65.8	4	13.8
404	Card cutting and designing	1,566	44.7	1,896	47.1	1,362	46.2	1,470	51.7	11,004	64.1	4,890	63.5	6,114	64.2	5	6.6
1001	Asbestos products other than steam packing, etc.	7,555	68.8	8,113	67.8	6,715	69.8	6,497	69.9	24,089	63.1	10,830	63.1	13,259	63.1	14	19.4
630	Salt	2,475	44.6	2,945	46.0	2,238	45.0	2,314	47.4	17,703	59.5	5,883	53.8	11,820	62.9	14	29.2
1218	Smelting and refining, zinc	5,442	56.2	7,339	58.8	4,884	55.3	5,857	56.8	42,535	61.5	26,499	60.8	16,036	62.7	10	38.5
607	Candles	520	57.8	616	57.2	419	58.8	353	58.9	2,887	60.8	1,432	59.7	1,445	61.9	4	17.4
1109	Motorcycles, bicycles, and parts	3,402	59.0	4,044	61.6	2,957	58.0	3,248	62.3	13,640	59.1	7,293	57.0	6,347	61.8	6	36.1
1647	Tobacco (chewing and smoking) and snuff	4,906	44.4	4,842	46.4	4,492	44.6	3,699	48.5	78,447	57.9	50,402	56.0	28,045	61.6	11	9.6
1611	Dentists' equipment and supplies	2,493	55.5	3,087	52.6	2,104	59.8	2,222	61.2	11,542	50.2	3,097	33.9	8,445	60.9	7	8.0
633	Wood distillation and charcoal manufacture.	2,050	47.5	1,961	52.2	1,776	46.7	1,443	51.3	8,555	53.6	3,663	46.2	4,892	60.8	7	11.7
220	Artificial leather, oil cloth	2,425	56.3	3,115	55.6	2,062	56.5	2,443	58.1	19,809	57.7	13,067	56.4	6,742	60.5	7	21.2
603	Baking powder, yeast, and other leavening compounds.	2,133	63.6	4,285	67.7	1,690	63.4	2,954	69.1	18,458	57.1	7,867	54.6	10,591	59.0	11	23.9
1315	Washing machines, wringers, driers, ironing machines.	5,492	53.5	7,381	58.5	4,639	53.0	5,926	60.2	34,879	55.9	20,147	54.4	14,732	57.9	6	14.6
1311	Scales and balances	1,296	39.6	1,762	42.0	949	38.4	1,085	41.2	7,048	52.7	1,561	41.2	5,487	57.2	5	8.9
1617	Hair work	247	40.0	361	46.6	193	38.5	156	35.7	1,216	44.4	265	25.5	951	56.0	4	9.3
115	Flavoring extracts, sirups, and related products.	533	11.7	819	12.2	358	12.3	364	13.7	32,301	47.6	10,648	36.5	21,653	56.0	12	2.9
1614	Foundry supplies	163	28.2	251	27.3	118	29.5	151	33.9	3,322	50.9	1,698	49.3	1,624	52.9	5	10.9
625	Oils not elsewhere classified	831	36.7	1,084	36.8	692	39.1	785	43.3	17,028	40.8	10,671	36.8	6,357	49.7	10	9.4
1128	Wrought pipe, welded and heavy riveted	4,863	41.2	6,194	42.1	4,520	42.1	5,339	45.2	34,663	46.9	19,060	45.4	15,603	49.0	8	16.7
1654	Wool pulling	349	36.7	441	35.7	322	37.2	372	38.2	4,565	36.8	2,917	32.4	1,648	48.6	4	23.5
1217	Smelting and refining, nonferrous metals other than silver, gold, platinum.	2,068	45.7	2,446	40.4	1,713	47.5	1,636	71.4	26,491	42.3	21,424	41.2	5,067	47.7	16	16.2
111	Condensed and evaporated milk	4,358	44.1	4,485	41.1	3,859	45.6	3,618	43.5	73,218	42.7	53,956	41.2	19,262	47.5	168	36.0
122	Malt	697	40.6	1,408	39.3	589	40.9	925	39.4	32,778	43.6	23,997	42.5	8,781	47.0	12	22.2
1633	Pencils, lead (including mechanical) and crayons.	2,579	42.3	2,859	45.2	2,165	41.8	1,894	44.8	8,960	44.8	3,460	41.9	5,500	46.9	4	8.5
1404	Carriages, wagons, sleighs and sleds	701	37.7	722	40.9	600	39.7	529	41.2	2,865	41.8	1,405	38.2	1,460	46.2	4	8.9
1628	Musical instruments and parts and materials, n. e. c.	1,386	39.4	1,861	44.0	1,067	37.2	1,281	42.5	3,662	40.4	778	28.5	2,884	45.6	4	4.3
1644	Steam and other packing, pipe and boiler covering, gaskets, n. e. c.	2,965	51.5	3,310	46.9	2,576	54.0	2,492	52.6	11,367	46.9	5,807	49.4	5,560	44.5	9	7.3
1638	Roofing, built-up and roll; asphalt shingles; roof coatings.	3,005	40.8	3,595	41.4	2,685	41.4	2,838	42.4	31,537	41.4	16,908	39.3	14,629	44.1	16	14.9
1603	Artists' materials	184	35.0	284	39.8	115	32.9	121	35.9	1,255	51.6	736	60.2	519	42.9	4	8.5
2171	Gloves and mittens, cloth or cloth and leather combined.	3,684	43.8	2,069	40.3	3,608	44.8	1,944	43.3	8,152	43.0	4,438	43.1	3,714	42.9	23	20.0
1102	Cast-iron pipe and fittings	5,003	34.3	4,001	31.5	4,711	34.8	3,412	32.9	15,983	42.2	6,105	41.3	9,878	42.8	11	15.5
618	Ink, printing	1,283	38.3	2,227	36.4	935	38.4	1,309	40.4	16,400	47.5	9,603	51.7	6,797	42.6	41	21.5
1627	Musical instrument parts and materials: piano and organ.	553	40.2	577	39.6	518	42.6	440	42.8	1,237	38.8	416	34.0	821	41.8	4	11.8
616	Glue and gelatin	1,467	37.6	1,773	34.2	1,329	40.8	1,443	40.8	9,788	34.7	4,384	29.1	5,404	41.3	10	13.5
1108	Galvanizing and other coating	598	42.6	760	40.3	549	45.7	480	37.8	1,791	34.5	471	23.5	1,320	41.3	4	6.1
604	Blacking, stains, and dressings	464	21.3	745	22.8	358	23.9	365	24.9	6,546	36.5	2,618	31.3	3,928	41.1	5	3.0
1607	Carbon paper and inked ribbons	618	31.6	1,090	36.2	450	31.6	558	34.3	5,104	34.7	2,176	29.0	2,928	40.7	4	7.1
411	Wall paper	1,872	38.3	2,145	35.9	1,675	39.3	1,710	38.1	7,292	37.1	3,317	33.5	3,975	40.7	7	17.5
901	Belting and packing, leather	974	32.1	1,047	26.1	852	36.1	789	31.3	8,142	37.9	4,135	35.8	4,007	40.2	5	2.7
621	Mucilage, paste, and other adhesives, except glue and rubber cement.	128	26.9	226	30.5	79	29.6	92	31.8	1,293	35.6	497	30.2	796	40.1	4	6.0
1653	Beauty-shop equipment, except furniture	676	25.4	709	23.2	607	27.9	513	26.1	4,914	39.2	1,936	38.6	2,978	39.7	4	4.9
1103	Cutlery (not including silver and plated cutlery) and edge tools.	2,271	14.7	2,809	15.7	2,009	14.6	1,968	14.5	18,151	35.5	2,875	22.8	15,276	39.6	5	1.9
1202	Clocks, watches, etc., and materials and parts except watchcases	8,331	41.1	9,344	41.4	7,499	41.6	7,689	42.0	21,565	35.2	6,290	27.9	15,275	39.5	5	6.6
1649	Umbrellas, parasols, and canes	905	37.2	815	36.0	839	38.4	621	36.3	2,949	29.2	1,419	23.1	1,530	38.8	4	4.8
1114	Plumbers' supplies	6,910	30.1	7,995	29.8	6,456	32.1	7,192	33.7	24,219	32.0	8,115	25.5	16,104	36.8	10	4.0
1224	Jewelers' findings and materials	936	30.2	1,279	33.1	830	31.2	1,003	36.8	6,930	40.4	4,652	42.5	2,278	36.6	4	5.5
118	Ice cream	6,111	25.4	8,611	27.1	4,487	25.9	5,396	28.2	67,942	32.4	29,605	29.3	38,337	35.4	146	6.0
401	Bags, paper, exclusive of those made in paper mills.	3,100	30.9	2,988	28.5	2,897	31.8	2,521	31.4	21,464	32.7	13,108	31.4	8,356	35.1	12	11.2
1212	Nonferrous-metal alloys, etc., n. e. c.	27,267	37.4	34,323	36.6	23,631	37.6	27,215	37.8	142,358	36.2	83,287	37.9	59,071	34.0	22	2.0
622	Oil, cake, and meal, cottonseed	5,151	32.8	3,236	30.5	4,474	33.8	1,975	33.4	60,565	32.2	51,281	31.9	9,284	33.9	105	22.9
1642	Sporting and athletic goods, not including firearms and ammunition.	3,934	34.8	4,311	35.8	3,359	34.7	3,341	37.0	12,267	35.2	6,205	37.4	6,062	33.2	10	5.1
1623	Lapidary work	67	33.0	113	38.3	59	38.6	90	44.8	731	35.6	472	38.1	259	32.0	4	6.6
617	Grease and tallow, not including lubricating greases.	1,772	31.0	2,249	29.2	1,416	29.8	1,582	29.3	11,424	28.7	5,827	26.2	5,597	31.7	18	6.9
1324	Cranes, and dredging, excavating, and road-building machinery.	4,547	31.7	6,551	33.7	3,498	32.4	4,405	35.0	18,158	28.9	7,397	25.7	10,761	31.6	8	6.3

For footnotes, see end of table.

1935, based on value added by manufacture—Continued

sands of dollars]

Eight largest producers																Industry	Industry number
Persons employed		Wages and salaries		Wage earners		Wages		Value of product		Cost of materials, etc.[1]		Value added by manufacturer[2]		Number of establishments			
Number	Percent of industry	Amount	Percent of industry	Number	Percent of industry	Amount	Percent of industry	Amount	Percent of industry	Amount	Percent of industry	Amount	Percent of industry	Number	Percent of industry		
109 SMALL INDUSTRIES—Continued																	
6,320	100.0	6,676	100.0	5,599	100.0	5,121	100.0	26,307	100.0	10,200	100.0	16,107	100.0	13	100.0	Ammunition and related products	602
4,790	90.7	6,797	91.1	4,178	91.4	5,251	93.0	37,845	93.1	15,807	93.0	22,038	93.1	43	58.1	Explosives	613
4,985	91.2	5,983	91.0	4,431	91.3	5,030	91.5	12,010	92.2	3,077	90.8	8,933	92.7	10	45.5	Firearms	1106
950	85.9	1,303	88.9	713	88.5	877	90.9	4,661	87.2	2,090	84.5	2,571	89.6	8	32.0	Fire extinguishers, chemical	1206
18,330	83.0	21,139	82.4	16,115	83.6	17,103	84.1	87,060	83.7	49,215	84.2	37,845	82.9	20	11.8	Aluminum products	1201
12,368	72.5	16,173	72.2	10,394	74.7	12,038	78.5	198,804	83.1	114,921	82.4	83,883	84.1	24	10.1	Soap	631
3,632	79.5	3,767	79.0	3,014	79.7	2,763	80.6	14,777	82.6	4,167	72.1	10,610	87.7	8	15.6	Pens, fountain and stylographic; pen points, gold, steel, brass.	1634
1,146	77.5	1,798	77.2	859	78.4	1,147	79.9	6,573	80.0	3,277	79.5	3,296	80.6	12	25.0	Soda fountains and accessories	1641
7,962	91.5	10,721	92.6	6,885	91.7	8,351	92.2	20,411	90.2	5,226	86.7	14,185	85.4	9	23.1	Sewing machines and attachments	1312
6,851	74.4	8,706	75.5	6,085	77.1	6,963	81.7	120,562	82.2	65,054	78.9	55,508	86.4	15	13.6	Cereal preparations	106
9,181	85.0	10,906	87.0	7,844	85.0	8,201	87.8	85,081	89.4	64,082	90.1	20,999	87.4	62	80.5	Sugar, beet	129
2,030	85.9	2,631	85.7	1,734	86.0	2,022	86.8	5,635	80.7	2,103	76.2	3,532	83.6	8	27.6	Watchcases	1222
2,167	61.9	2,609	64.9	1,829	62.0	1,919	67.4	13,377	77.7	6,168	80.1	7,209	75.7	10	13.2	Card cutting and designing	404
8,804	85.1	9,254	77.3	7,860	81.7	7,403	79.6	29,547	77.4	12,980	75.6	16,567	78.9	19	26.4	Asbestos products other than steam packing, etc.	1001
3,719	67.0	4,203	65.7	3,348	67.3	3,295	67.5	23,254	78.2	8,309	76.0	14,945	79.5	20	41.7	Salt	630
7,653	79.1	10,193	81.6	6,982	79.0	8,386	81.3	56,821	82.2	36,114	82.9	20,707	81.0	15	57.7	Smelting and refining, zinc	1218
697	77.4	873	81.1	553	77.6	485	81.0	3,895	82.3	1,936	80.7	1,959	83.9	8	34.8	Candles	607
4,460	77.3	5,311	80.9	3,912	76.8	4,258	81.7	20,789	90.1	12,117	94.6	8,672	84.4	10	43.5	Motorcycles, bicycles, and parts	1409
8,067	73.0	7,665	73.4	7,412	73.6	5,929	77.7	114,197	84.3	76,276	84.8	37,921	83.3	16	13.9	Tobacco (chewing and smoking) and snuff	1647
2,958	65.9	3,815	65.0	2,402	68.3	2,512	69.2	15,467	67.3	5,237	57.4	10,230	73.8	11	12.6	Dentists' equipment and supplies	1611
2,756	63.9	2,515	66.9	2,420	63.6	1,875	66.6	10,652	66.7	4,644	58.6	6,008	74.7	12	20.0	Wood distillation and charcoal manufacture.	633
3,186	73.9	4,083	72.9	2,737	75.0	3,218	76.6	25,872	75.4	17,819	76.9	8,053	72.3	11	33.3	Artificial leather; oil cloth	220
2,760	82.3	5,403	85.4	2,202	82.6	3,679	86.0	25,650	79.3	10,833	75.2	14,817	82.6	15	32.6	Baking powder, yeast, and other leavening compounds.	603
7,922	77.1	10,163	80.6	6,795	77.7	8,127	82.5	49,726	79.7	29,567	79.9	20,159	79.3	11	26.8	Washing machines, wringers, driers, ironing machines.	1315
2,051	62.7	2,735	65.2	1,504	60.9	1,659	63.0	9,758	72.9	2,578	68.1	7,180	74.8	9	16.1	Scales and balances	1311
364	58.9	480	61.9	299	59.6	242	55.3	1,768	64.6	602	57.9	1,166	68.7	8	18.6	Hair work	1617
903	19.8	1,353	20.2	623	21.5	538	20.3	36,629	54.0	12,610	43.2	24,019	62.1	16	3.9	Flavoring extracts, sirups, and related products.	115
334	57.8	549	59.7	244	61.0	292	65.5	4,675	71.7	2,377	69.0	2,298	74.8	11	23.9	Foundry supplies	1614
1,047	46.2	1,378	46.8	867	49.0	985	54.3	24,240	58.1	16,276	56.2	7,964	62.3	17	16.0	Oils not elsewhere classified	625
6,808	57.7	8,995	61.1	6,232	58.1	7,459	63.2	47,853	64.8	26,860	64.0	20,993	65.9	13	27.1	Wrought pipe, welded and heavy riveted	1128
621	65.3	800	64.8	573	66.2	661	67.8	8,384	67.6	5,987	66.4	2,397	70.7	8	47.0	Wool pulling	1654
2,540	56.1	3,127	51.7	2,118	58.7	2,074	90.5	38,081	60.8	31,655	60.9	6,426	60.5	20	20.2	Smelting and refining, nonferrous metals other than silver, gold, platinum.	1217
5,912	59.8	6,024	55.2	5,222	61.7	4,821	58.0	107,514	62.7	83,466	63.7	24,048	59.3	212	45.4	Condensed and evaporated milk	111
1,042	60.7	2,188	61.1	878	61.0	1,412	60.1	49,208	65.5	37,713	66.9	11,495	61.5	18	33.3	Malt	122
3,982	65.3	4,469	70.6	3,338	64.4	2,972	70.2	13,355	66.8	5,374	65.1	7,981	68.0	9	19.1	Pencils, lead (including mechanical) and crayons.	1633
1,121	60.3	1,116	63.2	960	60.3	808	62.9	4,621	67.5	2,485	67.5	2,136	67.6	8	17.8	Carriages, wagons, sleighs and sleds	1404
1,810	51.4	2,418	57.2	1,424	49.7	1,695	56.3	4,945	54.6	1,312	48.1	3,633	57.4	8	8.6	Musical instruments and parts and materials, n. e. c.	1628
3,775	65.6	4,300	60.9	3,281	68.7	3,215	67.8	14,998	61.8	7,472	63.6	7,526	60.2	14	11.3	Steam and other packing, pipe and boiler covering, gaskets, n. e. c.	1644
4,993	67.8	5,787	66.6	4,544	70.1	4,768	71.3	51,929	68.2	29,992	69.8	21,937	66.1	29	26.9	Roofing, built-up and roll; asphalt shingles; roof coatings.	1638
296	56.3	446	62.6	189	54.0	191	56.7	1,634	67.2	876	71.7	758	62.7	8	17.0	Artists' materials	1603
4,678	55.6	2,640	51.4	4,567	56.7	2,466	54.9	10,615	56.0	5,796	56.3	4,819	55.7	27	23.5	Gloves and mittens, cloth or cloth and leather combined.	2171
7,994	54.8	7,041	55.5	7,420	54.8	5,738	55.3	23,859	63.0	9,291	62.8	14,568	63.1	21	29.6	Cast-iron pipe and fittings	1102
1,847	55.2	3,153	51.5	1,380	58.2	1,896	58.6	21,034	60.9	12,356	66.5	8,678	54.4	49	25.7	Ink, printing	618
1,005	73.0	1,007	69.1	925	76.0	747	72.6	2,157	67.7	811	66.3	1,346	68.6	8	23.6	Musical instrument parts and materials: piano and organ.	1627
2,387	61.1	3,064	59.0	2,103	64.6	2,332	66.0	16,397	58.2	8,127	53.9	8,270	63.2	19	25.7	Glue and gelatin	616
834	59.4	1,055	55.9	748	62.3	692	54.5	2,820	54.3	1,019	50.9	1,801	56.4	8	12.3	Galvanizing and other coating	1108
872	40.0	1,178	36.1	691	46.1	632	43.1	9,015	50.3	4,173	49.8	4,842	50.7	9	5.4	Blacking, stains, and dressings	604
995	50.9	1,747	58.0	711	49.9	852	52.3	7,892	53.7	3,600	48.0	4,292	59.7	8	14.2	Carbon paper and inked ribbons	1607
3,043	62.3	3,497	58.5	2,690	63.1	2,754	61.4	11,574	58.9	5,986	60.5	5,588	57.2	12	30.0	Wall paper	411
1,390	45.8	1,534	38.2	1,216	51.5	1,176	46.7	11,483	53.4	6,135	53.1	5,348	53.6	10	5.4	Belting and packing, leather	901
197	41.4	338	45.6	115	43.1	137	47.4	1,963	54.0	827	50.2	1,136	57.2	8	12.0	Mucilage, paste, and other adhesives, except glue and rubber cement.	621
1,375	51.7	1,456	47.7	1,183	54.3	968	49.2	7,418	59.2	2,823	56.3	4,595	61.2	8	9.8	Beauty-shop equipment, except furniture	1653
4,475	28.9	5,103	28.6	4,022	29.3	3,802	28.1	23,121	45.2	4,394	34.9	18,727	48.5	10	3.8	Cutlery (not including silver and plated cutlery) and edge tools.	1103
13,819	68.1	14,794	65.5	12,464	69.1	12,291	67.2	36,141	59.1	13,679	60.7	22,462	58.1	12	15.8	Clocks, watches, etc., and materials and parts except watchcases.	1202
1,252	51.5	1,178	52.0	1,151	52.7	888	51.9	4,277	42.4	2,158	35.1	2,119	53.7	8	9.6	Umbrellas, parasols, and canes	1649
9,871	43.0	11,217	41.8	8,894	44.2	9,600	45.0	34,144	45.1	13,362	42.0	20,782	47.5	16	6.4	Plumbers' supplies	1114
1,566	50.5	1,962	50.8	1,389	52.2	1,504	55.1	8,920	52.0	5,653	51.6	3,267	52.5	8	11.0	Jewelers' findings and materials	1224
7,113	29.6	9,957	31.4	5,262	30.4	6,252	32.7	79,071	37.7	35,045	34.6	44,026	40.6	181	7.4	Ice cream	118
4,402	43.8	4,161	39.7	4,129	45.3	3,516	43.7	31,944	48.7	20,386	48.9	11,558	48.5	24	22.4	Bags, paper, exclusive of those made in paper mills.	401
35,153	48.2	43,753	46.6	30,443	48.4	34,653	48.1	206,019	52.4	125,494	57.1	80,525	46.4	63	5.7	Nonferrous-metal alloys, etc., n. e. c.	1212
6,522	41.6	4,280	40.3	5,621	42.5	2,543	43.0	81,750	43.5	69,907	43.5	11,843	43.3	143	31.2	Oil, cake, and meal, cottonseed	622
5,085	45.0	5,404	44.9	4,402	45.5	4,211	46.7	16,439	47.2	7,921	47.8	8,518	46.6	15	7.7	Sporting and athletic goods, not including firearms and ammunition.	1642
77	37.9	133	45.1	65	42.5	99	49.3	927	45.2	546	44.1	381	47.0	8	13.2	Lapidary work	1623
2,208	38.6	2,926	38.0	1,788	37.6	2,066	38.3	14,905	37.4	7,867	35.4	7,038	39.9	26	10.0	Grease and tallow, not including lubricating greases.	617
6,983	48.7	9,621	49.5	5,418	50.1	6,658	53.0	27,943	44.5	12,235	42.5	15,708	46.1	12	9.4	Cranes, and dredging, excavating, and road-buil ding machinery.	1324

TABLE III.—*Concentration in manufacturing industries,*

[Values in thous

Industry number	Industry	Largest four producers															
		Persons employed		Wages and salaries		Wage earners		Wages		Value of product		Cost of materials, etc.[1]		Value added by manufacture[2]		Number of establishments	
		Number	Percent of industry	Amount	Percent of industry	Number	Percent of industry	Amount	Percent of industry	Amount	Percent of industry	Amount	Percent of industry	Amount	Percent of industry	Number	Percent of industry
		109 SMALL INDUSTRIES—Continued															
1651	Window shades (textile and paper) and fixtures.	1,066	28.9	1,155	28.1	916	30.5	745	27.5	5,793	28.5	3,378	27.7	2,415	29.8	5	1.6
1616	Furs, dressed and dyed	2,379	33.9	3,130	32.6	2,283	35.5	2,622	34.7	5,810	27.2	1,385	21.3	4,425	29.8	7	4.2
609	Cleaning and polishing preparations	780	17.6	1,347	19.9	410	14.5	547	18.1	11,085	26.1	3,620	21.0	7,465	29.7	4	1.0
1620	Instruments and apparatus, professional, scientific, commercial, and industrial	5,432	27.1	7,806	28.0	4,069	26.8	4,906	27.9	18,613	27.2	4,926	24.0	13,687	28.6	5	1.8
1646	Theatrical scenery and stage equipment	82	20.8	212	30.5	60	21.5	136	31.1	580	29.9	245	32.7	335	28.2	4	8.3
1613	Feathers, plumes, and manufactures thereof	134	19.9	154	25.2	115	20.1	99	23.4	576	35.0	293	48.0	283	27.3	4	5.5
614	Fertilizers	6,482	27.5	5,273	29.5	5,734	28.1	3,882	31.8	36,356	25.6	24,018	24.7	12,338	27.3	105	13.3
318	Window and door screens and weather strip	652	28.0	673	25.2	592	31.6	449	25.8	2,241	25.8	1,006	24.5	1,235	27.1	6	4.3
126	Poultry dressing and packing, wholesale	3,134	33.1	2,124	29.8	2,711	33.6	1,529	30.2	27,707	29.8	23,344	30.5	4,363	26.8	155	27.6
628	Perfumes, cosmetics, and other toilet preparations.	1,602	12.2	1,865	11.6	1,260	13.0	1,231	14.4	29,128	24.4	9,257	20.8	19,871	26.5	5	.9
2172	Handkerchiefs	1,629	31.0	1,264	30.8	1,545	31.6	1,034	32.2	5,587	30.3	3,218	33.9	2,369	26.5	5	5.6
315	Synthetic-resin, cellulose-plastic, etc., n. e. c.	3,245	22.6	3,705	24.0	2,919	22.9	3,133	25.9	13,173	26.2	5,590	26.3	7,583	26.1	12	7.8
902	Boot and shoe cut stock and findings	4,965	24.5	5,152	24.2	4,657	25.5	4,618	27.5	33,518	30.0	24,270	31.9	9,248	26.1	24	4.8
1207	Lighting equipment	3,425	17.0	4,573	18.8	2,963	17.8	3,621	21.0	19,808	23.1	8,108	20.3	11,,700	25.5	4	.8
107	Cheese	1,174	23.2	1,247	25.5	963	22.2	918	23.3	17,897	18.1	14,171	16.8	3,726	25.2	143	5.5
114	Feeds, prepared, for animals and fowls	2,286	14.8	2,656	14.4	1,703	14.7	1,649	14.9	55,375	19.2	40,917	17.7	14,458	24.9	47	5.0
1321	Boiler shops	3,024	18.0	4,438	20.2	2,169	16.3	2,761	18.7	15,991	21.9	6,711	18.7	9,280	24.9	7	1.7
704	Lubricating greases, not made in petroleum refineries.	742	23.1	1,047	21.1	459	23.7	519	22.7	9,261	25.7	5,463	26.3	3,798	24.8	6	3.3
909	Saddlery, harness, and whips	930	24.6	952	24.6	858	26.5	768	26.3	3,427	25.7	2,081	26.9	1,346	23.9	4	2.5
1125	Tools, not including edge tools, machine tools, files, or saws.	3,369	22.4	3,683	20.0	2,878	22.8	2,747	20.7	12,327	23.5	4,371	23.4	7,956	23.5	13	3.8
1601	Artificial and preserved flowers and plants	877	24.4	854	25.7	829	25.8	778	29.8	1,817	20.2	489	14.8	1,328	23.3	4	2.1
906	Leather goods not elsewhere classified	1,048	14.8	1,168	15.6	876	14.6	847	15.6	4,754	18.0	1,919	14.5	2,835	21.6	4	1.0
1107	Forgings, iron and steel	2,328	16.8	10,278	53.3	2,043	16.7	9,597	63.5	13,549	20.4	6,810	19.6	6,739	21.3	13	7.0
117	Food preparations not elsewhere classified	2,772	16.0	2,781	14.4	2,378	16.8	1,943	16.0	50,980	22.9	37,557	23.7	13,423	20.9	27	2.6
627	Insecticides and fungicides, etc., n. e. c.	311	5.7	445	5.6	230	6.6	276	8.2	8,704	16.3	2,769	11.3	5,935	20.4	4	.7
1117	Screw-machine products and wood screws	3,610	20.9	4,637	21.0	3,105	20.7	3,676	21.9	13,797	21.9	6,635	25.0	7,162	19.6	6	2.0
1604	Brooms	813	17.9	648	17.3	773	18.6	539	17.6	2,271	15.9	935	12.5	1,336	19.5	4	1.1
1015	Minerals and earths, ground or otherwise treated.	732	14.8	848	16.0	620	14.6	605	16.7	3,744	17.4	1,365	15.7	2,379	18.5	11	6.8
910	Trunks, suitcases, and bags	1,371	17.9	1,260	15.2	1,263	19.0	998	15.8	4,688	16.6	2,330	15.6	2,358	17.7	6	2.0
1618	Hand stamps and stencils and brands	616	19.8	721	17.4	496	22.0	491	19.4	1,681	18.0	560	21.1	1,121	16.8	8	2.9
1606	Buttons	1,248	11.0	1,422	13.5	1,110	10.8	1,112	13.6	4,166	14.9	1,409	12.7	2,757	16.3	6	2.0
211	Waste and related products	1,284	12.1	1,263	11.6	1,144	12.4	866	11.8	9,378	14.2	5,618	13.1	3,860	16.2	12	3.8
301	Baskets and rattan and willow ware, not including furniture.	1,435	14.9	809	14.2	1,371	15.2	673	14.6	2,140	14.8	788	13.8	1,352	15.5	8	4.0
1204	Sheet-metal work, not specifically classified	2,362	10.8	2,990	10.4	1,946	11.2	2,270	11.6	19,018	17.4	11,568	20.0	7,450	14.4	5	.4
1612	Miscellaneous articles not elsewhere classified.	1,615	9.8	2,003	12.3	1,399	9.8	1,487	12.6	5,524	11.1	1,457	7.0	4,067	14.0	4	.6
501	Bookbinding and blank-book making	2,674	11.0	3,615	12.0	2,291	11.2	2,692	12.3	9,797	13.4	2,928	13.9	6,869	13.1	8	.8
1210	Jewelry	2,236	10.8	2,441	9.9	2,098	12.3	2,054	11.5	6,569	9.3	2,425	8.0	4,144	10.2	4	.4
1640	Signs and advertising novelties	1,577	8.9	2,001	8.8	1,329	9.7	1,489	10.0	5,459	8.9	1,649	7.8	3,810	9.6	44	4.1
1005	Concrete products	612	5.8	785	6.4	493	5.9	545	7.0	4,197	9.4	1,905	9.5	2,292	9.2	37	3.0
908	Pocketbooks, purses, and cardcases	780	6.2	655	5.6	740	6.4	582	6.3	3,477	8.1	1,606	7.2	1,871	9.0	4	1.3
218	Housefurnishings	1,267	7.6	1,134	7.4	1,125	7.8	912	8.4	5,869	6.7	3,214	5.8	2,655	8.4	7	.9
214	Furnishing goods, men's	1,375	5.6	1,077	5.0	1,305	5.7	920	5.4	6,949	7.7	3,796	7.9	3,153	7.6	4	.5
1615	Fur goods	279	1.7	614	2.1	237	1.9	473	2.3	3,697	2.6	2,549	2.9	1,148	2.1	4	.2
		INDUSTRIES FOR WHICH NO CONCENTRATION DATA ARE SHOWN[4]															
302	Billiard and pool tables, bowling alleys, etc.	364	------	385	------	314	------	290	------	3,145	------	1,056	------	2,089	------	17	
702	Fuel briquettes	415	------	533	------	341	------	386	------	4,913	------	3,394	------	1,519	------	25	------
1406	Locomotives, other than electric	4,734	------	5,935	------	3,790	------	3,972	------	17,383	------	9,493	------	7,890	------	14	------
1215	Smelting and refining, copper	14,879	------	14,023	------	10,449	------	11,154	------	348,257	------	310,797	------	37,460	------	20	------
1216	Smelting and refining, lead	3,719	------	4,595	------	3,187	------	3,424	------	137,219	------	121,997	------	15,223	------	16	------
1220	Tin and other foils, not including gold foil	2,138	------	2,429	------	1,831	------	1,899	------	14,533	------	9,226	------	5,307	------	11	------

[*] Large industries, those employing more than 100,000 persons; medium industries, those employing 25,000 to 100,000 persons; small industries, those employing less than 25,000 persons.

[1] Includes cost of materials, mill and shop supplies, containers, fuel, and purchased electric energy.

[2] Value of products less cost of materials, containers, fuel, and purchased electric energy.

[3] The data for the largest 4 enterprises are combined with those for the largest 8 enterprises in order to avoid approximate disclosures of individual data.

[4] The data for the "remainder" of the industry are included in the data for the largest 8 enterprises in order to avoid approximate disclosures of individual data.

[5] In order to avoid the approximate disclosure of data for individual enterprises, no information is given for the largest 4 and the largest 8 enterprises in these industries.

1935, based on value added by manufacture—Continued

ands of dollars]

Eight largest producers																Industry	Industry number
Persons employed		Wages and salaries		Wage earners		Wages		Value of product		Cost of materials, etc.[1]		Value added by manufacturer [2]		Number of establishments			
Number	Percent of industry	Amount	Percent of industry	Number	Percent of industry	Amount	Percent of industry	Amount	Percent of industry	Amount	Percent of industry	Amount	Percent of industry	Number	Percent of industry		
109 SMALL INDUSTRIES—Continued																	
1,618	43.8	1,806	44.0	1,407	46.9	1,247	46.0	9,403	46.3	5,932	48.6	3,471	42.8	25	7.8	Window shades (textile and paper) and fixtures.	1651
2,999	42.7	3,959	41.2	2,862	44.5	3,308	45.8	8,138	38.1	2,156	33.1	5,982	40.3	16	9.6	Furs, dressed and dyed	1616
1,219	27.5	2,096	30.9	757	26.8	982	32.4	16,839	39.7	6,064	35.1	10,775	42.9	8	2.0	Cleaning and polishing preparations	609
8,356	41.7	11,414	40.9	6,506	42.8	7,534	42.9	29,383	43.0	9,156	44.6	20,227	42.3	16	5.7	Instruments and apparatus, professional, scientific, commercial, and industrial.	1620
145	36.8	333	48.0	101	36.2	204	46.7	874	45.1	356	47.5	518	43.6	8	16.6	Theatrical scenery and stage equipment	1646
242	35.9	258	42.2	209	36.5	167	39.5	776	47.2	359	58.8	417	40.3	8	11.0	Feathers, plumes, and manufactures thereof	1613
9,326	45.1	7,293	42.8	8,292	47.5	5,363	48.9	58,356	41.6	39,760	42.6	18,596	39.5	168	25.1	Fertilizers	614
918	39.4	994	37.2	789	42.1	634	36.4	3,556	41.0	1,653	40.3	1,903	41.7	10	7.1	Window and door screens and weather strip	318
4,008	42.3	2,740	38.4	3,467	42.9	1,991	39.3	36,246	39.0	30,736	40.1	5,510	33.8	193	34.3	Poultry dressing and packing, wholesale	126
3,344	25.5	3,756	23.3	2,640	27.3	2,460	28.7	48,655	40.7	15,499	34.8	33,156	44.2	10	1.8	Perfumes, cosmetics, and other toilet preparations.	628
2,505	47.6	2,041	49.7	2,353	48.1	1,629	50.7	8,771	47.6	5,062	53.3	3,709	41.5	9	10.1	Handkerchiefs	2172
5,251	36.6	5,963	38.6	4,689	36.8	4,845	40.1	22,326	44.4	10,011	47.1	12,315	42.4	20	13.1	Synthetic-resin, cellulose-plastic, etc., n. e. c.	315
5,821	28.7	6,225	29.3	5,434	29.7	5,480	32.7	46,846	42.0	35,911	47.2	10,935	30.8	32	6.4	Boot and shoe cut stock and findings	902
5,290	26.3	7,025	28.9	4,652	27.9	5,570	32.3	29,831	34.8	13,750	34.5	16,081	35.1	8	1.6	Lighting equipment	1207
1,426	28.2	1,500	30.7	1,177	27.1	1,123	28.5	22,245	22.5	17,829	21.2	4,416	29.8	189	7.3	Cheese	107
3,371	21.8	4,194	22.8	2,562	22.1	2,689	24.3	99,058	34.3	79,453	34.4	19,605	33.8	62	6.6	Feeds, prepared, for animals and fowls	114
4,638	27.6	6,351	29.0	3,575	26.9	4,228	28.6	23,914	32.7	11,816	32.9	12,098	32.5	14	3.4	Boiler shops	1321
1,072	33.3	1,469	29.6	725	37.5	834	36.5	14,472	40.1	9,166	44.1	5,306	34.6	13	7.2	Lubricating greases, not made in petroleum refineries.	704
1,340	35.5	1,765	35.2	1,209	37.4	1,096	37.5	5,043	37.8	3,114	40.3	1,929	34.3	8	5.0	Saddlery, harness, and whips	909
5,131	34.1	5,827	31.7	4,428	35.1	4,483	33.8	18,981	36.2	6,878	36.8	12,103	35.8	17	5.0	Tools, not including edge tools, machine tools, files, or saws.	1125
1,125	31.3	1,136	34.2	1,043	32.5	958	36.7	3,166	35.2	1,315	39.8	1,851	32.5	9	4.7	Artificial and preserved flowers and plants	1601
1,566	22.1	1,695	22.7	1,341	22.3	1,260	23.2	6,997	26.5	3,238	24.4	3,759	28.7	8	2.0	Leather goods not elsewhere classified	906
4,068	29.5	12,775	66.2	3,641	29.7	11,608	76.8	21,531	32.4	11,251	32.4	10,280	32.5	19	10.3	Forgings, iron and steel	1107
4,783	27.6	4,750	24.6	4,249	30.1	3,646	30.1	97,543	43.8	80,391	50.7	17,152	26.7	186	18.1	Food preparations not elsewhere classified	117
711	13.0	1,004	12.6	531	15.3	512	15.1	12,962	24.3	4,342	17.8	8,620	29.6	8	1.4	Insecticides and fungicides, etc., n. e. c.	627
6,083	35.2	7,277	33.0	5,286	35.2	5,752	34.2	20,725	32.9	9,854	37.1	10,871	29.8	12	4.0	Screw-machine products and wood screws	1117
1,074	23.6	925	24.7	1,010	24.3	758	24.7	3,263	22.8	1,370	18.3	1,893	27.6	9	2.6	Brooms	1604
1,398	28.2	1,544	29.2	1,205	28.3	1,075	29.7	6,170	28.6	2,056	23.7	4,114	32.0	15	9.3	Minerals and earths, ground or otherwise treated.	1015
2,066	27.0	2,109	25.5	1,907	28.7	1,692	26.7	7,451	26.4	3,824	25.6	3,627	27.2	10	3.3	Trunks, suitcases, and bags	910
929	29.8	1,132	27.3	747	33.1	783	30.9	2,696	28.9	882	33.2	1,814	27.2	15	5.4	Hand stamps and stencils and brands	1618
2,942	25.9	2,852	27.1	2,700	26.2	2,302	28.2	7,579	27.0	2,937	26.5	4,642	27.4	15	5.1	Buttons	1606
1,879	17.2	1,988	18.2	1,679	18.2	1,331	18.1	15,934	24.1	10,680	25.3	5,254	22.1	16	5.1	Waste and related products	211
2,336	24.3	1,458	25.6	2,219	24.6	1,176	25.5	3,710	25.6	1,461	25.5	2,249	25.7	14	6.9	Baskets and rattan and willow ware, not including furniture.	301
3,184	14.6	4,148	14.4	2,511	14.5	2,810	14.4	28,905	26.4	28,408	31.9	10,497	20.4	39	2.8	Sheet-metal work, not specifically classified	1204
2,782	16.9	3,079	18.9	2,472	17.4	2,359	19.9	9,268	18.7	3,675	17.8	5,593	19.3	10	1.5	Miscellaneous articles not elsewhere classified.	1612
4,124	17.0	5,412	17.9	3,408	16.7	3,862	17.7	15,111	20.6	4,874	23.1	10,237	19.6	14	1.4	Bookbinding and blank-book making	501
3,291	15.9	3,710	15.0	2,972	17.4	3,016	16.9	10,945	15.4	4,410	14.6	6,535	16.1	8	.8	Jewelry	1210
2,735	15.4	3,352	14.8	2,270	16.6	2,463	16.5	9,035	14.7	3,122	14.7	5,913	14.8	51	4.8	Signs and advertising novelties	1640
962	9.1	1,313	10.8	804	9.6	894	11.4	6,782	15.1	3,330	16.6	3,452	13.9	45	3.7	Concrete products	1005
1,732	13.8	1,615	13.9	1,591	13.9	1,291	14.0	6,795	15.8	3,579	16.1	3,216	15.5	9	2.8	Pocketbooks, purses, and cardcases	908
2,065	12.4	1,780	11.6	1,876	13.0	1,442	13.3	9,931	11.4	5,737	10.4	4,194	13.2	13	1.7	Housefurnishings	218
2,369	9.6	1,996	9.2	2,248	9.9	1,697	9.9	11,151	12.4	5,854	12.2	5,297	12.7	8	1.0	Furnishing goods, men's	214
493	3.0	1,012	3.5	431	3.4	816	3.9	6,414	4.5	4,535	5.1	1,879	3.4	8	.4	Fur goods	1615

APPENDIX 8.—SUMMARY OF CONCENTRATION DATA, CLASSIFICATION, AND PRICE DATA FOR MANUFACTURING INDUSTRIES, 1935[1]

The following table indicates the classifications to which the manufacturing industries have been assigned and the data used in analyses of prices and degree of concentration.

Under the column "Size code" the letters L, M, and S indicate large industries (L) employing 100,000 or more persons, medium industries (M) employing between 25,000 and 100,000 persons, and small industries (S) employing less than 25,000 persons.

The next column indicates the durability of the products of each industry. The basis for classification is that used in the report of the National Bureau of Economic Research *Commodity Flow and Capital Formation*. Nondurable or perishable products are those that, without marked change and retaining their essential physical identity, are ordinarily employed in their ultimate use less than 6 months. Semidurable products are those that, without marked change and retaining their essential physical identity are ordinarily employed in their ultimate use from 6 months to 3 years. Durable products are those that normally render successive services and are ordinarily employed in their ultimate use over a period longer than 3 years.

The next column classifies industries into finished or semimanufactured categories. Products which move to the ultimate consumer with no further processing are classified as finished and those which are used as materials by other manufacturers are classified as semimanufactured.

The concentration index represents for each industry the proportion of the total value of product for the industry contributed by the largest four producers.

The value added ratios for 1929 and 1935 represent the ratio between value added by manufacture and value of product for the industry.

Under "Type of market," industries are classified into three groups: Those selling to a local market, those selling to a regional market, and those selling to a national market.

The column giving location determinant classifies industries into three groups: Those industries the location of which is largely determined by the location of the consumer, those which are situated close to the raw materials, and the remaining industries classified under "Other determinants."

Under "Type of industry" two categories are used: straight and mixed. Industries classified as straight are those in which each manufacturer as a rule engages in the production of all commodities covered by the industry classification. Industries in which the manufacturers confine themselves to the production of only part of the commodities included in the industry are classified as mixed.

The price ratios were computed from Bureau of Labor Statistics prices for 1929 and 1932. Prices of manufactured goods were assigned to the proper industry. Where more than one price item appeared for an industry, the Bureau of Labor Statistics weights were used for each item to derive a weighted average price for the industry.

Under reliability of price data notations of "Adequate," "Fair," and "Poor" are used to describe the adequacy of the price data insofar as they can be used to typify the prices of products of an entire Census industry.

[1] Appendix 8 was prepared by Grace W. Knott.

TABLE I.—*Summary of data for manufacturing industries, 1935*

Industry number	Name of industry	Size code	Classification by durable, semidurable, and nondurable	Classification by semimanufactured and finished	Concentration index	Value added ratio 1929	Value added ratio 1935	Average value added 1929-35	Type of market	Location determinant	Type of industry	Price ratio 1932/29	Reliability of price data in relation to Census classification
	FOOD AND KINDRED PRODUCTS												
101	Beverages, nonalcoholic	S	Nondurable	Finished	8.7	61.9	61.0	61.5	Local	Consumer	Straight	87.5	Fair.
102	Bread and other bakery products	L	do	do	18.2	51.7	45.8	48.8	do	do	Mixed	90.6	Adequate.
103	Butter	S	do	do	17.2	14.8	15.6	15.2	National	Raw material	Straight	46.9	Do.
104	Canned and preserved fish, crabs, etc.	S	do	do	26.9	34.1	35.3	34.7	do	do	Mixed	62.6	Do.
105	Canned and dried fruits and vegetables, etc.	L	do	do	22.7	38.4	37.0	37.7	do	do	Straight	67.7	Do.
106	Cereal preparations	S	do	do	68.1	42.1	43.8	43.0	do	Other	Mixed	85.6	Fair.
107	Cheese	S	do	do	18.6	16.2	15.0	15.6	do	Raw material	Straight	52.7	Adequate.
108	Chewing gum	S	do	do	92.0	61.4	68.6	65.0	do	Other	do		
109	Chocolate and cocoa products	S	do	do	67.8	33.4	28.6	31.0	do	do	do	72.6	Poor.
111	Condensed and evaporated milk	S	do	do	44.6	21.7	23.6	22.7	do	Raw material	do	63.7	Fair.
112	Confectionery	M	do	do	12.5	45.3	40.9	43.1	do	Other	do		
113	Corn sirup, corn sugar, corn oil and starch.	S	do	do	79.2	37.2	32.2	34.7	do	Raw material	do	60.6	Adequate.
114	Feeds prepared for animals and fowls	S	do	do	23.0	18.6	20.1	19.4	Regional	do	do		
115	Flavoring extracts and flavoring sirup	S	do	do	47.7	57.0	57.0	57.0	National	Other	do		
116	Flour and other grain-mill products	M	do	Semimanufactured	29.4	18.1	16.1	17.1	do	do	do	53.8	Do.
117	Food preparations, n. e. c	S	do	Finished	33.7	43.9	28.8	36.4	do	do	Mixed		
118	Ice cream	S	do	do	32.7	52.5	51.8	52.2	Local	Consumer	Straight		
119	Ice, manufactured	M	do	do	20.7	81.1	78.2	79.7	do	do	do		
120	Shortenings	S	do	do	69.0	10.0	16.4	13.2	National	Other	do	45.8	Fair.
121	Marconi, spaghetti, vermicelli, and noodles.	S	do	do	16.1	41.9	33.2	37.6	do	do	do	65.1	Adequate.
122	Malt	S	do	Semimanufactured	44.6	19.8	24.9	22.4	do	Raw material	do		
123	Meat packing, wholesale	L	do	Finished	55.6	13.4	14.1	13.8	do	Other	do	50.8	Do.
124	Oleomargarine	S	do	do	79.1	33.6	28.1	30.9	do	do	do	41.3	Do.
126	Poultry killing, dressing, and packing, wholesale.	S	do	do	30.5	17.9	17.5	17.7	do	Raw material	do	51.5	Do.
127	Rice cleaning and polishing	S	do	do	38.6	21.2	22.4	21.8	do	do	do	62.7	Do.
128	Sausage, meat pudding, headcheese, etc.	S	do	do	35.1	24.8	20.5	22.7	do	Other	do		
129	Sugar, beet	S	do	do	68.8	34.6	25.2	29.9	do	Raw material	do		
130	Sugar, cane, not including products of refineries.	S	do	Semimanufactured	33.5	33.3	30.4	31.9	do	do	do	76.7	Poor.
131	Sugar refining, cane	S	do	Finished	69.6	13.6	10.9	12.3	do	do	do	78.4	Adequate.
132	Vinegar and cider	S	do	do	40.4	42.4	44.1	43.3	do	do	do	66.1	Do.
133	Liquors, distilled	S	do	do	51.2	(1)	50.0		do	Other	do		
134	Liquors, malt	M	do	do	11.8	(1)	66.7		Regional	do	do		
135	Liquors, vinous	S	do	do	26.8	75.1	58.0	66.6	National	Raw material	do		
136	Liquors, rectified and blended	S	do	do	42.2	(1)	42.8		do	Other	do		
	TEXTILES AND THEIR PRODUCTS												
201	Carpets and rugs	M	Durable	do	51.1	69.9	51.1	60.5	do	do	do	75.0	Do.
202	Cordage and twine; jute goods; linen goods.	S	Semidurable	do	31.3	40.3	49.8	44.6	do	do	Mixed	58.1	Fair.
203	Cotton manufactures	L	do	Semimanufactured	8.4	41.1	39.2	40.2	do	do	Straight	57.8	Adequate.
204	Dyeing and finishing cotton, rayon, and silk.	M	do	do	13.9	49.4	54.4	51.9	do	do	do		
205	Felt goods, except woven felts	S	do	do	61.3	42.3	43.0	42.7	do	do	do		
206	Hats, felt and straw, except millinery	S	do	Finished	23.7	46.1	47.7	46.9	do	do	Mixed		
207	Knit goods	L	do	do	5.3	49.2	48.0	48.6	do	do	do	55.5	Fair.
208	Lace goods	S	do	do	38.2	65.4	60.2	62.8	do	do	Straight		
209	Rayon manufactures	M	do	Semimanufactured	18.5	{43.6	{44.9		do	do	do		
210	Silk manufactures	M	do	do	11.5		{46.3		do	do	do		
211	Waste and related products	S	Nondurable	do	14.9	28.8	36.0	32.4	do	do	do		
212	Wool and hair manufactures	L	Semidurable	do	24.2	39.2	39.3	39.3	do	do	do	62.6	Adequate.
213	Men's cotton garments	L	do	Finished	7.5	50.6	38.7	44.7	do	do	Mixed	71.4	Fair.
214	Furnishing goods, men's	S	do	do	7.7	44.6	46.6	45.6	do	do	do		
215	Clothing, men's, youths', and boys'	L	do	do	5.1	51.1	41.9	46.5	do	do	Straight	72.3	Do.
216	Clothing, women's, misses', and children's.	L	do	do	1.4	45.3	41.2	43.3	do	do	Mixed		
2171	Gloves and mittens, cloth or cloth and leather.	S	do	do	43.9	35.1	45.4	40.3	do	do	Straight		
2172	Handkerchiefs	S	Nondurable	do	31.8	44.7	39.2	41.9	do	do	do		
2173	Suspenders, garters, and other elastic woven products.	S	Semidurable	do	54.8	41.2	41.5	41.3	do	do	do		
218	Housefurnishings	S	do	do	7.7	40.0	37.9	38.9	do	do	do	60.8	Do.
219	Fabricated textile products, n. e. c	S	do	do	37.2	23.9	27.7	25.8	do	do	Mixed		
220	Artificial leather; oilcloth	S	do	do	57.7	33.6	32.4	33.0	do	do	do	81.5	Adequate.
221	Embroideries; trimmings; stamped art goods.	S	do	do	9.8	61.1	53.2	57.1	do	do	do		
222	Asphalted-felt-base floor covering; linoleum.	S	Durable	do	81.6	53.1	54.3	53.7	do	do	Straight	73.4	Do.
	FOREST PRODUCTS												
301	Baskets and rattan and willow ware	S	Semidurable	do	15.1	61.4	60.4	60.9	do	do	do		
302	Billiard and pool tables, bowling alleys, etc.	S	Durable	do	(2)	63.3	66.4	64.8	do	do	do		
303	Boxes, cigar, wooden and part wooden	S	Semidurable	do	42.1	57.9	63.8	60.8	do	do	do	87.5	Do.
304	Boxes, wooden, except cigar boxes	M	do	do	13.9	45.1	49.3	47.2	Regional	do	do		
305	Caskets, coffins, burial cases and other mortician's goods.	S	Durable	do	17.6	55.5	55.2	55.4	National	do	Mixed	97.0	Do.
306	Cooperage	S	Semidurable	do	25.9	36.0	35.6	35.8	Regional	do	Straight	74.2	
307	Cork products	S	do	Semimanufactured	76.9	45.3	49.8	47.5	National	do	do		
308	Excelsior	S	Nondurable	Finished	67.0	51.3	57.8	54.5	do	Raw material	do		
309	Furniture, including store and office fixtures.	L	Durable	do	5.6	55.0	52.1	53.5	do	Other	Mixed		
310	Lasts and related products	S	Semidurable	Semimanufactured	51.2	69.9	73.6	71.7	do	do	Straight		
311	Lumber and timber products, n. e. c	L	Durable	do	4.7	67.1	62.3	64.7	do	Raw material	do	64.3	Fair.
312	Matches	S	Nondurable	Finished	70.3	38.4	37.5	37.9	do	Other	do	120.3	Adequate.
313	Mirror and picture frames	S	Durable	do	17.0	66.0	57.7	61.8	do	do	do		
314	Planing-mill products	M	do	Semimanufactured	4.6	46.5	44.6	45.5	Regional	Raw material	do	72.6	Fair.

For footnotes, see end of table.

TABLE I.—*Summary of data for manufacturing industries, 1935*—Continued

Industry number	Name of industry	Size code	Classification by durable, semidurable, and nondurable	Classification by semimanufactured and finished	Concentration index	Value added ratio 1929	Value added ratio 1935	Average value added 1929–1935	Type of market	Location determinant	Type of industry	Price ratio 1932/29	Reliability of price data in relation to Census classification
	FOREST PRODUCTS—continued												
315	Synthetic-resin, cellulose-plastic, etc.	S	Semidurable	Finished	27.6	(1)	57.8		National	Other	Mixed		
317	Turpentine and rosin	M	Nondurable	Semimanufactured	(2)	71.7	61.9	66.8	do	Raw material	Straight		
318	Window and door screens and weather strip.	S	Durable	Finished	26.9	57.0	52.7	54.8	do	Other	do		
319	Wood preserving	S	do	Semimanufactured	50.5	22.6	25.6	24.1	do	Raw material	do		
320	Wood turned and shaped and other wooden goods.	S	do	Finished	23.6	59.2	56.4	57.8	do	Other	Mixed		
	PAPER AND ALLIED PRODUCTS												
401	Bags, paper	S	Nondurable	do	34.8	33.1	36.4	34.7	do	do	Straight		
402	Boxes, paper, n. e. c.	M	do	do	14.1	45.7	43.6	44.6	do	do	do		
403	Cardboard, not made in paper mills	S	do	Semimanufactured	61.9	52.7	47.3	50.0	do	do	do		
404	Card cutting and designing	S	do	do	66.1	52.7	55.3	54.0	do	do	do		
405	Envelopes	S	do	Finished	33.6	51.2	52.4	51.8	do	do	do		
407	Paper	L	do	Semimanufactured	14.7	40.6	39.7	40.1	do	do	do	84.4	Adequate.
408	Paper goods, n. e. c.	M	do	Finished	14.2	45.1	43.9	44.5	do	do	do		
410	Pulp (wood and other fiber)	M	do	Semimanufactured	22.7	37.7	42.5	40.1	do	Raw material	do	64.3	Do.
411	Wall paper	S	do	Finished	41.4	55.1	49.7	52.4	do	Other	do		
	PRINTING, PUBLISHING, AND ALLIED INDUSTRIES												
501	Bookbinding and blankbook making	S	do	do	13.7	70.1	71.2	70.7	Local	Consumer	do		
503	Engraving (other than steel, copperplate, and wood), chasing, etc.	S	do	do	62.2	76.4	64.8	70.6	National	Other	do		
504	Engraving, steel, copperplate, and wood, and plate printing.	S	do	do	33.9	74.8	77.2	76.0	Local	Consumer	do		
506	Lithographing	S	do	do	14.2	67.8	62.7	65.3	do	do	do		
507	Photoengraving, not done in printing establishments.	S	do	do	13.3	85.8	83.5	84.7	do	do	do		
508	Printing and publishing, book, music, and job.	L	do	do	4.4	73.5	66.5	70.0	National	Other	Mixed		
510	Printing and publishing, newspaper and periodical.	L	do	do	20.3	77.5	74.6	76.1	Local	Consumer	do		
512	Stereotyping and electrotyping	S	do	do	36.0	81.6	86.1	83.9	do	do	Straight		
	CHEMICALS AND ALLIED PRODUCTS												
602	Ammunition and related products	S	do	do	92.0	54.7	61.2	58.0	National	Other	do		
603	Baking powder, yeast, and other leavening compounds.	S	do	do	57.1	56.8	55.5	56.2	do	do	do	95.6	Do.
604	Blacking, stains, and dressings	S	do	do	39.2	66.2	53.2	59.7	do	do	do		
605	Bluing	S	do	do	85.1	65.6	68.6	67.1	do	do	do		
606	Bone black, carbon black, and lamp black.	S	do	Semimanufactured	81.0	54.9	63.9	59.4	do	Raw material	Mixed	43.7	Do.
607	Candles	S	do	Finished	61.1	51.4	49.3	50.4	do	Other	Straight		
608	Chemicals, n. e. c.	M	do	Semimanufactured	37.1	50.7	50.7	50.7	do	do	Mixed	87.3	Poor.
609	Cleaning and polishing preparations	S	do	Finished	28.0	61.8	59.3	60.6	do	do	do		
610	Compressed and liquefied gases	S	do	do	79.2	72.2	73.3	72.8	Local	Consumer	Straight		
611	Drugs and medicines	M	do	do	23.4	64.9	71.4	68.2	National	Other	Mixed	89.2	Do.
612	Drug grinding	S	do	Semimanufactured	87.8	41.3	42.8	42.1	do	do	Straight		
613	Explosives	S	do	Finished	82.0	56.2	58.2	57.2	do	do	do		
614	Fertilizers	S	do	do	25.9	31.3	33.5	32.4	Regional	do	Mixed	72.2	Fair.
615	Fireworks	S	do	do	52.8	62.6	59.6	61.1	National	do	Straight		
616	Glue and gelatin	S	do	do	37.3	41.5	46.5	44.0	do	do	do		
617	Grease and tallow	S	do	do	28.7	34.8	39.6	37.2	do	do	do		
618	Ink, printing	S	do	do	49.0	55.0	46.2	50.6	do	do	do		
619	Ink, writing	S	do	do	83.0	56.6	58.2	57.4	do	do	do		
621	Mucilage, paste, and other adhesives	S	do	do	35.6	44.7	54.7	49.7	do	do	do		
622	Oil, cake, and meal, cottonseed	S	do	do	32.9	16.5	14.6	15.6	do	Raw material	do	37.4	Do.
623	Oil, cake, and meal, linseed	S	do	do	87.9	15.3	19.0	17.2	do	do	do	52.1	Adequate.
624	Oils, essential	S	do	Semimanufactured	98.3	42.8	26.5	34.7	do	Other	do		
625	Oils, n. e. c.	S	do	do	42.6	18.3	30.6	24.5	do	do	Mixed		
626	Paints, pigments, and varnishes	M	do	Finished	32.3	41.3	44.4	42.9	do	do	do	71.4	Do.
627	Insecticides and fungicides, etc.	S	do	do	16.6	(1)	54.4		do	do	do		
628	Perfumes, cosmetics, and other toilet preparations.	S	do	do	25.3	69.9	62.7	66.3	do	do	do		
629	Rayon and allied products	M	do	Semimanufactured	74.3	77.7	65.1	71.4	do	do	Straight	51.7	Do.
630	Salt	S	do	Finished	60.3	63.4	63.2	63.3	do	Raw material	do	104.5	Do.
631	Soap	S	do	do	73.5	41.9	41.7	41.8	do	Other	do	76.2	Do.
632	Tanning materials, natural dyestuffs, etc.	S	do	Semimanufactured	33.9	36.4	41.4	38.9	do	do	do	53.1	Poor.
633	Wood distillation and charcoal manufacture.	S	do	do	53.5	50.0	50.4	50.2	do	Raw material	do	72.5	Fair.
	PRODUCTS OF PETROLEUM AND COAL												
701	Coke-oven products	S	do	Finished	48.8	32.4	24.4	28.4	Regional	Other	Mixed	92.6	Adequate
702	Fuel briquettes	S	do	do	(3)	37.7	30.9	34.3	do	do	Straight		
703	Gas, manufactured	M	do	do	37.6	63.2	71.7	67.5	Local	Consumer	do		
704	Lubricating greases	S	do	do	26.0	43.1	42.4	42.8	National	Other	do		
705	Petroleum refining	M	do	do	38.2	23.0	19.6	21.3	do	do	do	61.7	Do.
	RUBBER PRODUCTS												
801	Boots and shoes, rubber	S	Semidurable	do	81.8	66.5	61.0	63.8	do	do	do		
802	Rubber goods, other than tires, etc.	M	do	do	19.2	53.1	53.8	53.5	do	do	do		
803	Rubber tires and inner tubes	M	do	do	80.9	44.2	40.5	42.4	do	do	do		
	LEATHER AND ITS MANUFACTURES												
901	Belting and packing, leather	S	do	do	39.9	42.0	46.3	44.2	do	do	do	87.5	Fair.
902	Boot and shoe cut stock and findings	S	do	Semimanufactured	32.2	19.4	27.4	33.1	do	do	do		
904	Boots and shoes other than rubber	L	do	Finished	26.0	46.7	48.2	47.5	do	do	Mixed	70.1	Do.
905	Gloves and mittens, leather	S	do	do	14.4	48.4	52 3	50.4	do	do	Straight		

TABLE I.—*Summary of data for manufacturing industries, 1935*—Continued

Industry number	Name of industry	Size code	Classification by durable, semidurable, and nondurable	Classification by semimanufactured and finished	Concentration index	Value added ratio 1929	Value added ratio 1935	Average value added 1929–1935	Type of market	Location determinant	Type of industry	Price ratio 1932/29	Reliability of price data in relation to Census classification
	LEATHER AND ITS MANUFACTURES—continued												
906	Leather goods, n. e. c.	S	Semidurable	Finished	19.1	49.9	49.7	49.8	National	Other	Mixed		
907	Leather: Tanned, curried and finished	M	do	Semimanufactured	22.5	29.8	35.8	32.8	do	do	Straight	59.4	Adequate.
908	Pocketbooks, purses, and card cases	S	do	Finished	8.4	48.5	48.2	48.4	do	do	do		
909	Saddlery, harness and whips	S	do	do	26.0	40.7	42.1	41.4	do	do	do	83.1	Fair.
910	Trunks, suitcases and bags	S	do	do	17.2	50.4	47.2	48.8	do	do	do	77.4	Adequate.
	STONE, CLAY, AND GLASS PRODUCTS												
1001	Asbestos products other than steam packing, etc.	S	Durable	do	63.1	54.8	55.0	54.9	do	do	do		
1002	Cement	S	do	Semimanufactured	29.9	64.4	64.3	64.4	Regional	do	do	67.1	Fair.
1003	China firing and decorating	S	do	Finished	[89.3]	58.8	49.1	54.0	National	do	do		
1004	Clay products (other than pottery) and nonclay refractories.	M	do	do	19.3	72.3	68.5	70.4	Regional	Other	Mixed	82.8	Poor.
1005	Concrete products	S	do	do	10.2	63.4	55.3	91.1	do	do	Straight	80.8	Do.
1008	Glass	M	do	do	44.9	66.0	61.3	63.7	National	do	do	91.4	Fair.
1010	Graphite, ground and refined	S	do	Semimanufactured	86.4	61.2	55.6	58.4	do	do	do		
1013	Lime	S	do	do	22.7	61.2	61.7	61.5	Regional	Raw material	do	86.2	Adequate.
1014	Marble, granite, slate and other stone	S	do	Finished	9.5	70.0	67.7	68.9	do	do	Mixed		
1015	Minerals and earths, ground and otherwise treated.	S	do	Semimanufactured	18.8	46.0	59.7	52.9	National	do	do		
1016	Mirrors and other glass products	S	do	Finished	55.4	50.9	57.6	54.3	do	Other	Straight		
1017	Pottery, including porcelain ware	M	do	do	19.0	75.6	73.1	74.4	do	do	Mixed	80.1	Fair.
1018	Sand-lime brick	S	do	do	63.1	68.2	58.9	63.6	Regional	do	Straight	78.6	Adequate.
1019	Statuary and art goods	S	do	do	34.6	79.6	77.0	78.3	National	do	do		
1020	Wall board and plaster, etc.	S	do	do	54.0	59.9	62.4	61.2	do	do	do	108.7	Do.
1021	Abrasive wheels, stones, paper, and cloth.	S	do	do	67.4	61.3	61.5	61.4	do	do	do		
1022	Gypsum products	S	do	do	76.1	(1)	66.5		do	Raw material	do		
	IRON AND STEEL AND THEIR PRODUCTS												
1101	Bolts, nuts, washers, and rivets	S	do	do	33.6	56.8	49.4	53.1	do	Other	do	81.8	Fair.
1102	Cast-iron pipe and fittings	S	do	do	42.4	57.3	60.9	59.1	do	do	do	82.9	Adequate.
1103	Cutlery and edge tools	S	do	do	36.3	81.2	75.4	78.3	do	do	Mixed	91.3	Fair.
1104	Doors, shutters, and window sash and frame, molding and trim, metal.	S	do	do	33.3	58.2	56.2	57.2	do	do	Straight		
1105	Files	S	do	do	85.8	78.4	75.7	77.1	do	do	do	100.0	Adequate.
1106	Firearms	S	do	do	81.9	81.3	73.9	77.6	do	do	do		
1107	Forgings, iron and steel	S	do	Semimanufactured	21.0	54.2	47.7	51.0	Regional	do	do		
1108	Galvanizing and other coating	S	do	do	37.1	48.6	61.4	55.0	National	do	do		
1109	Hardware, n. e. c.	M	do	Finished	36.4	66.7	61.1	63.9	do	do	Mixed		
1110	Blast-furnace products	S	do	Semimanufactured	66.0	20.9	19.8	20.4	do	do	Straight	76.5	Poor.
1112	Steel-works and rolling-mill products	L	do	do	49.3	43.4	42.5	43.0	do	do	do	82.3	Adequate.
1113	Nails, spikes, etc.	S	do	Finished	48.3	53.7	55.1	54.4	do	do	do	79.7	Fair.
1114	Plumbers' supplies, not including pipe or vitreous-china sanitary ware.	S	do	do	34.3	62.2	57.9	60.1	do	do	do	78.2	Do.
1115	Safes and vaults	S	do	do	84.8	67.0	63.7	65.4	do	do	do		
1116	Saws	S	do	do	63.4	69.6	69.6	69.6	do	do	do	95.1	Adequate.
1117	Screw-machine products and wood-screws.	S	do	do	22.2	62.8	57.8	60.3	do	do	do		
1118	Springs, steel except wire	S	do	Semimanufactured	53.6	45.6	39.4	42.5	do	do	do		
1119	Steam and hot-water heating apparatus and steam fittings.	M	do	Finished	38.7	68.2	66.5	67.4	Regional	do	do	56.1	Fair.
1120	Steel barrels, kegs, and drums	S	do	do	37.0	41.9	39.3	40.6	do	do	do	70.0	Adequate.
1121	Stoves and ranges and warm-air furnaces.	M	do	do	16.1	62.9	59.1	61.0	National	do	Mixed	83.7	Fair.
1122	Structural and ornamental metal work.	M	do	do	24.5	48.7	42.4	45.6	Regional	do	do		
1123	Tin cans and other tinware	M	Semidurable	do	80.8	34.3	29.5	31.9	National	do	do	91.7	Do.
1126	Tools	S	Durable	do	23.9	67.7	64.4	66.1	do	do	Straight	89.4	Do.
1126	Wire drawn from purchased rods	S	do	Semimanufactured	40.2	28.0	46.2	37.1	do	do	do		
1127	Wirework, n. e. c.	M	do	Finished	23.1	53.6	52.7	53.2	do	do	Mixed	87.5	Poor.
1128	Wrought pipe, welded and heavy riveted.	S	do	do	47.4	43.7	43.1	43.4	Regional	do	Straight	93.1	Fair.
1129	Stamped and pressed metal products, etc.	M	do	do	12.0	57.1	51.5	54.3	National	do	Mixed		
	NONFERROUS METALS AND THEIR PRODUCTS												
1201	Aluminum products	S	do	Semimanufactured	76.0	38.7	43.9	41.3	do	do	Straight		
1202	Clocks, watches, time-recording devices, etc.	S	do	Finished	37.7	74.7	63.2	69.0	do	do	Mixed		
1203	Collapsible tubes	S	Nondurable	do	52.8	39.6	41.6	40.6	do	do	Straight		
1204	Sheet-metal work, not specifically classified.	S	Durable	do	17.8	49.4	47.2	48.3	Local	Consumer	Mixed		
1205	Electroplating	S	do	Semimanufactured	12.4	79.8	74.9	77.4	National	Other	Straight		
1206	Fire extinguishers, chemical	S	do	Finished	77.1	51.1	53.7	52.4	do	do	do		
1207	Lighting equipment	S	do	do	24.4	60.1	53.4	56.8	Regional	do	do		
1208	Gold leaf and foil	S	do	Semimanufactured	75.5	51.4	46.2	48.8	National	do	do		
1209	Gold, silver, and platinum refining and alloying.	S	do	do	65.1	9.4	8.0	8.7	do	do	do		
1210	Jewelry	S	do	Finished	9.5	55.0	57.3	56.2	do	do	Mixed		
1211	Needles, pins, hooks and eyes, and snap fasteners.	S	do	do	63.4	71.9	71.7	71.8	do	do	Straight		
1212	Nonferrous metal alloys and nonferrous metal products.	M	do	Semimanufactured	37.8	34.0	44.1	39.1	do	do	Mixed	54.4	Fair.
1213	Silverware and plated ware	S	do	Finished	56.6	68.7	64.9	66.8	do	do	do		
1215	Smelting and refining, copper	S	do	Semimanufactured	(2)	7.5	10.8	9.2	do	Raw material	Straight		
1216	Smelting and refining, lead	S	do	do	(2)	12.1	11.1	11.6	do	do	do		
1217	Smelting and refining, nonferrous metals other than gold, silver, and platinum.	S	do	do	42.6	21.2	16.9	19.1	do	Other	do		
1218	Smelting and refining, zinc	S	do	do	64.0	37.1	37.0	37.1	do	do	do	48.5	Adequate.
1220	Tin and other foils	S	do	do	(2)	35.3	36.5	35.9	do	do	do		
1222	Watchcases	S	do	do	58.3	65.7	60.5	63.1	do	do	do		
1224	Jewelers' findings and materials	S	do	do	40.7	(1)	36.2		do	do	Mixed		

TABLE I.—*Summary of data for manufacturing industries, 1935*—Continued

Industry number	Name of industry	Size code	Classification by durable, semidurable, and nondurable	Classification by semimanufactured and finished	Concentration index	Value added ratio 1929	Value added ratio 1935	Average value added 1929–1935	Type of market	Location determinant	Type of industry	Price ratio 1932/29	Reliability of price data in relation to Census classification
	MACHINERY, NOT INCLUDING TRANSPORTATION EQUIPMENT												
1301	Agricultural implements	M	Durable	Finished	72.4	59.0	52.1	55.6	Other	Mixed	Straight	84.9	Adequate.
1302	Cash registers and adding, calculating, and card tabulating machines.	S	do	do	21.3	90.2	85.4	87.8	do	do	Mixed		
1303	Electrical machinery, apparatus and supplies	L	do	do	44.4	58.8	61.4	60.1	do	do	do		
1304	Engines, turbines, water wheels and windmills.	M	do	do	30.7	55.7	57.9	56.8	do	do	do		
1305	Machinery, n. e. c.	L	do	do	7.0	(1)	62.5		do	do	do		
1307	Machine tools	M	do	do	13.8	73.7	70.1	71.9	do	do	do		
1309	Pumps (hand and power) and pumping equipment.	S	do	do	22.7	59.3	59.4	59.4	do	do	do		
1310	Refrigerators and refrigerating and ice-making apparatus.	M	do	do	46.1	55.5	48.1	51.8	do	do	do		
1311	Scales and balances	S	do	do	54.8	75.5	71.7	73.6	do	do	Straight		
1312	Sewing machines and attachments	S	do	do	78.9	63.5	73.3	68.4	do	do	do	80.4	Do.
1313	Textile machinery and parts	S	do	do	29.4	70.1	66.4	68.3	do	do	do		
1314	Typewriters and parts	S	do	do	(2)99.3	88.3	74.5	81.4	do	do	do		
1315	Washing machines, wringers, driers, etc.	S	do	do	56.0	50.6	40.7	45.7	do	do	do	66.5	Do.
1318	Machine tool accessories and machinists' precision tools.	M	do	do	21.8	81.3	72.2	76.8	do	do	Mixed		
1319	Radio apparatus and phonographs	M	do	do	28.6	(1)	48.5		do	do	Straight		
1321	Boiler shops	S	do	do	22.1	(1)	50.8		do	do	do		
1322	Foundries	M	do	Semimanufactured	25.2	62.8	64.1	63.5	Local	Consumer	do	77.6	Do.
1324	Cranes, dredging, and excavating and roadbuilding machinery.	S	do	Finished	29.3	(1)	54.1		National	Other	Mixed		
1325	Printers' machinery	S	do	do	32.5	(1)	74.7		do	do	Straight		
1326	Machine shops	M	do	Semimanufactured	8.7	(1)	58.7		Local	Consumer	do		
	TRANSPORTATION EQUIPMENT, LAND, AIR, AND WATER												
1401	Aircraft and parts	S	do	Finished	53.9	61.5	69.1	65.3	National	Other	do		
1403	Carriages and sleds, children's	S	do	do	47.0	53.1	52.2	52.7	do	do	do		
1404	Carriages, wagons, sleighs, and sleds	S	do	do	45.8	48.5	46.2	47.4	Regional	do	do	84.0	Fair.
1405	Cars, electric and steam railroad	S	do	do	71.7	31.8	38.6	35.2	National	do	do		
1406	Locomotives	S	do	do	(3)	37.0	45.3	41.4	do	do	do		
1407	Motor-vehicle bodies and parts	L	do	Semimanufactured	69.4	44.3	35.4	39.9	do	do	Mixed		
1408	Motor vehicles, not including motorcycles.	L	do	Finished	87.3	35.5	24.1	49.8	do	do	Straight	88.9	Do.
1409	Motorcycles, bicycles, and parts	S	do	do	60.6	52.8	44.4	48.6	do	do	Mixed		
1410	Ship and boat building, steel and wooden, including repair work.	M	do	do	44.8	62.9	60.9	61.9	do	do	do		
	RAILROAD REPAIR SHOPS												
1501	Railroad repair shops, electric	S	Non-durable	do	32.3	61.7	64.0	62.9	do	do	Straight		
1502	Railroad repair shops, steam	L	do	do	37.4	58.1	54.2	56.2	do	do	do		
	MISCELLANEOUS INDUSTRIES												
1601	Artificial and preserved flowers and plants.	S	Semidurable	do	21.7	61.7	63.2	62.5	do	do	do		
1603	Artists' materials	S	do	do	52.3	56.1	49.7	52.9	do	do	do		
1604	Brooms	S	do	do	16.2	49.7	47.8	48.8	do	do	do		
1605	Brushes, other than rubber	S	do	do	33.3	52.4	55.3	54.1	do	do	do		
1606	Buttons	S	do	do	15.4	60.3	60.4	60.4	do	do	Mixed		
1607	Carbon paper and inked ribbons	S	Nondurable	do	35.6	53.8	49.0	51.4	do	do	Straight		
1608	Cigars	M	do	do	38.5	47.5	48.6	48.1	do	do	do	93.6	Adequate.
1609	Combs and hairpins	S	Semidurable	do	88.1	59.4	55.4	57.4	do	do	do		
1611	Dentists' equipment and supplies	S	Durable	do	51.6	50.7	60.3	55.5	do	do	Mixed		
1612	Miscellaneous articles n. e. c.	S	Semidurable	do	11.6	58.8	58.3	58.6	do	do	do		
1613	Feathers, plumes, and manufactures thereof.	S	do	do	35.1	66.2	62.8	64.5	do	do	Straight		
1614	Foundry supplies	S	do	do	52.0	47.1	47.1	47.1	do	do	do		
1615	Fur goods	S	do	do	2.6	36.6	38.4	37.5	do	do	do		
1616	Furs, dressed and dyed	S	do	Semimanufactured	27.3	53.7	69.5	61.6	do	do	do		
1617	Hairwork	S	do	Finished	48.5	68.2	62.0	65.1	do	do	do		
1618	Hand stamps and stencils and brands	S	Durable	do	18.1	74.7	71.5	73.1	do	do	do		
1620	Instruments, professional and scientific.	S	do	do	28.2	68.3	69.9	69.1	do	do	Mixed		
1622	Jewelry and instrument cases	S	do	do	34.8	62.3	63.0	62.7	do	do	Straight		
1623	Lapidary work	S	do	Semimanufactured	37.6	31.0	39.6	35.3	do	do	do		
1624	Mattresses and bed springs, n. e. c.	S	do	Finished	25.8	50.1	42.3	46.2	do	do	Mixed		
1625	Models and patterns	S	do	do	11.7	82.6	79.1	80.9	do	do	Straight		
1627	Musical instrument parts and materials: piano and organ.	S	do	Semimanufactured	41.4	64.3	61.6	63.0	do	do	do		
1628	Musical instruments and parts and material, n. e. c.	S	do	do	41.5	73.2	69.9	71.6	do	do	do		
1629	Musical instruments: organs	S	do	Finished	57.0	72.7	66.0	69.4	do	do	do		
1630	Musical instruments: pianos	S	do	do	51.1	55.6	55.8	55.7	do	do	do		
1631	Optical goods	S	do	do	62.3	70.8	67.0	68.9	do	do	do		
1632	Paving materials, blocks and mixtures.	S	do	do	48.9	53.6	44.2	48.9	Regional	do	do		
1633	Pencils, lead and crayons	S	Nondurable	do	44.9	61.3	58.7	60.0	National	do	do		
1634	Pens, fountain and stylographic; pen points, gold, steel, and brass.	S	Semidurable	do	70.4	66.5	67.7	67.2	do	do	do		
1636	Photographic apparatus and materials.	S	do	do	77.9	70.4	62.7	66.6	do	do	do		
1637	Pipes (tobacco)	S	do	do	62.2	68.5	68.5	68.5	do	do	do		
1638	Roofing, built-up and roll, etc.	S	Durable	do	42.8	40.7	43.6	42.2	do	do	do		
1640	Signs and advertising novelties	S	do	do	9.2	69.8	65.4	67.6	Local	Consumer	Mixed		
1641	Soda fountains and accessories	S	do	do	74.0	57.2	49.8	53.5	National	Other	Straight		
1642	Sporting and athletic goods	S	Semidurable	do	36.0	58.0	52.5	55.3	do	do	Mixed		
1644	Steam and other packing, etc.	S	do	do	46.9	52.5	51.6	52.1	do	do	Straight		

TABLE I.—*Summary of data for manufacturing industries, 1935*—Continued

Industry number	Name of industry	Size code	Classification by durable, semidurable, and nondurable	Classification by semimanufactured and finished	Concentration index	Value added ratio 1929	Value added ratio 1935	Average value added 1928–1935	Type of market	Location determinant	Type of industry	Price ratio 1932/29	Reliability of price data in relation to Census classification
	MISCELLANEOUS INDUSTRIES—con.												
1645	Surgical and orthopedic appliances and related products.	S	Durable	Finished	67.3	49.7	41.5	45.6	National	Other	Mixed		
1646	Theatrical scenery and equipment	S	do	do	29.9	61.9	61.3	61.6	do	do	Straight		
1647	Tobacco, (chewing and smoking) and snuff.	S	Nondurable	do	63.5	59.6	33.6	46.6	do	do	do	69.9	Fair.
1648	Toys, games, and playground equipment.	S	Durable	do	16.6	59.9	54.6	57.3	do	do	Mixed		
1649	Umbrellas, parasols, and canes	S	Semidurable	do	30.9	39.4	39.1	39.3	do	do	Straight		
1651	Window shades and equipment	S	do	do	34.0	46.5	52.6	49.6	do	do	do	70.6	Adequate.
1652	Cigarettes	M	Nondurable	do	89.7	26.9	20.5	23.7	do	do	do	111.0	Do.
1653	Beauty-shop equipment	S	Durable	do	39.6	(1)	59.9		do	do	do		
1654	Wool pulling	S	Nondurable	Semimanufactured	52.5	20.0	27.3	23.7	do	do	do		

[1] No comparable data.
[2] Concentration data not shown because of approximate disclosure of individual operations.
[3] Concentration data not shown because of unreliable data.
[4] Largest 8 enterprises, combined to avoid disclosure of individual operations.

APPENDIX 9.—DATA ON 200 LARGEST MANUFACTURING ENTERPRISES, 1935[1]

The following tables showing data for the 200 largest manufacturing enterprises are results of unpublished census compilations made available through the courtesy of the Bureau of the Census.

Special tabulations were prepared from the Census of Manufactures data for 1935 combining the activities of all establishments operating under a common ownership regardless of the industry in which the establishments were classified. This tabulation made possible the selection of the largest multiple-establishment enterprises, to which were added the largest single-establishment enterprises. From this combined list of large enterprises, ranked according to the value of products, data for the 200 largest manufacturing enterprises were tabulated.

In order to avoid the possibility of disclosure for individual enterprises in the figures presented, a more stringent procedure has been followed than is usually employed by the Census Bureau. Ordinarily in the

[1] Appendix 9 was prepared by Grace W. Knott.

TABLE I.—*Leading 200 manufacturing enterprises (based on value of products), grouped by fives and ranked according to value added by manufacture, 1935*

[Values are in thousands of dollars]

Groups	Number of establishments	Salaried employees		Wage earners		Cost of materials, containers, fuel, and purchased electric energy [3 4]	Value of products [3 4]	Value added by manufacture [3 4]	Total manpower [5]	Total wages and salaries
		Number [1]	Salaries [1 3]	Average for year [2]	Wages [2]					
1	296	42,861	87,877	448,383	621,575	2,966,246	4,325,631	1,359,385	491,244	709,452
2	919	29,845	61,896	160,358	190,862	1,433,456	1,972,036	538,580	190,203	252,758
3	134	13,918	29,663	119,031	148,392	576,516	921,490	344,974	132,949	178,055
4	135	9,011	19,998	65,666	75,950	460,855	730,888	270,033	74,677	95,948
5	219	13,017	29,868	73,415	97,402	432,011	670,376	238,365	85,432	127,270
6	154	4,488	9,807	71,824	78,071	423,162	652,640	229,478	76,312	87,878
7	67	6,923	13,551	72,360	81,807	240,816	440,862	200,046	79,283	95,358
8	185	5,024	10,825	46,786	63,302	262,210	449,676	187,466	51,810	74,127
9	129	6,262	13,468	71,582	82,697	275,941	449,449	173,508	77,844	96,165
10	637	5,550	10,974	28,836	31,781	290,252	449,089	158,837	34,386	42,755
11	89	7,649	17,823	35,329	49,500	263,117	412,447	149,330	42,978	67,323
12	160	7,258	14,072	47,801	56,480	199,909	343,687	143,778	55,059	70,552
13	64	4,215	8,971	27,174	34,377	317,797	452,515	134,718	31,389	43,348
14	220	2,557	4,896	22,546	25,629	285,936	401,093	115,157	25,103	30,525
15	67	4,657	10,104	27,060	31,847	96,395	204,271	107,876	31,717	41,951
16	163	3,213	6,256	22,262	27,904	108,087	209,749	101,662	25,475	34,160
17	85	3,398	7,851	21,668	25,071	310,870	408,698	97,828	25,066	32,922
18	124	5,831	11,578	33,760	38,615	228,769	323,411	94,642	39,591	50,193
19	102	2,551	5,650	22,403	29,130	130,678	221,758	91,080	24,954	34,780
20	70	3,136	6,979	24,950	25,688	190,133	277,733	87,600	28,086	32,667
21	109	3,551	7,500	41,396	37,616	249,510	334,036	84,526	44,947	45,116
22	30	3,801	6,992	15,797	19,692	102,005	183,234	81,229	19,598	26,684
23	40	2,441	5,290	15,184	18,401	86,451	162,918	76,467	17,625	23,691
24	71	3,076	6,452	26,340	32,618	58,622	133,222	74,600	29,416	39,070
25	65	2,467	5,247	18,636	20,572	75,042	147,333	72,291	21,103	25,819
26	42	2,541	5,122	26,786	27,963	133,550	202,762	69,212	29,327	33,085
27	178	2,687	5,768	22,964	26,205	100,357	167,743	67,386	25,651	31,973
28	63	2,778	5,515	18,817	19,639	52,478	117,454	64,976	21,595	25,154
29	37	2,109	4,377	25,157	25,783	63,397	125,825	62,428	27,266	30,160
30	187	3,524	8,748	22,542	29,848	38,073	98,439	60,366	26,066	38,596
31	78	1,995	4,551	24,260	30,818	61,136	120,525	59,389	26,255	35,369
32	64	2,514	5,826	16,796	21,171	154,515	213,012	58,497	19,310	26,997
33	28	2,500	5,399	16,836	18,839	49,862	107,144	57,282	19,336	24,238
34	27	3,172	7,877	24,029	25,419	73,179	128,806	55,627	27,201	33,296
35	143	2,398	4,356	21,315	17,842	90,700	144,781	54,081	23,713	22,198
36	46	3,312	6,134	21,116	22,813	44,250	97,543	53,293	24,428	28,947
37	179	2,321	4,601	13,460	14,240	61,705	113,312	51,607	15,781	18,841
38	56	3,184	6,255	23,164	27,555	107,834	158,032	50,198	26,348	33,810
39	112	2,235	4,443	15,966	17,917	58,424	107,555	49,131	18,201	22,360
40	23	2,073	3,891	9,653	11,457	37,494	85,167	47,673	11,726	15,348
Total for 200 enterprises	5,597	236,043	496,451	1,863,408	2,282,488	11,191,740	17,266,342	6,074,602	2,099,451	2,778,939
Total all manufacturing industries	169,111	1,076,073	2,291,692	7,378,845	7,544,338	26,263,494	45,759,763	19,496,269	8,454,918	9,836,030

[1] No data for employees of central administrative offices are included.

[2] This is an average of the numbers reported for the several months of the year. In calculating it, equal weight must be given to full-time and part-time wage earners (not reported separately to the Census Bureau) and for this reason it exceeds the number that would have been required to perform the work done in the industries if all wage earners had been continuously employed throughout the year. The quotient obtained by dividing the amount of wages by the average number of wage earners cannot, therefore, be accepted as representing the average wages received by full-time wage earners.

[3] Profits and losses cannot be calculated from the Census figures because no data are collected for certain expense items, such as interest, rent, depreciation, taxes, insurance, and advertising.

[4] The aggregates for cost of materials and value of products include large amounts of duplication due to the use of the products of some industries as materials by others. For the United States as a whole, this duplication amounts to about one-third of the gross value of products.

[5] Wage earners and salaried employees.

Source: Census of Manufactures 1935—Special tabulations.

census reports figures are given for three or more establishments when it can be done without disclosing approximations of data for individual concerns. In these tabulations figures are shown for groups of five enterprises only.

Table I shows the 200 enterprises ranked according to the value added by manufacture and grouped by fives; table II presents the data for these enterprises ranked according to total manpower (salaried employees plus wage earners) and grouped by fives; and table III shows the 200 enterprises ranked according to value of products and grouped by fives.

Data are shown for the following items:

1. Number of establishments.
2. Number of salaried employees.
3. Salaries.
4. Average number of wage earners.
5. Wages.
6. Cost of materials, containers, fuel and purchased electric energy.
7. Value of products.
8. Value added by manufacture.
9. Total manpower (salaried employees plus average number of wage earners).
10. Salaries and wages.

The terms are those employed by the Census Bureau in their published reports of the *Census of Manufactures, 1935*.

TABLE II.—*Leading 200 manufacturing enterprises (based on value of products), grouped by fives and ranked according to manpower, 1935*

[Values in thousands of dollars]

Groups	Number of establishments	Salaried employees		Wage earners		Cost of materials, containers, fuel, and purchased electric energy	Value of products	Value added by manufacture	Total manpower	Total wages and salaries
		Number	Salaries	Average for year	Wages					
1	293	36,044	75,133	456,919	630,240	3,033,960	4,334,238	1,300,278	492,963	705,373
2	916	31,762	61,266	173,972	206,859	1,452,034	2,020,740	568,706	205,734	268,125
3	240	12,939	26,618	128,265	147,037	392,018	671,770	279,752	141,204	173,655
4	92	9,519	20,747	102,441	120,668	424,370	671,547	247,177	111,960	141,415
5	71	11,132	25,571	78,136	99,959	230,492	478,614	248,122	89,268	125,530
6	217	9,786	19,972	71,545	81,579	398,634	598,931	200,297	81,331	101,551
7	60	13,048	30,322	56,589	75,894	175,481	379,998	204,517	69,637	106,216
8	135	4,613	10,199	59,234	58,173	571,728	785,510	213,782	63,847	68,372
9	168	5,644	10,894	53,441	56,943	293,120	442,165	149,045	59,085	67,837
10	209	5,350	11,157	46,821	55,931	113,918	236,074	122,156	52,171	67,088
11	93	4,658	12,085	42,176	55,868	197,740	348,659	150,919	46,834	67,953
12	417	5,160	9,834	39,165	45,286	264,673	382,172	117,499	44,325	55,120
13	101	3,899	7,777	39,228	48,055	93,862	171,863	78,001	43,127	55,832
14	126	3,413	6,946	36,948	33,909	302,513	403,215	100,702	40,361	40,855
15	127	3,810	8,603	34,427	42,954	217,701	297,988	80,287	38,237	51,557
16	74	3,828	8,101	33,416	34,301	414,576	490,735	76,159	37,244	42,402
17	58	6,189	12,252	30,199	40,676	114,218	235,038	120,820	36,388	52,928
18	40	6,597	12,753	28,730	36,276	186,659	289,246	102,587	35,327	49,029
19	57	2,780	6,173	30,734	34,446	53,224	139,822	86,598	33,514	40,619
20	128	3,648	6,907	27,374	30,702	188,056	263,480	75,424	31,022	37,609
21	137	4,456	10,706	24,498	36,758	81,330	174,767	93,437	28,954	47,464
22	38	2,331	4,564	23,740	24,182	127,372	191,233	63,861	26,071	28,746
23	110	2,638	5,569	22,090	23,303	346,654	475,982	129,328	24,728	28,872
24	42	3,181	8,082	20,867	24,625	97,062	162,823	65,761	24,048	32,707
25	203	2,909	6,017	20,102	22,710	79,529	160,283	80,754	23,011	28,727
26	92	2,495	5,645	19,491	21,760	58,211	122,296	64,085	21,986	27,405
27	37	3,989	7,895	17,163	19,296	138,130	211,640	73,510	21,152	27,191
28	72	2,991	6,267	17,209	19,991	187,922	267,101	79,179	20,200	26,258
29	129	3,558	6,564	15,649	18,653	78,985	131,162	52,177	19,207	25,217
30	57	2,784	6,409	15,585	18,594	82,595	157,833	75,238	18,369	25,003
31	38	2,898	6,966	14,782	16,045	69,182	132,677	63,495	17,680	23,011
32	113	2,122	3,993	14,478	15,666	69,866	148,868	79,002	16,600	19,659
33	90	3,790	7,555	11,818	15,745	156,616	245,465	88,849	15,608	23,300
34	280	2,469	5,651	11,982	15,238	115,376	197,042	81,666	14,451	20,889
35	214	2,097	4,008	10,382	11,325	85,350	155,493	70,143	12,479	15,333
36	106	1,883	4,600	9,528	11,350	80,251	153,727	73,476	11,411	15,950
37	92	1,427	3,076	8,603	11,350	56,027	168,098	112,071	10,030	14,426
38	48	1,842	4,140	6,836	9,472	97,767	165,302	67,535	8,678	13,612
39	35	864	2,368	6,184	7,852	28,923	95,407	66,484	7,048	10,220
40	42	1,500	3,066	2,661	2,817	35,615	107,338	71,723	4,161	5,883
Total for 200 enterprises	5,597	236,043	496,451	1,863,408	2,282,488	11,191,740	17,266,342	6,074,602	2,099,451	2,778,939
Total, all manufacturing industries	169,111	1,076,073	2,291,693	7,378,845	7,544,338	26,263,494	45,759,763	19,496,269	8,454,918	9,836,030

For explanation of footnotes, see table I, appendix 9.

Source: *Census of Manufactures 1935—Special Tabulations.*

TABLE III.—*Leading 200 manufacturing enterprises (based on value of products), grouped by fives and ranked according to value of products, 1935*

[Values in thousands of dollars]

Groups	Number of establishments	Salaried employees		Wage earners		Cost of materials, containers, fuel, and purchased electric energy	Value of products	Value added by manufacture	Total manpower	Total wages and salaries
		Number	Salaries	Average for year	Wages					
1	708	38,931	79,298	448,696	619,636	3,547,759	4,848,189	1,300,430	487,627	$698,934
2	428	21,668	43,296	136,536	149,993	1,153,926	1,588,720	434,794	158,204	193,289
3	173	10,648	25,071	95,272	117,055	800,301	1,172,687	372,386	105,920	142,126
4	159	10,636	20,346	70,665	89,094	685,900	894,493	208,593	81,301	109,440
5	132	8,834	18,865	70,567	89,406	525,376	737,105	211,729	79,401	108,271
6	114	6,431	12,607	57,283	65,584	503,738	659,225	155,487	63,714	78,191
7	471	14,303	31,927	40,848	56,342	344,637	599,752	255,115	55,151	88,269
8	152	9,611	19,116	83,351	94,283	332,574	571,338	238,764	92,962	113,399
9	65	6,447	13,679	60,796	78,225	323,573	502,967	179,394	67,243	91,904
10	216	4,322	8,927	59,266	60,009	272,491	427,149	154,658	63,588	68,936
11	158	7,123	15,840	61,350	76,776	219,239	380,965	161,726	68,473	92,616
12	317	4,424	9,348	29,162	33,244	249,790	358,332	108,542	33,586	42,592
13	280	4,200	8,540	37,334	46,035	224,817	340,063	115,246	41,534	54,575
14	145	7,354	18,530	29,021	38,350	189,045	310,665	121,620	36,355	56,880
15	45	3,893	7,950	46,510	53,070	130,791	287,409	156,618	50,403	61,020
16	48	2,994	6,926	22,378	30,424	139,877	261,117	121,240	25,372	37,350
17	299	3,272	6,628	17,992	21,668	149,526	237,950	88,424	21,264	28,296
18	74	4,251	10,494	14,917	21,609	95,848	226,762	130,914	19,168	32,103
19	104	2,182	4,774	26,975	28,307	125,204	216,807	91,603	29,157	33,081
20	101	3,169	5,909	33,565	30,545	106,040	205,068	99,028	36,734	36,454
21	68	2,186	4,946	25,985	29,822	120,693	196,943	76,250	28,171	34,768
22	40	9,818	19,664	33,525	42,624	84,345	185,120	100,775	43,343	62,288
23	56	2,431	4,476	30,249	31,122	89,508	174,589	85,081	32,680	35,598
24	73	2,086	4,182	26,644	28,772	87,198	163,189	75,991	28,730	32,954
25	94	2,040	4,216	21,052	20,498	68,722	154,680	85,958	23,092	24,714
26	75	2,115	4,844	23,789	23,408	85,899	148,775	62,876	25,904	28,252
27	76	3,809	7,773	17,835	21,672	54,781	140,367	85,586	21,644	29,445
28	35	2,156	4,207	19,563	22,258	57,860	130,045	72,185	21,719	26,465
29	85	4,428	8,491	21,419	26,784	46,061	120,430	74,369	25,847	35,275
30	99	1,854	4,324	21,584	26,297	50,569	114,443	63,874	23,438	30,621
31	27	2,339	4,601	19,888	19,774	41,815	109,636	67,821	22,227	24,375
32	69	2,783	5,972	23,255	23,092	53,086	107,083	53,997	26,038	29,064
33	78	1,926	4,742	23,545	28,499	38,134	102,793	64,659	25,471	33,241
34	78	3,473	8,367	17,149	22,210	35,123	99,008	63,885	20,622	30,577
35	34	2,758	5,296	18,335	21,364	39,211	96,050	56,839	21,093	26,660
36	61	3,165	6,326	23,875	28,360	30,786	91,778	60,992	27,040	34,686
37	109	3,638	8,467	12,592	15,709	30,112	87,588	57,476	16,230	24,176
38	28	2,964	7,069	17,794	22,236	23,011	79,797	56,786	20,758	29,305
39	204	2,378	4,352	13,314	17,085	20,840	73,844	53,004	15,692	21,437
40	19	3,023	6,065	9,532	11,247	13,534	63,421	49,887	12,555	17,312
Total for 200 enterprises	5,597	236,043	496,451	1,863,408	2,282,488	11,191,740	17,266,342	6,074,602	2,099,451	2,778,939
Total, all manufacturing industries	169,111	1,076,073	2,291,693	7,378,845	7,544,338	26,263,494	45,759,763	19,496,269	8,454,918	9,836,030

For explanation of footnotes, see table I, appendix 9.

Source: *Census of Manufactures 1935—Special Tabulations.*

APPENDIX 10.—THE 200 LARGEST NON-FINANCIAL CORPORATIONS IN 1935 AND THEIR ASSETS 1929–1936[1]

The first step in this study of corporate concentration is the bringing up to date of the figures published in 1930 by Berle & Means in *The Modern Corporation and Private Property*. Those figures covered the years through 1929. The information on assets of individual corporations was secured from the manuals issued yearly by Moody's Investment Service. When the present study was begun, the 1937 set of manuals was not yet complete. The 1936 manuals, giving information as of December 31, 1935, provided the latest data available.

The three 1936 manuals for nonfinancial companies—industrials, public utilities and railroads—were scanned, page by page, and the total asset figure for each balance sheet noted. All companies reporting assets of $50,000,000 and over were listed. In every case where a reserve for depreciation and/or depletion was listed on the liability side of the balance sheet, this reserve was deducted from the total asset figure, so that the figures used represent in all but a few instances total assets less depreciation. In the case of a few companies, the information supplied did not indicate whether such deduction had been made in reporting their total assets, and no reserve for depreciation appeared among the liabilities.

No company was listed if more than 50 percent of its voting stock was owned directly or indirectly by another company. In some cases, the information with regard to control provided by Moody's was supplemented by material filed with the Securities and Exchange Commission.

From the list of nonfinancial companies with assets of $50,000,000 and over the list of the 200 largest for 1935 was made up. A list of the 200 largest for 1932 was made by following the same procedure, beginning with a page-by-page scanning of the 1933 manuals, etc.

These two lists and the Berle & Means list for 1929 provided the names of 268 companies which appeared on the list of the 200 largest nonfinancial corporations in 1929, 1932, and 1935. A card was made for each company of the 268, listing the Moody's figure for total assets less depreciation for each year from 1929 to 1935, inclusive.

By sorting these cards in order of size for each year, a list of the 200 largest was secured for 1930, 1931, 1933, and 1934, and a figure for the total assets of the 200 largest for each of these years was arrived at. It was assumed that while a page-by-page examination of the manuals for these intervening years might reveal cases of error in the individual companies included on the list, the change in the total asset figure for the 200 would not be significant.

When the 1937 volumes of Moody's manuals became available, a list of the 200 largest nonfinancial corporations for 1936 was compiled by following the same procedure as for 1935 and 1932.

Total assets of the 200 largest nonfinancial corporations for the years from 1929 to 1936 are listed below:

	Millions of dollars
1929	78, 081. 7
1930	81, 754. 6
1931	81, 220. 4
1932	76, 854. 1
1933	75, 906. 2
1934	74, 649. 8
1935	74, 231. 8
1936	75, 375. 2

The marked drops in total assets between 1931 and 1932 and between 1933 and 1934 are accounted for largely by the fact that in each of these years a large group of companies wrote down their assets.

The difference between the total assets figure for 1929 derived above (78.1 billion dollars) and the figure for this year published by Berle & Means (81.0 billion dollars) is accounted for in great measure by the decision to exclude companies, included by Berle & Means, whose assets were principally foreign. If these companies are included, the total assets of the 200 largest corporations are as follows:

	Millions of dollars
1929	78, 909. 6
1930	82, 796. 8
1931	82, 148. 3
1932	77, 533. 5
1933	76, 586. 7
1934	75, 329. 7
1935	74, 843. 3
1936	76, 056. 9

Inclusion of these foreign-asset corporations would make the following change in the accompanying list for 1935:[2]

[1] Appendix 10 was prepared by Helen Hurd.

[2] If the foreign-asset corporations included by Berle & Means were omitted, their list and their figure for total assets would be changed as follows:

Foreign-asset corporations included by Berle & Means:	*Assets in millions*
American & Foreign Power Co	756. 0
International Match Corp	217. 6
Cuban Cane Products Co	101. 4
Total	1, 075. 0
Domestic corporations to be substituted:	
Continental Can Co	83. 2
American Metal Co., Ltd	82. 4
U. S. Smelting and Refining Co	81. 5
Total	246. 9

	Assets 1935
Foreign-Asset Corporation included:	
American & Foreign Power Co	750. 6
Domestic corporation displaced:	
Natural Gas Pipeline Co. of America	67. 3

The remaining difference between the above estimate of total assets of the 200 largest nonfinancial corporations in 1929 and the Berle & Means estimate is due to the fact that information relating to 1929 has become available since the publication of the Berle & Means estimate. The most important of such information is the reporting by Moody's of the depreciation account of the American Telephone & Telegraph Co.

A list of the 200 largest nonfinancial corporations in 1935 obtained by the method described above is given below:

TABLE I. *Two hundred largest nonfinancial corporations in the United States 1935*

[Asset figures obtained from Moody's in millions of dollars]

INDUSTRIALS	Assets
Standard Oil Co. (N. J.)	1, 894. 9
United States Steel Corporation	1, 822. 4
General Motors Corporation (estimated)	[1] 1, 491. 9
Socony-Vacuum Oil Co., Inc	789. 7
Standard Oil Co. (Ind.)	693. 5
Ford Motor Co	681. 6
Bethlehem Steel Corporation	673. 1
Anaconda Copper Mining Co	581. 5
E. I. DuPont de Nemours & Co	581. 1
Standard Oil Co. of California	579. 5
The Texas Corporation	473. 8
Gulf Oil Corporation	430. 2
General Electric Co	398. 1
International Harvester Co	365. 2
Shell Union Oil Corporation	358. 1
Consolidated Oil Corporation	331. 1
The Koppers Co. (estimated)	[2] 331. 0
Kennecott Copper Corporation	323. 6
Swift & Co	321. 4
Armour & Co. (Ill.)	317. 1
Republic Steel Corporation	297. 5
Union Carbide & Carbon Corporation	271. 1
The American Tobacco Co	264. 2
Pullman Incorporated	258. 6
Allied Chemical & Dye Corporation	252. 5
Sears, Roebuck & Co	234. 0
Aluminum Co. of America	223. 0
American Can Co	209. 1
Youngstown Sheet & Tube Co	207. 5
Westinghouse Electric & Manufacturing Co	194. 5
Chrysler Corporation	193. 5
F. W. Woolworth Co	192. 3
The Goodyear Tire & Rubber Co	192. 3
National Dairy Products Corporation	192. 0

[1] Assets of General Motors Acceptance Corporation, less value of total capital stock, plus assets of General Motors Corporation.

[2] Assets of Koppers Gas & Coke Co., plus assets of Eastern Gas & Fuel Associates, plus assets of Brooklyn Borough Gas Co., less the investment of Koppers Gas & Coke Co. in the latter two companies. Fuel Investment Associates, a 100-percent-owned subsidiary of The Koppers Co., owned 56.7 percent of the common stock of Eastern Gas & Fuel Associates. Another 21.1 percent was owned by Koppers Gas & Coke Co., also a wholly owned subsidiary of The Koppers Co. The Gas & Coke Co. owned more than 98 percent of the stock of Brooklyn Borough Gas Co.

TABLE I. *Two hundred largest nonfinancial corporations in the United States 1935*—Continued

INDUSTRIALS—continued	Assets
Great Atlantic & Pacific Tea Co. of America	189. 2
Phelps Dodge Corporation	185. 1
Jones & Laughlin Steel Corporation	185. 0
United Fruit Co	184. 9
Tide Water Associated Oil Co	182. 8
National Steel Corporation	180. 5
Singer Manufacturing Co	175. 8
Phillips Petroleum Co	174. 5
American Smelting & Refining Co	171. 7
Liggett & Myers Tobacco Co	170. 5
Montgomery Ward & Co., Inc	168. 7
Warner Bros. Pictures, Inc	168. 5
Eastman Kodak Co	168. 3
The Atlantic Refining Co	163. 0
United States Rubber Co	159. 3
American Radiator & Standard Sanitary Corporation	159. 1
The Pure Oil Co	157. 2
R. J. Reynolds Tobacco Co	153. 9
Union Oil Co. of California	151. 7
Glen Alden Coal Co	151. 4
Pittsburgh Coal Co	142. 2
Ohio Oil Co	139. 7
The Firestone Tire & Rubber Co	139. 3
Loew's Incorporated	128. 6
Hearst Consolidated Publications Inc	128. 6
The Procter & Gamble Co	127. 1
National Biscuit Co	124. 5
The B. F. Goodrich Co	124. 0
The American Rolling Mill Co	123. 0
The Borden Co	120. 1
Paramount Pictures, Inc	118. 9
Corn Products Refining Co	118. 7
S. S. Kresge Co	118. 5
Inland Steel Co	118. 3
The American Sugar Refining Co	117. 7
Wheeling Steel Corporation	113. 0
Pittsburgh Plate Glass Co	109. 7
Crucible Steel Co. of America	109. 1
Sun Oil Co	107. 1
National Lead Co	104. 0
Radio Corporation of America	102. 5
Crown Zellerbach Corporation	101. 3
Marshall Field & Co	97. 0
United Shoe Machinery Corporation	96. 4
General American Transportation Corporation	96. 3
Crane Co	95. 2
Continental Can Co., Inc	94. 6
Philadelphia & Reading Coal & Iron Corporation	93. 0
Continental Oil Co	91. 7
American Car & Foundry Co	91. 2
R. H. Macy & Co., Inc	90. 5
International Shoe Co	83. 2
The Lehigh Coal & Navigation Co	82. 0
Gimbel Bros., Inc	79. 9
Deere & Co	79. 7
Wilson & Co., Inc	79. 2
Climax Molybdenum Co	79. 1
Minnesota & Ontario Paper Co	78. 2
The Cudahy Packing Co	76. 4
Brown Co	76. 4
J. C. Penney Co	74. 4
St. Regis Paper Co	73. 7

TABLE I. *Two-hundred largest nonfinancial corporation in the United States 1935*—Continued

INDUSTRIALS—continued

	Assets
Allis-Chalmers Manufacturing Co	73. 2
U. S. Smelting, Refining & Mining Co	73. 0
Columbia Oil & Gasoline Corporation	71. 8
McKesson & Robbins, Inc. (Md.)	71. 4
American Woolen Co	71. 0
S. H. Kress & Co	70. 4
The Baldwin Locomotive Works	69. 7
The Cleveland Cliffs Iron Co	69. 5
American I. G. Chemical Corporation	69. 3
General Foods Corporation	67. 9
Interlake Iron Corporation	67. 4

PUBLIC UTILITIES

American Telephone & Telegraph Co	3,998. 3
Consolidated Edison Co. of New York, Inc	1,377. 0
Commonwealth & Southern Corp	1,173. 8
Associated Gas & Electric Properties (estimated)	[3] 1,125. 4
Cities Service Co	1,113. 2
The North American Co. (estimated)	[4] 1,042. 6
The United Gas Improvement Co	812. 9
American Power & Light Co	[5] 795. 9
International Paper & Power Co	[6] 771. 2
Public Service Corporation of New Jersey	694. 0
Electric Power & Light Corporation	[5] 651. 5
Niagara Hudson Power Corporation	648. 0
Pacific Gas & Electric Co	647. 3
Standard Gas & Electric Co	[7] 637. 3
Columbia Gas & Electric Corporation	584. 7
Interborough Rapid Transit Co	554. 8
National Power & Light Co	[5] 546. 8
The United Light & Power Co	537. 2
International Telephone & Telegraph Corporation	489. 7
American Gas & Electric Co	[5] 417. 7

[3] Associated Gas & Electric Properties is a Massachusetts trust controlling the Associated Gas & Electric Co. (assets $1,016,705,000), through the Associated Securities Corporation; and controlling the New England Gas & Electric Association (assets, $108,579,000), through Manson Securities. Included in the consolidated balance sheet of the Associated Gas & Electric Co. are the assets of the Rochester Gas & Electric Corporation. All the voting stock of this corporation is owned by companies in the Associated Gas & Electric System. Control of the corporation has been lodged since July 15, 1932, in a voting trust dominated by Chase National Bank and Guaranty Trust Co. of New York. The trust is to terminate in 1942 when control will revert to the Associated Gas & Electric Co. The assets for Rochester Gas & Electric Corporation for 1935 were $78,400,000.

[4] Assets of the North American Co., plus assets of the North American Light & Power Co., less the investment of the former in the latter.

[5] The four major domestic companies in the Electric Bond & Share Group are listed as individual corporations.

[6] Assets of International Paper & Power Co., plus assets of International Hydro-Electric System.

[7] As revised in statement to the Securities and Exchange Commission, June 22, 1935. The company's books showed total assets, less depreciation, of $801,392,000, on Dec. 31, 1934, and $793,257,000, on Dec. 31, 1936. Standard Gas & Electric Co. is actually controlled by the H. M. Byllesby Corporation, although Moody's credits the control to United States Electric Power Corporation. The latter elects only a minority of the board of Standard Gas & Electric Co.

TABLE I. *Two-hundred largest nonfinancial corporations in the United States 1935*—Continued

PUBLIC UTILITIES—continued

	Assets
Middle West Corporation (estimated)	[8] 400. 0
American Water Works & Electric Co	396. 7
Commonwealth Edison Co	[9] 376. 4
Stone & Webster, Inc	371. 7
Utilities Power & Light Corporation	367. 2
Southern California Edison Co., Ltd	360. 2
Western Union Telegraph Co	341. 6
The Detroit Edison Co	327. 2
Midland United Co. (estimated)	[10] 320. 0
Brooklyn-Manhattan Transit Corporation	300. 4
Public Service Co. of Northern Illinois	[9] 226. 1
Duke Power Co	213. 6
The Peoples Gas Light & Coke Co	211. 4
Pacific Lighting Corporation	194. 3
The Edison Electric Illuminating Co. of Boston	181. 8
Federal Water Service Corporation	176. 7
Consolidated Gas Electric Light & Power Co. of Baltimore	160. 1
Central Public Utility Corporation	[11] 151. 6
Lone Star Gas Corporation	134. 3
Long Island Lighting Co	127. 6
Hudson & Manhattan Railroad Co	125. 5
The Brooklyn Union Gas Co	121. 8
Chicago Railways Co	112. 0
Boston Elevated Railway Co	110. 6
Third Avenue Railway Co. (estimated)	[12] 107. 2
Portland Electric Power Co	95. 0
Community Water Service Co	84. 5
Jersey Central Power & Light Co	80. 1
Associated Telephone Utilities Co	79. 4
Philadelphia Rapid Transit Co	73. 0
St. Louis Public Service Co	72. 8

[8] Company was reorganized in November 1935 after going into receivership in 1932. Assets at the end of 1936 were reported as $444,187,000. Since no important additions or subtractions had been made in 1936, an estimate of $400,000,000 for 1935 and 1934 seems to be conservative.

[9] A report of the Federal Power Commission (National Power Survey, Principal Electric Utility Systems in the United States, Power Series No. 2, 1935) showing the corporate relationships of the principal electric utility systems in the United States in 1935 shows Commonwealth Edison Co. owning directly 28.5 percent of the voting stock of the Public Service Co. of Northern Illinois, and 30.0 percent through the Commonwealth Subsidiary Corporation, a wholly owned subsidiary. A prospectus filed with the Securities and Exchange Commission, however, shows no direct stockholding by Commonwealth Edison in the Public Service Co. of Northern Illinois. Hence both are included as separate corporations.

[10] Company went into hands of trustee July 7, 1934. No balance sheet was filed from this date until Dec. 31, 1936. On that date, combined assets of subsidiaries were $318,000,000. Estimate was made by interpolation between 1933 figure and 1936 figure.

[11] The figures here given are for the assets of Consolidated Electric & Gas Co., a wholly owned subsidiary of Central Public Utility Corporation. The assets of the latter for 1935 were $50,328,000, of which $50,258,000 were investments in Consolidated Electric & Gas Co.

[12] Total assets of Third Avenue Railway Co. less depreciation, plus total assets of subsidiary companies, less investment of Third Avenue Railway Co. in "securities of associated companies," less "advances to associated companies," and less "miscellaneous investments."

TABLE I—*Two hundred largest nonfinancial corperations in the United States 1935*—Continued

PUBLIC UTILITIES—continued

	Assets
National Fuel Gas Co	72. 4
The Baltimore Transit Co	67. 7
Natural Gas Pipeline Co. of America	67. 3

RAILROADS

The Pennsylvania R. R. Co. (estimated)	[13] 2, 863. 0
The New York Central R. R. Co. (estimated)	[13] 2, 356. 0
Alleghany Corporation (estimated)	[14] 1, 739. 0
Southern Pacific Co	1, 677. 7
The Great Northern Ry. Co. (estimated)	[15] 1, 152. 1
Northern Pacific Ry. Co (estimated)	[15] 1, 131. 2
Baltimore & Ohio R. R. Co	1, 118. 3
The Atchison, Topeka & Santa Fe Railway Co	1, 091. 6
Union Pacific R. R. Co	1, 069. 6
Atlantic Coast Line R. R. Co. (estimated)	[16] 786. 5
Chicago, Milwaukee, St. Paul and Pacific R. R. Co	699. 5
The Illinois Central R. R. Co	656. 8
Missouri Pacific R. R. Co	617. 3
Chicago & Northwestern Ry. Co	598. 2

[13] To allow for unconsolidated subsidiaries, in 1929 the total asset figure given in Moody's was increased by a small percentage. The 1935 figure was increased by the same percentage.

[14] Total assets, less reserve for depreciation, of New York, Chicago & St. Louis R. R. Co.; The Wheeling & Lake Erie Ry. Co.; Erie R. R. Co.; Chesapeake & Ohio Ry. Co.; and the Pere Marquette Ry. Co.

[15] Total assets, plus 50 percent of total assets of Chicago, Burlington & Quincy R. R. Co., and 50 percent of total assets of Spokane, Portland & Seattle Ry. Co. These two companies are controlled jointly by the Great Northern Ry. Co. and Northern Pacific Ry. Co.

[16] Assets of Atlantic Coast Line R. R. Co., less depreciation, plus assets of Louisville & Nashville R. R. Co., less depreciation.

TABLE I.—*Two hundred largest nonfinancial corperations in the United States 1935*—Continued

RAILROADS—continued

	Assets
Southern Railway Co	587. 1
The New York, New Haven, & Hartford R. R. Co	535. 9
Reading Co. (estimated)	[17] 495. 3
Chicago, Rock Island & Pacific Railway Co	481. 2
Norfolk & Western Ry. Co	467. 9
St. Louis–San Francisco Railway Co	417. 9
Wabash Railway Co	318. 6
Boston & Maine R. R. Co	295. 4
Seaboard Air Line Ry. Co	272. 1
Missouri-Kansas-Texas R. R. Co	249. 6
The Delaware & Hudson Co	235. 8
The Denver & Rio Grande Western Railroad Co	233. 1
Lehigh Valley Railroad Co	217. 0
The Western Pacific R. R. Corporation (estimated)	[18] 196. 8
The Delaware, Lackawanna & Western Railroad Co	176. 4
Western Maryland Ry. Co	168. 1
The Virginian Ry. Co	153. 4
Chicago Great Western R. R. Co	141. 3
Kansas City Southern Ry. Co	131. 3
Florida East Coast Ry. Co	123. 2
Chicago Union Station Co	91. 4
Chicago & Western Indiana R. R. Co	88. 9
Chicago & Eastern Illinois Ry. Co	80. 2
Terminal Railroad Association of St. Louis	[19] 77. 0
Minneapolis & St. Louis R. R. Co	72. 0

[17] Assets of Reading Co., less depreciation, plus assets of Central R. R. Co. of New Jersey, less investment of Reading Co. in affiliated companies.

[18] Total assets of Western Pacific R. R. Corporation, less investment in Western Pacific R. R. Co., plus total assets of Western Pacific R. R. Co., less depreciation.

[19] Owned by 15 roads which use the terminals in St. Louis.

APPENDIX 11.—ASSETS AND INCOME OF 200 LARGEST NONFINANCIAL AND 50 LARGEST FINANCIAL CORPORATE UNITS[1]

PART I—NONFINANCIAL CORPORATIONS

1. Methods and Procedures

Definitions

In the basic data for this study, a corporation is simply a corporate unit filing an income-tax return with the Bureau of Internal Revenue. In some years corporations were permitted to submit consolidated income-tax returns, and hence income statements and balance sheets, which included all subsidiaries, 95 percent or more of whose voting stock was held by the parent or other 95 percent-controlled subsidiaries of the same parent. All such subsidiaries whose returns were consolidated with those of their parents are herein called *consolidated subsidiaries*.

When the term *200 corporations* is used in this study what is intended is really 200 corporate units of control, and consolidated subsidiaries are therefore included. In considering units of control, all subsidiaries controlled should be included. The Interstate Commerce Commission considers the ownership of over 50 percent of the voting stock a sufficient condition to call a corporation a subsidiary. The Securities and Exchange Commission is legally permitted to call any company an "actively controlled" subsidiary if there is any evidence that actual control is exercised, whether 50 percent of the voting stock is held by the parent or not. In practice, the Securities and Exchange Commission ordinarily uses the term to apply to companies 50 percent or more of whose voting stock is held by one corporate unit of control. All such companies, however, do not appear upon their records. In this report all companies in which a majority of the voting stock is held by any corporation or combination of corporations in or controlled by the 200 largest are called subsidiaries. If the income tax return of such a company is not consolidated with that of its parent it is called an unconsolidated subsidiary. A corporation, then, is a corporate unit of control and is composed of a parent corporation, its consolidated subsidiaries, if any, and its unconsolidated subsidiaries which meet the majority control criterion. Actually there may be, and undoubtedly often are, other actively controlled corporations in the unit, but this criterion does not class them as subsidiaries. They are, therefore, excluded from the corporation, as here defined, and so from the totals for the 200 largest.

It should be emphasized that in employing this definition of subsidiary there is no intention to imply that a given proportion of stock ownership carries with it actual control. Majority stock ownership is an indication of ability to control, but is evidence neither of the minimum amount of ownership necessary for control nor yet of complete domination. Defining subsidiary in this way carries no implications of complete ownership. A parent may actually control the policies of a subsidiary even if it owns much less than 50 percent of its assets. Majority stock ownership is assumed to be evidence of ability to control, not of actual control, nor of complete ownership.

From practical considerations of statistical procedure and with a limited amount of time and clerical assistance available, all unconsolidated subsidiaries with total assets under 10 million dollars in 1933 were eliminated from the tabulation of the 200, no matter what percent of the voting stock was owned by the parent. The consolidated subsidiaries were included, however, since their assets could not be isolated from those of the parent corporation in the consolidated returns.

For 1929 a corresponding minimum for total assets was derived, the figure being close to 14 million dollars. All unconsolidated subsidiaries below the minimum were discarded. The details of the method of arriving at the corresponding minimum for 1929 and its interpretation are to be found in section 3.

Derivation of Lists of 200 Largest Corporations in 1929 and 1933

The lists of the 200 largest corporations were determined independently for 1929 and 1933. They were chosen on the basis of total assets shown by corporate returns filed with the Bureau of Internal Revenue plus total assets of all unconsolidated subsidiaries with assets of more than the minimum described in the previous section. Pure holding companies and financial companies were excluded, unless they were subsidiaries of parents on the list.

While this report uses total assets minus taxable investments as a general measure of size,[2] the lists were

[1] Appendix 11 was prepared by Ezra Glaser and Betti Goldwasser; some preliminary work done by Robert L. Smith. While all of the data in this appendix have been compiled directly from income-tax records except where specifically stated otherwise, the returns to be compiled have been selected and classified on the basis of independent information derived from other sources so that the compiled figures are nowhere available in the published or unpublished records of the Bureau of Internal Revenue.

[2] See section 4 for the significance of this measure of size.

compiled on the basis of total assets (including taxable investments). The use of total assets results in the inclusion of some companies which would have been too small had total assets less taxable investments been the criterion of choice. Certain other companies, whose taxable investments formed a smaller proportion of their total assets, were excluded from the 200 because their total assets were not large enough. Therefore, the list compiled is not actually the 200 largest measured by total assets less taxable investments.[3]

The procedure for deriving the lists was as follows:

For 1929, the returns of nonfinancial corporations with assets of 50 million dollars or more were inspected, and the companies arranged in order of size. This list was supplemented by comparisons with lists of large companies from other sources, such as the Interstate Commerce Commission and Moody's *Manuals*. This cross-comparison acted as a dragnet for corporations which submitted no balance sheets, and consequently no figure for total assets, to the Bureau of Internal Revenue. The 250 largest corporations, measured by total assets, were chosen for further inspection. (Consolidated subsidiaries were included, by necessity, in these corporations.)

The same sources were used to check all nonfinancial corporations with assets over $14,023,000 for which Bureau of Internal Revenue data were available, to discover subsidiaries of the 250 largest corporations with total assets over the minimum. A compilation of total assets for each of the 250 largest corporations and its unconsolidated subsidiaries with assets over $14,023,000 was made. From this, the 200 largest corporations were selected, measuring size by the sum of the assets of each parent and its unconsolidated subsidiaries with assets over the minimum.

Essentially the same procedure was used for 1933, except that the minimum for unconsolidated subsidiaries was set at 10 million dollars (10 million dollars bearing the same relation to total assets in 1933 as $14,023,000 did to total assets in 1929), and the records of the Securities and Exchange Commission were used to supplement the other sources consulted.

An important exceptional case[4] should be noted. One large corporation, with assets of over three billion dollars, according to Moody's *Manuals*, did not submit a balance sheet in 1933. The procedure of searching through Bureau of Internal Revenue materials for corporations with large total assets failed to reveal a balance sheet for this corporation, although the corporation had submitted a return. Since the company did file a balance sheet in 1929, its absence from the 1933 list was conspicuous. Estimates of its 1933 balance-sheet items had been made by the Bureau of Internal Revenue by combining the balance-sheet items of its constituent companies, and these figures were used, as omission of the company and its subsidiaries would have caused a serious distortion in the total asset item for the 200 largest corporations—a difference of over 3 percent.

Comparison of the 1929 and 1933 lists of the 200 largest corporate units with each other as well as with the lists of the largest corporate units compiled directly from Moody's *Manuals* and discussed in Appendix 10 did not disclose any other case in which a very large corporation failed to file a balance sheet in the years mentioned. If a small company, near the lower limits set by the total assets criterion, failed to submit a balance sheet but was on a list compiled from other sources, it made little difference if it was omitted and another small company substituted. The discrepancy which may have been introduced in this way is undoubtedly smaller than the error which would have been involved in an estimate of the missing balance-sheet items for companies which did not submit them.

The lists therefore include:

(*a*) The 200 largest nonfinancial parent corporations in each year, chosen on the basis of total assets as shown by the consolidated returns, plus total assets of all unconsolidated subsidiaries with total assets over the minimum;

(*b*) Subsidiaries of the 200 largest parent corporations whose returns are consolidated with those of their parents. (Parent companies were allowed to submit consolidated returns for all subsidiaries over which they had 95 percent or more control, measured by ownership of voting stock, but this was not compulsory. As a result, some subsidiaries subject to 95–100 percent control are probably not included. Subsidiaries thus consolidated may be of any size, and the majority have smaller total assets than the minimum);

(*c*) Subsidiaries, showing assets greater than the minimum, which did not submit consolidated returns. Control of these by the parents ranged from 50 to 100 percent.

The procedure employed probably understates the 200 largest corporations, as no unconsolidated subsidiaries were included in the 200 unless balance sheets were submitted for them. That several such omissions were made is obvious from the most cursory search of Moody's *Manuals*. Other omissions may have been made because the information on stock control in the sources consulted did not reveal all the corporations which should have been classified as subsidiaries by the present definition. Where the subsidiary status of a company was doubtful, the error is deliberately on the side of conservatism. While the influence of missing companies is impossible to estimate accurately, the errors of omission were estimated to be very small.

[3] See p. 282 for an appraisal of the error thus introduced.

[4] A further exceptional case, in both 1929 and 1933, is that of a company which existed on paper only, representing a proposed merger through exchange of securities, of two large existing companies and their subsidiaries. Actually, the merger was never completed; for the purposes of this tabulation, however, the two independent companies were considered as active subsidiaries of an inactive parent (the paper company) which had no income statement or balance sheet apart from its subsidiaries. The two companies were operated as a unit.

From the discussion above it is evident that there may be one or two more or less than 200 corporations on the list. The former is likely if a corporation has been counted as a subsidiary which should have been considered independent. The latter is likely if a corporation has been counted as independent when it should have been considered a subsidiary of one of the corporations on the list. The error thus introduced is of slight importance. The ten smallest companies on the list contributed only 1.0 percent to total assets of the 200 in 1929, and 0.9 percent in 1933.[5] Omission or addition of one or two corporations at the very bottom of the list would therefore subtract or add a very small percentage of the total assets, and this percentage would be well within the range of error of the study. Similarly, if unconsolidated subsidiaries have been omitted because of missing balance sheets or insufficient information in the sources consulted, the choice of the 200 companies may have been affected. Again, the companies affected would probably be near the borderline, and the error would be insignificant. A rough guess puts the error due to these sources at something less than 2 percent, probably in the direction of understatement, as classification of the companies as subsidiaries was made as conservative as possible.

Classification by Industrial Group

The breakdown of the list of corporations into industrial groups can be compared with Bureau of Internal Revenue classification, as follows:

All nonfinancial corporations include corporations classified in *Statistics of Income* under the heading "Aggregate", less those classified under "Finance".

Manufacturing is classified by the same definition as "Total manufacturing" in *Statistics of Income*.

Transportation and other public utilities are classified by the same title in *Statistics of Income*. This classification has been broken down for the present tabulation according to the Bureau of Internal Revenue's subclassifications, "Transportation and related activities" and "Other public utilities", as shown in table 14 of the 1933 *Statistics of Income*.[6]

"Other nonfinancial corporations" include corporations classified in *Statistics of Income* under the headings "Agriculture and related industries," "Mining and quarrying", "Construction", "Trade", "Service", and "Nature of business not given."

The correspondence with the Bureau of Internal Revenue industrial classification was maintained for the calculation of concentration ratios.

Consolidated subsidiaries are, of course, subject to the industrial classification of their parents. This is true both for the tabulations of the 200 corporations and for *Statistics of Income*. Unconsolidated subsidiaries were tabulated for the 200 according to the industry of their parents. This is not true of the Bureau of Internal Revenue practice; for tax purposes these subsidiaries are independent and hence are classified independently. This difference in classification distorts the concentration ratios of the industrial groups by an unknown amount. No evidence of change in bias could be found over the period 1929–33.

The number of parent corporations in the 200 included in each industrial group in each year, and the corresponding information for unconsolidated subsidiaries, are shown in table I together with the percentage distribution of the corporations by industrial group.

TABLE I.—*Number and percentage distribution of returns of parents and unconsolidated subsidiaries tabulated for the 200 largest nonfinancial corporations, by industrial groups, 1929 and 1933* [1]

	200 largest nonfinancial corporations		Manufacturing		Transportation and other public utilities		Transportation		Other public utilities		Other nonfinancial	
	Number	Percent of 200	Number	Percent of 200	Number	Percent of 200	Number	Percent of 200	Number	Percent of 200	Number	Percent of 200
1929												
Parents	200	100	82	41.0	92	46.0	49	24.5	43	21.5	26	13.0
Unconsolidated subsidiaries	258	100	44	17.1	201	77.9	77	29.8	124	48.1	13	5.0
All returns	458	100	126	27.5	293	64.0	126	27.5	167	36.5	39	8.5
1933												
Parents	200	100	78	39.0	96	48.0	48	24.0	48	24.0	26	13.0
Unconsolidated subsidiaries	280	100	53	18.9	218	77.9	96	34.3	122	43.6	9	3.2
All returns	480	100	131	27.3	314	65.4	144	30.0	170	35.4	35	7.3

[1] The 200 largest corporations in 1929 and 1933 are not identical. See preceding page.

The Items Tabulated

The items tabulated have been defined, where necessary, in footnotes to the tables. They are comparable to items in *Statistics of Income*. Further description follows:

(*a*) *Inventories.*—Although *Statistics of Income* shows a total for inventories for all corporations submitting balance sheets, the total does not represent comparable contributions from the various industrial groups, because of the different usage of the word "inventory" by them. Except for one classification, the term primarily signifies inventory to be sold. For transportation and other public utilities, the term is used primarily to represent inventory for use (actually working capital in the form of fuel supplies, reserves of equipment, etc.). For transportation and other public utilities it represents an asset item which is not comparable in economic significance to the same asset item for other industrial classifications.

(*b*) *Taxable investments.*—This item is comparable to the item "Investments other than tax-exempt" in *Statistics of Income*. Stocks of corporations were in-

[5] Four other items were investigated and showed substantially the same percent contribution for the 10 smallest corporations.

[6] The tables in *Statistics of Income* which were used to derive the concentration ratios did not have this breakdown. The necessary totals were taken from office worksheets of the Bureau of Internal Revenue.

cluded in this classification because the securities themselves were not tax-exempt. Dividends paid on these stocks to individuals were taxable. However, the tax laws did not require dividends to be included in the taxable income of a corporation in the period studied. Hence, "Taxable investments" includes all investments except the obligations of political units, although actually corporations did not pay income tax on dividends received from corporate stocks.

(*c*) *Miscellaneous assets.*—Miscellaneous assets is, for the 200 and for *Statistics of Income*, a remainder, derived by subtracting the specific asset items from total assets. When the balance-sheet statements are given in detail by a company, miscellaneous assets represents primarily good will and patent rights, and certain liquid assets not elsewhere listed. However, for those corporations which submit sketchy balance sheets, miscellaneous assets may contain in whole or in part asset items which should be reported elsewhere in the balance sheet. The figures tabulated are comparable to *Statistics of Income* for this item; the sole difficulty lies in interpreting the totals for the item.

(*d*) *Total assets less taxable investments.*—As has been mentioned, this item is considered more indicative of the assets controlled by a corporation than total assets. Total assets is subject to a heavy inflation because of security holdings of related corporations, but the worst part of this duplication of assets is removed by subtracting taxable investments. Further comment will be found in section 4.

(*e*) *Receipts.*—The item tabulated as receipts represents the combination of gross sales (where inventories are an income-determining factor) with receipts from other operations. This seems desirable because of the arbitrary division of these two items in *Statistics of Income*. According to Bureau of Internal Revenue practice, income of transportation and other public utilities, and of finance companies, is never classified as gross sales, no matter what the source, even when it results from sales of inventory. The difficulty of comparing receipts for the various industrial groups when the rigid Bureau of Internal Revenue practice is followed makes it advisable to sum the two items.

(*f*) *Income tax.*—It should be remembered that excess-profits taxes were not paid before 1933, and are therefore not included with income tax before that year. For 1933, the Federal income tax and the excess-profits tax were summed, as both are taxes on income. The tax thus paid is paid on an income larger than that revealed in the item tabulated as statutory net income less statutory net deficit in *Statistics of Income*.[7] The result of subtracting the deficit is to conceal the amount of income actually taxed.

(*g*) *Interest received from tax-exempt investments.*—The relation of this item to the actual holdings of tax-exempt investments as shown by balance sheets is not clear. The balance-sheet item represents the estimated values of holdings as of December 31. The interest recorded is an income item covering the whole year, and does not, of course, necessarily correspond to security holdings of a given date. It is, however, an absolute and measurable quantity, unlike the value of holdings of tax-exempt investments. The totals for the latter depend on the basis used for valuation.

Two other items included in the accompanying tables were derived from items recorded on tax returns and in *Statistics of Income*. A measure of the income from operations was derived by combining compiled net profit and interest paid, and subtracting from the result income tax, interest received on taxable investments, interest received on tax-exempt investments, and cash dividends received. This amounts to taxable (or statutory) net income, which is not tabulated, plus interest paid, less income tax, less interest received on taxable investments.

A measure of corporate savings was also derived. This equaled compiled net profit, less income and excess-profits taxes paid, less cash dividends paid. This item is frequently negative, showing that dividends were paid out of reserves, not out of current income.

Tabulation of the Bureau of Internal Revenue Data

The income-statement and balance-sheet items were tabulated for 1929 and 1933 for the 200 largest nonfinancial corporations by industrial group, and for their unconsolidated subsidiaries, arranged by the industrial group of the parent. Totals were computed for each item for each industrial group, and these were summed to give the total for the 200.

It should be emphasized that the records from which the tabulations were made were compiled from data available in the Statistical Section of the Income Tax Unit of the Bureau of Internal Revenue, which were compiled from unaudited returns. Tables in *Statistics of Income* are compiled from the same records, so there is no lack of comparability from this source. However, should the returns of large corporations be more likely to be subjected to change after auditing than the returns of smaller corporations, it becomes apparent that the totals from audited returns would show a much greater percentage change from the present totals for the 200 than for all nonfinancial corporations. No quantitative estimate of the shift can be made. In this case, it is probable that the concentration ratios for certain income items would be raised.

[7] The accompanying tables include compiled net profit or loss, which differs from statutory net income in that it includes interest on tax-exempt investments and dividends received. Statutory net income less statutory net deficit may easily be computed from the accompanying tables by subtracting tax-exempt interest and dividends received from compiled net profit or loss.

The totals from the tabulations for both years are presented in table II, for the 200 largest nonfinancial corporations, and in table III, for the 200, by industrial group.

Adjustment of the Tabulated Totals for Unconsolidated Subsidiaries with Total Assets Below the Minimum

It was explained above that all unconsolidated subsidiaries below certain sizes were intentionally omitted from the tabulations. From the present definition of subsidiary it is obvious that this omission understates the totals for the 200 largest corporations in both 1929 and 1933. Therefore, a method of adjusting for this omission was devised. A study of the frequency distributions of all unconsolidated subsidiaries tabulated by total asset class was made for total assets and capital assets in 1933. However, no definite configuration for the ends of the frequency curves could be inferred with certainty. The average of the next few asset classes above the minima for 1929 and 1933 was therefore used as a basis for estimating the totals for various items. The rest of the items were adjusted a similar percentage.[8]

These adjustments were expressed as increments and entered on tables II and III along with the adjusted and unadjusted totals.

Adjustment of the Bureau of Internal Revenue Balance-Sheet Items for Corporations not Submitting Balance Sheets

All corporations which submit income-tax returns file income statements. Hence the totals for income statement items for all nonfinancial corporations in *Statistics of Income* are complete. However, it is not compulsory to file balance sheets, and some companies do not. *Statistics of Income* totals for balance-sheet items must therefore be adjusted for this understatement. For 1931–33 income-statement items are available for all corporations submitting returns and all corporations submitting balance sheets. It was assumed that the percentage understatement for any balance-sheet item was the same as the percentage understatement (determined from *Statistics of Income*) for a related income-statement item. Special assumptions had to be made for transportation corporations and other public utilities for all years, and for all balance-sheet items in 1929 and 1930. These are fully discussed in section 2 of this appendix.

Derivation and Interpretation of the Concentration Ratios

The statistic designed to measure the concentration of control is called the *concentration ratio*. It is simply the ratio of the total for the 200 largest corporations to the total for all corporations expressed as a percent. The ratio is computed after the adjustments for missing balance sheets and for unconsolidated subsidiaries have been made. It was computed for all years, all items, and all industrial groups shown on the basic tables.

It should be remembered that this statistic measures not the concentration of ownership but the concentration of control in the 200 largest corporate units of the various income-statement and balance-sheet items. In some cases the concentration ratio is properly more than 100. This is true of net-income and profit figures where both negative and positive figures go into the totals; a concentration ratio greater than 100 shows that the 200 largest made more net income or profit than all corporations. Similarly in these items some negative concentration ratios appear. These arise from the application of the elementary rules for algebraic signs and they indicate that the total for the 200 largest has a different sign than the total for all corporations. The 200 report a loss, while all corporations as a group report a gain, or vice versa.

In some cases the concentration ratio is more than 100 in an item where negative figures are not possible. This inconsistency appears in cash dividends received and miscellaneous assets, and it indicates inaccurate data. Neither of these items yields concentration ratios of importance; they are used in the derivation of other figures whose concentration ratios are of significance. In each case the inaccurate figures contributed only a small percent to the total for the derived figures. Hence a moderate error in small items was translated into a small or insignificant error in a large item. Where a concentration ratio is more than 100 in an item having no negative values it is likely that the true concentration ratio is very large and a moderate error in the ratio suffices to raise it over 100 and give the appearance of extraordinary inaccuracy.

Where the concentration ratio is equal to 100 and the figures used to compute the ratio were small it is obvious that the ratio is equal to 100 plus or minus rounding errors. For example, where the estimated ratio comes out 10/10 (equal to 100 percent), the true ratio must be somewhere between 90.5 percent and 100 percent.

The concentration ratios in the two parts of table II are comparable; the relative concentration of control for the 200 largest corporations may be compared for 1929 and 1933. However, in table III the two parts are not comparable as measures of the degree of concentration for the several industrial groups in 1929 and 1933. In each case the totals for industrial groups are for all companies in that group on the list of the 200 largest. These numbers are not the same for 1929 and 1933. Table V was compiled to show the change in the degree of concentration by industrial groups for a

[8] See section 3.

constant number of corporations in each industrial group. This table is discussed below.

The Derivation of Table IV

Three important asset items were studied for the years 1930–32, as well as 1929 and 1933. Total assets, capital assets, and total assets less taxable investments were estimated for the intervening years from the tabulated totals for 1929 and 1933.

A chain index was computed for the period 1929–33 from data showing the percent change from year to year of a list of identical companies in each industrial group. This index was applied to the tabulated totals for each of the three items for each of the four industrial groups. The resulting estimates by industrial groups were summed to get the estimates for the 200 largest. Because of the inadequacy of the sample for taxable investments in the intervening years this item was not estimated separately. Total assets less taxable investments were estimated directly, using the same chain indexes as were used to estimate total assets.

The lists of the 200 largest corporations for the three interpolated years were never compiled, but the estimated totals are presented in table IV. The totals for 1929 and 1933 were adjusted for the omission of "small" unconsolidated subsidiaries before the interpolation was made. Consequently there is an implicit adjustment for the estimates of the intervening years, ranging between the adjustments of the end years.

The adjustment for missing balance sheets is made as described above. The concentration ratios are presented in the table and they show the movement over the 5-year period. The details of the interpolation are discussed in section 5 of this appendix.

The Derivation of Table V

It was pointed out in the section on the interpretation of the concentration ratios that the ratios for the industrial groups were not comparable for the 2 years shown in table III because of the changing number of corporations in the 200 largest that fell into each industrial group. This difficulty was overcome by deriving a new set of totals for 1929 and 1933 in which the same number of companies was used for each industrial group.[8a] This was done for the same three asset items as were shown in table IV.

These totals were corrected for the omission of unconsolidated subsidiaries with total assets below the minima for the 2 years. The same adjustment increment as was used for the industrial groups in table III was assumed to apply to these new tabulated totals. In other words, it was assumed that the subtraction of the few smallest corporations in each industrial group would not diminish the contribution of the unconsolidated subsidiaries with total assets below the minimum figure.

The adjusted totals by industrial groups for all corporations filing balance sheets, are the same figures as appear in table III. The concentration ratios are presented in table V and they are a measure of the degree of relative concentration for a constant number of corporations in each industrial group. They are comparable for the 2 years shown and they give an indication of the change in concentration of control within the industrial groups. As some corporations had to be discarded, these concentration ratios are not comparable with those in table III. The totals for the industrial groups in table III add up to the totals in table II. The totals for the industrial groups in table V do not add up to the totals for the 200 largest corporations in tables II and IV.

Accuracy of the Results

The general accuracy of the absolute figures and the concentration ratios cannot be stated in rigid terms. It is impossible to estimate the "standard error" or "likely error" quantitatively. All that can be said is that the evidence indicates that the error is less than a given amount. Most of the errors are not subject to a quantititative estimate at all. Some are beyond doubt "insignificant" compared to the others and have been labeled as such. The direction of errors is not always determinate. It cannot always be stated with any certainty whether a given set of errors is compensating or additive. Therefore the appraisal will be rough and the results will not be expressed in rigorous mathematical terms.

A few sources of error are of particular importance and will be discussed separately:

1. Errors in making up the list: The disagreement among the several sources used to determine the complete structure of each of the 250 largest corporations (from which the lists of 200 were derived) points to error in the lists of unconsolidated subsidiaries. In every case the indeterminate cases were decided on the side of understatement, so the totals for the 200 largest corporations and the concentration ratios are probably understated throughout. It is possible that these errors might run over 2 percent, but no reliable estimate of the size of the error can be made. There is no reason to believe that the error in 1929 is larger or smaller than that for 1933. Many of the doubtful cases occurred in both years and were treated identically so there seems to be little cause for bias over the period, in the totals for the 200 or in the concentration ratios.

2. Errors arising from the treatment of unconsoli-

[8a] The largest multiple of five that could be used. The actual companies were not necessarily identical for the 2 years. The discarded companies were the smallest ones in the industrial groups in the respective years.

dated subsidiaries with total assets below the minimum: The adjustments for this understatement were of the order of about one percent and were practically the same for 1929 and 1933. The adjustment was crudely estimated because the frequency distributions exhibited by unconsolidated subsidiaries were somewhat erratic.[9] There must have been some subsidiaries below the rather large minima in both years so the adjustment could not overstate as much as one percent. It would seem extravagant to estimate the error of overstatement from this cause at more than one-quarter of one percent of the adjusted totals for either year. On the other hand, there is no such well-defined limit to the possible understatement of the adjustment. There might have been a great number of corporations with total assets between one million and 10 or 14 millions of dollars. This circumstance might have raised the totals and hence the concentration ratios as much as 2 percent. There is no reason to expect that the totals for 1929 should be more or less in error than those for 1933.

3. Errors arising from adjustment for returns with missing balance sheets: There seemed to be little chance for the adjustment for missing balance sheets to introduce any significant error into the concentration ratios for the 200 largest corporations. The adjustments for 1929 and 1930 were derived indirectly and are less likely to be accurate than those for the later years. There is, however, reason to believe that the adjustment applied to the separate industrial groups involved a greater percentage error than in the case of the totals for all nonfinancial corporations. The adjustments for the transportation corporations and the other public utilities were estimated as were the adjustments for all industrial groups in 1929 and 1930.[10] The order of these adjustments was about 2 percent, although they range from 0.2 percent to 7.0 percent for different items. Taxable investments might be subject to 2-percent or possibly 3-percent error in 1929. On the other hand, it is unlikely that capital assets, total assets, or tax-exempt investments have as much as one-half of one percent error from this adjustment. Obviously, this error does not affect the totals for income items.

4. Errors arising from the criterion used to determine size: The use of total assets less taxable investments as a measure of size of corporations, instead of total assets, involved two ways of understating the totals for the 200, and the concentration ratios. The actual selection of the 200 largest corporations was made on the basis of size of total assets rather than total assets less taxable investments. It would be an unusual coincidence indeed if the 200 corporations which had the largest total assets were the same as the 200 corporations which had the largest total assets less taxable investments. Further, it should be pointed out, the elimination of *all* taxable investments seriously overcorrects,[11] since some of these investments are securities of corporations outside the corporate unit. The value of taxable investments is in the range of 25 percent of the total assets. Therefore an overstatement of some 10 percent (somewhat liberal, seemingly) in the taxable investments being subtracted would bring about a discrepancy of approximately 3½ percent in the total assets less taxable investments item.

5. Errors arising from the change in classification of subsidiaries: For the purpose of tabulation by industrial groups subsidiaries were classified by the industrial group of their parent, whereas the Bureau of Internal Revenue classifies each corporate return independently. The figures for some of the 200 largest corporations include assets of subsidiaries which belong to industrial groups other than those of their parents, hence the numerator and the denominator of the concentration ratio are not quite comparable as to industrial group. Naturally this error does not apply to the concentration ratios for the 200 largest corporations as a unit, except insofar as financial corporations may have been included as subsidiaries of the nonfinancial corporations in the 200.

6. Errors arising from interpretation of items affected by the consolidation of balance sheets: While there is no error involved in the computations or procedures, it is difficult to define precisely what some items mean. Some items were subject to double counting,[11] because complete consolidation was impossible, and there was no way of defining exactly what the totals represented. There might be a significant difference between the totals in the tables and corresponding totals for the "200 largest consolidated balance sheets", and this could be called the "error". This cannot be measured even approximately but it might well run up to 10 percent.

7. Errors in reading of the Bureau of Internal Revenue records: In some cases the records from which the tabulations were made were faded and worn so there was some danger of misreading figures for individual companies. The error here is not possible to estimate but is unlikely to be significant.

More detailed statements of the handling of certain errors are made in the other sections of this appendix. Special attention should be called to the remarks on the relative accuracy of the various items, industrial groups, and years.

No estimate of the combined error due to all causes can be attempted, but the general size of the likely error can be inferred roughly from the list enumerated above.

[9] See pp. 292, 282.
[10] See section 2.
[11] See section 4.

TABLE II.—*Derivation of the concentration ratios, and the totals for asset items and selected income-statement items for the 200 largest nonfinancial corporations, 1929 and 1933*

PART I, 1929

	200 largest nonfinancial corporations			All nonfinancial corporations			Concentration ratio: 200 largest to all nonfinancial corporations (percent)
	Tabulated totals	Adjustment for unconsolidated subsidiaries with total assets under $14,023,000 [a]	Adjusted totals	Corporations [1] submitting balance sheets	Adjustment of balance-sheet items for corporations not submitting balance sheets [5]	Totals with balance-sheet items adjusted	
	Millions of dollars						
ASSET ITEMS							
Cash [2]	2,886	29	2,915	7,900	161	8,061	36.2
Inventories	5,548	55	5,603	20,990	324	21,314	26.3
Capital assets less reserve for depreciation and depletion	57,497	854	58,351	98,627	2,002	100,629	58.0
Tax-exempt investments [3]	1,001	10	1,011	2,958	30	2,988	33.8
Taxable investments	13,710	78	13,788	21,824	601	22,425	61.5
Notes and accounts receivable	16,773	156	16,929	22,681	488	23,169	38.5
Miscellaneous assets [4]				20,074	769	20,843	
Total assets [5]	97,415	1,182	98,597	195,054	4,375	199,429	49.4
Total assets [5] less taxable investments	83,705	1,104	84,809	173,230	3,774	177,004	47.9
INCOMES-TATEMENT ITEMS							
Gross receipts from sales and services [6]	38,924	365	39,289			138,987	28.3
Interest received from taxable investments	538	3	541			1,066	50.8
Interest received from tax-exempt investments [3]	64	1	65			151	43.0
Cash dividends received	1,260	8	1,268			1,621	78.2
Interest paid	1,552	16	1,568			2,759	56.8
Taxes other than income tax [7]	884	9	893			1,729	51.6
Income tax [8]	415	4	419			971	43.2
Depreciation and depletion	1,703	22	1,725			4,117	41.9
Cash dividends paid	3,619	36	3,655			6,593	55.4
Compiled net profit or loss [9]	5,251	42	5,293			9,323	56.8
Income derived from operations [10]	4,526	42	4,568			8,273	55.2
Corporate savings [11]	1,217	2	1,219			1,759	69.3

PART II, 1933

	200 largest nonfinancial corporations			All nonfinancial corporations			Concentration ratio: 200 largest to all nonfinancial corporations (percent)
	Tabulated totals	Adjustment for unconsolidated subsidiaries with total assets under $10,000,000	Adjusted totals	Corporations [1] submitting balance sheets	Adjustment of balance-sheet items for corporations not submitting balance sheets	Totals with balance-sheet items adjusted	
	Millions of dollars						
ASSET ITEMS							
Cash [2]	2,553	23	2,579	5,984	134	6,118	42.2
Inventories	3,829	38	3,867	13,458	170	13,628	28.4
Capital assets less reserve for depreciation and depletion	59,200	749	59,949	91,246	2,110	93,356	64.2
Tax-exempt investments [3]	795	8	803	2,840	15	2,855	28.1
Taxable investments	17,668	86	17,754	24,687	1,046	25,733	69.0
Notes and accounts receivable	5,444	54	5,498	14,600	319	14,919	36.9
Miscellaneous assets [4]	5,153	14	5,167	9,916	1,196	11,112	46.5
Total assets [5]	94,642	975	95,617	162,731	4,990	167,721	57.0
Total assets [5] less taxable investments	76,975	888	77,863	138,044	3,944	141,988	54.8
INCOME-STATEMENT ITEMS							
Gross receipts from sales and services [6]	21,793	192	21,985			73,423	29.9
Interest received from taxable investments	359	2	361			563	64.1
Interest received from tax-exempt investments [3]	64	1	65			129	50.4
Cash dividends received	413	2	415			545	76.1
Interest paid	1,612	16	1,628			2,448	66.5
Taxes other than income tax [7]	893	9	902			1,716	52.6
Income tax [8] and excess-profits tax	140	1	141			387	36.4
Depreciation and depletion	1,612	21	1,633			3,449	47.3
Cash dividends paid	1,510	15	1,525			2,552	59.8
Compiled net profit or loss [9]	527	6	533			140	380.7
Income derived from operations [10]	1,163	16	1,179			964	122.3
Corporate savings [11]	−1,123	−10	−1,133			−2,799	40.5

For footnotes, see p. 289

TABLE III–A.—*Derivation of the concentration ratios, and the totals for asset items and selected income-statement items for manufacturing corporations in the 200 largest nonfinancial corporations and all manufacturing corporations, 1929 and 1933*

PART I, 1929

	82 largest manufacturing corporations			All manufacturing corporations			Concentration ratio: 82 largest to all manufacturing corporations (percent)
	Tabulated totals	Adjustment for unconsolidated subsidiaries with total assets under $14,023,000 [4]	Adjusted totals	Corporations [1] submitting balance sheets	Adjustment of balance-sheet items for corporations not submitting balance sheets [5]	Totals with balance sheet items adjusted	
	Millions of dollars						
ASSET ITEMS							
Cash [2]	1,355	14	1,369	3,847	39	3,886	35.2
Inventories	3,879	39	3,918	12,614	114	12,728	30.8
Capital assets less reserve for depreciation and depletion	11,640	163	11,803	28,235	226	28,461	41.5
Tax-exempt investments [3]	827	8	835	1,973	4	1,977	42.2
Taxable investments	4,516	25	4,541	7,181	87	7,268	62.5
Notes and accounts receivable	5,627	89	5,716	9,572	96	9,668	34.4
Miscellaneous assets [4]				6,860	66	6,926	
Total assets [5]	27,844	338	28,182	70,282	632	70,914	39.7
Total assets [5] less taxable investments	23,327	314	23,641	63,101	545	63,646	37.1
INCOME-STATEMENT ITEMS							
Gross receipts from sales and services [6]	22,729	213	22,942			70,118	32.7
Interest received from taxable investments	235	1	236			459	51.4
Interest received from tax-exempt investments [3]	35	0	35			92	38.0
Cash dividends received	427	3	430			584	73.6
Interest paid	279	3	282			712	39.6
Taxes other than income tax [7]	239	2	241			617	39.1
Income tax [8]	201	2	203			544	37.3
Depreciation and depletion	835	11	846			2,018	41.9
Cash dividends paid	1,556	16	1,572			3,159	49.8
Compiled net profit or loss [9]	2,430	19	2,449			5,081	48.2
Income derived from operations [10]	1,811	16	1,827			4,114	44.4
Corporate savings [11]	673	1	674			1,378	48.9

PART II, 1933

	78 largest manufacturing corporations			All manufacturing corporations			Concentration ratio: 78 largest to all manufacturing corporations (percent)
	Tabulated totals	Adjustment for unconsolidated subsidiaries with total assets under $10,000,000	Adjusted totals	Corporations [1] submitting balance sheets	Adjustment of balance-sheet items for corporations not submitting balance sheets	Totals with balance-sheet items adjusted	
	Millions of dollars						
ASSET ITEMS							
Cash [2]	1,288	13	1,301	3,084	25	3,109	41.8
Inventories	2,604	26	2,630	8,084	65	8,149	32.3
Capital assets less reserve for depreciation and depletion	11,104	140	11,244	24,384	171	24,555	45.8
Tax-exempt investments [3]	605	6	611	1,983	4	1,987	30.7
Taxable investments	6,743	33	6,776	9,499	76	9,575	70.8
Notes and accounts receivable	2,900	29	2,929	6,764	54	6,818	43.0
Miscellaneous assets [4]	957	23	980	3,955	67	4,022	24.4
Total assets [5]	26,201	270	26,471	57,753	462	58,215	45.5
Total assets [5] less taxable investments	19,458	237	19,695	48,254	386	48,640	40.5
INCOME-STATEMENT ITEMS							
Gross receipts from sales and services [6]	11,465	101	11,566			34,213	33.8
Interest received from taxable investments	117	1	118			203	58.1
Interest received from tax-exempt investments [3]	41	0	41			80	51.3
Cash dividends received	106	1	107			160	66.9
Interest paid	209	2	211			460	45.9
Taxes other than income tax [7]	257	3	260			645	40.3
Income tax [8] and excess-profits tax	60	1	61			207	29.5
Depreciation and depletion	703	9	712			1,633	43.6
Cash dividends paid	596	6	602			1,170	51.5
Compiled net profit or loss [9]	305	3	308			444	69.4
Income derived from operations [10]	190	2	192			254	75.6
Corporate savings [11]	−351	−4	−355			−933	38.0

For footnotes, see p. 289.

TABLE III–B.—*Derivation of the concentration ratios, and the totals for asset items and selected income-statement items for transportation and other public utility corporations in the 200 largest nonfinancial corporations and all transportation and other public utility corporations, 1929 and 1933*

PART I, 1929

	92 largest transportation and other public utility corporations			All transportation and other public utility corporations			Concentration ratio: 92 largest to all transportation and other public utility corporations (percent)
	Tabulated totals	Adjustment for unconsolidated subsidiaries with total assets under $14,023,000 [a]	Adjusted totals	Corporations [1] submitting balance sheets	Adjustment of balance-sheet items for corporations not submitting balance sheets [b]	Totals with balance-sheet items adjusted	
	Millions of dollars						
ASSET ITEMS							
Cash [2]	1,257	13	1,270	1,634	49	1,683	75.5
Inventories	939	9	948	1,119	0	1,119	84.7
Capital assets less reserve for depreciation and depletion	43,191	653	43,844	52,204	1,358	53,562	81.9
Tax-exempt investments [3]	101	1	102	287	21	308	33.1
Taxable investments	8,425	49	8,474	9,326	345	9,671	87.6
Notes and accounts receivable	10,200	53	10,253	3,974	119	4,093	74.4
Miscellaneous assets [4]				9,248	442	9,690	
Total assets [5]	64,113	778	64,891	77,792	2,334	80,126	81.0
Total assets [5] less taxable investments	55,688	729	56,417	68,466	1,989	70,455	80.1
INCOME-STATEMENT ITEMS							
Gross receipts from sales and services [6]	11,900	112	12,012			14,834	81.0
Interest received from taxable investments	268	2	270			333	81.1
Interest received from tax-exempt investments [3]	23	0	23			29	79.3
Cash dividends received	779	5	784			832	94.2
Interest paid	1,202	12	1,214			1,452	83.6
Taxes other than income tax [7]	587	6	593			694	85.4
Income tax [8]	177	2	179			222	80.6
Depreciation and depletion	736	10	746			1,011	73.8
Cash dividends paid	1,757	18	1,775			2,093	84.8
Compiled net profit or loss [9]	2,434	19	2,453			2,763	88.8
Income derived from operations [10]	2,389	22	2,411			2,799	86.1
Corporate savings [11]	500	−1	499			448	111.4

PART II, 1933

	96 largest transportation and other public utility corporations			All transportation and other public utility corporations			Concentration ratio: 96 largest to all transportation and other public utility corporations (percent)
	Tabulated totals	Adjustment for unconsolidated subsidiaries with total assets under $10,000,000	Adjusted totals	Corporations submitting balance sheets	Adjustment of balance-sheet items for corporations not submitting balance sheets	Totals with balance-sheet items adjusted	
	Millions of dollars						
ASSET ITEMS							
Cash [2]	1,041	10	1,051	1,299	65	1,355	77.6
Inventories	638	6	644	741	0	741	86.9
Capital assets less reserve for depreciation and depletion	45,080	570	45,650	50,141	1,504	51,645	88.4
Tax-exempt investments [3]	85	1	86	186	7	193	44.6
Taxable investments	10,142	49	10,191	11,138	824	11,962	85.2
Notes and accounts receivable	1,878	19	1,897	2,210	113	2,323	81.7
Miscellaneous assets [4]	3,923	−8	3,915	3,343	1,009	4,352	90.0
Total assets [5]	62,787	647	63,434	69,049	3,522	72,571	87.4
Total assets [5] less taxable investments	52,646	597	53,243	57,911	2,698	60,609	87.8
INCOME-STATEMENT ITEMS							
Gross receipts from sales and services [6]	7,543	66	7,609			9,769	77.9
Interest received from taxable investments	222	1	223			231	96.5
Interest received from tax-exempt investments [3]	18	0	18			19	94.7
Cash dividends received	292	2	294			311	94.5
Interest paid	1,349	13	1,362			1,553	87.7
Taxes other than income tax [7]	575	6	581			678	85.7
Income tax [8] and excess-profits tax	67	1	68			93	73.1
Depreciation and depletion	780	10	790			1,012	78.1
Cash dividends paid	832	8	840			1,000	84.0
Compiled net profit or loss [9]	182	2	184			244	75.4
Income derived from operations [10]	932	11	943			1,143	82.5
Corporate savings [11]	−717	−7	−724			−849	85.3

For footnotes, see p. 289.

TABLE III–C.—*Derivation of the concentration ratios, and the totals for asset items and selected income-statement items for transportation corporations in the 200 largest nonfinancial corporations and all transportation corporations, 1929 and 1933*

PART I, 1929

	49 largest transportation corporations			All transportation corporations			Concentration ratio: 49 largest to all transportation corporations (percent)
	Tabulated totals	Adjustment for unconsolidated subsidiaries with total assets under $14,023,000 [a]	Adjusted totals	Corporations [1] submitting balance sheets	Adjustment of balance-sheet items for corporations not submitting balance sheets [b]	Totals with balance-sheet items adjusted	
	Millions of dollars						
ASSET ITEMS							
Cash [2]	646	6	652	(12)	(12)	(12)	(12)
Inventories	460	5	465	(12)	(12)	(12)	(12)
Capital assets less reserve for depreciation and depletion	24,125	338	24,463	(12)	(12)	(12)	(12)
Tax-exempt investments [3]	71	1	72	(12)	(12)	(12)	(12)
Taxable investments	2,754	15	2,769	(12)	(12)	(12)	(12)
Notes and accounts receivable Miscellaneous assets [4]	6,712	57	6,769	(12)	(12)	(12)	(12)
Total assets [5]	34,768	422	35,190	(12)	(12)	(12)	(12)
Total assets [5] less taxable investments	32,014	407	32,421	(12)	(12)	(12)	(12)
INCOME-STATEMENT ITEMS							
Gross receipts from sales and services [6]	6,939	65	7,004			9,193	76.2
Interest received from taxable investments	120	1	121			157	77.1
Interest received from tax-exempt investments [3]	17	0	17			21	81.0
Cash dividends received	250	2	252			239	(13)
Interest paid	640	6	646			778	83.0
Taxes other than income tax [7]	341	3	344			406	84.7
Income tax [8]	92	1	93			116	80.2
Depreciation and depletion	221	3	224			390	57.4
Cash dividends paid	574	6	580			741	78.3
Compiled net profit or loss [9]	1,099	9	1,108			1,230	90.1
Income derived from operations [10]	1,260	11	1,271			1,475	86.2
Corporate savings [11]	433	2	435			373	116.6

PART II, 1933

	48 largest transportation corporations			All transportation corporations			Concentration ratio: 48 largest to all transportation corporations (percent)
	Tabulated totals	Adjustment for unconsolidated subsidiaries with total assets under $10,000,000	Adjusted totals	Corporations [1] submitting balance sheets	Adjustment of balance-sheet items for corporations not submitting balance sheets	Totals with balance-sheet items adjusted	
	Millions of dollars						
ASSET ITEMS							
Cash [2]	507	5	512	669	34	703	72.8
Inventories	280	3	283	358	0	358	79.1
Capital assets less reserve for depreciation and depletion	24,748	313	25,061	26,301	789	27,090	92.5
Tax-exempt investments [3]	40	0	40	114	5	119	33.6
Taxable investments	4,806	23	4,829	4,834	358	5,192	93.0
Notes and accounts receivable	458	5	463	598	30	628	73.7
Miscellaneous assets [4]	2,054	−10	2,044	1,275	526	1,801	(13)
Total assets [5]	32,893	339	33,232	34,149	1,742	35,891	92.6
Total assets [5] less taxable investments	28,087	316	28,403	29,315	1,384	30,699	92.5
INCOME-STATEMENT ITEMS							
Gross receipts from sales and services [6]	3,681	32	3,713			5,222	71.1
Interest received from taxable investments	77	0	77			80	96.2
Interest received from tax-exempt investments [3]	8	0	8			10	80.0
Cash dividends received	77	0	77			75	(13)
Interest paid	672	7	679			744	91.3
Taxes other than income tax [7]	269	3	272			321	84.7
Income tax [8] and excess-profits tax	15	0	15			26	57.7
Depreciation and depletion	191	2	193			330	58.5
Cash dividends paid	141	1	142			193	73.6
Compiled net profit or loss [9]	−150	−2	−152			−207	73.4
Income derived from operations [10]	345	5	350			346	101.2
Corporate savings [11]	−306	−3	−309			−426	72.5

For footnotes, see p. 289.

TABLE III–D.—*Derivation of the concentration ratios, and the totals for asset items and selected income statement items for public utility corporations other than transportation in the 200 largest nonfinancial corporations and all public utility corporations other than transportation, 1929 and 1933*

PART I, 1929

	43 largest public utility corporations			All public utility corporations			
	Tabulated totals	Adjustment for unconsolidated subsidiaries with total assets under $14,023,000 [a]	Adjusted totals	Corporations [1] submitting balance sheets	Adjustment of balance-sheet items for corporations not submitting balance sheets [b]	Totals with balance-sheet items adjusted	Concentration ratio: 43 largest to all public utility corporations (percent)
	Millions of dollars						
ASSET ITEMS							
Cash [2]	612	6	618	(12)	(12)	(12)	(12)
Inventories	478	5	483	(12)	(12)	(12)	(12)
Capital assets less reserve for depreciation and depletion	19,066	315	19,381	(12)	(12)	(12)	(12)
Tax-exempt investments [3]	29	0	29	(12)	(12)	(12)	(12)
Taxable investments	5,671	33	5,704	(12)	(12)	(12)	(12)
Notes and accounts receivable Miscellaneous assets [4]	3,488	−3	3,485	(12)	(12)	(12)	(12)
Total assets [5]	29,344	356	29,700	(12)	(12)	(12)	(12)
Total assets [5] less taxable investments	23,673	322	23,996	(12)	(12)	(12)	(12)
INCOME-STATEMENT ITEMS							
Gross receipts from sales and services [6]	4,961	47	5,008			5,641	88.8
Interest received from taxable investments	148	1	149			176	84.7
Interest received from tax-exempt investments [3]	6	0	6			9	66.7
Cash dividends received	529	3	532			593	89.7
Interest paid	562	6	568			673	84.4
Taxes other than income tax [7]	246	2	248			288	86.1
Income tax [8]	85	1	86			107	80.4
Depreciation and depletion	515	7	522			622	83.9
Cash dividends paid	1,184	12	1,196			1,352	88.5
Compiled net profit or loss [9]	1,335	11	1,346			1,533	87.8
Income derived from operations [10]	1,129	12	1,141			1,321	86.4
Corporate savings [11]	66	−2	64			74	86.5

PART II, 1933

	48 largest public utility corporations			All public utility corporations			
	Tabulated totals	Adjustment for unconsolidated subsidiaries with total assets under $10,000,000	Adjusted totals	Corporations [1] submitting balance sheets	Adjustment of balance-sheet items for corporations not submitting balance sheets	Totals with balance-sheet items adjusted	Concentration ratio: 48 largest to all public-utility corporations (percent)
	Millions of dollars						
ASSET ITEMS							
Cash [2]	534	5	539	621	31	652	82.7
Inventories	358	4	362	383	0	383	94.5
Capital assets less reserve for depreciation and depletion	20,332	257	20,589	23,840	715	24,555	83.8
Tax-exempt investments [3]	45	0	45	72	2	74	60.8
Taxable investments	5,336	26	5,362	6,304	466	6,770	79.2
Notes and accounts receivable	1,420	14	1,434	1,612	82	1,694	84.7
Miscellaneous assets [4]	1,869	2	1,871	2,068	484	2,552	73.3
Total assets [5]	29,894	308	30,202	34,900	1,780	36,680	82.3
Total assets [5] less taxable investments	24,559	281	24,840	28,596	1,314	29,910	83.0
INCOME-STATEMENT ITEMS							
Gross receipts from sales and services [6]	3,862	34	3,896			4,547	85.7
Interest received from taxable investments	145	1	146			151	96.7
Interest received from tax-exempt investments [3]	9	0	9			9	[13] 100.0
Cash dividends received	215	1	216			235	91.9
Interest paid	677	7	684			809	84.5
Taxes other than income tax [7]	306	3	309			357	86.6
Income tax [8] and excess-profits tax	52	1	53			66	80.3
Depreciation and depletion	589	8	597			682	87.5
Cash dividends paid	691	7	698			807	86.5
Compiled net profit or loss [9]	332	4	336			451	74.5
Income derived from operations [10]	588	8	596			799	74.6
Corporate savings [11]	−411	−4	−415			−422	98.3

For footnotes, see p. 289.

TABLE III–E.—*Derivation of the concentration ratios, and the totals for asset items and selected income-statement items for "other" corporations in the 200 largest nonfinancial corporations and all "other" nonfinancial corporations 1929 and 1933*

PART I, 1929

	26 largest "other" corporations			All "other" nonfinancial corporations			Concentration ratio: 26 largest to all "other" nonfinancial corporations (percent)
	Tabulated total	Adjustment for unconsolidated subsidiaries with total assets under $14,023,000 [a]	Adjusted total	Corporations [1] submitting balance sheets	Adjustment of balance-sheet items for corporations not submitting balance sheets [b]	Totals with balance sheet items adjusted	
	Millions of dollars						
ASSET ITEMS							
Cash [2]	274	3	277	2,419	73	2,492	11.1
Inventories	730	7	737	7,257	210	7,467	9.9
Capital assets less reserve for depreciation and depletion [5]	2,666	33	2,704	18,188	418	18,606	14.5
Tax-exempt investments [3]	73	1	74	698	5	703	10.5
Taxable investments	769	4	773	5,316	170	5,486	14.1
Notes and accounts receivable	946	13	959	9,134	274	9,408	7.0
Miscellaneous assets [4]				3,968	259	4,227	
Total assets [5]	5,458	66	5,524	46,980	1,409	48,389	11.4
Total assets [5] less taxable investments	4,690	61	4,751	41,664	1,239	42,903	11.1
INCOME-STATEMENT ITEMS							
Gross receipts from sales and services [6]	4,296	40	4,336			54,034	8.0
Interest received from taxable investments	35	0	35			275	12.7
Interest received from tax-exempt investments [3]	6	0	6			30	20.0
Cash dividends received	54	0	54			206	26.2
Interest paid	71	1	72			596	12.1
Taxes other than income tax [7]	58	1	59			418	14.1
Income tax [8]	37	0	37			204	18.1
Depreciation and depletion	132	2	134			1,088	12.3
Cash dividends paid	305	3	308			1,341	23.0
Compiled net profit or loss [9]	387	3	390			1,478	26.4
Income derived from operations [10]	326	4	330			1,359	24.3
Corporate savings [11]	45	0	45			−67	[13]−67.2

PART II, 1933

	26 largest "other" corporations			All "other" nonfinancial corporations			Concentration ratio: 26 largest to all "other" nonfinancial corporations (percent)
	Tabulated totals	Adjustment for unconsolidated subsidiaries with total assets under $10,000,000	Adjusted total	Corporations [1] submitting balance sheets	Adjustment of balance-sheet items for corporations not submitting balance sheets	Totals with balance-sheet items adjusted	
	Millions of dollars						
ASSET ITEMS							
Cash [2]	224	2	226	1,610	43	1,653	13.7
Inventories	587	6	593	4,631	107	4,738	12.5
Capital assets less reserve for depreciation and depletion [5]	3,016	38	3,054	16,721	435	17,156	17.8
Tax-exempt investments [3]	105	1	106	671	4	675	15.7
Taxable investments	783	4	787	4,050	146	4,196	18.8
Notes and accounts receivable	666	7	673	5,626	152	5,778	11.6
Miscellaneous assets [4]	273	0	273	2,620	119	2,739	10.0
Total assets [5]	5,654	58	5,712	35,929	1,006	36,935	15.5
Total assets [5] less taxable investments	4,871	54	4,925	31,879	860	32,739	15.0
INCOME-STATEMENT ITEMS							
Gross receipts from sales and services [6]	2,785	25	2,810			29,442	9.5
Interest received from taxable investments	20	0	20			128	15.6
Interest received from tax-exempt investments [3]	5	0	5			31	16.1
Cash dividends received	15	0	15			73	20.5
Interest paid	54	1	55			434	12.7
Taxes other than income tax [7]	61	1	62			393	15.8
Income tax [8] and excess-profits tax	13	0	13			87	14.9
Depreciation and depletion	129	2	131			805	16.3
Cash dividends paid	82	1	83			383	21.7
Compiled net profit or loss [9]	40	0	40			−548	[13]−7.3
Income derived from operations [10]	41	1	42			−433	[13]−9.7
Corporate savings [11]	−55	−1	−56			−1,018	5.5

[a] For reason and methods for adjusting unconsolidated subsidiaries with total assets under the specified minimum, see section 3 of this appendix.
[b] For reason and methods for adjusting balance-sheet items for corporations not submitting balance sheets, see section 2 of this appendix.
[1] Source: *Statistics of Income.*
[2] Includes cash in till and deposits in bank.
[3] Includes obligations of States and Territories or minor political subdivisions, securities issued under the Federal Farm Loan Act, and obligations of the United States or its possessions.
[4] Largely composed of goodwill, patent rights, copyrights, etc.
[5] Reserves for depreciation and depletion are deducted from total assets, as well as from capital assets.
[6] Sum of gross sales where inventories are an income-determining factor and gross receipts from operations where inventories are not an income-determining factor.
[7] Taxes paid, other than Federal income and excess-profit taxes.
[8] Federal income tax, plus excess-profits tax in 1933.
[9] Statutory net income or deficit, plus interest on tax-exempt investments, plus dividends from domestic corporations, which are also nontaxable income.
[10] Compiled net profit, plus interest paid, less income tax, less interest received on taxable investments, less interest received on tax-exempt investments, less cash dividends received. This amounts to statutory net income, plus interest paid, less income tax, less interest received on taxable investments.
[11] Compiled net profit, less income and excess-profit taxes paid, less cash dividends paid.
[13] Not available.

[13] See p. 281 et seq. of the text.

TABLE IV.—*Derivation of concentration ratios from the totals for the 200 largest and all nonfinancial corporations, selected asset items, 1929–33*

[Money figures in millions of dollars]

	1929	1930	1931	1932	1933
TOTAL ASSETS [1]					
200 largest nonfinancial corporations	98,597	107,073	101,662	96,690	95,617
All other nonfinancial corporations [2]	100,832	91,258	76,766	77,560	72,104
Total nonfinancial corporations	199,429	198,331	178,428	174,250	167,721
Concentration ratio: 200 largest to all nonfinancial corporations (percent)	49.4	54.0	57.0	55.5	57.0
TOTAL ASSETS [1] LESS TAXABLE INVESTMENTS					
200 largest nonfinancial corporations	84,809	91,364	85,169	79,916	77,863
All other nonfinancial corporations [2]	92,195	76,846	68,175	65,973	64,125
Total nonfinancial corporations	177,004	168,210	153,344	145,889	141,988
Concentration ratio: 200 largest to all nonfinancial corporations (percent)	47.9	54.3	55.5	54.8	54.8
CAPITAL ASSETS LESS RESERVE FOR DEPRECIATION AND DEPLETION					
200 largest nonfinancial corporations	58,351	62,709	62,658	60,540	59,949
All other nonfinancial corporations [2]	42,278	41,628	36,368	35,404	33,407
Total nonfinancial corporations	100,629	104,337	99,026	95,944	93,356
Concentration ratio: 200 largest to all nonfinancial corporations (percent)	58.0	60.1	63.3	63.1	64.2

For footnotes, see p. 291.

TABLE V–A.—*Derivation of concentration ratios from the totals for the 75 largest and all manufacturing corporations, selected asset items, 1929 and 1933*

[Money figures in millions of dollars]

	1929	1933
TOTAL ASSETS [1]		
75 largest manufacturing corporations	27,495	26,235
All other manufacturing corporations [2]	43,419	31,980
Total manufacturing corporations	70,914	58,215
Concentration ratio: 75 largest to all manufacturing corporations (percent)	38.8	45.1
TOTAL ASSETS [1] LESS TAXABLE INVESTMENTS		
75 largest manufacturing corporations	23,064	19,549
All other manufacturing corporations [2]	40,582	29,091
Total manufacturing corporations	63,646	48,640
Concentration ratio: 75 largest to all manufacturing corporations (percent)	36.2	40.2
CAPITAL ASSETS LESS RESERVE FOR DEPRECIATION AND DEPLETION		
75 largest manufacturing corporations	11,534	11,178
All other manufacturing corporations [2]	16,927	13,377
Total manufacturing corporations	28,461	24,555
Concentration ratio: 75 largest to all manufacturing corporations (percent)	40.5	45.5

For footnotes, see p. 291.

TABLE V–B.—*Derivation of the concentration ratios from the totals for the 85 largest and all transportation and other public utility corporations selected asset items 1929 and 1933*

[Money figures in millions of dollars]

	1929	1933
TOTAL ASSETS [1]		
85 largest transportation and other public utility corporations	64,116	62,303
All other transportation and other public utility corporations [2]	16,010	10,268
Total transportation and other public utility corporations	80,126	72,571
Concentration ratio: 85 largest to all transportation and other public utility corporations (percent)	80.0	85.9
TOTAL ASSETS [1] LESS TAXABLE INVESTMENTS		
85 largest transportation and other public utility corporations	55,663	52,197
All other transportation and other public utility corporations [2]	14,792	8,412
Total transportation and other public utility corporations	70,455	60,609
Concentration ratio: 85 largest to all transportation and other public utility corporations (percent)	79.0	86.1
CAPITAL ASSETS LESS RESERVE FOR DEPRECIATION AND DEPLETION		
85 largest transportation and other public utility corporations	43,460	44,767
All other transportation and other public utility corporations [2]	10,102	6,878
Total transportation and other public utility corporations	53,562	51,645
Concentration ratio: 85 largest to all transportation and other public utility corporations (percent)	81.1	86.7

For footnotes, see p. 291.

TABLE V–C.—*Derivation of concentration ratios from the totals for the 45 largest and all transportation corporations, selected asset items, 1929 and 1933*

[Money figures in millions of dollars]

	1929	1933
TOTAL ASSETS [1]		
45 largest transportation corporations	34,749	32,976
All other transportation corporations [2]	(3)	2,915
Total transportation corporations	(3)	35,891
Concentration ratio: 45 largest to all transportation corporations (percent)	(3)	91.9
TOTAL ASSETS [1] LESS TAXABLE INVESTMENTS		
45 largest transportation corporations	31,991	28,152
All other transportation corporations [2]	(3)	2,547
Total transportation corporations	(3)	30,699
Concentration ratio: 45 largest to all transportation corporations (percent)	(3)	91.7
CAPITAL ASSETS LESS RESERVE FOR DEPRECIATION AND DEPLETION		
45 largest transportation corporations	24,079	24,826
All other transportation corporations [2]	(3)	2,264
Total transportation corporations	(3)	27,090
Concentration ratio: 45 largest to all transportation corporations (percent)	(3)	91.6

For footnotes, see p. 291.

TABLE V–D.—*Derivation of concentration ratios from the totals for the 40 largest and all public utility corporations other than transportation, selected asset items, 1929 and 1933*

[Money figures in millions of dollars]

	1929	1933
TOTAL ASSETS [1]		
40 largest public utility corporations	29,367	29,327
All other public utility corporations [2]	(3)	7,353
Total public utility corporations	(3)	36,680
Concentration ratio: 40 largest to all public utility corporations (percent)	(3)	80.0
TOTAL ASSETS [1] LESS TAXABLE INVESTMENTS		
40 largest public utility corporations	23,672	24,045
All other public utility corporations [2]	(3)	5,864
Total public utility corporations	(3)	29,909
Concentration ratio: 40 largest to all public utility corporations (percent)	(3)	80.4
CAPITAL ASSETS LESS RESERVE FOR DEPRECIATION AND DEPLETION		
40 largest public utility corporations	19,381	19,941
All other public utility corporations [2]	(3)	4,614
Total public utility corporations	(3)	24,555
Concentration ratio: 40 largest to all public utility corporations (percent)	(3)	81.2

TABLE V–E.—*Derivation of concentration ratios from the totals for the 25 largest and all "other" nonfinancial corporations, selected asset items, 1929 and 1933*

[Money figures in millions of dollars]

	1929	1933
TOTAL ASSETS [1]		
25 largest "other" corporations	5,422	5,618
All remaining "other" corporations [2]	42,967	31,317
Total "other" corporations	48,389	36,935
Concentration ratio: 25 largest to all "other" corporations (percent)	11.2	15.2
TOTAL ASSETS [1] LESS TAXABLE INVESTMENTS		
25 largest "other" corporations	4,667	4,836
All remaining "other" corporations [2]	38,236	27,903
Total "other" corporations	42,903	32,739
Concentration ratio: 25 largest to all "other" corporations (percent)	10.9	14.8
CAPITAL ASSETS LESS RESERVE FOR DEPRECIATION AND DEPLETION		
25 largest "other" corporations	2,652	2,978
All remaining "other" corporations [2]	15,954	14,178
Total "other" corporations	18,606	17,156
Concentration ratio: 25 largest to all "other" corporations (percent)	14.3	17.4

[1] Reserves for depreciation and depletion have been deducted from total assets as well as from capital assets.
[2] This is derived by deducting the totals for the 200 from the totals for all corporations.
[3] Not available.

2. Adjustment for Corporations Not Submitting Balance Sheets

The totals, by industrial groups, for all corporations submitting income-tax returns were available for income-statement items but not for balance-sheet items. The balance-sheet items for all corporations were derived from the totals for corporations submitting balance sheets by making a simple assumption: That the proportion understated in the balance-sheet item equals the proportion understated in a related income-statement item. The procedure for adjustment was as follows:

[11a] Though this is a very crude procedure, the error introduced in the final results is not significant because, for the income-statement items, at least 95 percent of the total was covered by the returns of corporations submitting balance sheets, in practically all cases.

Each balance-sheet item was paired with the income-statement item most closely related to it.[11a] The paired list used was:

Balance-sheet item:	Income-statement item:
Cash.	Receipts.
Inventories.	Gross sales.
Tax-exempt investments.	Tax-exempt interest.
Taxable investments.	Dividends received.
Capital assets.	Depreciation and depletion.
Total assets.	Total compiled receipts.

The basic assumption for the first pair of items is that the ratio:

$$\frac{\text{All receipts}}{\text{Receipts reported for corporations submitting balance sheets}}$$

is equal to the ratio:

$$\frac{\text{All cash}}{\text{Cash reported by all corporations submitting balance sheets.}}$$

The first ratio is computed from figures published in *Statistics of Income*. It is called the adjustment ratio and is shown by industrial groups in table VI.

TABLE VI.—*Adjustment factors applied to selected asset items for corporations not submitting balance sheets, all nonfinancial corporations, by industrial groups, 1929–33*

	All nonfinancial corporations	Manufacturing corporations	Transportation and other public utility corporations	Transportation corporations	Other public utility corporations	All other nonfinancial corporations
Total assets:						
1929	1.022	1.009	1.030	(1)	(1)	1.030
1930	1.022	1.009	1.030	1.030	1.030	1.030
1931	1.017	1.013	1.009	1.009	1.009	1.038
1932	1.029	1.006	1.049	1.049	1.049	1.027
1933	1.031	1.008	1.051	1.051	1.051	1.028
Taxable investments:						
1929	1.028	1.012	1.037	(1)	(1)	1.032
1930	1.029	1.012	1.037	1.037	1.037	1.034
1931	1.013	1.012	1.006	1.006	1.006	1.032
1932	1.034	1.002	1.059	1.059	1.059	1.035
1933	1.042	1.008	1.074	1.074	1.074	1.036
Total assets less taxable investments:						
1929	1.022	1.009	1.029	(1)	(1)	1.030
1930	1.021	1.009	1.028	1.028	1.028	1.029
1931	1.018	1.013	1.010	1.010	1.010	1.039
1932	1.028	1.007	1.047	1.047	1.047	1.026
1933	1.029	1.008	1.047	1.047	1.047	1.027
Capital assets:						
1929	1.020	1.008	1.026	(1)	(1)	1.023
1930	1.021	1.008	1.026	1.026	1.026	1.026
1931	1.014	1.009	1.011	1.011	1.011	1.031
1932	1.022	1.006	1.029	1.029	1.029	1.023
1933	1.023	1.007	1.030	1.030	1.030	1.026

[1] Balance-sheet items for transportation and other public utilities were not broken down in 1929, so no adjustment factor was used.

Transportation companies and other public utilities are reported together in *Statistics of Income*, but are separable on work sheets of the Bureau of Internal Revenue for all years except 1929. However, income-statement items for corporations submitting balance sheets were not available in separable form, so the adjustment ratio was determined for the two industrial groups combined and applied to the two combined and separately. In no case could the income-statement items for corporations submitting balance sheets be obtained for 1929 or 1930 so the adjustment ratios

shown on the table were estimated from the adjustment ratios of other years.

No adjustment ratio was computed for all corporations together.[12] The adjustment increments for each year for each industrial group were computed and are shown for 2 years on tables II and III with the adjusted and unadjusted items. On these tables the adjustment increments of all the industrial groups are summed to get the adjustment increment for all corporations for each item.

A test was devised for the internal consistency of the balance-sheet part of this set of adjustments in each unit of tables II and III. Miscellaneous assets is derived by subtraction, to make the total assets equal to the sum of the several asset items. This is true of both the adjusted and the unadjusted columns, so miscellaneous assets can be assigned an adjustment increment such that the table will be internally consistent. A test of the reasonableness of the set of adjustments may be based on the reasonableness of the adjustment for miscellaneous assets. If it is negative, or large compared to unadjusted miscellaneous assets, then the adjustments for either the total assets, or the other asset items, or both, are in some measure unreasonable, and this inconsistency is magnified in the residual item. If the adjustment is positive and reasonably small the system of adjustments is consistent; the adjustments are accurate or the errors are compensating.

The inferred adjustments for miscellaneous assets are presented in convenient form in table VII. From the table it is evident that the adjustments for 1933 were less consistent than those for 1929 and that the inaccuracies in 1933 were largely traceable to the transportation and other public utility groups.

TABLE VII.—*Inferred adjustment for miscellaneous assets—test for internal consistency*

Industrial group and year	*Percent adjusted*
All industrial groups:	
1929	3.8
1933	11.3
Manufacturing:	
1929	1.0
1933	0.7
Transportation and other public utilities:	
1929	4.8
1933	30.2
Transportation:	
1929	
1933	41.3
Other public utilities:	
1929	
1933	23.4
Other corporations:	
1929	8.7
1933	4.5

3. Adjustment For Omission of Unconsolidated Subsidiaries With Total Assets Below the Minimum

In order to cut down the amount of clerical work it was necessary to omit all corporations subsidiary to the 200 largest whose total assets were less than $10,000,000 in 1933. An analogous minimum had to be found for 1929 to correspond to $10,000,000 in 1933, in view of the changing value of the dollar and the changing size of corporations.

The procedure was as follows:

A sample of 20 corporations with total assets in 1933 between 10 and 11 million dollars was taken, in correct proportion for industrial groups. For these the ratio of total assets less taxable investments to total assets was computed. After multiplying by $10,000,000, the total assets less taxable investments of a representative $10,000,000 firm was obtained. Then for all companies in *Statistics of Income* the ratio of total assets less taxable investments, 1929 to 1933, was obtained. Next, this ratio was multiplied by total assets less taxable investments for a typical $10,000,000 corporation in 1933, yielding a figure for total assets less taxable investments for a typical analogous firm in 1929. Then, for 1929, a sample of firms with total assets of 12 to 13 millions of dollars[12a] was chosen and a ratio of total assets less taxable investments to total assets was computed. This was applied to the last figure derived above, and a new minimum figure for total assets was obtained for 1929. This was computed at $14,023,000.

This minimum defined a similar number of returns in the 2 years. Roughly estimated, the total number of corporations submitting balance sheets with total assets over the minimum was 1,175 in 1929 and 1,100 in 1933.

The omission of all "small" unconsolidated subsidiaries would have had a significant effect; the concentration ratios would have been understated. The different minimum sizes of total assets were designed to eliminate any possible bias over time due to the size of unconsolidated subsidiaries included in the totals for the 200 largest nonfinancial corporations.

There is no reliable method for accurately correcting for this omission short of an exhaustive search for, and tabulation of, the smaller corporations. A study was made of the frequency distributions of all unconsolidated subsidiaries for total assets and capital assets, by total asset classes. No tendency was well enough

[12] Under certain special conditions the same procedure could have been followed for all corporations as a unit, as well as by industrial group, without introducing a discrepancy. For the adjustment to be internally consistent the sum of all the industrial groups should equal the total of all nonfinancial corporations after the adjustment as well as before. This would be so if and only if the percent distribution (by industrial groups) of the figures for firms submitting balance sheets (for the item to be adjusted) were *exactly equal* to the corresponding percent distribution for the firms submitting balance sheets for the paired income-statement item. This procedure was followed using five significant places in the percent distribution, and the difference between the adjusted total and the sum of the adjusted industrial groups was something less than one half of one percent, on the average.

[12a] The estimated figure for total assets less taxable investments for a typical analogous firm in 1929.

defined to estimate the effect of unconsolidated subsidiaries below the minimum for either 1929 or 1933. Therefore, an approximate adjustment had to suffice; and a simple one was designed.

It was assumed for 1933 that the contribution to any item of all unconsolidated subsidiaries with total assets less than 10 million dollars was equal to the average contribution for each interval over the next four 10-million dollar intervals. All the unconsolidated subsidiaries with total assets between $10,000,000 and $50,000,000 were tabulated, and totals were obtained for the following selected items:

Capital assets.
Taxable investments.
Total assets.
Gross receipts.
Compiled net profit or loss.

The other items were adjusted by examining related items whose adjustment increment had been computed and assuming about the same relative adjustment. Thus, interest received from taxable investments and dividends received were assumed to have the same relative adjustment as taxable investments; depreciation and depletion was assumed to have the same as capital assets; and the rest of the items were assumed to have the same relative adjustments as gross receipts and total assets, which were almost the same. These estimated adjustment percentages were applied to the unadjusted totals for the 200. The adjusted totals and the increments were entered on tables II and III. The increments for the five items listed above were derived directly and entered on the tables.

The increment added to the total for each item for the 200 largest corporations was partitioned among the constituent industrial groups by assuming that the percentage distribution by industrial groups was the same before and after the adjustment.

An analogous procedure was used in 1929. The average of the three equal intervals from $14,023,000 to $56,092,000 in total assets was used for the estimate of all unconsolidated subsidiaries with total assets below $14,023,000. This estimate was computed for the same items as in 1933 and the estimates for other items were derived from these estimates on the basis of the same assumptions as were made for the 1933 adjustment. The adjustment increments are included on the basic tables II and III. In table V each industrial group was assigned the same adjustment increment as it had in table II. It was assumed that the omission of a few of the smallest corporations in each industrial group did not diminish the size of the adjustment increment. For the interpolated years in table IV the adjustment is implicit in the interpolation estimates, as the interpolation index was applied to the end year totals after they had been adjusted for the omission of unconsolidated subsidiaries below the minimum.

A test for the internal consistency of the adjustments in the balance-sheet items was devised. It is the same test as was used in the adjustment for missing balance sheets.[12b] The adjustment for miscellaneous assets was compared with unadjusted miscellaneous assets. In a few cases there was a very small negative adjustment. These were so close to zero that the discrepancy indicated is of no material importance. None of the positive adjustments were large. The percentages are shown in table VIII.

TABLE VIII.—*Adjustment for unconsolidated subsidiaries below the minimum; percentage adjustment for miscellaneous assets*

Industrial group and year	*Percent adjusted*
All industrial groups:	
1929	0.9
1933	0.3
Manufacturing:	
1929	1.6
1933	2.4
Transportation and other public utilities:	
1929	0.5
1933	−0.2
Transportation:	
1929	0.8
1933	−0.5
Other public utilities:	
1929	−0.1
1933	0.1
Other corporations:	
1929	1.4
1933	0.0

4. Problems Relating to Consolidation of Balance Sheets

The definition of corporation discussed in section 1 implies that the tabulation of the 200 largest nonfinancial corporations was made up from 200 consolidated balance sheets. Each unit of control under this ideal system would present a single balance sheet and a single income statement, for it is considered as a single corporation. As a matter of fact, the data were not available in the Bureau of Internal Revenue in this form. Companies controlled 95 percent or more by the parent and its controlled subsidiaries were actually consolidated for the most part, but other subsidiaries (by the definition here used) were not. For reasons appearing below this desired consolidation could not be approximated, so it became necessary simply to add the several items of these unconsolidated subsidiaries to those of the parent and consolidated subsidiaries, and to use these sums as estimates of the desired consolidations. The discrepancies between the actual sums and the desired consolidated totals arose out of the difference between the definition of subsidiary in this study and the Bureau of Internal Revenue definition of subsidiary for purposes of taxation.

The consolidated return as filed in the Bureau of

[12b] See section 2.

Internal Revenue has had all intercorporate relations between the income statement and balance sheet of the parent and the subsidiary removed, but the unconsolidated return has not. If accounts receivable and accounts payable include accounts receivable from and payable to other corporations in the same control unit, these should be deducted from the totals for the unit. But in the case of unconsolidated subsidiaries, this cannot be done. The reports to the Bureau of Internal Revenue do not distinguish between accounts payable to or receivable from a corporation in the same control unit, and those to or from any other corporation. Therefore, items subject to this type of duplication show evidence of large error (for the purposes of this report), and the following items should be read with this in mind:

Interest received from taxable investments.
Cash dividends received.
Interest paid.
Cash dividends paid.

Compiled net profits by definition includes dividends received, and is therefore subject to this type of error. The same is true of the derived items: income derived from operations, and corporate savings, each of which includes items which involve double counting.

The summation of figures for total assets does not represent complete consolidation of the balance sheet of each unit of control. Neither does the summation of total assets of all corporations reported by the Bureau of Internal Revenue represent the consolidation of control units. This discrepancy arises out of the intercorporate holdings of securities and loans within the same corporate unit which would be cancelled out in the process of consolidation. A direct comparison of the sum of the assets of the 200 largest control units and the sum of all corporations reporting to the Bureau of Internal Revenue tends to give a larger concentration ratio than would be obtained if the assets of all control units, whether in the 200 largest or not, were completely consolidated. A large part of the discrepancy arising from the lack of complete consolidation can be corrected by subtracting taxable investments, the element making the largest contribution to the discrepancy, from the figures of both the largest and all corporations. The distortion resulting from intercorporate lending within corporate units is probably small. Subtraction of the entire holdings of taxable investments overcorrects somewhat because of holdings of securities of corporations not in the same control unit. There would be no error in the concentration ratio from this source if the securities of other corporations held as investments by the 200 largest units and those held by corporations other than the 200 largest bear the same proportion to their respective total consolidated assets. This seems to be a condition closely enough approximated to make the discrepancy arising from this source of a minor character.

The concept of "the assets of the 200 largest corporations" may now be refined. What is really meant is the arithmetic sum of all the asset items on the 200 largest nonfinancial consolidated balance sheets (and, of course, income statements). All intercompany relations within any consolidated balance sheet would be eliminated but not other intercompany relations within the 200. A distinction must be made, therefore, between this concept and the concept of a single consolidated balance sheet embracing the 200 largest consolidated balance sheets. The latter would eliminate intercorporate relations between any corporations affiliated with any of the 200 largest corporations. The latter totals would be smaller in the items mentioned above, since intercompany eliminations would have been made.

As a matter of fact, it was impossible to set up the 200 consolidated balance sheets, but departures from this desired procedure are regarded in this report as errors.

Besides the double counting that cannot be eliminated from the sum of the parent and unconsolidated subsidiaries, other errors are likely to occur. The classification of unconsolidated subsidiaries in the industrial group of their parents may change the geographical classification from that in which they are listed in *Statistics of Income*.[13] These shifts do not concern this report. But the industrial classifications may be, and undoubtedly often are, shifted. The unconsolidated subsidiaries were reported in their own industrial groups in *Statistics of Income*,[14] but in the present tabulation they were reported in the industrial group of their parent companies. The resulting industrial misclassification has been discussed in section 1, above.

5. Notes on the Interpolation

Three asset items, total assets, capital assets, and total assets less taxable investments, were estimated for the 200 largest corporations for the years 1930–32 on a basis comparable with table I. The procedure and assumptions were set up in consideration of the state of the data for this period, and the limited time and clerical facilities allotted to this study. Therefore, these figures are merely estimates rather than tabulated totals and they are derived by making certain specific assumptions which are subject to partial test.

Estimates were derived for each industrial group and the four estimates were summed to obtain the estimated totals for the 200. The work was shortened by omitting from consideration all unconsolidated subsidiaries and by using all the companies in the lists of the 200 largest

[13] The same applies to net income—net deficit classification as well.
[14] And therefore in the denominator of the concentration ratio.

for both 1929 and 1933 where the data were available. This procedure is justified by the small number of replacements in the list—a yearly change of 2 or 3 percent. So that all information available would be used, the yearly percent changes of all companies which reported in both of each two successive years were used. From these comparable data a chain index series was constructed for each item for each industrial group. These indexes were taken to represent the percent changes of all companies in the largest 200, including unconsolidated subsidiaries.[15]

The chain indexes were derived from yearly percent changes of identical companies. The actual data used were not entirely from the Bureau of Internal Revenue. Where a company was missing in a single intermediate year, or where an erratic change threw one year out of line with the two adjacent years, a comparison was made with Moody's *Manuals*. If the behavior of the data for the preceding and following years from the two sources approximately agreed,[16] the intermediate year was interpolated using the Moody's figures as an index of change.

This augmentation of the Bureau of Internal Revenue data had a tendency to stabilize the annual percent changes by increasing the size of the samples and by eliminating individual erratic observations. Hence the movements of the chain index were damped; the erratic quality of the index was understated. This modification of the originally designed procedure was intended to protect the annual percent changes from variation in the degree of consolidation in the returns of the same corporations in adjacent years.

The 1933 figure of this chain index on a 1929 base gave the percent change for the period 1929 through 1933. But, as a matter of fact, this percent change was accurately known, for it could easily be derived from the two tabulations for 1929 and 1933. This gave a correct index number for 1933. The crude 1933 chain index number was therefore adjusted to equal the correct index number and the earlier years were adjusted by an increment based on an assumed linearity of the drift for the period 1929–33.[17] After the indexes were corrected they could be multiplied by the base figure, yielding a complete set of estimates of the three asset items by industrial groups for the three interpolated years.

These estimates can be tested in various ways. If the percent changes are truly representative of the whole 200 largest corporations, including unconsolidated subsidiaries, and the industrial percent distributions are accurate, the sum of the totals for the various industrial groups should be the same as the estimates for the 200 largest taken as a unit without regard to industrial classification. This comparison was made and is presented in table IX. The index numbers made up without regard to industrial classification were derived as described above. The absolute totals for the various industrial groups were summed, and the totals for all groups reduced to index series for comparison.

TABLE IX.—*Estimates made* (1) *with and* (2) *without regard to industrial groups*

Item	Method of estimating	Index numbers (1929=100)				
		1929	1930	1931	1932	1933
Total assets	(1)	100.0	108.6	103.1	98.1	97.0
	(2)	100.0	108.5	102.9	98.0	97.0
Capital assets	(1)	100.0	107.5	107.4	103.8	102.7
	(2)	100.0	107.4	106.9	103.7	102.7

This test is one-directional in nature. For the estimated figures for industrial groups to be accurate, it is a necessary, but not a sufficient condition, that the two estimates be close. If the estimates made by the two methods are close, the industrial group estimates might be accurate and they might not. But if the two estimates are not close, the industrial group estimates cannot be accurate. By definition, the closeness of the estimates for the total, with and without regard to industrial groups, is evidence in the direction of accuracy of that total. It can be seen directly that the two indexes yield the same result within rounding errors except for the middle year. The discrepancies for total assets are 0.0, 0.1, 0.2, 0.1, 0.0, and those for capital assets are 0.0, 0.1, 0.5, 0.1, 0.0. The assumption of a linear adjustment makes the end years correct. The years next to the end years are least likely to suffer from this procedure, with the middle year the least accurate. This is what is actually found. The largest errors indicated here are smaller than other errors known to exist for these estimates, so it is evident that the interpolation meets this test of consistency.

A second test of the accuracy of the interpolation may be made by further examining the internal consistency of the results. Total assets should be larger than capital assets and larger than total assets less taxable investments. The difference between total assets and total assets less taxable investments should yield a reasonable result for taxable investments. Similarly, the difference between total assets less taxable investments and capital assets should yield a reasonable result for liquid assets.[18] These estimates for taxable

[15] No independent determination of the lists of the 200 largest for the interpolated years was made.

[16] I. e., had approximately the same level and the same percent change for the 2-year interval.

[17] Hence the difference between the 1933 relative of the complete tabulation for each industrial group (1929=100) and the corresponding chain index for 1933 (1929=100) was allocated evenly over the four annual intervals. This adjustment was made necessary by at least two definable causes: (1) The number of the 200 corporations in each industrial group was not the same in 1929 and 1933 in every case, and (2) the index was not perfectly representative of the 200 parents, plus their consolidated subsidiaries, plus their unconsolidated subsidiaries of all sizes.

[18] Inventories, cash, notes and accounts receivable, and miscellaneous assets.

investments and liquid assets, which are implied in table IV, raise no serious problems

A third test of the accuracy of the interpolation depends on the obvious condition that any asset item for the 200 largest must be smaller than the same item for all nonfinancial corporations. This must apply to taxable investments and liquid assets as well as total assets, capital assets, and total assets less taxable investments. In every case the figures for the 200 largest were smaller than the figures for all corporations.

From the three tests described above there would seem to be little objection to the figures in table IV that could arise from the interpolation.

Taxable investments were poorly reported and the chain index intended for interpolation had to be based on a small and somewhat erratic sample. Therefore the same index as was used to interpolate for total assets was also used to interpolate for total assets less taxable investments by applying it to the 1929 and 1933 figures for total assets less taxable investments. No inconsistency was detected in the resulting figures. Total assets and capital assets were interpolated from chain indexes made up of yearly percent changes of total assets and capital assets, respectively.

PART II—FINANCIAL CORPORATIONS

A crude investigation was made of the degree of concentration of financial corporations in 1933. The list examined was composed of the 50 largest financial corporations in 1933, excluding unconsolidated subsidiaries. Of the 50, 24 were banks, 17 were insurance companies,[19] and the remaining 9 were "other financials". The list of the 50 largest was selected after examination of the returns of all financial corporations with total assets over 50 million dollars. The 50 corporations with the largest total assets (considered independently of their unconsolidated subsidiaries) which were independent, according to Moody's, and which were classified by Moody's as financials, were listed. This last requirement eliminated three companies (holding companies) classified by the Bureau of Internal Revenue as financials, but classified by Moody's in the *Utilities* or *Railroad Manuals*. One company included in the list actually was not independent at the end of 1933. Since the company was independent through most of the year, since the assets of its parent were too small for the parent to get on the list, and since the corporate structure of its parent was so involved that the Moody analysis in no way corresponded with the situation found by the Securities and Exchange Commission, the company was included in the list as independent.

The items tabulated for the financial corporations were selected on the basis of their importance, and are not intended to give as complete a picture as the items for the 200 nonfinancial corporations. In particular, the complete asset side of the balance sheet is not presented for the financial corporations. Life insurance companies file a special type of income-tax return, on which no item corresponding to receipts is reported, so that the receipts tabulated for the 50 largest financial corporations are not a reliable measure of the quantity of business done by them.

[19] While the definition included all types of insurance companies, all of these were, in fact, life insurance companies.

No attempt was made to adjust the totals for the 50 for missing subsidiaries, as all unconsolidated subsidiaries, of whatever size, had been omitted from the tabulation.

In comparing the 50 largest to all financial corporations, the balance-sheet items for all financial corporations were adjusted for corporations not submitting balance sheets, using the same procedure as was used for nonfinancials. Since none of the 50 financials were real estate corporations, it was felt that to compare them with all financials, including real estate companies, would distort the concentration ratios for certain items, particularly capital assets. However, adjustment for missing balance sheets could not be made directly for financials excluding real estate, since the Bureau of Internal Revenue did not separate returns with balance sheets from returns without balance sheets for subgroups of financial corporations. Consequently, the same adjustment factors as were used for all financials were applied to the totals for financials less real estate. The error thus introduced is insignificant.

Table X shows the totals for the 50 largest financial corporations, the totals for all financial corporations, and all financial corporations excluding real estate, with their adjustments, and the concentration ratios derived therefrom.

This part of the study is very crude, so a few words of caution are in order. The 50 largest financials exclude unconsolidated subsidiaries, so the unit of control is not the same as the unit in the nonfinancial corporation statistics. A "financial corporation" is therefore not comparable to a nonfinancial corporation in the terminology of this study.

The 50 largest financials are not to be regarded as an "equally important" or "the same" proportion of the total for all financials as the 200 nonfinancials are of the total for all nonfinancials. Fifty was merely a convenient number of financial corporations chosen to show a significant amount of concentration when compared

to all financials. Whether there is "more" concentration in financials or in nonfinancials is a question without meaning by the present definition of concentration. No cross-comparisons should be made between the concentration ratios. The accompanying table is presented exclusively for its own intrinsic interest and is independent of the tables in part I of this appendix.

TABLE X.—*Derivation of the concentration ratios, and the totals for selected asset items and income-statement items for the 50 largest financial corporations (excluding unconsolidated subsidiaries) and all financial corporations, 1933*

	50 largest financial corporations	All financial corporations except real estate			Concentration ratio: 50 largest to all financial corporations except real estate	All financial corporations			Concentration ratio: 50 largest to all financial corporations
		Corporations submitting balance sheets [1]	Adjustment of balance-sheet items for corporations not submitting balance sheets	Totals with balance-sheet items adjusted		Corporations submitting balance sheets [2]	Adjustment of balance-sheet items for corporations not submitting balance sheets	Totals with balance-sheet items adjusted	
	Millions of dollars				Percent	Millions of dollars			Percent
ASSET ITEMS									
Cash [3]	3,505	9,071	807	9,878	35.5	9,252	824	10,076	34.8
Capital assets less reserve for depreciation and depletion	709	3,237	172	3,409	20.8	13,712	727	14,439	4.9
Tax-exempt investments [4]	4,402	10,621	212	10,833	40.6	10,731	215	10,946	40.2
Taxable investments	18,562	43,595	3,706	47,301	39.2	45,787	3,892	49,679	37.4
Total assets [5]	35,294	90,465	5,609	96,074	36.7	105,475	6,540	112,015	31.5
Total assets [5] less taxable investments	16,732	46,870	1,903	48,773	34.3	59,688	2,648	62,336	26.8
INCOME-STATEMENT ITEMS									
Gross receipts from sales and services [6]	78			3,171	2.5			3,337	2.3
Income tax [7]	3			28	10.7			36	8.3
Depreciation and depletion	32			111	28.8			293	10.9
Cash dividends paid	338			521	64.9			575	58.8
Compiled net profit or loss [8]	55			−663	−8.3			−1,070	−5.1

[1] From office work sheets of the Bureau of Internal Revenue.
[2] From *Statistics of Income.*
[3] Includes cash in till and deposits in bank.
[4] Includes obligations of States and Territories or minor political subdivisions, securities issued under the Federal Farm Loan Act, and obligations of the United States or its possessions.
[5] Reserves for depreciation and depletion are deducted from total assets as well as from capital assets.
[6] Gross receipts from operations when inventories are not an income-determining factor. Gross sales where inventories are an income-determining factor are not reported for financial corporations.
[7] Federal income tax plus excess-profits tax.
[8] Statutory net income or deficit, plus interest on tax-exempt investments, plus dividends from domestic corporations, which are also nontaxable income.

APPENDIX 12.—INTERLOCKING DIRECTORATES AMONG THE LARGEST AMERICAN CORPORATIONS, 1935[1]

This study of interlocking directorates covers the directors of the 200 largest nonfinancial corporations and the 50 largest financial corporations in 1935. For the nonfinancial corporations, the list of 200 largest nonfinancial corporations with their assets which appears in Appendix 10 was used. The 50 largest banks and financial companies (30 banks, 20 financial companies) are listed in table I.[2]

The names of directors for each corporation were compiled from the lists of corporation directorates in Poor's *Register of Directors, 1936*. In some few cases, where Poor's omitted a corporation, Moody's *Manuals* were used.

A summary of the results of this study has been given in chapter IX, charts I and II. The following tables present these results in more detail.

Only 25 of the 250 corporations have no interlocks with each other. These companies are relatively small, in terms of assets, as compared with the interlocking companies. Although they constitute 10 percent of the number of companies, their assets amount to only 4 percent of the total assets of the 250 companies. The names of the 25 noninterlocking companies are given in table II. They comprise 16 industrials, 8 utilities, and 1 railroad. There are no banks and no financial companies among them. The absence of interlocking directorates between these 25 companies and others in the list of 200 largest nonfinancial and 50 largest financial corporations does not necessarily mean that these companies are free from other types of links. They include companies which are relatively free from outside control as the Crane Co., which is owned in large part by the Crane family, and companies such as Atlantic Refining and Ohio Oil which are successor firms to the old Standard Oil Co., and are members of the Rockefeller interest group.[3]

The 225 corporations which show interlocks with each other are classified in tables III, IV, and V, and the assets represented in each class are shown.

The interlocking directorates between specific companies have been shown in charts I and II of chapter IX. Chart I, however, shows the complete picture of interlocks only for the 100 companies with the greatest number of interlocks. The interlocks among the remaining 125 companies, which appear at the top

[1] Appendix 12 was prepared by Eleanor Poland.

[2] Note that this list differs from that used in Appendix 13 since the latter contains the largest 50 banks and includes no other financial companies.

[3] See Appendix 13.

TABLE I.—*Banks and Finance Companies included in the 250 list*

	Assets (millions)
BANKS	
Chase National Bank	2,350.5
National City Bank	1,880.7
Guaranty Trust Co	1,847.4
Bank of America National Trust & Savings Association	1,277.4
Continental Illinois National Bank & Trust Co	1,141.1
Bankers Trust Co	1,031.7
First National Bank (Chicago)	925.4
Central Hanover Bank & Trust Co	914.8
First National Bank (Boston)	729.6
Irving Trust Co	720.0
Manufacturers Trust Co	673.0
Chemical Bank & Trust Co	625.2
Security First National Bank	591.0
First National Bank (N. Y.)	584.2
Bank of the Manhattan Co	548.3
J. P. Morgan & Co., Drexel & Co	537.9
Philadelphia National Bank	432.8
New York Trust Co	419.7
National Bank of Detroit	395.9
Cleveland Trust Co	337.7
Mellon National Bank	337.6
Union Trust Co	334.5
Northern Trust Co	320.7
Corn Exchange Bank Trust Co	317.4
American Trust Co	271.8
Wells Fargo Bank & Trust Co	248.6
First National Bank (St. Louis)	235.5
Pennsylvania Co. for Insurances, etc	235.3
Anglo-California National Bank	214.3
Harris Trust & Savings Bank	207.6
OTHER FINANCIALS	
Metropolitan Life Insurance Co	4,234.8
Prudential Insurance Co	3,129.5
New York Life Insurance Co	2,243.6
Equitable Life Insurance Society of the United States	1,816.2
Mutual Life Insurance Co. of New York	1,239.0
Northwestern Mutual Life Insurance Co	1,072.0
Travelers Insurance Co	787.9
John Hancock Mutual Life Insurance Co	731.5
Penn Mutual Life Insurance Co	600.7
Mutual Benefit Life Insurance Co	586.8
Massachusetts Mutual Life Insurance Co	532.2
Aetna Life Insurance Co	503.5
Marine Midland Corporation	453.3
New England Mutual Life Insurance Co	343.5
Union Central Life Insurance Co	326.8
Provident Mutual Life Insurance Co	298.3
Commercial Investment Trust Corporation	297.2
Wisconsin Bankshares Corporation	276.4
Connecticut Mutual Life Insurance Co	268.4
Pacific Mutual Life Insurance Co	215.6

of chart I but not at the side of the chart, are listed in table VI.

Data on the men who hold these directorships are given in tables VII, VIII, and IX. Table VII gives the residence of all the 2,722 directors for whom residence information was available, with the number of directorships held by these men. Table VIII lists the 83 men who held 4 or more directorships, together with the companies in which they held directorships and other positions held by them. Table IX shows their residences to be concentrated in the financial centers.

TABLE II.—*25 corporations with no interlocks inside the 250 list, analyzed by type of corporation*

	Assets (millions)
Industrials:	
American Tobacco Co	264. 2
Singer Manufacturing Co	175. 8
Liggett & Myers Tobacco Co	170. 5
Eastman Kodak Co	168. 3
The Atlantic Refining Co	163. 0
R. J. Reynolds Tobacco Co	153. 9
Glen Alden Coal Co	151. 4
Ohio Oil Co	139. 7
Firestone Tire & Rubber Co	139. 3
S. S. Kresge Co	118. 5
Crane Co	95. 2
Climax Molybdenum Co	79. 1
Minnesota & Ontario Paper Co	78. 2
Brown Company	76. 4
J. C. Penney Co	74. 4
S. H. Kress & Co	70. 4
	2, 118. 3
Utilities:	
Associated Gas & Electric Properties	1, 125. 4
Utilities Power & Light Corporation	367. 2
Midland United Co	320. 0
Central Public Utility Corporation	151. 6
Long Island Lighting Co	127. 6
Portland Electric Power Co	95. 0
Jersey Central Power & Light Co	80. 1
Associated Telephone Utilities Co	79. 4
	2, 346. 3
Railroads:	
Western Maryland Ry. Co	168. 1
	168. 1
Grand total	4, 632. 7

TABLE III.—*Distribution of companies according to number of directors holding 2 or more directorships on the 250 list*

Number of companies	Number of directors in each company who hold directorships in 2 or more of the 250 companies	Assets (millions of dollars)
33	1	10, 253. 8
22	2	5, 729. 1
18	3	3, 554. 0
28	4	8, 157. 0
29	5	11, 464. 3
17	6	5, 897. 5
15	7	9, 153. 6
15	8	6, 123. 9
8	9	5, 133. 4
10	10	6, 855. 3
8	11	11, 120. 6
4	12	4, 644. 6
4	13	6, 578. 7
4	14	1, 599. 0
2	15	1, 569. 6
2	16	1, 944. 7
2	17	1, 067. 2
2	19	5, 237. 3
1	22	1, 847. 4
1	23	2, 350. 5
225		[1] 110, 281. 5

[1] Equals 96 percent of total assets of the 250 corporations.

TABLE IV.—*Distribution of companies according to number of directors holding 3 or more directorships on the 250 list*

Number of companies	Number of directors in each company who hold directorships in 3 or more of the 250 companies	Assets (millions of dollars)
51	1	17, 243. 8
28	2	10, 119. 9
32	3	12, 366. 5
18	4	5, 785. 2
19	5	10, 371. 8
13	6	14, 363. 0
6	7	4, 251. 8
6	8	5, 420. 8
2	9	2, 220. 5
3	10	4, 189. 5
3	11	1, 343. 3
2	12	1, 369. 3
1	13	2, 350. 5
1	15	1, 847. 4
2	16	5, 237. 3
187		[1] 98, 480. 6

[1] Equals 85.7 percent of total assets of the 250 corporations.

TABLE V.—*Distribution of companies according to number of directors holding 4 or more directorships in the 250 list*

Number of companies	Number of directors in each company who hold directorships in 4 or more of the 250 companies	Assets (millions of dollars)
54	1	17, 942. 1
33	2	12, 321. 6
26	3	15, 775. 5
17	4	12, 562. 0
9	5	7, 447. 5
4	6	4, 870. 7
3	7	5, 253. 3
4	8	6, 445. 9
1	10	1, 239. 0
151		[1] 83, 857. 5

[1] Equals 73 percent of the total assets of the 250 corporations.

TABLE VI.—*Interlocking directorates among 200 largest non-financial and 50 largest financial corporations not shown on Chart I of chapter IX* [1]

Corporation	Interlocking directorates with—
Reading Co	Baltimore & Ohio R. R. Co.
	Pennsylvania Co. for Insurances, etc.
Virginia Ry. Co	Brooklyn Union Gas Co.
Phillips Petroleum Co	Manufacturers Trust Co., New York.
	First National Bank (St. Louis).
National Dairy Products Corporation.	Sears, Roebuck & Co.
	McKesson & Robbins, Inc. (Maryland).
	Gimbel Bros., Inc.
Shell Union Oil Corporation.	Swift & Co.
	Chicago, Rock Island & Pacific Ry. Co.
	Socony-Vacuum Oil Co., Inc.
United Shoe Machinery Corporation.	Travelers Insurance Co.
American Power & Light Co.	Anaconda Copper Mining Co.
	Florida East Coast Ry. Co.
	American Gas & Electric Co.
Chicago, Rock Island & Pacific Ry. Co.	Shell Union Oil Corporation.
	Republic Steel Corporation.
	Atlantic Coast Line.
Manufacturers Trust Co., New York.	Socony-Vacuum Oil Co., Inc.
	Cities Service Co.
	Phillips Petroleum Co.
Pacific Mutual Life Insurance Co.	Union Oil Co. of California.
	Crown Zellerback Corporation.
	Pacific Gas & Electric Co.
	Security First National Bank, Los Angeles.
	Anglo-California National Banks.
	Southern California Edison Co., Ltd.
Bethlehem Steel Corporation.	Anaconda Copper Mining Co.
	Interlake Iron Corporation.
	National Fuel Gas Co.
Anaconda Copper Mining Co.	Bethlehem Steel Corporation.
	Interlake Iron Corporation.
	American Power & Light Co.
	Kansas City Southern Ry. Co.
	National Bank of Detroit.
Republic Steel Corporation	Niagara Hudson Power Corporation.
	Standard Gas & Electric Co.
	Chicago, Rock Island & Pacific Ry. Co.
	Marine Midland Corporation.
Sears, Roebuck & Co	National Dairy Products Corporation.
	R. H. Macy & Co., Inc.
	Gimbel Brothers, Inc.
	McKesson & Robbins, Inc. (Maryland).
Loew's, Inc	Commercial Investment Trust Corporation.
Philadelphia & Reading Coal & Iron Corporation.	Baldwin Locomotive Works.
	Minneapolis & St. Louis R. R. Co.
	Provident Mutual Life Insurance Co.

[1] Interlocks among companies whose names do not appear at side of chart. Interlocks between these same companies and those whose names appear at side of chart are shown on the chart and are not listed here.

TABLE VI.—*Interlocking directorates among 200 largest non-financial and 50 largest financial corporations not shown on Chart I of chapter IX*—Continued

Corporation	Interlocking directorates with—
Gimbel Brothers, Inc	Sears, Roebuck & Co.
	Wisconsin Bankshares Corporation.
	National Dairy Products Corporation.
Cities Service Co	Philadelphia Rapid Transit Co.
	Manufacturers Trust Co., New York.
	Marine Midland Corporation.
	Natural Gas Pipeline Co. of America.
Niagara Hudson Power Corporation.	Republic Steel Corporation.
	St. Regis Paper Co.
	Marine Midland Corporation.
American Gas & Electric Co.	North American Co.
	American Power & Light.
Baltimore & Ohio R. R. Co.	Reading Co.
Seaboard Air Line Ry. Co.	Corn Products Refining Co.
	Wheeling Steel Corporation.
	Commonwealth Southern Corporation.
Norfolk & Western Ry. Co.	Pennsylvania Co. for Insurances, etc.
Pennsylvania Co. for Insurances, etc.	Reading Co.
	Norfolk & Western Ry. Co.
	National Lead Co.
Marine Midland Corporation.	Republic Steel Corporation.
	St. Regis Paper Co.
	Cities Service Co.
	Niagara Hudson Power Corporation.
McKesson & Robbins, Inc. (Maryland).	Sears, Roebuck & Co.
	National Dairy Products Corporation.
	Pacific Lighting Corporation.
Baldwin Locomotive Works.	Philadelphia & Reading Coal & Iron Corporation.
Tide Water Associated Oil Co.	Anglo-California National Bank.
North American Co	Wisconsin Bankshares Corporation.
	Sears, Roebuck & Co.
	American Gas & Electric Co.
	Pacific Gas & Electric.
Southern California Edison Co., Ltd.	Union Oil Co. of California.
	Pacific Lighting Corporation.
	Security First National Bank, (Los Angeles).
	Pacific Mutual Life Insurance Co.
Missouri Pacific R. R. Co.	Youngstown Sheet & Tube Co.
	Alleghany Corporation.
	Denver & Rio Grande Western R. R. Co.
Denver & Rio Grande Western R. R. Co.	Alleghany Corporation.
	Missouri Pacific R. R. Co.
Anglo-California National Bank.	Standard Oil Co. of California.
	Crown Zellerbach Corporation.
	Security First National Bank, (Los Angeles).
	Pacific Mutual Life Insurance Co.
	Tide Water Associated Oil Co.
Cleveland Trust Co	Cleveland-Cliffs Iron Co.
	Interlake Iron Corporation.

TABLE VI.—*Interlocking directorates among 200 largest non-financial and 50 largest financial corporations not shown on Chart I of chapter IX*—Continued

Corporation	Interlocking directorates with—
First National Bank (St. Louis).	International Shoe Co.
	Chicago & Eastern Illinois Ry. Co.
	Commercial Investment Trust Corporation.
	Phillips Petroleum Co.
	St. Louis Public Service Co.
National Bank of Detroit	Anaconda Copper Mining Co.
	Detroit Edison Co.
Travelers Insurance Co	United Shoe Machinery Corporation.
United States Rubber Co	General American Transportation Corporation.
American Rolling Mill Co	Columbia Gas & Electric Corporation.
R. H. Macy & Co., Inc	Sears, Roebuck & Co.
Corn Products Refining Co	Allis Chalmers Manufacturing Co.
	Seaboard Air Line Ry. Co.
Allis Chalmers Manufacturing Co.	Corn Products Refining Co.
	Northwestern Mutual Life Insurance Co.
	Wisconsin Bankshares Corporation.
Interlake Iron Corporation	Bethlehem Steel Corporation.
	Anaconda Copper Mining Co.
	Allied Chemical & Dye Corporation.
	Cleveland Trust Co.
Pacific Gas & Electric Co	North American Co.
	Pacific Lighting Corporation.
	Pacific Mutual Life Insurance Co.
	American Trust Co.
Columbia Gas & Electric Corporation.	American Rolling Mill Co.
	Sun Oil Co.
	Lone Star Gas Corporation.
Detroit Edison Co	National Bank of Detroit
	North American Co.
Commercial Investment Trust Corporation.	Loew's, Incorporated.
	Community Water Service Co.
	First National Bank (St. Louis).
Wisconsin Bankshares Corporation.	Gimbel Bros., Inc.
	North American Co.
	Allis Chalmers Manufacturing Co.
	Northwestern Mutual Life Insurance Co.
Chicago & Western Indiana R. R. Co.	Chicago & Eastern Illinois Ry. Co.
Security First National Bank, Los Angeles.	Union Oil Co. of California.
	Southern California Edison Co., Ltd.
	Anglo-California National Bank.
	Pacific Mutual Life Insurance Co.
Commonwealth Southern Corporation.	Seaboard Air Line Ry. Co.
Pacific Lighting Corporation.	McKesson & Robbins, Inc. (Md.).
	Pacific Gas & Electric Co.
	Southern California Edison Co., Ltd.
	American Trust Co.
Swift & Co	Shell Union Oil Corporation.
	Aetna Life Insurance Co.

TABLE VI.—*Interlocking directorates among 200 largest non-financial and 50 largest financial corporations not shown on Chart I of chapter IX*—Continued

Corporation	Interlocking directorates with—
Union Oil Co. of California	Southern California Edison Co., Ltd.
	Security First National Bank, Los Angeles.
	Pacific Mutual Life Insurance Co.
St. Regis Paper Co	Niagara Hudson Power Co.
	Marine Midland Corporation.
Cleveland-Cliffs Iron Co	Cleveland Trust Co.
	Wheeling Steel Corporation.
Allegheny Corporation	Denver & Rio Grande Western R. R. Co.
	Missouri Pacific R. R. Co.
Aetna Life Insurance Co	Swift & Co.
	Connecticut Mutual Life Insurance Co.
Provident Mutual Life Insurance Co.	Philadelphia & Reading Coal & Iron Corporation.
Northwestern Mutual Life Insurance Co.	Allis Chalmers Manufacturing Co.
	Wisconsin Bankshares Corporation.
American Trust Co	Hearst Consolidated Publications, Inc.
	Pacific Lighting Corporation.
	Pacific Gas & Electric Co.
National Fuel Gas Co	Bethlehem Steel Corporation.
Chicago & Eastern Illinois Ry. Co.	Chicago & Western Indiana R. R. Co.
	First National Bank (St. Louis).
Kansas City Southern Ry. Co.	Anaconda Copper Mining Co.
National Lead Co	Pennsylvania Co. for Insurances, etc.
Crown Zellerbach Corporation.	Wells Fargo Bank & Union Trust Co.
	Anglo-California National Bank.
	Pacific Mutual Life Insurance Co.
Socony-Vacuum Oil Co., Inc.	Manufacturers Trust Co., New York.
	Shell Union Oil Corporation.
Community Water Service Co.	Commercial Investment Trust Corporation.
Philadelphia Rapid Transit Co.	Cities Service Co.
St. Louis Public Service Co.	First National Bank (St. Louis).
Natural Gas Pipeline Co. of America.	Cities Service Co.
Brooklyn Union Gas Co	Virginia Ry. Co.
Wheeling Steel Corporation	Seaboard Air Line Ry. Co.
	Cleveland-Cliffs Iron Co.
American I. G. Chemical Corporation.	Standard Oil Co. (New Jersey).
	Ford Motor Co.
Sun Oil Co	Columbia Gas & Electric Corporation.
Hearst Consolidated Publications, Inc.	American Trust Co.
Minneapolis & St. Louis R. R. Co.	Philadelphia & Reading Coal & Iron Corporation.
Atlantic Coast Line R. R. Co.	Chicago, Rock Island & Pacific Ry. Co.
Union Central Life Insurance Co.	Procter & Gamble Co.
Connecticut Mutual Life Insurance Co.	Aetna Life Insurance Co.

TABLE VI.—*Interlocking directorates among 200 largest non-financial and 50 largest financial corporations not shown on Chart I of chapter IX*—Continued

Corporation	Interlocking directorates with—
Lone Star Gas Corporation	Columbia Gas & Electric Corporation.
Standard Gas & Electric Co.	Republic Steel Corporation.
Florida East Coast Ry. Co.	American Power & Light.
Wells Fargo Bank & Union Trust Co.	Crown Zellerbach Corporation.
General American Transportation Corporation.	United States Rubber Co.
Procter & Gamble Co.	Union Central Life Insurance Co.
International Shoe Co.	First National Bank (St. Louis).
Youngstown Sheet & Tube Co.	Missouri Pacific R. R. Co.
Allied Chemical & Dye Corporation.	Interlake Iron Corporation.
Standard Oil Co. of California.	Anglo-California National Bank.
Ford Motor Co.	American I. G. Chemical Corporation.
Standard Oil Co. (New Jersey).	American I. G. Chemical Corporation.

TABLE VII.—*Residence distribution by States of 2,722 directors in 250 large corporations*

State	Number of directorships held									Total for State
	1	2	3	4	5	6	7	8	9	
Alabama	6	1								7
Arizona	1									1
Arkansas	2									2
California	146	14	4		1					165
Colorado	2									2
Connecticut	71	7	3	2	1	1			1	86
Delaware	16	4	1							21
District of Columbia	6	1	1							8
Florida	5	1								6
Georgia	5									5
Idaho										
Illinois	175	32	9	5	4		1	1		227
Indiana	5	1								6
Iowa	4									4
Kansas	3	1								4
Kentucky	4									4
Louisiana	4	2								6
Maine	4									4
Maryland	22	1	2	1						26
Massachusetts	98	18	7	1	4	1	1			130
Michigan	37	3								40
Minnesota	17	1								18
Mississippi	1									1
Missouri	55	5	1	1						62
Montana	3									3
Nebraska	5									5
Nevada										
New Hampshire	6									6
New Jersey	119	14	11	6	1					151
New Mexico										
New York	485	95	44	21	6	4	4	1		660
North Carolina	22									22
North Dakota										
Ohio	106	14	1	2						123
Oklahoma	6									6
Oregon	6									6
Pennsylvania	162	37	15	9	2			1		226
Rhode Island	3	1								4
South Carolina	2									2
South Dakota										
Tennessee	6									6
Texas	11									11
Utah	1	1								2
Vermont	5									5
Virginia	9	2								11
Washington	3									3
West Virginia	14									14
Wisconsin	35	8	1							44
Wyoming	2									2
Residence unknown	523	38	2							563
England	2									2
British Columbia	1									1
Ontario	3									3
Quebec	5									5
Mexico		1								1
Total	2,234	303	102	48	19	6	6	3	1	2,722

TABLE VIII.—*Men holding 4 or more directorships among the 250 great corporations with the names of the corporations*

[(I)=Industrial; (U)=Utility; (R)=Railroads; (B)=Banks; (F)=Finance Co.'s]

MEN HOLDING 9 DIRECTORSHIPS

Names	Companies	Positions [1]
Davison, G. W., Greenwich, Conn.	(I) Union Carbide & Carbon Corporation.	
	Chrysler Corporation	
	United Fruit Co.	
	Crucible Steel Co.	
	(U) Western Union Telegraph Co.	
	Third Avenue Ry. Co.	
	(R) Wabash Ry. Co.	
	Virginian Ry. Co.	
	(B) Central Hanover Bank & Trust Co.	Chairman of board and trustee.

MEN HOLDING 8 DIRECTORSHIPS

Avery, S. L., Chicago.	(I) United States Steel Corporation.	
	Armour & Co.	
	Pullman, Inc.	
	Montgomery, Ward & Co.	Chairman of board, president, and director.
	(U) Commonwealth Edison Co.	
	Peoples Gas Light & Coke Co.	
	(R) Chicago Great Western R. R. Co.	
	(B) Northern Trust Co.	
Mellon, R. K., Pittsburgh.	(I) Gulf Oil Corporation	
	Koppers Co. of Delaware	
	Pullman, Inc.	
	Aluminum Co. of America	
	Pittsburgh Plate Glass Co.	
	(R) Pennsylvania R. R. Co.	
	(B) Mellon National Bank	President, and director.
	Union Trust Co.	
Wiggin, A. H., New York City.	(I) American Sugar Refining Co.	
	American Woolen Co.	
	(U) International Paper & Power Co.	
	Stone & Webster, Inc.	
	Western Union Telegraph Co.	
	Brooklyn-Manhattan Transit Corporation.	
	Hudson & Manhattan R. R. Co.	
	(R) New York, New Haven & Hartford R. R. Co.	

MEN HOLDING 7 DIRECTORSHIPS

Baker, G. F., New York City.	(I) United States Steel Corporation.	
	General Motors Corporation	
	Pullman, Inc.	
	(U) American Telephone & Telegraph Co.	
	(R) New York Central R. R.	
	(B) First National Bank (N. Y.)	Chairman of board and director.
	(F) Mutual Life Insurance Co. of New York.	Trustee.
Ecker, F. H., New York City.	(U) Consolidated Edison of New York, Inc.	Trustee.
	Interborough Rapid Transit Co.	
	Western Union Telegraph Co.	
	(R) Chicago, Milwaukee, St. Paul & Pacific R. R. Co.	
	St. Louis-San Francisco Ry. Co.	
	(B) Chase National Bank	
	(F) Metropolitan Life Ins. Co.	President and director.
McLennan, D. R., Lake Forest, Ill.	(I) Armour & Co.	
	Pullman, Inc.	
	Montgomery Ward & Co.	
	American Sugar Refining Co.	
	(U) Peoples Gas Light & Coke Co.	
	(R) Pennsylvania R. R. Co.	
	(B) Continental Illinois National Bank & Trust Co.	
Perkins, T. N., Westwood, Mass.	(I) Loew's Inc.	
	General Foods	
	(U) American Telephone & Telegraph Co.	
	Stone & Webster, Inc.	Member executive committee and director.
	(R) Southern Pacific Co.	
	Boston & Maine R. R. Co.	Do.
	(B) First National Bank (Boston)	
Reynolds, J. E., New York City.	(I) American Radiator & Standard Sanitary Corporation.	
	National Biscuit Co.	
	(R) New York Central R. R. Co.	
	Southern Pacific Co.	
	Southern Ry. Co.	

[1] Director unless otherwise indicated.

TABLE VIII.—*Men holding 4 or more directorships among the 250 great corporations with the names of the corporations*—Continued

MEN HOLDING 7 DIRECTORSHIPS—Continued

Names	Companies	Positions
Reynolds, J. E., New York City—Continued	(B) First National Bank (New York)	President and director.
	(F) Prudential Insurance Co. of America.	
Whitney, George, Westbury, N. Y.	(I) General Motors Corporation	
	Kennecott Copper Corporation	
	Pullman, Inc.	
	Continental Oil Co.	
	(U) Consolidated Edison of New York, Inc.	Trustee.
	(B) Guaranty Trust Co.	
	J. P. Morgan Co.	Partner.

MEN HOLDING 6 DIRECTORSHIPS

Names	Companies	Positions
Adams, C. F., Boston.	(I) General Electric Co.	
	United States Smelting, Refining & Mining Co.	
	(U) American Telephone & Telegraph Co.	
	Edison Electric Illuminating Co.	
	(R) New York, New Haven & Hartford R. R. Co.	
	(F) John Hancock Mutual Life Insurance Co.	
Loomis, E. E., New York City.	(I) American Can Co.	
	Phillips Petroleum Co.	
	(U) American Telephone & Telegraph Co.	
	(R) Great Northern Ry. Co.	Member executive committee and director.
	Lehigh Valley R. R. Co.	President, member executive committee and finance committee and director.
	(B) New York Trust Co.	Member advisory and executive committees and trustee.
Potter, W. C., New York City.	(I) Continental Oil Co.	
	(U) Electric Power & Light Corporation.	
	National Power & Light Co.	
	(R) Atchison, Topeka & Santa Fe Ry. Co.	
	(B) Guaranty Trust Co.	Chairman of board and director.
	(F) Mutual Life Insurance Co. of New York.	Trustee.
Taylor, M. C., New York City.	(I) U. S. Steel Corporation	Chairman of board, chief executive officer and director.
	(U) American Telephone & Telegraph Co.	Member, executive committee and director.
	(R) New York Central R. R. Co.	Do.
	Atchison, Topeka & Santa Fe Ry. Co.	Do.
	(B) First National Bank (N. Y.)	
	(F) Mutual Life Insurance Co. of New York.	Member, finance committee and trustee.
Weinberg, S. J., Scarsdale, N. Y.	(I) Sears, Roebuck & Co.	
	National Dairy Products Corporation.	
	B. F. Goodrich Co.	Member, executive committee and director.
	Continental Can Co.	Do.
	McKesson & Robbins, Inc.	Do.
	General Foods Corporation.	
Woolley, C. M., Greenwich, Conn.	(I) General Motors Corporation	
	General Electric Co.	
	American Radiator & Standard Sanitary Co.	Chairman of board, president and director.
	(R) Atchison, Topeka & Santa Fe Ry. Co.	
	Delaware, Lackawanna & Western R. R. Co.	Member board of managers.
	(F) Mutual Life Insurance Co. of New York.	Trustee.

MEN HOLDING 5 DIRECTORSHIPS

Names	Companies	Positions
Buckner, M. N., Fishers Island, N. Y.	(U) Interborough Rapid Transit Co.	
	Consolidated Gas, Electric Light & Power Co. of Baltimore.	
	(R) Chicago, Milwaukee, St. Paul & Pacific R. R. Co.	
	(B) New York Trust Co.	Chairman of board and trustee.
	(F) New York Life Insurance Co.	

TABLE VIII.—*Men holding 4 or more directorships among the 250 great corporations with the names of the corporations*—Continued

MEN HOLDING 5 DIRECTORSHIPS—Continued

Names	Companies	Positions
Carlton, Newcomb, New York City.	(I) American Sugar Refining Co.	
	(U) Western Union Telegraph Co.	Chairman of board and director.
	(R) Union Pacific R. R. Co.	
	(B) Chase National Bank	
	(F) Metropolitan Life Insurance Co.	
County, A. J., St. Davids, Pa.	(R) Pennsylvania R. R. Co.	
	Norfolk & Western Ry. Co.	
	Chicago Union Station Co.	
	(B) Chemical Bank & Trust Co.	
	Philadelphia National Bank	
Crawford, D. A., Golf, Ill.	(I) Armour & Co.	
	Pullman, Inc.	President and director.
	Montgomery Ward & Co., Inc.	
	(B) Continental Illinois National Bank & Trust Co.	
	Harris Trust & Savings Bank	
Gray, W. S., Jr., Greenwich, Conn.	(I) Texas Corporation	
	Union Carbide & Carbon Corporation.	
	Paramount Pictures, Inc.	
	General Foods Corporation	
	(B) Central Hanover Bank & Trust Co.	President and trustee.
Hayden, Charles, New York City.	(I) Shell Union Oil Corporation	Member executive committee and director.
	Kennecott Copper Corporation	Chairman finance committee and director.
	American Woolen Co.	Member executive committee and director.
	(U) Brooklyn Manhattan Transit Corporation.	Member executive committee, finance committee, and director.
	(R) Chicago, Rock Island & Pacific Ry. Co.	Chairman of board, chairman finance committee, and director.
Herrick, R. F., Boston, Mass.	(I) United Fruit Co.	Member executive committee and director.
	United Shoe Machinery Corporation.	Do.
	U. S. Smelting, Refining & Mining Co.	Do.
	(U) Edison Electric Illuminating Co. of Boston.	
	(B) First National Bank (Boston)	
Lamont, T. W., New York City.	(I) U. S. Steel Corporation	
	(R) Atchison, Topeka & Santa Fe Ry. Co.	
	Northern Pacific Ry. Co.	
	(B) Guaranty Trust Co.	
	J. P. Morgan Co., Drexel & Co.	Partner.
McInnerny, T. H., New York City.	(I) National Dairy Products Corporation.	President, member executive committee and director.
	B. F. Goodrich Co.	
	Gimbel Brothers, Inc.	
	(U) American Waterworks & Electric Co.	
	(R) Lehigh Valley R. R. Co.	
Prosser, Seward, Englewood, N. J.	(I) General Motors Corporation	Member finance committee and director.
	General Electric Co.	Member executive committee and director.
	Kennecott Copper Corporation	
	(B) Bankers Trust Co.	Chairman management committee, member executive committee, and director.
	(F) Equitable Life Assurance Society	
Robinson, H. M., Pasadena, Calif.	(I) General Electric Co.	
	Union Oil Co. of California	
	(U) Southern California Edison Co., Ltd.	
	(B) Security-First National Bank	Vice chairman executive committee and director.
	(F) Pacific Mutual Life Insurance Co.	Member executive committee and director.
Simpson, James, Chicago, Ill.	(I) Marshall Field & Co.	
	(U) Commonwealth Edison Co.	Chairman of board and director.
	Peoples Gas Light & Coke Co.	Do.
	Public Service Co. of Northern Illinois.	Do.
	(R) New York Central R. R. Co.	

TABLE VIII.—*Men holding 4 or more directorships among the 250 great corporations with the names of the corporations*—Continued

MEN HOLDING 5 DIRECTORSHIPS—Continued

Names		Companies	Positions
Sprague, A. A., Chicago, Ill.	(I)	International Harvester Co	
		B. F. Goodrich Co	
		Wilson & Co., Inc	
	(R)	Chicago & Northwestern Ry. Co	Member finance committee and director.
	(B)	Continental Illinois National Bank & Trust Co.	
Stockton, Philip, Boston.	(I)	General Electric Co	
		American Sugar Refining Co	
	(U)	American Telephone & Telegraph Co.	
	(B)	First National Bank (Boston)	President and director.
	(F)	New England Mutual Life Insurance Co.	
Sunny, B. E., Chicago, Ill.	(I)	General Electric Co	Member executive committee and director.
		Wilson & Co., Inc	
	(U)	Public Service Co. of Northern Illinois.	Do.
	(R)	Chicago Great Western Railroad Co.	Chairman of board and director.
	(B)	First National Bank (Chicago)	
Vanderbilt, Cornelius, New York City.	(R)	Illinois Central R. R. Co	
		Delaware & Hudson Co	
	(B)	Chase National Bank	
		Central Hanover Bank & Trust Co.	
	(F)	Mutual Life Insurance Co. of New York.	Trustee.
Wadsworth, Eliot, Boston, Mass.	(I)	United Shoe Machinery Corporation.	
		United States Smelting, Refining & Mining Co.	
		American Woolen Co	
	(U)	Stone & Webster, Inc	
	(F)	John Hancock Mutual Life Insurance Co.	
Warriner, S. D., Philadelphia, Pa.	(I)	Lehigh Coal & Navigation Co	President, board of managers and directors.
	(U)	National Power & Light Co	
	(B)	Philadelphia National Bank	
		Pennsylvania Co. for Insurances	
	(F)	Pennsylvania Mutual Life Insurance Co.	
Wing, D. G., Brookline, Mass.	(I)	United Fruit Co	
		United Shoe Machinery Corporation.	
		United States Smelting, Refining & Mining Co.	
	(B)	First National Bank (Boston)	
	(F)	Travelers Insurance Co	

MEN HOLDING 4 DIRECTORSHIPS

Anderson, A. M., New York City	(U)	International Telephone & Telegraph Corporation.	
	(R)	Northern Pacific Ry. Co	
	(B)	J. P. Morgan Co., Drexel & Co	Partner.
		New York Trust Co	Trustee.
Astor, Vincent, New York City	(U)	Western Union Telegraph Co	
	(R)	Great Northern Ry. Co	
		Illinois Central R. R. Co	
	(B)	Chase National Bank	
Baker, N. D., Shaker Heights, Ohio.	(I)	Goodyear Tire & Rubber Co	
		Radio Corporation of America	
	(B)	Cleveland Trust Co	
	(F)	Mutual Life Insurance Co. of New York.	Trustee.
Brown, Donaldson, Irvington-on-Hudson, N. Y.	(I)	General Motors Corporation	Chairman, finance committee, vice president and director.
		E. I. du Pont de Nemours & Co	
	(R)	St. Louis-San Francisco Ry. Co	
	(B)	National Bank of Detroit	
Brownell, F. H., Greenwich, Conn.	(I)	American Smelting & Refining Co.	Chairman of board, chairman finance committee and director.
		American Sugar Refining Co	
	(R)	Northern Pacific Ry. Co	
	(B)	Chase National Bank	
Carlisle, F. L., New York City.	(I)	St. Regis Paper Co	Chairman of board and director.
	(U)	Consolidated Edison of New York, Inc.	Trustee.
		Niagara Hudson Power Corporation.	Chairman of board and director.
	(F)	Marine Midland Corporation	

TABLE VIII.—*Men holding 4 or more directorships among the 250 great corporations with the names of the corporations*—Continued

MEN HOLDING 4 DIRECTORSHIPS—Continued

Names		Companies	Positions
Clement, M. W., Philadelphia.	(U)	Western Union Telegraph Co	Vice president in charge of operation and director.
	(R)	Pennsylvania R. R. Co	
		Norfolk & Western Ry. Co	
		Chicago Union Station Co	President and director.
Clothier, M. L., Villanova, Pa.	(U)	United Gas Improvement Co	
	(R)	Lehigh Valley R. R. Co	
	(B)	Philadelphia National Bank	
	(F)	Pennsylvania Mutual Life Insurance Co.	
Colt, S. S., Tuxedo Park, N. Y.	(I)	General Foods Corporation	
	(U)	Commonwealth & Southern Corporation.	
	(B)	Bankers Trust Co	
	(F)	Mutual Life Insurance Co. of New York.	Trustee.
Cummings, W. J., Chicago.	(I)	Texas Corporation	
		American Car & Foundry Co	
	(U)	Commonwealth Edison Co	
	(B)	Continental Illinois National Bank & Trust Co.	Chairman of board and director.
Cutler, Bertram, Green Village, N. J.	(I)	Radio Corporation of America	
	(R)	New York Central R. R. Co	
	(B)	Chase National Bank	
	(F)	Equitable Life Assurance Society of U. S.	
Davis, A. V., Pittsburgh, Pa.	(I)	Aluminum Co. of America	Chairman of board and director.
	(U)	Niagara Hudson Power Co	
	(B)	Mellon National Bank	
		Union Trust Co	
Day, J. P., New York City.	(I)	Union Carbide & Carbon Corporation.	
		R. H. Macy & Co	
	(U)	Consolidated Edison of New York, Inc.	Trustee.
	(F)	Metropolitan Life Insurance Co	
De Forest, H. W., New York City.	(I)	Tidewater Associated Oil Co	
	(U)	Western Union Telegraph Co	Member executive committee and director.
	(R)	Southern Pacific Co	Member executive committee, finance officer, and director.
	(B)	Guaranty Trust Co	Member executive committee and director.
D'Olier, Franklin, Morristown, N. J.	(I)	National Biscuit Co	
	(R)	Pennsylvania R. R. Co	
	(B)	Chase National Bank	
	(F)	Prudential Insurance Co. of America.	
Goelet, R. W., New York City.	(R)	Union Pacific R. R. Co	
		Illinois Central R. R. Co	
	(B)	Guaranty Trust Co	
		Chemical Bank & Trust Co	
Greene, E. B., Cleveland, Ohio.	(I)	Goodyear Tire & Rubber Co	
		Cleveland Cliffs Iron Co	President, treasurer, and director.
	(R)	New York Central R. R. Co	
	(B)	Cleveland Trust Co	Chairman executive committee and director.
Groesbeck, C. E., New York City.	(U)	American Power & Light Co	Chairman of board, member executive committee, and director.
		Electric Power & Light Corporation.	Do.
		National Power & Light Co	Do.
		American Gas & Electric Co	Do.
Harbord, J. G	(I)	Radio Corporation of America	Chairman of board and director.
	(R)	Atchison, Topeka & Santa Fe Ry. Co.	Member executive committee and director.
	(B)	Bankers Trust Co	
	(F)	New York Life Insurance Co	Do.
Harriman, W. A., Harriman, N. Y.	(U)	Western Union Telegraph Co	
	(R)	Union Pacific R. R. Co	
		Illinois Central R. R. Co	Chairman executive committee and director.
	(B)	Guaranty Trust Co	
Hartford, J. A., Valhalla, N. Y.	(I)	Chrysler Corporation	
		Great A. & P. Tea Co. of America	President and director.
	(R)	New York, New Haven & Hartford R. R. Co.	
	(B)	Guaranty Trust Co	

TABLE VIII.—*Men holding 4 or more directorships among the 250 great corporations with the names of the corporations*—Continued

MEN HOLDING 4 DIRECTORSHIPS—Continued

Names	Companies	Positions
Houston, D. F., New York City.	(I) U. S. Steel Corporation	
	(U) American Telephone & Telegraph Co.	
	(B) Guaranty Trust Co	
	(F) Mutual Life Insurance Co. of New York.	President and trustee.
James, A. C., New York City.	(I) Phelps Dodge Corporation	
	(R) Great Northern Ry	
	Western Pacific R. R. Corporation.	Chairman of board and director.
	(B) First National Bank (New York)	
Johnston, P. H., Montclair, N. J.	(I) Paramount Pictures, Inc	Member executive committee and director.
	(U) Hudson & Manhattan R. R. Co.	
	(B) Chemical Bank & Trust Co	Chairman of board and director.
	(F) New York Life Insurance Co	
Kirby, F. M., Wilkesbarre, Pa.	(I) F. W. Woolworth Co	Vice president and director.
	(U) United Gas Improvement Co	
	(R) Lehigh Valley R. R. Co	Member executive committee and director.
	(F) Metropolitan Life Insurance Co	
Loasby, A. W., Montclair, N. J.	(U) Interborough Rapid Transit Co	
	(R) Denver & Rio Grande Western R. R. Co.	
	Western Pacific R. R. Co	
	(B) Chemical Bank & Trust Co	
McCain, C. S., Chicago.	(I) B. F. Goodrich Co	
	Corn Products Refining Co	
	(U) United Light & Power Co	President and director.
	(R) Seaboard Air Line Ry. Co	
McCulloch, C. A., Chicago.	(I) Texas Corporation	
	Paramount Pictures, Inc.	
	(R) Chicago Great Western R. R. Co.	
	(B) First National Bank (Chicago)	
Mellon, Paul, Pittsburgh, Pa.	(I) Gulf Oil Corporation of Pennsylvania.	
	Pittsburgh Coal Co	
	(B) Mellon National Bank	
	Union Trust Co	
Mellon, W. L., Pittsburgh, Pa.	(I) Gulf Oil Corporation of Pennsylvania.	Chairman of board and director.
	Westinghouse Electric & Manufacturing Co.	
	(B) Mellon National Bank	
	Union Trust Co	
Moore, Paul, Convent, N. J.	(I) American Can Co	
	National Biscuit Co	
	(R) Delaware, Lackawanna & Western R. R. Co.	
	(B) Bankers Trust Co	
Murphy, G. M., P., New York City.	(I) Bethlehem Steel Corporation	
	Anaconda Copper Mining Co	
	Goodyear Tire & Rubber Co	
	Interlake Iron Corporation	
Perkins, J. H., Greenwich, Conn.	(U) Consolidated Edison of New York, Inc.	Trustee.
	(R) Union Pacific R. R. Co	
	(B) National City Bank	Chairman of board and director.
	(F) Mutual Life Insurance Co. of New York.	Trustee.
Pitcairn, N. B., Clayton, Mo.	(R) Wabash Ry. Co	Receiver and director.
	Lehigh Valley R. R. Co	Member executive committee and director.
	Chicago & Western Indiana R. R. Co.	Do.
	Terminal R. R. Association of St. Louis.	Do.
Renny, G. A., Chicago.	(I) International Harvester Co	Vice chairman of board and director.
	(U) Commonwealth Edison Co	
	Peoples Gas Light & Coke Co	Member executive committee and director.
	(B) First National Bank (Chicago)	
Richards, J. L., Newtonville, Mass.	(I) American Sugar Refining Co	Member executive committee and director.
	(U) Consolidated Gas Electric Light & Power Co. of Baltimore.	Do.
	Boston Elevated Ry. Co	Do.
	(R) New York, New Haven & Hartford R. R. Co.	
Robinson, W. C., Sewickley, Pa.	(I) Jones & Laughlin Steel Corporation.	
	(U) American Waterworks & Electric Co.	
	(B) Mellon National Bank	
	Union Trust Co	
Sawyer, P. B., Bethlehem, Pa.	(I) Lehigh Coal & Navigation Co	Member board of managers.
	(U) American Power & Light Co	
	Electric Power & Light Corporation.	
	National Power & Light Co	
Sloan, A. P., Jr., Long Island, N. Y.	(I) General Motors Corporation	President and director.
	E. I. du Pont de Nemours & Co	
	Pullman, Inc	
	(B) National Bank of Detroit	
Sloan, M. S., Brooklyn, N. Y.	(I) Continental Can Co	
	(R) Terminal R. R. Association of St. Louis.	
	Missouri-Kansas-Texas R. R. Co.	President, chairman of board, and director.
	(B) Irving Trust Co	
Tidd, G. N., New York City.	(U) American Power & Light Co	
	National Power & Light Co	
	American Gas & Electric Co	President and director.
	(B) Irving Trust Co	
Tilney, A. A., Plainfield, N. J., and New York City.	(U) Electric Power & Light Corporation.	
	National Power & Light Co	
	American Gas & Electric Co	
	(B) Bankers Trust Co	Chairman of board and director.
Tomlinson, R. E., Montclair, N. J.	(I) American Can Co	
	National Biscuit Co	President and director
	(R) Delaware, Lackawanna & Western R. R. Co.	
	(F) Prudential Insurance Co. of America.	
Tracy, E. B., New York City.	(U) American Power & Light Co	
	Electric Power & Light Corporation.	
	National Power & Light Co	
	American Gas & Electric Co	
Vanderbilt, H. S., New York City.	(I) Pullman, Inc	
	(R) New York Central R. R. Co	
	Chicago & North Western Ry. Co.	
	(B) First National Bank (New York City).	
Wayne, Joseph, Jr., Philadelphia.	(I) Philadelphia & Reading Coal & Iron Corporation.	
	(R) Pennsylvania R. R. Co	
	(B) Philadelphia National Bank	President and director.
	(F) Provident Mutual Life Insurance Co.	
Willard, Daniel, Baltimore.	(U) American Telephone & Telegraph Co.	
	(R) Baltimore & Ohio R. R. Co	Do.
	Reading Co	Chairman of board and director.
	(F) Mutual Life Insurance Co. of New York.	Trustee.
Wilson, J. P., Chicago.	(I) International Harvester Co	Member executive committee and director.
	Marshall Field & Co	
	(B) First National Bank (Chicago)	
	Harris Trust & Savings Bank	

TABLE IX.—*Residence of directors with four or more directorships*

New York and environs	48
Chicago and environs	11
Boston and environs	7
Philadelphia and environs	5
Pittsburgh and environs	5
Cleveland and environs	2
St. Louis and environs	1
Wilkes-Barre, Pa	1
Bethlehem, Pa	1
Baltimore, Md	1
Pasadena, Calif	1
Total	83

APPENDIX 13.—INTEREST GROUPINGS IN THE AMERICAN ECONOMY[1]

It is the purpose of this study to throw light on the degree to which the large corporations are linked among themselves through common control, community of interest groups, or more or less loose alliances.

It is of the very nature of the relationships which form the subject matter of this study that they are overwhelmingly qualitative in character. No statistical technique has been or is likely to be devised for reducing them to a quantitative scale. Furthermore informed observers will inevitably differ in their judgments about the weight to be attached to the various bits of evidence out of which a general picture must be pieced together. For this reason it is necessary to be as careful as possible in indicating the method of analysis which has been followed. Clearly no claim to unbiased accuracy can be set forth in a study of this sort; that fact alone puts the author under an obligation to present his material in a way to make critical appraisal possible and easy.

The kind of relationships which we are studying clearly have to do with the way in which corporations are managed and this in turn depends upon how and by whom they are controlled. How they are controlled may or may not be determined by their ownership. Consequently *control* is the central issue around which the study must turn.

Now it is a fairly simple task to classify corporations by the techniques employed in controlling them. The classification used by Berle and Means,[2] while not exhaustive, is an excellent working scheme. They distinguish five major types, each one pretty much self-explanatory: (1) control through almost complete ownership, (2) majority control, (3) control through a legal device without majority ownership, (4) minority control, and (5) management control. It is one thing, however, to be able to place a corporation in one or other of these categories and quite another to be able to identify and name the controlling individual or group. To a certain extent, to be sure, the two problems overlap. It is quite likely that if enough is known to place a corporation in one of the first four categories, enough will also be known to identify, at least in a general way, the controlling interest. This is not necessarily true, however, and in the case of the 5th category, it is likely not to be true. Since Berle and Means estimated that somewhere around one-half of the 200 largest nonfinancial corporations in 1929 were management-controlled, the importance of this reservation will be at once apparent.

Once a corporation has been classified by type of control, however, it is usually possible to go further and make a more or less accurate judgment about who controls it. The most important aid is undoubtedly a knowledge of the history[3] of the corporation and of the individuals who comprise its management (officers and directors).[4]

Once the identity of controlling interests has been established it is possible to begin grouping companies together. This is, however, the most difficult task of all. Some corporations clearly belong together. For example, if one individual or well-defined group of individuals owns a majority of the voting securities of two or more concerns, then it will scarcely be denied that these companies should be placed together in what we may call a single interest group. We can safely say the same about any number of corporations which are completely under the control of the same interests, whatever the form of that control may be. But the concept of an interest group should surely comprise more than merely such corporations as are altogether under the same control. For example, if two brothers or close friends each own a business, and if at many points the policies of the two businesses are made in common, it would seem desirable to group the one with the other as belonging to the same interest group. Or if an investment banker promotes and takes a continuing and significant interest in several different concerns, it would appear that good grounds exist for putting these concerns into a single interest group. Most likely in the latter case the investment banker will be part of the management in each, sharing the control with others. We could generalize, then, and say that companies ought to be grouped together if, in the absence of counter-balancing factors, they have a significant element of control in common.

Does this mean that any two companies whose directorates interlock should be classed together in one interest group? The answer to this question is em-

[1] Appendix 13, was prepared by Paul M. Sweezy.

[2] Berle, A. A., Jr. and Means, G. C., *The Modern Corporation and Private Property*, 1933, ch. V.

[3] The history of every corporation has certain critical phases: organization and promotion, expansion, and possibly bankruptcy and reorganization. The role which certain individuals or groups play during these periods commonly determines their importance in more normal times. It is for this reason that it is so important to have a knowledge of historical facts.

[4] In this connection, undoubtedly, the most valuable source of information is the magazine *Fortune*, which combines a high regard for accuracy with a special interest in personalities. On the other hand, there is very little to be found in the professional writings of economists and economic historians except in a few cases where the subject matter is specifically biographical.

phatically, "No." Anyone starting out on this principle would have little difficulty in putting all but a few of the 200 largest non-financial corporations into a single interest group.[5] This fact is not without significance, but the classification achieved by this method would cover up the kind of grouping it is desired to disclose. For present purposes, material on interlocking directorates is unquestionably important, but it must be used with care and discrimination.[6] Some general rules can be laid down, but in no case are they a complete substitute for knowledge of the relationships on which interlocking directorates are based. Interlocks may be classed as primary and secondary. A primary interlock exists between companies X and Y if a director of X, *whose main business interest is with X*, sits on the board of Y. If this same person also sits on the board of Z, then a primary interlock also exists between X and Z. These two relations, however, necessarily involve an interlock between Y and Z, and this we call a secondary interlock. It goes without saying that more weight should be given to primary than to secondary interlocks and that the latter should be interpreted only with caution.

More important in evaluating the significance of interlocking directorates is a knowledge of the general policies of the companies and individuals involved. Some firms and individuals regard the position of directorship as one of responsibility which involves their own reputations. They are not likely to assume such a responsibility unless they are in harmony with the general policy of the management of the company concerned and in a position to make their influence felt. This is clearly the case with the firm of J. P. Morgan & Co., for example. As a rule, a Morgan partner sits on the boards of only two or three large companies, frequently in related lines of activity. He is supposed to keep himself thoroughly informed and to take an active part in the affairs of these companies. When one considers the tremendous prestige which attaches to the Morgan name, it is easy to understand that the directorship of a Morgan partner is a fact of first importance in determining the orientation of a corporation. On the other hand, some individuals are perfectly willing to act as directors in a purely ornamental capacity, a function which in England is peculiarly reserved for members of the nobility. Directors, with no active business interests and no apparent asset except a name with prestige value, should always be regarded in this light unless there is specific evidence to the contrary.

It is obvious that multiple interlocks should be given more weight than single interlocks. In this connection, it is noteworthy that about half of the large companies in which J. P. Morgan & Co. is represented have two or more Morgan partners on their boards.

There are industrial and financial alliances which manifest themselves in other ways than through complete or partial common control. Most important are alliances based on banking and underwriting relations which do not result in formal interlocks. The connection between financier and manufacturer is generally not a casual one but a continuing one which gives rise to an active interest on the side of each party in the affairs of the other. Nevertheless, relations may remain entirely informal. For example, it was the general policy of Kuhn, Loeb & Co., under the leadership of Jacob Schiff, to eschew formal representation on the boards of its clients. Yet their responsibility for success was no less keenly felt. "Once a commitment had been made," Schiff's biographer comments, "the important task was to guide the borrower's financial projects in such a way as to promote their success. This essential service was not one which was legally due anyone concerned; yet it had to be rendered for the ultimate welfare of all. One way in which bankers can watch the interests of investors who look to them for guidance is to be represented in the management or board of directors of the concern for which they have issued loans. So far as Schiff was concerned he preferred, as a rule, that his firm should not be so represented. He felt that by personal conference and advice he could do as much as through formal representation."[7] When relations are of the kind preferred by Schiff, they can only be recognized and evaluated by knowledge of the history of the companies involved.

Some alliances are of a kind which does not permit of generalization. Such, for example, is the close connection which has long existed between J. P. Morgan & Co. and the First National Bank of New York. It began as a personal relationship between the elder J. P. Morgan and the elder George F. Baker, but long since took on an institutional character. Outwardly this alliance manifests itself in close cooperation between representatives of the two concerns in the affairs of various third companies. Appointment to a partnership in J. P. Morgan & Co. is regarded as the most desirable form of promotion by junior officers of First National. Before the Banking Act of 1933 two Morgan partners were on the directorate of First National's

[5] See Appendix 12.

[6] Cf. the statement made in a recent government investigation of railroads: "In investigations of control it has generally been the custom to lean rather heavily on interlocking directorates as a line of evidence. The present study prompts the view that such evidence can easily be overworked unless it is very exhaustively examined." *Regulation of Stock Ownership in Railroads*, 71st Cong., 3d sess., H. R. No. 2789, pt. 1, p. LXXVI. This report will hereafter be referred to as *Splawn Report: Railroads*.

[7] Adler, C. S., *Jacob H. Schiff: His Life and Letters*, 2 vols., 1928, vol. I, p. 27.

securities affiliate, the First Security Co., since dissolved. It would be misleading to call the Morgan-First National alliance unique, but it is certain that it would be difficult to fit into any general category. The list of such connections which defy generalization would be a long one; probably many exist which have altogether escaped the attention of the present writer. The best that can be done is to note them down and incorporate them in the general picture as they are discovered and checked.

From what has been said the reader will gather that the method followed in this study is thoroughly empirical and involves at every stage an exercise of practical judgment. An interest group is not a clear-cut concept which can be given concrete content according to mechanical rules. Accordingly the writer makes no claim to either completeness or finality. What follows should be regarded as tentative and subject to revision at many points if and when more adequate evidence is brought to bear on the problem. Only one general rule has been observed throughout and that is to disregard connections which are not based on pretty direct relations between two parties concerned.

There are, of course, no *a priori* limits to the scope which might be determined upon for this study. Ideally it should perhaps cover all significant interest groups judged by their relation to the economy as a whole. But such an ambitious project would take years to carry through, and the results would be difficult to present in a concise and readily intelligible form. Consequently, more or less arbitrary limits had to be imposed, firstly, on the segment of the economy considered; and, secondly, on the number of groups analyzed.

As to the first limit, the starting point was the list of the 200 largest nonfinancial corporations as of the end of 1935, presented and discussed in Appendix 10 above. The list had to be used before it had assumed final form so that there may be minor discrepancies between figures used in this section and those appearing in the final version of the list. The 200 largest nonfinancial corporations, for the purposes of this paper, then, include 107 industrials, 54 public utilities, and 39 railroads. It is inconvenient to handle the railroads as 43 separate companies since many of them are grouped together through minority stockholdings into large systems. In accordance with the procedure of the Splawn report on railroads, the bulk of the mileage has been grouped together into 13 major systems.[8] This, of course, involves the inclusion of a number of smaller roads (not in the Appendix 10 list) which belong to one or other of the major systems. The net result is that disucssion is limited to 13 major systems and 8 other roads with assets of $100 million or over.[9]

In addition to nonfinancial companies, it is necessary to consider at least banking companies in order to get a satisfactory view of the scope of important interest groups. This has been accomplished by including in the companies to be analyzed the 50 largest commercial banks as of the end of 1935.[10]

The total assets of the companies considered are set out in the following table:

Total assets at the end of 1935

	Millions of dollars
107 industrials	24, 943
54 utilities	25, 428
13 major railroad systems and 8 other roads with assets in excess of 100 million dollars	24, 258
50 banks	23, 722

It is possible to give a fairly accurate idea of the proportion of the total *corporate* assets of each class owned by the companies included in this table. According to figures presented in Appendix 11, at the end of 1933 the 104 largest corporations classified as "Manufacturing," "Mining and Quarrying," "Trade," and "Other," possessed 33.8 percent of the total corporate assets in these categories. The list is not quite the same as that for 1935, but the difference is of small order of magnitude. These classifications correspond to what have been summed up here under the heading "Industrials."

The 1933 figures indicate that the 96 largest corporations engaged in "Transportation and Other Public Utilities" owned 87.4 percent of all corporate assets in these fields. No precise breakdown between railroads and public utilities is available, but it is likely that the figure for rails should be somewhat higher and for utilities somewhat lower than 87.4 percent in their respective fields. In the case of rails, data compiled from the *Splawn Report: Railroads* show that the 13 major systems and 8 other roads included in the above table, owned at the end of 1929 about 95 percent of total railroad mileage. Assets figures would doubtless be roughly in proportion. Taking 95 percent as the correct figure for rails would mean, of course, that 75 percent would be about right for utilities.

In the case of banks it is possible to give a figure which is very nearly accurate. The 50 largest banks held, on December 31, 1936, deposits which amounted

[8] *Splawn Report: Railroads*, part I, p. LII. The report names 14 major systems, but suggests (p. LI) that "the assignment of the Illinois Central to the Union Pacific system would perhaps be justified by reason of the fact that the latter owns by far the largest block of Illinois Central stock, representing 28.94 percent of the total." This assignment has been made here, and, consequently, the number of systems is reduced to 13.

[9] There has been very little change in the composition of the major systems since the Splawn report. Nevertheless, in order to make the data as recent as possible, the grouping has been carried out in accordance with a chart compiled and published by Robert A. Burrows (Pittsburgh) entitled *Inter-Relation and Capitalization of the Principal American Railroads—As of January 1, 1933*. This chart is believed to be accurate and to embody all developments up to the time of its publication. In compiling asset figures for the systems, the assets of roads in which two systems have an equal interest have been divided between the two.

[10] "Largest" by total resources as reported in Moody's *Banks* for 1936.

to 47.9 percent of the average deposits of all commercial banks for 1936.[11] Assets figures would certainly not differ materially.

Summing up then, it may be estimated that the corporations included in this study own about 34 percent of the assets of all industrial corporations, 48 percent of the assets of all commercial banks, 75 percent of the assets of all public utilities, and 95 percent of the assets of all rails. It would probably not be denied that this sector of the economy is the seat of economic power out of proportion to its relative size.

The other limitation mentioned above, namely, the number of interest groups, has been more or less naturally dictated by the material itself.

From a careful company-by-company study there gradually emerged eight more or less clearly defined groups which so far overshadowed all the others that it seemed only logical to confine further attention to these eight.

It is manifestly impossible to rank these groups either by size or by influence. The interests of no two are equally divided among the different spheres of economic activity considered, nor are they at all strictly comparable from the point of view of the strength of the ties which bind them together. This point is important to emphasize. It if is kept in mind there is little danger of interpreting figures, despite their misleading appearance of precision, as more than general indicators of orders of magnitude.

The groups which will be considered may be designated for convenience as follows: (1) Morgan-First National, (2) Rockefeller, (3) Kuhn, Loeb, (4) Mellon, (5) Chicago, (6) DuPont, (7) Cleveland, and (8) Boston. The reasons for these particular labels should become clear in the course of the further discussion.

1. *Morgan-First National.*[12]—This group is for the most part based upon partial control by one or the other or more commonly both of the financial institutions after which the group is named. This partial control in turn is based upon long-standing financial relations and the very great prestige attaching to the Morgan and First National firms. Neither of these banking houses, however, operates through ownership to any significant extent. Some of the relationships which entitle corporations to membership in this group are more complex than ordinary partial control and require separate explanation.

The industrials included are 13 in number, listed with the number of Morgan-First National representatives in their management:[13]

Pullman, Inc. (6).
General Electric Co. (4).
United States Steel Corporation. (3).
Kennecott Copper Corporation. (3).
Phelps Dodge Corporation (2).
American Radiator & Standard Sanitary Corporation (2).
Continental Oil Co. (2)
Montgomery Ward & Co., Inc. (1).
National Biscuit Co. (1).
Philadelphia & Reading Coal and Iron Corporation (1).
Baldwin Locomotive Works (1).
Glen Alden Coal Co.
St. Regis Paper Co.

The last two named are special cases. Glen Alden owns and operates the coal properties which once belonged to the Delaware, Lackawanna and Western Railroad.[14] The ownership of the two are probably substantially identical, and we know that the D. L. & W. belongs to the extent of about 22 percent to the Bakers, the Vanderbilts, and the New York Central.[15] Two representatives of the First National are directors of Glen Alden's subsidiary, Delaware, Lackawanna & Western Coal Co., which handles sales. St. Regis can be more advantageously discussed under utilities.

There is good reason to believe that all the companies which are listed as having Morgan-First National representation on their managements have more than merely formal relations with the two financial institutions. To review all the evidence would carry us much too far afield into the sphere of economic history. The list errs if at all, in the writer's opinion, on the side of understatement. These 13 industrials have combined assets of 3,920 million dollars.

The utilitiesincluded in the group are as follows:

American Telephone & Telegraph Co.
International Telephone & Telegraph Co.
Consolidated Gas Co. of New York.[16]
United Corporation group:
- Commonwealth & Southern Corporation.
- United Gas Improvement Co.
- Public Service Corporation of New Jersey.
- Niagara Hudson Power Corporation.
- Columbia Gas & Electric Corporation.

[11] Data on the 50 largest are taken from the American Banker, January 19 1937, p. 11; and for all commercial banks from the *Annual Report of the Federal Deposit Insurance Corporation for the Year Ending December 31, 1936*, p. 125.

[12] The banking act of 1933 enforced the divorce of deposit banking from underwriting. J. P. Morgan & Co. elected to continue in business as a deposit bank, and a new firm, Morgan Stanley & Co., Inc., was formed by a number of the partners of J. P. Morgan & Co. and Drexel & Co. (the Philadelphia branch of J. P. Morgan & Co.), to take over the investment banking business. Though J. P. Morgan & Co. and Morgan, Stanley & Co., Inc., are, of course, legally entirely separate entities, they have nevertheless been treated as one for purposes of this analysis.

[13] This refers, as throughout this study, to the end of 1935.

[14] Moody's *Industrials*, 1935, p. 1276. The railroads were obliged under the anti-trust laws to divest themselves of coal properties.

[15] *Splawn Report: Railroads*, part I, pp. 134–5.

[16] Now Consolidated Edison Co. of New York.

Electric Bond and Share Group:[17]
American Power & Light Co.
American Gas & Electric Co.
National Power & Light Co.
Electric Power & Light Corporation.

American Telephone & Telegraph has three directors in common with First National, but its informal relations with J. P. Morgan & Co. are probably even more important.[18] Two Morgan partners are on the directorate of International Telephone & Telegraph.

The next group of companies, with which Consolidated Gas may well be considered, heads up into a superholding company called the United Corporation. United was formed in 1929 by J. P. Morgan & Co. and Bonbright & Co., acting in closest harmony.[19] Its avowed purpose was to foster "closer relations among the great public utility systems in the east." [20] The first set of directors of United comprised five partners of a leading New York law firm and soon after its formation, "these directors resigned to make way for Messrs. Whitney and Gates of J. P. Morgan & Co. and Messrs. Thorne and Loomis of Bonbright & Co., Inc." [21] There is not the slightest doubt that these two companies were in sole control of later operations. The steps subsequently taken and the interrelations among companies in the United Corporation group are much too complicated to detail. In spite of the fact that stockholders in Consolidated Gas are insignificant, nevertheless this company is very closely tied in with the rest of the group, particularly through the fact that one man, Floyd Carlisle, is chairman of the boards of Consolidated Gas, Niagara Hudson, and St. Regis Paper Co. This, plus substantial stockholdings, also explains the inclusion of St. Regis Paper in the group.[21a]

The inclusion of the Electric Bond & Share System rests on less secure foundations than in the case of the United Corporation System. Nevertheless it is believed that the supporting evidence is amply convincing. Electric Bond & Share Co. was originally formed by General Electric Co. as a subsidiary to take over securities acquired by the latter in exchange for generating machinery and equipment.[22] Though General Electric divested itself of legal control in 1925, there was no change in management and there is no reason to suppose that the two concerns do not continue to cooperate as before. General Electric, it will be recalled, is one of the industrial corporations closest to the Morgan and First National banking houses. Furthermore Electric Bond & Share has had in the past, and may still have, relatively small minority holdings in stocks of United Corporation, American Superpower Corp., Commonwealth & Southern, Public Service of New Jersey, and Niagara & Hudson.[23] "From the point of view of legal control," according to Bonbright and Means, "these stock interests of the Electric Bond & Share Co. in the United Corporation System are probably negligible. They become significant, however, by virtue of the fact that Electric Bond & Share Co. has long been closely affiliated with the banking house of Bonbright & Co., Inc.,[24] and they point strongly to the conclusion that the policies of the Electric Bond & Share Co. and of the interests controlling the United Corporation will be harmonious rather than antagonistic." [25] Nothing has happened since this was written to change this judgment.

The 12 utility companies included in the Morgan-First National group have combined assets of 12,191 million dollars.[26]

The assignment of railroad systems to the Morgan-First National group has been done sparingly. Only five major systems and one other road are included in the list, though an excellent case could be made out for according similar treatment to two more major systems and at least two other smaller roads. Those included are as follows:

New York Central System.[27]
Alleghany System.[28]
Northern System.[29]
Atchison System.[30]
Southern System.[31]
Western Pacific.[32]

Morgan and/or First National representatives partake in the managements of all the major systems listed, except Alleghany, and of Western Pacific. Financial

[17] American & Foreign Power has been omitted from this study because all of its properties are held abroad.

[18] The development of these relations has been traced in detail by the Federal Communications Commission in its investigation of the Bell System. See Federal Communications Commission, *Special Investigation Docket No. 1*, "American Telephone and Telegraph Company—Corporate and financial history", 3 Vols., Reports No. 22, 23, and 24.

[19] For the story of the formation and development of United Corporation see "High Finance in the 'Twenties: the United Corporation," *Columbia Law Review*, May 1936, June 1936.

[20] *Columbia Law Review*, June 1936, p. 936.

[21] *Ibid.*, May 1936, p. 787.

[21a] For interrelations within the United Corporation and Electric Bond and Share Group, see *Inter-relation and Capitalization of the Principal Public Utility, Holding, Operating and Investment Companies, as of January 1, 1936.* Compiled and published by R. A. Bunons, Pittsburgh.

[22] *Relation of Holding Companies to Operating Companies in Power and Gas Affecting Control*, 73rd Cong., 2d Sess., H. R. No. 827, part 3, pp. 437 and ff. This report will henceforth be referred to as *Splawn Report: Utilities*

[23] Bonbright, J. C. and Means, G. C., *The Holding Company*, 1932, p. 133.

[24] Up to 1935, Sidney A. Mitchell, president of Bonbright & Co., was a director of Electric Bond & Share and three of its major subsidiaries.

[25] Bonbright and Means, loc. cit.

[26] The assets of United Corporation, American Superpower, Electric Bond & Share, and American & Foreign Power are not included in this total.

[27] Includes New York Central; Delaware, Lackawanna & Western; and a one-half interest in Rutland.

[28] Includes Chesapeake & Ohio; Missouri Pacific; Erie; New York, Chicago & St. Louis; Pere Marquette; Chicago & Eastern Illinois; Wheeling & Lake Erie; and a one-half interest in Denver & Rio Grande Western.

[29] Includes Great Northern; Northern Pacific; Chicago, Burlington & Quincy; Spokane, Portland & Seattle; and Gulf, Mobile & Northern.

[30] Includes only Atchison, Topeka & Santa Fe.

[31] Includes Southern; and a one-half interest in Chicago, Indianapolis & Louisville.

[32] Includes Western Pacific; and a one-half interest in Denver & Rio Grande Western

relations have been in every case close and of long duration.[33]

Alleghany is a special case. This giant railroad system was built up, through the lavish use of holding companies, by the late Van Sweringen brothers of Cleveland. Almost from the inception of their career in the railroad field, the Van Sweringens relied heavily on both J. P. Morgan & Co. and the First National for advice and financial support. It is reasonably certain that without that assistance the Van Sweringens never would have built a railroad empire, nor would they have been able to remain in control once it was built.[34]

Since the last of the Van Sweringen brothers died in November 1936, a struggle for control of the profitable parts of the empire has developed between Robert R. Young and The Guaranty Trust Company which is closely allied to the Morgan house. It is still too early to predict the outcome of this contest, but there is a possibility that the bankers will lose out. Since this study, however, relates to the end of 1935, it is clearly correct to classify the Alleghany system in the Morgan-First National interest group.

The combined assets of the listed railroads amount to 9,678 million dollars.

In the banking field only three banks beside J. P. Morgan & Co. and the First National have been admitted to the list, though this decision was not taken until several further promising candidates had been rejected. The banks are as follows:

Guaranty Trust Co.
Bankers Trust Co.
New York Trust Co.

In the case of the first, three Morgan partners are directors and in the case of the others, two each. The combined assets of the five banks amount to 4,421 million dollars.

To sum up: the Morgan-First National group includes 13 industrial corporations, 12 utility corporations, 5 major railroad systems and one other road, and 5 banks. Total asset figures are as follows:

	Millions of dollars
Industrials	3, 920
Utilities	12, 191
Rails	9, 678
Banks	4, 421
Total	30, 210

(2) *Rockefeller.*—The Rockefeller group has been limited to companies about which there can be very little argument. It extends only into industrials and banks and comprises all told only seven corporations.

In the industrial field, the Rockefeller interests hold what amounts to a controlling minority position in six large oil companies, successor firms to the old Standard Oil Company, which was dissolved by court decree in 1911. These companies, together with the percentage of voting power held by John D. Rockefeller and/or Rockefeller-endowed institutions, are as follows:[35]

Name of company:	*Percent voting power*
Standard Oil Co. of New Jersey	16. 5
Socony Vacuum Oil Co., Inc	20. 8
Standard Oil Co. of Indiana	13. 8
Standard Oil Co. of California	16. 6
Atlantic Refining Co	7. 1
Ohio Oil Co	24. 0

These six companies have more than half the total assets of the oil industry. Rockefeller control is mostly exercised in a negative fashion, but is none the less real on that account. This was illustrated dramatically in 1929 when the management of Standard of Indiana, under the leadership of Robert W. Stewart, challenged the Rockefeller dominance and was decisively routed in a battle of proxies.[36] It will be noticed that the Rockefeller interest is smaller in Standard of Indiana than in any of the other companies except Atlantic Refining.

The total assets of the Rockefeller oil companies amount to 4,262 million dollars.

One bank, the Chase National, has been assigned to the Rockefeller group. John D. Rockefeller is probably the bank's largest stockholder, and Winthrop Aldrich, its chairman, is a long-time Rockefeller legal and business representative.[37] Chase National is the country's largest bank, with assets of 2,351 million dollars.

(3) *Kuhn, Loeb.*—The main activity of the investment banking house of Kuhn, Loeb & Co. has, at least until quite recently, always centered in the field of railroads. In financing, reorganizing, rehabilitating and advising railroads, Kuhn, Loeb has since the 1890's been the peer of J. P. Morgan & Co. As previously noted, it has never been the policy of Kuhn, Loeb to maintain more than a few of its contacts by means of directorships, but the reality of the community of interest between the firm and its clients is certainly not open to question on that account.[38] Only

[33] See for example Corey, Lewis, *The House of Morgan*, 1930, especially pts. IV, V, and VII; Daggett, Stuart, *Railroad Reorganization*, 1908, passim.

[34] For the story of the Van Sweringens' career see the following: *Stock Exchange Practices*, hearings before the Committee on Banking and Currency, U. S. Senate, 73d Cong. 1st Sess. on S. Res. 84 (72d Cong.) . . . and S. Res. 56 (73d Cong.), Pt. 2; *Investigation of Railroads, Holding Companies and Affiliated Companies*, hearings before a Subcommittee of the Committee on Interstate Commerce, U. S. Senate, 74th Cong., 2d Sess. pursuant to S. Res. 71, Pts. 1, 2, 3, 4, 7, 10; also *Splawn Report: Railroads*, Pt. 2

[35] As reported in *Report on Pipe Lines*, 72d Cong., 2d sess., H. R. No. 2192, pt. 1, p. xxxvi.

[36] The incident and its implications have been discussed at length by Berle and Means, *The Modern Corporation*, pp. 82-84.

[37] "Chase National Bank," *Fortune*, Jan. 1936. No study of stock ownership in banks, such as the House Committee on Interstate and Foreign Commerce has carried out for rails, utilities, and communications, has ever been made. It would be very desirable that this should be done.

[38] The peculiarly intimate connection which exists between a railroad and its banker is very clearly set forth and vigorously defended in a statement prepared by Kuhn, Loeb & Co. for the Interstate Commerce Commission in 1922, and reprinted under the title "The marketing of American railroad securities" in *Sale of Foreign Bonds or Securities in the United States*, hearings before the Committee on Finance, U. S. Senate, 72d Cong., 1st sess., pt. 2, pp. 305-322.

those contacts which have been very close and of long duration have been admitted as evidence of membership in the Kuhn, Loeb interest group. Besides railroads, of which five major systems and two other roads are included, only one utility and one bank are on the list. These are as follows:

Major railroad systems:
- Pennsylvania.[39]
- Union Pacific.[40]
- Southern Pacific.[41]
- Chicago, Milwaukee, St. Paul & Pacific.[42]
- Chicago & Northwestern.[43]

Other roads with assets over 100 million dollars:
- Missouri-Kansas-Texas.[44]
- Delaware & Hudson.[45]

Utilities:
- Western Union Telegraph Co.[46]

Banks:
- Bank of the Manhattan Co.[47]

It is quite likely that Kuhn, Loeb exercises less in the way of active control than J. P. Morgan & Co., and for that reason the group at present under consideration should be considered as less closely knit and more in the nature of a loose alliance.

Asset figures for the Kuhn, Loeb group are as follows:

	Millions of dollars
Industrials	
Utilities	342
Rails	9,963
Banks	548
Total	10,853

(4) *Mellon.*—The Mellon group is probably the best integrated and most compact of all the interest groups considered. It is based on a solid core of industrials and banks which are closely held by members of the Mellon family and a small number of close associates. Aside from companies of this description, two other types have been included, namely: (1) Those on the management of which three or more members of the Mellon group are active and probably dominant, and (2) those allied to the closely held Mellon companies by significant primary interlocks, and in the affairs of which no other group is represented. On this basis the Mellon list is as follows:

Industrials:
- Closely held:
  - Gulf Oil Corporation.
  - Koppers Co.[48]
  - Aluminum Co. of America
  - Pittsburgh Coal Co.
- Probably Mellon dominated:
  - Westinghouse Electric & Manufacturing Co.
- Allied:
  - Jones & Laughlin Steel Corporation
  - American Rolling Mill Co.
  - Crucible Steel Co. of America
  - Pittsburgh Plate Glass Co.

Rails:
- Virginian Ry. Co.[49]

Utilities:
- United Light & Power Co.[49]
- Brooklyn Union Gas Co.[49]

Banks (closely held):
- Mellon National Bank.
- Union Trust Co.

Total assets of the Mellon group are as follows:

	Millions of dollars
Industrials	1,648
Utilities	859
Rails	153
Banks	672
Total	3,332

(5) *Chicago.*—The Chicago group has been defined solely on the basis of interlocking directorates. Of 11 companies designated as belonging to this group, all with headquarters in Chicago, 1 interlocks with the other 10, 1 with 9, 1 with 8, 2 with 7, 3 with 6, 1 with 5, and 1 with 4. In every case at least one of the interlocks is double and several are triple. It is scarcely to be questioned that such a welter of interlocks signifies a substantial community of interest between the firms involved. The following are the 11 companies:

Industrials:
- International Harvester Co.
- Armour & Co.
- Marshall Field & Co.
- Wilson & Co.

Utilities:
- Commonwealth Edison Co.
- Public Service Corporation of Northern Illinois.
- Peoples Gas, Light & Coke Co.

[39] Includes Pennsylvania; Norfolk & Western; Wabash; Lehigh Valley; New York, New Haven & Hartford; Detroit, Toledo & Ironton; Boston & Maine; and a half interest in Rutland. For relations with Kuhn, Loeb, cf. Adler, *Jacob H. Schiff*, vol. I, especially pp. 71–82.

[40] Includes Union Pacific and Illinois Central. *Ibid.*, pp. 88–123, 131–144.

[41] *Ibid.*, pp. 117–121.

[42] *Ibid.*, pp. 150–151.

[43] *Ibid.*, pp. 50–51.

[44] *Ibid.*, p. 131.

[45] *Ibid.*, pp. 148–150.

[46] *Ibid.*, pp. 171–172.

[47] Cf. "Mr. Kuhn and Mr. Loeb," *Fortune*, March 1930. This article also has additional information on relations with railroads.

[48] In computing Mellon asset figures, the assets of Koppers have been divided as accurately as possible between industrials and utilities.

[49] The Mellon interests have, through Koppers and directly, by far the largest stockholdings in these companies. On Virginian, see the report in the *New York Times*, August 10, 1937, of hearings before the Senate Committee on Railroad Finance; and on the other two the Security and Exchange Commission's *Official Summary of Holdings of Officers, Directors and Principal Stockholders*, as of December 31, 1935.

Banks:
Continental Illinois National Bank & Trust Co.
First National Bank of Chicago.
Northern Trust Co.
Harris Trust & Savings Bank.

The connections between these companies are portrayed graphically in chart II of chapter IX. Their assets are as follows:

	Millions of dollars
Industrials	858
Utilities	813
Rails	-----
Banks	2, 595
Total	4, 266

(6) *Du Pont.*—The Du Pont group comprises only four companies, three industrial and one bank, but they are all in the top rank with respect to size. Like the Rockefellers, the Du Ponts exercise control through substantial minority stockholdings. Theirs is a compact, closely knit group. The key company is E. I. du Pont de Nemours, which the Du Ponts control through a family holding company, the Christiana Securities Co. The latter owns about 25 percent of the voting stock of E. I. du Pont de Nemours.[50] E. I. du Pont de Nemours in turn owns approximately the same proportionate interest in General Motors Corporation.[51] Du Ponts and Du Pont representatives dominate the management of both companies. The third industrial in this group is United States Rubber Co., in which another Du Pont family holding company, called Rubber Securities Co., owns about 20 percent voting power.[52] F. B. Davis, Jr., a Du Pont executive, was installed as president soon after the Du Ponts bought into United States Rubber. The Du Pont bank is the National Bank of Detroit, on the board of which sit five General Motors officials.

Assets of the Du Pont group are as follows:

	Millions of dollars
Industrials	2, 232
Utilities	-----
Rails	-----
Banks	396
Total	2, 628

(7) *Cleveland.*—The Cleveland group centers around the Mather interests in Cleveland. The corporations involved are as follows:

Industrials:
Cleveland-Cliffs Iron Co.
Republic Steel Corporation.
Youngstown Sheet & Tube Co.
Industrials—Continued.
Inland Steel Co.
Wheeling Steel Corporation.
Goodyear Tire & Rubber Co.
Interlake Iron Corporation.

Banks:
Cleveland Trust Co.

The interrelation of these companies, so far as stock ownership is concerned, is as follows: The Mather interests control the Cleveland-Cliffs Iron Co. by means of 100 percent of the voting common stock held through the Cliffs Corporation plus a substantial share of the voting preferred stock held directly. The Cleveland-Cliffs Co. has minority voting interests in the four steel companies. Relations are by no means confined to stock ownership, but so complicated is the whole picture that it defies brief and simple exposition. We shall have to be content with stating a few additional facts. The key company in the iron and steel group, Cleveland-Cliffs Iron Co., owns, next to United States Steel, the largest supply of unworked iron ore in the country.[53] The alliance between Cleveland-Cliffs and four of the so-called steel independents, Republic, Youngstown Sheet & Tube, Inland and Wheeling, is consequently seen to have a solid and durable economic foundation. These companies do not have any elements of management in common because a large number of interlocks were successfully attacked under the antitrust laws in 1935 and had to be abandoned.[54] There is no reason, however, to suppose that this altered their relations to one another except in a purely formal way. The Cleveland Trust Co. interlocks with Cleveland-Cliffs and Republic Steel in addition to the following smaller Mather interest concerns: Interlake Iron (twice), Interlake Steamship, and the Samuel Mather Estate, Inc. Goodyear Tire & Rubber belongs to the Cleveland group by virtue of its having two directors in common with Cleveland Trust and two others with Cleveland-Cliffs.[55]

Total asset figures for the Cleveland group are as follows:

	Millions of dollars
Industrials	1, 066
Utilities	-----
Rails	-----
Banks	338
Total	1, 404

[50] Prospectus of the E. I. du Pont de Nemours Co., dated June 30, 1937.
[51] *Ibid.*
[52] Securities and Exchange Commission, *op. cit.*
[53] "Iron and Steel," *Fortune*, May 1931.
[54] *Equity No. 5153, District Court of the U. S., Northern District of Ohio; U. S. A. petitioner* v. *William G. Mather et al., defendants.* Petition, filed February 7, 1935. For the final disposition of the case, whereby the defendants voluntarily agreed to give up their interlocking directorships, see press release of the Department of Justice, February 11, 1936.
[55] Cyrus S. Eaton, of Cleveland, who joined with the Mathers in forming the Cliffs Corporation just before the depression set in, was at one time in control of Goodyear. He lost control during the depression and for a time a number of banks, of which Cleveland Trust was one, were large stockholders. The story is told in detail by H. and R. Wolf in their book *Rubber*, 1936, book V, ch. III.

(8) *Boston.*—The Boston group heads up into the First National Bank of Boston and the Old Colony Trust Co.[56] Chart II of chapter IX[57] shows the very great extent to which the First National-Old Colony banking interests interlock with the other companies which have been assigned to this group, and they with each other. Most of the relations have roots reaching back 30 or more years, and there is little doubt of the reality of the community of interest which is symbolized in these interlocking directorates. The companies included follow:

Industrials:
- United Shoe Machinery Corporation.
- U. S. Smelting, Refining & Mining Co.
- United Fruit Corporation.[58]
- American Woolen Co.

Utilities:
- Stone & Webster, Inc.
- Edison Electric Illuminating Co. of Boston.

Banks:
- First National Bank (including Old Colony Trust).

Total asset figures are:

	Millions of dollars
Industrials	425
Utilities	554
Rails	
Banks	740
Total	1,719

Eight interest groups have been sketchily outlined insofar as they cover a sector of the economy which includes corporations with total assets of very nearly 100 billion dollars, fairly evenly distributed between industrials, rails, utilities and banks.

What percentages of these totals fall into the various groups and into all the groups together? This question is answered in the following table:

Percentages of assets considered which fall into the various interest groups[1]

	Morgan-First National	Rockefeller	Kuhn, Loeb	Mellon	Du Pont	Chicago	Cleveland	Boston	Total
Industrials	15.7	17.1	0	6.6	8.9	3.4	4.3	1.7	57.7
Rails	39.9	0	41.1	.6	0	0	0	0	81.6
Banks	18.6	9.9	2.3	2.8	1.7	10.9	1.4	3.1	50.7
Utilities	47.9	0	1.3	3.4	0	3.2	0	2.2	58.0

[1] This is the percent of total assets in the interest groups to the total assets in each of the four industrial groups in the 250 large corporations. See p. 308.

[56] These two banks merged their interests in 1929. Old Colony is now in effect the trust department of First National. See any of Moody's bank manuals for 1930 or after for details.

[57] See p. 162.

[58] Some question might be raised about the inclusion of United Fruit since there is no doubt that active control is in the hands of its managing director, Samuel Zemurray, of New Orleans. See "United Fruit," *Fortune*, March 1933. The fact that Zemurray retains the old directorate unchanged, however, would seem to indicate that he has reached a friendly understanding with the Boston group.

The reader should be cautioned against reading into this table implications which are not there. It does not relate to the whole economy but only to that segment which is roughly coterminous with the area controlled by the 200 largest nonfinancial corporations, and the 50 largest banks It is possible to argue that the influence of this segment is far greater than any statistical measure would indicate, but, of course, such an argument must rest on grounds different from any presented in this study. Secondly, it is not intended to imply that these aggregations of capital ever act as a unit under the rule of individual or oligarchic dictatorships. The social and economic content of the relationships which bind them together is far more subtle and varied than this. This study should be regarded as doing no more than posing the problem of the larger significance of the facts which it seeks to portray.

The method of procedure followed up to this point tends to give the impression that each of the groups considered is more or less isolated and unrelated to the others except, of course, by way of normal commercial transactions. This is very far from the actual state of things. Some idea of the way they overlap and interconnect is conveyed by the following list, very incomplete though it is, of contacts.

(1) *Between Morgan-First National and Mellon.*—Six representatives of Morgan-First National and three of Mellon are on the board of Pullman, Inc. This relationship resulted from the merger in 1930 of Pullman and Standard Steel Car, previously one of the closely held Mellon industrials. Texas Gulf Sulphur Co., which with the Freeport Sulphur Co., has a practical monopoly of the country's sulphur output, has two Morgan partners on its board, while Mellon's Gulf Oil Corporation owns one-third of its capital stock.

(2) *Between Morgan-First National and Chicago.*—Three prominent members of the Chicago group are on the directorates of Pullman, Inc., and Montgomery Ward & Co., Inc., both of which have been assigned to the Morgan-First National group.

(3) *Between Morgan-First National and Du Pont.*—Three high representatives of Morgan-First National are directors of General Motors, controlled through minority ownership by the Du Ponts. Additionally, the Morgan firms are chief bankers and underwriters for the Du Pont interests.

(4) *Between Morgan-First National and Boston.*—At least three men who rate as members of the Boston group are directors of General Electric, and five are directors of American Telephone & Telegraph. These two corporations are among those which have had longest and closest relations with both Morgan and the First National of New York.

(5) *Between Morgan-First National and Cleveland.*—The Cleveland group is represented on the directorates

of Alleghany Corporation and several of its subsidiaries. Alleghany has been assigned to the Morgan, First National group. Furthermore, three men are directors of both Alleghany and Goodyear Tire and Rubber.

(6) *Between Kuhn, Loeb and Cleveland.*—The records of the Securities and Exchange Commission indicate that at least since the beginning of 1935, Kuhn, Loeb has been the leading underwriter for the four steel companies in the Cleveland group, namely, Republic, Youngstown Sheet & Tube, Inland, and Wheeling.[59]

(7) *Between Kuhn, Loeb and Du Pont.*—One of the few large companies in which Kuhn, Loeb partners hold directorships is United States Rubber, and in this case two Kuhn, Loeb partners are directors. United States Rubber is controlled by minority ownership by the Du Ponts.

(8) *Between Du Pont and Rockefeller.*—The Du Ponts' General Motors and Rockefeller's Standard Oil of New Jersey own on a half-and-half basis the Ethyl Gasoline Corporation. The latter exercises a virtual police power over the terms and conditions of sale of 85 percent of the gasoline with high octane rating sold in the country.[60] This amounts to about 70 percent of all gasoline sold.

(9) *Between Rockefeller and Boston.*—One of the difficult problems which had to be decided in making up the various interest groups was whether the giant International Paper & Power Co. should be assigned to Boston or Rockefeller. Boston is particularly closely associated with its power subsidiary, New England Power Association, which holds well over half the total assets of International Paper & Power. For example, F. D. Comerford is at one and the same time a director of the First National Bank of Boston, chairman of New England Power Association, and president of Edison Electric Illuminating Co. of Boston. The latter has five directors in common with the First National and/or the Old Colony. On the other hand Chase National Bank now holds 16.6 percent of the voting power in International Paper & Power,[61] a holding exceeded only by that of the Phipps family. Furthermore, Chase and International Paper & Power have two directors in common.

The dilemma created by this situation was solved by assigning International Paper & Power to neither the Boston nor the Rockefeller groups.[62] That it provides a strong link between them, however, is evident.

(10) *Between Boston and Mellon.*—Gas in Boston is provided by Koppers' subsidiary Eastern Gas & Fuel Associates. Halfdan Lee, president of Eastern Gas & Fuel, is a director of First National Bank of Boston. Three prominent members of the Boston group are on the board of trustees of Eastern Gas & Fuel.

(11) *Between Mellon and Kuhn, Loeb.*—Westinghouse Electric & Manufacturing, certainly under Mellon influence and probably under Mellon control, has had long and close relations with Kuhn, Loeb.[63] The late Jerome Hanauer, former Kuhn, Loeb partner, was a director of Westinghouse until his death.

Before leaving the subject of the interrelation of the various groups, it is well to note the role played in particular by the American Telephone & Telegraph Co. The American Telephone & Telegraph Co. covers the greater part of the country with its score or more associated companies. Each of these subsidiaries has a complete corporate structure with a board of directors and banking relations at least partially unconnected with those of the parent company. It has been a deliberate policy of the Bell System to foster relations with the important industrial and financial groups in all the large centers where it does business.[64] The result is that every one of the groups which have been analyzed interlocks in greater or lesser degree with one or more of the Bell System companies, and probably most of the large banks have financial relations with the local Bell company. It is of course difficult to gauge the importance of connections of this sort, but the extent to which they have been developed leads to the belief that they are by no means insignificant. It is probably true that relations like those just described are of more importance and interest insofar as they form a bond between the major groups and apparently independent corporations both large and small. It is obvious, however, that the discussion of the implications of the Bell System and kindred organizations cannot be a part of this study.[65]

The material here presented raises questions to which no answer can here be attempted. What is the significance of the existence of more or less closely integrated interest groups for the pricing process? What are its implications for the relation between economic and political activity? How and to what extent do the views of leaders in the economic sphere make themselves felt in the life of the community?

These questions, and many more, are raised with an urgency proportionate to the degree of concentra-

[59] Also for the two of the other large steel independents, Bethlehem and National.

[60] The facts came to light in an antitrust suit initiated by the Department of Justice early in 1937; *Equity No. E. 84-321, District Court of the U. S., Southern District of New York; U. S. A., petition* v. *Ethyl Gasoline Corporation, Earle C. Webb, and John Coard Taylor, defendants; petition,* filed February 19, 1937.

[61] As of May 1937. S. E. C. File 33-22.

[62] Alternatively, the assets of International Paper & Power might be considered as evenly divided between Chase and Boston, thus raising the asset figures for Boston utilities from $554 to $942 millions. In assigning the other 50 percent of assets, it seems desirable to add them to Chase rather than directly to the Rockefeller total. This raises the Rockefeller bank total to $2,739 millions but adds nothing to utilities.

[63] See above, p. 312.

[64] A similar policy is adopted by other large companies which have subsidiaries scattered over the country. The American Telephone & Telegraph is simply the best-developed case.

[65] Ample raw material for a thorough analysis of this problem exists in the study of the Federal Communications Commission already cited. See particularly the volumes entitled "Outside Contacts of the Bell System" and "Banking Relations of the Bell System."

tion of economic leadership in the hands of a few. The present study will perhaps have helped to demonstrate that they have now attained the status of central issues.

TABLE I.—*Companies among the 200 largest nonfinancials and the 50 largest banks which do not fall into the 8 interest groupings* [1]

[Asset figures obtained from Moody's. In millions of dollars]

INDUSTRIALS	
Ford Motor Co	681. 6
Bethlehem Steel Corporation	673. 1
Anaconda Copper Mining Co	581. 5
The Texas Corporation	473. 8
Shell Union Oil Corporation	358. 1
Consolidated Oil Corporation	331. 1
Swift & Co	321. 4
Union Carbide & Carbon Corporation	271. 1
The American Tobacco Co	264. 2
Allied Chemical & Dye Corporation	252. 5
Sears, Roebuck & Co	234. 0
American Can Co	209. 1
Chrysler Corporation	193. 5
F. W. Woolworth Co	192. 3
National Dairy Products Corporation	192. 0
Great Atlantic & Pacific Tea Co. of America	189. 2
Tide Water Associated Oil Co	182. 8
National Steel Corporation	180. 5
Singer Manufacturing Co	175. 8
Phillips Petroleum Co	174. 5
American Smelting & Refining Co	171. 7
Liggett & Myers Tobacco Co	170. 5
Warner Bros. Pictures, Inc	168. 5
Eastman Kodak Co	168. 3
The Pure Oil Co	157. 2
R. J. Reynolds Tobacco Co	153. 9
Union Oil Co. of California	151. 7
The Firestone Tire & Rubber Co	139. 3
Loew's, Inc	128. 6
Hearst Consolidated Publications, Inc	128. 6
The Proctor & Gamble Co	127. 1
The B. F. Goodrich Co	124. 0
The Borden Co	120. 1
Paramount Pictures, Inc	118. 9
Corn Products Refining Co	118. 7
S. S. Kresge Co	118. 5
The American Sugar Refining Co	117. 7
Sun Oil Co	107. 1
National Lead Co	104. 0
Radio Corporation of America	102. 5
Crown Zellerbach Corporation	101. 3
General American Transportation Corporation	96. 3
Crane Co	95. 2
Continental Can Co., Inc	94. 6
American Car & Foundry Co	91. 2
R. H. Macy Co., Inc	90. 5
International Shoe Co	83. 2
The Lehigh Coal & Navigation Co	82. 0
Gimbel Bros., Inc	79. 9
Deere & Co	79. 7
Climax Molybdenum Co	79. 1
Minnesota & Ontario Paper Co	78. 2
The Cudahy Packing Co	76. 4
Brown Co	76. 4
J. C. Penney Co	74. 4
Allis-Chalmers Manufacturing Co	73. 2
Columbia Oil & Gasoline Corporation	71. 8
McKesson & Robbins, Inc. (Md.)	71. 4
S. H. Kress & Co	70. 4
American I. G. Chemical Corporation	69. 3
General Foods Corporation	67. 9
Total	10, 531. 4
PUBLIC UTILITIES	
Associated Gas & Electric Properties	1, 125. 4
Cities Service Co	1, 113. 2
The North American Co	1, 042. 6
International Paper and Power Co	771. 2
Pacific Gas & Electric Co	647. 3
Standard Gas & Electric Co	637. 3
Interborough Rapid Transit Co	554. 8
Middle West Corporation	400. 0
American Waterworks & Electric Co	396. 7
Utilities Power & Light Corporation	367. 2
Southern California Edison Co., Ltd	360. 2
The Detroit Edison Co	327. 2
Midland United Co	320. 0
Brooklyn-Manhattan Transit Corporation	300. 4
Duke Power Co	213. 6
Pacific Lighting Corporation	194. 3
Federal Water Service Corporation	176. 7
Consolidated Gas, Electric Light & Power Co. of Baltimore	160. 1
Central Public Utility Corporation	151. 6
Lone Star Gas Corporation	134. 3
Long Island Lighting Co	127. 6
Hudson & Manhattan Railroad Co	125. 5
Chicago Railways Co	112. 0
Boston Elevated Ry. Co	110. 6
3d Ave. Ry. Co	107. 2
Portland Electric Power Co	95. 0
Community Water Service Co	84. 5
Jersey Central Power & Light Co	80. 1
Associated Telephone Utilities Co	79. 4
Philadelphia Rapid Transit Co	73. 0
St. Louis Public Service Co	72. 8
National Fuel Gas Co	72. 4
The Baltimore Transit Co	67. 7
Natural Gas Pipeline Co. of America	67. 3
Total	10, 669. 2
RAILROADS	
Baltimore & Ohio R. R. Co	1, 118. 3
Atlantic Coast Line R. R. Co	786. 5
Reading Co	495. 3
Chicago, Rock Island & Pacific Ry. Co	481. 2
St. Louis-San Francisco Ry. Co	417. 9
Seaboard Air Line Ry. Co	272. 1
Western Maryland Ry. Co	168. 1
Chicago Great Western R. R. Co	141. 3
Kansas City Southern Ry. Co	131. 3
Florida East Coast Ry. Co	123. 2
Chicago Union Station Co	91. 4
Chicago & Western Indiana R. R. Co	88. 9
Terminal Railroad Association of St. Louis	77. 0
Minneapolis & St. Louis R. R. Co	72. 0
Total	4, 464. 5

[1] These companies and their asset figures are taken from the list of 200 largest nonfinancial corporations in Appendix 10, plus the 50 largest banks.

BANKS

National City Bank	1,880.7
Bank of America National Trust and Savings Association	1,277.4
Central Hanover Bank & Trust Co	914.8
Irving Trust Co	720.0
Manufacturers Trust Co	673.0
Chemical Bank & Trust Co	625.2
Security First National Bank	591.0
Philadelphia National Bank	452.8
Corn Exchange Bank Trust Co	317.4
American Trust Co	271.8
Wells Fargo Bank & Union Trust Co	248.6
First National Bank (St. Louis)	235.5
Pennsylvania Co., for Insurance, etc	235.3
Anglo-California National Bank	214.3
Bank of New York & Trust Co	204.5
National Shawmut Bank	203.5
First Wisconsin National Bank	199.4
First National Bank (Baltimore)	182.4
Marine Trust Co	176.1
San Francisco Bank	170.6
Commerce Trust Co	165.6
Mercantile-Commercial Bank & Trust Co	164.2
Public National Bank & Trust Co	156.3
Fidelity Union Trust Co	150.6
First National Bank & Trust Co. (Minneapolis)	149.8
Central National Bank of Cleveland	147.0
First National Bank (St. Paul)	146.9
Crocker-First National Bank	142.3
National City Bank of Cleveland	137.6
Seattle First National Bank	135.8
Bank of California, L. A	131.2
Industrial Trust Co. (Providence)	130.0
Fidelity-Philadelphia Trust Co	129.9
Total	11,661.3

NOTE.—The assets of the companies on the list of the 200 largest nonfinancials and the 50 largest banks total $98,108 millions. Of these companies, those not included in the 8 interest groupings control assets of $37,061 millions, or 37.8 percent.

TABLE II.—*Summary of assets of companies connected with the various interest groupings*

Interest grouping	Assets (millions of dollars)				
	Industrials	Utilities	Railroads	Banks	Total
Morgan-First National	3,920	12,191	9,678	4,421	30,210
Rockefeller	4,262			2,351	6,613
Kuhn, Loeb		342	9,963	548	10,853
Mellon	1,648	859	153	672	3,332
Chicago	858	813		2,595	4,266
DuPont	2,232			396	2,628
Cleveland	1,066			338	1,404
Boston	425	554		740	1,719
Total	14,411	14,759	19,794	12,061	61,025

NOTE.—The assets of the companies of the 250 list in which these 8 groups have a significant interest, $60,958 millions, are 62.0 percent of the total assets of the 200 largest nonfinancial companies plus the assets of the 50 largest banks ($98,350 millions);

APPENDIX 14.—THE ROLE OF LABOR ORGANIZATION[1]

Introduction

The rise of American trade-union membership to unprecedented heights in 1937 has made the influence of workers, as a group, on the determination of policies in industry potentially very much greater than it has been before in this country. Policies in regard to the use of national resources in production will increasingly reflect the result of joint consideration by labor and management of many details in the operation of industry. For an understanding of the operation of the American economy, it is essential, therefore, to consider the nature and extent of labor organization, and the methods through which organized workers participate in the determination of economic policies.

Labor organization, for the purpose of this survey, may be defined as any association of wage earners concerned with the industrial interests of its members. The trade union, traditionally defined as a continuing association of wage earners for the purpose of maintaining or improving the conditions of their working lives, is the predominant type of labor organization. The company union, together with its successor, the "independent union", is included, because among its purposes are attention to working conditions and protection of individual worker's interests, although its scope is narrower than that of the trade union. The fact that some company unions have been employer-dominated and for the primary purpose of preventing trade-union organization does not exclude the entire group from the category of labor organization.

The trade union movement in the United States throughout its history has reflected the character of the economic environment. The first unions, local groups of skilled craftsmen, were organized in the 1790's and early 1800's when the market had broadened enough to introduce merchant-middlemen between consumers and the producer group of craftsmen and their employers, with the resultant competitive pressure on prices and wages. As time went on, the widening of the market brought with it the development of the factory system, competition on a nation-wide basis, and larger scale operations under corporate control. Trade unions reflected these changes, in the development first of local trades unions, through which various craft unions cooperated on local issues; then the establishment of national unions of the various crafts, especially after the Civil War; and finally the federation of the national unions in the American Federation of Labor in 1886.

Labor organization throughout the century had its periods of resurgence and decline, of experimentation with political action and with utopian panaceas. The Knights of Labor, which rose to its peak in 1886 and rapidly declined thereafter, attempted organization to include all workers, and had broad social and political as well as industrial aims. By the end of the century, however, the American Federation of Labor was dominant among American labor organizations. Its policies of business unionism, hard-headed attention to the wage and hour problems of its members, and organization of the more skilled workers in the type of unions which could deal effectively with their problems, were well established, and resulted in a stability and strength unknown before.

The World War, with its demand for production, scarcity of labor, rising prices, and a generally high level of profits, put organized labor in a strategic position. Membership rose to over five million by 1920, and temporarily included large groups of the less skilled workers who had been unorganized before, especially in the metals, machinery, shipbuilding, transportation, and clothing industries. The gains proved unstable, however, and through most of the decade of the 1920's trade union membership stood again only a little above its pre-war level.[2]

A striking fact of the American labor movement is that it embraced so small a proportion of the workers before 1935. The best estimates[3] indicate that the percentage of all employees organized rose from 8.6 in 1910 to 17.5 in 1920, and fell to 9.3 in 1930. For all nonagricultural employees the percentage rose from 9.9 in 1910 to 19.4 in 1920, and fell to 10.2 in 1930. In the manufacturing field 12.7 percent of the wage-earners were organized in 1923, 10.9 in 1929, and 16.2 in 1933, while in 1935 the percentage had increased to 17.6.

The upturn from the depression in 1933 opened a new chapter in trade-union history. The expansion of union membership which began in that year, and by 1937 had reached perhaps 7,000,000 members, appeared to be a response to long-run underlying factors as well as to more immediate influences. The increase in business

[1] Appendix 14 was prepared by Emily C. Brown, assisted by Jean M. Massel.

[2] Leo Wolman. *Ebb and Flow in Trade Unionism*, New York, 1936, pp. 16, 28.

[3] *Ibid.*, pp. 116, 227; Wolman, Union Membership in Great Britain and the United States, *National Bureau of Economic Research Bulletin 68*, December 27, 1937, p. 11.

activity, rising employment, and rising prices provided a stimulus and an increasing opportunity for trade-union activity. Federal legislation encouraging and protecting labor organization, especially the National Industrial Recovery Act and the National Labor Relations Act, were influential in the movement. The widespread character of the movement, however, in areas hitherto entirely unorganized and among unskilled and semiskilled workers, seemed to reflect a new attitude of American workers—a demand for organization through which all workers, skilled and unskilled, could participate in the determination of the industrial policies directly affecting them. The insecurities met during the long depression and accumulated resentments against particular industrial policies contributed to the vigor with which this demand was pushed.

The consequent establishment of trade unionism on a wider scale than ever before, functioning under trade agreements in industries hitherto without experience in this sort of joint control, makes necessary a consideration of present-day trade unionism and its place in the American economy.

Current Labor Organizations in the United States

An attempt to describe the current structure of American labor organizations is confronted by grave difficulties. At a time of rapid development and change, the problem of securing the facts is serious, while facts once obtained rapidly become out of date. Nevertheless, the general outlines of the picture are of more than momentary significance and may be drawn with some definiteness. The details are presented only as the best information available as of September–October 1937.

A number of differentiations must be made in describing American labor organization at this time. The most generally recognized is that between the American Federation of Labor and the Committee for Industrial Organization. A second, not entirely coincident with the first, is that between craft and industrial unionism. In each of these categories are the local, the international union, and the federation. Finally, there are the "unaffiliated" unions, the company unions, and the so-called independent unions.

Craft and Industrial Unionism

A craft union is a union of workers who perform a certain type of work, with special skills, using tools characteristic of this craft or trade. The jurisdiction is over a rather narrow range of jobs, although the members may work in a considerable number of industries, producing a variety of products. Pure craft unions are relatively rare, most of the so-called craft unions covering several related types of work. Examples of pure craft unions are those of pattern-makers, window-glass cutters, and locomotive engineers. The unions of carpenters, machinists, printing pressmen, and teamsters are examples of "craft unions" having a jurisdiction broader than single crafts.

The industrial union, on the other hand, has a jurisdiction covering all the workers in an industry, whatever their occupation. The basis of this jurisdiction is the product. Whether the union includes all workers, even office workers and teamsters, however, differs from case to case. Examples of industrial unions are the unions of the men's and women's clothing workers, the mine workers, tobacco workers, and automobile workers.

The lines between craft and industrial unionism are blurred by a number of developments. In certain fields, craft unions are organizing on an industrial basis. The American Federation of Labor awarded jurisdiction over the radio and electrical manufacturing industry to the Brotherhood of Electrical Workers; over the lumber industry to the Carpenters and Joiners; and over the manufacture of aircraft to the International Association of Machinists. The machinists frequently organize on a semi-industrial basis, making agreements to cover all workers in auto repair shops and in many machine shops, and in locomotive building covering all workers except such other skilled groups as pattern-makers and molders. Such tendencies to expand toward industrial organization can be found among other craft unions.

The development of cooperative action by craft unions is another move toward a type of industrial action, while maintaining actual organization on a craft basis. The Pacific Coast Maritime Federation, local building trades councils, and metal trades councils, railroad shop crafts, and the entire group of standard railroad unions, all are examples of arrangements for joint action by craft unions, although the crafts maintain their separate identity.

From the standpoint of industrial structure it is clear that unions cannot be classed simply as craft or industrial. Rather there is a wide range of forms, from the pure craft union which makes craft agreements, through various joint-craft and semi-industrial forms, to the union which organizes and bargains collectively for all workers in the industry as a unit. Experimentation with all these forms is active at the present time, and different types appear to be proving themselves suited to different conditions.

Local and International Unions and the Federation

The local union is the basic unit of American trade unionism. The great majority of these local unions are members of a national or international union of the same craft or industry. During the years of rapid organization following the National Recovery Admin-

istration the federal local also has been of importance—a local union, directly affiliated with the American Federation of Labor and usually of industrial form, in an industry or group of industries in which there was not at the time a national union. Similar local unions, directly affiliated with the Committee for Industrial Organization, made their appearance more recently.

The international unions, made up of the local units, take their title from the fact that most of them include Canada within their jurisdiction, and a few Mexico, Cuba, and other areas. The international union is the seat of power in the American labor movement. The degree of control over local unions varies, but always is considerable. Autonomy is jealously maintained as against the power of the federation to which the international belongs, although it is the federation which lays down the lines of jurisdiction. On all matters within its jurisdiction, however, the international has authority. It is the international, or its local unions, which engages in collective bargaining, makes agreements, pays strike benefits, and in general carries on the industrial functions of a trade union.

The federation is formed by the affiliation of international or local unions. It sponsors State and city federations or councils of its affiliated unions. Its chief functions are the establishing of jurisdictional lines, the encouragement and support of organizing campaigns, the formulation of general policies for trade union action, and the promotion of legislation and governmental action favorable to the interests of labor. The American Federation of Labor has been for many years the central organization with which the great majority of organized workers are affiliated. The Committee for Industrial Organization functioned from 1936 to 1938 as a loose federation, and in 1938 established itself as a formal organization under a constitution, taking the name: Congress of Industrial Organizations.

The American Federation of Labor

The American Federation of Labor had its beginning in 1881 in the Federation of Organized Trades and Labor Unions, and in 1886 was formally organized under its present title. From the beginning it has been a federation of autonomous unions. In 1937 it included 100 national and international unions with their 28,642 local unions, and 1406 local trade and Federal unions directly affiliated with the Federation. The members of these locals were affiliated also through 738 city federations or "central labor unions" and 49 State federations.[4] There were four departments also in the Federation: the Building Trades Department, Metal Trades Department, Railway Department, and a Union Label Trades Department.

[4] American Federation of Labor. *Report of Proceedings of Fifty-seventh Annual Convention*, 1937, p. 76.

The American Federation of Labor, throughout its history, has included craft, industrial, and intermediate forms of unions, but the craft type has been predominant. A satisfactory estimate of proportionate membership is difficult to make, because of the uncertainties as to the type of many unions. However, it is clear that the industrial form came to have a larger share than previously during the upswing of union membership after 1933, because of the disproportionate increases in the mining, clothing, and later in the heavy industries.[5]

The American Federation of Labor has not, as a matter of official policy, preferred either the craft or the industrial form under all circumstances. It has held, however, that jurisdiction rights granted to a union by the American Federation of Labor must not be infringed upon by another union. In practice there have been numerous conflicts over jurisdiction between craft and industrial unions within the Federation. Problems of this sort came to the fore when organization developed on an industrial basis in industries which had been largely unorganized, but in parts of which various craft unions held jurisdiction according to their charters, as in the automobile, rubber, and electrical manufacturing industries.

The Committee for Industrial Organization

Before 1935 American trade unionism, with its predominatingly craft character, had not organized the heavy manufacturing industries. In 1934 about two-thirds of all American trade-union members were concentrated in the mining, quarrying and oil, building, transportation and communication, clothing, and paper and printing industries.[6] In manufacturing industries other than clothing and paper and printing, there were only 14 percent of all trade union members.[7] Organization in the heavy industries—automobiles, steel, rubber, and others—was very limited. In order to cover the important gaps in labor organization, the Committee for Industrial Organization was established in November 1935. It was initiated by the presidents of eight international unions affiliated with the American Federation of Labor, under the chairmanship of John L. Lewis of the United Mine Workers. Its purpose was stated in its first official publication:

> It has been formed for the purpose of encouraging and promoting the organization of the unorganized workers in mass production and other industries upon an industrial basis. Its aim is to foster recognition and acceptance of collective bargain-

[5] Dr. Wolman estimated that for all American trade unions the approximate percentage of craft unions in all trade union membership was as follows: 1914, 75 percent; 1929, 83 percent; 1933, 73 percent; 1934, 67 percent. (Wolman, *Ebb and Flow in Trade Unionism*, p. 92.) These figures were obtained by deducting from total membership the membership of certain clearly industrial unions, in mining, clothing, shoe, textile, brewing, ship-building, and electrical industries. They probably overestimate the craft percentage.

[6] Wolman, *Ebb and Flow in Trade Unionism*, p. 87.

[7] *Ibid.*, p. 91.

ing in such basic industries; to counsel and advise unorganized and newly organized groups of workers; to bring them under the banner and in affiliation with the American Federation of Labor as industrial organizations.[8]

This action followed upon the refusal of the American Federation of Labor, at its convention in October 1935, to grant unrestricted industrial charters to the unions of automobile, rubber, and other mass-production workers, and its insistence upon protecting the jurisdictional rights of existing craft unions. The test vote on this issue had been 18,024 to 10,933.[9]

This is not the place for a history of the controversy or an appraisal of the merits of the issues involved. The Committee for Industrial Organization proceeded actively to assist organization on an industrial basis among the automobile, rubber, electrical, steel, and other workers. The Executive Council of the American Federation of Labor on August 5, 1936, preferred charges of dualism and violation of their charters against the 10 American Federation of Labor unions which were then members, and ordered them to withdraw from the Committee. Upon their failure to accede, they were suspended as of September 5, 1936. The convention in November 1936, in the enforced absence of the Committee for Industrial Organization unions, upheld the action of the Executive Council.[10]

In October 1937 the Committee for Industrial Organization was functioning as a loose federation of 30 international unions, while the presidents of 2 additional American Federation of Labor unions, the International Typographical Union and the United Hatters, Cap and Millinery Workers, were members of the Committee as individuals. There were also 605 local industrial unions directly chartered. The local unions, both those belonging to the international unions and those directly affiliated, were associated also in the 82 industrial union councils, in cities, counties and States.[11] About half of the constituent unions were former American Federation of Labor members, the others newly organized or formerly independent unions, with a mixture of former American Federation of Labor units. Although the Committee for Industrial Organization did not adopt a formal constitution until November 1938, it was actively performing the functions of a trade union federation.

The Committee for Industrial Organization unions, on the whole, were industrial in character. The American Federation of Labor organizations, as shown earlier, included craft, multiple craft, and industrial forms. In 1937 jurisdictional lines were less rigid than at any earlier time, as a result of the rapid extension of union organization, the competition between the American Federation of Labor and the Committee for Industrial Organization in organizing new areas, and the resulting experimentation with new forms of organization by both groups. The jurisdictional question was being worked out in the field, and in some cases the formal jurisdictional rights, as stated in union charters, were not in accord with the actual situation.

Unaffiliated Unions

In addition to the American Federation of Labor and the Committee for Industrial Organization, which included the greater part of the organized workers, there were in September 1937 a number of independent or unaffiliated international unions. The largest groups were among railroad workers, including the four operating Brotherhoods and other organizations, which had never affiliated with the American Federation of Labor but cooperated fully with the American Federation of Labor unions. Among other groups the situation was in flux, but there were at that time unaffiliated unions of Government employees, shoe workers, maritime workers, and others.

Company Unions

The company union has been defined as "an organization confined to workers of a particular company or plant, which has for its purpose the consideration of conditions of employment."[12] It is characterized both by its limitation to the employees of one company,[13] and by the absence of contact or affiliation with the trade union movement. In the great majority of cases the initiative in establishing the organization came from the employer. Originating in "employee representation plans" established early in the century by several companies, the movement received a marked impetus during the war from the efforts of the National War Labor Board and other Federal labor boards to ensure prompt settlement of disputes in war industries. Interest in these plans continued during the post-war decade, as part of the personnel policy of many large corporations, and was one factor in the failure of trade unionism to maintain its post-war peak. The National Industrial Conference Board reported 313 employee representation plans in 1932, covering 1,263,194 employees.[14]

Under the National Industrial Recovery Act the company union movement had a renewal of activity, in

[8] American Federation of Labor. *Report of Proceedings of Fifty-sixth Convention*, 1936, p. 69. See also Committee for Industrial Organization, *The Case for Industrial Organization*, Washington, D. C., March 1936.

[9] American Federation of Labor, *loc. cit.*, pp. 65–68.

[10] *Ibid.*, pp. 80–83, 553.

[11] Committee for Industrial Organization, *Report of Director John Brophy to the Meeting of the Committee for Industrial Organization in Atlantic City, October 11, 1937*. Mimeographed, pp. 12–13; also *CIO, What It Is And How It Came To Be*, October 1937, p. 39.

[12] United States Bureau of Labor Statistics, *The Characteristics of Company Unions, 1935*. Bulletin No. 634, p. 3.

[13] In a very few cases these organizations cover a group of companies; for example, the Loyal Legion of Loggers and Lumbermen, or the American Guild of the Printing Industry, in Baltimore.

[14] National Industrial Conference Board. *Collective Bargaining Through Employee Representation*, New York, 1933, p. 16.

competition with the trade union organizing campaign. The number of company unions increased markedly. In 1935, a study by the United States Bureau of Labor Statistics found 592 company unions among 14,725 establishments in manufacturing, mining, and selected service, trade, and public-utility industries. The establishments having company unions employed 528,533 or 27.3 percent of all the workers employed in the plants surveyed.[15] The mass production industries, especially iron and steel and their products, machinery of all kinds, automobiles and other transportation equipment, rayon, petroleum refining, rubber goods, and slaughtering and meat packing, were the sections where company unions were most extensive in 1935. In these industries, the proportion of workers in plants with company unions ranged from about one-half to over 80 percent of the total.[16]

The changes occurring by September 1937 had greatly altered this situation. The success of trade union organizing campaigns, as indicated above, had established strong trade unions, functioning under trade agreements in the manufacture of steel, automobiles, radios and electrical machinery, rayon, and rubber goods, and in petroleum refining, as well as in other areas. Company unions continued to function at points within these as well as other fields, but they were much less extensive than two years earlier.

Valuable data on the nature of company unions are given in the study of the Bureau of Labor Statistics, which analyzes questionnaire reports on 592 company unions, and an additional more detailed field study of 126 cases. The Bureau estimated that more than half of the company unions studied were agencies for discussion only, or benefit and welfare associations, rather than organizations to perform the functions usually included under the term collective bargaining. About a third more were undertaking only a few of the activities in which trade unions normally engage, such as settling grievances, while broad questions of wages and hours, if discussed at all, "had not been submitted to a process of negotiation and bargaining. * * * Where these company unions have been successful in the limited area of grievance adjustment, a liberal, intelligent attitude on the part of management has been an important factor. With careful cooperation by management about half of the company unions in this group have become effective avenues for the adjustment of individual grievances." A final 15 percent were found to be "seriously attempting to function in those fields commonly ascribed to collective bargaining. They represented the interests of the workers with a vigor not entirely attributable to management encouragement."[17] But even the company unions which more or less approximated the trade union in form, with membership, dues, and written agreements, continued in most cases to be limited to a single company, and to hold themselves aloof from the trade union movement.[18]

Independent Unions

A development since 1935, and especially in 1937 after the Supreme Court upheld the constitutionality of the National Labor Relations Act, has been the appearance of labor organizations calling themselves independent unions. These differ from the unaffiliated unions such as the railroad brotherhoods in that typically they are limited to the employees of single companies. In compliance with the requirements of the National Labor Relations Act, they claim to be completely independent of management. They are independent also of connection with the trade union movement. "Independent company union" would perhaps be an appropriate name. In large numbers of cases they are the successors of company unions, and represent a continuation of the trend toward independence already apparent in 1935.

Information on these organizations is scanty.[19] They are often incorporated. They provide for financing by dues from their membership. Some of them have made written agreements. Some have won elections conducted by the National Labor Relations Board for the selection of collective bargaining representatives.[20] Others have been declared by the National Labor Relations Board to be company dominated and therefore illegal.[21] Attempts to form national federations of these independent unions have been made, but little information is available on their operations.

Trade Union Membership in the United States in 1937

Any estimate of the membership of trade unions in the United States in the fall of 1937 is subject to serious errors. Reports are available from both the major groups of unions, but there are gaps in the data, and question as to the comparability and accuracy of the figures available.

A discussion of the difficulties involved in attempting to estimate trade union membership is pertinent.[22] For

[15] *Characteristics of Company Unions, 1935*, pp. 31–33. Returns from 14,725 firms were received from a questionnaire sent to approximately 43,000 firms. In 96 of the plants, including 7.4 percent of the total workers covered, trade unions also existed.

[16] *Ibid.* pp. 42–45.

[17] *Ibid.*, pp. 204–5.

[18] *Ibid.*, p. 204.

[19] See National Labor Relations Board, Research Memorandum No. 1, March 14, 1938, *Statistical Analysis of 85 "Independent" Unions and Readapted Company Unions*, mimeographed. National Association of Manufacturers, *Labor Relations Bulletin*, July 23, 1937, pp. 3, 16–27; A. S. Regula, Employee representation and independent employee associations, American Management Association, *Personnel Series* No. 34, 1938; David J. Saposs and Elizabeth T. Bliss, *Anti-Labor Activities in the United States*, League for Industrial Democracy, June 1938, pp. 8–17.

[20] From October 1935 through December 1937, company unions or local independent unions won 103 or 48.6 percent of the 212 elections in which they participated, 99 of these victories occurring in 1937. Emily Marks and Mary Bartlett, "Employee elections conducted by the National Labor Relations Board," *Monthly Labor Review*, July 1938, pp. 33–34.

[21] See list of 55 such cases in Saposs and Bliss, *loc. cit.*, pp. 32–33.

[22] For a full discussion, see Wolman, *Ebb and Flow in Trade Unionism*, ch. 1 and *National Bureau of Economic Research Bulletin 68*, pp. 3–5.

the American Federation of Labor, the source of membership information is the report of voting strength of the international unions in the annual report of the Executive Council. This voting strength is based upon the monthly per capita tax paid by the affiliated unions to the Federation throughout the preceding year. The accuracy of the resulting figures differs according to the practice of the union concerned. As Dr. Wolman points out, the figures underestimate actual strength when unemployed members, temporarily unable to pay dues, are not counted or paid on. On the other hand, some unions either to bolster their prestige or to maintain their vote in the American Federation of Labor, report and pay on a larger number than are actually paid up within the union. The figures reported annually by the American Federation of Labor are therefore actual paid-up membership so far as the Federation itself is concerned, although not necessarily the actual numbers who are paying dues to the international unions.

For the Committee for Industrial Organization the problem is even more difficult. Since it was not yet established on a formal basis with a constitution and annual reports, its current statements on membership necessarily were somewhat informal. Paid up membership could be reported for its well-established unions. However, for some of the unions in process of organization, the evidence of their strength was not the number actually paying dues but the number who had signed pledge cards or in other ways indicated support. Moreover, the numbers of either dues-paying or informally affiliated members change so rapidly that no one figure is of great significance. In a period of rapid organization membership figures quoted are inevitably an estimate including actually paid-up members, unemployed members exonerated from dues, signed-up but not yet paid-up members, and in some cases estimates of organizers as to numbers owing allegiance to the union. It is impossible to estimate the extent to which the membership reported in October 1937 was dues-paying.

For the American Federation of Labor, total paid membership in August 1937 was reported as 3,271,726. Membership the previous August had been 3,586,567, including the Committee for Industrial Organization unions.[23] Thus an increase of nearly 600,000 members was shown to replace the more than 900,000 of the suspended Committee for Industrial Organization unions. Among the groups which had made substantial gains were the machinists, the electrical workers, the teamsters, and the directly affiliated local unions in a wide variety of industries. The building trades were the largest groups in the American Federation of Labor, and transportation and the metal trades the next.

For the Committee for Industrial Organization, it was announced on September 2, 1937, that membership amounted to 3,718,000. Of this number, 2,765,000 were included in 11 unions in the coal, auto, steel, garment, textile, lumber, rubber, electrical manufacturing, power and transport industries. Local unions directly chartered had a membership of some 200,000. The remaining 750,000 were in other international unions.[24]

The membership, or the number covered by agreements, as reported for some of the largest unions of the Committee for Industrial Organization, is given in the table below.

TABLE I.—*Membership or numbers covered by agreements, in largest unions of Committee for Industrial Organization, October 1937*

Union	Membership	Number covered by agreements
United Mine Workers	600,000	
United Automobile Workers	375,000	
Steel Workers Organizing Committee		500,000
Textile Workers Organizing Committee	450,000	270,000
International Ladies' Garment Workers Union	250,000	
Amalgamated Clothing Workers	225,000	
United Electrical, Radio, and Machine Workers	137,000	
Transport Workers Union	80,000	
United Rubber Workers	75,000	
Petroleum Workers Organizing Committee		65,000

Compiled from: Committee for Industrial Organization. *C. I. O., What it is and How It Came To Be.* October 1937, pp. 26–40; *Report of Director John Brophy to the Meeting of the Committee for Industrial Organization, in Atlantic City, Oct. 11, 1937,* pp. 3–11. The figure given for Textile Workers membership is of pledges signed.

For the trade unions which were not affiliated with either the American Federation of Labor or the Committee for Industrial Organization, up-to-date membership figures were lacking. The largest groups were in the transportation and communications field, and in public service, where there were in 1935 estimated memberships of 299,200 and 151,200.[25] Some of the unions which in 1935 had been independent had by 1937 affiliated with one or the other of the chief groups. The total membership of the unaffiliated unions in 1937 has been estimated at not more than 550,000.[26] For company unions and the more recently organized independent unions (or independent company unions) no membership figures were available.

Totaling these unsatisfactory membership figures, a very rough estimate is obtained of the membership claimed for all trade unions in the United States in the autumn of 1937:

[23] American Federation of Labor, Report of *Proceedings of the Fifty-sixth Annual Convention, 1936,* p 41; *Fifty-seventh Annual Convention. 1937,* p. 76.

[24] Radio address of John L. Lewis *New York Times,* September 4, 1937.

[25] Wolman: *Ebb and Flow in Trade Unionism,* p. 238.

[26] Wolman, *National Bureau of Economics Research Bulletin 68,* p. 5.

American Federation of Labor	3, 271, 000
Committee for Industrial Organization	3, 718, 000
Unaffiliated trade unions	550, 000
Total	7, 539, 000

This figure of 7,539,000 for the fall of 1937 is undoubtedly higher than actual paid-up membership. There is no reason to doubt, however, that actual membership was substantially above the previous high point estimated at 5,047,800 in 1920.[27]

The fact of increased trade union organization and the resultant increased participation of labor in the determination of industrial policies is indicated by several other types of evidence. The extent to which workers in different industries were covered by trade union agreements in July 1938 has been roughly estimated by the United States Bureau of Labor Statistics.[28] Among the large industries almost entirely covered by such agreements were men's and women's clothing, coal mining, newspaper printing and publishing, and railroad train and yard services. A large proportion, estimated at more than half of the employees, were covered by agreements in the automobile, book, magazine, and job printing, building and construction, electrical equipment, iron and steel, machinery, and rubber industries, and railroad shops, maintenance and clerical service. Substantial proportions were covered in other industries. Union strength was thus uneven. There were considerable areas in which there was little participation, while in others union collective bargaining was widespread and well-established.

The results of elections conducted by the National Labor Relations Board and its predecessors give another indication of trade union strength, in the numerous and widely distributed cases where disputes over the choice of employees' representatives for collective bargaining were settled by this means. As shown in the accompanying table II, trade unions won approximately three-fourths of the elections under the National Labor Board in 1933–34, and again under the present National Labor Relations Board from October 1935 through December 1937, while in the smaller number conducted by the first National Labor Relations Board in 1934–35, they won 58.2 percent. Company unions won 23.1 percent in 1933–34, and increased their percentage to 29.2 in the next year, while from 1935 through 1937 company unions and local independent unions won only 10.7 percent of all elections conducted.

[27] Wolman, *Ebb and Flow in Trade Unionism*, p. 16. For 1938 the American Federation of Labor reported its August paid membership as 3,623,087. American Federation of Labor, *Report of Executive Council to Fifty-eighth Annual Convention, 1938*, p. 9. The Committee for Industrial Organization reported its membership in October 1938 as 4,037,877. *Report of Chairman John L. Lewis to the First Constitutional Convention of the C I O*, Pittsburgh, Pa., November 14, 1938, p. 10.

[28] See Ch. VII, pp. 118, 110.

TABLE II.—*Results of elections conducted by the National Labor Relations Board, 1933–37*

Date	Number of elections	Number of valid votes	Percentage of elections won by—		
			Trade unions	Company unions or local independents	No organization
August 1933–July 1934 [1]	546	103, 714	74.7	23.1	2.2
July 1934–June 1935 [2]	154	45, 287	58.2	29.2	12.6
October 1935–December 1937 [3]	966	402, 300	74.8	10.7	14.5

[1] Emily Clark Brown, Selection of employees' representatives, *Monthly Labor Review*, January 1935, pp. 1–18.
[2] George Shaw Wheeler, Employee elections conducted by the National Labor Relations Board to June 16, 1935. *Monthly Labor Review*, October 1935, pp. 956–7.
[3] Emily Marks and Mary Bartlett, Employee elections conducted by the National Labor Relations Board, *Monthly Labor Review*, July 1938, pp. 31–38.

That conflict has attended this trend toward increased union membership and increased establishment of collective bargaining on a trade union basis is shown by the statistics of strikes, and the reports of the National Labor Relations Board on its cases. The number of strikes increased sharply from 1933 on reaching its peak in 1937, as shown in table III. It is significant, however, that a greatly increased proportion of all strikes had as their major issue questions of union recognition or other matters related to union organization. Such strikes in 1937 reached the peak of 57.8 of the total.

TABLE III.—*Strikes in the United States, 1927–37*

Year	Number of strikes	Number of workers involved	Percent of strikes in which union organization was major issue
1927	707	329, 939	36.0
1928	604	314, 210	36.5
1929	921	288, 572	41.3
1930	637	182, 975	31.8
1931	810	341, 817	27.8
1932	841	324, 210	19.0
1933	1, 695	1, 168, 272	31.9
1934	1, 856	1, 466, 695	45.9
1935	2, 014	1, 117, 213	47.2
1936	2, 172	788, 648	50.2
1937	4, 740	1, 860, 621	57.8

U. S. Bureau of Labor Statistics, Bulletin No. 651, *Strikes in the United States, 1880–1936*, pp. 21, 62. *Monthly Labor Review*, May 1938, pp. 1188, 1200.

The statistics thus suggest that failure to accept trade union collective bargaining was responsible for a very substantial part of the strikes during this period of rapid transition. On the other hand, the National Labor Relations Board reports that of its cases on charges of unfair labor practices and issues over representation, a large proportion of those finally disposed of were closed by agreement of the workers and employers. For the entire period from October 1935 to October 1, 1938, of 13,472 cases closed, 7,174 or 53 percent, were closed by agreement of both parties.[29]

[29] National Labor Relations Board, *News Release*, R-1260, October 29, 1938.

The Nature of Trade Union Participation in Industrial Management

The Collective Agreement

The collective agreement is the immediate goal of trade unionism, although trade unions, however strong, have found this instrument inadequate in some respects for their purposes and therefore have turned to governmental action to deal with some of their problems. When labor organization attains such strength that it can influence economic policies in any industry, it tends to record the amount and kinds of its participation in industrial management in a collective agreement entered into by the union and representatives of the management. In those parts of industry in which trade unions have been established in the past, collective agreements have been extensive. With the recent expansion of unionism, collective agreements have appeared in many important industrial fields hitherto untouched by such instruments.[30] Under these circumstances it is desirable to consider the nature of these agreements and their indication of the extent and type of participation by workers in the determination of industrial policy.

A collective agreement, or trade agreement, is a document which results from the process of collective bargaining or negotiation between representatives of workers and of their employer or employers, over the conditions of their employment. These agreements range from very brief and simple statements of wages, hours, and other conditions to highly developed and elaborate regulation of many details of industrial relationships. Their essence is, however, their statement in writing of the details of an agreement between employees collectively and their employer or employers, on certain points as to the conditions of employment.

The collective agreement reflects accordingly the industrial purposes of the labor organization which negotiates it. These purposes, varying in detail among the organizations, may nevertheless be summed up under four points: First, establishment of uniform standards in labor conditions, to protect workers as a group from the undermining competition of individual workers and wage-cutting or price-cutting employers; second, positive improvements in wages, hours, and working conditions; third, the protection of the job, and the establishment of a measure of security for individual workers; fourth, the establishment of means whereby workers can influence the determination of industrial policies which directly affect them. All of these purposes are to be seen throughout the history of trade unionism. In some of the newer trade unions, now on the upswing, the third and fourth appear of especial importance, since standards of wages and hours in these industries were already relatively good, and not the greatest sources of dissatisfaction. The influence of the depression on job insecurity is clearly seen in many of the newer agreements. The demand for recognition and a voice in industry, clear in all agreements, is a product both of recent trends in governmental policy, notably the National Industrial Recovery Act and the National Labor Relations Act, and of the trend, in a country which prizes its political democracy, whereby workers come to demand some measure of democracy in the determination of the industrial policies which affect them.

Collective agreements are possible only after labor has organized, has been recognized by the employer for purposes of negotiation on matters of common interest, and has negotiated and reached agreement on these questions. Strikes, picketing, and boycotts are methods used by labor in the preliminary stage of organizing and securing recognition, just as lockouts, black lists, labor espionage, hiring of strike breakers, and securing of injunctions are methods used by employers who are unready to recognize unions and bargain with them. Labor conflicts occur also in the breakdown of negotiations, but the most bitter strikes are those which involve the right of the union to exist and function. Of the strikes ending in 1937, there were 57.8 percent, affecting 59.8 percent of the workers involved in strikes, which had as major issues questions of union recognition, discrimination, or other union organization matters.[31] Since the concern here, however, is not the problem of attaining recognition and the collective agreement, but rather the nature of the resulting labor participation in determination of policy in industry, the problem of labor conflicts will not be further discussed.

Collective agreements can be classified according to the geographic area and the industrial area covered. They can be analyzed as to the subjects upon which they touch, and as to the mechanisms of enforcement and administration of the systems of industrial law established by the agreement. Each of these points will be discussed briefly and certain points noted with respect to recent trends.[32]

Since the local union is the basic unit in American trade unionism, and since control over a wider area involves many difficulties, it is not surprising that the most common geographic area for the collective agreement is the local market. These local agreements are negotiated and signed by the union sometimes with an association of employers and sometimes with individual employers, but they tend to set the standards for the

[30] See chapter VII, pp. 118, 119.

[31] Review of Strikes in 1937. *Monthly Labor Review*, May 1938, p. 1200.

[32] Unfortunately there is no adequate extensive analysis of the collective agreements now in effect in all industries. Raw material exists in the valuable file of collective agreements of the U. S. Bureau of Labor Statistics and was used in the present brief analysis. See articles on collective bargaining in various industries in the *Monthly Labor Review*, 1936–1938; also the National Industrial Conference Board, *Conference Board Service Letter*, August 31, 1937, September 30, 1937, and October 30, 1937

entire local market. Typically, the agreements of the building trades, printing trades, garment trades, metal trades, and many others, are of this nature. In some of these cases the competitive market is a local one, and coincident with the area of collective bargaining, but in more cases this is not true. Tendencies toward standardization over a wider area, however, result in some cases from standards prescribed in union constitutions or by union convention action, from requirements that agreements are subject to approval by international union officials, and by the participation of such officers in local negotiations.[33]

At the other extreme are national agreements, which set standards for the entire national market, and are negotiated by national collective bargaining machinery.[34] Their actual coverage differs, from industries with very extensive organization to others in which the standards have been accepted by only a part of the industry. Such agreements have existed for many years in various branches of the glass industry, in the pottery industry, and among stove molders. The installation of automatic sprinklers is controlled under a national agreement. Early in 1937, a national agreement was signed by the Tile and Mantel Contractors' Association and the bricklayers' union. The agreement in sections of the full-fashioned hosiery industry has for some years exerted great influence toward uniformity of labor conditions in the industry.[35] In addition to these formal collective agreements on a national basis, national collective bargaining on certain points has developed in several cases. On the railroads the collective agreements are made by the various unions with the individual railroads. However, national collective bargaining conferences between the Association of Railway Labor Executives, representing the 21 standard railroad unions, and representatives of the carriers, have resulted in general wage decreases or increases, as well as agreements on other matters, such as dismissal compensation for employees displaced by coordination of railroads. The first national collective bargaining in the men's coat and suit industry, in 1937, resulted in an agreement covering 135,000 members of the Amalgamated Clothing Workers.[36]

The agreements in the bituminous coal industry illustrate intermediate types of agreements, covering broad districts, but not the entire market. The Appalachian agreement is the basic bituminous coal agreement negotiated by representatives of the United Mine Workers and the operators from some eight States. Since detailed agreements for the various districts and agreements for other parts of the country are negotiated later, the Appalachian agreement sets standards which influence all other agreements in the industry. In a number of other industries considerable districts are covered by agreements negotiated and signed by a group of employers. Examples are the agreements in the pulp and paper industry of the Pacific coast, the Pacific coast agreements of the various maritime unions, and the textile dyeing and finishing agreements covering New York and New Jersey. An agreement for the silk and rayon industry, negotiated in 1937 by a group of manufacturers and the Textile Workers' Organizing Committee, was later signed by mills which were reported to employ more than half of the workers of the industry.[37] The United Automobile workers have signed agreements covering tool and die plants and other highly competitive sections of the industry. All of these agreements, in varying degrees, result in a standardization of labor conditions over an area wider than the local labor market.

A fourth type of agreement, now becoming of much greater importance than previously, is the agreement negotiated with the great corporation. When the agreement covers many plants, in different States, and is negotiated between international officers of the union and executives of the corporation, it represents collective bargaining of extensive coverage. A further influence toward standardization of conditions arises in some industries when agreements made with various companies are in much the same form. Agreements in 1936 and 1937 were made with General Motors and other automobile companies, Carnegie-Illinois and other steel companies, Sinclair and other oil companies, Firestone and other rubber companies, the Viscose Corporation, the Aluminum Co. of America, the Anaconda Copper Co., and innumerable others. This development brings the collective agreement extensively into mass-production industries, and results in new problems and new techniques as trade-unions develop methods of participation in the determination of policy under these different conditions.

Classifying collective agreements according to their industrial jurisdiction, we find craft, industrial, and joint-craft agreements, with numerous variations and combinations of the basic types. The craft agreement is typical among the building, printing, and metal trades, the railroad unions, the maritime unions, and others. The industrial agreement, on the other hand, covers essentially all workers in the industry, although the inclusiveness of such coverage differs somewhat from union to union. Typical industrial agreements are those in the coal, brewery, and garment industries for the older unions, and in the automobile, steel, rubber,

[33] U. S. Bureau of Labor Statistics Bulletin No. 618, *Hand Book of American Trade Unions*, 1936 Edition, pp. 19-20.

[34] *Ibid.*, pp. 21-23.

[35] George W. Taylor, "Trade union agreements," in *American Management Association, Personnel Series* No. 27, 1937, pp. 26-35.

[36] *Monthly Labor Review*, July 1937, pp. 23-24.

[37] Committee for Industrial Organization, *Union News Service*, August 23, 1937.

radio, rayon, and textile industries for the new types. In a few cases, especially in the garment industry, craft locals are the basic union unit within the industrial union, but the agreement is an industrial agreement.

There is also a tendency toward joint action in negotiating agreements by craft unions and sometimes craft and industrial unions. The railroad unions since 1932 have negotiated in groups through national collective bargaining conferences on national issues, although the agreements are made by each separate union, or group of unions such as the shop crafts, with each carrier. The Pacific maritime unions negotiate jointly, and their craft agreements signed by the individual unions have similar expiration dates. The building trades through the local Building Trades Councils sometimes cooperate in the negotiation of contracts. In some cases, as in Chicago, a standard agreement negotiated with an employers' association is used by many of the building crafts as the basis of their separate agreements, written with uniform expiration dates.

Instances of agreements negotiated by two or more unions and signed jointly occur also in various industries. In a few cases, notably on the Pacific coast, general joint agreements covering all the building crafts are signed with local contractors' associations. Railroad shop craft agreements, signed by a group of unions, have been mentioned. The Pacific coast pulp and paper agreement is signed by the two international unions of paper makers, and pulp, sulphite, and paper mill workers. The Anaconda Copper Co. has one agreement signed by 14 craft unions of building and metal trades, and another of approximately the same dates, signed by the mine, mill, and smelter workers. The Aluminum Co. of America signed its first agreement with federal locals of aluminum workers and one local union of machinists. Another aluminum agreement reported was signed by 16 unions, federal and craft locals, as a joint council.[38]

A problem arises in connection with such agreements made jointly by a group of local unions, however, over conflicts between local or district autonomy and control by the international unions. In cases where local unions do not have autonomy in the making of agreements, cooperative joint action with other crafts is sometimes hindered. Such difficulties have occurred in the building trades, among the maritime unions, and elsewhere.[39]

While independent craft agreements continue to be the chief form in fields where craft lines remain distinct and craft workers are in the majority, the trend toward joint negotiation is marked in spite of difficulties, and joint agreements are appearing. The development of various types of industrial agreements in other fields where craft lines are of less importance, on the other hand, has become a significant movement in recent years. The usefulness of possible variations in the industrial character of agreements is being tested by the active experiments under way.

[38] *American Federationist*, August 1937, pp. 832–4.

[39] Lewis L. Lorwin, *The American Federation of Labor*, Washington, 1933, pp. 307, 376–77, 387.

Subjects Covered by Agreements

A reading of typical collective agreements gives impressive evidence of the extent to which trade unions participate in industrial management. While some agreements specify little more than basic standards of wages and hours and provisions for settlement of disputes, others give highly detailed rules for many aspects of labor and business activity. The more important subjects covered by these agreements may be classified under seven heads: Union recognition, working time, wages, physical conditions, labor supply and employment policies, job protection, and enforcement of the agreement.

1. The first essential in the agreement is the statement of the extent of recognition of the union, either as the representative for all employees or as the representative only for the members of the union. In the former case the union has sole bargaining rights even though there is no closed shop.

2. The regulation of working time starts with the establishment of the basic work day and week, and goes on to regulation of overtime and night work, both as to whether and under what conditions it is permissible and as to penalty rates of pay. Regulation or prohibition of work on Sundays and holidays is often included.

3. As to wages, rates per hour or week, or sometimes piece rates, are usually written into the agreement. Corporation-wide agreements, however, sometimes provide only for local negotiations on wage questions. There are many regulations of pay for overtime, and for work on Sundays or holidays. In a few cases certain holidays are paid for. Vacations with pay are found in an increasing number of cases, for instance in agreements in the rubber, oil, and steel industries, and among street railway and bus companies.[40] Numerous provisions are found for extra pay if workers are called in for a short time, or are forced to wait for work. Permits for lower rates for older or disabled workers occur occasionally. Provisions for the time and method of payment are often included. Coal miners have a right to checkweighmen of their own choosing to inspect the weighing of coal as a basis for payment.

4. Union participation in job study and the determination of piece rates and production standards is very extensive in some industries. In the garment industries the highly technical problem of setting piece rates or

[40] *Monthly Labor Review*, June 1937, pp. 1486–88; August 1938, pp. 269–74.

each type of garment, to conform to the standards of weekly minimum rates, is handled in each case by a committee representing the union and the workers in the particular shop, and the manufacturers. Classification of grades of garments, standardization, and the time study of operations is a necessary basis. Examples of job classification procedures may be found in various industries. In certain sections of the hosiery industry, for example, the complicated structure of piece rates is based upon time and production studies made jointly by the union and manufacturers or by the impartial chairman. One petroleum agreement provides for plant committees to work on job classification. Flat glass agreements provide for discussion of the bonus system by an industrial relations committee, and for a survey of occupations for the purpose of establishing uniform rates. Agreements in the automobile and rubber industries permit negotiation on matters of production standards, speed, and wage rates. The purpose of standardizing labor costs throughout the market is also explicit in many agreements in such provisions as that union members shall not work for less than the scale, and that the union shall make no more favorable agreement with other manufacturers.

On physical conditions there are numerous provisions, usually not in detail, requiring the provision of safe and healthful work places. The obligation of the employer to furnish adequate tools, machines, and materials, is sometimes stated. There is occasional regulation of physical examinations, reflecting fear of abuses. Regulation of work loads, speed, and number of men on machines is in part a regulation of physical conditions, although to a greater extent, probably, a form of job protection. A work-load adjustment board is provided in certain textile and other agreements. Many agreements regulate the minimum number of men on certain types of machines.

The first of the regulations of labor supply and employment policies are the closed shop clauses. These are very general among the older well-established unions such as the building and printing trades, and in the garment industry. They are less frequently found in the agreements more recently made by the newer unions. In their place are the provisions for union recognition, clauses following Federal legislation in guaranteeing no discrimination against union members, and no interference with the right of organization. In some cases new employees are to be secured from the union, and the union is responsible for providing an adequate supply of efficient labor. Prohibition of child labor and home work is provided in some agreements. The detailed regulation of apprenticeship by the skilled crafts serves the double purpose of providing properly trained workers and of restricting numbers in the interest of higher rates of pay and regular employment.

The provisions for protection of jobs are very important in many agreements and reflect the great insecurity and scarcity of job opportunity in recent years. Some agreements list permissible causes for discharge, while others provide only that the discharge must be for good cause. Provision for appeals on discharge are frequently found. Under the hosiery agreement the union is to be notified of unsatisfactory work or conduct which might lead to discharge, and assumes responsibility for improving substandard job performances.

As to the job rights of individuals, there are two main schools of thought, one emphasizing seniority rights, and the other equal division of work among regular employees. In the highly seasonal garment industries, equal division of the available work is the rule. This is true also in the hosiery industry and in breweries, and in most bakery agreements. At the other extreme are the seniority provisions in the railroad agreements, and in many of the newer mass-production agreements. Very detailed provisions in the automobile, rubber, petroleum, and other such agreements lay down rules for individual rights in lay-off, rehiring, and sometimes transfer and promotion, in accordance with length of service. The steel agreements provide for consideration of seniority as one among other factors. These agreements reflect the depression experience of job scarcity, and the fear of arbitrary and discriminatory treatment of individuals. Some agreements combine seniority rights with provisions for sharing work in various ways under certain conditions. Thus, many of the mass production agreements provide for a reduction of hours to 32 or 24 before lay-offs of permanent employees. The printers' agreements, while emphasizing seniority, nevertheless of recent years have provided for temporary reduction of hours, the hiring of substitutes, and limitation of overtime. The building trades also developed various methods of work sharing.

Another type of approach to the question of job protection is through the regulation of new machinery and processes, or of output. All of these reflect the fear of unemployment. Some definitely restrictive rules are found, especially in craft agreements. Restriction on the size of paint brush permitted, and of the exchange of type between firms, are examples. Prohibition of any restriction of output is, on the other hand, found in many agreements. The regulation of new machinery, to avoid undue hardship to workers, is seen in work-load adjustment boards in textile agreements, in joint control of the introduction of new machinery and limitation of pressing machines in the dress industry, in the New York cloak makers' unemployment fund for press-

ers, maintained by employer contributions based on the number of his pressing machines,[41] and in the glass manufacturers' agreement "to avoid any unwarranted expansion in the use of cutting-machine equipment." The Appalachian agreement provides for a mechanized mining commission for joint study of the problems resulting from mechanization. Skilled craft workers have tended strongly to protect their jobs by opposing new methods of production. As such craft protection becomes less possible, however, union policy has shifted toward regulation of these changes, as indicated in the examples which have been given.

Restrictions on nonunion materials occur in some agreements, for example in the building and printing trades. Sometimes, the right is reserved to refuse "struck work," coming from a firm whose employees are on strike. In some cases there are prohibitions of prison-made materials. All such provisions may be interpreted as job protection devices for the entire group of union workers.

Enforcement

A final series of important provisions includes those relating to the enforcement of the agreement and the settlement of disputes during its life. The period during which the agreement is in force is stated. Prohibition of strikes, lockouts, or stoppages of any sort is usually included. Provision for interpretation of the agreement and settlement of disputes under the agreement is therefore necessary. The negotiation of a new agreement is a different problem, for which in most cases there is no more regulation than the statement of the time and conditions under which negotiations should begin, although occasionally there is provision for arbitration in case of failure to reach an agreement.

The provisions as to enforcement are of too great variety to be discussed in detail. The general outlines can be drawn of typical procedure under the well-established older agreements, however, with separate discussion of the adjustment machinery in the newer, large corporation agreements. Under the former agreements, there is usually a union representative elected in each unit, often called the shop chairman, who has first responsibility for seeing that the agreement is enforced and for taking up disputes with the company. Officers of the local union, the business agent or organizer, are called upon when necessary in adjustments and are in authority over the shop chairman. In many cases an *ad hoc* committee or a joint standing committee, representing the local union and local employers, has authority to decide all cases referred to it. Such joint committees often are authorized to choose an impartial arbitrator in case of their failure to agree. In many agreements there is complete commitment on both sides to refer to arbitration, if necessary, any disputes over the interpretation of the agreement. Under the Railway Labor Act arbitration is compulsory for any disputes arising over interpretation of the agreements and not settled by the parties themselves. A National Railroad Adjustment Board, composed of representatives of the unions and carriers, was provided for that purpose.

In a number of cases, industries have established permanent impartial machinery, which functions effectively in interpreting and enforcing the agreements and maintaining the standards. The permanent impartial chairmen play a very important role in the men's and women's clothing industries in the chief markets, in the hosiery industry, and in some others. They have extensive powers to examine books and records, call witnesses, interpret the agreement, make decisions and assess penalties for violations, and work in close cooperation with the representatives of the union and the employers' associations in the policing of the industry.

In agreements of large corporations in the mass production industries, the machinery for settlement of individual grievances or other disputes in the plant, as well as for negotiation on questions of broader interest, is much emphasized. Provision is made for union representation in each division of the plant and for a shop bargaining committee which in some cases is composed of the division representatives. In other cases a "steward system" provides a union steward or representative in each small section, while a smaller group of representatives is elected as the bargaining committee. The agreements outline the steps to be taken in settling disputes, from the first contact between an aggrieved worker or his representative and the foreman, to the bargaining committee and the plant management, to higher union officials and corporation management, and in some cases to arbitration. Experimentation is under way in these industries with various forms of bargaining machinery, in an effort to establish systems that will handle quickly and effectively the grievances that arise among the thousands of workers in any large plant.

The administrative machinery under the agreement is of especial importance in the case of the corporation-wide agreement in mass production industries. The agreements themselves tend to be relatively simple, and to leave much to local collective bargaining. In these cases the agreements establish certain general standards for hours, overtime, sometimes wages, and other matters. In addition they include detailed regulations as to individual rights on seniority, division of work, and other matters. The collective bargaining machinery is expected to handle the detailed local application of the general labor standards, to take up any other matters

[41] Lazare Teper, *The Women's Garment Industry*, International Ladies Garment Workers Union, New York, 1937, p. 27.

of interest to workers and management as they arise in the plants, and to settle any individual grievances. Flexible adjustment to the changing needs of production in a large plant is thus possible through the local and immediate consideration of problems by the local union committee and the management. Collective bargaining here includes this highly important and more or less continuous negotiation process in the plant, as well as the making of the written agreement.

The Place of Trade-Unions in the American Economy

Among the varied forces which are changing the American economy from one regulated by impersonal competition to one in which policies are administratively determined is the establishment of trade-unions on a basis of such stability and strength that they are able to influence the determination of policies in many industries. Trade-unions in a small number of cases in the past, and in an increasing number of industries now, stand among the other groups of ownership, corporate management, or Government agencies which make decisions crucial to the direction of industry.

The preceding summary has brought out the extent to which trade-unions were participating in industrial management in 1937. The marked increase in union membership, especially among semiskilled and unskilled, as well as among white-collar, professional, and Government workers, reflected an organizing movement of great vitality. Collective bargaining on a basis of written trade agreements was being carried on more widely than ever before in this country. Agreements signed by great corporations were numerous in the mass production industries. Agreements were tending to cover wider geographic areas, both in the corporation-wide agreements covering a number of plants, and in the case of those agreements binding a group of competitors. Agreements were written increasingly on an industrial basis, whether they were signed by a single industrial union or by a group of craft or semi-industrial unions in cooperation.

In various parts of industry, there is evidence of a tendency for organized workers in dealing with management to give broad consideration to the economic problems of the industry. The trend toward agreements on an industrial or semi-industrial basis, rather than covering single crafts only, is favorable to a broader view of industrial problems. In the clothing industries, for example, both the Amalgamated Clothing Workers and the International Ladies' Garment Workers Union have long records of working with the employers for stabilization of competitive conditions and efficient operation in the interest of both employers and workers. Under the successive agreements in the hosiery industry the union and the employers have attempted to deal with a difficult competitive situation, while the union accepts responsibility as to efficiency of its members. In the bituminous coal industry a joint Mechanized Mining Commission has been established for the study of problems arising from mechanization. On some of the railroads, union-management cooperation resulted in active interest by the men in the increase of efficiency, and benefits to both men and management.[42] The Steel Workers Organizing Committee has published a handbook on *Production Problems*, in which it urges local programs of union-management cooperation, after the union is thoroughly established on a collective bargaining basis.

Signs of such a broad interest in the problems of the industry as a whole are apparent also in the economic research and education departments of a number of unions. Outstanding examples are the International Ladies' Garment Workers Union, the International Association of Machinists, and the International Brotherhood of Electrical Workers. Among the younger unions, the United Automobile Workers, the Steel Workers Organizing Committee, the United Rubber Workers and others have set up research departments. Recognition of the need for continuing study of the economics of the industry as a basis for policy making appears to be on an increase among the unions.

[42] For a recent discussion, see statement of Otto S. Beyer, in National Labor Relations Board, Division of Economic Research, Bulletin No. 1. *Governmental Protection of Labor's Right to Organize, 1936*, pp. 27–31.

APPENDIX 15.—PRODUCTIVE ACTIVITY OF GOVERNMENT[1]

Some appreciation of the extent, though not necessarily a measure of the importance, of the economic activity of government in the United States can be gained by reference to data showing how many people work under the administrative control of governmental agencies, what functions they perform, and the results of this activity in terms of income produced. Since statistical data relating to the economic activity of governmental agencies in this country are incomplete in many respects, only the main highlights can be shown in this analysis. If available data permitted, it would be interesting also to disclose quantitatively the range of goods and services produced by governmental agencies and the quantities of capital goods and land utilized, in addition to the manpower consumed, in producing these goods and services. Data on these points, however, are too fragmentary to provide a complete or detailed description of the productive activity of government.

The Number of Public Employees

According to the Commission of Inquiry on Public Service Personnel, the United States comprises some 175,418 separate political jurisdictions: the Federal Government and the District of Columbia, the 48 States, 3,053 counties, 16,366 incorporated municipalities, 127,108 school districts, and 28,842 towns, townships, and other civil divisions.[2] The number of employees of each jurisdiction ranges from only elected officials and no appointive administrative employees in a few jurisdictions, or a single school teacher in many rural school districts, to many thousands in the larger cities and states, and over a million in the Federal service. No direct enumeration of all public employees in the United States has ever been made. However, estimates are available based upon (1) sample questionnaire returns from various jurisdictions, (2) division of the estimated or actual total of governmental salary and wage-payments, including payments to temporary and part-time employees, by the average annual compensation of permanent full-time employees, and (3) actual pay-roll records of some agencies. On these bases, the Division of Economic Research of the Bureau of Foreign and Domestic Commerce has made estimates of the total number of public employees, excluding employees on work-relief programs, for each year during the period 1929 through 1936, and has broken down these estimates to show employment by main governmental jursidiction for all except educational employees.

Table I presents these estimates by Federal, State, city, and county jurisdictions, adapted to include employees in public education, but excluding persons employed on emergency work-relief projects. This table shows that the largest number of government employees, exclusive of work-relief, are employed by municipalities. Since 1929, however, the number of municipal employees and the proportion of all nonrelief government employees which they represent, has declined, while Federal and State employment has increased. Whereas Federal nonrelief employees constituted 27.0 percent of all government employees in 1929, they amounted to 32.2 per cent in 1936. If work-relief employees were included, the Federal employees would, of course, comprise a much greater proportion of the total. The total number of nonrelief government employees increased by 13.7 percent during these 7 years. The bulk of this increase came from 1933 to 1936.

In table II, the number of government employees, (excluding work relief) is compared to the total gainfully employed in the United States. The proportion represented by government employees was 7.1 percent in 1929 and 8.7 percent in 1936. The increase in the proportion of employees by government was greater than the absolute increase in government employment during these years owing to the decline in private employment. At the low point in total employment, 1932, government employees amounted to 9.2 percent of all gainfully employed persons. Charts II and XVII in the text have shown the relation of Government employment to employment in specific segments of the economy in 1935.[3]

An accounting of all government employment in the United States requires analysis of the work-relief employees of recent years as well as the persons engaged in performing what might be regarded as the ordinary functions of government.

During 1935 an average of approximately 2,540,700 different persons received some work-relief employment on the various works programs financed chiefly by the Federal Government and operated by various agencies of the Federal, State and local governments.

[1] Appendix 15 was prepared by James C. Nelson.

[2] *Better Government Personnel*, 1935, p. 87.

[3] See pp. 61 and 75.

The average number of persons employed by all governmental jurisdictions under the various work-relief programs in 1935 is shown in table III and is compared to the total employed in performing ordinary government functions. It is not possible to convert this figure for work-relief employment into the equivalent of full-time employment. The figure arrived at by adding the total of these employees to the total 3,442,800 full-time equivalent[4] employees estimated as engaged in performing the ordinary functions of government in 1935 gives only a rough estimate of the total number of persons employed in this year. On the basis of this estimate it appears that on the average nearly 6 million persons were employed in full-time or part-time work by government in 1935, of which 57.5 percent represented employment resulting from ordinary governmental functions and 42.5 percent work-relief employment. If the work-relief employees had been converted to full-time equivalents, the percentage representing employment arising from performing ordinary governmental functions would doubtless have been considerably higher, and the percentage represented by work relief lower. It was not possible to break down the volume of employment on the various work-relief programs to show the number of persons employed by each main governmental jurisdiction, as in the case of employment resulting from the ordinary activities of government.

Functional Distribution of Public Employees

The various governmental jurisdictions in the United States are engaged in performing a wide variety of functions, such as regulation of traffic; general law enforcement by the prosecuting attorneys, police, and courts; carrying the mails; the construction and maintenance of public roads and streets and the provision of harbor facilities and ship channels; the operation of public schools; the maintenance of an army and navy for the national defense; fire protection; the provision of facilities for recreation and parks; sewage disposal; and the regulation and promotion of industry and commerce.

Data are not available in a central source from which to build up a complete distribution of public employees by specific functions performed. However, the large majority of public service personnel (78 percent) is engaged in furnishing a few basic services. Fairly complete data regarding the number of employees engaged in producing this group of services are available and are shown in table IV for the year 1935.

Over one-third of the total, or 1,152,400 persons, were engaged in producing public educational services in 1935. This number includes all educational personnel in the public schools, including administrative and operation employees, employees of school boards and State and county education departments, as well as teachers. It does not include the teaching staff of the United States Naval Academy at Annapolis, the United States Military Academy at West Point, or of the Coast Guard Academy at New London. These educational employees are treated as military employees by the Department of Commerce.

Approximately one-fifth, 647,300, were employed in the construction and maintenance of public roads, highways, and streets. The proportion of public employees engaged in performance of this function would doubtless have been higher if it had been possible to include all of the employees of the municipal governments engaged in maintaining and constructing city streets. An attempt was made to secure information relating to these employees outside of the emergency work-relief programs of the recent years and force-account employment on projects financed by Public Works Administration.[5] The estimate of 647,300 persons employed on public roads in 1935 includes a total of 1,100 employees engaged in city street construction on projects financed by the Public Works Administration. If to this total is added an estimated 740,100 persons employed by governmental agencies on a work-relief basis in 1935 to work upon public roads and streets, a total of 1,387,400 is derived as the aggregate number of persons engaged in constructing and maintaining the public highways in this year.[6] While these estimates are rough and do not convert employment to a full-time equivalent basis, it is clear that the construction and maintenance of public roads is one of the largest economic activities of government in the United States.

The military services ranked third among the various functions performed by government employees. An average of 268,700 persons were engaged in the Army and Navy during this year, or 7.8 percent of the total.[7] Included in this total are the active officers

[4] The Works Progress Administration reported that it would be very difficult to convert work-relief employment into full-time equivalent man-years, owing to the fact that there was no standard work month in the various communities. The length of time that each person worked was determined by dividing the maximum wage allowed by the average wage per hour paid by each community.

[5] The Bureau of Public Roads has no data that could be used as a basis for making even the roughest guess.

[6] Work-relief road employees were estimated by multiplying the total number of persons employed in work-relief projects under the Federal Emergency Relief Administration each month during 1935 by the average ratio of highway, road, and street employees to the total found by this agency for the 4 weeks ending January 17, February 21, March 21, and April 18, 1935. Then, the average number of employees engaged in street and highway construction projects of the Works Progress Administration for each month during the months of July through December, 1935, was computed. The Works Progress Administration supplied data showing the man-hours worked on a force-account basis on highways, roads, and streets under its Works Program and total man-hours worked on all projects. The ratio of man-hours of highway work to all Works Progress Administration work each month was applied to total number of employees engaged in all projects to find the number employed on Works Progress Administration streets and highway projects. The average number employed on both programs was derived by adding the employees on the Works Progress Administration highway projects each month during the last half of 1935 to the Federal Emergency Relief Administration employees for the corresponding months and averaging all monthly figures for the year.

[7] An average of the 12 monthly figures reported by the War and Navy Departments to the Bureau of Labor Statistics, plus the average number of West Point cadets.

and men of the United States Navy, the United States Marines, and the Coast Guard; the commissioned and warrant officers, enlisted men, and the nurses of the regular army; the enlisted men of the Philippine Scouts; and the midshipmen of the Naval Academy and the Coast Guard Academy; and the Cadets in training at West Point. Persons retired from the service and the reserve officers of the Reserve Officers' Training Corps are not included in this total.

The Postal Service accounted for about the same number of employees as the Military Service in 1935. An average of 260,300 persons were engaged in distributing the mail in this period, of 7.6 percent of the total.

The four services of public education, construction and maintenance of public roads, national defense, and carrying the mails, accounted for over two-thirds of the entire public personnel in 1935. When the important services of police and fire protection are included with this group of basic services approximately three-fourths of the entire public personnel, excluding the work-relief employees, are accounted for. The remainder of the public employees are engaged in performing a wide range of services, including the provision of water supplies,[8] sewage disposal and parks, reclamation and conservation, and performing the legislative, executive, judicial, and regulatory functions of government.

It should be noted that work-relief employees are not included in the functional distribution given in table IV. However, a rough impression of the functions performed by the work-relief employees in 1935 can be obtained from the distribution of Federal Emergency Relief Administration work-relief employees in January 1935 and Works Progress Administration employees in December 1935. These are shown in table V. Federal Emergency Relief Administration employees are shown on the basis of number of persons employed. Works Progress Administration employees are shown on the basis of man-hours. In January 1935, Federal Emergency Relief Administration projects included 87 percent of work-relief employees. In December 1935, Works Progress Administration included 85 percent of work-relief employees.[9]

The Civilian Conservation Corps accounted for most of the remaining work-relief employees in 1935. Data showing the number of employees engaged or man-hours worked by type of function performed are not available for this agency. The Civilian Conservation workers are chiefly engaged in various types of activity relating to the national and State parks, national forests, wildlife preserves, and other public domain. These activities include building park roads,[10] trails, bridges, and utilities; flood-control, irrigation, and water conservation activity; erosion control, forest culture, and fire control.

Income Produced by Government

In the absence of adequate data with which to appraise the capital goods and land used by government and the value of the product of government activity, estimates of the share of the total national income which is produced by government may be used to supplement data on government employment.

[8] About 75 percent of the water systems are municipally operated. Cf., Hartwell, Ronald P., "Water—A Growing Utility," *Magazine of Wall Street*, vol. 46, June 28, 1930, p. 398. In its report of December 1, 1934, p. 332, the National Resources Board stated that an analysis of 67,000,000 water customers shows that about 80 percent are served by public supply systems.

[9] The Works Progress Administration began its operation as of July 1, 1935. Over a period of some months it replaced the Federal Emergency Relief Administration program. In January and December the distribution of work-relief employment was as follows:

	Number of persons employed		Percent to total	
	January	December	January	December
Federal Emergency Relief Administration [a]	2,446,266	59,411	86.7	1.7
Works Progress Administration [b]		2,902,712		84.6
Civilian Conservation Corps [c]	369,160	468,074	13.1	13.6
Public Works Administration [d]	4,281	4,281	.2	.1
Total	2,819,707	3,434,478	100.0	100.0

[a] Source: *Statistical Summary of Emergency Relief Activities*, January 1933 through December 1935, Federal Emergency Relief Administration, table 8, p. 21, 22. The figures shown herein relate to the number of different cases receiving some emergency work relief earnings and not the average number of full-time equivalent employees on the Federal Emergency Relief Administration programs. A certain amount of duplication exists between the reports for emergency work relief programs and Works Program employment under the Works Progress Administration, because of the transfer of workers from the former programs to the latter. These duplications have not been subtracted from the Federal Emergency Relief Administration employment shown herein. The number of students receiving work-relief employment under the Federal Emergency Relief Administration student-aid program is not included herein.

[b] Source: Special tabulations, Division of Research, Statistics, and Records, Works Progress Administration and Division of Construction and Public Employment, Bureau of Labor Statistics. The figures herein shown relate to the work programs operated by the Works Progress Administration and were compiled from actual records kept. These projects are planned and sponsored by the States and localities and financed by both Federal and State funds. However, except for a few technical and supervisory employees furnished by sponsors, all of the workers are carried on the Federal pay roll. The figures shown represent the number of different persons employed, not the average number of full-time equivalent man-years represented by the employment figures. The number of persons receiving work-relief employment under the National Youth Administration is not included herein. Persons employed on the Federal construction projects supervised by various Federal agencies, excluding the Bureau of Public Roads, but financed by the Works Progress Administration are included. They are estimated on the basis of the maximum number of employees reported in any one week during the month of the Bureau of Labor Statistics. Source: Special tabulation submitted by letter of Sept. 14, 1937, from Herman B. Byer, Division of Construction and Public Employment, Bureau of Labor Statistics.

[c] Source: Special tabulation, Division of Construction and Public Employment Bureau of Labor Statistics.

[d] Source: Estimate by Public Works Administration on basis of reports from the cooperating agencies. Average number of persons employed on force account basis on projects financed by Public Works Administration for year on both Federal and non-Federal projects, exclusive of employment on streets and highways included in the figures shown for the public roads function.

[10] An impression of the road building activities of the Civilian Conservation Corps workers during the period April 1933 to April 1937, can be gained from the following tabulation showing the miles of roads and trails constructed or maintained in this period:

Type of job	Miles constructed	Miles maintained
Roads:		
Truck trails	80,828.9	243,877.9
Minor	4,489.9	22,234.6
Highways	440.4	9,586.8
Park roads	1,005.3	8.4
Trails:		
Foot	9,970.8	18,471.1
Horse	10,975.1	36,300.3

Source: Special tabulation by the Civilian Conservation Corps.

Table VI shows the estimates by the United States Department of Commerce of the income produced by government annually during the period from 1929 through 1936, and the ratio of income produced by government to the total income produced for each year during this period. It will be noted that while total national income produced dropped from 81 billions of dollars in 1929 to a low of 40 billions of dollars in 1932, income produced by government during this period remained very stable. As a result, the proportion of the national income produced by government increased from 8.1 percent in 1929 to 16.8 percent in 1932. Since 1932, the proportion produced by government has decreased, but it has remained well above the proportion of the earlier years, and amounted to nearly 15 percent in 1935 and 1936.

Although the above data on employment and income produced are sufficient to indicate that government must be regarded as one of the leading factors in the structure of the economy, they are only suggestive of the significance to the economy of government activity. Full understanding of government's role would require careful analysis of the governmental function of providing a framework for individual activity as well as of the activities of government as a direct producer and distributor of wealth. The effects of government controls in each industrial segment of the economy would have to be measured, and extensive data on governmental operations which result in direct production of goods and services in each industry would have to be assembled, before the role of government in the economic system could be fully described.

TABLE I.—*Number of employees in government service in the United States, excluding employees on work-relief programs, by main governmental jurisdiction, 1929–36* [1]

Jurisdiction	1929		1930		1931		1932		1933		1934		1935		1936	
	Number of employees [2]	Percent of total	Number of employees [2]	Percent of total	Number of employees [2]	Percent of total	Number of employees [2]	Percent of total	Number of employees [2]	Percent of total	Number of employees [2]	Percent of total	Number of employees [2]	Percent of total	Number of employees [2]	Percent of total
Federal	862,000	27.0	873,000	26.3	880,400	26.1	864,000	26.4	855,900	26.7	941,500	28.5	1,049,900	30.5	1,167,000	32.2
State	301,600	9.5	319,400	9.6	336,600	10.0	339,400	10.4	343,800	10.7	356,800	10.8	377,700	11.0	389,900	10.8
City [3]	1,296,500	40.7	1,355,000	40.9	1,359,900	40.3	1,303,900	39.8	1,252,800	39.2	1,253,600	38.0	1,258,800	36.5	1,291,300	35.6
County, township, and minor civil divisions	729,000	22.8	769,100	23.2	796,800	23.6	764,100	23.4	747,600	23.4	750,900	22.7	756,400	22.0	777,000	21.4
Total	3,189,100	100.0	3,316,500	100.0	3,373,700	100.0	3,271,400	100.0	3,200,100	100.0	3,302,800	100.0	3,442,800	100.0	3,625,200	100.0

[1] Source: Adapted from special tabulations by the National Income Section of the Bureau of Foreign and Domestic Commerce, U. S. Department of Commerce. Since the Department of Commerce tabulation does not distribute employees in public education by governmental division, except in the case of the Federal Government, it was necessary to estimate the number of this class of employees that should be distributed to State, city, and county jurisdictions. A tabulation of the number of educational employees in the United States, excluding operation employees, maintenance employees, bus drivers, full-time health officers, and local attendance officers, reported to the Office of Education in 1934 shows that 4.9 percent of these employees are employed by State governments, 52.93 percent by city governments, and 42.17 percent by county and other local governments. The total number of employees in public education shown by the Department of Commerce for each year during the period 1929–36 was then multiplied by these ratios to find the number of employees in public education to be distributed to each governmental jurisdiction, other than Federal.

[2] Wherever available data permitted, the number of public employees reported to the Department of Commerce were converted to a full time equivalent basis.

[3] Cities are defined by the Department of Commerce as all incorporated places. This definition has been followed herein.

TABLE II.—*Comparison of number of persons employed by government, excluding employees on work-relief programs, to total number employed by all industrial divisions in the United States, 1929–36* [1]

[In thousands]

Class of employment	1929		1930		1931		1932		1933		1934		1935		1936	
	Number employed	Percent of total	Number employed	Percent of total	Number employed	Percent of total	Number employed	Percent of total	Number employed	Percent of total	Number employed	Percent of total	Number employed	Percent of total	Number employed	Percent of total
All industrial divisions, excluding work-relief employees	44,648	100.0	42,601	100.0	39,180	100.0	35,690	100.0	35,902	100.0	38,355	100.0	39,426	100.0	41,487	100.0
Government, excluding work-relief employees	3,189	7.1	3,316	7.8	3,374	8.6	3,271	9.2	3,200	8.9	3,303	8.6	3,443	8.7	3,625	8.7

[1] Adapted from special tabulations submitted by the National Income Section of the Division of Economic Research, Bureau of Foreign and Domestic Commerce, Department of Commerce.

TABLE III.—*Number of employees in government service in the United States, including employees on work-relief programs, in the year 1935* [1]

Class of employment and jurisdiction	Number of persons employed	Percent of total
Ordinary governmental functions: [2]		
Federal	1,049,900	17.5
State	377,700	6.3
City	1,258,800	21.1
County, township, and minor civil divisions	756,400	12.6
Emergency Work Relief programs: [3]	2,540,700	42.5
Grand total number of persons employed by Government	5,983,500	100.0

[1] Wherever the data permitted, the number of public employees shown has been converted to a calendar year basis.
[2] Full-time equivalents. See table I.
[3] Not converted to full-time equivalents. Includes the number of persons employed on works programs projects operated directly by the Works Progress Administration, on work-relief projects of Federal agencies financed by the Works Progress Administration, on work-relief projects financed and supervised by the Federal Emergency Relief Administration, on projects of the Civilian Conservation Corps, and on Federal and non-Federal projects, other than streets and highways, financed by the Public Works Administration. Where the projects involved construction in which some of the work was done by contractors, as in the case of the Public Works Administration projects especially, only the force-account work of governmental agencies has been included. Accordingly, the number of persons employed shown herein relates to persons on governmental pay rolls, not the entire volume of employment deriving from expenditures of governmental funds. The source of the data are as follows: For the figures relating to the Works Program of the Works Progress Administration and the Federal Emergency Relief Administration projects, special tabulations by the Works Progress Administration based upon pay-roll records and reports from participating agencies; for the data relating to work-relief projects of Federal agencies financed by Works Progress Administration, a special Bureau of Labor Statistics tabulation of estimated force-account employment based upon monthly reports of employment received direct from the Federal agency supervising the projects; for the Civilian Conservation Corps projects a special Bureau of Labor Statistics tabulation showing revised monthly employment in the calendar year 1935; for the projects financed by Public Works Administration, an estimate by Public Works Administration of the force-account employment based upon reports from participating agencies.

TABLE IV.—*Number of employees in government service in the United States, excluding employees on work relief programs, by major economic functions performed in the year 1935* [1]

Functional class	Number of persons employed	Percent of total employees
Education [2]	1,152,400	33.4
Public roads [3]	647,300	18.8
Military service [2]	268,700	7.8
Post office [4]	260,300	7.6
Police department [5]	178,300	5.2
Municipal fire department [5]	79,400	2.3
Municipal power plant [6]	19,000	.6
Municipal street railways [7]	9,900	.3
All other municipal public utilities [8]	63,600	1.8
All other functions	763,900	22.2
Total all functions	3,442,800	100.0

[1] Wherever available data permitted, the figures relating to the number of public employees shown have been converted to a full-time equivalent basis and related to the calendar year 1935.
[2] Source: Special tabulation by the National Income Section of the Bureau of Foreign and Domestic Commerce.
[3] Source: Estimates by the Bureau of Public Roads of the man-months of force account work on State roads, during the fiscal year 1935, based upon regular reports of the State highway departments and of the man-months of force-account work on local rural roads based upon an estimated expenditure of $288,000,000 for local rural roads during the fiscal year 1934—the last year for which data are available—and a factor of 70 percent of expenditures for these roads for labor and 30 percent for materials and supervision; estimates by Projects Division of the Public Works Administration of the force-account employment resulting from road construction and maintenance financed by the Public Works Administration during the fiscal year ending June 30, 1935. Except for 1,095 man-years financed by the Public Works Administration, force-account employment on city streets is not included
[4] Source: Average for year 1935 based on monthly reports of the Civil Service Commission.
[5] Includes employees for the fiscal year ending June 30, 1935, of such agencies of the Federal Government as the Federal Bureau of Investigation, the Post Office Inspection Service, the Immigration Border Control of the Department of Labor, and in the Treasury Department the Secret Service Division, the Intelligence Unit and Alcohol Tax Unit of the Bureau of Internal Revenue, the Bureau of Narcotics, and the Customs Agency Service of the Bureau of Customs; the employees of the State police and highway patrol departments as of June 1, 1937; an estimate for the year 1935 of the number of county sheriffs based upon figures of the *Census of Occupations* for 1910, 1920, and 1930; the estimate of the Department of Commerce of the number of city police employees raised to include cities with population below 2,500; the employees of the Federal and State prisons as shown by the census report, *Prisoners in State and Federal Prisons and Reformatories*, for the calendar year 1935; and the figures shown in the *Census of Occupations* for public guards, watchmen, and doorkeepers for 1930 reduced by the number of keepers and guards in Federal and State prisons in 1935. The figures for the Federal agencies were supplied by them direct. The American Association of Motor Vehicle Administrators supplied the figures as to State police.
[6] Source: *Statistical Abstract for 1936*, table 400, p. 352. The data given are the census figures for 1932—the last year that a census of the electrical industry was taken.
[7] Source: *Census of Electric and Street Railways and Motor Bus Operations of Affiliates and Successors, 1932*. The data shown are for the year 1932, the latest year available.
[8] Source: The Commission of Inquiry of Public Service Personnel in its publication, *Better Government Personnel*, estimated on the basis of a sample taken by the Department of Commerce by the questionnaire method that there were 92,500 employees in municipal public utilities as of June 30, 1932. The figure shown above is derived by subtracting the employees of the municipal power plants and the street railways as shown by the Bureau of the Census for 1932.

TABLE V.—*Percent distribution by type of project of persons on work-relief projects—January and December 1935*

Type of project	Percent distribution Federal Emergency Relief Administration January 1935 [1] (number persons working)	Percent distribution Works Progress Administration December 1935 [2] (man-hours)
Highways, roads, and streets	35.0	41.8
Public buildings (including housing)	9.3	8.0
Recreational facilities	5.3	12.6
Airports and other transportation		1.7
Sewer systems and other public utilities	10.0	8.3
Sanitation and health projects	7.2	4.1
Conservation	14.0	5.7
Education	.5	1.1
Professional and clerical	3.5	4.1
Goods	14.1	10.6
Miscellaneous	1.1	2.0
Total	100.0	100.0

[1] The distribution is based on a tabulation of pay rolls covering 97 percent of the total number of both relief and nonrelief persons working during the week ending Jan. 17, 1935, or 1,774,210 persons out of a total of 1,827,589.
[2] Source: Special tabulation provided by Works Progress Administration.

TABLE VI.—*Comparison of the income produced by government, including work-relief wages, with the income produced by all industrial divisions in the United States, 1929–36* [1]

[In millions of dollars]

Industrial division	1929		1930		1931		1932		1933		1934		1935		1936	
	Income produced	Percent of total	Income produced	Percent of total	Income produced	Percent of total	Income produced	Percent of total	Income produced	Percent of total	Income produced	Percent of total	Income produced	Percent of total	Income produced	Percent of total
All industrial divisions, including work-relief wages [2]	81,128	100.0	68,302	100.0	53,822	100.0	40,014	100.0	42,256	100.0	50,052	100.0	55,186	100.0	63,466	100.0
Government, including work-relief wages [2]	6,540	8.1	6,720	9.8	6,847	12.7	6,727	16.8	6,907	16.3	7,949	15.9	8,247	14.9	9,785	15.4

[1] Adapted from special tabulations by the National Income Section of the Division of Economic Research, Bureau of Foreign and Domestic Commerce. See *National Income in the United States*, 1929–35, for explanation of the method used by the Department of Commerce in making these estimates.
[2] Include the following amounts of work-relief wages in the last 4 of these years: $611,000,000 in 1933; $1,395,000,000 in 1934; $1,273,000,000 in 1935; and $2,058,000,000 in 1936.

APPENDIX 16.—MAPS OF INDUSTRIAL LOCATION, 1935[1]

The maps in this appendix supplement the maps which are contained in chapter IV. Those showing the location of manufacturing plants in 1935 are derived from the *1935 Census of Manufactures* and are constructed in the same manner as the ones in chapter IV, a dot for each establishment regardless of size. It would be desirable to map the location of each industry in terms of numbers employed instead of in terms of plant location. The Bureau of the Census, however, is unable to release the necessary material, for all returns made to it by individuals are strictly confidential, and the Bureau is prohibited by law from disclosing individual data. The maps are arranged in groups of related industries to show the flow of products through the manufacturing processes. All manufacturing industries employing 25,000 or more persons in 1935 are shown either in chapter IV or in this appendix, together with several smaller industries related to the larger ones. The text and appendix maps combined represent 80.5 percent of all persons engaged in manufacturing.

The maps of agricultural products, in the text and in this appendix, have been supplied by the Bureau of Agricultural Economics, United States Department of Agriculture. They cover the main crops and livestock and include 83.5 percent of all persons engaged in agriculture. In addition, 74 percent of the miners are represented by the maps of coal, iron ore, and petroleum.

Agricultural Products.—Maps A–1, A–2, and A–4 show the distribution of the major feed and forage crops, in addition to corn (ch. IV, map 14). Although some corn, oats, and barley reach the consumer directly, these crops for the most part are the first step in the production of meat and dairy products, or the second step where grass fed cattle are shipped from grazing areas[2] to feeding centers for fattening. The second step is shown in map A–3, poultry, and in the maps of livestock, A–5, A–7, A–9, A–10. The production of beef and swine is closely associated geographically with the production of feed crops while sheep are more generally to be found in the grazing areas. Poultry are widely distributed in all types of agricultural areas where they constitute a supplementary crop and in the vicinity of urban centers and convenient markets.

Maps A–5 to A–8 show two distinct patterns of location in two branches of the meat and dairy industries. The production of beef cattle is closely associated geographically with the location of grazing areas and the production of corn for fattening. The meat packing industry, shown in map A–6, consists of the large packing centers of the meat raising areas, Chicago, St. Louis, Kansas City, Omaha, and St. Paul, the smaller packing houses adjacent to urban population centers, and a scattering of local abbatoirs, slaughtering locally raised livestock largely for local consumption.

The distribution of dairy cows shown in map A–7 differs noticeably from the distribution of beef cattle. Whereas dairy cattle are heavily localized in the Wisconsin-Minnesota areas north of the beef cattle center, they are absent from the western range and are very plentiful in the northeastern section near the centers of urban population. The dairy products industry contains two parts, fluid milk, and butter and other products. The bottling and distribution of fluid milk follows closely the pattern of urban consumer distribution, and is not here shown. Butter, shown in map A–8, is clearly associated with the raw material. Its concentration follows the distribution of dairy cows except for the dairy cattle in the vicinities of the northeastern cities where almost the entire product goes into fluid milk.

From the packing houses a part of the product goes into a further stage of fabrication, namely, leather. The distribution of the leather industry, map A–11, is largely unrelated to the location of the major packing centers. Although some leather manufacture is carried on in the Chicago area, this industry is mainly associated with the next stage of fabrication into boots and shoes and other leather products. The boot and shoe industry, shown on map A–12, is an industry localized in a series of centers. Originally almost entirely a New England industry it has developed centers in New York State, the St. Louis area, southern Ohio, eastern Pennsylvania, and Illinois.

The distribution of fruits and vegetables raised for market is shown in maps A–13 and A–14. A substantial proportion of these products reaches the consumer in a canned rather than fresh state. The fruit and vegetable canning industry shown in map A–15

[1] Appendix 16 was prepared by Caroline F. Ware and Grace W. Knott.
[2] See ch. III, map 4.

is clearly attached to the fruit and vegetable raising areas. Serving the canning industry is the manufacture of tin cans which, because of their bulk, tend to be fabricated in the vicinity of the point where they are used. Map A–16 shows the tin can industry in most, though not all, centers of canning. This map does not show tin cans alone, for other types of containers than tin cans and other tinware are included.

These series of maps, A–1 to A–16, together with maps 13–16 in chapter IV, show the growing and processing of principal foods. With the exception of fish, they have included the main foods produced in the United States and, with the exception of liquor manufacture, sugar processing, condensed milk, cheese, ice cream, prepared cereals, and some miscellaneous food preparations, all the commercial food manufacturing activity of any substantial volume.

Maps A–17 to A–20 show tobacco and its products, together with fertilizer which is extensively used in tobacco production. The latter, shown in map A–17, is also used in the production of truck, potatoes, and cotton, and in mixed farming, and its distribution reflects these flows as well as that to tobacco culture. Tobacco growing and the manufacture of cigarettes are highly localized and closely associated. Cigars, however, follow a very different pattern, for cigar manufacture is in large measure still an unmechanized industry located in urban centers.

Textiles.—Maps A–21 to A–28 confirm the evidence of the cotton textile maps in chapter IV as to the footloose character of textile industries. The location of woolen manufacture in the northeastern industrial areas, especially New England, bears slight relation to the location of resources. The manufacture of silk is highly localized on the eastern seaboard although the raw silk is imported on the west coast. Rayon is made in scattered plants. Rayon products are clearly bunched in the industrial areas. The latter frequently owe their location to historical factors, for in many instances the making of rayon cloth has come into plants originally built for the manufacture of cotton but abandoned for the latter purpose when the cotton industry migrated from New England to the southern piedmont. Most types of textiles must be dyed and finished before being made into garments. Map A–22 shows the location of dyeing and finishing plants adjacent to the centers of production of the various types of textiles. In addition, a scattering of finishing plants is to be found outside of the main areas of textile production and closer to the next stage of fabrication—the clothing manufacture.

Yarns of all types, in addition to being woven into textiles and made into garments, are knit into stockings, jerseys, sweaters, etc. The distribution of knit goods, map A–24, follows roughly that of the cotton and silk industries with a combination of a northern center and a southern center. The northern center for the cotton textile industry is in New England whereas that of the knit-goods industry is in the Philadelphia area. The southern location of knit goods is less concentrated in North Carolina and somewhat more concentrated in eastern Tennessee. In the latter respect it reflects a later migration from north to south reaching the piedmont area after the latter had become an industrial center and moving into the eastern Tennessee section which had been relatively undeveloped industrially.

Iron and steel.—Maps A–29 to A–40 are further illustrations of the distribution of later stages of steel fabrication on the line of flow from resources to consumers and of the concentration in the northeastern industrial area, especially in the Great Lakes region, of industries manufacturing steel products.

Forest products.—For the most part, the fabrication of forest products is carried on in relatively small scale establishments whose distribution clearly reflects the line of flow. The production of lumber and timber products indicated on map A–41 shows a wide distribution of this activity wherever timber resources are to be found. The impression created by this map, however, needs to be corrected by consideration of the numbers employed and the actual amount of timber produced in the respective localities. Although the northeastern and the north Michigan and Wisconsin areas show a large number of establishments, they represent a very slight proportion of the employment or the product. The widely distributed lumbering activity shown in the South is somewhat more extensive in terms of the volume of employment than that reflected in the Pacific Northwest. In terms of employment, the Southern industry employed approximately 43 percent and the west coast 30 percent as against 5.5 percent in Michigan and Wisconsin and 2.8 percent in New England and New York. In terms of product the west coast produced 40.5 percent, the South 37.6 percent, while the Michigan-Wisconsin area produced only 3.6 percent and New England and New York 2.8 percent.

Since lumber is one of the products which loses most bulk in its first stages of fabrication, it is natural to find the lumber mills located close to the lumber resource. The next stage, planing mills, map A–42, is found to some extent in the vicinity of lumber mills but more generally in proximity to the two main uses of lumber, the industries using wood products and particularly the construction industry located in centers of population. A satisfactory basis for mapping the construction industry was not available. This series for forest products is, therefore, very incomplete, by reason of the omission of the main lumber-using industry.

Whereas planing mills, insofar as they are located at a distance from the resources and from the first stage of fabrication, are primarily located with reference to the construction industry, the fabrication of furniture follows a pattern of its own. Map A–43 shows this pattern. The industry here mapped is in part two industries, one using wood, the other metal, but since wood furniture comprises more than three-quarters of the total volume, the main characteristics shown in the map are determined by this branch of the industry. It is scattered extensively through the industrial States of Illinois, Indiana, and Ohio. More recently a new center has been developed in the southern piedmont, until at present North Carolina is second in the number of persons employed in the industry. The plants scattered through the South, Middle West, and New England largely represent small enterprises manufacturing for a local custom market.

The most bulky wood products and those which are therefore fabricated close to their ultimate use are wooden boxes. Their manufacture shown in map A–44 reflects the combination of agricultural demand for boxes for shipping of fruit, vegetables, etc., and the demands of small scale industries such as that which is represented in the New England area. Of the total employment in the industry nearly a quarter is accounted for by the three fruit shipping States of California, Florida, and Georgia.

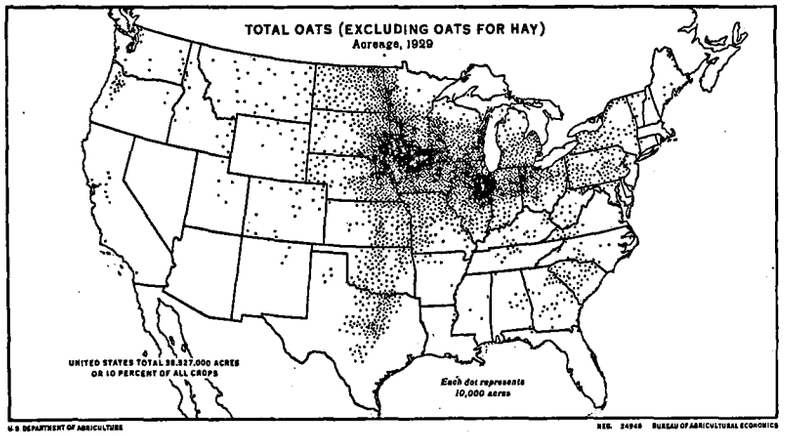
Maps A–45 to A–48 supplement chapter IV, maps 33–36, pulp, paper, and printing, with industries that are auxiliary to printing and publishing and with a still later stage of paper fabrication, one in which scrap paper constitutes a substantial part of the raw material.

Petroleum.—Production, transportation, and refining of petroleum are shown in maps A–49 to A–52. Refining largely follows the location of wells, but is also located in New Jersey and eastern Pennsylvania near centers of population. The direction of oil and gasoline trunk pipe lines clearly shows the flow from production centers to centers of consumption.

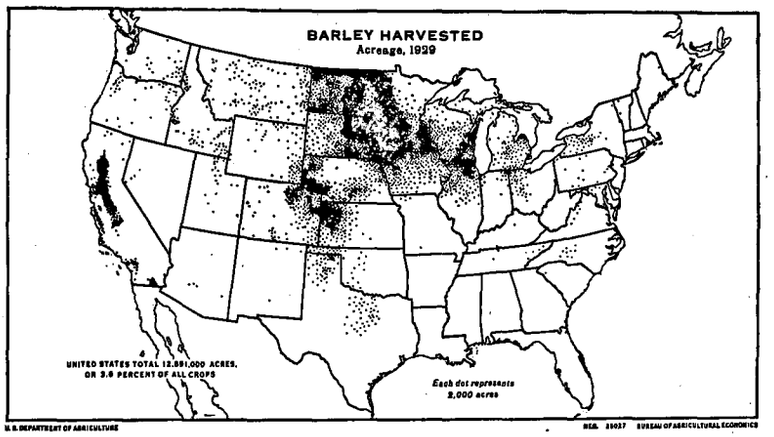
Other natural resource industries.—Maps A–53 to A–56 add other natural resource industries. Clay and stone products are typical of bulky and widely distributed resources fabricated locally for local or regional use. The glass industry, however, shows a high degree of localization, even though the raw material is fully as widely scattered as are clay and stone. Here a second resource, natural gas, which is extensively used in glass manufacture, contributes to the location of the industry.

Miscellaneous industries.—The remaining maps show industries which are typical of activity carried on in the industrial area. In no case is the industry closely attached to a localized resource. In the case of rubber and confectionery the raw materials are wholly or largely imported. Industries such as radio apparatus, refrigerators, and aircraft involve a high degree of fabrication of a wide variety of materials. Whereas these industries together account for only a small proportion of the employment in the industrial areas they constitute a representative sample of the type of industry which is footloose and tends to settle in industrialized areas. Where any particular degree of concentration in these products is shown as in the case of watches and rubber tires, for example, such concentration is largely a matter of historical accident followed by the investment of capital and the development of a skilled labor force. The last four maps, A–69 to A–72, make up a miscellaneous group.

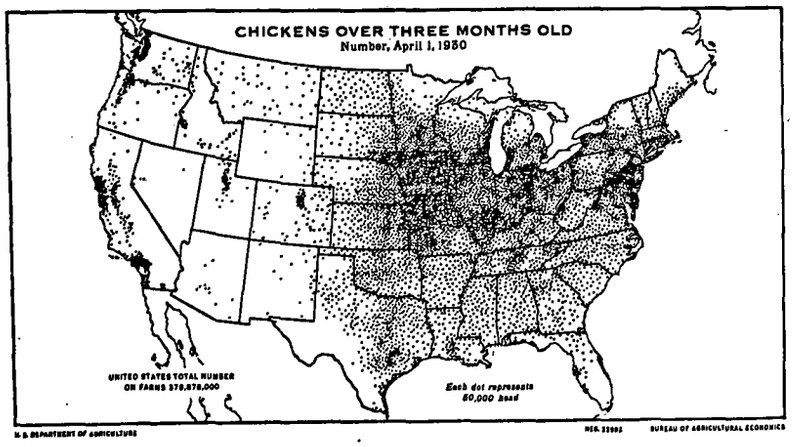
A–1


TOTAL OATS (EXCLUDING OATS FOR HAY)
Acreage, 1929
UNITED STATES TOTAL 38,827,000 ACRES
OR 10 PERCENT OF ALL CROPS
Each dot represents
10,000 acres
U. S. DEPARTMENT OF AGRICULTURE
BUREAU OF AGRICULTURAL ECONOMICS

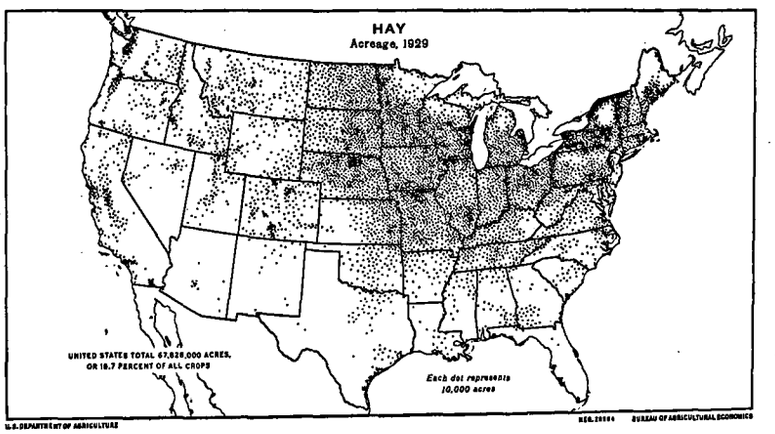
A–2


BARLEY HARVESTED
Acreage, 1929
UNITED STATES TOTAL 12,991,000 ACRES,
OR 3.6 PERCENT OF ALL CROPS
Each dot represents
2,000 acres
U. S. DEPARTMENT OF AGRICULTURE
BUREAU OF AGRICULTURAL ECONOMICS

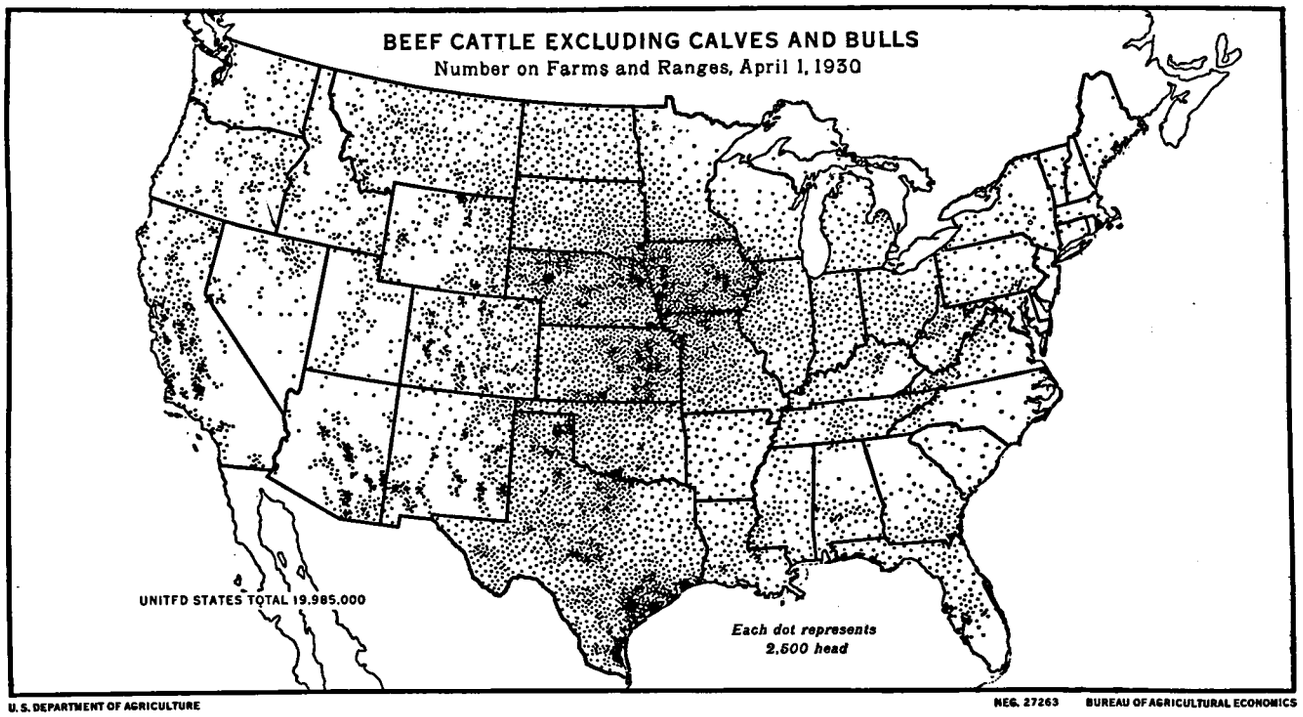
A–3


CHICKENS OVER THREE MONTHS OLD
Number, April 1, 1930
UNITED STATES TOTAL NUMBER
ON FARMS 370,870,000
Each dot represents
50,000 head
U. S. DEPARTMENT OF AGRICULTURE
BUREAU OF AGRICULTURAL ECONOMICS

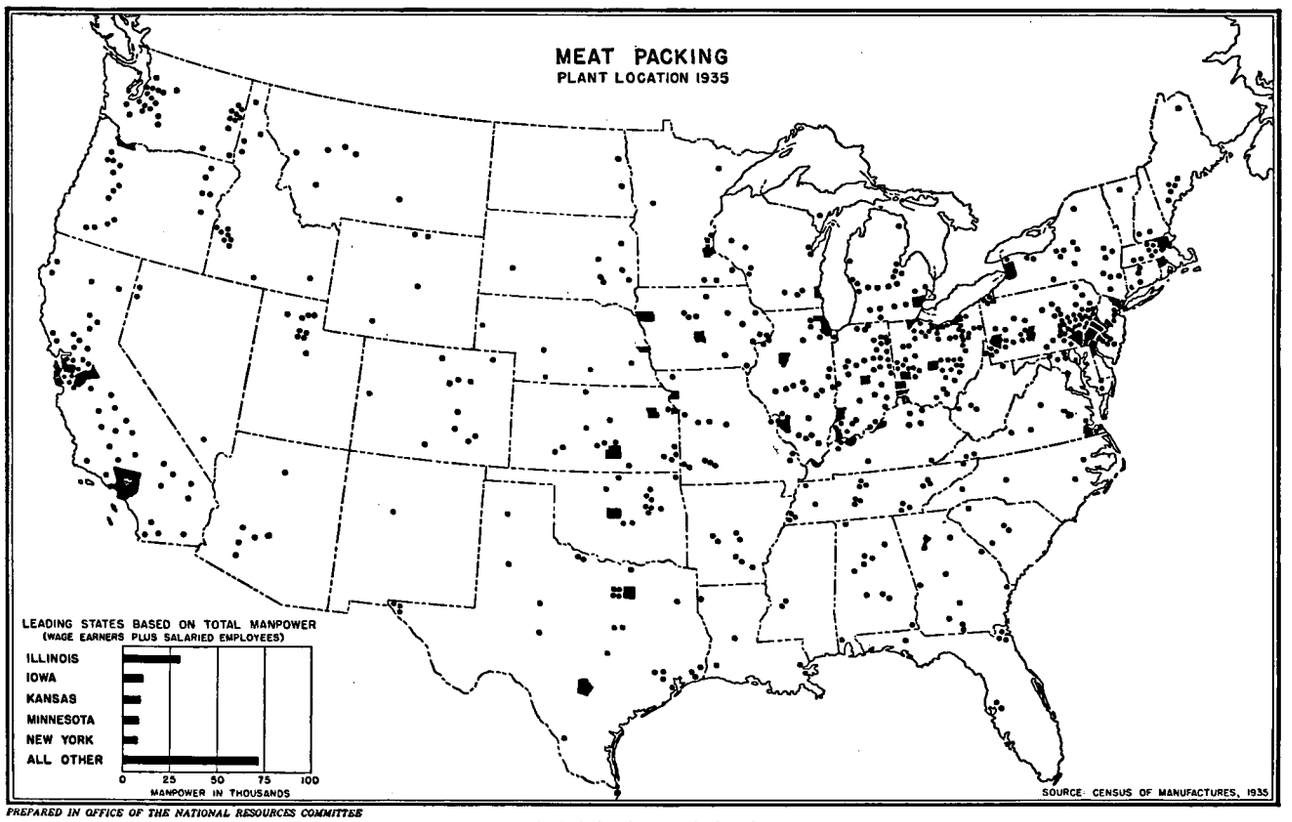
A–4


HAY
Acreage, 1929
UNITED STATES TOTAL 67,828,000 ACRES,
OR 18.7 PERCENT OF ALL CROPS
Each dot represents
10,000 acres
U. S. DEPARTMENT OF AGRICULTURE
BUREAU OF AGRICULTURAL ECONOMICS

A–5

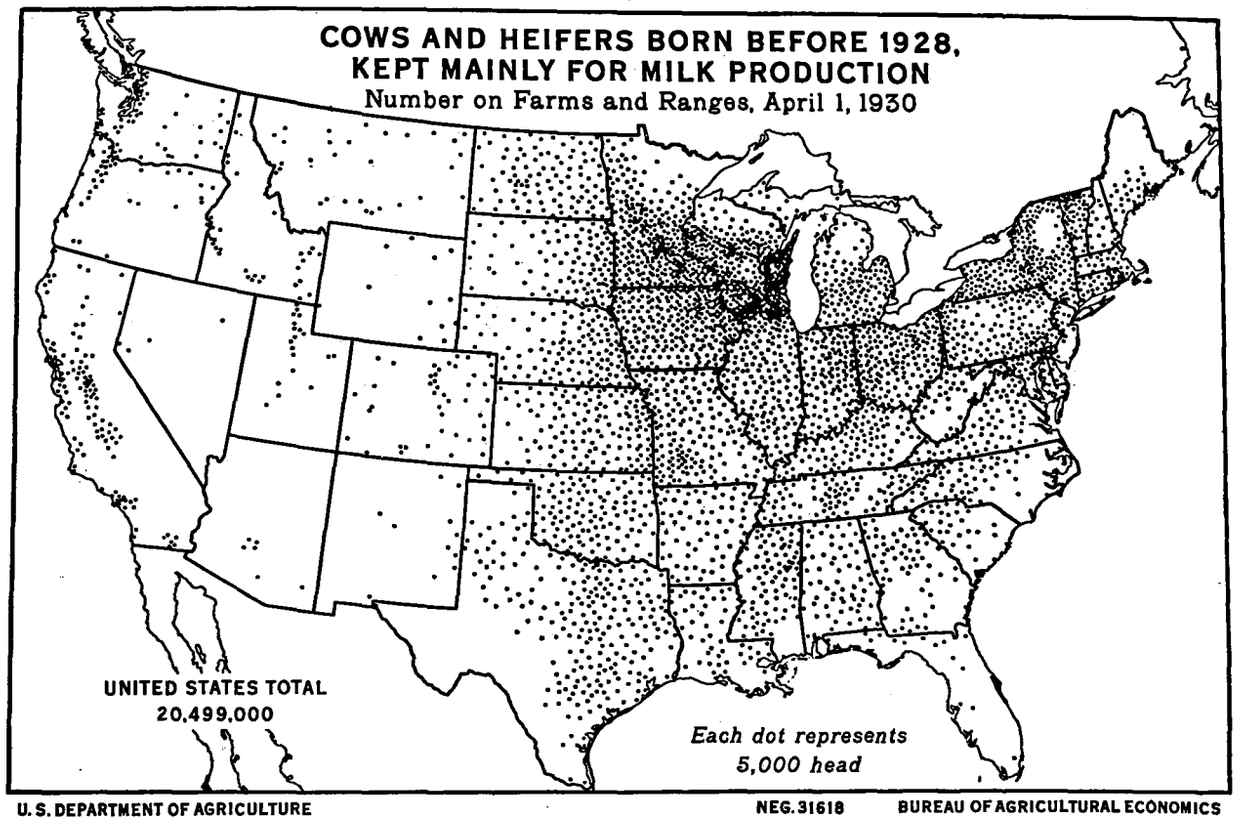


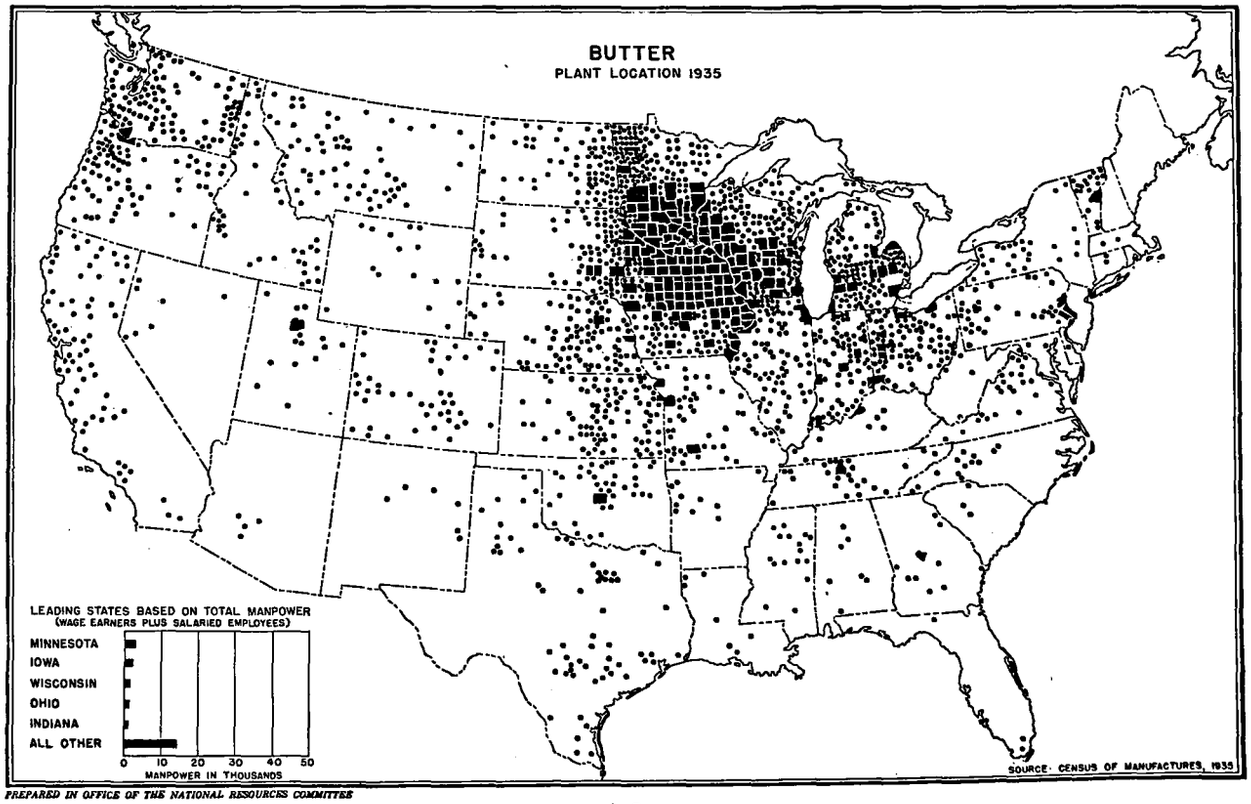
A–6



Retail Slaughter not included

A–7

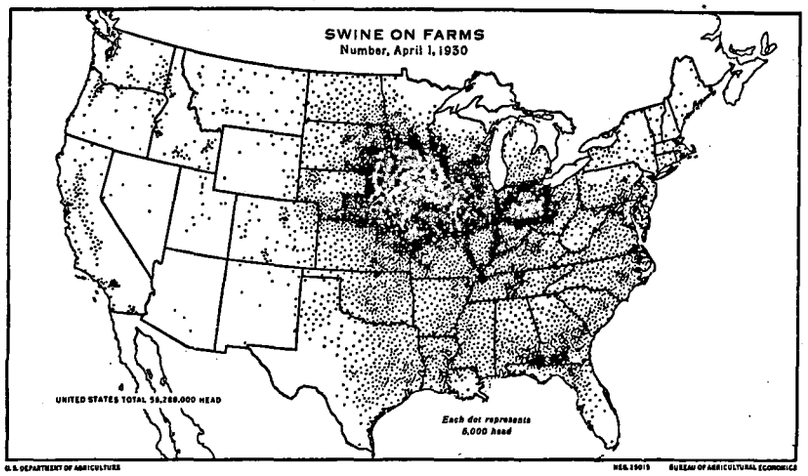




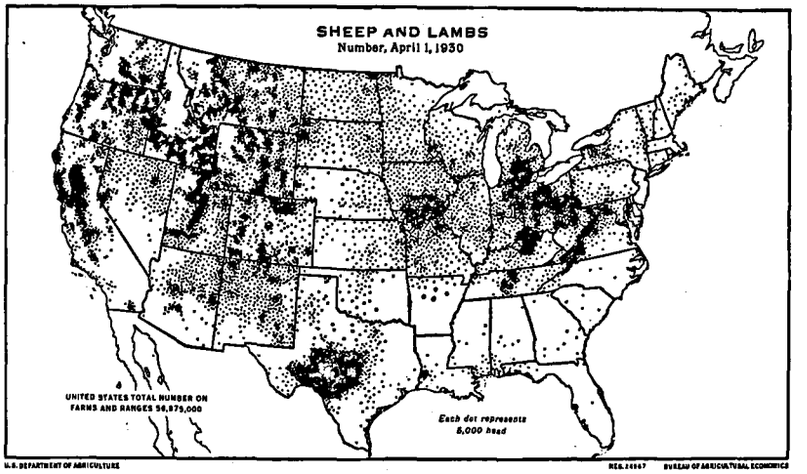
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A–8

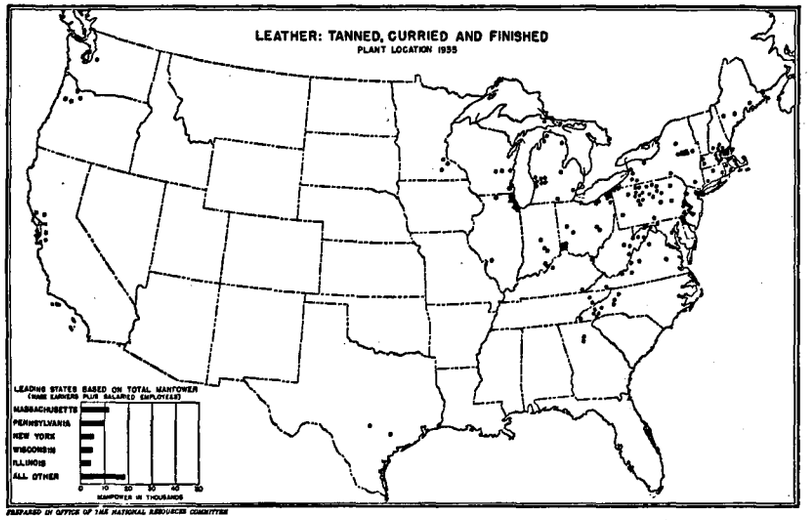
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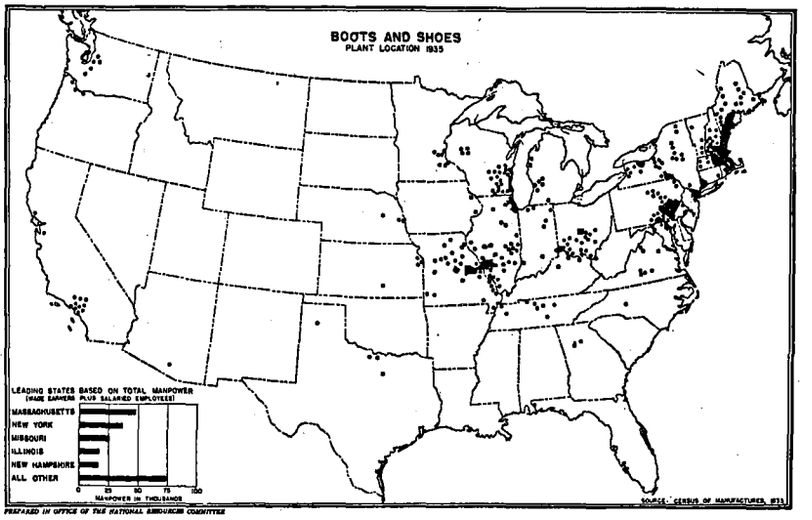
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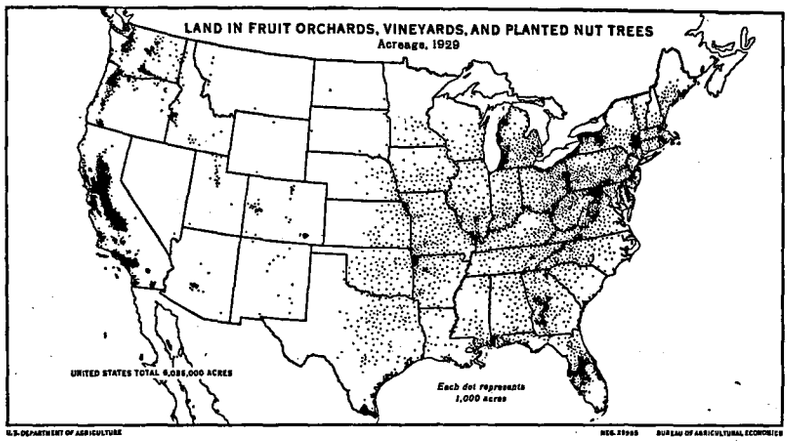
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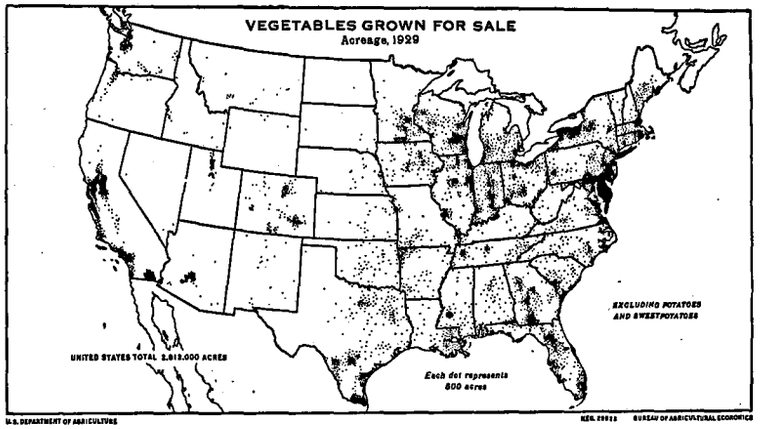
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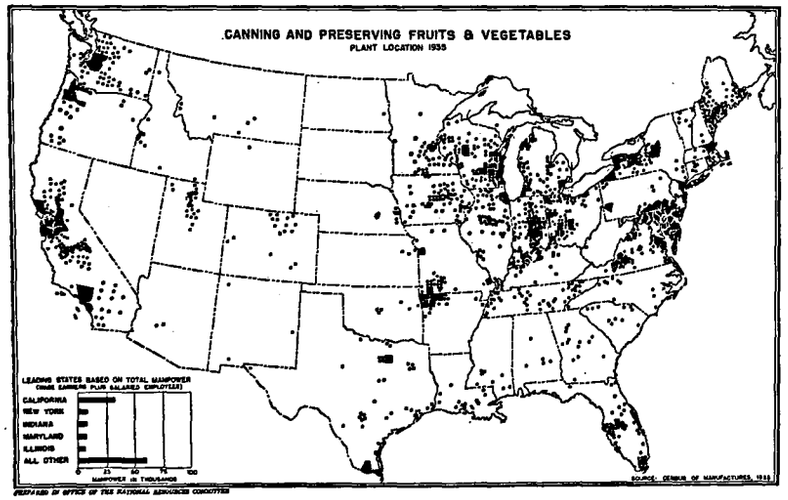
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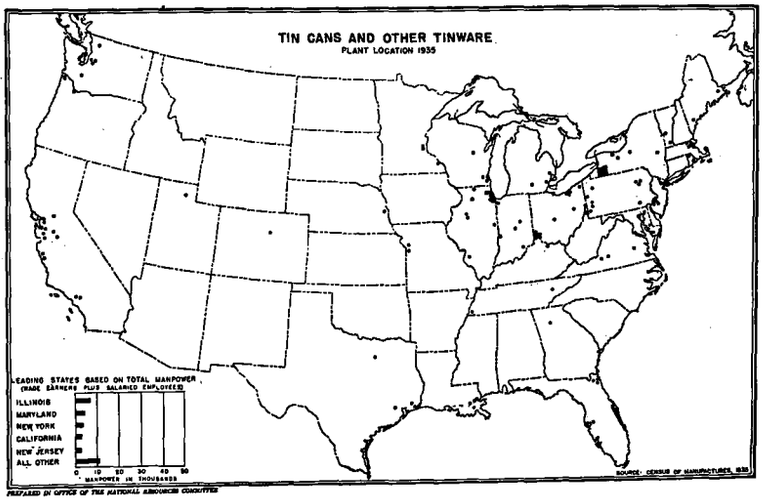
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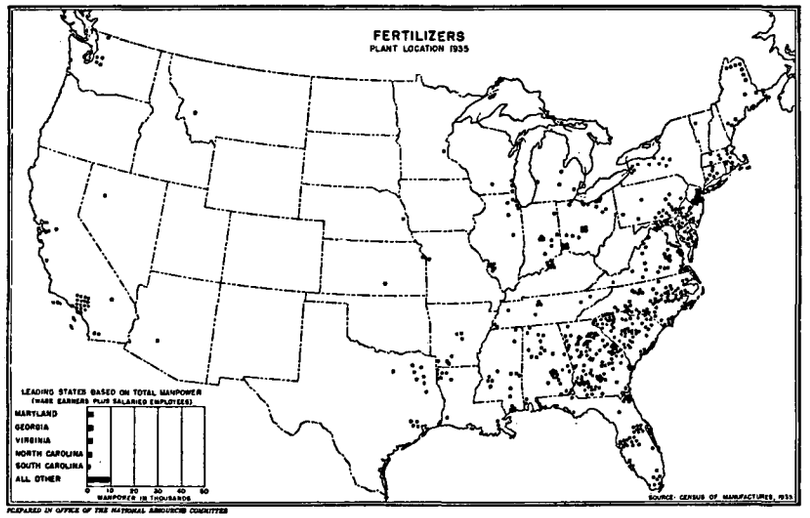
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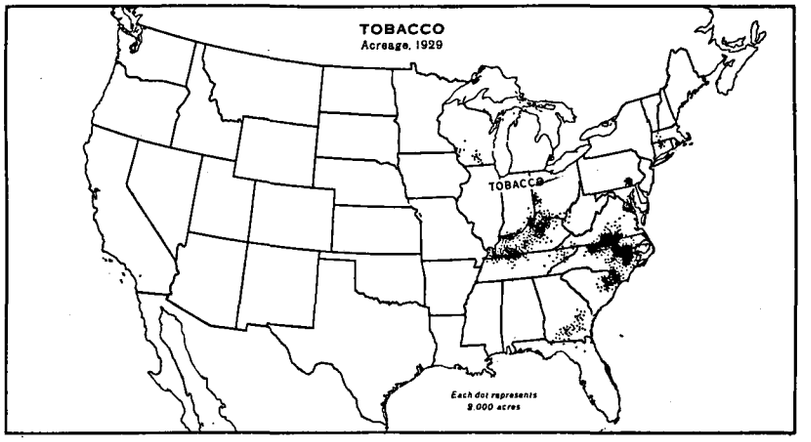
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A–17

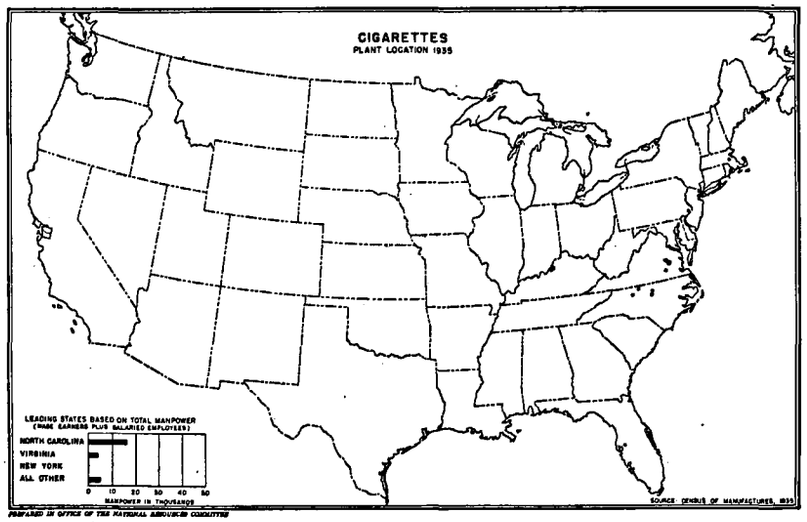


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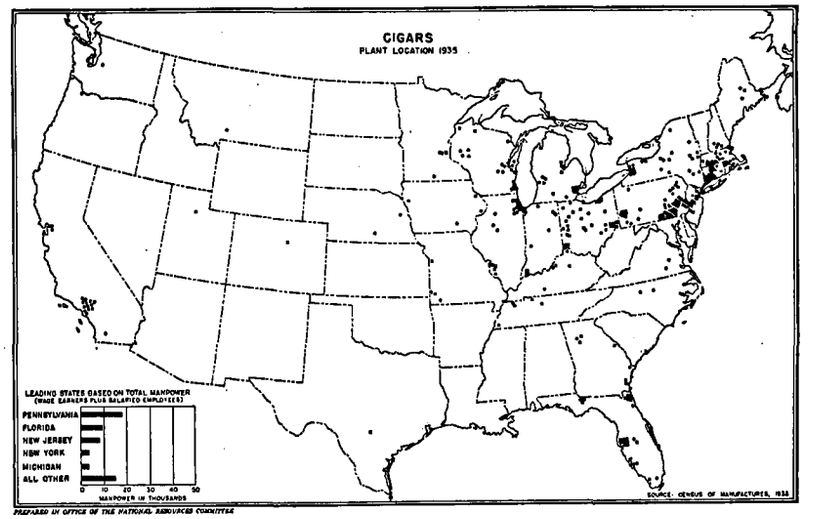


Source: Department of Agriculture

A–19

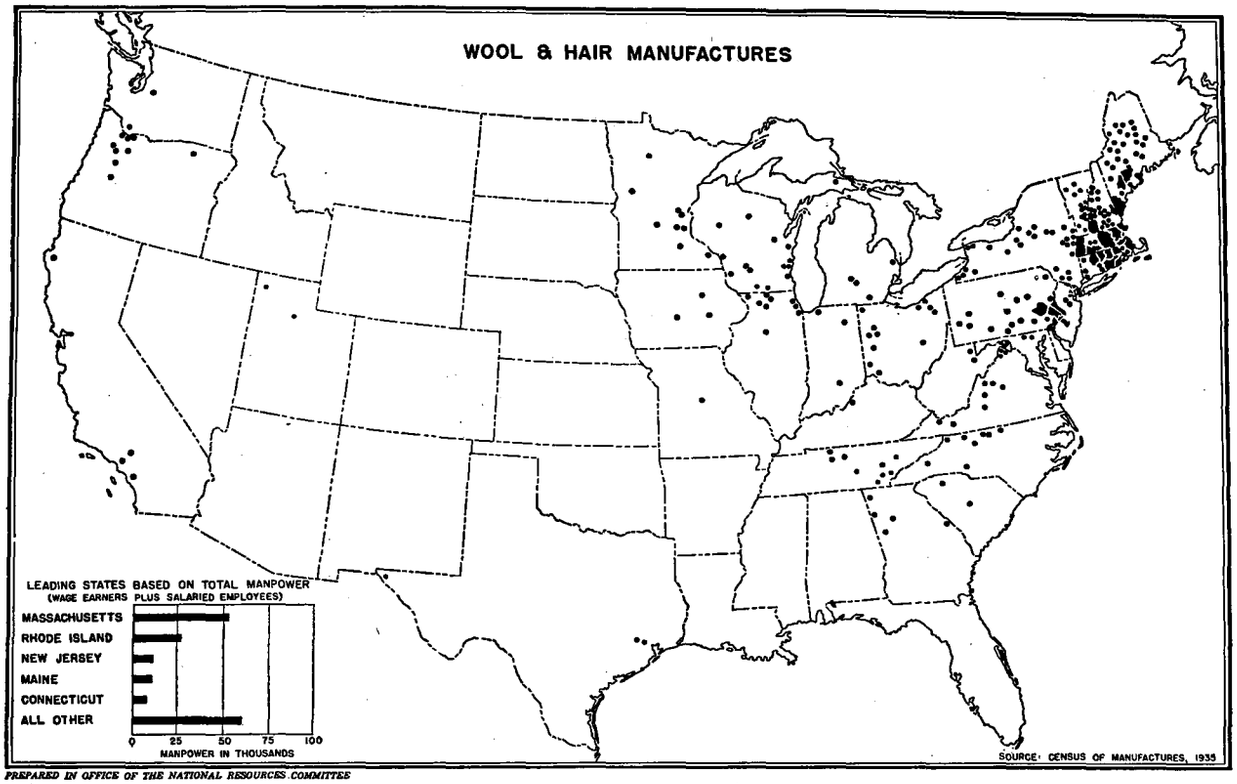


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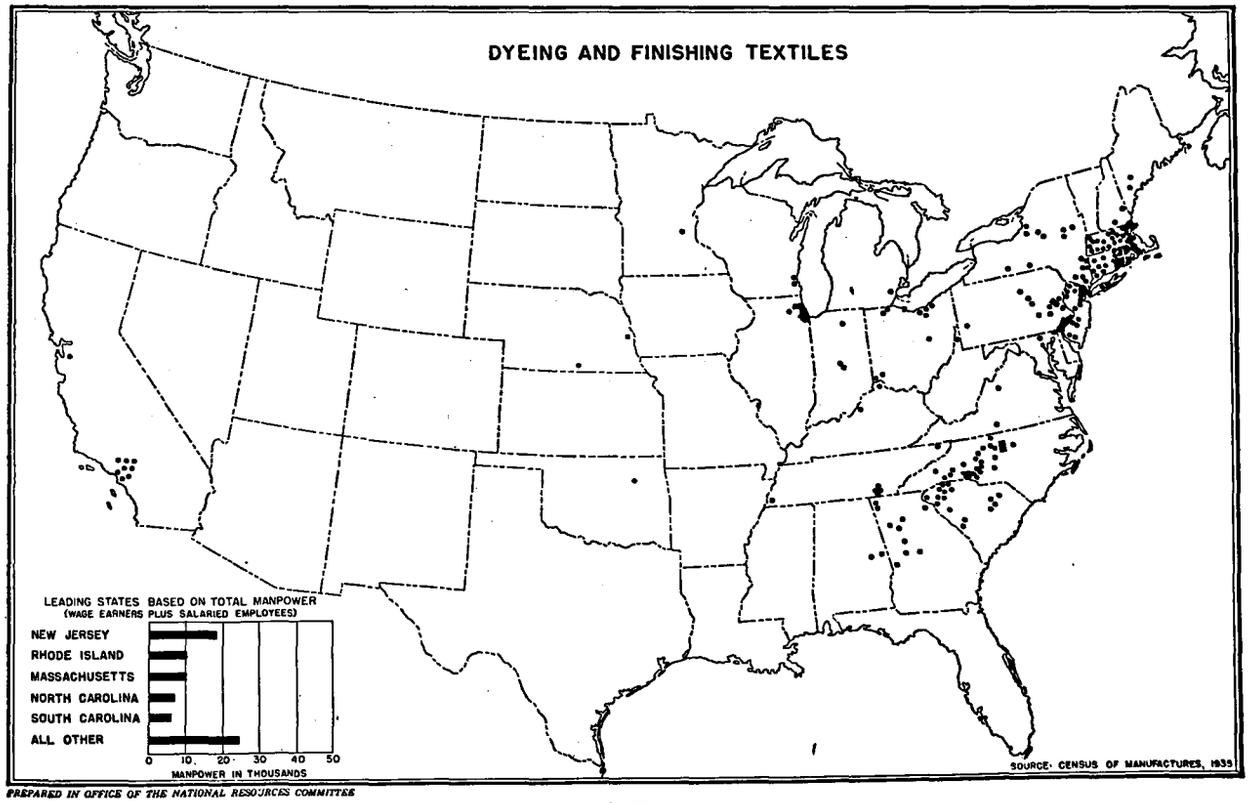


Plant Location 1935

A–21



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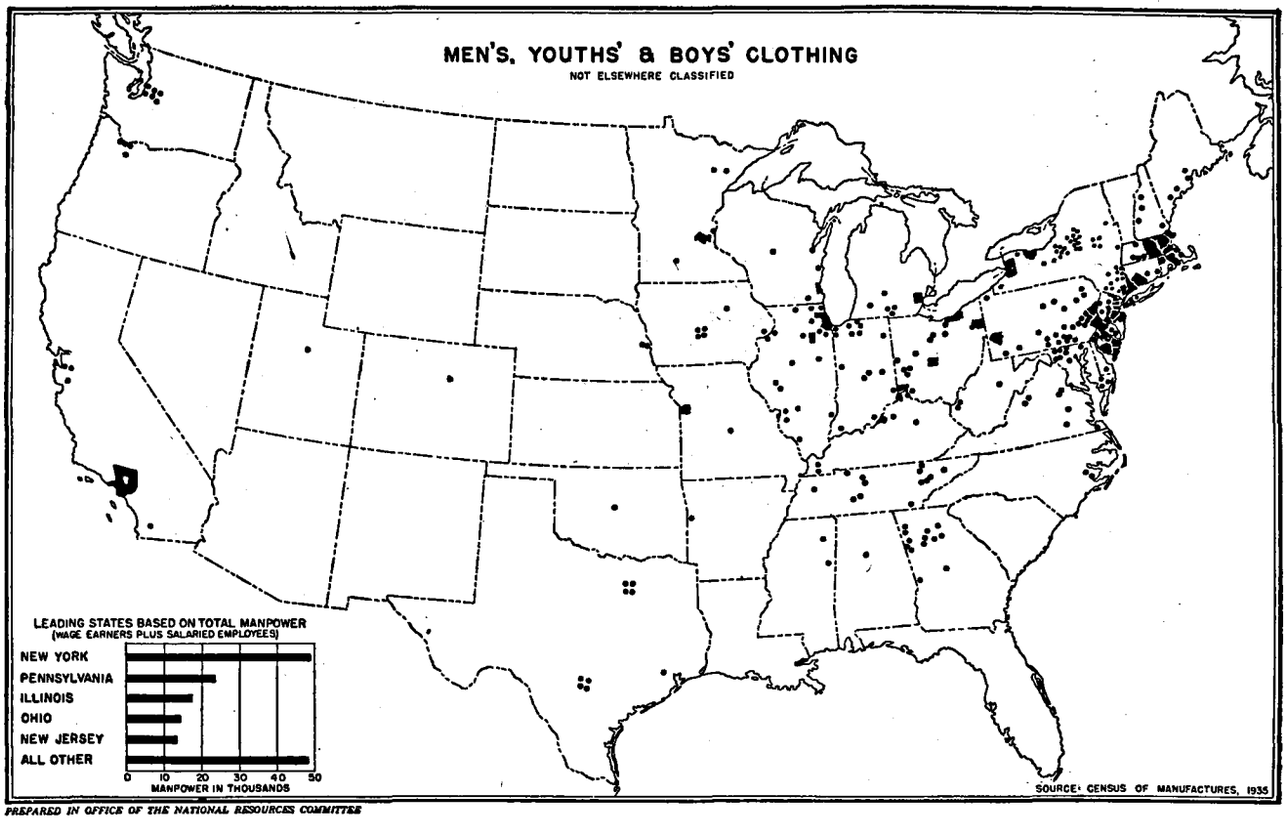


PREPARED IN OFFICE OF THE NATIONAL RESOURCES COMMITTEE

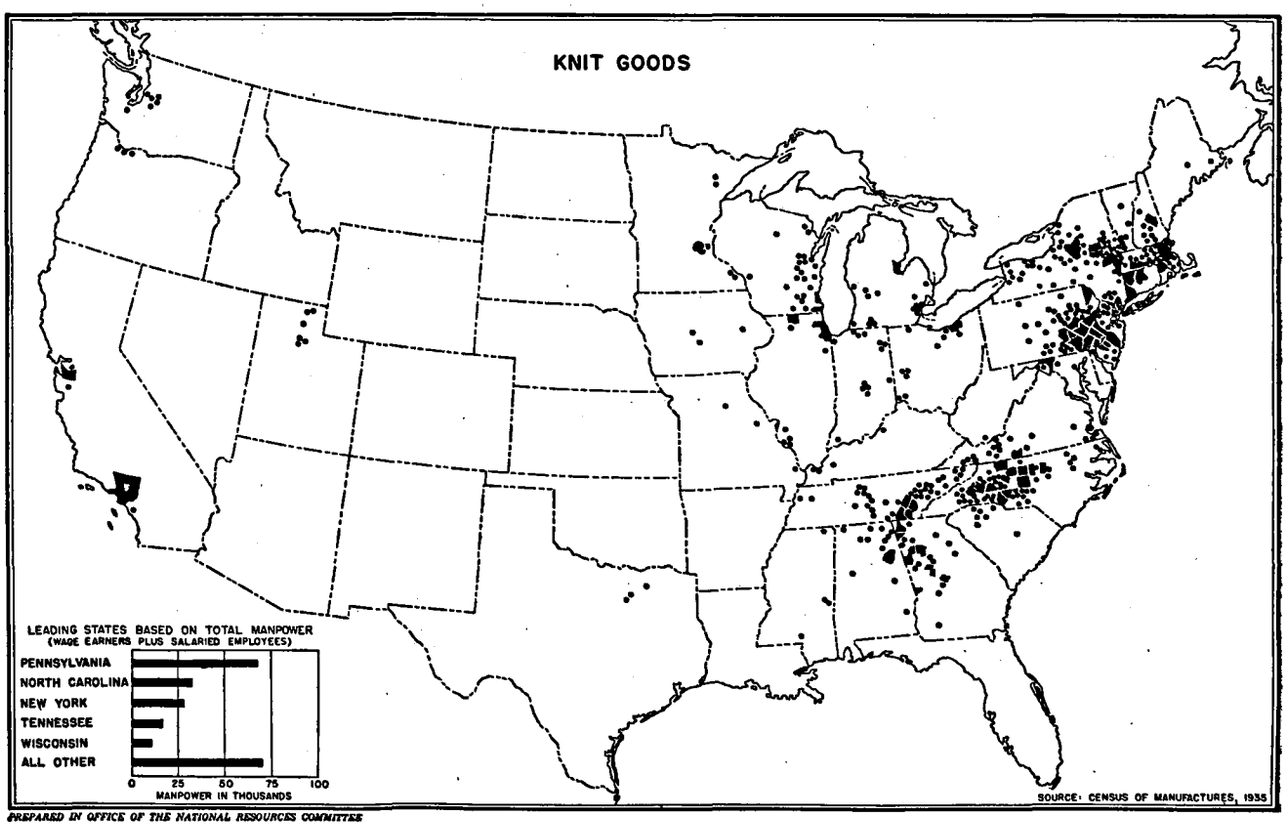
A–22
Plant Location 1935

79418°—39——23

A–23



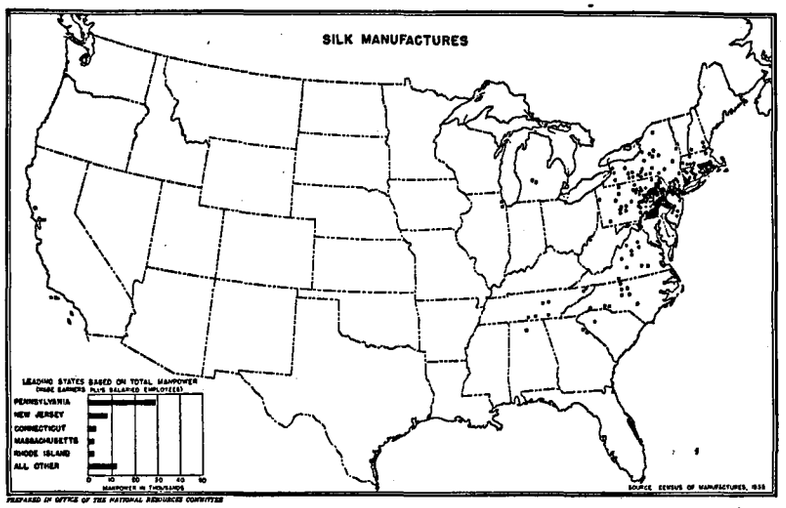
PREPARED IN OFFICE OF THE NATIONAL RESOURCES COMMITTEE



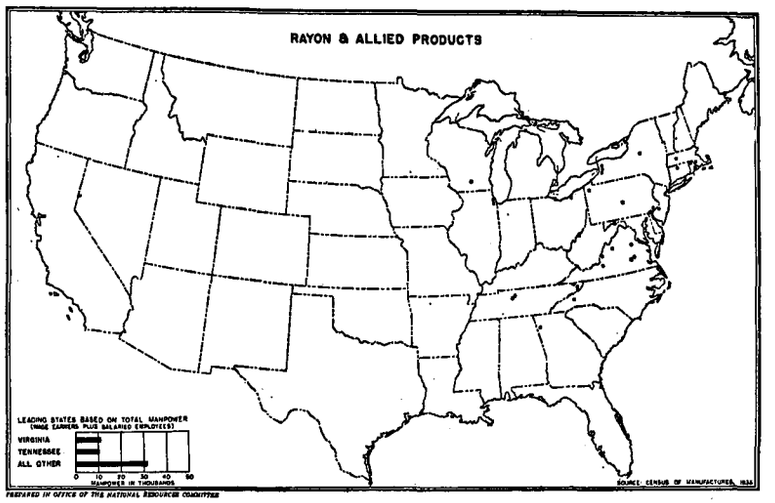
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A–24
Plant Location 1935

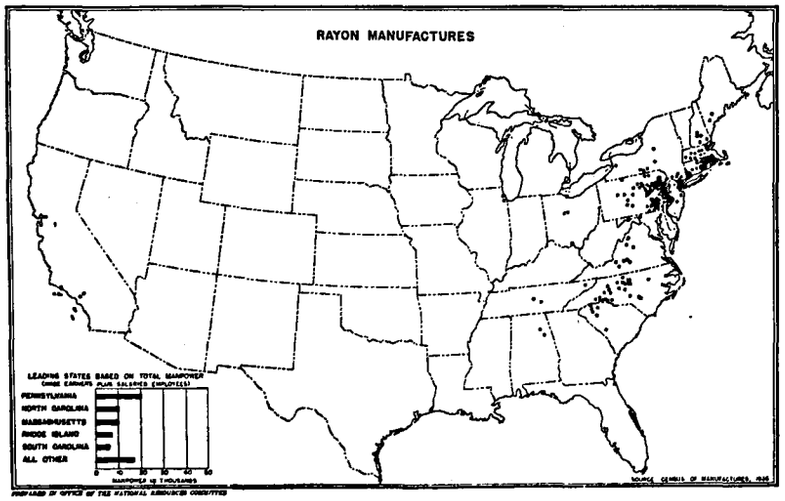
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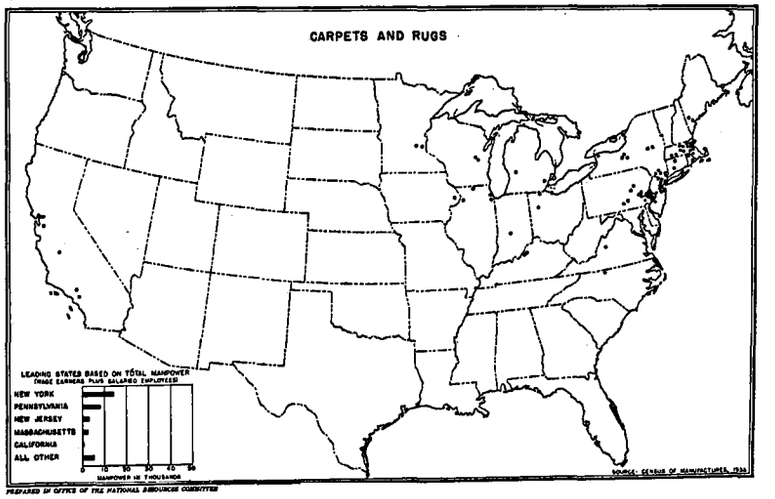
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A–27

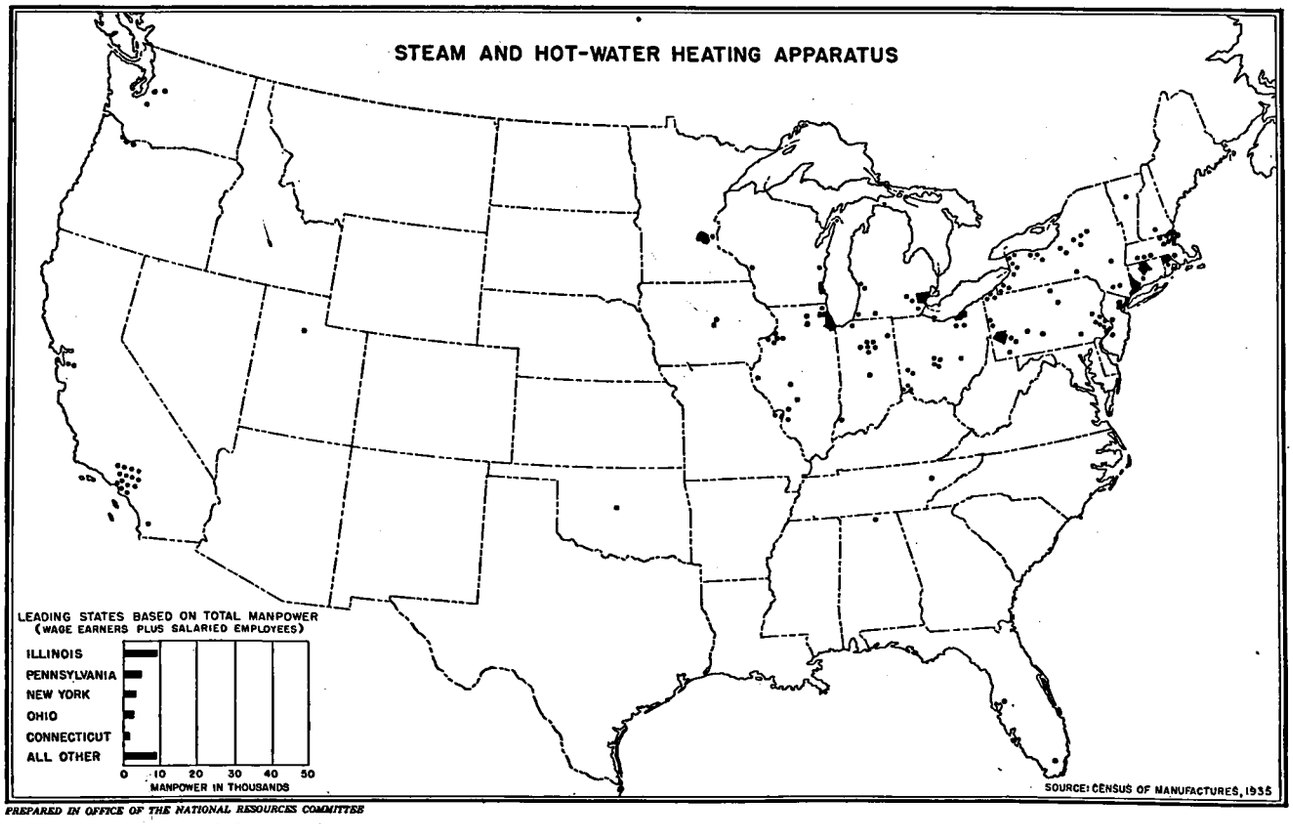


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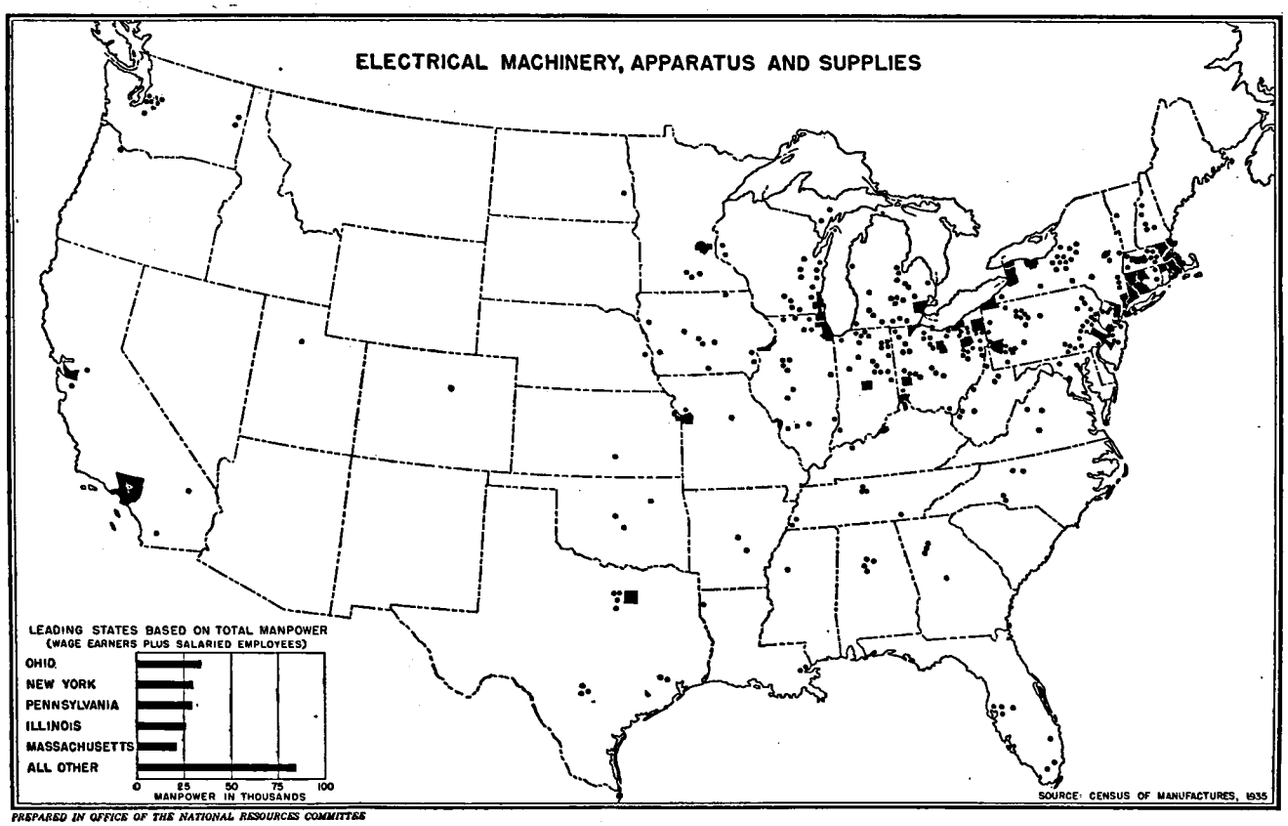


Plant Location 1935

A–29



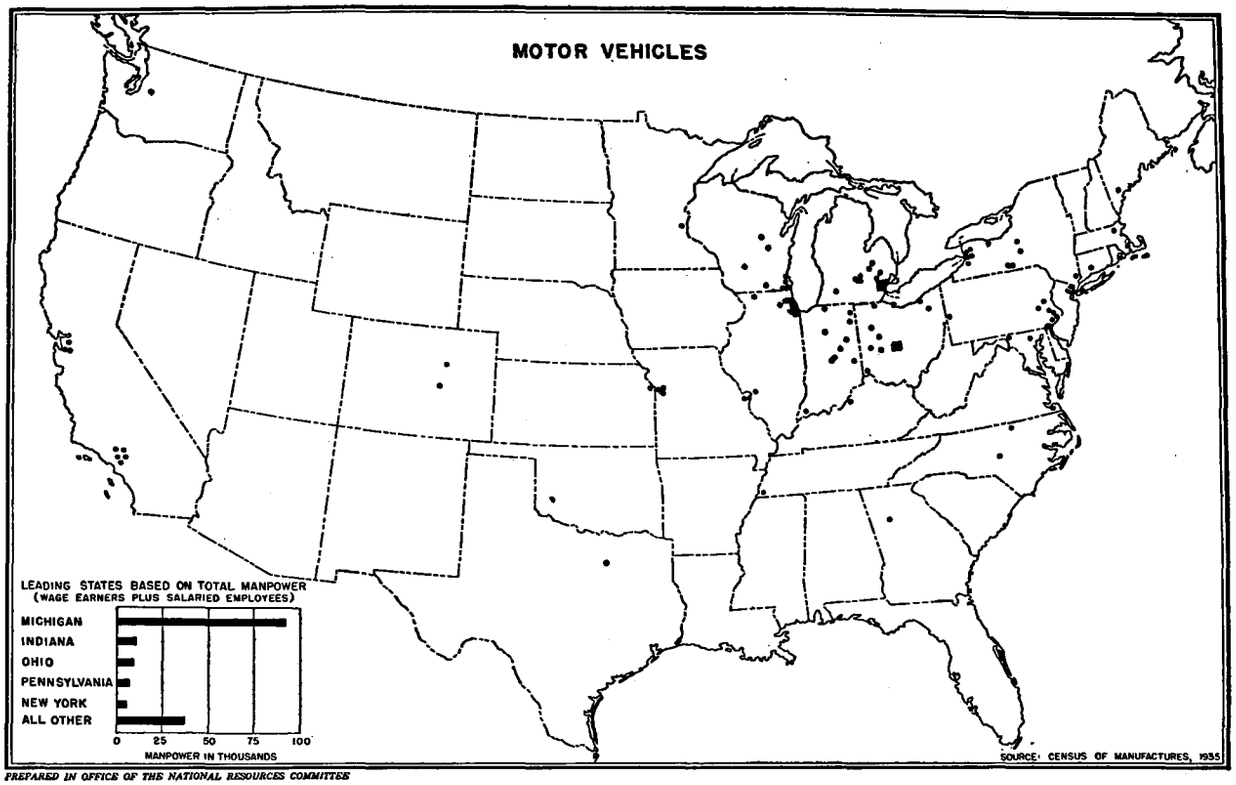
PREPARED IN OFFICE OF THE NATIONAL RESOURCES COMMITTEE



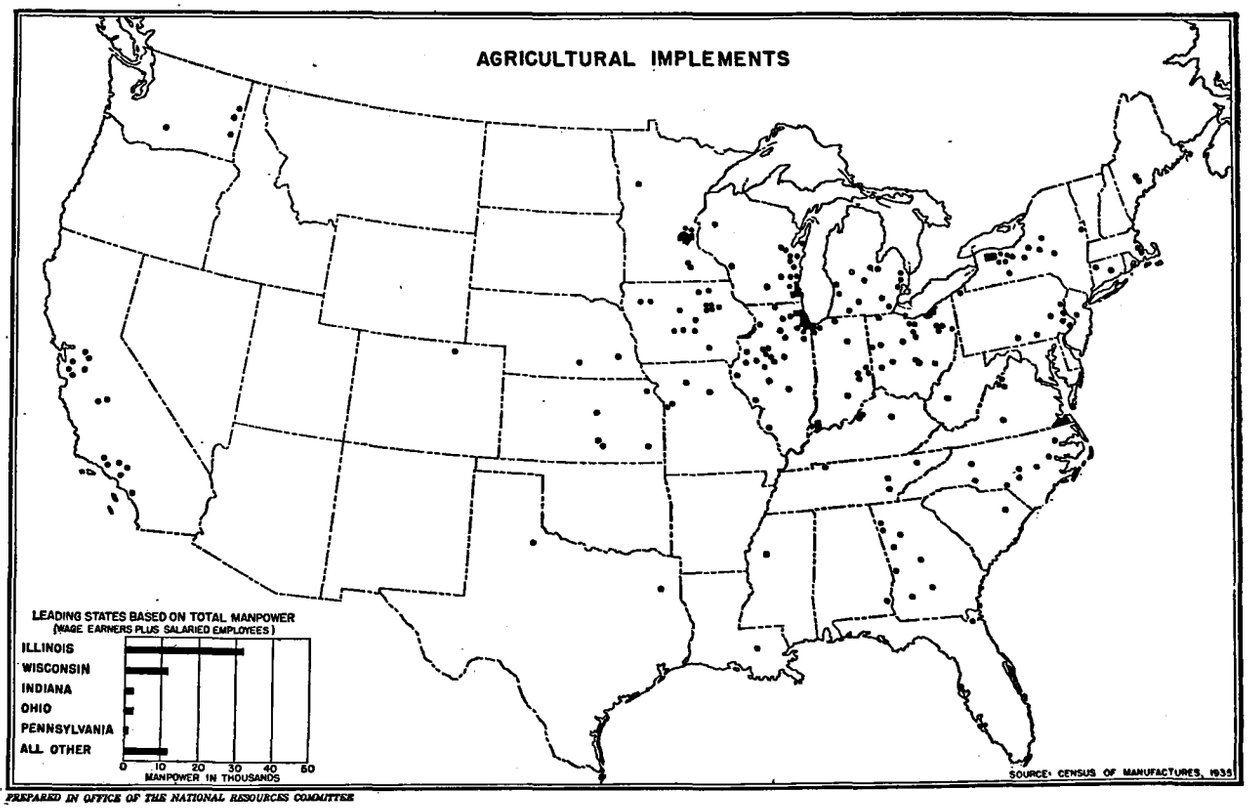
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A–30
Plant Location 1935

A–31



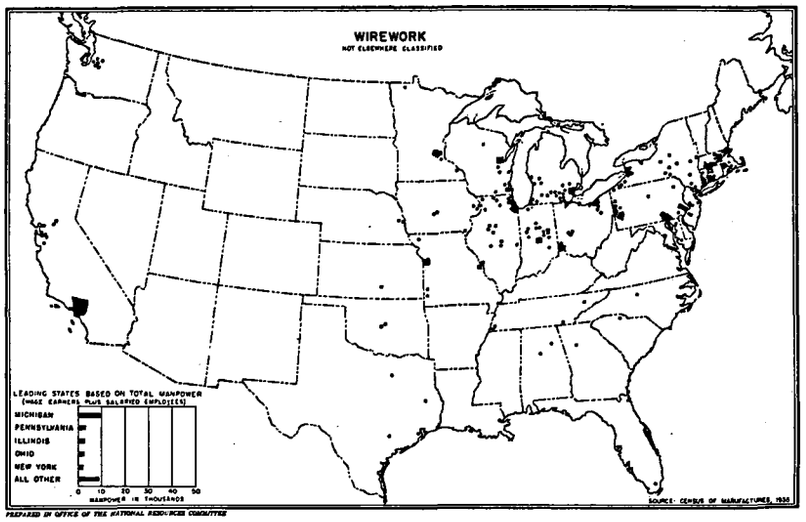
PREPARED IN OFFICE OF THE NATIONAL RESOURCES COMMITTEE



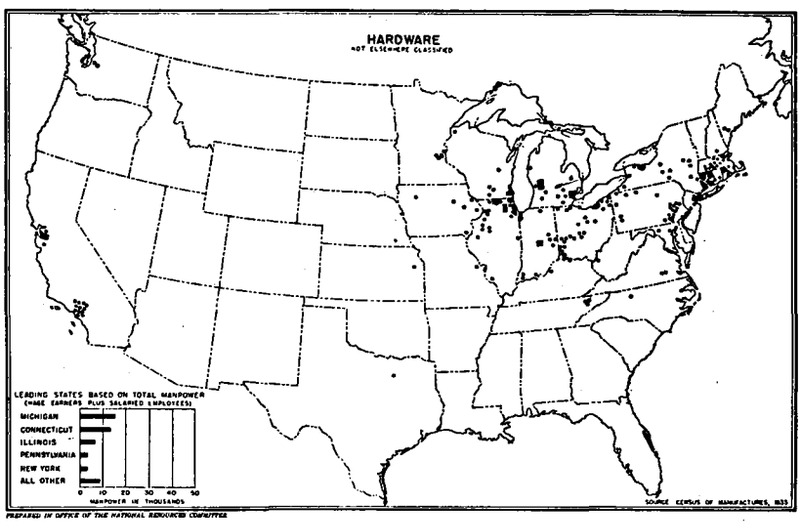
PREPARED IN OFFICE OF THE NATIONAL RESOURCES COMMITTEE

A–32
Plant Location 1935

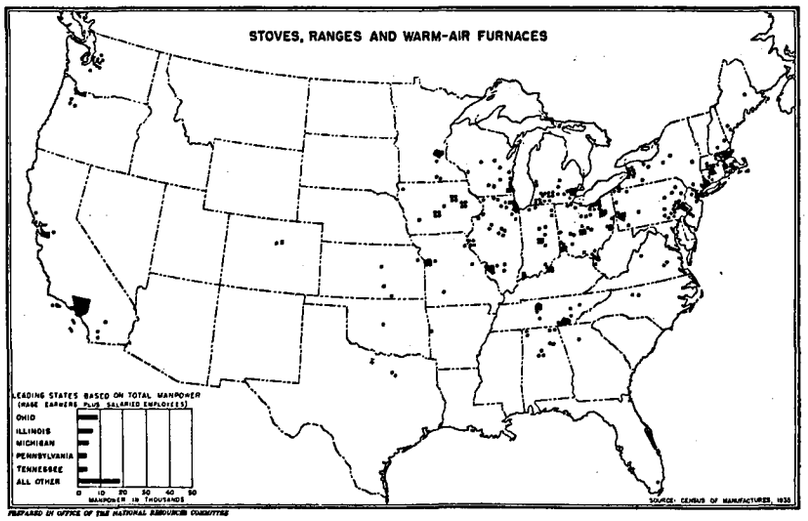
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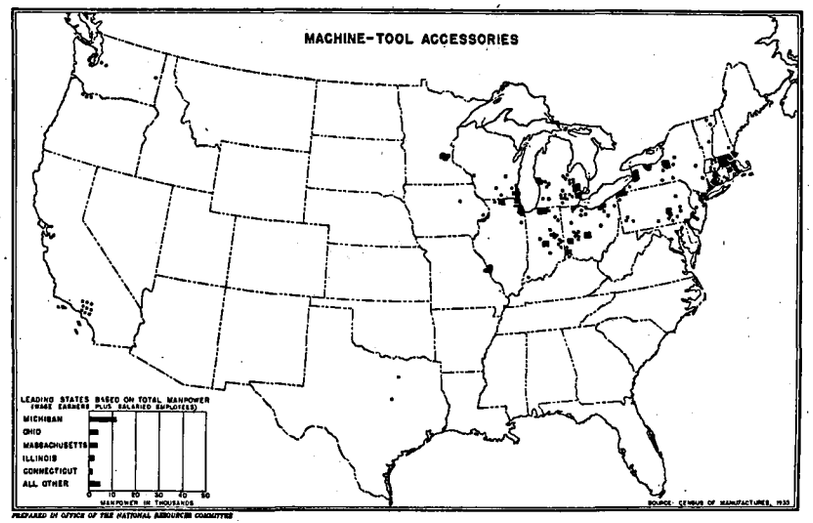
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A–35

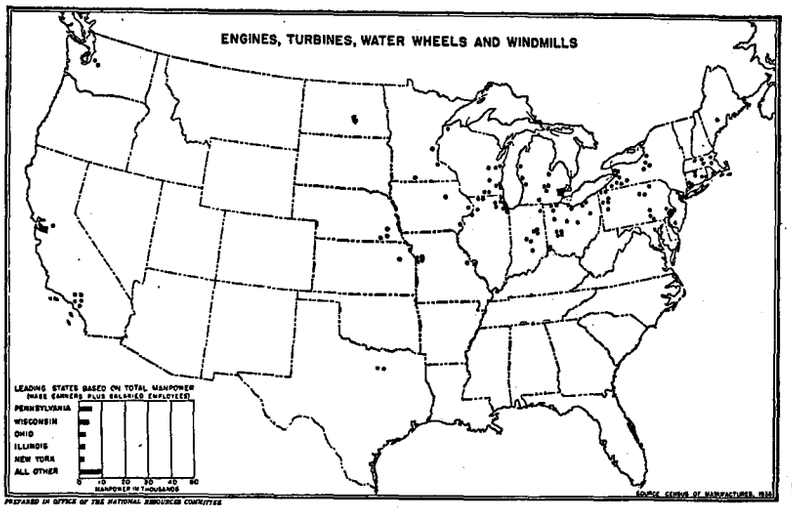


A–36

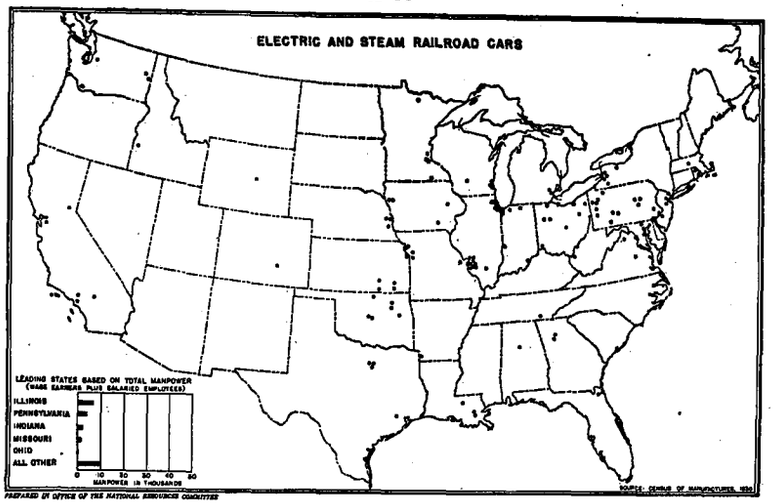


Plant Location 1935

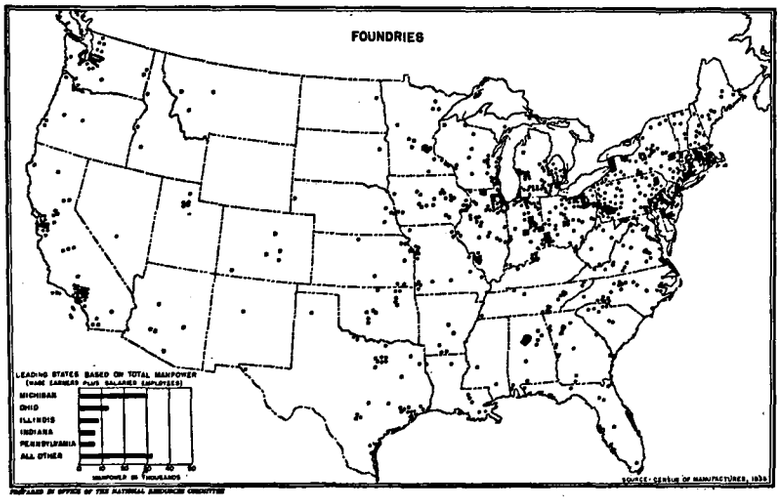
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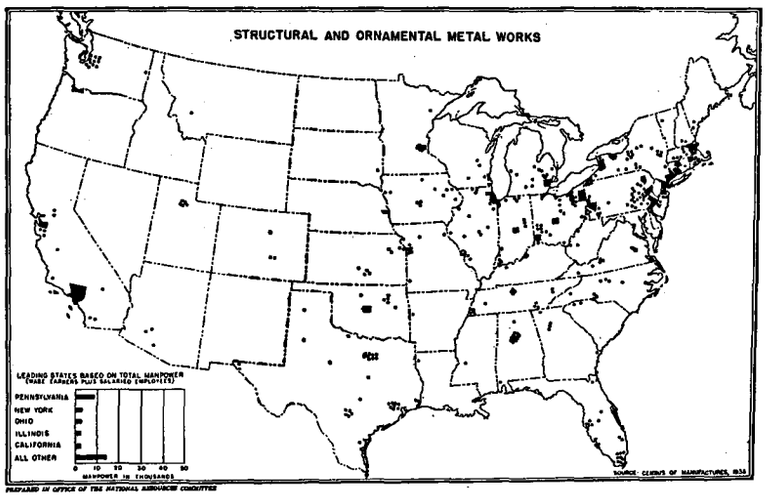
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A–39

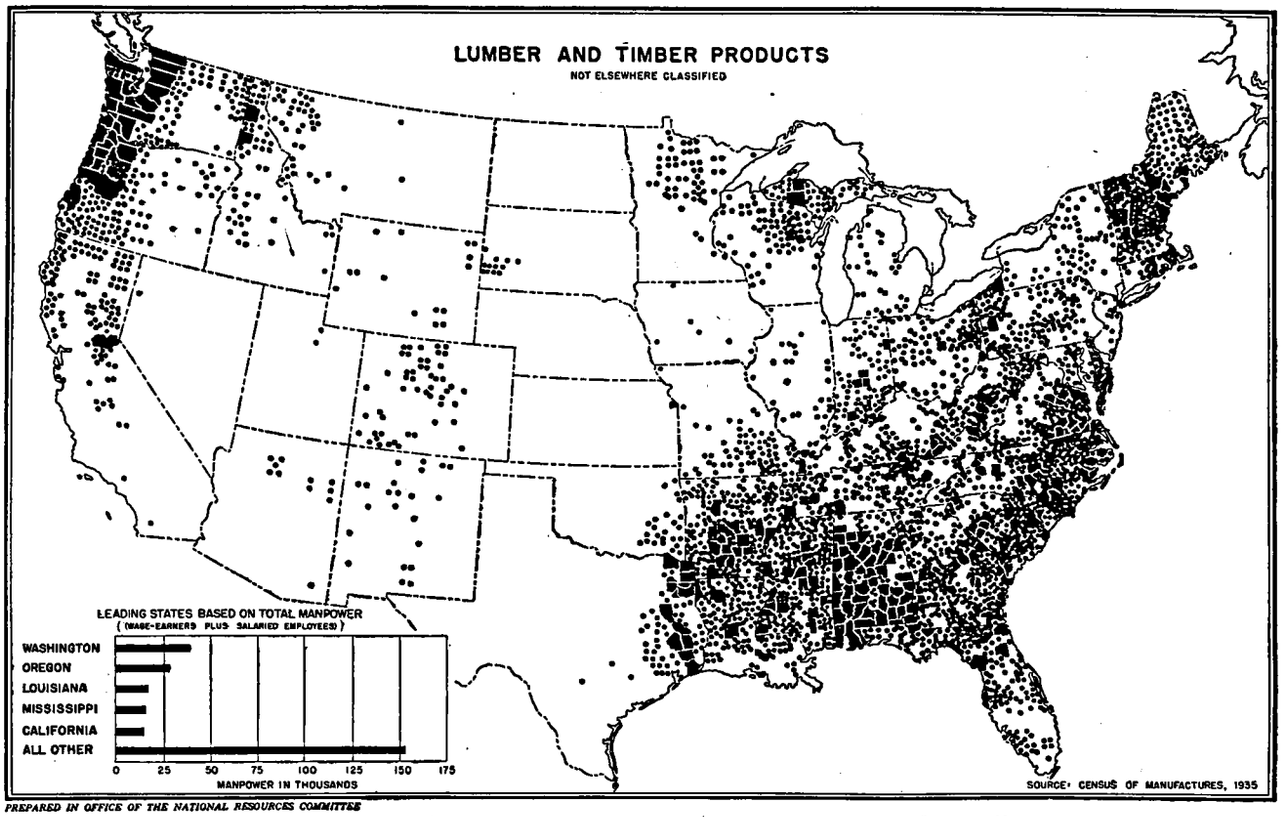


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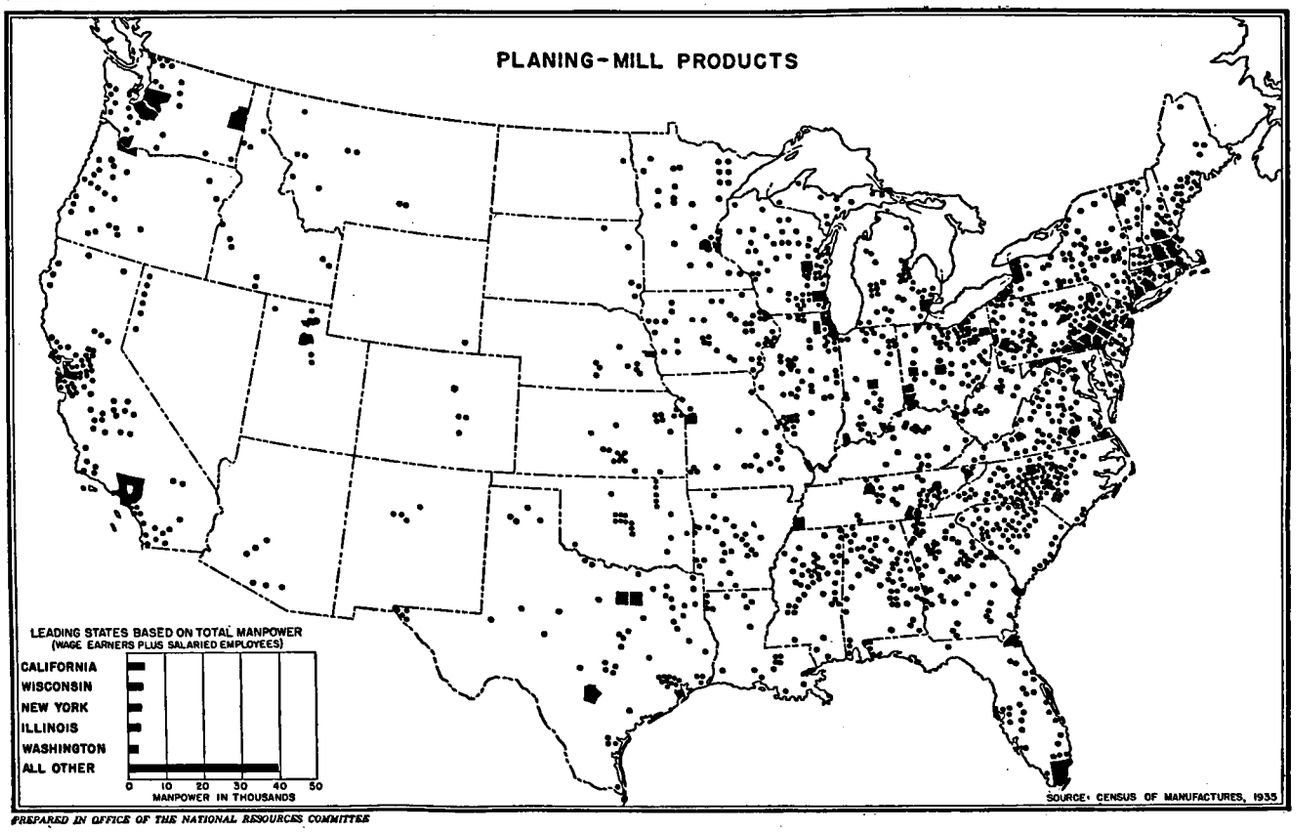


Plant Location 1935

A–41



PREPARED IN OFFICE OF THE NATIONAL RESOURCES COMMITTEE

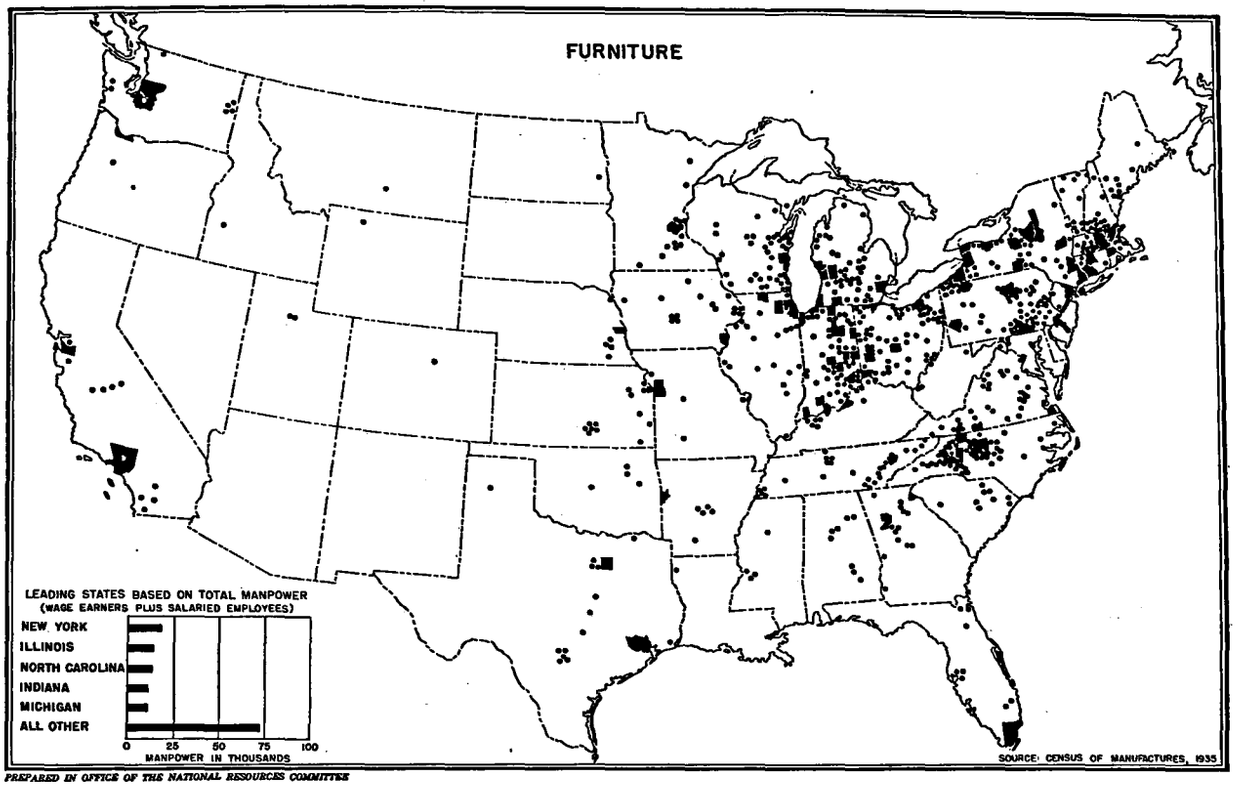


PREPARED IN OFFICE OF THE NATIONAL RESOURCES COMMITTEE

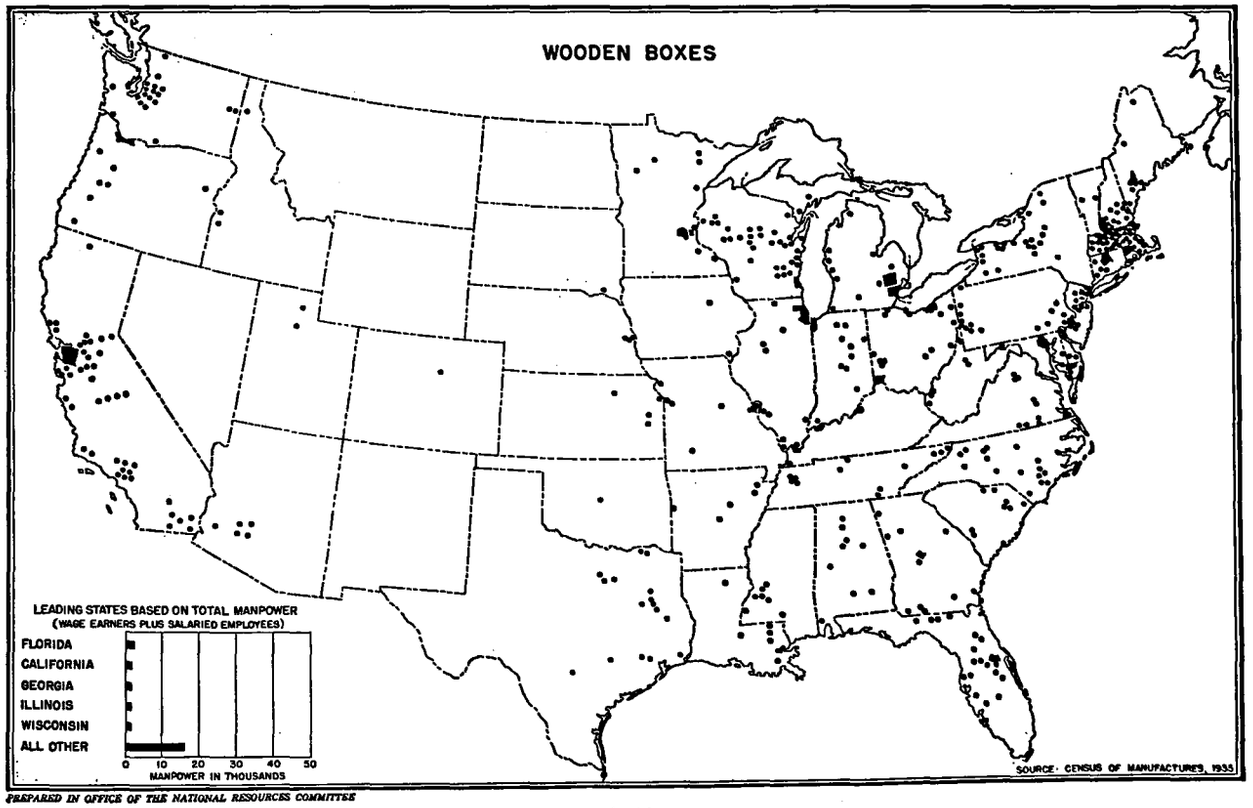
A–42

Plant Location 1935

A–43



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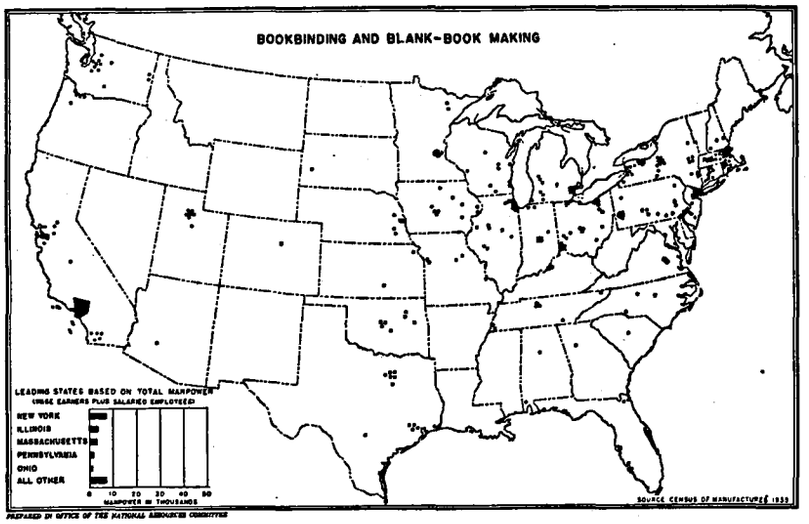


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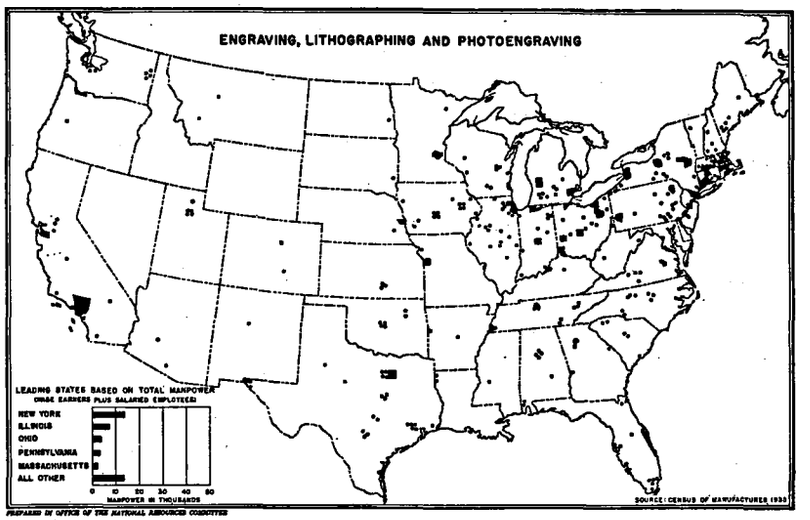
A–44

Plant Location 1935

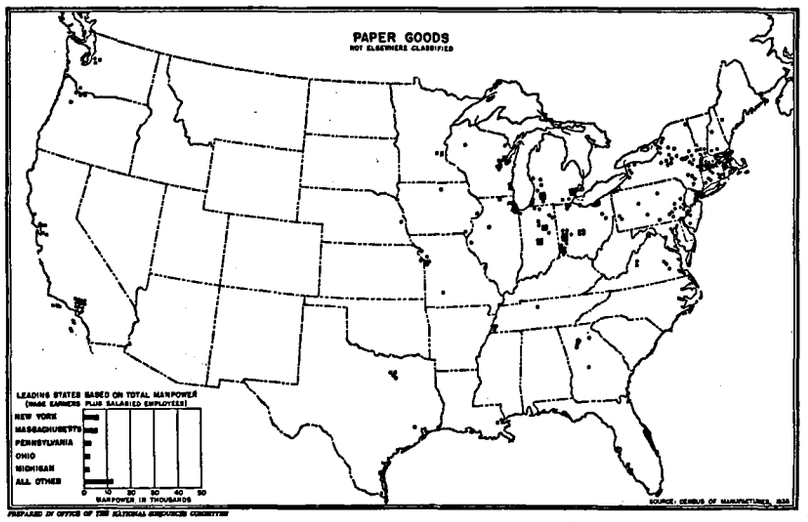
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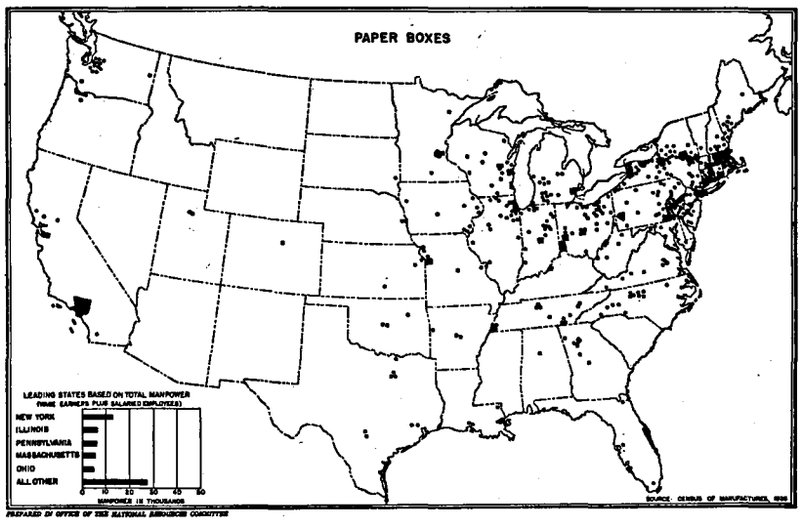
A–46



A–47

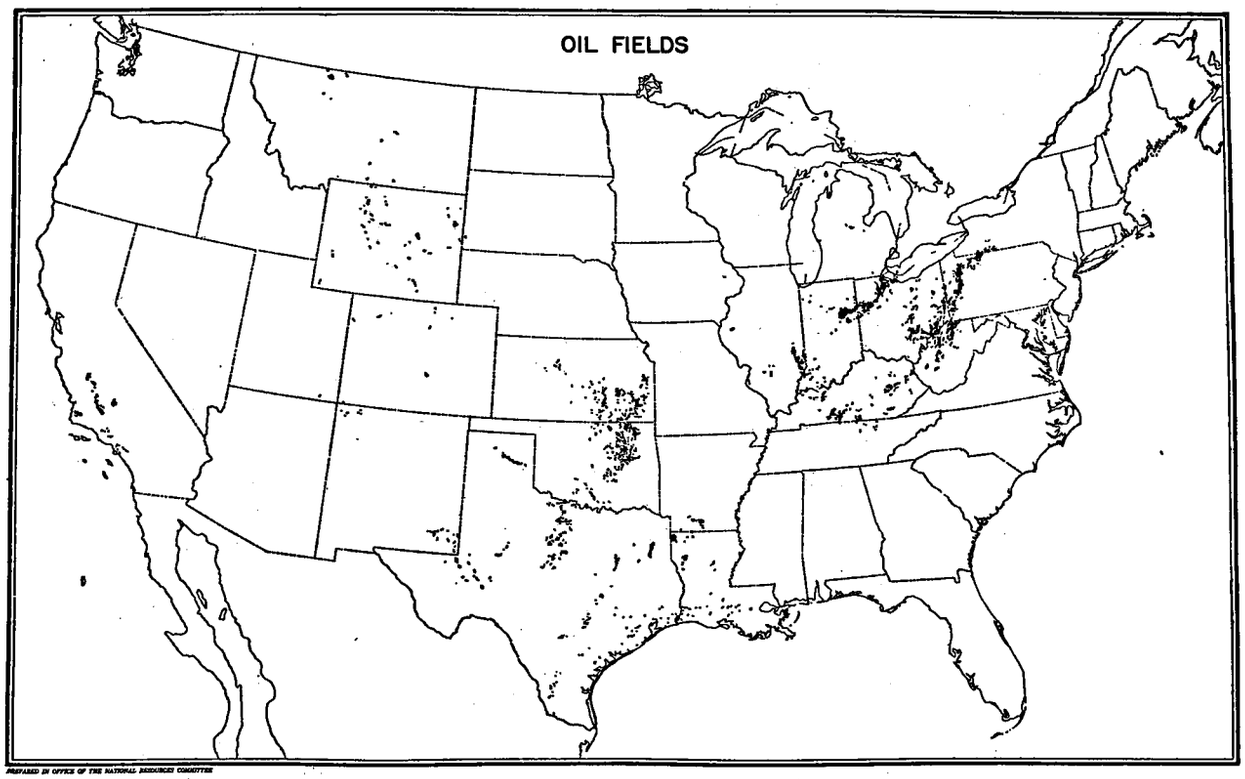


A–48

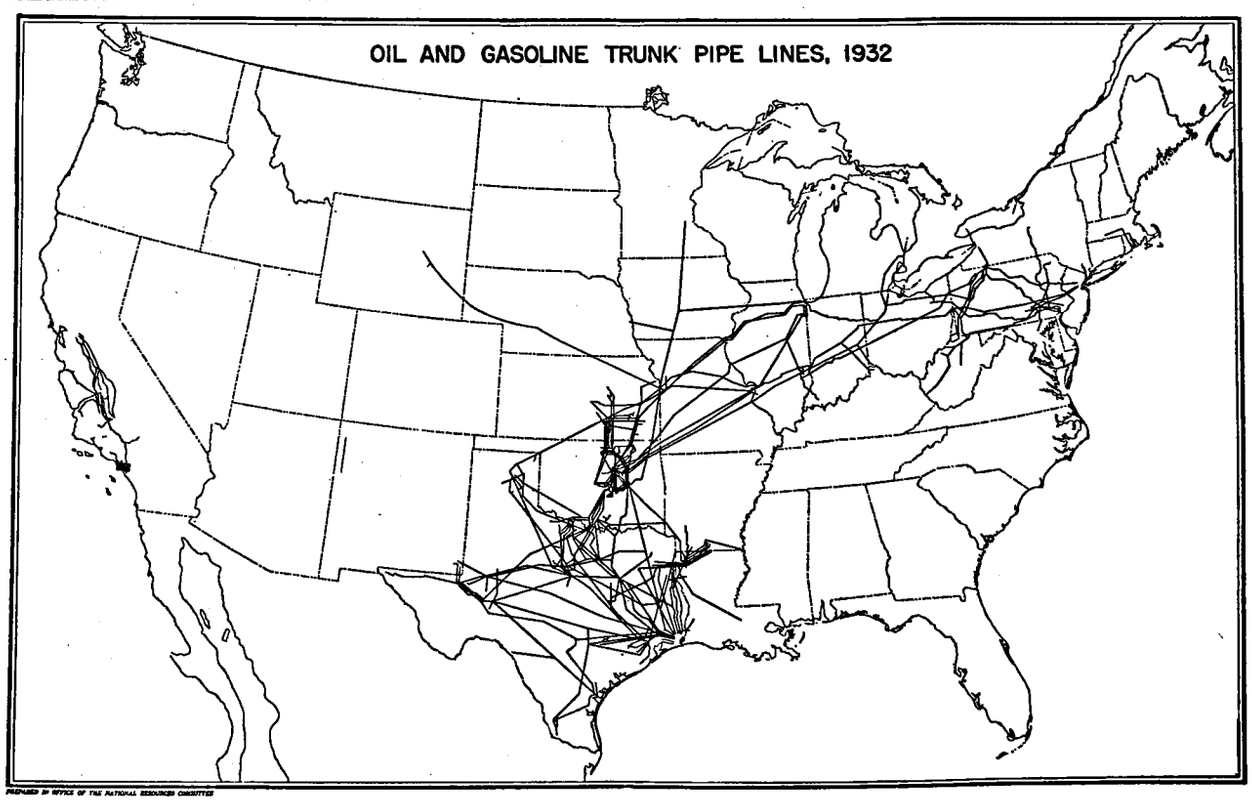


Plant Location 1935

A–49



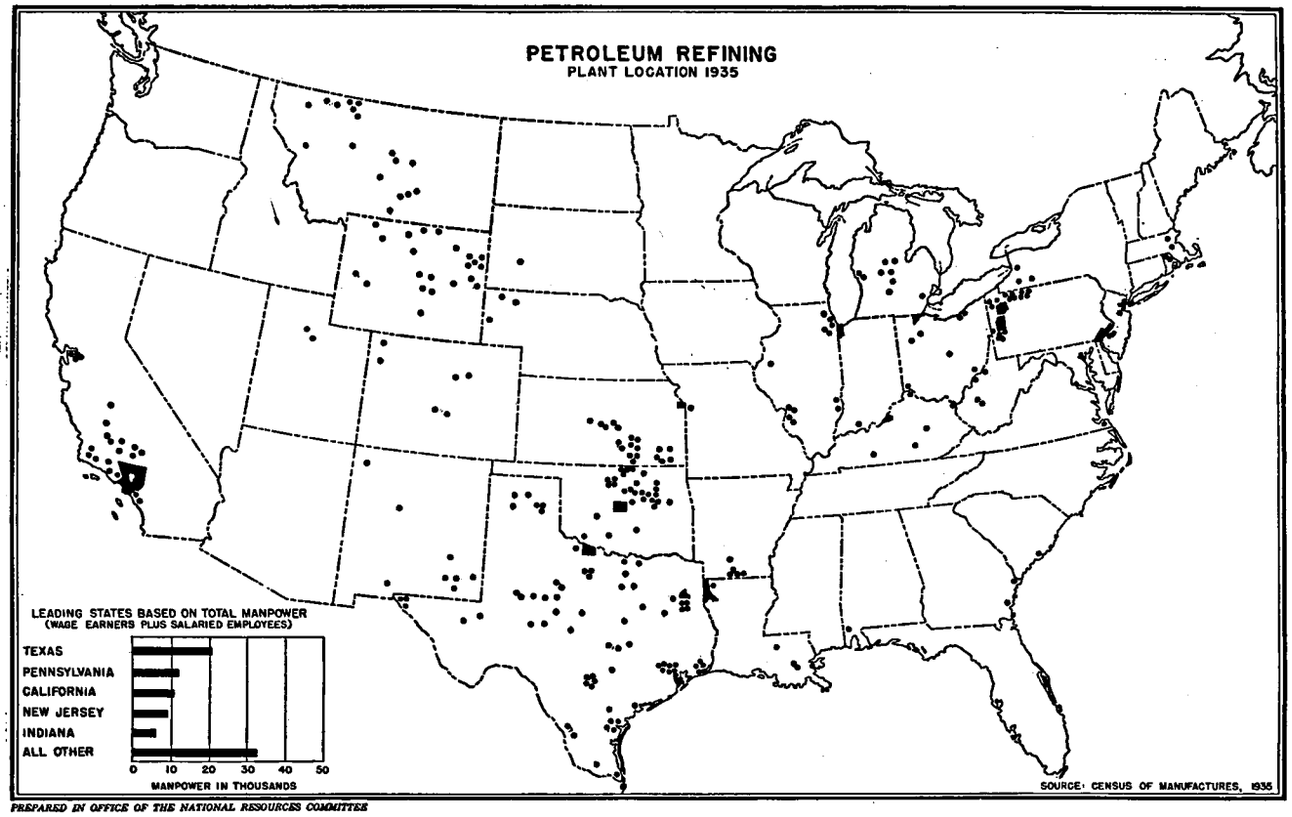
PREPARED IN OFFICE OF THE NATIONAL RESOURCES COMMITTEE



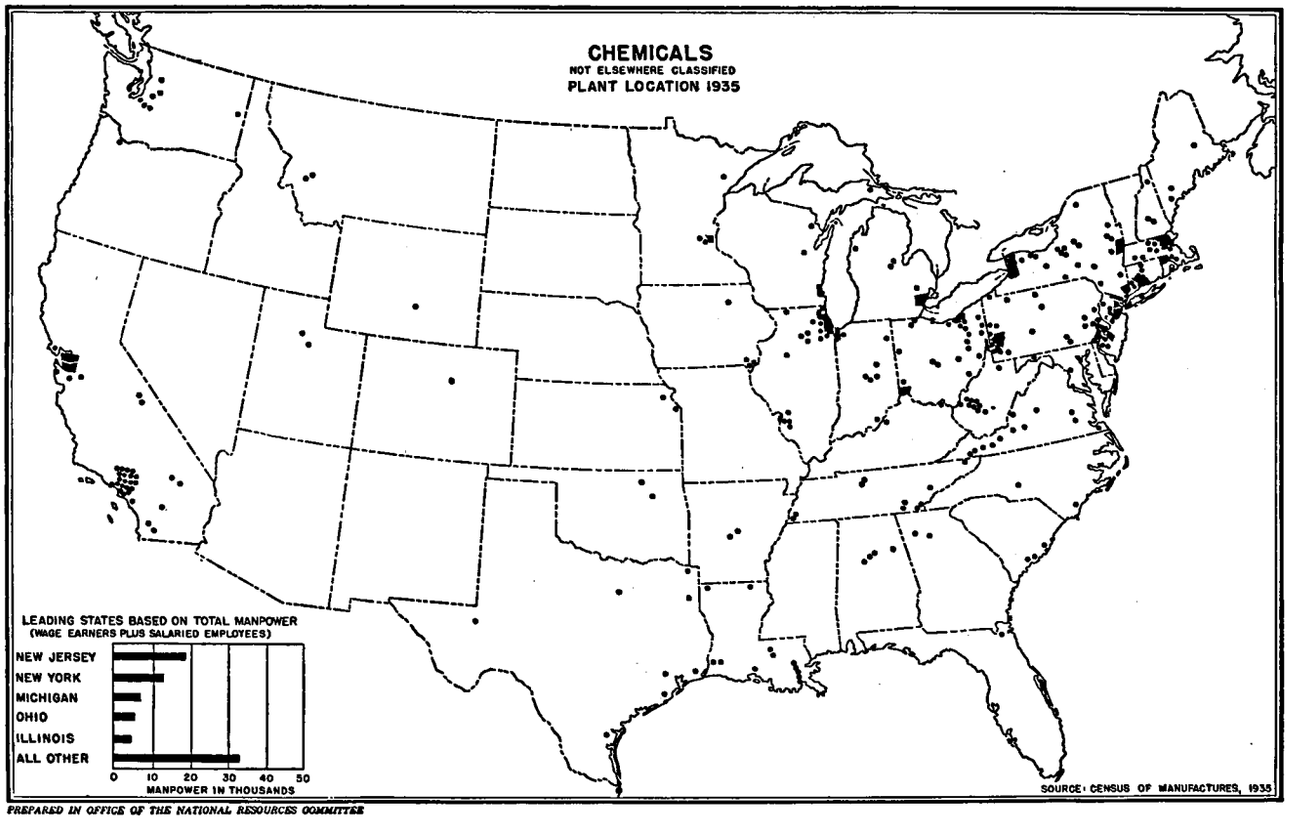
PREPARED IN OFFICE OF THE NATIONAL RESOURCES COMMITTEE

A–50

A–51



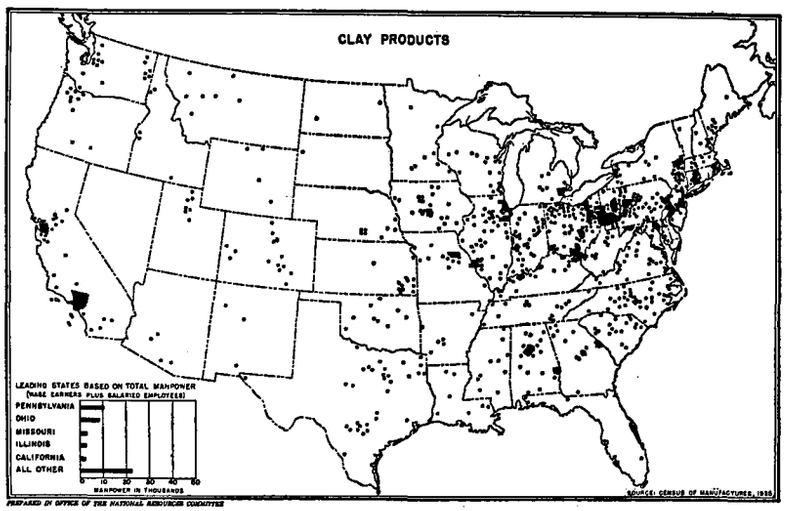
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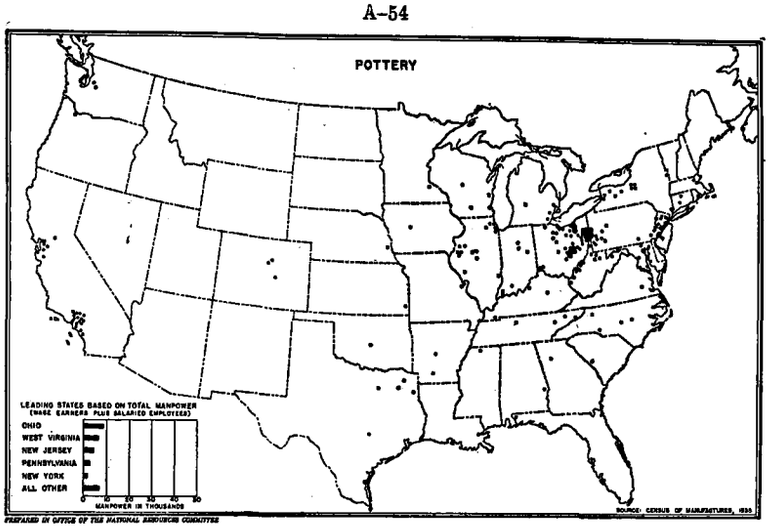
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A–52

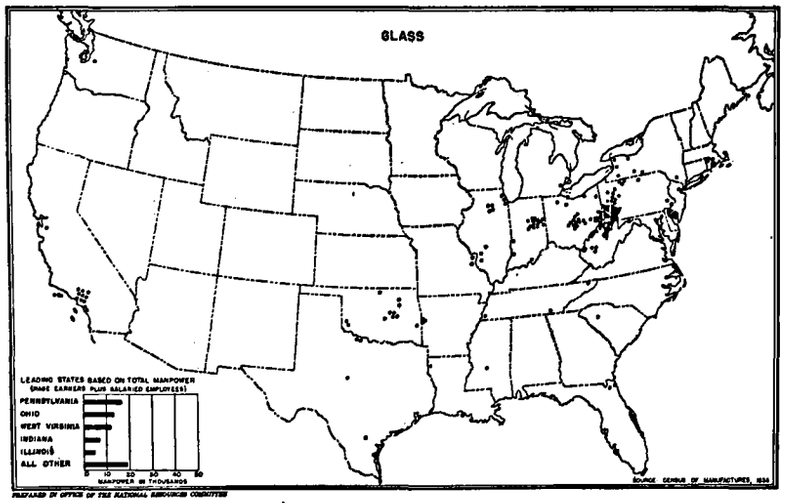
A–53



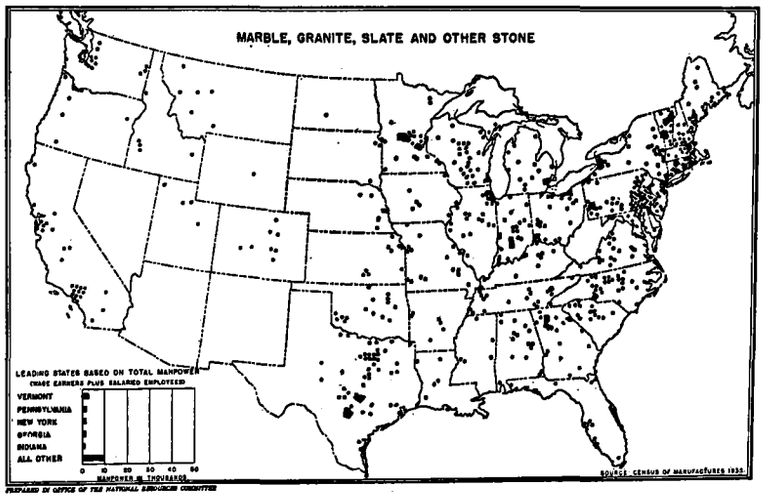
A–54



A–55

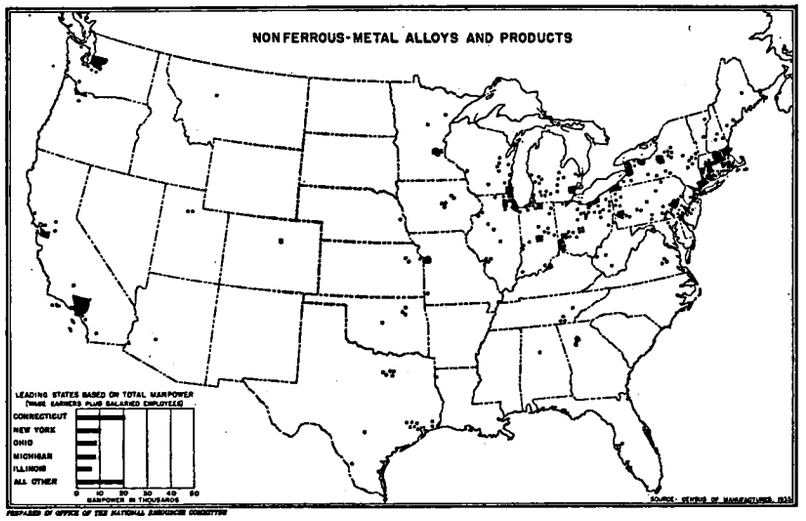


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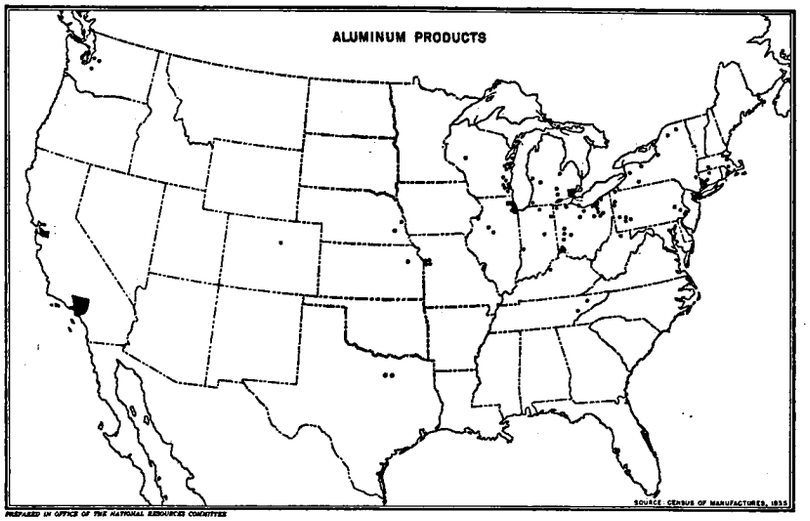


Plant Location 1935

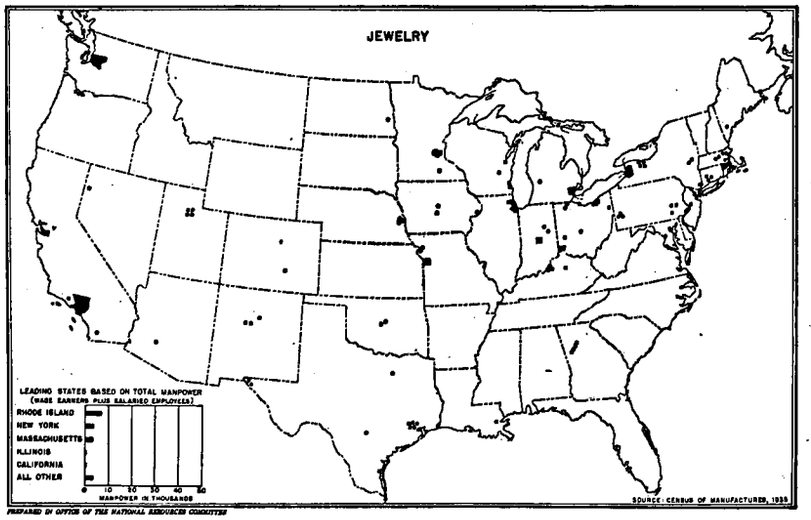
A–57



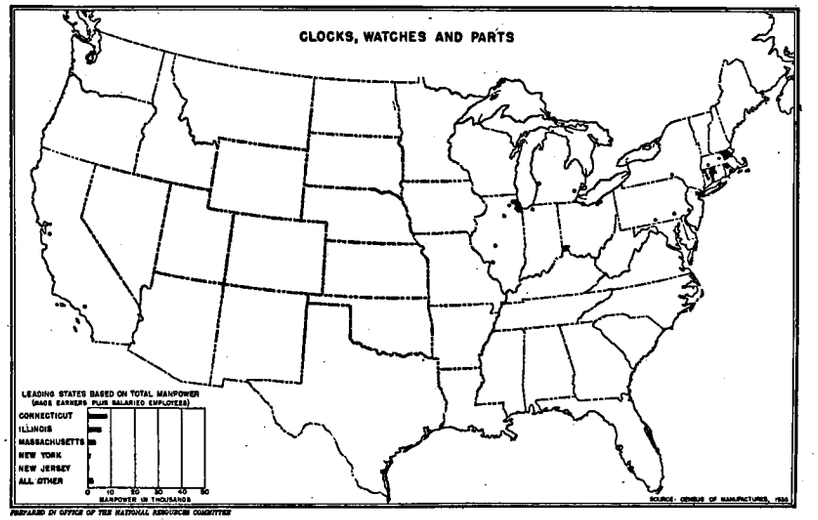
A–58



A–59

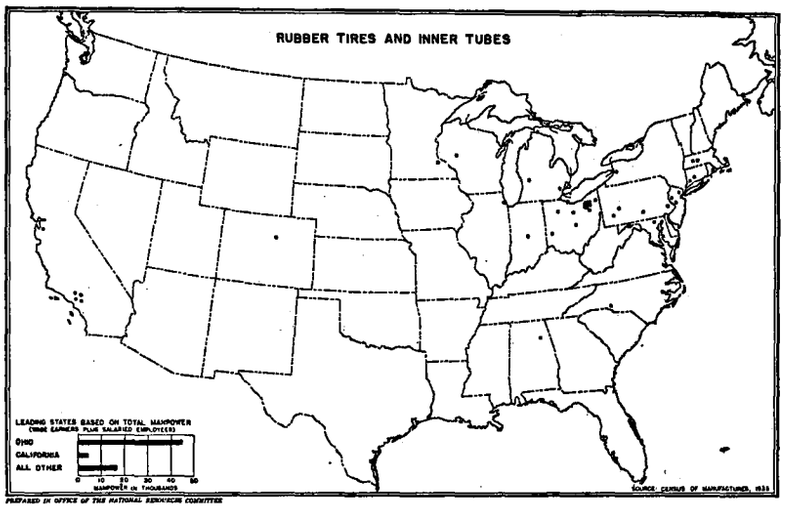


A–60

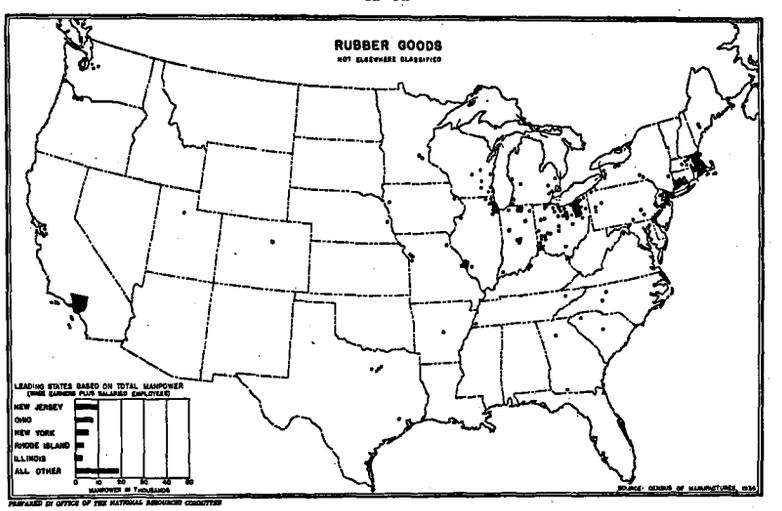


Plant Location 1935

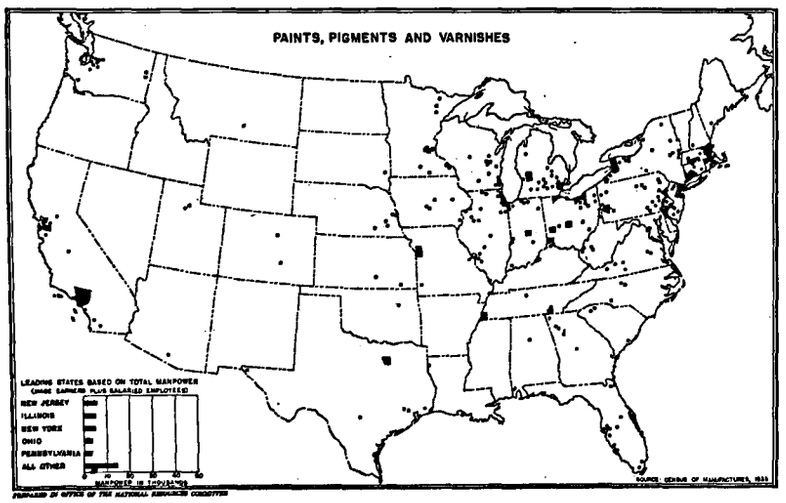
A–61



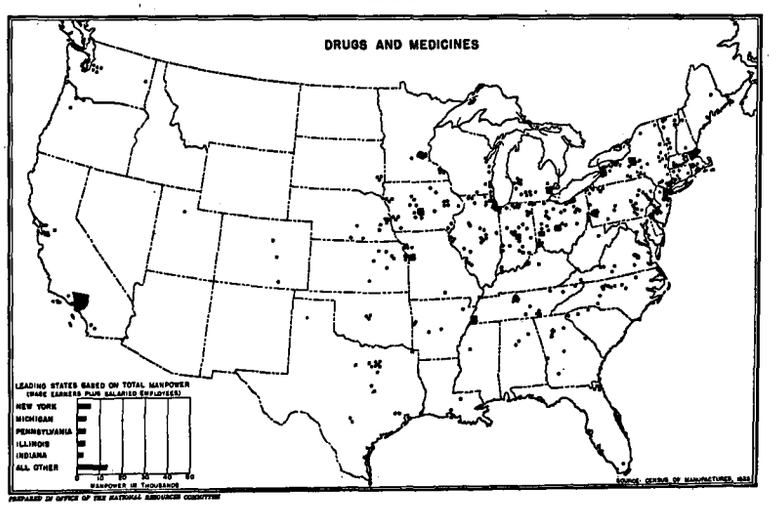
A–62



A–63

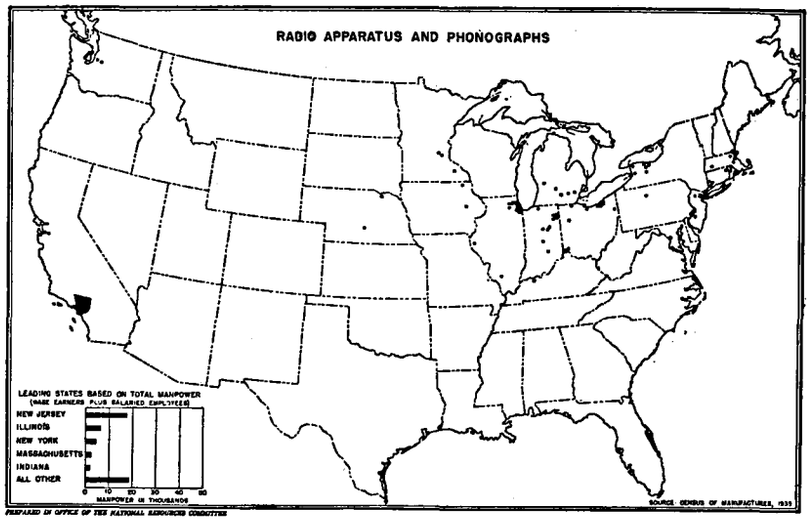


A–64

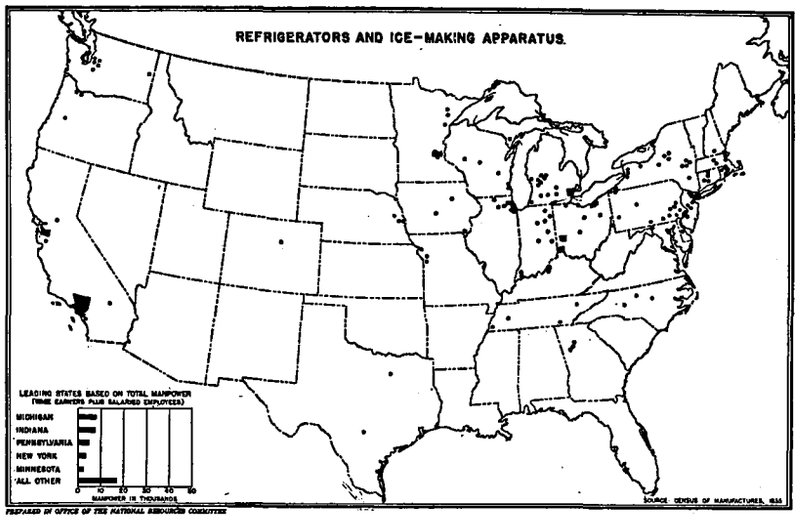


Plant Location 1935

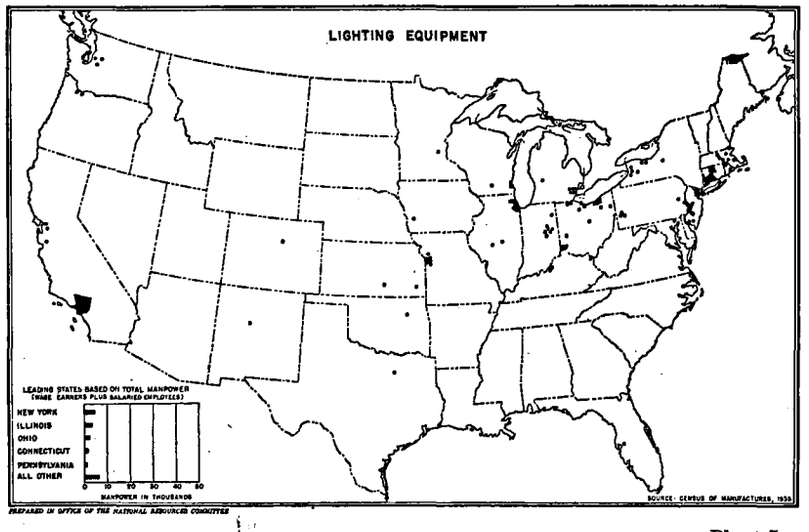
A–65



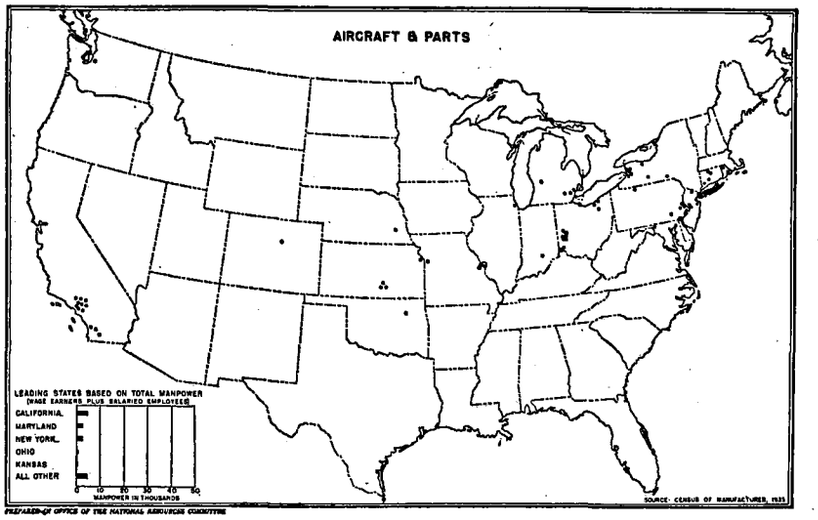
A–66



A–67



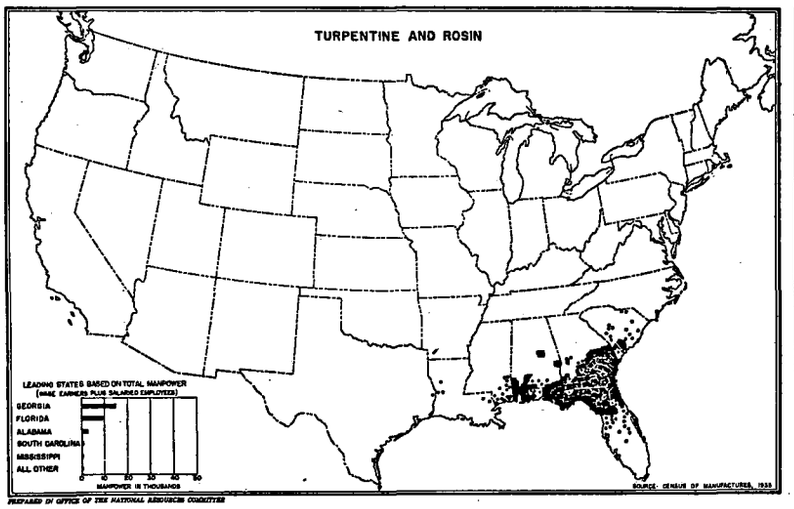
A–68



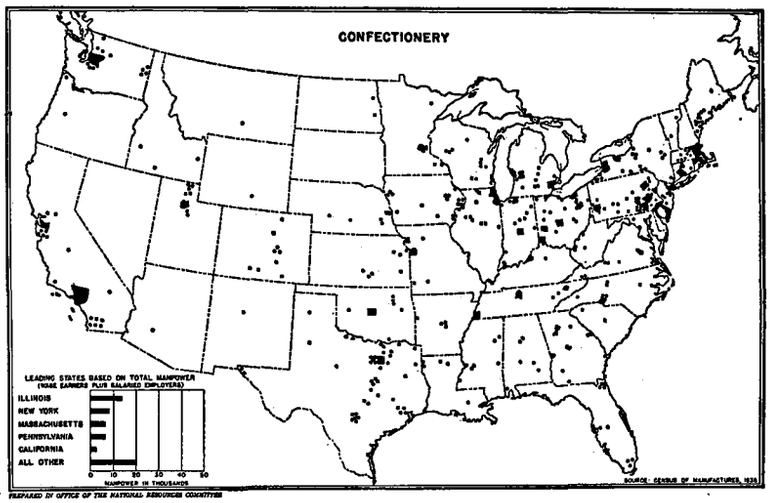
Plant Location 1935

79418°—39——24

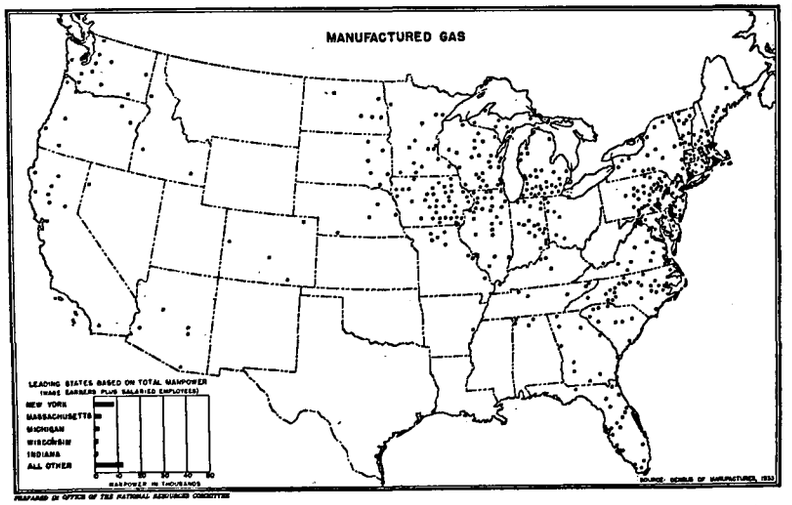
A–69



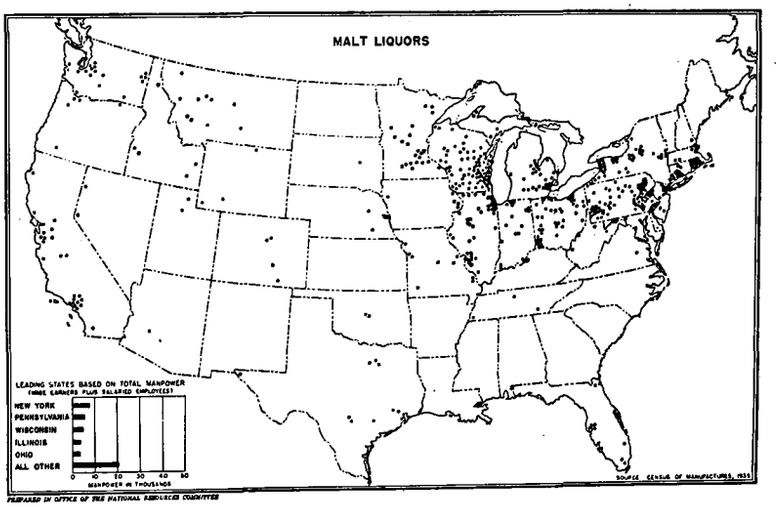
A–70



A–71



A–72



Plant Location 1935

APPENDIX 17.—QUANTITATIVE INPUT AND OUTPUT RELATIONS IN 1929

The following table was prepared by Wassily W. Leontief as part of his larger study financed by the Harvard University Committee on Research in the Social Sciences. It is here printed with the kind permission of the author and of the Harvard committee, prior to the publication of the work of which it is a part.

A similar table for 1919 was prepared by Dr. Leontief and published in *The Review of Economic Statistics* for August 1936. A detailed description of the method by which the tables were derived is there presented.

The table constitutes an accounting of the flow of goods from each major segment of the economy to other major segments (and the corresponding flow of money payments from the recipients).

All productive activity is grouped into the segments listed in the table. The value of the product of each segment is allocated to each of the industries estimated to have received the product and, for finished products, to household consumption. Column 44, "undistributed," contains the remainder of the total output of each segment for which no satisfactory basis of allocation has been found. This includes finance, government, and trade, as well as miscellaneous industries not included in the listed classifications. Gross total output is the total output of each segment. Net total output is the gross total less the output allocated within the same segment, e. g., in the case of agriculture, less the part of the output represented by such items as feeds which go to another branch of agriculture. Gross total outlays represent the aggregate value of commodities and services absorbed by the respective segments on both investment and current cost accounts. The net total outlays represent the gross total outlays minus the amount originating within the segment itself.

Values are stated in terms of the value at the point of production, plus transportation. Transportation costs are charged to the producing industry and are distributed (with few exceptions) on the basis of a fixed proportion of the total price.

Wages and salaries and capital and entrepreneurial services (interest paid, dividends paid, and undistributed profits) are shown for each segment in rows 43a and 43b. Wages and salaries allocated to consumption constitute an estimate of the value of services to the consumer. Wages and salaries that are undistributed include the incomes of persons employed in trade and finance and by government, as well as unclassified industries.

The allocation of the output of one industry will serve to illustrate the procedure:

Slaughter and Meat Packing

(Includes meat packing, lard, and slaughtering; poultry killing, dressing, and packing on a wholesale basis; sausage, meat puddings, headcheese, etc., and sausage casings; and shortenings and vegetable cooking oils.)

Allocation	*Produc*
Agriculture	All fertilizers.
Bread and bakery products.	Lard, lard substitutes, and other shortening (cost data, *Census of Manufactures*).
Slaughter and meat packing.	Meats purchased (cost data, *Census of Manufactures*); sausage casings (total produced minus exports); meats used in sausage, etc., industry (estimated on basis of cost of materials, taking into account other known major cost elements); dressed poultry sold within industry for further processing (estimated).
Butter, cheese, etc	Oleo oil and stock (production data, *Census of Manufactures*).
Other food products	Meats used in manufacture of meat products (such as sliced and packed bacon, dried beef, etc.) in the food preparations (not elsewhere classified) industry (estimated on basis of cost of materials).
Chemicals	Stearin, fertilizer materials, specified as such; grease and tallow, including soap stock; and an estimated (from cost of materials) amount for materials used in the grease and tallow (not including lubricating grease) industry.
Yarn and cloth	Wool.
Leather, tanning	Hides, skins, and pelts.
Consumption	All meat products not elsewhere distributed; all lard not elsewhere distributed; oleomargarine; all shortenings and vegetable cooking oils not elsewhere distributed; poultry products ready for consumption; and a small amount of soap produced within this group.
Undistributed	All products not elsewhere distributed (mainly miscellaneous unspecified products).

TABLE IA.—*Quantitative input and output relations in the economic*

(Unit=

		Agriculture	Flour and grist mill products	Canning and preserving	Bread and bakery products	Sugar, glucose, and starch	Liquors and beverages	Tobacco manufactures	Slaughtering and meat packing	Butter, cheese, etc.	Other food industries	Iron mining	Blast furnaces	Steel works and rolling mills	Other iron and steel and electric manufactures	Automobiles	Nonferrous metal mining	Smelting and refining	Brass, bronze, copper, etc., manufactures	Nonmetal minerals	Petroleum and natural gas	Refined petroleum
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
1	Agriculture	52.7	7.8	2.5	0.4	0.6	0.1	1.2	21.6	7.9	2.2											
		54.1	*44.7*	*28.4*	*2.5*	*7.8*	*4.2*	*9.5*	*61.4*	*68.7*	*15.3*											
2	Flour and grist mill products	38.0	1.4		18.6																	
		6.7	*1.4*		*19.8*																	
3	Canning and preserving																					
4	Bread and bakery products																					
5	Sugar, glucose, and starch	.9		5.5	6.4	1.8	1.8			4.5	14.0											
		.1		*5.0*	*3.2*	*1.8*	*4.5*			*3.2*	*6.8*											
6	Liquors and beverages						1.7				3.0											
							1.5				*.5*											
7	Tobacco manufactures																					
8	Slaughtering and meat packing	.1			2.0				10.5	.1	.2											
		(*)			*4.3*				*10.4*	*.3*	*.5*											
9	Butter, cheese, etc.				3.6						3.5											
					2.5						*2.4*											
10	Other food industries				1.7		1.2				6.0											
					1.7		*6.1*				*5.8*											
11	Iron mining												97.9									
													54.1									
12	Blast furnaces													80.5	16.8	1.1						
														20.6	*1.1*	*.2*						
13	Steel works and rolling mills	.8										(*)	.1	18.5	49.9	12.1	.2			(*)	7.9	
		.3										*.3*	*.4*	*17.6*	*12.2*	*8.5*	*1.0*			(*)	*11.4*	
14	Other iron and steel and electric manufacturers	4.0	.1	.7	.2	(*)	.1	(*)	.1	.2	.1	(*)		.2	11.0	4.7	.2		.2	.3	1.4	.1
		4.7	*.5*	*8.8*	*1.3*	*.1*	*4.8*	*.3*	*.2*	*1.8*	*.9*	*1.3*		*.6*	*10.3*	*12.8*	*4.2*		*1.4*	*1.8*	*7.6*	*.5*
15	Automobiles															36.0						
																33.7						
16	Nonferrous metal mining																.4	90.3				
																	.4	*45.8*				
17	Smelting and refining													1.9	10.2	.3		57.2	50.8			
														.6	*.8*	*.1*		*66.1*	*58.0*			
18	Brass, bronze, copper, etc., manufacturers							.7			.7			2.0	41.4	9.3			5.6			
								.6			*.5*			*.8*	*4.0*	*2.6*			*5.3*			
19	Nonmetal minerals	.5		1.8		(*)	1.0						1.3	.1	1.5	2.9				7.1		
		.1		*4.2*		*.1*	*6.1*						*3.2*	*.1*	*.2*	*1.4*				*6.8*		
20	Petroleum and natural gas				.1	(*)			.1		(*)			.8	.4	(*)		.1	(*)	1.1	3.6	80.1	
					.2	*.1*			*.1*		*.1*			*.5*	*.1*	(*)		*.2*	*.1*	*1.0*	*3.6*	*50.8*	
21	Refined petroleum	1.2	(*)	(*)	.1	.1	(*)		(*)	(*)	(*)			1.3	.9	.2	.1	.2	.2	.6		4.2
		.4	*.1*	*.1*	*.1*	*.2*	*.3*		(*)	(*)	*.1*			*1.2*	*.2*	*.1*	*.8*	*.7*	*.4*	*.8*		*3.8*
22	Coal		.1	.1	.3	.5	.1	(*)	.5	.3	.3	.1	.1	3.2	2.7	.5	.2	.5	.2	3.7		.3
			.2	*.3*	*.4*	*1.3*	*.9*	*.1*	*.3*	*.6*	*.4*	*1.0*	*.2*	*2.3*	*.5*	*.2*	*1.0*	*1.2*	*.4*	*3.9*		*.2*
23	Coke				.9	.2							40.9	5.9	4.8	.2		1.1	.2	.2		1.7
					.2	*.1*							*22.6*	*.8*	*.2*	(*)		*.5*	*.1*	(*)		*.2*
24	Manufactured gas				.8				.2		.4		.2		2.1	.4			.2	.4		
					.2				(*)		*.1*		*.1*		*.1*	(*)			*.1*	*.1*		
25	Electric utilities		.3	(*)	.3		(*)	(*)	.2	.1	.3	.1	(*)	.7	2.1	.5	.3	.2	.2	1.2		.2
			.6	*.2*	*.7*		*.6*	*.1*	*.2*	*.3*	*.6*	*1.7*	*.1*	*1.0*	*.7*	*.5*	*2.9*	*.7*	*.7*	*2.4*		*.2*
26	Chemicals	11.3					.1		2.9	.1	.2	.2			1.2	1.0	.3		1.5	.7	.1	.5
		4.0					*1.2*		*2.8*	*.2*	*.5*	*2.3*			*.3*	*.8*	*1.9*		*4.2*	*1.1*	*.1*	*.6*
27	Lumber and timber products	12.6										.1			1.8	3.0	.4					
		2.5										*.7*			*.3*	*1.4*	*1.7*					
28	Other wood products							.8							6.0							
								.9							*.7*							
29	Paper and wood pulp																					
30	Other paper products																					
31	Printing and publishing																					
32	Yarn and cloth	.4													.1	.4						
		.2													(*)	*.4*						
33	Clothing																					
34	Other textile products																					
35	Leather tanning															1.7						
																.2						
36	Leather shoes																					
37	Other leather products	8.7																				
		.2																				
38	Rubber manufactures	1.0													.7	24.0						
		.1													*.1*	*6.2*						
39	Industries, n. e. s.	1.8													.5	.8						
		.4													*.1*	*.4*						
40	Construction		.1	.1	.2	.1	.1		.2	.1	.2	(*)	.1	.7	.8	.6	.1	.1	.6	.1		1.7
			.4	*.7*	*1.0*	*.5*	*1.2*		*.3*	*.3*	*.9*	*.7*	*.6*	*1.5*	*.4*	*1.0*	*1.7*	*.7*	*3.3*	*.4*		*3.6*

[1] Arabic=percentages of the net totals of the rows (net total output). These are based on the corresponding actual figures. (Unit=1 percent.) Asterisks indicate percentages of less than $\frac{1}{10}$ of 1 percent. The net total output percentages (column 46) sometimes vary from 100 percent, because for checking purposes they were derived by adding all the percentage figures (arabic) in the corresponding row (excluding the distribution percentage of any industry to itself; e. g., 1 to 1, 2 to 2, etc.).

system of the United States, 1929: Percentage distribution[1]

1 percent)

Coal	Coke	Manufactured gas	Electric utilities	Chemicals	Lumber and timber products	Other wood products	Paper and wood pulp	Other paper products	Printing and publishing	Yarn and cloth	Clothing	Other textile products	Leather tanning	Leather shoes	Other leather products	Rubber manufactures	Industries, n. e. s.	Construction	Transportation (steam railroads)	Exports	Consumption	Undistributed	Gross total output	Net total output	
22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	
-----	-----	-----	-----	1.9	0.5	(*)	0.2	-----	-----	6.1	-----	-----	(*)	-----	-----	-----	-----	-----	-----	11.8	32.4	2.6	152.7	99.8	1
-----	-----	-----	-----	*5.2*	*2.3*	*0.3*	*1.6*	-----	-----	*15.5*	-----	-----	*0.7*	-----	-----	-----	-----	-----	-----	*22.8*	*5.3*	*.5*	*6.2*	*4.5*	
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	6.0	36.8	.6	101.4	100.0	2
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	*2.0*	*1.0*	(*)	.7	.8	
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	11.6	82.5	5.9	100.0	100.0	3
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	*1.9*	*1.1*	*.1*	*.3*	*.4*	
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	.2	98.9	.9	100.0	100.0	4
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	*.1*	*2.6*	(*)	*.6*	.7	
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	.6	-----	-----	-----	-----	-----	-----	-----	-----	-----	2.6	58.3	5.4	101.8	100.0	5
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	*.1*	-----	-----	-----	-----	-----	-----	-----	-----	-----	*.4*	*.8*	*.1*	*.3*	*.4*	
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	1.4	95.6	-----	101.7	100.0	6
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	*.1*	*.5*	-----	*.1*	*.1*	
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	1.5	98.1	.4	100.0	100.0	7
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	*.4*	*2.0*	(*)	*.5*	*.6*	
-----	-----	-----	-----	1.7	-----	-----	-----	-----	-----	.6	-----	-----	3.2	-----	-----	-----	-----	-----	-----	5.7	82.7	3.7	110.5	100.0	8
-----	-----	-----	-----	*1.6*	-----	-----	-----	-----	-----	*.4*	-----	-----	*21.0*	-----	-----	-----	-----	-----	-----	*3.9*	*4.8*	*.2*	*1.6*	*1.6*	
-----	-----	-----	-----	-----	-----	-----	.3	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	1.5	89.2	1.9	100.0	100.0	9
-----	-----	-----	-----	-----	-----	-----	*.3*	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	*.3*	*1.6*	(*)	*.5*	*.5*	
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	.9	93.2	3.0	106.0	100.0	10
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	*.3*	*2.5*	*.1*	*.7*	*.7*	
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	1.7	-----	.3	100.0	99.9	11
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	*.1*	-----	(*)	*.1*	*.1*	
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	0.2	-----	.1	-----	1.2	100.0	99.9	12
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	(*)	-----	(*)	-----	(*)	*.3*	*.4*	
.1	-----	-----	-----	-----	-----	.3	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	.2	2.8	6.6	5.1	.3	13.6	118.5	100.0	13
.2	-----	-----	-----	-----	-----	*.6*	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	*.3*	*1.2*	*2.8*	*3.0*	(*)	*.8*	*1.4*	*1.3*	
.4	-----	.1	4.6	(*)	.3	.3	.3	(*)	.4	1.0	.1	(*)	-----	.1	.1	.1	.3	12.6	13.5	7.0	9.9	36.1	111.0	99.8	14
1.7	-----	*2.3*	*10.4*	*.1*	*1.9*	*2.2*	*2.8*	*.7*	*1.8*	*2.5*	*.4*	*.3*	-----	*1.2*	*4.1*	*1.2*	*1.4*	*20.3*	*21.6*	*15.4*	*1.9*	*7.7*	*5.1*	*5.2*	
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	13.3	73.0	13.7	136.0	100.0	15
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	*10.2*	*4.8*	*1.0*	*2.2*	*1.8*	
-----	-----	-----	-----	.4	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	.2	-----	9.0	100.4	99.9	16
-----	-----	-----	-----	*.1*	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	(*)	-----	*.1*	*.2*	*.2*	
-----	-----	-----	-----	5.3	-----	-----	-----	-----	.2	-----	-----	.1	-----	-----	-----	.8	-----	.6	-----	17.0	-----	12.8	157.2	100.0	17
-----	-----	-----	-----	*1.3*	-----	-----	-----	-----	*.1*	-----	-----	*.2*	-----	-----	-----	*.6*	-----	*.1*	-----	*3.0*	-----	*.2*	*.6*	*.4*	
-----	-----	-----	4.0	.9	-----	-----	-----	-----	.4	-----	-----	-----	-----	-----	-----	-----	2.2	2.9	-----	6.4	9.3	19.8	105.6	100.0	18
-----	-----	-----	*.9*	*.3*	-----	-----	-----	-----	*.2*	-----	-----	-----	-----	-----	-----	-----	*1.1*	*.5*	-----	*1.5*	*.2*	*.4*	*.5*	*.5*	
-----	-----	-----	.8	4.1	-----	-----	.6	-----	-----	-----	-----	-----	(*)	-----	-----	(*)	.5	56.2	1.3	3.5	7.1	16.8	107.1	100.0	19
-----	-----	-----	*.3*	*2.3*	-----	-----	*1.2*	-----	-----	-----	-----	-----	*.2*	-----	-----	*.1*	.4	*16.3*	.4	*1.4*	*.2*	*.6*	*.9*	*.9*	
-----	-----	.1	1.1	.3	-----	-----	(*)	-----	(*)	-----	-----	-----	-----	-----	-----	-----	.1	-----	-----	1.8	9.3	4.1	103.6	99.5	20
-----	-----	*.4*	*.4*	*.2*	-----	-----	(*)	-----	(*)	-----	-----	-----	-----	-----	-----	-----	*.1*	-----	-----	*.7*	*.3*	*.2*	*.8*	*.9*	
-----	(*)	1.3	.5	.3	.1	-----	.1	-----	(*)	.3	-----	-----	-----	-----	-----	(*)	.5	1.1	3.2	17.7	39.0	30.6	104.2	99.6	21
-----	*.2*	•7.6	*.3*	*.2*	*.1*	-----	*.4*	-----	(*)	*.2*	-----	-----	-----	-----	-----	*.1*	*.6*	*.4*	*1.3*	*10.0*	*1.9*	*1.7*	*1.2*	*1.3*	
.6	11.5	2.2	6.8	1.7	.3	.3	2.0	.1	.1	1.7	.1	(*)	.2	.1	-----	.4	.4	-----	12.9	4.2	29.1	12.0	100.6	99.8	22
.6	*66.6*	*9.9*	*3.1*	*1.1*	*.3*	*.5*	*4.2*	*.3*	*.1*	*.9*	*.1*	*.2*	*.9*	*.2*	-----	*.8*	*.4*	-----	*4.1*	*1.9*	*1.1*	*.5*	*.9*	*1.0*	
-----	.9	4.3	-----	8.5	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	5.0	12.0	14.1	100.9	100.2	23
-----	*.8*	*5.9*	-----	*1.0*	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	.4	*.1*	*.1*	*.2*	*.2*	
-----	-----	1.7	-----	1.3	-----	-----	-----	-----	.4	.2	.2	-----	-----	-----	-----	-----	.2	-----	-----	-----	78.6	14.4	101.7	100.0	24
-----	-----	*1.6*	-----	*.2*	-----	-----	-----	-----	*.1*	(*)	(*)	-----	-----	-----	-----	-----	(*)	-----	-----	-----	*.6*	*.1*	*.2*	*.2*	
.9	(*)	.1	4.8	1.0	.2	.2	.5	.1	.4	1.3	.2	(*)	(*)	.1	(*)	.2	.7	-----	.1	-----	51.4	35.6	104.8	99.7	25
1.6	*.4*	*.8*	*4.0*	*1.1*	*.5*	*.5*	*2.0*	*.6*	*.6*	*1.2*	*.3*	*.3*	*.4*	*.4*	*.4*	*.9*	*1.3*	-----	*.1*	-----	*3.6*	*2.8*	*1.8*	*1.9*	
.6	-----	-----	-----	8.0	.5	-----	.4	-----	1.2	5.5	-----	-----	.3	-----	-----	.4	.1	1.7	-----	6.3	29.3	33.9	108.0	100.3	26
.8	-----	-----	-----	7.4	.8	-----	*1.3*	-----	*1.4*	*4.2*	-----	-----	*1.9*	-----	*1.1*	*.1*	.8	-----	-----	*4.2*	*1.7*	*2.2*	*1.5*	*1.6*	
1.8	-----	-----	1.9	.6	28.1	13.2	.4	-----	-----	-----	-----	-----	-----	.1	.1	-----	.8	15.8	8.2	7.7	.1	31.6	128.1	100.2	27
1.5	-----	-----	*.7*	*.3*	*26.5*	*16.5*	*.7*	-----	-----	-----	-----	-----	-----	*.2*	*.4*	-----	*.6*	*4.2*	*2.2*	*2.3*	(*)	*1.1*	*1.0*	*.9*	
-----	-----	-----	-----	-----	-----	1.4	-----	-----	-----	.4	-----	-----	-----	.5	-----	-----	-----	-----	-----	2.1	56.6	33.6	101.4	100.0	28
-----	-----	-----	-----	-----	-----	*1.3*	-----	-----	-----	*.1*	-----	-----	-----	.7	-----	-----	-----	-----	-----	.6	*1.4*	.9	*.6*	*.6*	
-----	-----	-----	-----	-----	-----	-----	22.3	28.8	26.0	-----	-----	-----	-----	-----	-----	-----	1.9	1.9	-----	2.4	6.1	32.8	122.3	99.9	29
-----	-----	-----	-----	-----	-----	-----	*21.3*	*41.8*	*9.3*	-----	-----	-----	-----	-----	-----	-----	*.9*	*.3*	-----	*.5*	*.1*	*.6*	*.5*	*.5*	
-----	-----	-----	-----	-----	-----	-----	-----	-----	5.2	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	1.7	13.5	79.6	100.0	100.0	30
-----	-----	-----	-----	-----	-----	-----	-----	-----	*1.2*	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	*.2*	*.1*	*1.0*	*.3*	*.3*	
-----	-----	-----	-----	-----	-----	-----	-----	-----	14.6	-----	-----	-----	-----	-----	-----	-----	-----	-----	.9	.9	25.1	73.0	114.6	99.9	31
-----	-----	-----	-----	-----	-----	-----	-----	-----	*15.8*	-----	-----	-----	-----	-----	-----	-----	-----	-----	*.3*	*.5*	*1.1*	*5.7*	*1.3*	*1.3*	
-----	-----	-----	-----	-----	-----	.2	.3	-----	.1	15.4	30.3	7.4	-----	.5	(*)	2.4	.8	(*)	-----	4.0	42.0	10.8	115.4	99.7	32
-----	-----	-----	-----	-----	-----	*.7*	*1.4*	-----	*.2*	*15.0*	*58.0*	*55.9*	-----	*2.3*	*.4*	*9.3*	*1.6*	(*)	-----	*3.4*	*3.1*	*.9*	*2.1*	*2.0*	
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	8.6	-----	-----	-----	-----	-----	-----	-----	-----	.4	97.2	2.4	108.6	100.0	33
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	*8.4*	-----	-----	-----	-----	-----	-----	-----	-----	*.3*	*5.5*	*.2*	*1.5*	*1.6*	
-----	-----	-----	-----	-----	-----	4.5	-----	-----	.5	5.5	13.8	-----	-----	-----	1.3	-----	-----	-----	-----	2.7	28.9	42.7	100.0	99.9	34
-----	-----	-----	-----	-----	-----	*1.7*	-----	-----	*.1*	*.7*	*2.3*	-----	-----	-----	*2.0*	-----	-----	-----	-----	*.3*	*.3*	*.6*	*2.*	*.3*	
-----	-----	-----	-----	4.7	-----	1.1	-----	-----	.8	-----	2.3	-----	.4	44.7	17.8	-----	.4	-----	-----	8.1	6.6	11.7	100.4	99.9	35
-----	-----	-----	-----	*.7*	-----	*.4*	-----	-----	*.1*	-----	*.3*	-----	*.4*	*23.6*	*35.1*	-----	*.1*	-----	-----	*.8*	*.1*	*.1*	*.2*	*.2*	
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	20.2	-----	-----	-----	-----	-----	1.2	98.8	-----	120.2	100.0	36
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	*19.5*	-----	-----	-----	-----	-----	*.2*	*1.5*	-----	*.5*	*.4*	
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	1.1	-----	-----	-----	-----	2.3	68.6	20.5	101.1	100.1	37
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	*1.1*	-----	-----	-----	-----	*.1*	*.3*	*.1*	*.1*	*.1*	
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	.3	.9	-----	-----	1.5	-----	2.0	-----	.1	-----	6.9	46.3	18.2	102.0	99.9	38
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	*.1*	*.3*	-----	-----	*1.7*	-----	*1.9*	-----	(*)	-----	*1.5*	*.8*	*.4*	*.4*	*.5*	
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	.1	.7	-----	-----	(*)	-----	-----	2.3	4.7	-----	4.8	55.5	31.2	102.3	100.1	39
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	*.1*	*.7*	-----	-----	*.1*	-----	-----	*2.2*	*1.4*	-----	*2.0*	*2.0*	*1.3*	*.9*	*1.0*	
.2	-----	-----	3.3	.3	.2	-----	.4	-----	.2	(*)	.4	-----	-----	-----	-----	.2	-----	-----	.8	-----	37.6	50.3	100.0	100.0	40
.7	-----	-----	*4.5*	*.5*	*.5*	-----	*2.7*	-----	*.5*	*.8*	-----	-----	*.6*	-----	-----	*1.0*	-----	-----	*.8*	-----	*4.3*	*6.5*	*2.8*	*3.1*	

Italics=percentages of the net totals of the rows (net total outlays=input). These are based on the corresponding actual figures. (Unit=1 percent.) Asterisks (*) indicate percentages of less than $\frac{1}{10}$ of 1 percent. The net total outlays percentages (row 46) sometimes vary from 100 percent, because for checking purposes they were derived by adding all the percentage figures (italics) in the corresponding column (excluding the distribution percentage of any industry from itself; e. g., to 1 from 1, to 2 from 2, etc.).

TABLE IA.—*Quantitative input and output relations in the economic system*

(Unit=

		Agriculture	Flour and grist mill products	Canning and preserving	Bread and bakery products	Sugar, glucose, and starch	Liquors and beverages	Tobacco manufactures	Slaughtering and meat packing	Butter, cheese, etc.	Other food industries	Iron mining	Blast furnaces	Steel works and rolling mills	Other iron and steel and electric manufactures	Automobiles	Nonferrous metal mining	Smelting and refining	Brass, bronze, copper, etc., manufactures	Nonmetal minerals	Petroleum and natural gas	Refined petroleum
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
41	Transportation (steam railroads).	11.1	1.3	.5	------	.5	.1	(*)	1.4	.4	.1	1.4	.2	3.3	1.5	2.9	.3	.2	.1	4.2	.4	5.4
		7.6	*5.0*	*3.7*	------	*4.3*	*1.5*	*.2*	*2.7*	*2.1*	*.3*	*30.7*	*1.8*	*6.9*	*.8*	*4.6*	*4.4*	*1.1*	*.3*	*12.7*	*1.3*	*11.2*
42	Imports	1.0	.8	.3	.3	6.2	(*)	2.1	1.3	.2	8.1	------	.5	1.8	.4	------	------	2.9	1.6	.5	------	1.9
		.5	*2.2*	*1.7*	*1.0*	*36.7*	*.6*	*8.1*	*1.8*	*.7*	*25.8*	------	*3.2*	*2.8*	*.2*	------	------	*15.2*	*6.5*	*1.1*	------	*3.0*
43a	Wages and salaries	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------
		------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------
43b	Capital and entrepreneurial services.	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------
		------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------
43c	Total services	9.3	.2	.3	.7	.1	.2	.4	.4	.2	.5	.2	.1	1.5	7.8	1.9	.4	.1	.4	1.4	.7	.9
		67.4	*9.0*	*21.2*	*30.3*	*12.2*	*41.5*	*19.5*	*9.0*	*11.7*	*19.8*	*36.3*	*10.3*	*33.8*	*45.0*	*31.9*	*60.7*	*10.9*	*25.4*	*44.0*	*25.3*	*20.1*
	Undistributed:																					
44a	Taxes	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------
		------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------
44b	Other	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------
		------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------
44c	Total	1.0	1.4	.5	1.0	.6	.2	1.6	1.5	.2	1.0	.2	.4	1.7	8.1	2.3	.2	.5	.5	1.4	2.3	.6
		5.0	*37.5*	*25.7*	*30.5*	*36.5*	*26.4*	*60.6*	*21.0*	*10.0*	*28.6*	*25.0*	*23.3*	*26.5*	*32.0*	*26.7*	*19.7*	*25.5*	*19.0*	*30.6*	*54.2*	*9.6*
45	Gross total outlays	6.1	.7	.4	.7	.3	.1	.5	1.6	.5	.7	.1	.3	1.5	5.4	2.3	.2	.6	.5	.9	.9	1.3
		154.2	*101.6*	*100.0*	*100.0*	*101.8*	*101.5*	*100.0*	*110.4*	*100.0*	*105.8*	*100.0*	*100.0*	*117.6*	*110.3*	*133.7*	*100.4*	*156.1*	*105.3*	*106.8*	*103.6*	*103.8*
46	Net total outlays	4.4	.8	.4	.7	.4	.1	.6	1.6	.5	.8	.1	.4	1.4	5.5	1.9	.2	.4	.6	1.0	.9	1.4
		100.1	*100.2*	*100.0*	*99.9*	*99.9*	*99.9*	*99.9*	*99.8*	*99.9*	*100.1*	*100.0*	*99.9*	*100.0*	*100.0*	*99.9*	*100.0*	*100.0*	*99.9*	*99.9*	*99.9*	*100.0*

TABLE I.—*Quantitative input and output relations*

[Unit=

		Agriculture	Flour and grist mill products	Canning and preserving	Bread and bakery products	Sugar, glucose, and starch	Liquors and beverages	Tobacco manufactures	Slaughtering and meat packing	Butter, cheese, etc.	Other food industries	Iron mining	Blast furnaces	Steel works and rolling mills	Other iron and steel and electric manufactures	Automobiles	Nonferrous metal mining	Smelting and refining	Brass, bronze, copper, etc., manufactures	Nonmetal minerals	Petroleum and natural gas	Refined petroleum
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
1	Agriculture	5,346	793	255	41	66	14	125	2,193	802	226	------	------	------	------	------	------	------	------	------	------	------
2	Flour and grist mill products	666	24	------	325	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------
3	Canning and preserving	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------
4	Bread and bakery products	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------
5	Sugar, glucose, and starch	7	------	45	53	15	15	------	------	37	115	------	------	------	------	------	------	------	------	------	------	------
6	Liquors and beverages	------	------	------	------	------	5	------	------	------	9	------	------	------	------	------	------	------	------	------	------	------
7	Tobacco manufactures	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------
8	Slaughtering, and meat packing	3	------	------	70	------	------	------	372	4	8	------	------	------	------	------	------	------	------	------	------	------
9	Butter, cheese, etc	------	------	------	41	------	------	------	------	------	40	------	------	------	------	------	------	------	------	------	------	------
10	Other food industries	------	------	------	28	------	20	------	------	------	98	------	------	------	------	------	------	------	------	------	------	------
11	Iron mining	------	------	------	------	------	------	------	------	------	------	------	284	------	------	------	------	------	------	------	------	------
12	Blast furnaces	------	------	------	------	------	------	------	------	------	------	------	------	656	137	9	------	------	------	------	------	------
13	Steel works and rolling mills	25	------	------	------	------	------	------	------	------	------	1	3	559	1,509	365	5	------	------	1	239	------
14	Other iron and steel and electric manufacturers.	464	8	79	21	1	16	4	7	21	15	4	------	20	1,274	548	20	------	18	40	159	15
15	Automobiles	------	------	------	------	------	------	------	------	------	------	------	------	------	------	1,445	------	------	------	------	------	------
16	Nonferrous metal mining	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	2	411	------	------	------	------
17	Smelting and refining	------	------	------	------	------	------	------	------	------	------	------	------	18	95	3	------	532	472	(*)	------	------
18	Brass, bronze, copper, etc., manufacturers.	------	------	------	------	------	------	8	------	------	8	------	------	24	492	111	------	------	66	------	------	------
19	Nonmetal minerals	10	------	38	------	1	20	------	------	------	------	------	27	2	31	61	------	(*)	------	149	------	------
20	Petroleum and natural gas	------	(*)	(*)	3	1	(*)	(*)	2	(*)	1	------	(*)	16	9	1	------	2	1	23	75	1,647
21	Refined petroleum	35	1	1	2	2	1	(*)	1	1	1	(*)	(*)	38	27	6	4	7	5	17	------	124
22	Coal	------	3	3	7	11	3	1	12	7	6	3	2	74	63	11	5	11	5	85	------	8
23	Coke	------	(*)	(*)	4	1	(*)	(*)	(*)	(*)	(*)	(*)	188	27	22	1	(*)	5	1	1	------	8
24	Manufactured gas	------	(*)	(*)	4	(*)	(*)	(*)	1	(*)	2	------	1	------	10	2	------	(*)	1	2	------	------
25	Electric utilities	------	11	2	11	(*)	2	1	8	4	11	5	1	32	90	20	14	7	9	53	------	7
26	Chemicals	394	------	------	------	------	4	------	101	2	8	7	------	------	43	34	9	------	52	25	2	18
27	Lumber and timber products.	244	------	------	------	------	------	------	------	------	------	2	------	------	34	58	8	------	------	------	------	------
28	Other wood products	------	------	------	------	------	------	12	------	------	------	------	------	------	88	------	------	------	------	------	------	------
29	Paper and wood pulp	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------
30	Other paper products	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------
31	Printing and publishing	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------

[1] This table was prepared by Wassily W. Leontief as part of a larger study financed by the Harvard University Committee on Research in the Social Sciences. For the method employed and similar tables for 1919, see "Quantitative Input and Output Relations In the Economic System of the United States" by W. Leontief, in the "Review of Economic Statistics" August 1936.

of the United States, 1929: Percentage distribution—Continued

1 percent)

Coal	Coke	Manufactured gas	Electric utilities	Chemicals	Lumber and timber products	Other wood products	Paper and wood pulp	Other paper products	Printing and publishing	Yarn and cloth	Clothing	Other textile products	Leather tanning	Leather shoes	Other leather products	Rubber manufactures	Industries, n. e. s.	Construction	Transportation (steam railroads)	Exports	Consumption	Undistributed	Gross total output	Net total output	
22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	
14.9	.6	------	------	1.7	4.9	.3	.6	(*)	------	.1	------	(*)	(*)	------	------	.2	------	------	------	1.1	14.3	25.9	100.0	99.9	41
42.3	*8.0*	------	------	*2.9*	*16.0*	*1.3*	*3.7*	*.4*	------	*.2*	------	*.5*	*.4*	------	------	*1.1*	------	------	------	*1.4*	*1.6*	*3.2*	*2.6*	*3.1*	
------	------	------	.1	6.8	.9	.9	2.4	------	3.4	5.2	3.7	1.7	3.1	.7	.1	5.0	.7	.5	(*)	------	16.9	8.0	100.0	100.0	42
------	------	------	*.1*	*8.9*	*2.2*	*2.8*	*11.1*	------	*6.9*	*16.5*	*15.2*	*14.0*	*28.6*	*3.3*	*1.5*	*21.3*	*1.5*	*.4*	(*)	------	*1.4*	.7	*2.0*	*2.2*	
------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	43a
------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	43b
1.4	.1	.3	4.2	1.4	1.1	.8	.4	.3	2.0	2.1	1.4	.2	.1	.5	.1	.5	1.3	4.3	5.3	------	19.7	44.6	119.8	100.1	43c
41.5	*14.3*	*40.5*	*58.1*	*27.2*	*39.9*	*36.0*	*29.1*	*30.7*	*49.7*	*52.8*	*27.7*	*24.3*	*17.4*	*36.0*	*29.8*	*23.8*	*39.1*	*42.7*	*52.1*	------	*23.0*	*59.2*	*54.2*	*52.0*	
------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	44a
------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	44b
.5	.2	.4	2.2	3.5	1.5	1.2	.8	.4	1.7	2.4	1.8	.1	.3	.6	.1	.8	2.2	1.7	2.1	.1	47.8	------	100.0	99.8	44c
9.7	*20.5*	*34.7*	*21.2*	*44.8*	*35.4*	*36.4*	*37.4*	*25.5*	*28.6*	*25.7*	*25.0*	*6.4*	*27.9*	*30.3*	*25.4*	*33.8*	*50.3*	*11.4*	*14.3*	*1.4*	*38.0*	------	*19.4*	*21.8*	
.9	.2	.2	2.1	1.6	1.0	.6	.5	.3	1.3	2.1	1.5	.2	.2	.5	.1	.5	.9	2.9	2.9	2.1	30.1	21.5	100.0	------	45
100.6	*100.8*	*101.6*	*104.0*	*107.4*	*126.5*	*101.3*	*121.3*	*100.0*	*113.8*	*115.0*	*108.4*	*100.0*	*100.4*	*119.5*	*101.1*	*101.9*	*102.2*	*100.0*	*100.0*	*105.0*	*125.0*	*100.0*	*100.0*	------	
1.0	.2	.2	2.3	1.7	.9	.7	.5	.3	1.3	2.1	1.6	.3	.2	.4	.1	.5	1.0	3.2	3.2	2.3	27.4	24.1	------	99.6	46
100.0	*99.9*	*100.1*	*100.0*	*100.0*	*99.9*	*99.9*	*99.9*	*100.0*	*99.9*	*96.9*	*100.0*	*99.9*	*100.0*	*100.0*	*100.1*	*100.1*	*99.8*	*100.0*	*100.0*	*100.0*	*100.0*	*99.8*	------	*99.9*	

in the economic system of the United States, 1929 [1]

Million dollars]

Coal	Coke	Manufactured gas	Electric utilities	Chemicals	Lumber and timber products	Other wood products	Paper and wood pulp	Other paper products	Printing and publishing	Yarn and cloth	Clothing	Other textile products	Leather tanning	Leather shoes	Other leather products	Rubber manufactures	Industries, n. e. s.	Construction	Transportation (steam railroads)	Exports	Consumption	Undistributed	Gross total output	Net total output	
22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	
------	------	------	------	196	48	5	17	------	------	623	------	------	4	------	------	------	------	------	------	1,194	3,281	259	15,488	10,142	1
------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	105	645	10	1,775	1,751	2
------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	100	713	51	864	864	3
------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	3	1,556	14	1,573	1,573	4
------	------	------	------	------	------	------	------	------	------	5	------	------	------	------	------	------	------	------	------	21	479	44	836	821	5
------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	4	283	------	301	296	6
------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	19	1,226	5	1,250	1,250	7
------	------	------	------	60	------	------	------	------	------	20	------	------	112	------	------	------	------	------	------	204	2,938	133	3,924	3,552	8
------	------	------	------	------	------	------	3	------	------	------	------	------	------	------	------	------	------	------	------	17	1,014	22	1,137	1,137	9
------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	14	1,534	50	1,744	1,646	10
------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	5	------	1	290	290	11
------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	2	------	1	------	10	815	815	12
4	------	------	------	------	------	10	------	------	------	------	------	------	------	------	------	------	6	84	200	155	9	411	3,586	3,027	13
41	------	12	538	4	38	34	31	5	52	114	16	2	------	12	11	14	33	1,462	1,570	807	1,151	4,184	12,865	11,591	14
------	------	------	------	2	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	532	2,926	551	5,454	4,009	15
------	------	------	------	49	------	------	------	------	2	------	------	1	------	------	------	7	------	6	------	1	------	41	457	455	16
------	------	------	47	11	------	------	------	------	5	------	------	------	------	------	------	------	26	35	------	158	------	119	1,462	930	17
------	------	------	16	85	------	------	13	------	------	------	------	(*)	1	------	------	1	10	1,180	28	76	110	236	1,255	1,189	18
------	(*)	2	22	7	(*)	(*)	1	(*)	1	(*)	(*)	(*)	(*)	(*)	(*)	(*)	2	------	------	73	149	352	2,247	2,098	19
(*)	1	39	16	9	3	(*)	4	(*)	1	9	(*)	(*)	(*)	(*)	(*)	1	15	32	95	38	192	85	2,131	2,056	20
15	268	51	158	40	6	8	46	2	3	40	2	1	5	2	(*)	9	10	------	301	523	1,151	901	3,073	2,949	21
(*)	4	20	------	39	(*)	(*)	(*)	(*)	(*)	(*)	(*)	(*)	(*)	(*)	(*)	(*)	(*)	------	------	98	677	280	2,342	2,327	22
------	------	8	------	6	(*)	(*)	(*)	(*)	2	1	1	(*)	(*)	(*)	(*)	(*)	1	------	------	23	55	65	464	460	23
37	2	4	207	41	10	8	22	4	18	54	10	2	2	4	1	10	31	------	6	------	372	67	481	473	24
20	------	------	------	280	17	------	14	------	41	192	------	------	10	------	------	13	2	59	------	219	2,196	1,521	4,478	4,271	25
35	------	------	37	12	544	255	8	------	------	------	------	------	------	2	1	------	15	306	158	149	1,026	1,186	3,778	3,498	26
------	------	------	------	------	------	20	------	------	------	6	------	------	------	7	------	------	------	(*)	------	31	1	612	2,481	1,937	27
------	------	------	------	------	------	------	232	300	271	(*)	------	------	------	------	------	------	20	20	------	25	836	496	1,496	1,476	28
------	------	------	------	------	------	------	------	------	36	(*)	------	------	------	------	------	------	------	------	------	12	64	341	1,273	1,041	29
------	------	------	------	------	------	------	------	------	402	------	------	------	------	------	------	------	------	------	26	26	93	549	690	690	30
																					692	2,013	3,159	2,757	31

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NOTE.—Asterisks indicate a quantity of less than half a million dollars.

Quantitative input and output relations in the eco

[Unit=

		Agriculture	Flour and grist mill products	Canning and preserving	Bread and bakery products	Sugar, glucose, and starch	Liquors and beverages	Tobacco manufactures	Slaughtering and meat packing	Butter, cheese, etc.	Other food industries	Iron mining	Blast furnaces	Steel works and rolling mills	Other iron and steel and electric manufactures	Automobiles	Nonferrous metal mining	Smelting and refining	Brass, bronze, copper, etc., manufactures	Nonmetal minerals	Petroleum and natural gas	Refined petroleum
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
32	Yarn and cloth	20	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	5	19	-----	-----	-----	-----	-----	-----
33	Clothing	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
34	Other textile products	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
35	Leather tanning	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	9	-----	-----	-----	-----	-----	-----
36	Leather shoes	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
37	Other leather products	23	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
38	Rubber manufactures	11	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	8	266	-----	-----	-----	-----	-----	-----
39	Industries, n. e. s	39	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	10	17	-----	-----	-----	-----	-----	-----
40	Construction	-----	7	6	17	4	4	-----	11	4	15	2	5	49	55	41	8	7	41	9	-----	117
41	Transportation (steam railroads)	741	88	33	-----	36	5	3	96	24	5	92	15	220	102	194	21	10	4	280	28	363
42	Imports	50	39	15	16	309	2	106	65	8	403	-----	27	90	20	(*)	-----	144	81	24	-----	96
43a	Wages and salaries	955	93	109	332	51	60	118	248	57	216	47	54	792	4,226	871	149	69	227	681	405	173
43b	Capital and entrepreneurial services	5,699	67	82	164	52	77	137	74	80	120	62	32	283	1,347	496	141	34	89	290	125	478
43c	Total services	6,654	160	191	496	103	137	255	322	137	336	109	86	1,075	5,573	1,367	290	103	316	971	530	651
	Undistributed:																					
44a	Taxes	489	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
44b	Other	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
44c	Total	489	665	231	500	307	87	794	751	117	485	75	194	844	3,970	1,146	94	242	236	674	1,135	310
45	Gross total outlays	15,221	1,799	899	1,639	857	335	1,309	3,942	1,168	1,792	300	833	3,744	13,667	5,734	480	1,481	1,308	2,354	2,168	3,364
46	Net total outlays	9,875	1,775	899	1,639	842	330	1,309	3,570	1,168	1,694	300	833	3,185	12,393	4,289	478	949	1,242	2,205	2,093	3,240

***nomic system of the United States, 1929*—Continued**

Million dollars

Coal	Coke	Manufactured gas	Electric utilities	Chemicals	Lumber and timber products	Other wood products	Paper and wood pulp	Other paper products	Printing and publishing	Yarn and cloth	Clothing	Other textile products	Leather tanning	Leather shoes	Other leather products	Rubber manufactures	Industries, n. e. s.	Construction	Transportation (steam railroads)	Exports	Consumption	Undistributed	Gross total output	Net total output	
22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	
------	------	------	------	------	------	11	15	(*)	6	690	1,363	331	------	23	1	109	37	2	------	178	1,885	486	5,181	4,491	32
------	------	------	------	------	------	------	------	------	------	------	302	------	------	------	------	------	------	------	------	15	3,413	84	3,814	3,512	33
------	------	------	------	------	------	27	------	------	3	33	82	------	------	------	8	------	(*)	------	------	16	172	254	595	595	34
------	------	------	------	25	------	6	------	------	4	------	12	------	2	236	94	------	2	------	------	43	35	62	530	528	35
------	------	------	------	------	------	------	------	------	------	------	------	------	------	195	------	------	------	------	------	12	951	------	1,158	963	36
------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	3	------	------	------	------	6	181	54	267	264	37
------	------	------	------	------	------	------	------	------	------	3	10	------	------	17	------	22	------	1	------	77	513	202	1,130	1,108	38
------	------	------	------	------	------	------	------	------	------	2	16	------	------	1	------	------	51	102	------	104	1,213	683	2,238	2,187	39
17	------	------	233	20	11	------	29	------	16	39	------	------	3	------	------	12	------	------	58	------	2,623	3,508	6,971	6,971	40
991	38	------	------	110	328	20	40	3	------	7	------	3	2	------	------	13	------	------	------	73	950	1,728	6,666	6,666	41
------	------	------	4	338	46	44	121	------	171	759	186	86	153	33	4	250	35	27	1	------	842	402	4,997	4,997	42
885	42	101	1,603	550	697	474	222	165	1,134	1,276	819	112	79	294	70	263	690	2,620	2,459	------	6,978	21,115	52,581	45,603	43a
88	26	108	1,393	475	121	83	94	55	317	237	175	37	14	65	10	76	217	459	1,327	------	7,175	10,888	33,369	26,194	43b
973	68	209	2,996	1,025	818	557	316	220	1,451	1,513	994	149	93	359	80	339	907	3,079	3,786	------	14,153	32,003	85,950	71,797	43c
------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	44a
------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	44b
227	97	179	1,093	1,691	725	564	407	183	835	1,186	896	39	149	302	68	398	1,167	822	1,043	73	23,346	------	48,836	48,836	44c
2,360	478	524	5,367	4,050	2,594	1,569	1,319	717	3,320	5,296	3,890	614	536	1,193	271	1,198	2,370	7,219	7,272	5,230	75,646	54,075	251,502	------	45
2,345	474	516	5,160	3,770	2,050	1,549	1,087	717	2,918	4,606	3,588	614	534	998	268	1,176	2,319	7,219	7,272	5,230	61,493	54,075	------	224,286	46

APPENDIX 18.—SUPPORTING STATISTICS AND METHODS OF DERIVING CERTAIN TABLES AND CHARTS IN THE REPORT[1]

The purpose of this appendix is to present in one convenient place the data, sources, and description of the methods used in deriving the data supporting certain tables and charts presented in the body of the report. In some cases the materials given in the text required extensive discussion and supporting statistics, and in such cases a separate appendix was written to cover them. In other cases a single reference was sufficient to indicate the source. The cases requiring more than a reference but not justifying a separate appendix are brought together in this appendix. The order of the materials corresponds to the order in which they are discussed in the text.

1. Estimate of the Amount of Food Stored in New York City

In chapter I an estimate is given of the food supply in the metropolitan area of New York. A conditional estimate of the amount of food stored in New York City may be made for the end of the year 1929 from data published by the Bureau of the Census. The estimate was made as follows: Total sales by retail stores "in the food group" and for the classification "restaurants, cafeterias, and eating places" were added to sales by wholesalers in the same classification to ultimate consumers at regular retail prices. The figures are shown in table I.

TABLE I.—*Retail sales of food in New York City for the year 1929*

[Millions of dollars]

By retailers:	
Food group (not elsewhere classified)	$1,062.3
Restaurants, cafeterias, and eating places	345.4
By wholesalers (at retail prices):	
Food group (not elsewhere classified)	12.8
Groceries and food specialties	6.4
Total retail sales of food	1,426.9

Source: *Fifteenth Census of the United States*, wholesale figures from Vol. II, *Wholesale Distribution*, p. 1007, et. seq.; retail figures from Vol. I, *Retail Distribution*, *part 3*, p. 215, et. seq.

From the same source, estimates of value of stocks on hand were made, value of wholesalers' stocks were marked up 10 percent and added to value of retailers' stocks; this total was then marked up 20 percent in order to get an estimate of the value of stocks in terms of consumers' prices. Computations are shown in table II.

[1] Appendix 18 was prepared by Louis J. Paradiso, assisted by Grace W. Knott, Paul A. Fischer, Ezra Glaser and James Arnold; Marion Tolles also assisted in the preliminary research in connection with section 5 on wealth.

TABLE II.—*Value of stocks of food in New York City on December 31, 1929*

[Millions of dollars]

Wholesaler's stocks:		
Food products not elsewhere classified	$33.3	
Groceries and food specialties	93.2	
Total at cost to wholesaler	126.5	
Plus 10-percent mark-up [1]	12.7	
Wholesaler's stocks at prices to retailers		$139.2
Retailer's stocks:		
Food group	46.5	
Restaurants, cafeterias, and eating places	4.6	
Total at cost to retailer		51.1
Total stocks		190.3
Plus 20-percent mark-up [1]		38.1
Total food stocks at prices to consumers		228.4

[1] These percentages are rough estimates covering sales of all foods assuming all sales went through food stores rather than restaurants. They are in agreement with the preliminary estimates obtained by the Department of Commerce investigations into average wholesale and retail mark-up in New York City.

Source: *Fifteenth Census of the United States*, wholesale figures from Vol. II, *Wholesale Distribution*, p. 1007, et. seq.; retail figures from Vol. I, *Retail Distribution*, part 3, p. 215, et. seq.

Total sales for the year 1929 were 1,426.9 millions of dollars, and the value of food stocks at prices to consumers held at the end of the year were, roughly, 228.4 millions of dollars. Thus, 16 percent of the year's sales were held in stocks at the date the survey was made. This is equivalent to about 58 days' or approximately 2 months' supply of food on hand.

Approximately the same result was obtained by making use of the findings of a report by the Port of New York Authority called *Food Supply of the Port of New York District* for the metropolitan district in 1922. The length of time of the supply for the various items of food given in this report varied from meat, of which there was only a week's supply in storage, to eggs, of which there was at most a 3 months' supply. On the average, it was found by a study of the detailed items that a 45 days' supply of food was on hand in the New York metropolitan district in 1922.

The estimate of a 2 months' supply is a conservative one in view of the fact that there is such a great variation in the supply of specific food items. Milk is shipped in daily and fresh eggs and meat at short intervals. Canned goods and packaged fancy groceries on the other hand might be stored in wholesalers' warehouses for long periods. Furthermore, the supply of some specific commodities varies greatly with the season

of the year, so that the estimate of the food supply on hand would be different for the different months of the year.

2. Loss in Potential Real National Income Due to Depression Unemployment of Men and Machines, 1930–37

In chart I of chapter I, real national income produced in the United States is shown for the years of the period 1920 to 1937. The line showing potential real national income was obtained by connecting with a compound interest curve the average real national income produced for the years of the period 1923–29 (this average being centered at 1926) with an estimated real national income that could have been expected in 1938 at practical full employment. For the purposes of this chart, practical full employment in 1938 was assumed to correspond to a residual unemployment of 2 millions, using an estimated labor force in 1938 of 54.5 millions.[2] The estimated potential real national income in 1938 corresponding to practical full employment is 103.2 billions of 1929 dollars. This figure was derived from total employment calculated at different assumed levels of consumer income shown in table II of the report *Patterns of Resource Use*, National Resources Committee. The index of industrial production corresponding to a residual unemployment of 2 millions was interpolated from table II of the Pattern report to be approximately 147. The real national income produced corresponding to the index of industrial production of 147 was calculated from the following relationship:

$$\underset{\text{(Billions of 1929 dollars)}}{\text{National income produced}} = 1.608\ (1.0064)^{\text{year}-1929} \times \underset{\text{(1923–25=100)}}{(\text{industrial production})^{0.8326}}.$$

This relationship was derived by the method of least squares, using the logarithmic form, from the data on real national income given in the table below and the Federal Reserve Board index of industrial production for the years of the period 1921 to 1937. The average percent residual[3] for the years of the entire period is 1.4 percent, thus indicating a fairly close relationship between real national income produced and industrial production.

The curve representing potential real national income, obtained by connecting the 1923–29 potential real national income with the calculated 1938 potential real national income, is given by the following compound interest formula:

$$\underset{\text{(Billions of 1929 dollars)}}{\text{National income produced}} = 73.1\ (1.029)^{\text{year}-1926}.$$

[2] This estimate is based on a projection of unpublished data on labor force estimated by the National Research Project of the Works Progress Administration. For the data on labor force, see *Patterns of Resource Use*, National Resources Committee, 1938, appendix 2, table I.

[3] The difference between real national income as calculated from the formula and the actual expressed as a percent of the calculated values.

Table III gives the data on real national income produced and the estimated loss in income due to depression unemployment of men and machines.

TABLE III.—*Loss in potential real national income due to depression unemployment of men and machines, 1930–37*

Year	National income produced [1] (billions of current dollars)	Price of goods [2] (1929=100)	Real national income produced	Potential real national income [3]	Loss due to depression unemployment of men and machines [4]
			(Billions of 1929 dollars)		
1919	67.5	102.5	65.9		
1920	68.1	118.1	57.7	61.0	
1921	50.7	103.9	48.8	63.0	
1922	58.7	97.2	60.4	65.2	
1923	68.0	99.9	68.1	67.0	
1924	67.9	99.9	68.0	68.9	
1925	72.8	102.0	71.4	71.0	
1926	74.9	102.7	72.9	73.1	
1927	73.8	100.9	73.1	75.2	
1928	77.6	99.8	77.8	77.4	
1929	81.1	100.0	81.1	79.8	
1930	68.3	97.3	70.2	82.0	11.8
1931	53.8	89.0	60.4	84.5	24.1
1932	40.0	80.4	49.8	86.9	37.1
1933	42.3	76.6	55.2	89.5	34.3
1934	50.1	79.8	62.8	92.3	29.5
1935	55.2	81.1	67.5	94.9	27.4
1936	63.5	82.8	76.7	97.7	21.0
1937	69.8	86.2	81.0	100.5	19.5
Total loss [5]					204.7

[1] From 1919–28 based on national income as given in *National Income and Capital Formation*, National Bureau of Economic Research, p. 8. This was made comparable to the Department of Commerce estimates (given in *Survey of Current Business*, June 1938) of national income produced by adjusting for net imputed rent, net government savings, depreciation, and changes in inventory.

[2] National Bureau of Economic Research, *Bulletin 59:* figures for later years furnished by the Bureau: based on prices of capital goods weighted by 1 and Bureau of Labor Statistics cost of living index weighted by 9.

[3] Based on the following compound interest curve obtained from the average of real national income produced for the years of the period 1923–29 (centered at 1926) and the estimate of potential national income in 1938 of 103.2 billions of 1929 dollars associated with a residual unemployment of 2 millions—see text for basis of calculation.

[4] Potential real national income less actual real national income produced.

[5] Due to depression unemployment of men and machines, 1930–37.

3. Major Items of Social Expenditures, 1935

The major items of social expenditures shown in chapter II, table IV, are as follows:

The figures for Federal Government expenditures were derived from the 1938 Budget of the United States (data for 1935–36). These expenditures were allocated to the functional break-down given below, excluding the items which did not fall into the categories used.

The figures for State governments were derived by the use of estimates in the report of the Twentieth Century Fund, *Studies in Current Tax Problems, 1937*, showing expenditures for certain functions for 1935–36. A large item "other" was allocated among the remaining functions on the basis of the ratios existing in 1932 as shown in the Census report, *Financial Statistics of States and Local Governments, 1932*.

The figures for local governments were derived by applying to the 1932 data for all local governments the percent changes from 1932 to 1936 shown in various expenditures of 39 large cities. The trend for these 39 cities showed the same relationship as shown for 94 cities between 1932 and 1935. Reports on the 94

cities cover approximately 60 percent of all local governments. The figures on local government expenditures are probably too low.

The following are the categories and sources used:

1. Education—includes expenditures for all schools, including books and supplies; and the promotion of education. The figure for private agencies' contribution to education represents the income received from endowments to institutions of higher learning as reported by the U. S. Office of Education for the school year 1935–36. Private and parochial schools are not included. Individual expenditures are the total expenditures of families and single individuals for education as shown in the National Resources Committee report, *Consumer Expenditures in the United States.*

2. Health and sanitation—includes expenditures for prevention and treatment of diseases; medical and dental work for school children; food regulation; sanitary inspection; and disposal plants. Individual expenditures are the total expenditures of families and single individuals for medical care as shown in the National Resources Committee report, *Consumer Expenditures in the United States.*

3. Recreation—includes expenditures for all recreational facilities, including parks, playgrounds, museums, including projects of the Works Progress Administration in these fields. Individual expenditures are the total expenditures of families and single individuals for recreation as shown in the National Resources Committee report, *Consumer Expenditures in the United States.*

4. Reading—includes expenditures for all libraries for use of the public; also payments to private library associations. Private agencies' contribution was derived as follows: The latest figure for total amount of endowments from individuals to libraries is for 1929. The Bureau of Library Service of the United States Office of Education furnished the figure of $95,820,560 as the amount of permanent endowment funds. A weighted yield on Treasury, municipal and corporate bonds in 1935 was calculated and applied to the amount of permanent endowments. Individual expenditures represent the amount of total expenditures made by families and single individuals for reading as shown by the National Resources Committee report, *Consumer Expenditures in the United States.*

5. Highways—includes all expenditures for operation and maintenance of public roads, bridges, etc., as reported by the Bureau of Public Roads, United States Department of Agriculture.

6. Charities, hospitals and corrections—includes administrative expenses for supervision of relief and of institutions; expenditures for general hospitals maintained by Federal, State, and local Governments (excluding those for care of insane and feeble-minded) and probation boards. This does not include payments to persons on relief or living expenses of persons in institutions. Private agencies' contribution was derived as follows: *The Final Report of the Committee on the Costs of Medical Care, 1932,* showed the source of funds for hospitals in 1929 which included an item of 54 million dollars derived from philanthropy. To this figure was added an estimated sum of 65 million dollars as contributions made through private relief agencies. According to a report of the Works Progress Administration, *Trends in Relief Expenditures, 1910–1935,* the total amount of public relief in 1935 amounted to approximately 2,300 million dollars. The ratio of private relief to public relief in 120 urban areas was 2 percent and in 385 rural towns, 4 percent. Weighting these ratios according to total population in urban and rural areas, a ratio of 2.9 percent was derived and applied to the total public expenditures. This figure for private agencies includes payments made to clients.

7. Interest payments—includes expenditures for interest payments on outstanding debt.

8. Churches—This figure represents the amount of gifts made by families and single individuals to churches in 1935–36, based on data from the National Resources Committee report, *Consumer Expenditures in the United States.* Part of the expenditures made by churches from these funds go to foreign missions. In addition to these funds churches derive income from endowments and real estate holdings. No data were available to permit an estimate of these amounts. It has been assumed that these two figures roughly offset one another. Part of contributions to churches go to support of schools and could properly be included under education.

4. Amount and Proportion of Goods and Services by Degree of Durability, 1919–35

In chart IX of chapter II and in subsequent chapters the values of goods and services are presented by years according to the degree of durability. The data on the value of goods were obtained directly from Kuznets, *Commodity Flow and Capital Formation.* The value of services was derived by the National Resources Committee. In this section a description of the method used for deriving the service series is given and a table is presented of the amount and proportion of goods and services by degree of durability.

The series on value of services was derived by estimating the value of services in current dollars and deflating the resulting series by a price index for services. The value of services in current dollars was computed from seven component series and the price index for services was calculated from a weighted average of seven price indexes.

The following series were used as components of the services series:

The first series consists of income produced by the segments included in the services to the consumer. These include private education, personal service, professional service, recreation and amusement, domestic service, and miscellaneous consumer services. The data for income produced for the years of the period 1929–37 were obtained from the United States Department of Commerce, Income Section. For the years of the period 1919–29, income originating from services was obtained from Kuznets, *National Income and Capital Formation, 1919–35*, page 67. These data were adjusted to the Department of Commerce series by the ratio of the two series in 1929.

The second series consists of income from residential telephone service. The data for the years of the period 1926–36 were derived from the Federal Communications Commission, *Third Annual Report*, and represent all types of operating income. For the period 1935–36, 61.3 percent of total operating revenue was from residential telephones. This percentage was assumed to hold for earlier years. The data for the years of the period 1919–25 were obtained by linear extrapolation along a trend line.

The third series is income from residential electric power service. This series was calculated by multiplying the rate per kilowatt-hour by total kilowatt-hours utilized by residential consumers. Rates per kilowatt-hour were computed from the Federal Power Commission, *Trends in Residential Rates, 1924–36*. Rates for 25, 100, and 250 kilowatt-hours were given weights of 7, 2, and 1, respectively, these weights being based on the relative importance of the quantities consumed. The data for the years 1919–23 were obtained by linear extrapolation along a trend line. The data for the years of the period 1926–36 on total kilowatt-hours consumed were obtained from the Edison Electric Institute, *Statistical Bulletin, No. 4*, New York, 1937. For the other years the data were based on Moody's *Public Utilities* and quoted from the *Electrical World*.

The fourth series is railway passenger revenue. Data were obtained from Interstate Commerce Commission, *Statistics of Railways in the United States*, 1936. Data for the year 1936 were obtained from Interstate Commerce Commission monthly statement, *Revenue Traffic Statistics of Class I Railways*, December 1936.

The fifth item is motor-bus revenue. The data for the years 1927–36 were derived from *Bus Transportation;* the data for the years 1919–26 were obtained by linear extrapolation along a trend line.

The sixth series is electric-railways revenue. This was computed from average fare (described below) multiplied by the number of passengers. The source for number of passengers for the years 1917, 1922, 1927, and 1932 is the census of *Street Railways* and for the intermediate years the source is the American Transit Association. These data are reported in Moody's *Public Utilities*.

The last series is revenue from private first-class mail. These data were obtained from the *Statistical Abstract of the United States* and based on the annual reports of the Postmaster General.

The above seven series were summated and the resulting series was deflated by a price index for services which was constructed from the following component series: (1) Index of price of services to the consumer, (2) residential telephone rates, (3) residential electric power rates, (4) railroad passenger rates, (5) motor bus rates, (6) electric railway rates, and (7) first-class mail rates. These various indexes of price were weighted by the following weights: 9722, 714, 600, 876, 350, 1149, and 627, respectively. These weights were based on the relative values of the various service items in 1929.

The following is the description of sources and methods used for getting the price series:

The index of price of services to the consumer is represented by the Bureau of Labor Statistics' cost of living for "miscellaneous," as reported in *Standard Statistics*, for the years of the period 1920–36. This series includes the cost of such items as reading materials, tobacco, organization dues, medical care, car fare, drugs, toilet articles, etc., but it excludes food, clothing, housing, fuel and lighting, and house furnishings. For the year 1919, the index was estimated from the percent change shown in the two years 1919 and 1920 by the National Industrial Conference Board's index of sundries, as reported in *Standard Statistics*, which is a component of the cost of living index computed by that organization.

Residential telephone rates were computed from data compiled by the Wisconsin Public Service Commission for the years of the period 1926–36.[4] For the years of the period 1919–25 the series was obtained by linear extrapolation along a trend line.

Residential electric power rates, railroad passenger rates, and motorbus rates were obtained from the same sources as the revenue series for the corresponding items. Residential electric power rates and motorbus rates were extrapolated along trend lines for those years for which data were not available.

Electric railway rates consist of an unweighted average of monthly cash fares for street railways or bus service in cities of 25,000 or more population. The number of cities was not constant—320 cities in 1932 and 268 cities in 1936. These data were compiled by the American Transit Association, formerly the American Street Railway Association, and published in the

[4] See appendix IV, table V, of this report.

annual supplement of the *Survey of Current Business*, United States Department of Commerce.

Finally, the index of first-class mail rates covers local letters, nonlocal letters, and private cards, weighted by value in 1929 as follows: 103, 258, and 3, respectively. Data are published in the *Statistical Abstract of the United States* and from annual reports of the Postmaster General.

Table IV gives the value and price of services resulting from the procedure described above:

TABLE IV.—*Value of services, 1919–36*

Year	Value in current dollars (millions)	Price of services (1929=100)	Value in 1929 dollars (millions)	Year	Value in current dollars (millions)	Price of services (1929=100)	Value in 1929 dollars (millions)
1919	8,565	90.1	9,506	1928	13,475	99.5	13,543
1920	9,464	98.9	9,569	1929	14,038	100.0	14,038
1921	8,858	99.6	8,894	1930	13,044	100.7	12,953
1922	9,887	97.9	10,099	1931	11,268	99.2	11,358
1923	10,780	97.6	11,045	1932	9,072	97.9	9,266
1924	11,407	98.0	11,639	1933	8,509	95.9	8,872
1925	12,194	98.6	12,367	1934	9,403	95.0	9,898
1926	12,895	99.2	12,999	1935	10,162	95.1	10,686
1927	12,828	99.0	12,957	1936	11,187	94.5	11,838

Source: See description of method given above.

The amount and proportion of goods and services by degree of durability are presented in table V.

TABLE V.—*Amount and proportion of goods and services by degree of durability 1919–35*

[In millions of 1929 dollars]

Year	Public works	Business construction	Producers, durable	Consumers, durable	Semi-durable	Non-durable	Services	Total
1919	1,439	2,776	4,633	5,821	7,599	20,030	9,506	51,804
1920	1,275	2,476	4,735	5,707	6,616	21,143	9,569	51,521
1921	1,719	2,221	3,303	4,580	7,907	23,051	8,894	50,675
1922	2,020	2,973	3,858	5,819	8,954	22,827	10,099	56,550
1923	1,666	3,186	5,058	7,522	9,861	23,732	11,045	62,070
1924	2,022	3,408	4,838	7,873	9,173	25,576	11,639	64,529
1925	2,347	4,027	5,368	8,817	10,145	25,438	12,367	68,509
1926	2,306	4,325	5,761	9,752	10,212	26,635	12,999	71,990
1927	2,641	4,467	5,993	9,364	11,502	27,164	12,957	74,088
1928	2,871	4,391	6,083	9,555	11,513	27,156	13,543	75,112
1929	2,928	4,581	6,891	9,894	12,135	28,488	14,038	78,955
1930	3,120	3,884	5,791	7,875	10,892	27,970	12,953	72,485
1931	2,899	2,481	4,012	6,577	10,716	26,690	11,358	64,733
1932	2,440	1,332	2,601	4,704	9,742	26,342	9,266	56,427
1933	2,222	1,166	2,779	4,645	8,872	27,325	8,872	55,881
1934	2,950	1,403	3,714	5,259	9,206	26,920	9,898	59,350
1935	2,963	1,741	4,312	6,756	10,176	26,215	10,686	62,849
PERCENTAGE DISTRIBUTION								
1919	2.8	5.4	8.9	11.2	14.7	38.7	18.3	100.0
1920	2.5	4.8	9.2	11.1	12.8	41.0	18.6	100.0
1921	3.4	4.4	6.5	9.0	15.6	43.5	17.6	100.0
1922	3.6	5.3	6.8	10.3	15.8	40.3	17.9	100.0
1923	2.7	5.1	8.1	12.1	15.9	38.3	17.8	100.0
1924	3.1	5.3	7.5	12.2	14.2	39.7	18.0	100.0
1925	3.4	5.9	7.8	12.9	14.8	37.1	18.1	100.0
1926	3.2	6.0	8.0	13.5	14.2	37.0	18.1	100.0
1927	3.6	6.0	8.1	12.6	15.5	36.7	17.5	100.0
1928	3.8	5.8	8.1	12.7	15.3	36.3	18.0	100.0
1929	3.7	5.8	8.7	12.5	15.4	36.1	17.8	100.0
1930	4.3	5.4	8.0	10.9	15.0	38.5	17.9	100.0
1931	4.5	3.8	6.2	10.2	16.6	41.2	17.5	100.0
1932	4.3	2.4	4.6	8.3	17.3	46.7	16.4	100.0
1933	4.0	2.1	5.0	8.3	15.9	48.8	15.9	100.0
1934	5.0	2.4	6.3	8.9	15.5	45.3	16.6	100.0
1935	4.7	2.8	6.9	10.7	16.2	41.7	17.0	100.0

Source: Kuznets, Simon, *Commodity Flow and Capital Formation*, table VIII-2, for all items except services which are estimated by National Resources Committee and described above.

5. Estimates of National Wealth by Major Segments of the Economy, 1935

In chapters III and V several tables and charts are given which are based on estimates of national wealth for 1935.

In this section a brief description is given of the methods used, (1) in estimating total national wealth and the wealth attached to major segments of the economy, and (2) in estimating the value of buildings and equipment. For purposes of this report the national wealth is measured by the value of land, buildings, equipment, and inventories.

It is to be emphasized that these estimates are extremely crude and should be used with utmost caution. They do not represent an effort to make precise estimates, only efforts to give crude approximations, so as to be able to make a rough comparison between the relative magnitude of the wealth employed or controlled in different segments.

The estimate of total national wealth was derived by estimating the wealth of the major segments of the economy. A brief description of the methods used for estimating the wealth of each segment considered follows.

The estimate of wealth held by the Federal Government was derived by adding to the Federal gold holdings in 1935 the amount of Federal Government wealth, exclusive of gold, as estimated by the Federal Trade Commission for 1922, plus the expenditures for plant and equipment, repairs and alterations, lands and structures and parts as shown in the reports of the Bureau of the Budget for the years 1923 to 1935 and deducting depreciation on equipment and buildings, both for those in use in 1922 and those acquired in the subsequent years. A depreciation of 15 percent a year was assumed for equipment and a depreciation of 3 percent a year for buildings. Because of the complexity of Federal Government accounts, the figures for wealth other than gold can be only very approximate.

The wealth held by State and local governments, exclusive of educational facilities, was estimated by adding to the 1922 figures for State and local governments, as estimated by the Federal Trade Commission, the amount of net receipts from bond sales by State and local governments for each year as reported by the *State and Municipal Compendium*, plus Public Works Administration and Reconstruction Finance Corporation grants by the Federal Government to State and local governments from 1933 to 1935, and deducting an annual depreciation charge of 3 percent a year on the value of improvements and that portion of the wealth allocated to education. Improvements were assumed to bear the same ratio to land as shown in the estimates for 1922. The resulting estimate is very much less reliable than that for the Federal Government.

In the case of manufacturing, total wealth was estimated by adjusting the value of total fixed assets and inventories of corporate manufacturing concerns which is reported in the *Statistics of Income*, 1935, for noncorporate assets. This was accomplished by applying the ratio of corporate to total value added by manufacture, i. e., 92 percent, as computed from the *Census of Manufactures*, 1929.

The total wealth of wholesale and retail trade was estimated by adjusting the value of total fixed assets and inventories of wholesale and retail corporations as reported in *Statistics of Income*, 1935, for noncorporate assets, by applying the ratio of corporate net sales to total sales in wholesale and retail trade as shown by the *Census of Distribution*, 1929, or 63 percent.

To estimate the total wealth of mining, the total fixed assets and inventories of corporate mining enterprises as reported in *Statistics of Income*, 1935, was adjusted for noncorporate assets by applying the ratio of corporate value of product to the total value of product of mining concerns, i. e., 96 percent, as reported in the *Census of Mines and Quarries*, 1929, page 14.

The wealth of the construction industry was estimated by adjusting the value of total fixed assets and inventories of corporate construction concerns as reported in the *Statistics of Income*, 1395, for noncorporate assets, by applying the ratio of the value of work done by corporations to total contract construction work done or 60 percent, as reported in the *Census of Business, Construction Industry*, 1935, volume 3, page 34.

In the case of finance, the assets and inventories of corporate financial institutions were adjusted for noncorporate assets by applying the estimated ratio of business done by corporate financial institutions to total business done by financial institutions in 1935, or 84 percent. This ratio was estimated by the Bureau of Foreign and Domestic Commerce and appears in the published *Verbatim Record of the Proceedings of the Temporary National Economic Committee*, volume 1, No. 2, section 1, December 2, 1938, page 64.

The total wealth of the service group was estimated by adjusting the corporate value of total fixed assets and inventories of the service group as given in *Statistics of Income*, 1935, for noncorporate assets by applying the estimated ratio of business done by corporate service concerns to total business done, or 30 percent. This ratio was estimated by the Bureau of Foreign and Domestic Commerce and appears in the published *Verbatim Record of the Proceedings of the Temporary National Economic Committee*, op. cit., page 64. To this estimate was added the value of public educational facilities amounting to 6,737 millions of dollars. This figure was obtained from the Office of Education, Department of Interior.

The total wealth of the utilities segment was estimated as follows: It was assumed that all of the utilities groups, with the exception of the auto, bus, and truck transport group, are 100 percent corporate. The total fixed assets and inventories of the corporate utilities were obtained from the *Statistics of Income*, 1935, and amounted to 50.2 billion dollars. It was estimated that the wealth of the auto transport group, corporate and noncorporate, amounted in 1935 to about 2.3 billion dollars. This estimate of auto transport wealth was based on the reported investment in plant and equipment for the commercial motor bus industry as shown in the *Census of Business*, 1935, raised to include trucks on a basis of the ratio of the number of buses produced as published in the report of the Automobile Manufacturers Association, *Bus Transportation*, to total for-hire-trucks reported in the *Census of Business*. It was next assumed that 50 percent of the wealth of the auto transport group or approximately 1.2 billion dollars was noncorporate. Finally, the estimated noncorporate value of fixed assets and inventories of the auto transport group, i. e., 1.2 billion dollars was added to the corporate value of fixed assets and inventories of the utilities group given in the *Statistics of Income*, i. e., 50.2 billion dollars, which gives an estimated figure of 51.4 billion dollars for the total wealth of the utilities group.

TABLE VI.—*Estimate of value of residential buildings in the United States in 1935*

Number of owned nonfarm homes, 1930 (thousands)[1]	10, 503
Average value of owned homes, 1930[2]	$6, 100
Number of rented nonfarm homes, 1930[1] (thousands)	12, 352
Average rental nonfarm homes, 1930[2]	$33. 25
Average value of rented homes, 1930[3]	$3, 990
Value of owned homes, 1930 (billions of dollars) [4]	66
Value of rented homes, 1930 (billions of dollars) [4]	49
Value of residential buildings, 1930 (billions of dollars)	115
Depreciation allowance from 1930–35 (billions of dollars) [5]	14
Depreciated value in 1935 expressed in 1930 dollars (billions)	101
Decline in value from 1930 to 1935 (billions of dollars) [6]	20
Value of residential buildings existing in 1930, expressed in 1935 dollars (billions)	81
Residential new construction since 1930 (billions of dollars) [7]	3
Value of residential buildings, 1935 (billions of dollars)	84
Estimated value of residential buildings (billions of dollars)	70–90

[1] Bureau of the Census, Department of Commerce, as given in *Statistical Abstract of the United States*, 1937, p. 50.

[2] Computed by graphical method from distribution of nonfarm homes according to value or monthly rental as given in locus cited above.

[3] Assuming that value is 10 times rental.

[4] Number of owned or rented nonfarm homes times average value.

[5] Assuming that 60 percent of value of land and buildings is value of buildings and that the average depreciation in 1930 is 50 percent and that depreciation is at rate of 2 percent per annum of the original value.

[6] Computed on the assumption of a 20 percent decline in residential building costs from 1930 to 1935.

[7] Based on estimates given in *Construction Industry in the United States, 1915–37*, U. S. Department of Commerce, p. 12; represents cumulated value of such construction for the years 1931–35.

The figures for Agriculture were taken directly from the *Census of Agriculture, 1935*, and include value of land, buildings, equipment, and livestock.

The estimate for value of residential housing is very crude. It was derived essentially by multiplying the average value of owned and rented homes by the number of homes reported by the Bureau of Census for 1930, as indicated in table VI. Because the estimate amounts to such a large item and because it is so crude it is given below as a bracket.

The value of personal property in 1935 was estimated by summating the value in the hands of consumers of semidurable goods and consumer durable goods including passenger automobiles. These estimates were based on annual data on commodity flow as given by Simon Kuznets, *Commodity Flow and Capital Formation*. Table VII shows the procedure used in computing the estimates.

In table VIII there is presented the estimated total national wealth by segments. The estimates for the segments have been derived from the sources cited above. However, the estimates are crude approximations and should be considered as such. For instance, the combined Government and finance segments are estimated to amount to 65.5 billion dollars, but have a possible range of from 60 to 70 billion dollars. Similarly, the service segment, which is estimated to be 25 billion dollars, has a range of from 20 to 30 billion dollars due to the crudeness of the estimate caused by the lack of adequate data pertaining to corporate and noncorporate wealth. In the case of the construction segment the possible range is estimated to be from 1 to 3 billion dollars. Residential housing is estimated to range from 70 to 90 billion dollars. Thus, the total national wealth which is estimated to be 365 billion dollars has a possible range of from 345 to 387 billion dollars though the true figure is probably closer to the lower than the higher figure. On the whole the figures are probably overestimates because of the nature of the procedure used for adjusting corporate assets to account for the noncorporate assets; the adjustments were made by the use of ratios which are derived from the operating characteristics of the segment. It may be presumed that the ratios of noncorporate wealth to corporate wealth are lower than the ratios of the measures of certain operating characteristics which are used here in making these estimates. To refer to the total wealth of the country as 350 or 360 billion dollars would indicate the general magnitude of the national wealth.

TABLE VII.—*Method of estimating personal property in the United States, 1935*

[Millions of dollars]

	1926	1927	1928	1929	1930	1931	1932	1933	1934	1935	Total
CONSUMERS' DURABLE GOODS											
1. Consumers' durable goods, current prices [1]	9,445	8,890	9,174	9,913	7,550	5,748	3,806	3,882	4,686	5,918	
2. Passenger automobiles, current prices [2]	3,193	3,005	3,190	3,351	2,553	1,943	1,287	1,313	1,585	2,000	
3. Consumers' durable goods excluding automobiles [3]	6,252	5,885	5,984	6,562	4,997	3,805	2,519	2,569	3,101	3,918	
4. Value in 1935 (current dollars) [4]	625	1,177	1,795	2,625	2,498	2,283	1,763	2,055	2,791	3,918	
5. Price index (1935=100) [5]	107.9	109.4	110.8	113.0	108.1	101.5	95.6	95.5	101.7	100.0	
6. Value in 1935 (1935 dollars) [6]	579	1,076	1,620	2,323	2,311	2,249	1,844	2,152	2,743	3,918	20,815
CONSUMERS' SEMIDURABLE GOODS											
7. Total semidurable goods, current prices [7]	7,563	7,654	7,638	7,721	6,269	5,084	3,651	3,929			
8. Dry goods and notions [7]	979	964	923	945	682	542	386	489			
9. Consumers' semidurable goods, current prices [8]	6,584	6,690	6,715	6,776	5,587	4,542	3,265	3,440			
10. Percent consumers' to total [9]	.870	.874	.879	.877	.891	.893	.894	.875	[10].875	[10].875	
11. Sales of total semidurable goods, current prices [11]	12,734	11,911	12,339	12,565	10,644	8,572	6,109	6,235	[12]7,412	[12]8,051	
12. Estmated sales of consumers' semidurable goods [13]	11,079	10,410	10,846	11,020	9,484	7,655	5,461	5,456	6,486	7,045	
13. Value in 1935 (current dollars) [14]						766	1,638	2,728	4,540	7,045	
14. Price index (1935=100) [15]						106.0	87.3	91.8	101.9	100.0	
15. Value in 1935 (1935 dollars) [16]						723	1,876	2,972	4,455	7,045	17,071
PASSENGER AUTOMOBILES											
16. Passenger automobiles, current prices [17]			3,190	3,351	2,553	1,943	1,287	1,313	1,585	2,000	
17. Value in 1935 (current dollars) [18]			399	838	957	972	804	985	1,387	2,000	
18. Price index (1935=100) [19]			105.2	109.2	102.3	97.3	97.0	94.8	101.6	100.0	
19. Value in 1935 (1935 dollars) [20]			379	767	930	999	829	1,039	1,365	2,000	8,308
20. Total personal property											46,194

[1] Simon Kuznets, *Commodity Flow and Capital Formation*, National Bureau of Economic Research, 1938, line 1a, p. 484.
[2] Represents total sales of passenger automobiles, auto parts and accessories, motorcycles, and bicycles, adjusted for inventory charges. Simon Kuznets, *loc. cit.*
[3] Line (1) minus line (2).
[4] Assuming a constant depreciation at the rate of 10 percent per annum.
[5] Kuznets, *op. cit.*, line 1a, p. 484, divided by line 1a, p. 485; i. e., consumers' durable goods in current dollars divided by consumers' durable goods in 1929 dollars
[6] Line (4) divided by line (5).
[7] Kuznets, *op. cit.*, p. 146
[8] Line (7) minus line (8).
[9] Percent of line (9) to line (7).
[10] Assuming no change from 1933
[11] Kuznets, *op. cit.*, p. 478. Sales to ultimate consumers.
[12] Assuming inventory change of —100 million dollars per annum.
[13] Applying ratio (line 10) to line (11).
[14] Applying the cumulative survival rates: 30 percent of value remains after 1 year, 50, 70, 90, 100 percent remaining after the second, third, fourth, and fifth years, respectively.
[15] Kuznets, *op. cit.*, line I–1, p. 478, divided by line I–1, p. 479, i. e., consumers' semidurable goods in current dollars divided by consumers' semidurable goods in 1929 dollars.
[16] Line (13) divided by line (14).
[17] Same as line (2).
[18] Assuming a constant depreciation at the rate of 12.5 percent per annum.
[19] Bureau of Labor Statistics index of automobile prices.
[20] Line (17) divided by line (18).

TABLE VIII.—*Wealth by segments of the American economy, 1935*

[Figures in billions of dollars]

Total National Wealth	365
Government and finance (excluding public education) [1]	65
Federal	16
Land, buildings, equipment, and inventories (including gold).	
State and Local: Land, buildings, and equipment, exclusive of public education	33
Banking and Finance: Inventories and capital assets	16
Utilities	51
Services to the consumer (including public education)	27
Agriculture	39
Land and buildings	33
Machinery	2
Livestock	4
Manufacturing: Inventories and fixed capital	31
Trade: Inventories and fixed capital	13
Mining: Inventories and fixed capital	6
Construction: Inventories and capital assets	1
Miscellaneous	*
Residential Housing	84
Personal Property	46

* The miscellaneous segment is estimated to be less than one-half billion dollars and is therefore not included.

[1] The wealth of the finance segment was estimated to be about 16 billion dollars.

NOTE.—The wealth given above for service includes, in addition to value of property of public educational institutions, an estimated value of 8 billions of dollars of privately owned tax-exempt property such as churches, benevolent institutions, schools, libraries, and museums.

The data presented in chart I of chapter III are based on table VIII. In each segment inventories were deducted from the total. To estimate the value of buildings and equipment, it was also necessary to deduct estimates of land values. The division of values between land and other fixed assets was based on data in the Federal Trade Commission's report on *National Wealth and Income* for 1922, for all segments except agriculture, which was estimated on a basis of the ratio of land value to total land and buildings reported in the *Census of Agriculture, 1930*. Table IX gives the total value of plant and equipment for four major segments. In addition to the value of buildings and equipment for 1935, this table also gives the data from which table III of chapter III was derived. These data in table III were derived by dividing the total value of plant and equipment by the 1919–1933 average annual value of construction and equipment for each segment as estimated by Simon Kuznets of the National Bureau of Economic Research.

TABLE IX.—*Value of plant and equipment for specified segments, 1935*

[In billions of dollars]

	Plant		Equipment		Total	
	1935 value	1919–1933 Average annual construction	1935 value	1919–1933 Average production	1935 value	1919–1933 Average construction and production
Residential housing	50	2.541	----	----	50	2.541
Industrial	[1] 105	2.419	----	3.533	105	5.952
Agriculture	9	0.415	6	0.792	15	1.207
Government	[1] 19	[1] 2.641	----	----	19	2.641
Total	184.073	----	6	----	190	----

[1] Includes value of equipment which could not be segregated.

Finally, table I of chapter V was derived by dividing the value of land, buildings, and equipment obtained for the specified segments, by the method indicated above, by the equivalent full-time number of workers shown for the corresponding segments in table II of the report, *Patterns of Resource Use*.

6. Total Production in the United States, 1863–1937

In chart I of chapter V data on total volume of production are shown for the years of the period 1863–1937. For the period 1920–1937 the national income produced was expressed in terms of 1935 dollars and was based on data obtained from the National Bureau of Economic Research and the Department of Commerce. This is

TABLE X.—*Total production in the United States, 1863–1937*

[Billions of 1935 dollars]

Year	Total production	Trend of production [1]	Year	Total production	Trend of production [1]
1863	3.5	----	1901	24.1	24.8
1864	3.9	----	1902	28.0	25.6
1865	4.6	----	1903	27.5	26.6
1866	5.5	----	1904	28.4	27.5
1867	5.9	----	1905	31.5	28.4
1868	6.2	----	1906	33.4	29.5
1869	6.7	----	1907	32.2	30.6
1870	7.0	----	1908	29.4	31.6
1871	6.8	----	1909	33.4	32.7
1872	7.9	----	1910	34.5	33.9
1873	7.9	----	1911	33.8	35.1
1874	7.6	----	1912	38.4	36.3
1875	8.5	----	1913	37.8	37.7
1876	8.5	----	1914	37.5	39.0
1877	9.4	----	1915	40.9	40.4
1878	10.0	----	1916	43.7	41.8
1879	10.7	11.5	1917	45.0	43.2
1880	12.2	11.9	1918	44.6	44.8
1881	11.1	12.3	1919	43.8	46.4
1882	13.4	12.8	1920	47.2	48.1
1883	13.3	13.2	1921	39.9	49.8
1884	13.9	13.7	1922	49.4	51.5
1885	13.7	14.2	1923	55.7	53.3
1886	14.5	14.7	1924	55.6	55.2
1887	14.7	15.2	1975	58.4	57.3
1888	15.9	15.7	1926	59.6	59.3
1889	17.1	16.3	1927	59.8	61.4
1890	16.7	16.9	1928	63.6	63.5
1891	19.5	17.5	1929	66.3	65.8
1892	18.3	18.1	1930	57.4	----
1893	17.3	18.7	1931	49.4	----
1894	17.0	19.4	1932	40.7	----
1895	20.2	20.1	1933	45.2	----
1896	20.0	20.8	1934	51.4	----
1897	21.4	21.5	1935	55.2	----
1898	23.2	22.3	1936	62.7	----
1899	23.7	23.1	1937	66.3	----
1900	23.9	23.9			

[1] Trend values calculated from the formula derived from the data for the years of the period 1879–1929:

$$\text{Total production} = 23.9 \text{ (Billions of 1935 dollars)} \ (1.035)^{\text{year}-1900}.$$

Source: For the years 1920–1937 production is represented by national income produced given in section 2 of this appendix and expressed in 1935 dollars.
For the years 1863–1920 from Warren and Pearson, *Physical Volume of Production in the United States* (1932) and consists of the index of physical production spliced to the real income produced series by applying the ratio of the two in 1920.

the same series used in chart I of chapter I except that in that chart national income was expressed in 1929 dollars. For the period 1863–1920, the index of physical production as given by Warren and Pearson was adjusted to the real national income produced series using the ratio of the two indexes in 1920.

It is apparent from this long-time series on the volume of production that the annual rate of growth for the period 1863–1879 is greater than for the subsequent period (excluding the recent depression). The fitted trend for the years of the period 1879–1929, however, shows a fairly uniform annual rate of increase of approximately 3.5 percent. This trend line fits the data very well—the residual areas (bounded by the trend line and the straight lines connecting the actual values for successive years) being small and alternating above and below the trend line over relatively short periods. The trend values are calculated from the following equation obtained by the method of least squares applied to the linear logarithmic form and using the data for the years of the period 1879–1929:

$$\underset{\text{(Billion of 1935 dollars)}}{\text{Total production}} = 23.9\ (1.035)^{\text{year}-1900}.$$

Table X shows the actual data on physical production and the corresponding trend values.

7. Income Produced by Segments of the American Economy, 1935

Chart IV of chapter V is based on estimates of national income published by the Department of Commerce. The segments include the following industries:

Government and finance.—This segment includes Federal, State, and local governments, minus salaries of school teachers which are included under services to the consumer, and receipts of post office which are included under utilities; also included are banks, insurance companies, and real estate, minus brokerage and building and loan associations transferred to miscellaneous, and "net rentals received by individuals" transferred to services to consumers.

Utilities.—This segment includes the following industries which are defined in the publication of the Department of Commerce, *National Income, 1929–35*, namely, electric light and power, gas, transportation, communication and post office, which is excluded from government.

Services to the consumer.—This segment is defined as in the publication of the Department of Commerce, referred to above. To the income produced is added "net rentals received by individuals" and salaries of school teachers—the latter was subtracted from income produced by government

Agriculture.—This segment is the same as that defined in the publication of the Department of Commerce, referred to above.

Manufacturing.—This segment is the same as the corresponding segment defined in the publication of the Department of Commerce, *National Income, 1929–35*. To the income produced by the segment was added the shipbuilding industry.

Trade.—Same as definition given in Department of Commerce publication.

Minerals.—This segment is the same as the definition of "Mining" given in the publication of the Department of Commerce.

Miscellaneous.—Same as the definition given in the Department of Commerce publication. To the income produced by this segment was added income produced by brokerage houses and building and loan associations.

Construction.—This segment is the same as the corresponding segment defined in the publication of the Department of Commerce, except for the shipbuilding industry which was transferred to the manufacturing segment.

8. The Distribution of the Food Dollar, 1935

The estimated distribution of the food dollar is a crude approximation of the shares going to retailers, wholesalers, transportation agencies, processors, and farmers. The estimates were derived in the following manner:

Farmer's share.—Cash income from farm marketing, not including cotton, was 5,638 million dollars in 1935. The value of exports of edible farm products was $56,572,000 in that year. This figure was reduced by 20 percent to allow for mark-up between farmer and exporter and the result subtracted from cash income, leaving a balance of 5,593 million dollars as the farmer's share of consumer food expenditures.

Processors' share.—The "value added by manufacture" for all food industries in 1935 was 2,789 million dollars. The total value of products of the food industries in 1935 was 9,510 million dollars. Exports of manufactured foods were valued at 150 million dollars or 1.8 percent of total value of manufactured foods. This ratio was applied to the value added to estimate that part represented by exports and the value added was reduced by this amount (50 million dollars) leaving a balance of 2,739 million dollars as the processors' share of food expenditures.

Wholesalers' share.—The expenses of all food wholesalers as reported in the *Census of Business, 1935*, were totaled. To this figure of 1,055 million dollars was added 177 million dollars representing profits of wholesalers. The Federal Trade Commission's report on *Retail Price Maintenance* shows profits of wholesale grocers to be 1.6 percent of net sales in 1926. This ratio was applied to the total sales of all food wholesalers as reported in the *Census of Business, 1935*, to obtain estimated profits of 177 million dollars.

Retailer's share.—The expenses of food stores, eating and drinking places, and beer and liquor stores were added. Expenses in connection with food sales of other stores were estimated by use of the commodity sales of retailers published for 1929. General stores with food, drug stores, and food and general merchandise stores showed sales of food in 1929. The ratios of these sales were applied to the sales of these stores in 1935. Expenses were obtained by applying the expense ratio of each of these kinds of stores to their estimated food sales. Total receipts of all hotels were broken into sales of meals and beverages and other receipts by use of the ratio of meals and beverages to total receipts of those hotels reporting the break-down. The expense ratio of eating and drinking places were used to derive expenses of hotels for meal and beverage sales. To the total estimated expenses of all these groups was added a profit of 5 percent on net sales of food and meals.

Transportation.—The Interstate Commerce Commission reported freight revenue on individual commodities transported by rail in 1936. Revenue on food products amounted to 646 million dollars in 1936. These products were divided into agricultural, animal, and manufactured products. Each of these groups was reduced by the ratio which was shown for the total of those groups in 1935 to the total in 1936 giving an estimated figure of 582 million dollars for freight revenue on food products in 1935. The Bureau of Agricultural Economics, Department of Agriculture, estimated that the truck revenues from food products approximated 25 percent of the rail revenue or 145 million dollars. Thus, transportation's share of food expenditures amounted to 728 million dollars in 1935.

Summary.—Total expenditures of food would approximate the amounts received by farmers, the expenses and profits of manufacturers, wholesalers, and retailers of food, and costs of transportation. The estimated total of 13,629 million dollars in 1935 is distributed as follows:

	Millions	Percent
Farmers' share	$5,593	41.1
Processors' share	2,739	20.1
Wholesalers' share	1,232	9.0
Retailers' share	3,337	24.5
Transportation	728	5.3
Total	13,629	100.0

The total food expenditures estimated in the National Resources Committee report, *Consumer Expenditures in the United States*, amounted to 14,753 million dollars. Since this figure is based on a sample, which is weighted heavily with low-income families, an upward bias probably exists in food expenditures. On the other hand, sales of food by retailers, and sales of food products to consumers by manufacturers and wholesalers as shown by the *Distribution of Sales by Manufacturing Plants, 1935*, and the *Census of Business, 1935*, amounted to 12,968 million dollars. The figure used in the estimate of the distribution of the food dollar is between these two extremes.

9. Consumer Income and New Nonfarm Dwelling Units Built, 1920–36

Chart XIV of chapter V is based on the data given in table XI.

TABLE XI.—*Consumer income and new nonfarm dwelling units built, 1920-1936*

Year	Consumer income (billions of 1936 dollars)[1]	New nonfarm dwelling units built (000's)[2]	Year	Consumer income (billions of 1936 dollars)	New nonfarm dwelling units built (000's)
1920	47.0	247	1929	65.3	509
1921	42.3	449	1930	60.4	286
1922	48.8	716	1931	54.6	212
1923	54.8	871	1932	46.7	74
1924	55.4	893	1933	48.2	54
1925	57.0	937	1934	54.0	55
1926	58.3	849	1935	56.9	144
1927	58.9	810	1936	63.9	282
1928	62.2	753			

[1] Consumer income based on the National Bureau of Economic Research data on income paid out to individuals for the years 1920–28 and on the Department of Commerce data on national income paid out, plus noncorporate business savings for the years 1929–36; the value series was deflated by the cost of living index of the Bureau of Labor Statistics.

[2] New nonfarm dwellings, National Bureau of Economic Research, *Bulletin No. 65*, September 1937, by David L. Wickens and Ray Foster.

10. Unit Labor Requirement in Agriculture, 1920–36

In chapter V, chart XVI, the unit labor requirements are shown for various specified industries. In all cases except agriculture the source of the data is *Technological Trends and National Policy*, National Resources Committee, June 1937, table 8, page 77. For agriculture table XII shows the data used.

TABLE XII.—*Index of unit labor requirement in agriculture, 1920–36*

Year	Unit labor requirement[1] (1920=100)	Year	Unit labor requirement[1] (1920=100)
1920	100	1929	94
1921	117	1930	96
1922	109	1931	87
1923	106	1932	92
1924	103	1933	97
1925	98	1934	114
1926	95	1935	99
1927	98	1936	104
1928	93		

[1] Obtained by dividing indexes of total agricultural employment by agricultural production. The indexes of employment are given in the report of the Works Progress Administration, National Research Project, *Trends in Employment in Agriculture, 1909–1936*. Indexes of production were obtained from *Trends in Size and Production of the Aggregate Farm Enterprise*, Works Progress Administration National Research Project, Report No. 8.

11. National Income Paid Out, 1919–37

Charts I, II, III, and IV, presented in chapter VI are based on data supplied by the National Income

Section of the Bureau of Foreign and Domestic Commerce, Department of Commerce, and the National Bureau of Economic Research. The data on which charts I, III, and IV are based are presented in table XIII. The classification of industrial segments used in chart II is according to the definitions given in the National Resources Committee report, *Patterns of Resource Use*. The basic data, however, were compiled and published by the Department of Commerce in *National Income, 1929–35*. Since the classifications given in the publication of the Department of Commerce differ from those given in the *Patterns of Resource Use*, certain adjustments were made. These adjustments were limited by the break-downs of the basic data and not all of the adjustments performed on the material on income produced could be made to these data. The data in chart II of chapter VI are, therefore, not quite comparable with those in chart IV of chapter V.

In order to make the classifications comparable to those in the chart on income produced, the following changes are indicated by the segment definitions: Post office and public education should be removed from the Government segment and added to the totals for railroads and utilities, and services to the consumer, respectively. Brokerage houses, building and loan companies, and realty companies should be subtracted from finance and added to miscellaneous and services to the consumer, respectively. Shipbuilding should be shifted from construction to manufacturing. These changes in classification were made, with the following exceptions. The detailed break-down, by industrial group, for dividends, interest, rent, royalties, was not available. Therefore, this type of income paid out was not quite accurately distributed. Post office and public education could not be separated from the rest of the Government segment and added to utilities and services to the consumer, respectively. Rent and interest on bonds for these items are probably large; hence this type of income paid out by the Government segment is overstated and utilities and services to the consumer understated. Similarly, shipbuilding could not be separated from construction and added to manufacturing, and brokerage could not be shifted from finance to miscellaneous.

The other two types of income paid out, i. e., to employees and entrepreneurs, are comparable to the totals for income produced. More detailed break-downs were available than in the case of dividends and interest, and the corresponding changes in classification were made. A small subclassification under finance, realty companies, was not separable from finance for any type of income paid out, but the resulting error is probably insignificant.

As in the case of income produced all net rents and royalties were put into services to the consumer. Social security contributions by employees were included in miscellaneous salaries and wages. Work relief was included in salaries and wages paid by government.

12. Derivation of Indexes of Consumer Expenditures and Consumer Income, 1929–1938

In chapter VI a chart is presented on which appears an index of consumer expenditures and an index of consumer income for the years of the period 1929 to 1937. The index of consumer income was derived from data published by the Department of Commerce and consists of income paid out, plus noncorporate business savings. The index of consumer expenditures, on the other hand, was derived from data obtained from numerous sources. Unfortunately, the data from which an index of consumer expenditures could be derived are

TABLE XIII.—*Amount and proportion of national income paid out, 1919–1937* [1]

[In millions of dollars]

Year	Wages and salaries [2]	Entrepreneurial withdrawals [3]	Dividends	Interest	Rents, royalties and balance of international payments	Grand Total
1919	36,145	11,958	2,895	2,925	2,455	56,378
1920	42,667	13,838	3,215	3,279	2,767	65,766
1921	34,423	10,268	2,932	3,410	2,246	53,279
1922	36,659	10,224	3,006	3,535	3,497	56,921
1923	42,255	11,165	3,823	3,772	3,651	64,666
1924	42,494	11,356	3,762	3,997	3,917	65,526
1925	44,494	11,648	4,362	4,249	3,920	68,672
1926	46,985	11,804	4,736	4,410	3,655	71,590
1927	47,204	11,781	5,036	4,678	3,471	72,170
1928	48,717	11,940	5,362	4,976	3,591	74,586
1929	51,509	12,296	5,978	5,202	3,569	78,554
1930	47,551	11,581	5,801	5,393	2,965	73,291
1931	40,188	9,848	4,335	5,295	2,366	62,032
1932	31,563	6,887	2,745	5,019	1,811	49,025
1933	29,596	7,214	2,209	4,710	1,587	45,316
1934	34,051	8,021	2,793	4,862	1,783	51,510
1935	36,679	8,729	3,038	4,725	1,966	55,137
1936	41,906	9,565	4,284	4,652	2,179	62,586
1937	46,728	10,441	5,010	4,656	2,496	69,331
PERCENTAGE DISTRIBUTION						
1919	64.1	21.2	5.1	5.2	4.4	100.0
1920	65.0	21.0	4.9	5.0	4.1	100.0
1921	64.6	19.3	5.5	6.4	4.2	100.0
1922	64.4	18.0	5.3	6.2	6.1	100.0
1923	65.4	17.3	5.9	5.8	5.6	100.0
1924	64.9	17.3	5.7	6.1	6.0	100.0
1925	64.7	17.0	6.4	6.2	5.7	100.0
1926	65.6	16.5	6.6	6.2	5.1	100.0
1927	65.4	16.3	7.0	6.5	4.8	100.0
1928	65.3	16.0	7.2	6.7	4.8	100.0
1929	65.6	15.7	7.6	6.6	4.5	100.0
1930	64.9	15.8	7.9	7.4	4.0	100.0
1931	64.8	15.9	7.0	8.5	3.8	100.0
1932	64.4	16.1	5.6	10.2	3.7	100.0
1933	65.3	15.9	4.9	10.4	3.5	100.0
1934	66.1	15.6	5.4	9.4	3.5	100.0
1935	66.5	15.8	5.5	8.6	3.6	100.0
1936	67.0	15.3	6.8	7.4	3.5	100.0
1937	67.4	15.1	7.2	6.7	3.6	100.0

[1] Source: 1919–28, National Bureau of Economic Research; 1929–37, Department of Commerce, Bureau of Foreign and Domestic Commerce. National Bureau figures spliced onto Commerce figures upon basis of 1929 ratio.

[2] Includes work relief wages, employers' contribution to social security, and other labor income.

[3] National Bureau estimates adjusted to segregate entrepreneurial withdrawal from salaries and wages in service and miscellaneous industries on basis of average ratio of those items to total income, 1930–35 in Commerce estimates.

far from complete and certain glaring omissions necessarily result. However, with the available data it has been possible to construct an index representing roughly the volume of consumer expenditures. The purpose of this section is to discuss briefly the series composing the final index, the sources from which they were obtained, and the manner in which they were combined.

All of the series which were used represent direct purchases of goods or services by consumers.

There are 13 general series incorporated in the final index; these cover the following items: (1) chain-grocery sales, (2) department-store sales, (3) rural general-store sales, (4) variety-store sales, (5) automobile sales, (6) restaurant sales, (7) gasoline sales, (8) natural and manufactured gas sales, (9) electric light and power revenues, (10) telephone revenues, (11) transit fares, (12) railroad passenger revenues, and (13) hotel receipts (excluding meals).

The index of chain-store sales was computed by the Department of Commerce from sample data supplied by chain grocery stores whose sales amounted to about 75 percent of the total grocery chain-store business. The index of department-store sales was computed by the Board of Governors of the Federal Reserve System from reports received from a large number of department stores located in various parts of the country. The index of rural retail sales was derived from the mail-order sales of three large mail-order houses and the store sales of a general merchandise chain whose business is predominantly rural. The index of variety-store sales was computed by the Department of Commerce from reports of seven chains covering identical stores doing more than 75 percent of the total business of chain units in this field. The index of automobile sales was based on the index of new passenger-car sales computed by the Department of Commerce; this was modified by data on financing of new and used cars in order to estimate total sales of all automobiles. The index of restaurant sales is a composite index based upon two separate indexes representing the sales of chain restaurants and hotel restaurants. Chain restaurant sales are represented by the combined sales of restaurants operated by the Childs Company, J. R. Thompson Company, and the Waldorf System, Inc.; while the index of hotel restaurant sales was based on data compiled by Horwath and Horwath from reports of a large number of hotels, transient and residential, throughout the country. The index of gasoline sales was specifically computed from data compiled by the American Petroleum Institute representing the quantity of gasoline sold or offered for sale as reported by wholesalers and dealers under provisions of the gasoline tax or inspection laws.

The index of sales of natural and manufactured gas was based on data compiled by the American Gas Association. The index of electric power and light revenues was based on data compiled by the Edison Electric Institute, from reports representing over 90 percent of the industry. The index of telephone revenues was based upon data compiled by the Interstate Commerce Commission through 1933, and thereafter by the Federal Communications Commission. The index of transit fares was based upon data compiled by the American Transit Association after 1932, prior to that date by the American Electric Railway Association. The index of railroad passenger revenues was based on data compiled by the Interstate Commerce Commission from reports of all class I railroads exclusive of switching and terminal companies. The index of hotel receipts was based upon data compiled by Horwath and Horwath from reports of a large number of hotels located throughout the country.

The various indexes listed above were combined into a single index representative of consumer expenditures. This was accomplished by using a system of weights based on the proportion of sales of each series to total sales as indicated by Census Bureau data for 1929.

Table XIV gives the index of consumer income and of consumer expenditures for the years of the period 1929–38. The table also gives the estimated value of consumer expenditures for each year of the same period. These values were employed in table VI of chapter VI and chart XII of chapter VI.

TABLE XIV.—*Consumer income and expenditures, 1929–38*

Year	Consumer income [1] (1929=100)	Consumer expenditures	
		Index [2] (1929=100)	Value [3] (millions of dollars)
1929	100.0	100.0	62,300
1930	90.7	90.8	56,568
1931	74.9	80.0	49,840
1932	57.9	65.5	40,806
1933	56.2	62.9	39,187
1934	65.3	69.7	43,423
1935	70.5	76.7	47,724
1936	80.6	85.0	52,955
1937	88.3	89.9	56,008
1938 [4]	80.7	82.5	51,398

[1] Based on national income paid out plus noncorporate business savings estimated by the Department of Commerce.
[2] Obtained as described in the text above.
[3] Obtained by applying the index of consumer expenditures to the value of consumer expenditures for 1935–36 of $50,214,000 as given in the report of the National Resources Committee, *Consumer Expenditures in the United States*. The index of consumer expenditures for the year July 1935 to June 1936 is 80.6 (1929=100), obtained from monthly indexes derived by the method described above.
[4] Partly estimated.

13. Major Money Flows in the American Economy, 1929

Wassily W. Leontief prepared a table which shows the flow of goods from each major segment of the economy to other major segments in terms of money values appropriately representing such flows for 1929. A description of the terms used and of the procedure employed

in the preparation of the table is given in appendix 17. In this section a brief discussion is given of the modifications made in summarizing Leontief's table so as to cover much broader segments of the economy. The resulting summary is shown in table II and chart VI of chapter VI.

Each entry in table II of chapter VI has been obtained from table I of appendix 17 by summating the approximate items included within the respective segment associated with the entry. However, a few additional modifications were made which consisted in adding three new segments not appearing in Leontief's table.

The three additional segments are Government, financial enterprises, and trading enterprises. For Government and finance only one entry has been made, i. e., income received by consumers. This is income paid out estimated by the National Income Section, U. S. Department of Commerce.

The introduction of trading enterprises as an additional segment affects some of the entries in the segment for consumer expenditures. (Leontief's "consumption" item.) The following list gives a description of the entries related to trading enterprises:

(1) Money received by agricultural enterprises from consumption, as shown by Leontief, was allocated between sales to trading enterprises and direct sales to consumers on the assumption that 10 percent of farm sales were direct sales to consumers. (See Simon Kuznets, *Capital Formation and Commodity Flow*, p. 172.)

(2) It is assumed that all sales of mining enterprises went directly to trade and Leontief's figure on money received by mining enterprises from consumption was transferred to trade.

(3) The amount received by manufacturing enterprises direct from consumers was obtained by applying the ratio of sales by manufactures direct to ultimate consumers to the total cost of finished commodities to ultimate consumers (see Kuznets, loc. cit., p. 206) to the total summated items representing money received by manufacturing from consumption as obtained from Leontief's table. This figure subtracted from Leontief's total resulted in the amount received by manufacturing enterprises from trading enterprises.

(4) The amount received by trading enterprises from trading enterprises consists of sales by wholesalers to retailers of total finished commodities less sales of producers' durable commodities as given in Kuznets (loc. cit., p. 197).

(5) The amount received by trading enterprises from exports was derived from value of total finished commodities exported by wholesalers less exports by wholesalers of producers' durable commodities. (See Kuznets, loc. cit., p. 197).

(6) The amount received by trading enterprises from consumer expenditures consists of total cost of finished commodities to ultimate consumers less cost to ultimate consumers of producers' durable goods as given in Kuznets (loc. cit., p. 205); from this figure were deducted the amounts received by agricultural and manufacturing enterprises from consumer expenditures—see (1) and (3) above.

(7) Leontief's item "amount paid for imports for consumption" was assumed to go through trading enterprises and was allocated to this segment.

(8) The income received by consumers from trading enterprises consists of income paid out plus noncorporate business savings of trading enterprises estimated by the National Income Section, U. S. Department of Commerce.

The items in the column, "money payments not allocated," and the row, "money receipts not allocated," were derived by deducting from the gross total the sum of all the other items appearing in the respective column or row (excluding the item "net total").

14. The Supply of Money of the United States, 1921–1937

Chart VII of chapter VI is based on data furnished by the Division of Research and Statistics of the Board of Governors of the Federal Reserve System. Table XV gives the data on which the chart is based.

TABLE XV.—*The money supply of the United States,*[1] *1921–37*

[Amounts in millions of dollars]

June 30	Adjusted demand deposits in all banks	Money in circulation	Total money	June 30	Adjusted demand deposits in all banks	Money in circulation	Total money
1921	17,660	3,698	21,358	1930	22,729	3,381	26,110
1922	18,464	3,362	21,826	1931	20,946	3,670	24,616
1923	19,617	3,759	23,376	1932	16,275	4,634	20,909
1924	20,325	3,662	23,987	1933	15,501	4,784	20,285
1925	21,920	3,590	25,510	1934	18,603	4,684	23,287
1926	22,428	3,623	26,051	1935	21,754	4,783	26,537
1927	23,101	3,579	26,680	1936	26,220	5,222	31,442
1928	23,256	3,643	26,899	1937	26,794	5,509	32,303
1929	23,482	3,660	27,142				

[1] Data furnished by the Division of Research and Statistics of the Board of Governors of the Federal Reserve System.

15. Demand Deposits of Single Individuals and Families With Incomes Under $5,000, December 31, 1935

On page 88 of chapter VI, an estimate is given representing the proportion of total demand deposits held by consumers with incomes under $5,000. This estimate was derived by making use of two sources, namely, an article by Lauchlin Currie entitled "The Economic Distribution of Demand Deposits," *Journal of American Statistical Association*, June 1938, and a report of the National Resources Committee published in August of 1938 entitled *Consumer Incomes in the United States.*

The procedure used is briefly this: to estimate the total consumer deposits of less than $100,000 and correct this figure for total consumer deposits of between $5,000 and $100,000. The latter totals were estimated on the assumption that these consumers included only those with incomes between $5,000 and $100,000 and that their proportion of total consumer deposits was the same as their proportion of total consumer income. The result is necessarily rough since it depends on how closely the assumption fits the actual condition.

Table XVI gives the steps used in making the estimates.

TABLE XVI.—*Demand deposits held by consumers (as of December 31, 1935)*

[Figures in millions of dollars]

A. Consumers' and unclassified deposits [1]	5, 130
B. Individual accounts over $100,000 [1]	430
C. Accounts not held by consumers [2]	1, 049
D. Total consumer deposits of less than $100,000 A−B−C	3, 651
Aggregate income of consumers with incomes of less than $100,000, 1935–1936 [3]	58, 163
Aggregate income of consumers with incomes of between $5,000 and $100,000, 1935–36 [3]	10, 563
E. Percent	18. 16
F. Estimated accounts of consumers with incomes between $5,000 and $100,000 D×E	663
G. Estimated deposits of consumers having incomes of less than $5,000 D−F	2, 988
H. Percent of total deposits held by consumers with incomes of less than $5,000 [4]	13. 7

[1] See ch. VI, table III; for individual accounts over $100,000, see Lauchlin Currie, loc. cit., p. 321.

[2] See ibid., p. 320.

[3] *Consumer Incomes in the United States*, National Resources Committee, p. 6.

[4] Percent of item G to total deposits 21,860 million dollars. (See table III, ch. VI.)

16. Corporate Funds Derived from Operations and Available for Capital Formation, 1926–35

The data on which chart IX of chapter VI is based are shown in table XVII.

TABLE XVII.—*Corporate funds derived from operations and available for capital formation, 1926–1935*

[Billions of dollars]

Year	Depreciation and depletion [1] all corporations	Corporate savings [2]	Funds available for capital formation [3]
1926	3.8	1.2	5.0
1927	3.8	.3	4.1
1928	4.1	1.4	5.5
1929	4.4	1.4	5.8
1930	4.4	−3.9	.5
1931	4.3	−5.9	−1.6
1932	3.9	−6.4	−2.5
1933	3.7	−2.8	.9
1934	3.7	−2.1	1.6
1935	3.7	−1.2	2.5

[1] *Statistics of Income*, Bureau of Internal Revenue, for respective years.

[2] 1926–28 based on National Bureau of Economic Research, national income produced less income payments to individuals (including noncorporate business savings); 1929–35, Department of Commerce estimates of national income produced less income paid out, less noncorporate business savings.

[3] Depreciation and depletion plus corporate savings

17. New Capital Issues, 1919–37

The data upon which chart X of chapter VI is based are presented in table XVIII. These data which represent the amount of money expended by governments and corporations for new capital issues in the United States for the years of the period 1919 to 1937, were compiled by the *Commercial and Financial Chronicle* and reported in the *Survey of Current Business*. An important fact that should be noted in connection with the data is that the amount expended for new real investment, i. e., "chiefly additions to fixed plant and equipment and all types of inventories" is considerably less than the amount reported by the Chronicle for new capital issues. Included within the Chronicle's classification of new capital issues are issues which involve transactions of a purely financial character. Thus it has been estimated by George A. Eddy [5] that real investment issues amounted in 1929 to approximately one-fourth of the total new capital issues as reported by the *Commercial and Financial Chronicle*.

TABLE XVIII.—*New capital issues, 1919–37* [1]

[Millions of dollars]

Year	Total corporate new capital issues, excluding investment trusts, holding companies, etc.	Total governmental new capital issues, including Federal, State, and municipal issues	Total corporate and governmental new capital issues
1919	2, 303	988	3, 291
1920	2, 710	672	3, 382
1921	1, 823	1, 321	3, 144
1922	2, 336	1, 421	3, 757
1923	2, 702	1, 380	4, 082
1924	3, 322	1, 559	4, 881
1925	4, 086	1, 521	5, 607
1926	4, 286	1, 435	5, 721
1927	5, 216	1, 562	6, 778
1928	5, 293	1, 443	6, 736
1929	6, 417	1, 418	7, 835
1930	4, 711	1, 521	6, 232
1931	1, 759	1, 310	3, 069
1932	324	839	1, 163
1933	159	547	706
1934	159	1, 208	1, 367
1935	402	1, 005	1, 407
1936	1, 202	757	1, 959
1937	1, 194	884	2, 078

[1] These figures exclude issues which specifically indicate that they are for refunding purposes and those issued by companies that can clearly be designated investment trusts, trading and holding companies. In spite of the exclusion of such issues, a large part of the funds appear to have been used for the retirement of outstanding issues, purchase of securities, the purchase of property, and the addition to money balances; only a part was used to finance capital formation. The data are shown here only to emphasize the wide swings in funds derived from new security issues.

Source: Based on data compiled by the *Commercial and Financial Chronicle* as reported in the *Survey of Current Business*, February 1938, pp. 14–20; and May 1938, pp. 17–20.

18. Distribution of Economic Units and Number of Persons Employed in the American Economy, 1937

Data on the number of economic units and the corresponding employment from which it would be pos-

[5] George A. Eddy, "Security Issues and Real Investment in 1929," *The Review of Economic Statistics*, May 1938, pp. 79–91.

sible to distribute the economic units and employment by the number employed are quite incomplete and unsatisfactory. The data collected by the Social Security Board for industry and the Interstate Commerce Commission for railways are reasonably accurate and complete. In the case of agriculture the data are less satisfactory, while for the remaining segments, particularly the services, the available data are very sketchy.

The Social Security Board compiles data for many industries under the old-age insurance program on employer returns and employee wage items, which it has grouped in a frequency distribution according to the number of wage items per employer return.[6] The returns covering the period July to December 1937 were used here in making estimates. However, there is a considerable amount of duplication in the employee wage items since over the 6 months' period the same individual may be reported by more than one employer. Some employees who are ordinarily attached to industries other than those reporting to the Social Security Board may also appear in the returns. Finally, some who would ordinarily be considered as unemployed might also appear. Thus, the Social Security Board estimates that there were about 32.5 million different wage earners represented during the latter half of 1937 by the 37.1 million wage items reported by the 1.7 million employer returns to the board. This latter figure overstates the actual number of economic units as the term is defined in chapter VII. This is due to the fact that all corporate subsidiaries make separate employer returns. For example, General Motors Corporation was represented by 54 or more employer returns. This has the effect of understating both the number of economic units and employees in the 10,000 and over class, appearing in table I of chapter VII, while overstating both in the classes under 10,000; the net effect being an overstatement of employer units.

The number of wage items reported to the Social Security Board was adjusted in each class, shown in table I of chapter VII, to approximate the actual number employed. This was done in each class by applying the proportion of the total number employed as estimated by the Social Security Board to the corresponding number of wage items, i. e., 87.6 percent. There was no basis for making a corresponding adjustment in the number of employer returns and so in the 10,000 and over class the number of employer returns is probably slightly larger than it would be if the distribution were based on the actual employment.

The data covering railroads, published by the Interstate Commerce Commission,[7] are perhaps the most satisfactory of any for the purposes at hand. The Commission reported, for the calendar year 1936, the average number of employees for each class I steam railway company, from which a frequency distribution of employees and employer companies according to the number of employees per company was derived. Although 1936 data were used, as the 1937 report was not yet published, the difference in the total number of employees and companies for the 2 years is relatively insignificant.

The distribution of agricultural employment and number of farms is based on a frequency distribution of hired labor according to the number per farm,[8] since no data are available relating to the combination of family and hired labor. This has necessitated making certain assumptions in order to approximate a distribution for total engaged. It has been assumed that farms employing four hired laborers or less would not individually aggregate more than five laborers—family and hired. This assumption is not unreasonable as the average number of family workers per farm reporting hired workers is 1.3. The use of this assumption resulted in approximately 6.8 million farms, engaging 11.9 million persons, falling in the 1 to 5 persons employed class, and about 41,300 farms, engaging about 356,000 persons, which were involved in the gainful activity of over 5 persons per farm. There are other limitations to these data, however, that necessitate their being used with the greatest caution. For instance, the census reports family and hired workers as of the first week in January 1935, only. Obviously, this can be only a crude approximation of the average number employed during 1937.

The total number of employees in the Federal Government during 1937 was estimated by the Department of Commerce to have been about 1.2 million. This number was allocated to the class, 10,000 and over, as the Federal Government is counted as one economic unit.

The total number of State employees during 1937 was estimated by the Department of Commerce to have been about 367,000. In addition, there were about 59,000 employees engaged in public education. The 426,000 engaged in State employment and the 48 States were apportioned in a frequency distribution by means of a sample of 28 States obtained from the Department of Commerce.

The total number of county employees during 1937 was estimated by the Department of Commerce to have been about 805,000, of which 506,000 were engaged in public education. The 805,000 employees and the 3,071 counties were apportioned in a frequency distribution on the basis of a sample of 280 counties collected by the Department of Commerce.

[6] John J. Corson, *Wages and Employment Under the Old-Age Insurance Program*, Social Security Board, October 1938, table 2.

[7] Interstate Commerce Commission, *Statistics of Railways in the United States, 1936.*

[8] *U. S. Census of Agriculture, 1935*, vol. III, p. 164.

The total number of municipal and rural incorporated places in 1930 amounted to 16,598 according to the *U. S. Census of Population, 1930*, volume I, page 14. These incorporated places employed a total of about 1,332,000 employees, of which about 635,000 were engaged in public education. In order to estimate a frequency distribution of employees and incorporated places, the *Census of Population* was used as a basis. In volume I, page 14, of the *1930 Census of Population* there appears a table of the population of the United States in groups of cities classified according to size. Using the Department of Commerce's sample of municipal places and the data from the Census of Population as a basis, it was estimated that 13 cities of 500,000 population or over in 1930, employed over 10,000 city employees in 1937; likewise that the 80 cities of from 100,000 to 500,000 population employed between 1,000 and 9,999 persons; that the 283 cities of from 25,000 to 100,000 population employed between 300 and 999 persons; and that the remaining some odd 16,220 places of under 25,000 population employed between 6 and 299 persons. The reason for not using solely the sample compiled by the Department of Commerce is because of its practically complete coverage of larger cities which would have caused, if it had been used, too large a proportion of the employees and incorporated places being placed in the class of 10,000 and over.

The data on private education concerning the number of economic units, or in this case schools, are somewhat unsatisfactory. The best estimate available for the number of private schools covers the year 1933–34 in which there were about 17,804.[9] The total employment in private schools during 1937 was estimated by the Department of Commerce to have been about 216,000. It was assumed arbitrarily that all the school units employed between 6 and 299 persons or an average of about 12 per unit.

The data on services are most incomplete of all, there being none on the number of economic units. The Department of Commerce estimated that there were about 3,193,000 professional and domestic service employees in 1937. It was assumed that most of these employees worked in small units which did not employ more than 5 persons per unit. A reasonable guess as to the number of such units would appear to be between 1,500,000 and 2,000,000, which was the range used in the summary table appearing in table I of chapter VII.

19. Employment in Governmental Units, 1935

The employment shown for 20 governmental units in table II of chapter VII have been derived from the following sources:

Employment for Federal Government and the United States Post Office represent equivalent full-time employment as estimated by the National Income Section of the Department of Commerce. The employment for State and municipal governments are also on an equivalent full-time basis. In each case the basic data were obtained from the unpublished material of the National Income Section of the Department of Commerce. These data were then adjusted to include public education by the addition of the respective employment in public education, estimated by the United States Office of Education (*Statistics of City School Systems, 1935–36*, page 28; *Statistics of State School Systems, 1935–36*, page 73; the data which were not available in these publications were obtained from the work sheets in the Office of Education).

[9] U. S. Department of the Interior, *Biennial Survey of Education, 1932–36*, p. 2

20. Prices in Commodity, Labor, and Security Markets, 1913–1937

Table XIX gives the data and the sources for the material presented in charts I and II of chapter VIII.

TABLE XIX.—*Prices in commodity, labor and securities markets, 1913–37*

[1926–29=100]

Year	Wholesale prices [1]	Composite index of wages [2]	Index of security prices [3]	Cost of living [4]	Weekly earnings in manufacturing [5]	Per capita annual salaries in manufacturing [6]	Bond prices [7]	Stock prices [8]
1913	72.1	45.0	62.0	57.1	47.2	49.9	99.0	43.1
1914	70.3	45.4	61.1	58.2	46.7	49.8	99.5	41.4
1915	71.8	45.8	63.3	59.2	46.2	48.3	98.3	45.3
1916	88.3	49.2	69.9	63.4	50.9	51.3	99.8	54.6
1917	121.3	55.7	63.7	73.3	58.2	59.2	95.9	47.1
1918	135.6	68.6	58.9	87.7	72.8	67.7	88.8	43.5
1919	143.1	80.4	63.5	100.5	87.0	78.4	88.4	50.7
1920	159.4	97.6	57.6	115.6	105.6	88.2	80.0	46.1
1921	100.8	89.8	53.9	103.0	85.4	87.1	81.8	39.6
1922	99.8	86.5	63.7	96.7	87.3	83.9	93.1	48.5
1923	103.9	92.9	64.1	98.4	95.6	86.6	92.4	49.5
1924	101.3	96.0	66.7	98.6	95.0	89.1	94.6	52.2
1925	106.9	96.5	75.3	101.2	97.4	91.3	96.7	64.3
1926	103.2	98.2	80.0	102.0	98.5	94.7	99.1	71.6
1927	98.5	99.6	90.4	100.0	99.0	97.9	101.2	84.9
1928	99.8	100.5	115.4	99.0	100.0	103.5	101.5	107.5
1929	98.4	101.6	123.5	99.0	102.6	104.0	98.2	136.5
1930	89.2	101.3	105.2	96.5	92.9	104.9	101.0	107.4
1931	75.4	97.0	77.9	88.1	81.3	99.1	97.4	67.9
1932	66.9	86.3	50.0	79.4	61.3	86.6	79.3	34.9
1933	68.0	83.9	58.2	75.4	63.7	81.3	83.4	45.2
1934	77.3	93.3	67.5	78.2	72.3	83.6	98.0	51.9
1935	82.6	96.6	71.7	80.2	80.0	84.0	101.7	56.2
1936	83.4	98.1	89.8	81.2	88.5	85.6	109.3	79.7
1937	89.1	106.1	87.6	83.9	97.4	93.8	102.0	80.2

[1] Bureau of Labor Statistics' index of wholesale prices of all commodities.
[2] The Federal Reserve Bank of New York index. It is a combined index of hourly earnings, weekly wages, monthly wages, and annual salaries. Covers a sample of the entire economy.
[3] Index of stock prices and bond prices weighted by ratio of capital stock to funded debt as shown by statistics of income, 1926–34, for corporations.
[4] Bureau of Labor Statistics' index of cost of living.
[5] Based upon Paul H. Douglas data, 1913–18 and National Industrial Conference Board, 1919–37.
[6] Based upon National Bureau of Economic Research data, 1913–28, and Department of Commerce data, 1929–37.
[7] Standard Statistics prices of "45 domestic corporate issues."
[8] Standard Statistics' index of the price of 419 stocks (347 industrials, 40 utilities, and 32 rails), listed on the exchange. Data for 1914–17, New York Times stock prices linked to Standard Statistics.

21. Wholesale Prices and Hourly and Weekly Earnings in Selected Industries, 1926–37

Table XX gives the data upon which chart IV of chapter VIII is based. The average weekly earnings

TABLE XX.—*Hourly and weekly earnings, and wholesale prices in automobile, rayon, and knit goods manufacturing industries, 1926–37*

Year	Automobiles			Rayon			Knit goods		
	Hourly earnings (cents per hour) [1]	Weekly earnings (dollars) [1]	Wholesale price index (1926=100) [2]	Hourly earnings (cents per hour) [3]	Weekly earnings (dollars) [3]	Wholesale price index (1926=100) [3]	Hourly earnings (cents per hour) [1]	Weekly earnings (dollars) [1]	Wholesale price index (1926=100) [2]
1926	65.9	31.43	100.0			100.0	43.7	19.71	100.0
1927	67.6	31.36	96.1			82.9	45.9	21.58	91.9
1928	68.1	32.51	97.1			83.6	46.3	21.67	90.1
1929	69.5	32.48	100.0	42.1	20.79	68.4	49.6	23.58	88.5
1930	68.7	27.77	94.0	[4] 41.1	[4] 19.63	57.8	47.6	20.65	80.0
1931	68.1	25.13	89.5	[4] 40.3	[4] 18.47	41.2	44.3	18.66	60.9
1932	60.9	18.50	87.1	39.8	17.31	35.3	39.7	15.26	51.6
1933	60.9	21.84	83.2	42.3	17.43	32.9	39.1	15.22	58.9
1934	73.0	24.40	87.8	50.3	18.61	31.8	52.5	18.14	63.2
1935	75.5	28.68	84.1	51.4	19.48	31.2	52.0	17.96	61.8
1936	77.5	[3] 29.64	83.3	53.2	20.54	31.7	51.1	18.29	61.2
1937	90.1		89.3	61.8		32.2	55.7		65.1

[1] National Industrial Conference Board, *Wages, Hours, and Employment in the U. S. A., 1914 to 1936;* and subsequent Service Letters of the Board.
[2] Bureau of Labor Statistics Wholesale Prices.
[3] See appendix 6, table I, compiled from Bureau of Labor Statistics' data.
[4] Interpolated between 1929 and 1932 by a straight line interpolation.

for each year is also given, but is not shown on the chart.

22. Price and Production Indexes for Ten Major Industries, 1929, 1932, and 1937

TABLE XXI.—*Price and production indexes for 10 major industries*

Industrial group	Prices (1926=100) [1]			Production (1923–25=100) [2]		
	1929	1932	1937	1929	1932	1937
Agricultural implements	98.7	84.9	94.0	[3] 615	[4] 100	[3] 617
Motor vehicles	106.7	94.1	96.0	135	35	121
Cement	91.8	77.2	95.5	114	51	78
Iron and steel	94.9	79.4	98.2	130	31	118
Automobile tires	54.5	41.1	55.8	135	78	109
Textile products	90.4	54.9	76.3	115	83	111
Food products	99.9	61.0	85.5	97	87	[5] 86
Leather products	109.1	72.9	104.6	104	85	113
Petroleum products	71.3	45.4	60.5	168	140	202
Agricultural commodities	104.9	48.2	86.4	[6] 101	[6] 100	[6] 108

[1] Bureau of Labor Statistics' *Wholesale Prices*, 1933, p. 12; 1937, p. 3.
[2] Federal Reserve Board's indexes of production, except as elsewhere specified.
[3] Based on annual production of farm equipment as compiled by the Bureau of the Census, U. S. Department of Commerce. Figures are expressed in millions of 1926 dollars, divided by Bureau of Labor Statistics price index.
[4] Interpolated from gross income of corporations manufacturing agricultural implements, given in the *Statistics of Income*, Bureau of Internal Revenue (value in millions of 1926 dollars).
[5] Constructed from 3 food indexes as given by the Federal Reserve Board: (1) slaughtering and packing of meats—weight 0.65; (2) wheat flour—weight 0.18; (3) sugar melting—weight 0.17.
[6] *Agricultural Statistics*, 1938, p. 428. Includes both crops and livestock. Index base, 1924–29=100.

TABLE XXII.—*Comparison of price changes and production changes during depression and recovery for 10 major industries* [1]

Industry group	Percent drop, 1929–32		Percent recovery, 1932–37	
	Prices	Production	Prices	Production
Motor vehicles	12	74	2	64
Agricultural implements	14	84	9	84
Cement	16	55	20	24
Iron and steel	16	76	20	67
Automobile tires	25	42	27	24
Leather and products	33	18	29	27
Petroleum products	36	17	21	37
Textile products	39	28	24	24
Food products	39	10	24	−1
Agricultural commodities	54	1	36	8

[1] Based on table I, above. The decline in 1929–32 is expressed as a percent of 1929. The recovery in 1932–37 is expressed as a percent of 1929.

Table XXI gives indexes of prices and production for ten industries for the three years, 1929, 1932, and 1937. Table XXII gives the percent changes in prices and production during depression and recovery.

23. Monthly Price Indexes for Ten Price Frequency Groups, 1926–1938

Chart XXVI of chapter VIII gives the price indexes for 5 frequency groups. These 5 groups are derived from a combination of 10 frequency groups shown in appendix 2, table I, with certain modifications which are described below. Group A consists of a geometric average of groups I and II; group B of groups III and IV; group C of groups V and VI; group D of groups VII and VIII; and group E of IX and X. The indexes for the 10 frequency groups are shown in the table below by months from 1926 to 1938. The total number of Bureau of Labor Statistics' price items used in constructing these indexes is 731. This number differs from the number of items used in deriving the annual indexes for the frequency groups shown in chart XXV and given in appendix 2, table I, in that 163 separate items were used in place of the 49 composite items shown in table I. For example, in the annual index, 1 butter composite item was used to represent 18 separate butter items; in the indexes presented in table XXIII, the 18 butter-price series were used instead of the 1 composite representing these series. The difference of 114 items between the 2 series is therefore due to the inclusion of the individual items making up the composites in the monthly series.

The number of items used in each of the 10 groups is as follows: Group I—76; group II—73; group III—74; group IV—70; group V—76; group VI—72; group VII—77; group VIII—73; group IX—77; and group X—63. The price index for each group was obtained by averaging the logarithms of the individual price indexes corresponding to the items within the group.

TABLE XXIII.—*Price indexes for ten frequency groups* [1] *(731 commodities) by months for the years 1926–38*

[1926–29=100]

Year and group	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1926												
I	100.8	100.8	100.8	100.6	100.7	100.7	100.9	101.1	101.2	101.3	101.2	101.2
II	102.6	102.8	102.7	102.7	102.8	102.9	102.9	102.5	102.6	102.7	102.6	102.3
III	104.0	104.2	104.2	104.2	103.2	102.6	102.3	102.5	102.4	102.2	102.1	101.1
IV	104.7	104.6	104.1	103.6	102.6	102.6	102.0	101.6	104.6	101.7	101.3	101.0
V	106.4	105.9	105.5	105.4	104.8	104.6	103.8	104.4	104.2	104.4	104.7	103.9
VI	105.3	104.3	104.1	103.5	102.1	101.6	100.9	100.4	100.7	100.2	100.3	99.8
VII	104.2	103.5	102.5	101.7	100.8	100.7	101.0	100.7	100.7	100.5	99.3	98.4
VIII	113.1	110.7	107.3	106.5	105.5	103.7	102.6	102.5	103.9	102.3	99.9	98.4
IX	117.1	113.0	108.5	106.2	106.0	105.6	103.0	102.6	102.9	102.1	100.7	100.6
X	107.5	103.8	100.0	98.8	98.9	97.3	96.8	96.2	98.3	99.0	97.8	99.1
1927												
I	100.4	100.4	100.3	100.3	100.3	100.2	100.1	100.0	100.0	100.0	100.0	100.0
II	100.7	100.8	100.6	100.6	100.6	100.6	100.3	100.3	100.3	100.2	100.4	100.2
III	100.5	100.3	99.9	100.1	100.1	100.0	100.2	100.0	100.2	100.0	100.0	100.0
IV	100.3	100.2	99.7	99.4	98.9	99.2	99.4	99.9	100.3	100.2	99.9	99.8
V	102.5	102.1	101.8	101.7	100.7	99.8	100.1	100.3	100.3	100.0	99.5	99.6
VI	100.3	100.3	100.2	100.1	99.4	98.8	98.2	99.1	100.3	99.8	99.1	98.6
VII	98.7	98.6	98.0	97.3	97.0	97.1	97.1	98.5	99.7	100.1	100.5	100.4
VIII	98.4	98.1	98.2	97.3	96.8	97.2	96.8	97.8	97.5	96.9	96.1	96.9
IX	101.0	99.8	97.9	98.2	97.7	97.2	95.1	96.0	96.9	98.8	98.7	98.4
X	99.1	98.1	96.2	96.8	97.8	98.3	98.3	99.8	102.0	102.2	102.9	103.8
1928												
I	99.9	100.0	100.0	100.2	100.2	100.2	99.5	99.5	99.5	99.5	99.5	99.5
II	99.8	99.8	99.2	98.8	98.9	98.8	98.8	98.8	98.8	98.7	98.4	98.3
III	100.2	100.2	100.0	100.2	100.0	99.6	99.4	99.4	99.1	99.0	99.1	98.5
IV	98.9	99.3	99.6	99.2	99.4	99.4	99.4	99.6	99.7	99.5	99.4	99.2
V	98.7	98.6	98.6	98.7	97.8	97.7	97.7	97.8	97.6	97.6	98.2	98.7
VI	99.7	100.1	99.8	99.4	99.3	99.9	100.2	100.2	100.3	100.6	100.5	99.5
VII	99.4	100.0	99.1	99.2	99.4	99.4	99.4	98.7	99.2	100.0	101.9	102.2
VIII	98.6	98.3	97.7	99.3	100.3	99.0	98.5	99.3	100.3	99.9	99.6	9.96
IX	99.1	98.4	99.6	100.3	100.6	97.7	98.4	98.3	101.1	99.8	100.9	100.3
X	104.8	102.9	103.9	105.6	106.9	103.3	101.8	99.0	100.6	99.5	99.7	99.6
1929												
I	99.2	99.2	99.2	99.3	99.0	99.0	99.2	99.2	99.2	98.5	98.5	98.6
II	98.5	98.4	98.5	98.5	97.8	97.7	97.4	97.4	97.4	97.6	97.6	97.7
III	97.9	97.9	97.3	97.4	97.4	97.4	97.3	97.3	97.2	97.5	97.5	97.5
IV	98.0	98.7	99.0	98.5	98.4	98.4	98.3	98.3	98.2	98.0	97.7	97.5
V	98.1	97.4	97.1	97.0	96.8	96.8	95.9	96.1	96.1	95.8	95.6	95.3
VI	99.5	99.6	99.4	99.8	99.9	99.8	98.9	97.9	97.6	97.0	96.6	96.3
VII	102.0	101.9	102.3	101.6	100.5	99.7	99.5	100.2	100.2	100.1	99.6	98.7
VIII	100.2	99.1	99.7	100.0	98.6	97.9	98.7	99.5	99.8	99.1	97.3	95.4
IX	100.7	101.7	100.9	97.9	95.0	94.4	97.2	97.9	98.6	96.3	92.3	90.4
X	100.4	100.7	98.5	95.9	93.7	94.8	100.2	100.8	102.6	100.8	96.9	96.0
1930												
I	97.9	97.9		97.9	97.7	97.8	97.8	97.8	97.8	98.0	98.1	97.6
II	97.0	96.9	96.5	96.0	95.9	95.8	95.3	95.1	94.9	94.9	94.7	93.9
III	96.3	96.5	96.4	96.3	96.2	95.8	95.1	94.5	93.4	92.8	93.1	92.3
IV	97.3	96.3	95.1	94.7	93.8	93.3	92.4	91.7	91.3	89.5	88.5	87.6
V	94.7	94.2	93.6	93.0	92.3	91.3	89.7	88.6	87.2	86.4	85.4	84.8
VI	95.6	95.2	94.3	93.4	92.3	90.9	88.7	87.8	86.9	86.6	85.5	84.8
VII	97.1	96.4	94.9	92.8	90.5	89.2	87.3	86.0	85.5	83.9	81.7	80.7
VIII	94.0	91.9	89.9	89.2	87.6	84.2	79.2	77.6	77.7	76.4	74.6	72.6
IX	88.2	85.8	82.7	82.5	79.2	76.2	72.7	73.3	71.5	69.8	68.8	65.7
X	92.2	88.9	85.4	86.5	82.6	78.1	74.3	76.3	75.5	72.3	69.1	65.6
1931												
I	97.5	97.4	97.4	97.1	97.0	97.0	96.8	96.4	95.7	95.3	95.3	95.1
II	92.9	92.6	92.4	91.2	90.6	90.6	90.1	89.2	89.1	88.2	88.0	87.5
III	90.9	90.0	89.7	89.7	89.2	89.1	88.3	87.5	87.4	86.7	86.0	84.3
IV	85.6	84.9	84.3	84.0	83.6	82.5	81.7	81.4	81.0	79.9	79.1	78.0
V	82.6	81.5	81.0	80.0	79.7	79.2	78.6	77.9	77.0	76.1	75.4	74.7
VI	83.5	83.1	82.5	81.3	80.4	79.5	78.4	77.9	77.1	76.8	76.2	75.8
VII	79.2	78.1	77.0	75.5	74.0	71.4	70.6	70.5	69.7	67.6	66.7	66.1
VIII	71.5	70.3	70.1	69.1	66.7	63.8	63.2	61.7	59.9	57.5	57.7	56.6
IX	63.5	61.0	61.1	58.4	55.8	54.2	55.3	55.0	52.9	52.5	53.1	50.6
X	63.5	60.6	61.8	59.0	56.7	55.3	54.9	54.8	54.7	54.1	56.1	52.4
1932												
I	94.5	94.4	94.4	94.3	93.3	93.2	92.8	92.7	93.0	92.2	91.9	91.7
II	86.7	85.7	85.7	85.6	85.6	85.2	84.3	83.6	80.3	83.0	82.9	82.4
III	83.7	83.6	83.3	82.5	81.8	81.2	79.7	79.5	79.5	79.5	80.0	79.9
IV	77.3	76.7	76.4	75.9	75.4	74.7	70.6	73.1	73.1	73.0	72 3	72.0
V	72.5	71.6	71.3	69.7	68.4	67.0	65.8	65.8	66.5	66.9	66.4	65.3
VI	74.2	73.4	73.0	72.1	70.9	69.1	67.9	70.1	69.1	69.2	68.6	67.7
VII	64.4	63.4	62.8	62.0	60.9	59.7	58.3	58.4	59.8	60.0	59.0	58.2
VIII	54.6	53.3	52.6	51.3	49.1	47.6	46.8	48.5	50.6	49.8	48.7	47.1
IX	48.1	46.1	46.2	44.4	41.6	40.1	41.2	44.0	45.4	44.0	44.2	43.6
X	50.0	48.2	47.0	44.8	42.3	40.2	41.3	44.4	45.8	43.5	43.0	41.7

[1] The monthly indexes are based on 731 price items of the Bureau of Labor Statistics. These 731 items consist of the 617 price items listed in appendix 2, table I, and classified in each of the 10 frequency groups in table I, less 49 of these 617 items, which are composite items and for which were substituted the 163 component items of the 49 composites. The following is the list of the 163 items by code numbers and the frequency group in which each item belongs; the name and classification of each item is given in appendix 2, table I: group I: 425–426–702; group II: 565–566–703; group III: 190–192–194–206–209–567; group IV: 196–198–199–201–341–342–351–352–568–669; group V: 195–200–202–205–207–210–295–296–297–298–667; Group VI: 204–261–271–272–303–304–318–319–320–321–350–457–458–459–574–575–576–670–671; group VII: 59–60–61–66–67–203–222–223–262–270–273–427–428–430–432–666–668; group VIII: 19–33–40–41–62–65–104–109–141–142–224–263–283–325–326; group IX: 13–18–21–29–32–55–56–63–64–70–74–75–76–79–80–83–84–87–88–103–108–110–111–112–274–282–284–285–299–300–306–308–360–361–752–753; group X: 2–3–6–7–8–9–10–11–14–15–16–17–22–23–24–25–26–27–28–31–57–68–69–71–72–73–77–78–81–82–85–86–105–106–107–212–213–281–301–302–307–359–751.

TABLE XXIII.—*Price indexes for ten frequency groups (731 commodities) by months for the years 1926–38*—Continued

Year and group	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1933												
I	91.6	91.2	91.1	91.5	91.5	91.5	91.5	91.8	92.0	92.9	90.0	93.1
II	81.4	80.7	80.8	80.5	79.9	80.0	81.4	82.8	84.6	86.2	86.2	86.4
III	78.2	77.8	77.2	76.8	76.9	78.3	81.2	83.2	85.2	86.3	87.3	88.4
IV	71.0	70.6	70.3	70.1	71.1	73.6	76.8	80.5	81.8	82.6	83.3	83.7
V	63.9	63.1	62.8	62.3	63.9	67.1	71.1	75.3	77.2	77.1	77.1	77.1
VI	67.0	66.1	66.0	66.1	68.9	73.3	77.3	82.1	63.5	84.2	84.0	84.3
VII	57.1	56.5	55.6	56.3	60.0	64.0	68.8	71.9	72.9	73.0	73.5	73.6
VIII	45.9	44.6	45.8	47.5	53.9	58.3	64.6	66.7	66.2	65.3	65.6	66.3
IX	41.2	39.4	40.7	41.7	48.9	53.9	61.0	59.2	58.2	56.7	57.0	55.3
X	40.0	37.9	40.0	43.6	49.9	54.0	62.2	57.2	57.7	55.5	56.7	54.1
1934												
I	93.3	93.4	93.5	93.5	94.7	94.5	94.6	94.7	94.8	94.7	94.7	95.3
II	87.0	87.1	87.1	87.5	87.7	87.8	87.2	86.3	86.7	86.2	86.1	87.3
III	88.2	88.1	88.4	88.9	88.7	88.6	88.2	87.2	84.1	86.2	85.9	86.0
IV	84.8	84.7	85.0	84.9	85.0	84.7	84.1	83.8	83.7	83.1	82.5	82.5
V	78.3	78.3	78.5	78.2	77.7	77.3	76.9	76.3	76.0	75.7	75.3	75.3
VI	83.4	83.1	83.6	83.4	84.2	84.5	83.8	83.3	83.5	83.2	82.7	82.7
VII	73.7	74.5	74.6	74.8	74.6	74.4	73.6	73.6	74.4	74.5	74.0	74.0
VIII	68.0	69.8	70.1	70.0	70.3	69.9	70.2	70.7	72.9	72.2	72.4	73.2
IX	57.3	61.2	60.9	59.5	58.7	58.9	58.8	62.1	63.3	62.0	63.4	64.8
X	56.9	60.5	60.4	58.3	59.6	62.2	61.7	66.2	67.7	67.0	68.8	70.3
1935												
I	95.4	95.8	95.6	95.2	95.4	95.5	95.4	95.3	95.4	95.3	96.0	96.0
II	85.8	85.6	85.6	85.4	85.2	85.1	85.0	84.6	85.6	85.6	85.6	85.6
III	86.3	86.2	86.3	86.2	86.5	87.3	87.8	88.2	87.8	88.0	88.1	87.5
IV	82.3	82.3	82.4	81.7	81.7	81.9	81.7	81.7	81.7	82.6	83.8	84.0
V	75.3	75.5	75.5	75.3	75.7	76.2	76.4	76.9	77.0	77.6	78.1	78.2
VI	82.9	83.1	83.3	82.8	82.4	82.4	82.8	82.7	83.0	83.3	83.1	82.9
VII	74.6	75.0	75.1	74.6	75.2	75.8	75.2	74.8	75.9	77.6	78.8	79.0
VIII	75.3	75.4	75.2	74.9	76.3	74.9	71.5	70.7	73.4	75.6	76.6	76.4
IX	68.0	68.2	65.8	67.2	66.1	64.6	63.7	65.0	67.5	69.7	71.3	71.5
X	73.8	74.6	70.8	74.0	70.5	66.7	67.4	67.9	70.3	73.1	74.2	74.6
1936												
I	96.5	96.5	96.5	96.2	96.0	95.9	95.9	95.9	95.8	95.5	95.3	95.4
II	86.0	86.1	85.8	85.7	85.8	86.2	86.4	87.1	87.1	87.1	87.4	87.6
III	87.8	87.7	87.5	87.6	87.6	87.2	87.1	87.1	87.3	87.6	87.8	88.5
IV	84.0	83.9	84.0	84.3	84.2	84.3	84.3	84.4	84.7	84.7	85.1	86.3
V	77.9	78.2	78.2	78.1	77.9	77.7	77.5	77.6	77.8	78.3	78.6	80.2
VI	82.2	81.9	81.7	81.7	81.1	81.2	82.2	82.5	83.0	83.7	84.3	86.1
VII	78.8	78.5	78.4	77.8	77.6	77.0	78.0	79.5	80.3	80.9	82.3	85.0
VIII	75.2	74.0	73.7	74.9	73.8	74.3	76.3	78.0	78.4	78.4	80.4	84.2
IX	70.6	69.6	66.6	67.4	65.5	67.6	71.9	74.5	74.1	74.0	76.2	79.7
X	73.3	73.8	69.5	68.6	66.1	68.5	75.1	78.5	78.6	78.4	79.9	84.1
1937												
I	95.7	96.3	96.7	97.2	98.8	99.0	99.1	99.2	99.2	99.2	100.0	99.9
II	88.2	88.7	89.3	89.4	90.5	91.1	92.0	92.7	92.5	92.5	92.7	92.7
III	90.1	90.7	91.5	93.7	94.5	94.5	94.7	94.9	95.0	94.3	94.2	93.2
IV	87.4	88.2	89.1	89.9	90.6	90.8	90.7	90.3	90.5	90.0	89.1	88.4
V	80.9	81.5	82.7	84.8	85.3	86.1	86.4	85.9	86.2	85.5	84.5	83.6
VI	88.7	89.8	91.8	92.8	93.0	92.7	92.9	92.8	92.0	91.4	89.9	88.4
VII	87.2	88.4	90.6	91.2	90.2	89.4	88.8	87.6	86.3	84.9	81.9	79.5
VIII	87.8	89.1	91.7	91.8	89.5	86.9	84.6	83.8	81.8	78.6	74.5	71.8
IX	82.3	82.0	84.5	82.9	80.4	78.6	78.9	76.3	74.8	72.9	69.5	67.5
X	86.2	85.1	87.3	86.7	83.2	80.3	80.1	76.4	77.0	73.3	69.7	68.2
1938												
I	97.2	97.5	97.5	97.5	97.4	96.9	96.6	96.8	96.5	96.2	94.7	94.7
II	92.9	92.9	93.1	92.8	92.8	92.9	93.4	92.3	92.6	92.5	92.3	92.3
III	93.6	92.8	92.5	92.3	91.3	91.2	90.5	90.3	90.0	90.0	90.1	90.0
IV	87.5	86.9	86.4	85.8	85.4	85.2	84.6	84.7	84.1	84.0	83.4	83.6
V	82.6	81.8	81.6	80.9	79.6	78.0	77.3	77.5	77.3	77.2	77.0	77.0
VI	87.6	86.5	85.3	83.4	82.7	81.5	80.7	80.9	81.9	81.8	82.0	82.0
VII	79.5	77.6	76.7	75.5	74.8	73.5	73.4	73.2	72.6	73.3	73.8	73.2
VIII	70.6	68.4	67.8	66.5	65.7	65.4	66.8	68.4	68.1	68.5	69.2	68.6
IX	65.9	63.9	63.7	61.4	60.4	60.5	61.6	59.1	58.8	59.9	61.4	61.2
X	67.4	65.2	64.0	60.9	59.3	59.5	59.7	57.5	58.3	58.9	59.5	60.5

24. Production Indexes Corresponding to the Five Price Frequency Groups, 1925–1935

This section describes the derivation of five indexes of production corresponding to the five price frequency groups shown in table XXIV.[10] A brief discussion is also given of the reliability of the production indexes derived.

[10] The National Industrial Conference Board has published recently (The Conference Board Bulletin, Vol. XIII, No. 5, Feb. 20, 1939) data based on production indexes corresponding to 264 commodities from the Bureau of Labor Statistics' wholesale price specifications for the years 1929 and 1933. For the 5 groups presented above production indexes have been used corresponding to 315 commodities, these commodities being represented one or more times in the list of the Bureau of Labor Statistics.

The price groups are arranged in order of frequency of price change, group A representing the price items having the least frequency of price changes and group E representing those with the greatest frequency of price changes. The actual price frequency range for each group is shown in chart XXV of chapter VIII.

For each of the five price groups an effort was made to get from available data, production series corresponding to as many price items as possible. The production series associated with each group were then combined to obtain a production index corresponding to the group. For reasons which appear below the correspondence between the price and production series

TABLE XXIV.—*Price and production indexes for 5 price frequency groups, 1925–35*

[1926–29=100]

Year	Group A		Group B		Group C		Group D		Group E	
	Price	Production	Price	Production	Price	Production	Price	Production	Price	Production
1925	101.6	93.9	102.9	94.4	107.9	93.5	106.5	92.5	110.6	97.6
1926	[1] 101.2	95.3	103.3	96.1	103.4	100.3	101.8	100.3	103.0	99.2
1927	100.2	99.4	99.8	98.2	100.6	94.9	98.6	94.7	97.7	97.6
1928	[1] 99.8	97.8	99.2	100.1	98.3	96.6	99.6	99.2	99.9	103.3
1929	98.8	107.5	97.5	105.6	97.7	108.2	99.8	105.8	99.3	99.9
1930	[1] 97.0	89.2	94.7	93.9	90.7	89.4	88.9	92.6	79.5	99.1
1931	93.7	82.9	87.0	81.0	79.9	71.0	73.9	76.9	59.0	104.9
1932	[1] 89.5	51.0	79.3	71.0	70.1	58.8	62.0	64.9	46.3	100.3
1933	87.8	74.5	79.9	76.2	73.3	71.9	66.9	73.5	54.0	90.4
1934	[1] 91.2	66.2	86.0	81.3	81.2	76.8	75.6	82.1	66.4	74.9
1935	91.3	92.3	84.8	89.8	81.0	86.3	77.5	85.8	72.1	94.4
Percent coverage	------	50	------	65	------	90	------	85	------	80

[1] Figures for intercensal years for this group are less reliable than those for census years because suitable data for interpolation were not available.

NOTE.—Group A represents the group in which prices have changed the least, while Group E represents the prices changed most frequently. For details of the composition of the groups see ch. VIII and appendix 2.

was approximate throughout with a tendency for the production series used in group E to represent the price series better than was the case as one approached group A. The coverage of each of the final production indexes is discussed below along with the comments on the suitability of the production series used in constructing the indexes.

Many of the production indexes used are only approximate representations of the production of the commodities to which they correspond, and the production indexes are therefore subject to a number of qualifications.

While each price index is associated with a specific production index, which is defined in some detail, the best production index available without an exhaustive search of original compilation is generally a wide class including the proper item along with a great variety of other items selling within a large price range, and appealing to different types of customers. For example, the price index includes men's mocha gloves, unlined; but it is represented in the appropriate production index as all leather gloves for men, lined and unlined, including some inexpensive "utility gloves" and some costly fine gloves as well as "fad gloves" or "one season styles." Again, the production index taken to represent plain standard concrete blocks, 8 by 8 by 16 inches, includes all block and tile except roofing tile. The price index is for a cheap standard construction material for foundations and garages; but the production series includes many new and expensive tiles and floor blocks and a large volume of specialty blocks of many kinds. On the other hand, all of the wheat series are in the last group and the wheat production of the entire country was used in the production index.

A difficulty is presented in estimating the coverage by estimating the yearly production of commodities in the price lists for which production series could not be obtained. The coverage is merely a ratio of the estimate of all the value of production included in the production index to the estimate of all the value of production that could have been included if the data had been available. When it is stated that the "coverage" of group A is almost one-half, it indicates that a little over half of the estimated value of the articles whose price series fall in group A were nowhere represented in the production index. The 45 or 50 percent which were represented were badly represented, as in the case of the gloves and the concrete blocks cited above. However, in group E, not only was the proportion of the estimated value not covered small (20 percent), but the 80 percent which was represented in the production index was, on the whole, well represented, as in the case of the wheat crop of the United States.

The production series which were used in the composition of the production indexes were derived from several sources. The production of manufactured products generally were obtained from the *Census of Manufactures*, United States Bureau of the Census. Ores and minerals were taken from *Minerals Yearbooks*, and *Mineral Resources of the United States*, United States Bureau of Mines. Agricultural commodities were obtained from *Agricultural Statistics*, United States Department of Agriculture, while products like tin, which are largely imported, were obtained from *Foreign Commerce and Navigation*, United States Department of Commerce.

All the production series went into the five production indexes in the form of values in 1926 dollars. The two principal methods of getting the series in this form were (1) weighting the series on actual production in physical units by the actual price in 1926 dollars; and (2) dividing the value of production in current dollars by the price relative on a 1926 base. The first method was used where possible.

In some cases the production was available for some years but not all; in these cases the production figures were used for the years for which they were available, and the missing years were filled in by using the deflated value figures. Interpolations were made by the use of an interpolating series. A scatter diagram was made between the series to be interpolated and the interpolating series, and a straight or curved regression line was drawn free hand. Ratios of the point to the regression line were plotted on a time scale and a smooth free-hand curve was drawn through the points obtained. Time was included as an independent variable where the introduction of time as a factor materially reduced the residuals.

After all of the series were expressed in terms of value

in 1926 dollars they were added and the resulting series was converted into a series of index numbers.

The five index series thus computed are the basic indexes of production. In practice, however, it was found necessary to employ another step. Because of the large number of series drawn from the *Census of Manufactures* and the lack of interpolating series for some of these, the odd years were represented by many more series than the even years. A link relative procedure of index construction would have had the effect of discarding all of the series in which the even years were missing. Therefore, a basic index was constructed for each group from the link relatives of the comparable data in successive census (odd) years. This index was interpolated, by the method described above, by an index based on the link relatives of comparable data in directly succeeding years. This type of chain index is useful where comparable data are available for only short periods. For example, the change in the schedule of the *Census of Manufactures* in 1933 offered no difficulty where the Census presented comparable data for the preceding and succeeding censuses.

After the odd-year index was filled in by interpolation from the series for all years the indexes were complete and it remained simply to put them on a 1926–29 base.

25. Holdings by the 250 Large Corporations of More Than 10 Percent of the Voting Stock of the 200 Largest Non-Financial Corporations

The basic materials upon which table V in chapter IX is based were published by the Securities and Exchange Commission under the title, *Official Summary of Officers, Directors, and Principal Stockholders, as of December 31, 1935,* and by Moody's Investor's Service in *Moody's Investment Manuals, 1936.* For each of the 200 largest nonfinancial corporations in 1935 (listed in appendix 10) the total number of votes outstanding was obtained by multiplying the number of shares of each issue outstanding by the number of votes per share and adding the votes thus obtained. Then the holdings of corporations in each of the 200 nonfinancial corporations, which were listed in the *Official Summary,* were examined to determine whether any corporation held more than one-tenth of the computed votes outstanding.

For the purpose of measuring the number of votes outstanding as of December 31, 1935, due account was taken of contingency voting rights. It is a usual circumstance that preferred issues are without vote unless a specified number of dividends are in default. In these cases the dividend records of the corporations were examined and the number of possible votes computed accordingly. Shares reacquired and in the treasury of the corporation were assumed to be without vote in all cases.

A vote was defined as a vote at the annual meeting of the shareholders on a general issue, i. e., on some matter other than the election of directors or the issue of new shares of some security. For both of these questions the voting power is often distributed very differently from what is found on votes for general issues of policy.

The results of this procedure yielded an incomplete tabulation. There were three major reasons for this:

(1) The Securities and Exchange Commission *Official Summary* edition of December 31, 1935, was the first of a series of periodic reports and was put out when some of the materials were not available. For the purposes of investors those which reported late could be reported in the monthly bulletin of January 1936. Hence the tabulation is probably incomplete because not all of the reports had come in from officers, directors, and principal stockholders.

(2) Not all of the 200 largest nonfinancial corporations were listed in the Securities and Exchange tabulation. Those which had no securities listed on national securities exchanges were not required to report to the Commission. In certain other cases reports were not required, e. g., railroads who filed certain reports with the Interstate Commerce Commission were exempt.

(3) The companies which were required to report were asked to indicate the holdings of all equity securities in the corporation by officers and directors of the corporation and also by any individual or corporation which held more than ten percent of any equity issue. However, if a person filed for any of these reasons he was required to state his complete holdings in the company. It is obvious, then, that if any officers or directors or holders of more than ten percent of any one issue held more than ten percent of the outstanding votes, the above procedure would have detected them. However many persons held more than ten percent of some issue which was, at the date of the report to the Securities and Exchange Commission, without voting power and these, of course, are not tabulated in table V. And, conversely, it is very likely that some persons or corporations held ten percent or less of more than one issue of voting stock and was not an officer or director in the corporation whose equity securities he held. In that case he would have had no reason to report his holdings even though he may have held more than ten percent of the votes that could be cast at the annual meeting.

For these three reasons, table V of chapter IX, above, is not comprehensive.

In some of the cases it was noted in table V of chapter IX that the proportionate interest of the owner in the holdings of an indirect owner were not shown in the

report of the Securities and Exchange Commission. This was permitted explicitly by a ruling of the Commission so that the reports would not disclose the proportion of equity in a partnership or similar association which various individuals held.

The Securities and Exchange Commission also made explicit provision in the rules for reporting holdings of equity securities for cases in which there was doubt as to whether an individual actually owned a certain amount of stock. For example, in the case of a person who has to report for other reasons: he may be a contingent beneficiary of a trust which holds equity securities in the company whose report already includes his name. For this situation a rule was made permitting any person to report without admitting beneficial interest in the securities. The precise legal interpretation of this term is not yet available but it presumably offers protection of some kind to persons not wanting to state that they actually own certain amounts of securities.

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THE STRUCTURE

OF THE

AMERICAN ECONOMY

PART II. TOWARD FULL USE OF RESOURCES

A SYMPOSIUM

BY

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NATIONAL RESOURCES PLANNING BOARD

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EXECUTIVE OFFICE OF THE PRESIDENT

NATIONAL RESOURCES PLANNING BOARD

WASHINGTON, D. C.

May 21, 1940

THE PRESIDENT

The White House

MY DEAR MR. PRESIDENT:

We have the honor to transmit herewith Part II of our Report on the Structure of the American Economy, which consists of a series of thoughtful statements on the problems suggested by the materials presented in Part I. The Board takes no responsibility for the individual views expressed by the authors. In the Foreword the Board has stated its own views and purposes in compiling these papers.

Sincerely yours,

FREDERIC A. DELANO, *Chairman*

CHARLES E. MERRIAM GEORGE F. YANTIS

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THE STRUCTURE OF THE AMERICAN ECONOMY
PART II: TOWARDS FULL USE OF RESOURCES

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NATIONAL RESOURCES PLANNING BOARD

I. INTRODUCTION

The National Resources Planning Board is interested in the ways by which the American people can raise their general standard of living. Various studies have been undertaken with this purpose in mind. The studies having to do with material resources—land, minerals, energy, and water—have been a part of this broad purpose. Other studies, such as those which discuss population changes, technological trends, and research resources, have developed another part of the basic materials necessary to fulfilling this broad purpose. The studies of regional, State, and local planning have recorded the attempts being made within more limited areas to achieve the objective which the National Resources Planning Board is seeking on a national scale. The publication of *Consumer Incomes in the United States* and *Consumer Expenditures in the United States* has made available measurements of the standards of living on a national scale of great usefulness in analyzing the extent to which ideals of high living standards have been achieved. Behind all of these studies has been the realization that the organized way of producing goods and services, which is called the national economy, has not measured up to its possibilities. The understanding of this organized way of life is a continuing responsibility. The study of *The Structure of the American Economy* provides background for an attempt to understand the way in which the various parts of the economy fit together as a functioning whole.

The operation of the American economy can be understood only by examining the ways in which the functioning economy is organized. The Board is interested in such an overall picture. As a first step, the analysis of the structural characteristics of the American economy was undertaken, since the economic structure has a dominant influence on economic functioning. Thus, *The Structure of the American Economy* does not attempt to cover the *operating* characteristics of the economy. However, it is difficult to separate structure and operation. The two are so interlinked that in discussing structure one tends to move into the discussion of operation. This is particularly true when the objective of describing the structure is to lay a basis for analyzing the functioning of the economy.

When the manuscript for *The Structure of the American Economy* was completed, the Board was convinced that a discussion of the significance of this document and of the structure itself was important. The question was posed: "What is the significance of the structure of the American economy to the problem of full employment of resources?," and the important subsidiary of that question: "What is the significance for the problem of full employment of manpower?" For purposes of this discussion Mr. Means prepared a preliminary memorandum which was submitted to a group of persons both within and without the Government. Criticism was asked of both the document, *The Structure of the American Economy*, and the memorandum which Mr. Means prepared. In the course of the discussion and the writing of commentary, several statements emerged which went beyond the questions of structure and explored the area of operating characteristics and their importance in relation to full employment. Four of these documents are contained in the present volume, in addition to statements by Mr. Means, one of which discusses just what *The Structure of the American Economy*, Part I, aimed to accomplish, and the limited extent to which it can provide a basis for policy in the absence of an analysis of operating characteristics, the other of which deals with the controversy over the problem of full employment.

The other documents contained in this volume have not been limited either to materials contained in *The Structure of the American Economy* or in Mr. Means' original memorandum. The authors have made a few critical comments on *The Structure of the American Economy*, but in the main their statements are concerned with suggestions regarding national policy and regarding methods of analysis which apply more to the way in which the economy operates than to the economic structure.

Messrs. Hansen, Clark, and Ezekiel discuss some of the questions of policy in an economy which is dominated by the characteristics described by Mr. Means. Messrs. Clark and Hansen write in terms of the immediate problems faced today. Mr. Ezekiel writes in terms of today but looks forward to dealing with these problems on a long-time basis. Mr. Montgomery suggests that other methods of analyzing "structure" should be added to those used in *The Structure of the American Economy*, if the way the economy operates is to be understood.

Policies with respect to the use of resources are a proper field for controversy. They cannot be settled offhand, nor can they be settled with certainty. However, day-by-day decisions are being made by businessmen, labor leaders, farmers, and governments; and from

this myriad of decisions the directions of policy are being built.

In publishing these documents as Part II of *The Structure of the American Economy*, the Board hopes that a contribution will have been made to an understanding of the failure of the American economy to function at higher levels of effectiveness—the failure to make reasonably full use of manpower, of machines, of natural resources, and of abilities to organize these productive facilities.

The Board is convinced that democratic methods can solve this problem, and it regards the discussion which has already taken place concerning *The Structure of the American Economy* as part of this democratic method. The publication of these documents should lead to further discussion, both as to what policies might be effective in bringing about fuller use of resources and what factual studies are needed to aid the choice between alternative policies. Other points of view and other types of analysis will doubtless be suggested. Such discussion is imperative if we, the American people, are going to achieve the higher standards which all desire.

The material in this symposium was prepared prior to development of the emergency defense program and, of course, does not attempt to deal with the special economic problems arising out of such emergency. Neither does it deal with those problems that will arise as a result of a shift from the defense economy to a new peace-time economy.

II. (1) BASIC STRUCTURAL CHARACTERISTICS AND THE PROBLEM OF FULL EMPLOYMENT

Part I of this report on *The Structure of the American Economy* aims to provide only a single step toward a solution of the national problem presented by ineffective use of resources. The problem itself is so broad in its scope and so basic in its character that no simple solution is likely to be found in a day or a year. If a democratic solution is to be worked out, it will be the product of many minds working through a period of years.

At the present time there are many divergent views as to the reasons for the failure to use resources effectively and equally divergent views as to the effects which particular policies, aimed at increased effectiveness, will actually have in practice. There is small prospect of developing a successful system of policies aimed at insuring reasonably effective use of resources unless a greater degree of agreement is obtained in both of these fields. Since part of the disagreement in these fields presumably results from differences in ideas as to the actual characteristics of the American economy, some progress toward greater ultimate agreement would be made if a common understanding could be reached at this more basic factual level.

The Structure of the American Economy was initially undertaken with this general objective in mind, but the scope of a report covering the main characteristics of the American economy would have been so broad, and the time available for the report was so short, that the actual report aims at the more limited objective. It recognizes a distinction between the structural characteristics of the economy and its operating characteristics and attempts to cover only the former, leaving for subsequent consideration the analysis of operating characteristics with its emphasis on business fluctuations and the operating effects of different policies.

Structural vs. Operating Characteristics

The basic distinction between structural and operating characteristics can be clarified by considering the corresponding characteristics of an automobile. A mechanic must understand the structure of an automobile, the location and character of the carburetor, generator, ignition, transmission, if he is to keep the automobile in good running order or repair it when something goes wrong. A trained mechanic will usually know the structural characteristics of different makes of standard cars, though whenever a new model comes out he may have to spend a little time discovering its more detailed structural characteristics, whether it has one or two carburetors, where the distributor is located, and what type of transmission is employed. Only in the case of a radical departure from previous models does the mechanic have to spend much time discovering the structural characteristics of the car with which he is dealing. This familiarity with the structure of different types of cars emphasizes the mechanic's need for a knowledge of automobile structure.

With an adequate knowledge of automobile structure the mechanic can go on to consider operating characteristics. He must know how actual operation of each part affects the operations of other parts in the single interrelated set of processes which constitute the operation of the machine as a whole: how the carburetor, distributor, and radiator each contributes to the generation of power by the engine, how the clutch controls the transmission of power to the wheels, and how the level of oil in the crankcase affects both the generation of power and the maintenance of structure. Only when he has a thorough knowledge of both the structural and operating characteristics of a particular car is the mechanic equipped to keep it in running order or make the necessary adjustments or structural changes when anything goes wrong.

So in the case of the national economy, a clear understanding of both structural and operating characteristics is essential to the development of policies which will insure reasonably effective use of resources. Because of its focus on structure, Part I of this report deals with only one of the areas of factual knowledge necessary for arriving at a solution of the problem of unemployment. It is hoped that the report will lay the basis for greater agreement as to the actual structural characteristics of the American economy and pave the way for an analysis of operating characteristics aimed at greater agreement in the latter field. A reasonable amount of agreement in both fields is essential to the acceptance of any comprehensive system of policies directed at insuring reasonably full employment.

Character of Part I

Pursuing this objective, Part I of the report is primarily devoted to a marshalling of factual material capable of throwing light on the *structural* characteristics of the American economy, the structure or main pattern

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of wants, the structure of resources, the structure of production, and the organizational structure, characteristics of the economy which condition the terms in which daily decisions are made and operating policies determined. It attempts to bring all the salient structural features of the national economy into focus in the short compass of a few hundred pages. Such a condensed summary necessarily lacks in detail and has to omit many things which are in themselves important, yet of secondary importance to the national economy as a whole. Some essential elements in the economic structure are not blocked in because of the lack of data or the mischances of research organization. As in the case of any such report, the determination of the elements to be treated as essential rested with the individuals responsible for the report and is the result of their judgment, assisted by that of the numerous persons consulted in its development. If the report is to lay the basis for a reasonable measure of general agreement as to the structural characteristics of the American economy, it is important that the gaps in coverage and possible distortions in emphasis should be pointed out and, so far as possible, be filled or corrected. If agreement can be consolidated in the field of economic structure, a foundation will have been laid for an analysis of operating characteristics in order to narrow down the disagreement in that field also, thereby laying the basis for greater agreement as to the forces making for ineffective use of resources and the policies which might increase their effectiveness.

A report of such limited scope cannot provide a basis for conclusions as to why the national economy operates badly or what policies would work toward an improvement in its operation. Such conclusions must rest not only on an analysis of economic structure but also on analysis of actual operations as they are conditioned by that economic structure. The report, however, does emphasize the need for greater agreement as to the actual operating characteristics of the American economy; it has led to certain conclusions as to the character and importance of the problems which should be considered in an analysis of operating characteristics; and it provides certain conclusions with respect to the economic structure which should be taken into account in any such analysis.

Problems To Be Considered in an Analysis of Operating Characteristics

The Structure of the American Economy is not directly oriented to any specific problems but aims to provide background for all types of problems coming under the general head of "effective use of resources." The introduction to Part I points to different evidences of the failures to use resources effectively, the waste of natural resources, the waste through idleness of men and machines, and the waste from the failure to use the best known technology, but no effort is made to focus on any one of these or other types of waste.

The Interrelated Problems of Full, Balanced, and Efficient Use of Resources

In the analysis of operating characteristics, it seems possible to break down the problem of effective use of resources into three quite different but interrelated sets of problems: The problems of full use of resources or full employment, the problems of balanced use, and the problems of efficient use. If a country were using its resources to the optimum, there would be no unemployment of men or machines except the minimum unemployment necessitated by seasonal production, transfer from one activity to another, and similar causes. The resources going into different uses would be in balance with each other and in relation to consumers' wants: so much land and labor in wheat and so much in cotton, so much labor and equipment in making clothing and so much in making automobiles; and finally, in doing any particular job, the minimum amount of resources would be used or consumed consistent with the job to be done. Thus, effective use of resources could be said to consist of full, balanced, and efficient use, and each of these represents a partial goal toward which national policies might be aimed.

Full Use

Lack of full employment is a condition so familiar today that the term does not require definition in order for its meaning to be reasonably clear. As long as there is very extensive unemployment, full employment can be one of the general objectives of policy without receiving any precise definition. Unemployment, as the term is customarily used, involves the involuntary idleness of employable workers seeking work, and may involve the idleness of plant and equipment in addition to that which is worn out or obsolete. Full employment could be said to exist if there were no manpower or equipment idle, the use of which would add to real national income more than its use would cost in reduced leisure, in wear and tear, and in any intensified effort necessary to insure its use.[1] The term "full employment," thus defined, makes no reference to the extent of the use of natural resources or to the less-than-optimum use of resources which might

[1] The last item mentioned would include such costs as that of relocating a person thrown out of one job in another job. The costs of very rapid relocation could easily mount to the point where they would more than counterbalance the increased income resulting from the earlier start at the new job. A condition of full employment would thus involve some amount of residual, though temporary, unemployment.

The condition of full employment would be met, so far as manpower is concerned, if there were no "involuntary unemployment," as J. M. Keynes has defined that term.

arise from the failure to use or the wasteful use of natural resources. Nor is it concerned with the less-than-optimum use of resources which might arise from lack of balance in their use or from inefficiency in their use. (Thus full employment would represent only one of the objectives of a set of national policies having as its basic objective the optimum use of resources.

The second objective in seeking effective use of resources, that of balanced use, would be met if resources were flowing into different channels of use in such proportions that the real national income could not have been raised through a shift of any *currently used* resources or group of resources from one use to another use.) Thus, if the real national income could be increased by shifting workers actually employed in cotton mills into rayon mills, there would presumably be an unbalanced condition in the proportion of workers engaged in cotton and rayon, respectively. It is clear that in 1932 there was lack of balance between manpower and other resources engaged in agriculture and manpower and other resources engaged in manufacture. A very much better balance obtained in 1929 and in 1939, though there is evidence of considerable lack of balance in both years. Balanced use, as thus defined, has no direct relation to full use. Conceivably there could be a close approximation to balance in the use of resources even though an economy were running at 50 percent of capacity, just as there could be a high degree of balance in the operations within a factory even though the factory was operating only part of its equipment. (Likewise, there could be full employment even though production was unbalanced because many individuals were engaged in less productive activities than might have been found.)

Efficient Use

(Finally, the use of more of any particular resource than is necessary to accomplish a particular objective or the getting of less out of a resource than is practicable involves the economic waste of inefficiency.) The measurement of efficiency in a particular situation is usually an engineering job. Control over efficiency is often within the power of the enterprise developing the particular resources, but inefficiencies can arise often from sources outside the particular enterprise. Legal and property relationships may prevent the efficient extraction of oil from a particular oil field, while a tangle of patent rights can tie up the use of recent scientific advances. Efficiency in the use of resources is thus as much an essential to optimum use of resources as are full and balanced use.

The importance of these three separable goals which make up the basic goal of optimum use lies in the possibility that quite different types of policies are required to attain them. It is clear that there is very real economic pressure towards efficiency within individual enterprises. The technological improvements described in Part I are some evidence of this. A study of actual operations would have to discover just how far this pressure goes, what factors prevent its greater effectiveness and what policies could be adopted which would make for greater efficiency. It is also clear that the problem of balance is primarily one of long-run gradual adjustment and that the slow adjustment involved in administered prices, like the quick adjustment of market dominated prices, can contribute toward balance in the use of resources provided resources are reasonably fully employed. Finally, it is evident that full employment is concerned primarily with short-run adjustments and presents quite different problems from those presented by balance and efficiency.

Scope of Problems

Perhaps the most significant difference in the character of the problems centering in these three desirable objectives concerns their scope. (Most problems of efficiency and balance can be worked out on a piecemeal basis whereas the problem of full employment is necessarily one which involves the working of the national economy as a single whole.) The factory-manager can deal with such problems as the waste of raw materials or fuel, the inefficiency of plant layout, or the more complex social problem of inefficient workers.) Only a relatively few problems of efficiency are so intractable to local treatment that they assume national significance as do those growing out of patent powers or the unit development of oil pools. And even such national problems can be handled without considering the national economy as a single working whole. (Similarly, most problems of balance are subject to local control and, even when they attain national significance as in the case of the agriculture-industry balance, to the extent that they are not simply symptomatic of unemployment they can usually be dealt with as specific problems requiring specific adjustments.) It is primarily the problem of full employment which requires a system of policies developed in terms of the working of the national economy as a whole. In dealing with this latter problem the full gamut of economic institutions must be envisaged: money and banking; budget and taxation policies; goods prices, wage rates, and security prices; consumer incomes, and national income; international trade and finance; corporate finance and dividend policies. No amount of piecemeal adjustment on the basis of piecemeal policies is likely to insure reasonably full employment.

While it is possible to distinguish between the prob-

lems centering around full employment, balanced use and efficient use, it should be recognized that each in itself represents only a partial goal. Full employment achieved at the expense of balance or efficiency may not be worth attaining. Too great efficiency at the expense of greater unemployment or decreased balance may be a questionable blessing. Balance alone is an incomplete objective. The three partial goals must be balanced within themselves and actual accomplishment must provide a reasonable degree of each, often offsetting greater approach to one goal by a lesser approach to another of the three.

Likewise, the economic goal of reasonably full, balanced, and efficient use of resources is in turn only one element in the larger goal of national welfare. Greater effectiveness in the use of resources is not an end in itself but is justified by its contribution to welfare. If welfare were to suffer through impairment of democratic institutions, greater economic effectiveness in the use of resources would be bought at too great cost.

Full Employment the Dominant National Problem in the Economic Field *

When the problem of full employment is disentangled from the problems of balanced and efficient use of resources, it becomes apparent that the development and adoption of techniques for bringing about and maintaining reasonably full employment of men and machines is not only a major problem, but is today the Nation's most pressing economic problem, relegating all other economic problems to a secondary position so long as it remains unsolved. Its solution would simplify and reduce to manageable proportion most, if not all, of the other important economic problems of the day, while the lack of reasonably full employment intensifies and constitutes such a major element in each of these other problems that a sound solution of them cannot be worked out in the presence of extensive unemployment of men and machines.

This does not mean that the problems of getting better balance and efficiency in the use of resources, of dealing with technological unemployment, stranded population, crop surpluses, the use of submarginal land and substandard city housing are not important problems but rather that every one of these problems is intensified and made more difficult to deal with by the general low level of economic activity and that their solution alone would not bring about full employment. If there were ample employment opportunities, the problem of technological unemployment would be reduced in the main to one of retraining and transfer. Stranded populations could be relocated with more likelihood that the able-bodied members would find employment. The pressure to farm submarginal land would be reduced if there were ample employment opportunities elsewhere, and though remaining a significant problem, it would assume more manageable proportions. The opening up of opportunities in industry would tend to reduce crop production to some extent at the same time that the market for crops was somewhat expanded, thus reducing the problem of crop surpluses.[2] The increased income of workers which would result from fuller employment would somewhat reduce the problem of bringing about the construction of adequate housing since workers would be able better to afford the higher rentals or costs involved in better houses. Similarly in the field of labor-management relations, ample employment opportunities would reduce those elements of conflict growing out of the heavy deficiency of jobs, though problems arising from deficiency of particular skills could be expected to become more acute. The problem of enforcing competition and of regulating prices in the fields of natural monopoly would be simplified because attention could be concentrated on the longer run price relationships, thereby changing the character of the problem and making it amenable to piecemeal solution. Thus, in situation after situation, general unemployment so intensifies other problems that they are almost insoluble; but if reasonably full employment were brought about, they would be reduced to compassable proportions. Insuring reasonably full employment is thus the Nation's most basic economic problem.

Structural Characteristics Important for the Problem of Full Employment

Though a reasonable solution to this basic problem of full employment must be developed primarily out of the analysis of actual economic operations, the factual study of structure in Part I does provide a basis for setting forth some of the more significant structural characteristics which should be taken into account in any analysis of operations.

No Significant Lack of Wants or Resources

The first characteristic of the economic structure which appears significant for the problem of full em-

* This analysis applied to the situation before national defense became the dominant economic problem and full employment became in part an instrument to that end.

[2] For example, the cotton problem of overproduction and underpricing in relation to industrial prices would be greatly reduced if reasonably full employment could be achieved. It is estimated that such a condition would involve an increased domestic consumption of cotton of something like a million bales and a reduction in production resulting partly from the opportunity for a large number of cotton farmers to shift into the production of fruits and vegetables, the demand for which would be greatly increased by the greater income of industrial workers, and partly from the opportunity for a large number of cotton farmers to shift into the industrial jobs which would become available as full employment was approached. How much of a cotton problem would remain under conditions of reasonably full employment of men and machines cannot be indicated, but there can be little question that it would be very much less than would exist with the buying power of millions of persons curtailed through unemployment.

ployment is the relative inexhaustibility of consumers' wants. It is sometimes held that the closing of the geographical frontier and the declining rate of population growth mean a decline in markets and a contracting economy. An analysis of the structure of consumer wants, however, indicates that there are unfilled consumer wants sufficient to provide an ample basis for continuing expansion. If increased buying power were to become available to the mass of consumers, some of the increase would be saved but the bulk would be spent on consumption, thereby increasing the market for nearly every major category of commodity. While there is a lack of actual markets when the money income of consumers is low, there is no lack of potential markets. Indeed, the potential markets within the country for most major types of commodities and services must greatly exceed the potential markets which might be tapped through efforts to expand sales abroad. The primary problem of full employment is not one of restricting production, but of expanding production to meet the manifold unfilled wants of consumers.

A second but more obvious characteristic important for the problem of full employment is the ample supply of resources. Since the large volume of unemployed manpower itself constitutes an essential part of the problem, lack of this type of resource is not involved. Machines can be built, and any lack of machines could only be a temporary impediment to full use of the available manpower. As to the natural resources, a summary survey of the structure of resources indicates the country's wealth of natural resources and the very small extent to which the country is dependent on foreign-controlled supplies. In contrast to many other countries, the problem in this country is not one growing out of a lack of resources.

Since there are ample wants to be filled and ample manpower and natural resources to fill many more of these wants than are now being filled, it must be apparent that the basic problem is primarily one of insuring the use of resources to fill wants, a problem of social organization.[3]

Structural Characteristics of Production Significant for the Problem of Full Employment

Examination of the actual structure of production disclosed at least five structural characteristics which appear to be significant to the problem of full employment.

First, it revealed the great geographical concentration of industrial production in the northeastern quarter of the country and the relatively small tendency for industry to spread out beyond the major industrial centers in spite of such spectacular shifts of industrial location as the movement of the cotton industry to the South or the shoe industry toward the Middle West.

2. Second, it disclosed the fairly continuous trend of improving technology, reducing the manpower required per unit of product in industry after industry.

3. Third, it disclosed the well recognized difference in the effect of depression on different lines of production, particularly the tendency toward a greater sensitiveness to depression and recovery of the production of durable goods and of goods whose prices are relatively insensitive to depression forces.

4. Fourth, it disclosed the wide swings which can take place in the construction of residential housing, swings which are to a significant extent independent of the variations in consumer income and the level of industrial activity, though to some extent they appear to be related to them.

5. Finally, the analysis of the financial overlay to production disclosed both the relatively small money holding of the group of ultimate consumers who account for the bulk of production-stimulating purchases of consumption goods and the tendency for the volume of new savings to increase at such a rate with an increase in national income as to suggest the very real possibility of oversaving in relation to current consumption.)

All of these characteristics of production have significance as they help to throw light on the character of the unemployment problem.

The Basic Characteristics of the Organizational Structure

Since the problem of full employment is clearly one of social organization, the characteristics of the organizational structure are of crucial importance for its solution. The third section of Part I has therefore been devoted to these characteristics with special stress on administered prices and nonmarket controls.

In this analysis the approach has been purely analytical and the emphasis placed on the inflexibility of administered prices and on the structure of nonmarket controls derives from the evidence that they are living facts and a belief that they are crucial facts which need to be taken into account in attempting to solve the problem of unemployment. No attempt has been made to suggest that administered prices and nonmarket controls are either good or bad. They derive both from Government and from non-Government action and constitute important ingredients in the organizational structure as it exists today. Even more important, they are likely to continue to be significant elements in the organizational structure for many years to come, regardless of whether the long-run trend toward the increasing importance of these factors continues or is

[3] As is indicated in chapter VII of Part I, the term "social organization" is used to cover the whole complex of social institutions which influence the use of resources, covering economic, political, social, and other organized relationships.

reversed. They represent factors which must be taken into account in current thinking if a realistic analysis of the problem of unemployment is to be developed.

The structural characteristics of the American economy in the field of organization which appear most significant for the problem of unemployment are the following:

Administrative Coordination

First, analysis of the organizational structure disclosed the very great extent to which economic coordination is brought about through administrative action rather than through the market mechanism. Since the traditional approach to economic matters has focussed primarily on market phenomena, it seems probable that an adequate solution to the problem of unemployment will require a reworking of the analysis of economic behavior so as to give as great weight to administrative as to market phenomena.

Administered Prices

Second, it disclosed the very great extent to which administrative controls extend into the marketing process so that prices are fixed for periods of time, often of considerable length. Such administered prices may be set by act of Congress as in the case of postal rates; they may be set through a process of regulation in which utility enterprises, regulating commissions, and the courts all combine in a complex process of rate making; they may be set by individual enterprises whose pricing action is limited but not fully controlled by market forces; they may be set through collusion between enterprises. However they may be set, such administered prices represent one of the elements of administrative control which has not been integrated into general economic thinking. It may be that an understanding of the effects of short-run price insensitivity will have a significant part to play in the development of policies capable of insuring reasonably full employment of men and machines.

Insensitive Wage Rates

Third, the analysis of organizational structure disclosed the very extensive short-run inflexibility of wage rates resulting in large part either from administrative determination of wage (and salary) rates or from contractual agreements between business units and labor organizations. This administrative or quasi-administrative character of wage and salary rates is closely associated with administered prices, and the two together present a characteristic of enterprise which must be taken into account in developing a solution to the problem of unemployment.

Differential Price Sensitivity

Fourth, the analysis of organizational structure disclosed the structural characteristics of price behavior. It showed that the prices most subject to administrative control, as reflected by infrequency of price change, also tend as a group to be least sensitive to fluctuation in demand involved in depression and recovery, while prices least subject to administrative control are as a group most sensitive to such short-run fluctuations in demand, while prices showing intermediate degrees of administrative control are as a group sensitive to an intermediate degree. This structurally different behavior of prices according to the degree of administrative control exercised over them means that any forces making for general price revision can be expected to work themselves out only partly through changes in prices and partly through changes in production.

Nonmarket Controls

Fifth, the analysis of the organizational structure has disclosed the prevalence of nonmarket controls,[4] which condition the use of resources, and the tendency for the development of pyramids of control, which assume national significance because of the magnitude of their influence on economic activity. No analysis of the operating characteristics of the American economy which fails to take into account this structure of nonmarket controls is likely to produce a realistic answer to the problem of unemployment.

Canalizing Rules and Accepted Goals

Finally, in the analysis of the organizational structure it is indicated that economic coordination may be brought about, not only through the influence of the market mechanism and that of administrative controls, but also through the operation of canalizing rules which limit action without dictating it and through the influence of accepted goals which provide a basis of organized action without the necessity of direction or dictation. These last two organizing influences assume significance in a world in which the statement is so often made that the choice must be made between the wastefulness of an economy organized solely on the basis of the market mechanism and the even more unsatisfactory alternative of an economy organized on a totalitarian administrative basis. The organizing power of canalizing rules and the development of accepted goals open up the possibility of supplementing the market mechanism so as to reduce the wastes growing out of it at the same time

[4] The term "nonmarket controls" is used to refer to the controls which individuals or groups exercise over the use of resources in ways other than through the market mechanism. Governmental controls, intercorporate controls, and the controls exercised by business, labor, farmer, and consumer organizations are for the most part nonmarket controls.

that the centralization of controls which would be involved in adopting a totalitarian approach is avoided. An ultimate democratic solution to the problem of full employment would presumably involve a complex combination of market controls, administrative controls, canalizing rules and accepted goals. A major objective in an analysis of operating characteristics would be to discover the appropriate role of each type of organizing influence in coordinating economic activity.

Each of the structural characteristics listed above, whether concerned with the wants and resources, with the process of production, or with the influences making for organization, must be taken into account in any solution of the problem of unemployment. Just how they effect or condition the use of resources must be one of the central questions in any analysis of operating characteristics.

Gardiner C. Means

(2) THE CONTROVERSY OVER THE PROBLEM OF FULL EMPLOYMENT

The preceding paper has dealt with the implications of the economic structure for the problem of full employment. It has attempted to stay within the frame of reference of a report on economic structure and lacks the background of an analysis of operating characteristics. In the discussion which follows, as in others contained in this symposium, such a limitation will be dropped and the problem of full employment will be discussed without making the discussion derive from Part I of *the Structure of the American Economy*. It will consider the controversy which surrounds the whole problem of full employment and suggest steps which might be taken to bring about greater agreement on basic national policy.

The lack of success of efforts to deal with the problem of unemployment can be traced in large part to the lack of agreement as to what set of policies appropriate to a democracy is capable of bringing about reasonably full employment. Without more substantial agreement in this field, the inaction or ineffective action associated with conflict over policies is likely to continue. The conflicts appear to be so deep seated that substantial agreement is unlikely unless a more determined drive is made to understand the factors involved.

Greater agreement on a program of specific policies might be developed through two quite different procedures. The first is to focus attention on specific proposals with the aim of reaching an accepted set of policies, regardless of the rationale or the particular interest which might lead any particular individual or group to support any particular policy. Because specific policies of some sort or other must be adopted currently, this first procedure must almost necessarily be employed. But it is likely to be ineffective unless there is already substantial agreement as to the general character of the system of policies into which the particular policies are expected to fit. In the absence of such agreement the set of specific policies arrived at by this procedure is by no means certain to constitute an effective program. The greater the disagreement as to the general character of the system of policies aimed at, the greater the likelihood that inconsistent and ineffective policies will be adopted or that conflict will prevent the adoption of any constructive policies.

A second procedure, capable of supplementing the first, is to focus attention on the rationale underlying the system of policies into which any specific policy might be expected to fit. The present memorandum will follow this second procedure, indicating first what appear to be the basic points of agreement underlying the full employment controversy, then sketching out the major lines of cleavage in opinion and finally suggesting the crucial questions on which the controversy would seem to turn.

Basic Points of Agreement

As a preliminary to a consideration of alternative proposals for bringing about reasonably full employment, the following four points on which there appears to be fairly general agreement deserve to be stressed.

The Inherited System of Policies

There is fairly general agreement that in this country we have inherited from the nineteenth century a system of national policies which in combination were supposed to bring about reasonably full and effective use of resources.[1] This system of policies assigned to government three major types of function:

(1) to establish conditions conducive to private enterprise by such actions as protecting property,

[1] The inherited system of policies has sometimes been referred to as a system of "laissez-faire." This term is not employed in the text above because, as some people have pointed out, the term would imply a policy on the part of government of "leaving economic activity alone" or "leaving business alone." Actually, the inherited system of policies has always placed on government the positive function of insuring the *reasonableness* of prices, either by enforcing competition or by regulating prices through some other method.

enforcing contracts and providing a safe money medium;[2]

(2) to insure reasonable prices by enforcing competition where the latter could be effective and by regulating or operating enterprise in those cases where competition was not regarded as a satisfactory regulatory device;

(3) to supply services which private enterprise could not effectively supply, such as police and fire protection, highways, postal service, and education.

Such a system of policies presumed that if government performed these three basic functions reasonably well, and if other matters were left to the initiative of individuals operating through free enterprise, the market mechanism could be relied on to insure reasonably full and effective use of resources through the automatic adjustments which it would bring about, and government would need to take no direct responsibility for insuring reasonably full employment. It was this internally consistent system of policies into which most of the particular policies adopted by government in the nineteenth and early twentieth centuries were made to fit. Hereafter, in this memorandum this system of policies will be referred to as the "inherited system of policies" or more summarily as the "inherited policies" even though there has been an increasing tendency, especially since the first World War, to adopt policies outside of or even inconsistent with this system.

Departures From the Inherited System of Policies

The second major point of fairly general agreement is that there have been significant departures from this inherited system of policies, particularly in the period since the first World War. The efforts in the middle twenties to use Federal Reserve policy to stabilize business activity instead of focusing solely on providing a safe money medium; the efforts of the Federal Government to hold up wage rates and the prices of certain agricultural commodities between 1930 and 1932, and the similar efforts since the bottom of the depression; the efforts since 1933 to use community savings to bolster up the buying by ultimate consumers; the efforts over a longer period to bolster up activity in the capital goods industries through public works; these are just some of the more important recently adopted policies which are in conflict with the inherited system of policies.

These departures from the inherited system of policies, aiming directly at avoiding or minimizing depression and unemployment, were primarily the outgrowth of the pressure of events and never developed the degree of coherence that would justify their being called a new system of policies. Rather they reflect the demand arising out of the stubborn fact of excessive unemployment of men and machines that government should take some positive responsibility for insuring reasonably full employment.

While there is much disagreement as to the desirability of particular policies adopted under these specific pressures, there is little disagreement among those familiar with the rationale underlying the inherited system of policies that these and many other particular policies do not fit into that system and are even in conflict with principles in terms of which it has been given rational justification. The recognition that such policies do not fit into the inherited system is often made vocal in the demand for eliminating "government interference with business," though the fact is often overlooked that this development is not a sudden one growing out of the current depression or the particular governmental administration, but is a matter of increasing growth over a long period of years, becoming more rapid after the first World War and intensified by the current depression. Whatever the implications of such a development and whatever disagreement there may be as to what particular policies constitute significant departures from the inherited system of policies, there is little disagreement as to the fact that significant departures have occurred.

Changes in Economic Structure

The third major point on which there is fairly general agreement is that the structure of the American economy has been gradually changing over the last fifty to a hundred years under the impact of a variety of forces such as the new technologies involved in the telephone, the radio, the automobile and the moving pictures, the changes in population growth, the closing of the extensive frontier,[3] changes in the character and composition of foreign trade, the increased industrialization of the country and the increased degree of urbanization. Among the structural changes, three of the more significant and widely recognized are the increased size and scope of individual enterprises, the increased role of economic associations such as trade associations, labor unions, farm organizations and consumer organizations, and the increased regulatory activity of government. Another structural change which will be given particular emphasis below is the increased role of inflexible prices and wage rates in the national economy as a whole. These various structural changes are thrown into relief

[2] Tariff protections and subsidies to private enterprise would presumably come under this head. Just how extensive such aids to business could be without impairing the effective use of resources is not at issue in this memorandum.

[3] Here the term "extensive frontier" is used to distinguish the frontier involved in geographical expansion from the intensive frontier involved in the invention of new techniques and similar developments.

by the sketch of the existing economic structure which constitutes Part I of this report. Just which structural changes are most significant and how they relate to unemployment are matters of controversy. But the fact that significant changes have occurred is fairly generally accepted.

The Persistence of Excessive Unemployment

The fourth major point of fairly general agreement is that in recent years there has been and still is excessive unemployment of men and machines which individuals alone are unable to correct. It is increasingly recognized that neither the individual coal miners nor the operators of the individual coal mines are responsible for their own idleness when industry is working at only partial capacity and the requirements for coal are low. So, in industry after industry, the individual workers and those in control of the machines have little power as individuals to effect the volume of activity in their respective industries. The increasing recognition of this impotency of the individual has forced the realization that excessive unemployment is a national, not an individual, problem and that, because of its magnitude, it is today the country's most basic economic problem.

These four points of basic agreement provide a foundation for an examination of the major lines of disagreement which must be cleared up if substantial agreement is to be reached on national policies aimed at insuring reasonably full employment.

Basic Lines of Disagreement

In spite of the fairly general agreement on the four points listed above, there is little agreement as to the relation of these points to each other and their implications for current policy. In the controversy over causes and cures of excessive unemployment, discussion is likely to center on specific explanations of unemployment and specific proposals for remedy. Despite the confusion surrounding this controversy, certain main lines of cleavage can be discerned which underline the specific disagreement or are implicit in them. These more basic disagreements have to do both with the relation between the existing economic structure, the inherited system of policies, and the policies at variance with the inherited system and with the bearing of these three on the problem of unemployment. It is the purpose of this section to examine these basic lines of cleavage and the three categories of opinion into which most participants in the controversy appear to fall.

Are the Inherited System of Policies and The Existing Economic Structure Consistent?

The first major cleavage appears to center on the question of whether or not the inherited system of policies and the modern economic structure are compatible with each other. Stated somewhat differently, the question is: Can the system of policies which was relied on to insure reasonably full employment in the presence of the economic structure existing in the 19th century be expected to insure reasonably full employment in the presence of the economic structure as it exists today?

Some individuals answer this question in the affirmative, believing that the inherited system of policies is quite workable in the presence of the existing economic structure, and find the cause of excessive unemployment in the departures from that system. To such persons the remedy is to eliminate the policies inconsistent with the inherited system and rely on the initiative of individual enterprises,[4] controlled and guided by the presumably automatic forces of the market to insure reasonably full employment.

Others take the position that the existing economic structure and the inherited system of policies are inconsistent and find the cause of excessive unemployment in this inconsistency which is only in part or not at all remedied by the departure from the inherited policy system. Those who hold this position believe that, if reasonably full employment is to be reached and maintained, the essential character of the present economic structure and the inherited system of policies cannot both be retained without alteration.

If Not Consistent, Which Should be Altered—Economic Structure or Inherited Policies?

Those who regard inherited policies and existing structure as inconsistent divide into two groups along a second major line of cleavage. One group would adhere to the inherited system of policies, relying on the market mechanism to insure reasonably full employment and advocating changes in economic structure sufficient to make the market mechanism effective. Another group advocates some modification of the inherited system of policies, supplementing the market mechanism in such a way as to make the resulting system of policies more consistent with the existing economic structure. The first group takes the position that the initiative of individual enterprises, guided and controlled by the automatic forces of the market, could insure reasonably full employment if only certain significant changes in economic structure were brought about. They would make government responsible for bringing about such alterations in the economic structure. The group advocating some modification of the inherited system of policies as the remedy for unemployment believes that the market mechanism on which

[4] It should be noted that this refers not to the "initiative of individuals" but to the "initiative of individual *enterprises*". The former in the traditional sense of the term has largely disappeared in most corporate enterprise while it was never assumed to exist in government enterprise.

such a system of policies places responsibility for insuring reasonably full employment cannot be made to work effectively as a result of any structural changes that can be brought about in the reasonably near future.[5] They hold that the solution to the basic problem of unemployment should take the form of altering the inherited policy system by supplementing the market mechanism to the extent necessary to make the revised system more consistent with the existing economic structure. This latter procedure would presumably also require some modification in economic structure to allow the modified system of policies to be effective and would not inhibit other structural changes undertaken to attain other ends, but it would not rely on structural changes as the main basis for insuring reasonably full employment.

At first thought it might appear that an intermediate position is also possible which would insure reasonably full employment partly through modifying the economic structure so as to allow the inherited policies to work better and partly through modification of the system of policies to make it more consistent with the economic structure as modified. Such an intermediate position may prove to be tenable but further discussion seems more likely to lead to the conclusion that *so far as the problem of full employment is concerned* the alternative is not one of "more or less" but of "either or";—either the mechanisms of adjustment inherent in the inherited system of policies that relate to employment are relied on to insure reasonably full employment or some different mechanisms involving a significant modification in the inherited system of policies is relied on. As will be indicated below, this means that either reliance is placed on *very short-run adjustments* in prices, wage rates, and interest rates to insure reasonably full employment or else the acceptance of a large degree of short-run *insensitivity* of prices, wage rates, and interest rates which prevent the adjustments operating through short-run price, wage rate, and interest rate sensitivity from being effective and the attainment of the necessary adjustments through other means. The first would presumably call for significant modification of structure, the latter, of inherited policies.

It should be noted that the advocacy of changes in the system of policies as the basis for insuring full employment does not preclude the advocacy of structural change as a means of bringing about better balance and efficiency in the use of resources. Perhaps those who suggest the possibility of the intermediate position are really thinking of changes in structure to improve the balance and efficiency in the use of resources and changes in the inherited policies to insure reasonably full employment. In the subsequent discussion this will be assumed to be the case.

The greatly oversimplified statement of the three basic positions given above serves to throw into sharp relief the basic lines of choice. Both the first and the second group place their reliance on the inherited system of policies but disagree as to whether or not it is appropriate to the existing economic structure. The third group accepts the essential character of the existing economic structure as does the first group, but agrees with the second that the inherited policies are not appropriate to such a structure and calls for a reformulation of the system of policies in order to make it so.[6]

While most advocates of particular policies can be classed as belonging consciously or by implication to one or the other of these three main groups, it should not be concluded that there is any great agreement within the groups. Rather there is disagreement as to the emphasis given to this or that departure from the inherited system of policies, to any particular structural change or to the advocacy of this or that particular alteration in the inherited system of policies.

But this diversity of opinion within each group is not nearly as significant as the basic disagreement between groups. Points of disagreement within any one of the three groups can be discussed effectively in terms of specific policies and concrete situations since the parties to the discussion are in agreement as to the general characteristics of the system of policies they support and the general characteristics of the economic structure which they regard as consistent with that system of policies. But between groups, no such fundamental basis for discussion exists and controversy over specific policies aimed at insuring reasonably full employment is likely to be fruitless because the differences in opinion arise from such fundamental disagreements. Only as substantial agreement is developed at the more basic level can controversy at the level of specific policies be expected to be fruitful. The remainder of this paper will consider just what steps might be taken to bring about greater agreement on these basic matters.

Crucial Questions Underlying the Controversy

A first and important step toward resolving this three-way controversy would be taken if substantial agreement could be reached on certain crucial questions which are given below.

[5] It should be noted that this statement is so phrased that it can include any individuals who believe that *no* amount of structural change would allow the inherited system of policies to be effective.

[6] A fourth position is also possible, namely, a repudiation of both the existing economic structure and the inherited system of policies. Since the two principal schools of thought adopting this position, Communism and Fascism, are not seeking a democratic solution to the problem of unemployment, this position is excluded from the discussion.

First Question—Just How Was the Market Mechanism Expected to Insure Reasonably Full Employment?

Since the controversy revolves around the effectiveness of the inherited system of policies, some measure of agreement is needed as to just how the inherited system of policies was supposed to bring about reasonably full employment. Since there is fairly general agreement that the inherited policy system relied on the market mechanism to insure reasonably full employment, this first question can be narrowed down to the more exact question: *Just how was the market mechanism supposed to operate so that no excessive unemployment could long continue*? Just what was the mechanism by which any excessive unemployment of men and machines tended to be corrected?

At first thought it would seem that agreement on this employment adjustment mechanism should be easily reached. The economic literature of the nineteenth and early twentieth century is replete with expositions of the rationale underlying the inherited system of policies. Yet in this literature very little attention is given to the problem of full employment or to the mechanism of adjustment through which any temporary unemployment of men and machines would tend to be corrected. Detailed analysis is given of mechanisms through which it was believed that trade between countries would be kept in reasonable balance; of mechanisms through which it was expected that savings and investment would be kept in reasonable balance;[7] of mechanisms through which an unbalance in the use of resources involving, say, the production of too much cotton and not enough corn or too many people employed in one industry and not enough in another, would tend to be corrected. But almost no analysis is given of the mechanisms through which it was expected that any deficiency in employment would tend to be corrected.

In the current discussion no agreement has developed as to just how the automatic forces of the market were expected to bring about reasonably full employment. Some persons have taken the position that those who developed the rationale for the inherited system of policies never faced this problem; that they simply assumed full employment and were concerned primarily with problems of balance; and that, therefore, the rationale underlying the inherited system of policies gives no justification for relying on the market mechanism to insure reasonably full employment. Others take the view that an employment adjustment mechanism was clearly implicit in these earlier writings, though there is some disagreement as to the exact character of this mechanism and just how it was expected to operate.[8] The exact position of earlier writers is not important for the current controversy, but if progress is to be made it is of considerable importance that those who advocate reliance on the market mechanism to insure reasonably full employment should clearly set forth the steps by which they believe that this mechanism would or could be expected to correct an initial condition of underemployment. Without such a clarification, controversy is likely to prove sterile.

Short Run Price, Wage Rate, and Unit Profit Flexibility as the Adjusting Mechanism

Consideration of other adjustment mechanisms which are clearly set forth in the economic literature, suggests that the employment adjustment mechanism underlying the inherited policy system must have been assumed to be essentially that outlined below. It must have been assumed:

(1) that if excessive unemployment developed this would mean a deficiency of current buying for consumption or investment relative to the available manpower and machines;

(2) that such a deficiency of current buying and excess of men and machines would almost at once bring about a reduction of goods prices, hourly wage rates, and unit profits.[9] The lower goods prices would result partly from the lower demand for goods and partly from the reduced labor costs, while the reduced wage rates would result from the increased competition arising from unemployed workers and the reduced unit profits would result from the increased competition from unemployed plant facilities;

(3) that because goods prices, wage rates, and unit profits would fall together, the fall in the prices of goods would be offset by a fall in the income received as wages and profits and no increased buying would result directly from this fall; but

(4) that the general fall in goods prices, wage rates, and unit profits would so increase

[7] In many formulations of the statement it is the effective desire to save and the investment opportunities which are presumed to be kept in balance.

[8] A third view was current until fairly recent years, namely, that involuntary unemployment was impossible and that the only reason a person capable of working was not employed was because he preferred to "rest" rather than accept employment at approximately the current rate of wages. Holders of this view faced no problem of "a mechanism to correct an initial condition of underemployment" since the conditon to be corrected was presumed to be impossible. The realities of post-war Europe and America have practically eliminated this viewpoint.

[9] It should be noted that the reduction is in money terms. There is nothing inherent in such an adjustment mechanism that would require a change in the real value or real buying power represented by goods prices, wage rates, or unit profits, nor is there any necessary requirement that the ratios between the three should be altered.

the *real* buying power of the outstanding money supply that people would find they had more money on hand than they wished or found it convenient or feasible to hold at the lower level of goods prices, wage rates, and unit profits;

(5) that in the effort to expend the surplus of their money holdings—the "redundant money" as the classicists called it—individuals and enterprises would attempt to spend or invest money in excess of their current income, *thus providing buying in excess of current production*, so that additional men and machines would have to be employed to allow production to keep pace with sales;

(6) and finally, that so long as there was any excessive unemployment of men and machines, goods prices, wage rates, and unit profits would continue to drop until the pump-priming influence of the increased real buying power of the money supply had brought about its elimination.[10]

Closely parallel with this employment adjustment mechanism are two other adjustment mechanisms which were relied on under the inherited system of policies, one to insure reasonable balance in the trade between countries and the other to insure balance between savings and investment in an acceptable fashion. Each of these adjustment mechanisms, like the employment adjustment mechanism outlined above, relied for its effectiveness on a high degree of sensitivity in one or more price category. The mechanism of international trade adjustment relied on fairly quick and general changes in the relation between goods prices, wage rates, and unit profits in one country and those in another or other countries.[11] The mechanism of savings-investment balance relied either on fairly quick and general changes in the level of interest rates, or, to the extent that the interest rate adjustments failed to insure balance, on fairly quick and general changes in the relation between goods prices, wage rates, and unit profits in the capital goods industries and those in the consumption goods industries.[12]

These other mechanisms of adjustment appear to be quite as important for the problem of full employment as the employment adjustment mechanism itself. Presumably if savings and investment were kept in balance and international trade were balanced, some employment adjustment mechanism would be required to insure reasonably full employment. But an unbalance in either international trade or between savings and investment could result in unemployment which no such employment adjustment mechanism alone could eliminate. These three adjustment mechanisms thus appear fundamental to the inherited system of policies in so far as the latter are concerned with the problem of full employment. For this reason the question as to whether the inherited system of policies and the existing economic structure are consistent turns largely on whether or not these three basic adjustment mechanisms can be expected to function effectively under existing structural conditions.

Second Question—Is There Sufficient Sensitivity of Goods Prices, Wage Rates, Unit Profits, and Interest Rates to Allow the Mechanisms Underlying the Inherited System of Policies to Work Effectively?

Once agreement is reached as to the mechanisms of adjustment underlying the inherited system of policies, the next problem is to determine whether or not the existing structural conditions are such as to allow these mechanisms to work effectively. This raises two crucial questions: (1) just how sensitive to supply and demand conditions would goods prices, wage rates, and unit profits, security prices and interest rates have to be to make such general changes in their level effective in keeping unemployment to a minimum?; and (2) is such a degree of sensitivity likely to arise in the presence of the existing economic structure?

On the first of these questions, it is important to distinguish between the short-run sensitivity referred to as "depression sensitivity" in Part I of this report and the longer-run or secular sensitivity.[13] Because economic writings have focused so extensively on problems of balance in the use of resources, most discussions of price flexibility or of sensitivity have been concerned with the adjustments of price to such basic factors as changes in technology, the development of new resources, and shifts in the character of consumer wants. These gradual changes call for readjustments in prices, in wage rates, and in unit profits if resources are to be directed into different uses in balanced proportion. But the problem of insuring a degree of price sensitivity sufficient to meet these gradual changes is quite a different one from that of insuring

[10] Presumably any simultaneous reduction in the money supply would require a still further drop in goods prices, wage rates, and unit profits before the excessive unemployment was eliminated. Of course, since the adjustment must take place through a period of time, such a correction of excessive unemployment might be prevented if the money supply were contracted sufficiently rapidly.

[11] This would hold true both for countries on a gold standard and for countries on an inconvertible paper basis.

[12] A third savings-investment adjustment mechanism, operating through changes in the level of security prices, appears possible in a country in which a significant proportion of the instruments of production are represented by securities freely and extensively traded in the market. This possibility has received little attention in the current controversy over the problem of savings-investment balance.

[13] Professor Hansen refers to the long-run or secular sensitivity as "structural" and appears to use the term "cyclical sensitivity" with the same meaning given to the term "depression sensitivity" in Part I of this report. The term "cyclical" has been avoided in Part I so as to avoid any commitment in the controversy as to whether or not variations in business activity are rhythmic. "Depression and recovery sensitivity" would be preferable to "depression sensitivity" if it were not so long.

the short-run sensitivity which would be essential if the mechanisms for adjusting employment, international trade, and savings investment were to be effective. For most commodities and for most wage situations, readjustments as infrequent as once in 6 months or once a year could give sufficient sensitivity to keep prices, wage rates, and unit profits in reasonable balance if reasonably full employment of men and machines were insured by some other means.

On the other hand, the depression sensitivity of goods prices, wage rates, and unit profits essential to the workings of the employment adjustment mechanism suggested above would be of quite a different order of magnitude. It would require a sensitivity of prices more nearly like that now displayed by most agricultural commodities, by scrap steel, and by security prices. Wage rates and unit profits would likewise have to show a much greater sensitivity in order to allow the employment adjustment mechanism outlined above to work than would be necessary to bring about the adjustment which secular sensitivity is expected to produce. Similarly, if the market mechanism were to insure reasonable balance in international trade and between savings and investment, a much greater degree of sensitivity in goods prices, wage rates, and unit profits, as well as in security prices and interest rates, would be necessary than would be necessary to adjust for structural changes.

The question of just what degree of sensitivity would be necessary has received very little attention. The rationale underlying the inherited system of policies has consistently been stated in terms of the perfect sensitivity of goods prices, wage rates, unit profits, security prices, and interest rates, though "frictions" have been recognized as making such a statement differ at least somewhat from actual economic behavior. The analysis of the sensitivity of prices and wage rates in chapter VIII in the *Structure of the American Economy*, Part I, indicates the high degree of depression insensitivity of a large body of goods prices and the intermediate insensitivity of most wage rates. The magnitude of this depression insensitivity of goods prices and wage rates has led the present writer to the conclusion that the three adjustment mechanisms indicated above simply cannot be expected to function effectively so long as this insensitivity to short-run forces continues. Because of price and wage rate insensitivity, the employment adjustment mechanism tends to aggravate any initial unemployment rather than tending to correct it. Similarly, a tendency for international trade or savings and investment to become unbalanced is quite as likely to be corrected as much through increased unemployment (or overemployment) as by changes in the level of one or more of the price categories.[14] If this conclusion should be accepted the next question would involve the relation of these insensitivities to the existing economic structure.

Third Question—Are the Existing Short-Run Insensitivities of Goods Prices, Wage Rates, and Interest Rates Inherent in the Existing Economic Structure?

If the adjustment mechanisms indicated above cannot be expected to work effectively when goods prices and wage rates are as insensitive to short-run forces as they have shown themselves to be, the next appropriate question would be: are these insensitivities inherent in our existing economic structure? Here the evidence on such matters as business concentration in relation to markets, government regulation, and labor organization, clearly suggests that these short-run inflexibilities are part and parcel of the existing economic structure and are inherent in modern techniques of mass production and mass distribution. Could the railroads be operated on a basis of quick readjustments in freight rates and wage rates whenever the traffic in one commodity or another fell off or when total traffic declined or expanded? Could the telephone system be operated on the basis of frequent short-run readjustments in rates with changes in the volume of messages being handled? Could automobile production be organized as efficiently as it is, if it were made so competitive that prices closely followed the fluctuation in orders, going down sharply whenever orders showed a tendency to fall off and rising sharply with rising demand?[15] Could labor be sure of its share in total production, if in dealing with big corporate enterprise it was not able to resort to collective bargaining and fixed wage agreements which in turn help to fix the labor costs of products for short periods of time? When 200 corporations control approximately half of the industrial wealth of the country and nearly two-thirds of the land, buildings and equipment that are owned by nonfinancial corporations, it is hardly reasonable to expect the type of competition which will produce that high degree of price sensitivity which is so typical of an agricultural economy such as characterized this country 75 or 100 years ago.[16] The conclusion seems warranted that a

[14] There is the possibility that unbalance between savings and investment might be corrected through changes in the level of security prices and the repercussions of such changes on the proportion of current income which is currently saved.

[15] The suggestion of sharp price change in the case of automobiles is based on the frequent assertion by economists of the industry that the demand for automobiles has such a small elasticity that there is little inducement for particular enterprises to lower their prices in order to get a larger volume of sales. A large drop in price would thus be necessary to offset a small drop in demand. It should be noted, however, that in an industry made up of a very large number of companies supplying the same market, the inelastic demand would be expected to bring greater rather than less price variation with short-run changes in demand.

[16] In 1870, 51 percent of the gainfully occupied were engaged in agriculture, whereas in 1930 the percentage was only 21.

fairly high degree of short-run insensitivity of goods prices and wage rates is inherent in modern technology and in the economic structure which it involves.

General acceptance of this conclusion and the conclusion that such insensitivity renders the three adjustment mechanisms given above inoperative, would eliminate the first basic cleavage underlying the current controversy since it would mean that the inherited policies and the existing economic structure are not consistent with each other.

The Major Policy Choice

The ground would then have been laid for discussion of the more immediate problem, should the economic structure be altered so as to allow the three adjustment mechanisms underlying the inherited system of policies to work or should a system of policies be developed which would rely on other mechanisms of adjustment to insure reasonably full employment.

Structural vs. Policy Change

For those who would solve the problem of unemployment through structural change and reliance on the inherited adjustment mechanisms, the basic questions are: (1) What would be the minimum changes in economic structure, break-up of large enterprises, and general atomization of economic activity necessary to allow the employment adjustment mechanism and the ancillary trade adjustment and savings-investment adjustment mechanisms to operate effectively; and (2) what would be the costs of such structural change in terms of loss in the advantages of modern technology, economic turmoil, and risk of social disruption and the loss of democratic institutions?

For those who believe that it would be almost impossible to bring about structural changes sufficient to allow these particular inherited mechanisms to operate effectively in the reasonably near future, or who believe that even if such changes could be brought, some other solution to the problem of unemployment is more desirable, the basic questions are: (1) What adjustment mechanisms could be developed, consistent with democratic techniques which would not depend for their effective operation on short-run sensitivity in goods prices, wage rates, unit profits, and interest rates, and would be able to perform the functions formerly assigned to the mechanisms discussed above? Stated differently, the problem is what coherent system of policies would be capable of insuring reasonably full employment in an economy dominated by short-run insensitivity of these price categories. How can international trade balance be assured and balance between savings and investment be brought about without relying on short-run sensitivity in goods prices, wage rates, and interest rates, and without allowing the balances to be brought about by variations in the level of employment of men and machines? Even with balance in international trade and in savings-investment, how can the absorption of excessive unemployment be assured without relying on a high degree of short-run sensitivity in goods prices, wage rates, and unit profits? And finally, what will be the social and economic costs involved in employing these alternative mechanisms, to what extent will they endanger democratic institutions?

These seem to be the crucial questions which need to be answered before a choice can be made between the two positions created by the second line of cleavage. In seeking their answer, it must be recognized that the whole weight of American development in the last half century has been away from conditions appropriate to the inherited system of policies. It is undoubtedly the changing economic structure which has called forth the specific departures from the inherited policy system but no coherent and integrated system of policies has been developed to take the place of the latter. If a system of policies could be developed which would rely on the initiative of individual enterprises to carry the main responsibility for actual productive activity; would rely on the market mechanism and competition or in particular cases Government regulation to insure gradual adjustment in goods prices, wage rates, unit profits, and interest rates so as to direct resources into different channels in balanced proportions; would insure balance in international trade, balance between savings and investment and the correction of underemployment without relying on the short-run depression sensitivity of goods prices, wage rates, unit profits, and interest rates; and if at the same time the new policies introduced were completely consistent with the country's democratic traditions, it seems highly probable that the final outcome of the whole policy controversy would be resolved in favor of such a system of policies.

No attempt will be made in this paper to outline such a system of policies. While the present writer believes that such a system of policies can be developed, it is likely to require the working of many minds on the various aspects of the problem before a coherent solution is reached. A definite step toward this objective would be taken if the character of the controversy can be given greater definition.

It is appropriate, however, to point out that if the existing short-run insensitivity of goods prices, wage rates, unit profits, and interest rates is accepted as an inherent part of our economy, the system of policies consistent with this condition will add to government's other responsibilities a positive and continuing responsibility for insuring reasonably full employment.

Levels of Possible Action

In the discussion as to just how this function could be carried out it is worth distinguishing between three different levels of policy formation on one or more of which action might be taken. The first level would be concerned with the financial overlay which conditions productive activity, the second with the production of new capital facilities, and the third with the current operating policy of producing units. Action on each of these levels involves a different kind of policy problem and a different degree of supplementation of the market mechanism as a coordinating influence.

Action on the level of financial flows would have to do with such matters as monetary, taxation, and budgetary policies on the part of government units, dividend policies of corporations, international loans, and similar financial matters, and would aim to counteract or compensate for any deficiencies in buying power which might arise from whatever sources. During the current depression, contributions to buying power of this type were made by those corporations which paid out more in dividends than they were making in current profits and by the Federal Government through its public works and relief policies. Such a compensating policy might be limited to the activity of the Federal Government or it might be possible to develop a more comprehensive financial program which interrelated the financial policies of the Federal Government, the major State and municipal governments and the larger corporations. The more scope involved in such a program, the greater the compensating influence which could be exercised. The limitations and possibilities of such policies deserve extensive investigation.

The second possible line of action would be one aimed directly at the reduction of the wide fluctuations in capital formation so as to provide a continuing backlog of buying power. A program of government construction might be used to compensate in part for deficiencies in private and corporate construction. Or a more extensive program might be developed which would more closely interrelate the new capital outlays by the larger corporations and larger government units. A continuing survey of prospective new capital outlays by the larger corporations and government units supplemented by estimates of the probable capital outlays by smaller economic units could give a basis for expanding and contracting public works and for stimulating or damping the construction of a residential housing and of new plant construction in such a way as to give a greater stability to the total volume of capital formation. Investigation should disclose ways in which capital formation could give an essential core of stability in buying power such that deficiencies arising would be of a magnitude capable of being corrected fairly easily through compensating financial policies.

A third possible line of action would be one aimed directly at the expansion and maintenance of operating production. It is possible that, in periods of deficient buying, the more important key industries could be induced to develop a combined program of expanded production which would both increase employment and supply the increased buying power capable of purchasing the additional goods produced.

Presumably a system of policies which involved action only or primarily at the first level would be easiest to operate and would involve the least innovation. One which combined action on both the financial and the capital formation levels might involve more administrative responsibilities, while a system of policies which required action on all three levels would presumably require the greatest degree of detail and therefore place the heaviest burdens on an already overburdened government. Yet each of these three levels of approach offers a possible basis for a continuing program. The technical problem of the immediate future would seem to be to explore the possibilities and limitations of each level of approach and of a combination of approaches in order to develop a system of policies consistent with democratic institutions that will insure the maintenance of buying and reasonably full employment without relying on the short-run sensitivity of goods prices, wage rates, unit profits, and interest rates.

Only as such an alternative system of policies is clearly delineated and the inherited system clarified will it be possible to compare the costs and advantages of the structural change necessary to make the inherited system work and the costs and advantages involved in such a modified system of policies. The clarification and evaluation of these two alternatives would seem to be the immediate task of those who are primarily concerned, not with the day to day determination of specific policies, but with the longer run problems of economic statesmanship which must be dealt with by the leaders of the community, whether in government, in business, labor, farm, or consumer organizations, or in other walks of life if we are to use our national resources effectively.

Gardiner C. Means

III. THE LIMITS OF STRUCTURAL CHARACTERISTICS IN ANALYZING THE AMERICAN ECONOMY

The authors of *The Structure of the American Economy*, Part I, recognize that the structure of the economy of a nation consists, not only of its material needs, its natural resources, and the manpower whereby the latter are made to satisfy the former, but includes also the ways in which human behavior is organized to accomplish that end. That report opens with a distinction between structural characteristics of the economy and the operating policies by which these structural elements are put to work and controlled. It is pointed out that structure may condition policy, and vice versa, and that it is often impossible in economic analysis to make a clear separation between the two. The distinction is held to be fundamental, however, because it is believed that faulty functioning of the economy as a whole may be due precisely to the fact that structure and operating policies are incompatible. The first step in analysis of faulty functioning is to describe and understand the essential structural characteristics. This task accordingly is adopted as the purpose to be served in *The Structure of the American Economy*, Part I.

The specifications thus laid down in the introduction are not employed consistently, it seems to me, in the later chapters of the report. In chapter VIII, where the market mechanism is analyzed as one of the elements in the organization of economic activity, we are told at the beginning that the purpose is, "to examine the structure of prices in order to discover, if possible, the extent to which they do in fact contribute to full and effective use of resources."* At the end of the chapter we are told that, "this differential sensitivity of prices to depression influences tends to introduce serious distortions in the price structure and appears to reflect a disorganizing rather than an organizing role that the market can play." The subject matter of this chapter and its conclusion relate to the behavior of prices and the effect of such behavior on the use of resources. This seems to go beyond structure and to comprehend operating policies as well.

In chapter IX, "The Structure of Controls," although we are told at the beginning that this subject is quite as important as the structure of prices in determining the use of natural resources, the discussion of the various nonmarket controls is confined to their structural characteristics. And a rather sparse description of structure it turns out to be, especially when it gets to labor, farmer, and consumer organizations. The discussion of Government as an organization of economic activity is likewise rather sketchy. At the end of the chapter it is explained that, "no attempt has been made to show how the nonmarket controls actually affect the policies adopted in the use of resources or how they operate with the market controls." Thus chapter IX conforms to the plan stated in the introduction, but falls short of the treatment accorded to price structure as an organization of economic activity.

The authors apparently recognize the prevailing lack of knowledge about the structure and effect of these nonmarket controls, and the vast intellectual vacuum which surrounds our discussion of operating policies in this field. "The absence," they say on page 153, "of any well-articulated conception of such a system of controls makes this task more difficult and is likely to make the results less satisfactory." But they are somewhat less critical, indeed almost casual at points, when they are discussing organization as such and its role in economic activity. In chapter VII they speak of, "A high degree of organization in the use of resources" (p. 96); say that we have, "what is essentially a single national economy" (p. 96); speak of, "working rules by which human activity is guided into more productive channels" (p. 120); and find that, "laws, rules, and customs do play a major role in making the separate activities of millions of individuals mesh into the organized activity of the American economy" (p. 121). All four factors of organization (the market mechanism, administrative controls, laws and customs, and common goals) together constitute, they tell us, "the main influences which make the separate activities of the millions of workers in the nation combine into an organized whole" (p. 121). While the term "organized whole" is a generalized description and is not to be taken too literally, one wonders whether the integration is as close as is suggested. The great body of unemployed employables might well wonder how they fit into this "organized whole." They and many others whose living conditions are both insecure and insufferable might say that precisely what seems to be wrong is the absence of any kind of organizing influence that will draw them within its orbit.

Obviously the authors are not unaware of the faulty functioning of the economy, but it may be questioned whether they turn the light of their analysis in the

*EDITOR'S NOTE: In the subsequent edition of *The Structure of the American Economy*, Part I, this statement was revised, to read: "it is the purpose of this chapter to examine the behavior of prices in order to develop the structure of prices through which the market operates to influence the use of national resources."

right direction, or upon those features of the economy which are most at fault. What they have unquestionably succeeded in doing, however, is to lay a basis for the questions which need now to find some answer through further study by the National Resources Planning Board, as well as by other students.

Is the chronic part-time operation of our national economy due to the fact that operating policies are mistaken, or to the fact that structural characteristics are defective? Can we answer as to structure, when we lack sufficient knowledge of the facts and effects of operating policies?

We need to ask and answer the following questions as to the existing equipment of structural characteristics and operating policies: (*a*) In what respect do they contribute to the maintenance of that resource use which we now experience? (*b*) In what respect are they responsible for holding down our use of resources so far below the optimum level? (*c*) In what respect do they fall short of the structural and operating characteristics that we need in order to achieve and maintain optimum use of resources?

Before we proceed too far along these lines of inquiry we might do well to raise a rather fundamental question as to what we mean by the "organizing influences" of structural characteristics and operating policies. Organization for what? Is it the goal of economic activity to hold on to what we have, or to get more? Most will reply, "To get more." Shall we be able to get more and still be sure to hold on to what we have? Many will reply hopefully in the affirmative; yet the most casual look around among the operating policies of our day will show how often we insist upon security at all costs, even when it means arrested progress and holds out at least a threat that we shall not get more. A great struggle is in progress between risk and security.

All of this criticism cannot detract from the excellence of the material brought together in *The Structure of the American Economy*, Part I. However, it may be persuasive in pointing to the need for additional study in those parts of the field which thus far have scarcely been staked out for inquisitive examination. Something more than natural resources and manpower is needed if wants are to be satisfied. We must have resources in social institutions, organizations, purposes, and controls that will keep our manpower employed in converting natural resources into the satisfaction of wants. It may be that our existing supply of social institutions is not sufficient to bring about full use of resources. It may be that some of the social institutions we have defeat that end, rather than promote it. Having made studies of our resources in lands, minerals, water, manpower, and economic structures, is it not time now for the National Resources Planning Board to survey our resources in ways of getting on together? Let's have a report on *The Structure and Use of Resources of Social Behavior.* Achieving and maintaining reasonably full use of resources is today the Nation's most pressing economic problem; but relatively few are the deliberate controls in our midst which act as though we recognized that problem or proposed to do very much about it.

D. E. Montgomery

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IV. THE ATTACK ON THE PROBLEM OF FULL USE

Introduction

The following brief notes go somewhat beyond the scope of the very general discussion by Mr. Means which introduces this series of papers. In particular, no attempt is made here to keep within the limits of "structural" characteristics, as conceived by Mr. Means. On that point, I incline to the view that purely structural characteristics have little or no meaning for the present problem, apart from their operational implications.

So far as I have indicated definite conclusions, they are to be construed, not as final, but as subject to verification; and as indicating problems toward the solution of which investigation needs to be oriented.

Basic Governmental Attitudes Toward the Problem

The problems created by lack of reasonably full use of resources (of which the crucial resource for this purpose may provisionally be taken to be manpower) are probably the most serious and threatening problems of an economic origin which are faced by our economic system. Without some reasonably adequate handling of these problems, our social order is seriously threatened. Reasonably adequate handling may operate in two directions, or a combination of them. These are: (1) Increased utilization, ideally up to full use, if this can be measured; and (2) policies directed toward mitigating the incidence of the burden of inadequate utilization on those on whom it falls most heavily, these policies being chosen with due regard to the importance of increased utilization, and to the bad effects, from this standpoint, of restrictive measures protecting the market position of particular groups at the expense of others. While only the first can be regarded as fully satisfactory, a realistic estimate of probabilities that the second will presumably be necessary for some time to come.

Dangers to be Avoided

If the available alternatives are adequately weighed, in the light of the uncertainties attending many of them, it may be found that a rigorous determination to pursue the goal of full utilization at all costs, by measures of such uncertain efficacy as those we can devise and adopt quickly and with present knowledge, would run the risk of creating conditions handicapping the successful operation of what may provisionally be called the "present system," to such an extent as to create danger of a collapse. The mere announcement of such an inexorable policy of public experimentation as above suggested might induce such a partial paralysis of private enterprise as would outweigh any stimulative effect which public policies might have. Sound judgment appears to indicate that this outcome would be a worse evil than those likely to follow from a policy less uncompromising as to goals and including a more or less indefinite use of palliatives, provided we can still work at the main problem with a prospect of substantial and progressive improvement.

The "present system" here means a system in process of continuous and more or less orderly change, continuing to rely on what we call "private enterprise" for organizing a major (though not unalterable) part of our economic processes. ("Private enterprise" refers to a system in which no industry is wholly free from various public measures designed to protect a growing assortment of recognized public interests; but in which there remains sufficient scope for business discretion and decision, and sufficient business incentives for its exercise, to motivate a vigorous voluntary prosecution of productive processes.) This it seems important to preserve, within any future for which we should now actively plan. If so, it appears incumbent on us to take more conscious thought for the conditions of its preservation than has been necessary during, let us say, the past 70 years during which the present system of public controls has been growing up. This does not require the cessation of all fresh measures to protect public interests.

In this connection, one thing to be kept in mind is the question whether certain courses of action would be irrevocable, coupled with the dangers involved if they should prove wrong. Among these dangers is the one already indicated, of not resting content with tolerable but imperfect results, coupled with the danger that the degree of detailed governmental supervision necessary to more perfect results in the particular aims sought, would so hamper business as to prevent it from doing its part of the task as well as it is capable of doing it, or perhaps well enough to survive. We are hardened to the cry of "wolf" which many business men have set up at every fresh governmental action, and should now be on our guard against assuming that there will never be a wolf.

Some things Government does are bad for business, partly or chiefly because business feels that way about them. Business attitudes in that respect change and

accommodate themselves to things they thought intolerable at first; but they cannot change completely overnight, and the limitations they impose, though shifting, must be reckoned with.

If the economic reasons for this position are not sufficient, we may consider the accumulating evidence that the break-down and extinction of private enterprise would endanger those underlying liberties we think of as distinctively "personal," and of more importance than business liberties as such. In a period of such pregnant transition as the present, this consideration should receive the most earnest attention. Our past policies of piecemeal control have not endangered true personal liberty; but threats to the continued existence of the element of private enterprise in our mixed system are a different matter, and require a reconsideration of the connection that exists between liberty in these various forms.

Balanced Use and Fiscal Implications

While the problem of underutilization of resources can be broadly distinguished from that of balanced use, it cannot be wholly isolated; and the assumption that it can be so isolated may involve some dangers, as pointing toward the conclusion that full utilization can be attained, or most effectively promoted, by measures which do not deal with problems of balanced use. This assumption is unproved, and there is strong evidence to the contrary.

As a limiting case, full "utilization" secured by employing manpower to do wholly useless things does not deserve the name of "utilization," but means rather going through empty motions as a pretext to qualify for what is essentially relief. This would describe the main character of the process wherever the value of the services rendered is extremely low. The line between such cases and those in which the service is of merely moderately inferior value, is a matter of degree. The consideration that services of any value at all are worth that much more than complete nonuse urges drawing the line quite low in the scale of values. But this, precisely on account of its disregard of balance, would mean non-self-liquidating employment, financed out of taxes or deficits; and there is much doubt whether such employment would have all the beneficial effects in simplifying other problems which are suggested in Mr. Means' paper in this series.

Non-self-liquidating uses of resources by government create a fiscal burden, which is not in itself a social deficit, but may lead to one. It is a burden of transfer of some of the wealth created by the self-liquidating private processes which involve more normally balanced productive use. And this problem of transfer may grow too heavy to be successfully borne, under the fiscal mechanisms necessary to accomplish it, and may result in hampering the private self-liquidating uses of resources. Full utilization, on the basis here considered, requires a balance between self-liquidating and non-self-liquidating uses.

More pertinent, perhaps, is the fact that full utilization often rests on a concentration of activity in the capital-goods industries which accomplishes in one year additions to plant facilities representing more than one year's quota of assimilable expansion. This is not merely unbalanced utilization, but because of that lack of balance, it is a kind of utilization necessarily involving (as our system operates) delayed underutilization. In this sense, it would be rational to conclude that the boom period of a business cycle does not represent really full utilization, over a time-perspective long enough to take in the delayed underutilization which seems to be implicit in it, and that this defect is due to its unbalanced character.

Action on Unproved Hypotheses

This problem of inadequate utilization may, somewhat roughly, be broken up into a problem of economic fluctuations (cyclical or other) and a problem of more or less chronic underutilization or partial stagnation, evidenced by incomplete utilization even at the peaks of business fluctuations.[1] About the first, and the forces at work to bring it about, we know a great deal and are learning more. About the second, we are in the stage of speculation as to some of the crucial factors especially those involved in the theories of oversaving (or underinvestment).[2] While these theories have considerable inherent probability, their absolute truth or falsity is not only unproved but unprovable with existing evidence and is likely to remain so for a considerable time. We are forced, then, to act in one way or another on unproved assumptions, on a basis of the weighing of probabilities; while in the meantime doing our utmost to clear up the uncertainties.

In such a case, it is peculiarly necessary, especially for Government agencies concerned with national policy, to try to correct the biases that are virtually sure to arise, in the areas where uncertainties cannot be resolved. A balance should somehow be held between biases natural to those faced with the urgent necessity of action in some particular field, and the opposite biases natural to commentators free from the responsibility of immediate action, and tending perhaps toward undue detachment. Possible lines of action should be fully canvassed, including those whose possibilities have been little analyzed and can perhaps

[1] This refers to immediate utilization, without regard to delayed underutilization.
[2] Cf. discussion by Alvin H. Hansen, in this series.

be sounded out only by experiments not yet under way. Courses which are bound to meet many failures before they can be expected to succeed should not on that account alone be discarded; they may include the only permanent cures, and temporary palliatives should, if humanly possible, be seen for what they are, and not be allowed to take the place of the search for more sound and enduring remedies.

One danger to be avoided is that of choosing a course by elimination: course A will not work, therefore course B must be adopted. Rather, both A and B should be weighed in the same scales, so far as possible; both in the light of past experience and in that of possibilities of modification and improvement. For example, as between action *via* private business processes and *via* Government, one attitude is to study private business in the light of past failures, and of the inherent possibilities of "automatic" action by private business, and to conclude that Government must be the reliance, without applying similar analysis to governmental action. On the other hand, a prevalent view among businessmen looks at the past decade of governmental action, and at the inherent tendencies and limitations of governmental action as it sees them, and with about equal logic and reason concludes that freer business action is the only recourse. Others look at both and conclude that neither holds out any hope: neither private business action nor attempts of Government to influence the course of private business. If this conclusion is to be escaped, it must be because (1) the kind of action on the part of business which we think of as "automatic" is not the only possible kind: or (2) government may find more successful policies than it has yet demonstrated; or (3) some combination or collaboration of both may accomplish more than either by itself.

For present purposes, it is legitimate to stress one side of this two-sided principle: namely, that the past efforts of Government should be scrutinized with the same objectively critical attitude and the same dual analysis of recorded results and inherent tendencies which is bestowed on private business. This standard of impartial analysis is a delicate and difficult one for a public body to live up to, yet the need of it is vital. It is part of the task of any governmental agency charged with responsibility for policy. It may be lightened, though not eliminated, in proportion as it is possible to scrutinize public policies in the making, before administrative bodies have become committed to them. To this end it is one of the most obvious and central duties of a planning body to combat the tendency to submerge advance scrutiny under the feeling that "something must be done," and that therefore the most obvious course must be followed, without too searching advance examination of its possibilities and limitations. The most obvious policy is not necessarily the most effective.

Since we are here dealing with problems on which advance scrutiny necessarily falls short of conclusiveness, studies embodying the results of such advance scrutiny bear a responsibility, not only for the further studies they indicate as needed, but also for the implications they may contain and the suggestions they may carry as to attitudes toward policies which will be followed in the meantime. It is probably better not to try to avoid all such implications, but rather to recognize and safeguard them. The foregoing discussion attempts to suggest desirable attitudes on this matter.[3]

Tendencies of the Market Mechanism

The market mechanism, as it now operates, has a tendency to cumulative intensification of certain kinds of fluctuations taking place within the system, rather than always acting to neutralize them; and the familiar alternation of booms and depressions is the result. And the market mechanism does not appear to contain at present any adequate forces tending to combat chronic underutilization of resources, but may have a positive tendency under present conditions to bring about such underutilization. This is the most crucial of the unprovable assumptions on which we have at present to act in one way or another.

Traditional "orthodox" economics contains next to nothing bearing on these problems. It is for the most part a theory of balanced allocation of resources between different uses, on the express or implied assumption that all are utilized for something. The chief support for this assumption lay in, or grew out of, *Say's law*, which claimed that there could be no general overproduction because supply of one thing constituted demand for something else. The conclusion which this indicates is that there is no problem of underutilization of resources apart from the problem of balanced allocation: That the first is a phase of the second and will be automatically solved if balanced allocation is achieved possibly with the help of ideally flexible prices and charges for the use of the factors of production.

This is now seen to be inadequate, but it served to fortify subsequent "orthodoxy" in its concentration on the problem of balanced allocation. A later form of essentially the same type of thought was the idea that, if any resources are unutilized, it is because the charge for their use is in excess of their "marginal productivity," and that this will naturally be corrected by a reduction in the charge until the resources are worth employing either in their original use or in some other. This also seems, in the light of recent study of the mechanism of

[3] Cf. especially the subsection, "Dangers to be Avoided," and the present subsection.

depressions, to describe an adjustment which is insufficient to the result it is supposed to produce, though pertinent as part of an analysis.

Abstract analysis of the "marginal productivity" relationship suggests the probability of a potentially elastic demand, in the long run, for the factors of production, indicating that if they generally reduce their charges to the "marginal productivity" of additional amounts of the factors, their total receipts, in real terms, will be increased. But when one examines the adjustments necessary to convert this potentiality into an actuality, it appears that, for instance, mere reductions of wage demands by particular groups of workers are not likely to be sufficient in themselves to bring about full employment for labor as a whole.

On the other hand, full utilization can be obstructed if charges for the use of factors of production are pegged above their "marginal productivity"; and a general violation of this rule can make it impossible for business, or Government, or both, to ensure full utilization on a sound economic basis, that is, consistent with the requirements of an economy largely dependent on "self-liquidating" employment.[4] In such cases unpegging is necessary, though it may not be sufficient, to secure full utilization. The fact that it is not sufficient does not prove that it is not important and necessary.[5]

Business Fluctuations and the Full Use of Resources

In analyzing underutilization, careful distinction should be made, at least in principle, between cyclical fluctuations, noncyclical but temporary underutilization, and possible secular tendencies toward chronic underutilization. Causes may be different, and appropriate remedies appear clearly to be different, at least in part.

As to general classes of action on these problems, equally careful distinction should be made between automatic private action under a system of ideal fluidity, "automatic" private action under existing conditions (which are far from the type suggested by the term "automatic"), private action involving joint planning, governmental action directed to freeing or stimulating automatic private action, governmental action directed to stimulating planned private action, governmental action otherwise influencing the course of private action, directly or indirectly, and governmental action taking direct effect on the utilization of resources.

As to causes of fluctuations, especially cyclical ones, a great deal is known and any action should be based on an appraisal of the results of business-cycle studies, with respect to which it seems now possible to distinguish those conclusions which are now reasonably well established.

Indicated remedies include the following:

(1) Efforts to unpeg unduly rigid prices and charges for the use of factors of production, especially the more extreme cases and those which appear to violate the principle of "marginal productivity" even under conditions of fairly active business.

(2) Action to stimulate the planned regularization of private investment. To have hopes of success, this requires some flexibility of prices, wages, etc., in the durable-goods field; but such unpegging can hardly be effective without some further action tending directly to bring about a response of demand to the opportunity thus afforded. Neither alone can probably be effective; but together, they may have some substantial results. This policy is one of those in which repeated failures are to be expected; but since it is not a mere palliative, but goes to the heart of the matter, it is a policy which should be persisted in despite initial failures.

(3) A wise control of the elastic credit mechanism, involving a check on unbalanced expansions which are destined to lead to delayed underutilization, and "easy money" under the opposite circumstances. The difficulties of the necessary prompt diagnosis of current conditions, is too obvious to need emphasis.

(4) A cyclically flexible fiscal policy, involving:

(*a*) Expenditures, for relief and other purposes.

(*b*) Taxes and other forms of revenue.

(*c*) Charges to reserve funds and similar matters, involving a possible discrepancy between the balance of cash income and cash outgo, and the balance of accounting income and expense. This might, with reservations, include some form of capital accounting for durable assets created by what would otherwise appear as "deficit spending," but it would be important not to neglect or conceal the fiscal distinction between self-liquidating and non-self-liquidating assets. The social usefulness of the latter does not solve the fiscal problems where charges on their account must be raised out of taxes.

(5) Measures to counteract disturbances arising from fluctuations in the field of international trade.

If cyclical fluctuations can be adequately damped, even if not completely removed, the problem of possible

[4] In the case of industrial plant operating at part capacity, the fixed capital has, temporarily, no "marginal productivity"; any interest charge at all on the fixed capital might be said to be in excess of its short-run "marginal productivity," yet on the average of fluctuations it must earn something. In such a situation the literal short-run marginal productivity of direct labor and materials absorbs the whole product of the plant, and direct labor must take something short of its literal short-run marginal productivity if there is to be anything to pay the indirect labor that must be employed alongside it if the plant is to operate at all. Another aspect of the problem is the wage so high that it drives the employer to replace labor with labor-saving machinery. Thus, the definition of "marginal productivity" presents difficulties, and involves conflicts between long-run and short-run points of view. However, the basic idea underlying this abstract phrase could be stated as the most an employer can afford to pay for a factor, disregarding in the short run, but not for long, constant capital charges on the underlying fixed plant.

[5] To this extent, at least, the problem of full use appears not to be confined to matters of short-run adjustment. Cf. Mr. Means' paper in this series.

tendencies to chronic underutilization will stand out in clearer relief, and the question whether such tendencies exist may be given a more confident answer. If there are tendencies to automatic absorbtion of unused resources, they may be given a better chance to show themselves; and the question whether and to what extent they exist may be better tested.

Possible Tendencies to Chronic Underutilization

Policies bearing on this problem must be related to probable causes, which should, of course, be searchingly investigated. Among them the following may be noted here:

(1) Limits on the existing general mechanism of immediate recovery from depressions; bearing on how far and how fast it can go from, for example, the low of 1932–33, without creating forms of unbalance that lead to a reversal of the movement. If this level of 1932–33 was abnormally low, even for a depression, for historical reasons peculiar to that particular time, the result might be a failure to attain full recovery over a period of several subsequent cycles, though not necessarily permanent underutilization. To the extent that this may be true, it might justify the use of temporary palliatives, such as deficit spending, not on the ground that the tendency to underutilization is inherent and permanent, but on the opposite ground.

(2) Special obstacles to full use and to recovery adjustments, such as enduring barriers to international trade, or obstacles arising from the tax system.

(3) The existence of unemployables, or of workers inferior in a lesser degree than this term suggests, but who are among the first to be laid off when any fluctuation occurs in a particular establishment (such fluctuations being hardly avoidable) and who are most likely to be rejected on application for other employment, with the result that they are subject more or less chronically to an unusually large degree of unemployment of the turnover type. This points toward a policy of vocational rehabilitation, and also toward the problem whether the wage system has adequate scope for adapting wages to these varying degrees of efficiency.

(4) Normally employable factors, which have priced themselves partially out of the market. This is connected with vocational immobility whereby an excess supply remains in a trade or industry, leading to inadequate average yearly earnings, though at high hourly rates. This suggests a policy directed toward unpegging unduly high rates, coupled with the promotion of vocational mobility, which might, among other things, tend to bring the existence of such rates into sharper focus.

Perhaps the chief difficulty of such a policy (though not the only one) is that, politicans being human and political pressures being what they are, any unpegging would naturally tend to be biased in the direction of sparing strongly organized labor groups. And effective unpegging of selling prices without corresponding unpegging of cost factors might have a dampening effect on the incentive to private industrial investment. The indicated need is for a balanced overhauling of the whole pricing system. Worthy of investigation are forms of wage payment and of pricing which might within limits reduce the added cost of added employment to an industry, while protecting average worker-earnings.

(5) Inadequacy of the flow of purchasing power directed to taking off the market the products of current production. Note that this refers to the flow or use made of purchasing power, not to its total amount. There are, in fact, two problems here. An adequate amount of real purchasing power itself requires full utilization, together with a system of prices which can be supported. And a state of underutilization in itself means inadequate purchasing power to take the volume of products which full utilization would turn out, at existing price levels. This is more a tautology than a causal proposition.

The other aspect of the problem is that of the conditions of movement toward fuller or less full utilization than exists at any time. This hinges on the spending of more or less than the amount of income received from current productive operations. If more is spent, an upward movement is indicated, and vice versa, with allowance for changes which may take place in prices, but with recognition that a heavy downward price movement is in itself a factor tending to restrict utilization. This problem is sometimes presented in the aspect of underinvestment or oversaving, which may be important factors in conditioning the direction of movement, though not all-sufficient to explain everything about a condition of underutilization. A reversal of these factors may have only limited power to induce an increase in utilization.

If an inadequate amount or flow of purchasing power exists, its existence does not mean necessarily that it is an independent cause in the case. So far as the factors (1), (3), and (4), mentioned above, are causes, they would naturally take effect in the form of inadequate purchasing power, and the shortage of purchasing power would then be a symptom of something lying behind it, rather than an independent cause.

There is evidence that a change in the direction of an excess of saving over capital outlays took place about 1929 and perhaps earlier, being temporarily cloaked or counteracted by export of capital, a rising stock market and possibly other factors.[6] There is also some reason

[6] The present writer has dealt with this in a paper in *Capital Formation and Its Elements*, National Industrial Conference Board, 1939.

in the nature of the case to suppose that such a tendency is natural, being conditioned by the following factors:

(*a*) Increased per capita income. People presumably tend to save a larger proportion of their incomes as the incomes become larger.) We shall probably not attempt to remedy this by reducing average per capita incomes.

(*b*) Interest rates. Very low rates may have some limited tendency to stimulate investment, though not very effective in risky enterprises, or in the very large class of enterprises where the interest rate is in itself a relatively small part of the total capital cost on account of a given investment.) Maintenance, depreciation, and obsolescence often far outweigh it. Very low rates may also have a limited tendency to reduce net savings, largely through driving the less rich investors to annuities or other forms of investment involving the ultimate consumption of their principal. As things are, the power of interest rates to bring about a balance is probably inadequate, though they are a proper subject of public policy. Reduced interest rates, with reduced profits, would reduce the source of the largest savings, though reduced profits without correspondingly reduced interest costs would reduce the stimulus to industrial investment.

(*c*) The customary *mores* of providing for future personal needs. These may be altered in ways affording a given amount of provision for an individual's future needs with a larger or smaller net total of investment.)The reserve policy under the Social Security Act is one outstanding illustration of an optional policy capable of having varying effects in this respect, but other policies might have an equal effect, especially if they influenced the savings *mores* of the middle class.

(*d*) The distribution of incomes. Reduction of inequality could have some effect, but would need to be quite drastic to redress any major unbalance, if it were the only factor relied on.) If per capita income increased, the share of the rich might have to be decreased, not merely relatively, but absolutely in case, as seems likely, the increased savings of other classes were more than enough to supply the needs of increased investment. This would have to be done without impairing the incentive to investment. The indicated conclusion is that, while reduction of the unequal distribution of incomes is a proper aim of policy, and can have some effect on such an unbalance as is here assumed for purpose of discussion, it is extremely unlikely to be in itself sufficient.

(*e*) Causes operating on the side of investment. There is evidence, far short of conclusiveness, that the coming decade or two may witness a continued state of sluggish outlays of new capital; and that this may be accentuated by fear of unknown and radical experimental policies on the part of Government.) Serious students have concluded that there is an inherent tendency to oversaving or underinvestment, in the sense indicated above, in the state of development which our economy has now reached. This conclusion is not proved, but it may be that the balance of probability lies in favor of it. To any action taken in the light of it, the principles apply which were formulated in the first main section of this paper, especially those relating to dangers to be avoided and action on unproved hypotheses.

If true, this theory of oversaving or underinvestment does not seem to support the conclusion as to policy which some draw from it: namely, that Government should fill the gap by indefinite "public investment" (or deficit-spending). If such spending is to add to the volume of private investment and not merely take the place of part of it, it seems that it must be largely non-self-liquidating, since the main avenues for self-liquidating outlays would either directly compete with private enterprise, or absorb some purchasing power on which private enterprise depends. To some, the very fact that the assumed unbalance is thought to be permanent seems to argue that Government must fill the gap. A more valid judgment would seem to be the opposite; namely, that such an attempt would be a temporary palliative only, leading to a worse condition in the end; and that only a temporary unbalance could be successfully offset in this way.

Business psychology being what it is at present, the accumulation of deficits seems to have reached a point at which it now deters as much private investment as Government can make, or more. This would be still more strongly true of further deficits on a basis of policy pointing to indefinite future increase, and not limited to a temporary emergency. A single year's deficit spending can still stimulate business during that year, since its stimulative effect is fully felt, while it makes relatively little impression on the deterrent, which is a function mainly of the accumulated total of debt. This is, in fact, one of the dangers of the situation, since it means that the apparent or momentary stimulative effect of deficit-spending continues, even after it has reached a point at which the cumulatively net effect is depressive rather than stimulating.

Some hold that this business psychology is irrational and should be changed. Business assumes that at best the deficits will ultimately have to be met (or at least interest on them), by oppressively heavy taxes. If this attitude were altered, we might go on borrowing to pay the debt charges and let the debt pile up. The ultimate outcome is, naturally, uncertain. One rational course would be to stop the process when it began to result in increased prices rather than increased physical output and employment. In that case, it might have to stop while the tendency to underspending continued and underemployment persisted. This is perhaps the

least dangerous outcome. If the process did not stop, and if there really is a chronic tendency to underspending to be neutralized, the result would apparently be a cumulative pyramiding of debt, resting on continued confidence in the continued willingness of Government to go on pumping borrowed funds in and out in increasingly astronomical quantities. As a permanent reliance for a sound economic system, this picture seems thoroughly unconvincing. At some point, it seems more certain that the sheer arithmetic of the operation would break down the psychology on which it rested. Such a process of pyramiding could hardly have a happy ending.

We shall undoubtedly be forced for some time longer to continue deficit spending. But it seems clear that a permanently sound adjustment must rest on types of measures which are less obvious, and presumably more difficult.

Summary and Conclusion

Government must add to its other continuing responsibilities that of assuming a leading part (though not necessarily the sole part) in dealing with the problem of underutilization of resources. For the future, for which it is now appropriate to plan general policies, the objective should be to do the utmost that can be done to stimulate fuller use of resources within the framework of a system still relying in the main on private enterprise, and with recognition that the practicable limit may be set by the unfavorable reaction of public policies on private investment. In view of this practicable limit we should be prepared to accept the necessity, which may be an enduring one, of supplementing policies directed to fuller utilization with other policies directed to mitigating the burdens which incomplete utilization throws on some members of the community; doing this in whatever fashion may be most helpful and least demoralizing.

The types of measures that may be tried in the attempt to promote fuller utilization have already been indicated, though not exhaustively. We do not know enough about the probable effects of most of them to justify us in committing ourselves to a policy which would be disastrous if the measures should disappoint optimistic expectations. We must act daringly, but we can probably be daring without gambling our national safety on a single throw of dice. An experimental policy implies keeping open the possibility of withdrawal.

J. M. Clark

V. PRICE FLEXIBILITY AND FULL EMPLOYMENT OF RESOURCES

Cyclical versus Structural Price Flexibility

A discussion of the role of price flexibility in the functioning of the economy must begin with a definition of terms. The phrase "price flexibility" is subject to two possible interpretations which need to be sharply distinguished. These are (*a*) structural price flexibility[1] and (*b*) cyclical price flexibility.[2]

By structural price flexibility I mean the long-term secular adjustment in the price structure. It is concerned not with the *level* of prices but with the *interrelation* of individual prices. Thus, for example, changes in technology and the methods of production continually alter the unit cost of production of one commodity relative to other commodities. The cost of producing an automobile has, by reason of changes in technique and mass production methods, fallen greatly in the last two decades relative to the unit cost of production of the great bulk of manufactured commodities. Structural price flexibility implies an adjustment of prices to changes in unit costs[3] springing from unequal rates of technological progress in different industries or from shifts in the pattern of wants. Without structural price flexibility the full gains of economic progress could clearly not be realized. Structural price flexibility implies that the price system is functioning in a manner to yield the largest possible product of goods and services which a given stage of technique makes possible. A structurally flexible price system operates to direct the productive resources into channels which will yield the largest social product. Without structural price flexibility an uneconomic allocation of resources would prevail.[4]

Cyclical price flexibility or inflexibility is a quite different matter. Unfortunately, in much of the literature, the distinction between cyclical and structural flexibility is not made.[5] Cyclical price flexibility has to do with the sensitivity of prices to fluctuations of the business cycle. Commodities whose prices move quickly in response to changes in the national income and whose amplitude of fluctuation is relatively large are said to be cycle-sensitive commodities with respect to price. Raw materials, both agricultural and industrial, are, by and large, cyclically price sensitive, while finished manufactured products in large measure are insensitive to cyclical changes in employment, output, and income. In the case of farm products the sensitivity is limited to price responses, while in the case of certain industrial raw materials the sensitivity relates both to price and to fluctuations in output.

There is, as far as I am aware, no disagreement among economists with respect to the desirability of structural price flexibility. Without structural price flexibility it is quite impossible for the community to obtain the full fruits of economic progress. Arbitrary interferences which obstruct structural price flexibility necessarily result in an uneconomic utilization of resources. Moreover, any marked derangement in the structural adjustment of the price of important commodities in relation to unit costs may have a disrupting effect upon consumption and investment expenditures, intensifying or contributing to the initiation of a decline in industrial activity. Thus, at times, structural price maladjustment may contribute to cyclical movements. For example, the enormous increase in agricultural tariffs in the great raw material importing countries in the last years of the twenties doubtless affected unfavorably the terms of trade of the primary producing countries and contributed to the great depression. For the most part, however, structural price maladjustments probably accumulate relatively slowly and have little influence on cyclical movements. They do, however, retard the secular advance in real income and in the standard of living. Under modern conditions, with the great development of institutional controls, corporate, trade union, agricultural, and governmental, there is danger that structural price maladjustments may present serious obstacles to economic progress. This area, though largely neglected, offers an important field for the exercise of price policy.

It is, however, with reference to cyclical price flexibility that most discussions of price policy are concerned. Unemployment and underutilization of resources, it is said, are caused, or at least intensified, by the depression insensitivity of a large and important group of commodities. It is suggested that depression might, in large measure, be prevented or remedied by making all commodities as price-sensitive as are most

[1] This involves in part, of course, the problem of monopoly price: the divergence of price from marginal cost.

[2] In general, these terms correspond to those used in *The Structure of the American Economy*, Pt. I: pp. 126, 129, under the headings: (1) "Sensitivity to Basic Factors Conditioning Economic Activity"; and (2) "Sensitivity to Depression and Recovery."

[3] Unit costs may, of course, under conditions of monopolistic competition, be enhanced through large advertising expenditures. This element of cost constitutes one of the important factors causing maladjustment in the price structure.

[4] See discussion under the heading, "Sensitivity to Basic Factors Conditioning Economic Activity," pp. 126–129 in *The Structure of the American Economy*, Pt. I, National Resources Committee, 1939.

[5] This aspect of price behavior is discussed at length in *The Structure of the American Economy*, Pt. I, chapter VIII.

raw materials.[6] It is argued that the deficiency in effective demand which results in depression is, in greater or less degree, caused or intensified by the cyclical insensitivity of administered prices. Any incipient deficiency in effective demand could, it is believed, largely be corrected, were it possible to achieve short-run price sensitivity. To the extent that prices do fall in depression, some considerable increase in real buying power, over and above what would otherwise be the case, would be achieved, according to this thesis. A high degree of cyclical price sensitivity, it is said, would help to sustain effective real demand and would prevent fluctuations in output and employment.

In support of this thesis, it has been urged that price dispersion—the divergence of agricultural prices from administered prices, the divergence of raw material prices from the prices of finished products, the divergence of price-sensitive commodities from price-insensitive commodities—is highly correlated with fluctuations in output and employment. The inference is that it is the dispersion of prices which causes the fluctuation of the cycle.

These considerations raise two crucial questions. First, what is the causal connection between price dispersion and the business cycle; is price dispersion cause or is it effect? Second, if it were possible to extend the area of price sensitivity to include all commodities, would cyclical fluctuations be minimized?

Broadly speaking, the main explanations of business cycle fluctuations can be classified under two heads: First, those which explain business fluctuations in terms of price movements, and second, those which explain business fluctuations in terms of fluctuations in the rate of investment.

The former explanation of the cycle, in terms of price movements, may be subdivided into two groups: First, the monetary explanation which seeks the causes of industrial fluctuations in terms of general price movements, and second, the price dispersion explanation which finds the cause in terms of maladjustments in the cost-price structure. According to the former, public policy directed toward the maintenance of the total money flow is the all-important desideratum. According to the latter, appropriate adjustment of the cost-price structure is the remedy for depression.

In this brief memorandum, it is not possible to go into an exhaustive examination of the causes of business fluctuations. An examination of the trend of thought over the last four decades, however, will disclose the fact, I think, that a growing body of opinion stresses fluctuations in the rate of investment as the dominant factor in cyclical movements. It is not necessary for the purpose of this paper to go into the various factors which bring about fluctuations in the rate of investment. They relate to factors which cause violent changes in the marginal efficiency of capital in relation to relatively small changes in the rate of interest.

What is all-important for our purposes is the fact that a decline in the rate of investment results in an accelerated decline in income and in effective demand, and that any such decline of necessity produces a wide dispersion of prices. This follows from the fact that certain prices are highly sensitive to changes in effective demand, while others are insensitive. It is clear that, granted a decline in income, price dispersion is bound to follow. It is, therefore, reasonable to suppose that the correlation of price dispersion with fluctuations in income represents a relationship in which the latter is cause and the former effect.

A decline in income, by reason of the high price sensitivity of certain commodities, results simultaneously in price dispersion. This conclusion is reasonable insofar as one can find independent outside factors—familiar in the investment theories of the business cycle—which cause the decline in income. In similar manner, as soon as income rises under the spur of increased investment, it is to be expected that the price-sensitive commodities will quickly respond, and so the price dispersion will narrow. It may, therefore, be argued that it is not only the fluctuation in the rate of investment and therefore in income which causes the price dispersion—the maladjustment in the price structure between price-sensitive and non-price-sensitive commodities—but also that this price dispersion can in fact be remedied not by a direct attack on the price dispersion itself but only by policies which aim to correct the root difficulty, namely, the low level of income.

There can be no doubt that a balanced cost-price structure is favorable to the proper functioning of the economy. A balance in the cost-price structure, as we have already noted, is of peculiar importance from the standpoint of structural changes and differential cost reductions (or conversely, changes in productivity) in different industries. But while a balance in the cost-price structure is a favorable condition, it does not necessarily follow that, once forces are at work deranging a balanced cost-price structure, an effort at correction of such price maladjustment *per se* can be relied upon to improve the rate of business activity. Instead, what is needed is an attack upon the general factors causing the price dispersion. A mere artificial rectification of the price dispersion may get at the root causes of the decline in income and employment no more than a tampering with the thermometer can change the temperature. The price dispersion is, indeed, a fairly accurate thermometer registering disturbances in the economic temperature.

[6] This position, for example, has often been attributed to Gardiner C. Means. While Means does lay great stress on the lack of balance in the price structure growing out of the cyclical dispersion of administered and free market prices, nevertheless he apparently does not believe that in *practice* an adequate remedy can be found in a policy aiming to make all prices flexible.

Consider, for example, the situation at the beginning of a period of depression. A vigorous boom has come to an end, has died "a natural death." By this I mean that the currently available outlets for investment in plant and equipment have been temporarily exhausted. This situation is not uncommonly the basic cause of the termination of a boom. All of the available new developments which the progress of science and technology, together with the growth of population, have made possible have been exploited to the utmost extent economically feasible and not infrequently even beyond this point. Once industry has been equipped with the capital facilities which technology has made available, there remains little that can be done profitably for a time, except to maintain the capital plant already constructed. Typically, economic progress is made by spurts, by leaps and bounds. (The essence of a boom is a gigantic spurt in capital formation.) This involves not only plant and equipment of industries and utilities but also office buildings, hotels, houses and apartments. Frequently, a backlog of housing requirements, or the rise of a new industry, results in an accelerated pace of construction. When the new developments have been exploited to the full, the boom dies. The spurt in capital formation cannot last at the pace set. The boom subsides because a saturation point has temporarily been reached. For the moment, there is no room left for further investment expansion or for new capital outlays. It takes time before the cumulative effects of new developments can again manifest themselves, before the discovery of new techniques, new resources, and new industries, and the growth of population, will set the stage for another boom.

In such a situation, and this is the typical one at the end of a period of moderate or high prosperity, it is clear that the driving force which causes a decline in income is the sharp reduction in investment expenditures; and as soon as this occurs, a price dispersion develops between the cyclically flexible prices of agricultural and raw material commodities on the one side and the cyclically rigid prices of many finished products on the other. (The price dispersion is not the cause of the depression. It is a result of the decline in the national income and in employment caused by the initial decline in investment expenditures.)

Consider now the question whether in such a situation a program designed to make the administered prices as cyclically flexible as those of agricultural and some other raw materials would improve matters and cure the depression.

It is not possible to make a general statement about every individual commodity or every individual industry. In certain specific cases, particularly if these cases do not become generalized for the economy as a whole, a downward readjustment of a rigid administered price may frequently prove beneficial. That such may be true proves nothing about the desirability of a program designed to make rigid prices cyclically flexible.

The problem is peculiarly pertinent to the capital goods industries that are most affected by the temporary saturation referred to above. Once the period of temporary saturation has been worked through and the conditions are ripe for a recovery in investment expenditures, owing to the accumulation of depreciation, obsolescence, and the emergence of new products, a price reduction in the capital goods industries would be beneficial. But it is quite a different matter to argue that at the beginning of the depression, while the temporary saturation of the capital-goods market prevails, cyclical flexibility of prices would avail as a depression remedy. For example, it is certainly not clear that, at the end of 1929, a reduction in the prices of building materials and building labor commensurate with the decline in agricultural prices could again have induced anyone to continue to erect gigantic office buildings such as the Empire State Building in New York City. And much the same held true for metropolitan areas throughout the United States. It is the fact of the *temporary saturation* which is all-important. During this state of affairs no price reduction, commensurate with that of price-sensitive commodities, will again bring about a recovery in investment expenditures. Insofar as there are areas—as is certainly the case—in which there is no pronounced saturation, a more favorable price might in fact in some measure sustain investment expenditures. But it is to be doubted that such cases are sufficiently numerous and important in the economy as a whole to sustain in a significant degree the volume of investment expenditures in the downswing of the cycle.

If in industry as a whole, and particularly in the capital goods and durable consumers' goods industries, prices and wages were reduced drastically to an extent commensurate with the decline in the prices of cyclically flexible commodities—agricultural and other raw materials—it is to be expected that by and large such price and wage declines would merely reduce the gross volume of monetary expenditures made in the capital goods and durable consumers' goods area, without appreciably affecting the physical volume of output. Since these cost payments are also income receipts of individuals, incomes fall along with a decline in costs. In these circumstances the effect of the price reduction is merely to accelerate the decline in the national income[7] and thus intensify the downward movement in

[7] Reduction in price need not *necessarily* lead to a reduction in money income. For example, if at the same time that corporations reduced their prices they maintained wage payments by drawing on idle bank balances or other cash resources, the total income and the money volume of consumption expenditures might not decline, and so the physical volume of sales would increase. Obviously, there are severe limits to this possibility.

business activity. Moreover, the uncertainty created by the disruption of reasonable stability and normality with respect to the industrial price and wage structure would only serve to intensify the already unfavorable business expectations engendered by the decline in investment.

If income and effective demand could be maintained or expanded at the moment that costs are reduced, the effect would, of course, be different. Once the deflationary aspect of the cycle has ceased, once the passage of time makes increasingly necessary the replacement of plant and equipment required to maintain the minimum volume of consumption purchases, once obsolescence and new developments begin to improve the outlets for investment, it is certainly clear that a reduction in prices in the capital goods industries, made possible by cost-reducing improvements effected during the depression, would be favorable to expansion. Such price reduction, it should be noted, would conform with the requirements of structural price flexibility. It has to do with cyclical price policy, mainly with respect to timing. Similarly, in conjunction with a governmental expansion of public investment, a program of cost reduction in the industries directly involved would facilitate expansion of output and employment.

Cyclical price flexibility all around, including administered prices and wage rates in addition to agricultural prices, under the conditions prevailing at the end of a boom, might well accelerate the downswing. The expectation by business and consumers that prices will fall tends to generate a cumulative decline in expenditures and to intensify the downswing. There results not only inventory disinvestment but also the curtailment of investment and durable consumers' expenditures in the expectation of a further fall in the national income and in costs and prices.

The deflationary movements cannot be remedied by chasing administered prices and wage rates down to the level of agricultural and other flexible prices. It is not possible to remedy the disparity in the cost structure by adjusting the inflexible prices to the flexible price basis, for this process merely accelerates the decline in income, and this in turn creates a fresh price disparity. Combined, however, with monetary and fiscal policies designed to maintain the total volume of consumption and investment expenditures, an orderly program of cost-price readjustment does facilitate recovery. In other words, a direct attack must be made upon the cycle itself and not merely upon the price dispersion, which, for the most part, only reflects the cycle movement. Cost-price adjustments, thus implemented, are very different in their effect on business expectations from a general crumbling of prices. How far such cost reductions are desirable will depend, in part, upon the progress made in cost reduction; in other words, upon the extent to which certain costs and prices have gotten structurally out of line.

Just as forced cyclical downward adjustments of administrative prices are to be avoided, so also an advance of administrative prices in the upswing is to be avoided. Such an advance similarly creates business expectations which tend to cause the accumulation of excessive inventories, leading to subsequent relapses. In the upswing, price advances are not justified, strictly speaking, from the standpoint of the cycle movement. At any rate, no price advance can be economically justified until the industry approximates full capacity, and even then a small increase in price may be adequate to stimulate a sufficient amount of new investment to satisfy the enlarged demand. If a greatly expanded output in a given industry is required, this itself is an indication of a structural change in the economy.

It follows from the above analysis that price policy ought, above all, to be concerned with the problem of structural price flexibility. In the event that there is a structural shift in demand, involving an increased output of a certain industry, it may well be that a price advance is necessary in order to divert productive resources, including capital, into this expanding area. Such a situation would reveal itself in a genuine scarcity of the product in terms of the insufficient capacity of the industry to supply the demand.

Structural price flexibility involves the continuous adjustment of price to unit costs. Under the impact of changes in technology, the unit cost of some commodities fall, while the unit costs of other commodities are necessarily increased. This is peculiarly true in view of a fairly persistent wage structure which holds wage rates in different occupations approximately in line, regardless of the technological developments in different areas of the economy. Note needs here to be made of the fact that structural price flexibility avoids the difficulty of the variation in unit costs according to fluctuations in output. Structural price flexibility implies the adjustment of prices to unit costs at a normal percentage of capacity production.

With respect to wage rates, it should first of all be noted that throughout the last hundred years wage rates have exhibited an upward trend relative to the commodity price level. This, of course, is a reflection of technological change by which labor costs have been kept down despite the advance in wage rates. The general fact is, then, that so far as the long-run trend

[8] "In most countries there are a large number of prices which, for one reason or another, are fairly insensitive to economic forces, at least over short periods • • • But, for whatever cause rigidity occurs, it means that some prices do not move upward or downward in sympathy with the rest—they may consequently exercise a stabilizing influence." J. R. Hicks, *Value and Capital*, p. 265.

is concerned, technological improvements, under a condition of stable commodity prices, justify a rising wage rate trend.

Just as cyclical price flexibility may intensify the cyclical problem because of the effect of such price changes upon business expectations, so sharp wage reductions are likely to be deflationary. It was not altogether an accident that the most violent deflationary movement in the Great Depression came in 1931 in the midst of wholesale wage cuts. Economic thought in recent years, led by the Swedish and more recently the English economists, is coming more and more to the conclusion that a relatively high degree of wage stability from the cyclical standpoint is the preferable wage policy. It follows from this that, if the long-run trend of wage rates may be expected to rise relative to commodity prices, in view of increasing productivity, such an advance ought to occur in the upswing phase of the cycle, in other words, in periods of rising output when unit costs normally tend to decline. Assuming continued changes in technique, the community needs to be educated to understand that an increase in wage rates in the upswing phase is perfectly compatible with price stability, insofar as the advance in wage rates does not exceed the offsetting increase in productivity springing from technological developments. Wage advances, therefore, do not in themselves justify a price increase. In general, the public and employers are inclined to take the rigid position that wage advances and price advances inevitably go hand-in-hand. This is certainly erroneous and leads to wrong price policies. The advance in wage rates, it is true, does frequently necessitate structural price adjustments as between different industries by reason of the relatively fixed wage structure in terms of occupational differentials on the one hand, and the differential rates of technological progress in various sectors of the economy on the other.

It is quite impossible for administrative agencies to determine accurately the appropriate price or the appropriate wage. The flexible functioning of the economy requires that this be left largely to the private determination of the parties concerned. It is, however, probable that better price and wage policies could be implemented by a governmental review of proposed price or wage increases. The burden of proof would then be put upon the industry or the trade union to show that the facts in the economic situation really justified the price or wage increase. In the case of wage rates, this problem has been attacked in various countries through the instrumentality of labor courts and through boards of compulsory or voluntary arbitration. The problem is, indeed, a difficult one and requires a high degree of voluntary participation through collective bargaining units. Experience indicates the greatest measure of successful achievement where the responsibility for the determination of the rate has been placed upon the parties involved—the employers and the employees or their representatives. The problem confronting a price review board would seem to be relatively simpler than that confronting a wage review board. In most cases it should not be too difficult to determine whether a general price advance in an industry is justified by the economic situation. Particularly is this the case if it be admitted that cyclical price adjustment is, on the whole, an unsound policy, and that price adjustment should be reserved mainly for changes required by reason of structural movements incident to differential rates of technological progress in different sectors of the economy.

From the standpoint of prolonged underutilization of resources, or more or less chronic depression, it is equally to be doubted that a realistic solution can be found in price reduction designed to bring about expansion of output in the various separate industries. The individual industry could, indeed, afford to reduce the prices of its commodities if it could reasonably assume that it is confronted by an elastic demand situation. This, in point of fact, however, is usually not the case. New product industries are, of course, typically confronted during the period of their development with an elastic demand situation. This was the case with respect to the automobile industry, up to, say, the middle twenties, the radio industry until a few years ago, and currently the electric shaver. But most industries are confronted at best with a unit elasticity of demand. This means that a price reduction will bring no increase in the dollar volume of sales, while at the same time the expanded output clearly results in some increase in the total money cost. Thus, each individual industry in a condition of chronic depression is unable to contribute to expansion by price reduction. The expansion of each industry calls for a general increase in effective demand. The increase in effective demand cannot be achieved via a program of price reduction in each individual industry. It can be achieved only by an expansion in the area which is fundamentally responsible for the low level of income and employment, namely, an expansion of investment.

A full recovery requires an expansion of investment quite independent of the current level of output, employment, consumption, and income. These outside independent investments must spring from new technological developments—cost-reducing improvements that call for capital outlays, the development of new products, the growth of new industries—or else new areas of investment must be made possible through monetary policy or fiscal policy. As income rises, replacement investment expenditures will add impetus to the upswing. With a general expansion of effective

demand, it is important, however, that the increased demand shall not at once be offset by an increase in prices, thus forestalling any volume expansion which otherwise might be expected. The increased effective demand can eventuate in increased volume and increased employment only on the assumption that prices remain stable or are reduced if and when increased productivity justifies a price reduction from the standpoint of structural price flexibility.

The Income Elasticity of Demand for Consumption Goods

The argument is frequently made that the persistence, even under modern high standards of living, of a large volume of unfilled consumer wants in and of itself guarantees full employment of resources, provided only that the price system is functioning properly.

This analysis overlooks the fundamental fact that people desire to save a part of their income and that they would wish to continue to do so, regardless of how low the prices of consumption goods might fall relative to money income. Indeed, the higher the real income, the greater the amount saved tends to be. It is true, as the data analyzed in *The Structure of the American Economy*, Part I, reveal, that American experience, and, indeed, that of other countries, indicates rising consumption in almost all lines as income increases. But it is equally true, as is shown on page 91 of the same volume, that with higher incomes a larger and larger amount is saved. Cyclically, the percentage of income saved rises and falls as income rises and falls. If, however, one concentrates attention exclusively upon the rising secular trend in real income, there is no conclusive evidence that a higher *percentage* of income is saved now than formerly. But if we save the same percentage of income (at corresponding phases of the cycle) as in earlier periods, it follows that the *amount* saved is higher, since real incomes have risen.

It does not follow, therefore, that the mere persistence of consumer wants will automatically insure a sufficient market to absorb all the output which the economy is able to produce. In an economy which even at full employment consumed all of its income,[9] this might, indeed, be the case. But in a society in which people desire to save, it is only at very low income levels that they will consume their entire income. At higher income levels a considerable portion of the income is set aside as savings.

Thus, when all the resources are employed, it would be necessary that the stream of savings at the full income level should be offset by a volume of net investment in new capital goods commensurate with the stream of savings.

It is extremely important to see clearly that the mere fact that the public desires to save in no way insures automatically that there will be a corresponding and offsetting demand for savings in the form of investment expenditures on capital goods. This follows from the fact that whatever the level of income, it is clear that the maintenance of any income level requires no net additional investment at all but merely replacement investment expenditures. Savings, however, if they are to be utilized, must be expended on net investment, since replacement capital expenditures are merely a part of consumption, constituting as they do simply an indirect way of utilizing the labor resources in the production of final consumption goods. Thus, while savings are a function of the income level, investment is in no sense a function of this level.[10] Net investment, on the contrary, is a function of (*a*) economic progress, including new developments in the field of technology, discovery of new resources, the opening up of new territory, and the growth of population, and (*b*) changes in the rate of interest (brought about, for example, by monetary policy) independent of changes in thrift. Changes in these factors account for and make economically feasible net investment expenditures.

It is important to distinguish between price elasticity of demand for consumption goods and income elasticity of demand for consumption goods. Those who stress the functioning of the price system are likely to overlook the elasticity of demand for consumption goods with respect to income. They fail to recognize that, while consumption of a specific commodity is a function of price, consumption as a whole is fundamentally a function of income. The mere existence of consumer wants, and the mere fact that with larger incomes more is consumed, do not of themselves insure the full utilization of the productive resources. What is required is that the gap between the volume of consumption at a full-income level, which gap is fixed by the savings pattern of the community, must be filled by investment expenditures. And these investment expenditures have no relation *per se* to the level of income or of consumption expenditures but are determined by outside factors having to do with changes in the real factors inherent in economic progress and with changes in the rate of interest.

According to the static economic analysis, it is assumed that an increase in saving would bring about

[9] Such an economy would still be able, through the expenditure of its depreciation allowances, to maintain its capital equipment. If capital-saving inventions are made, or if wage rates do not rise as fast as productivity in the capital-goods industries, the expenditure of depreciation allowances may even raise the productive capacity of the stock of capital goods without any net saving.

[10] It is true that a *change* of income from one level to another, higher or lower, will, during the interval of change, affect investment. A *change* in income induces fluctuations in investment. This is the relationship involved in the well-known principle of acceleration. A shift from a chronically depressed income level to a full income level would certainly entail a considerable increase in investment in plant and equipment. But once this additional capital formation, commensurate with a full income level, was completed, net investment would again tend toward zero.

a decline in the rate of interest, and that this decline in the rate of interest would itself open up new investment outlets. The defect in this type of analysis is that it fails to take account of the dynamics of the problem. It fails to take account of the impact of an increase in thrift upon consumption expenditures and, therefore, upon the income level. An increase in thrift at any income level of necessity must cause a decline in consumption expenditures, and this decline would result in a fall in the demand for replacement investment and thus accelerate the decline in income. It is true that a low level of income would bring about a decline in the rate of interest. The low rate of interest is, however, the result of the fact that the economy is depressed. The depressed condition causes the low rate of interest, and the rate of interest continues low only so long as the economy is depressed. Under these circumstances, the decline in the rate of interest will not stimulate investment sufficiently and therefore cannot bring the economy back to full employment.

(This is not to say that a low rate of interest achieved through monetary policy has no effect upon the volume of investment. If one assumes no change in thriftiness and, therefore, no decline in the volume of consumption expenditures, a fall in the rate of interest brought about through the action of the monetary authority would inject a positive new factor into the situation. Consumption expenditures being maintained, the low rate of interest might in certain areas bring about an expansion of investment.)

There is increasing, however, considerable doubt among economists as to how effective, even under these circumstances, the low rate of interest would be, at least within realizable limits, as a means of increasing investment and therefore income. The fact seems to be that with respect to short-lived capital goods, such as machinery, the rate of interest within realizable limits, of, say, two to seven percent, is not an important consideration. Decisions to make new captial outlays are made on quite a rough basis, such as that a machine must be able to pay for itself within four or five years. These considerations are so rough and uncertain and the time element is so short that obviously the rate of interest has little bearing upon such decisions. The rate of interest clearly has a more important bearing upon very durable, long-term, fixed-capital projects, such as public utilities, railroads, and building structures. But in this area one encounters the important offsetting fact that the longer the project in question, the more uncertain is the future. Risk, therefore, looms as an overwhelmingly important consideration and becomes in many cases a more important determinant of investment than moderate variations in the rate of interest.

At any rate, it is definitely clear that the mere fact that there are seemingly unlimited consumer wants cannot of itself insure full employment of resources even with the most perfectly functioning price system. This is true for any society which is not entirely a consumption economy. In a society where people desire to save, the mere fact of unlimited consumer wants will not of itself bring about full employment of resources. The savings process *per se* does not automatically develop a corresponding offsetting flow of investment. An increase in thriftiness not only reduces consumption expenditures but tends to diminish investment opportunities. The volume of net investment with the qualifications noted, is independent of the level of consumption and saving. (Investment outlets are created by technological progress and to some extent by monetary policy designed to lower the rate of interest.) Since the efficacy of the latter is very much to be questioned for the reasons indicated above, it follows that the gap between a full income level and the consumption expenditures which individuals are willing to make at that income level may or may not be filled by investment expenditures induced, as they largely are, by the more or less accidental development of technological factors. Positive governmental action, partly in the form of monetary and fiscal policy will be necessary at times to stimulate and supplement private investment, so that the gap between the potentially realizable full income and voluntary consumption shall be tolerably well filled.[11]

Conclusion With Respect to Price Policy

(Price policy is not likely to be adequate either to control the business cycle or to insure reasonably full employment of resources. So far as the cycle is concerned, a downward adjustment of rigid prices for the economy as a whole is not an adequate remedy, and, indeed, under many circumstances might well be positively harmful. In the recovery phase it is equally important that cyclical price advances shall not be made. (Appropriate price policy from the cyclical standpoint ought to aim at relative price stability both in the downswing and in the upswing, while general cycle policy should seek to minimize price dispersion as far as possible by the maintenance of general effective demand on a high level.) From the long-run standpoint, or the standpoint of the changing structure of the economy, price policy ought to aim to achieve a

[11] See my paper "Economic Progress and Declining Population Growth," *American Economic Review*, March 1939, pp. 13–15, for a discussion of the possible dangers of pushing recovery, by governmental measures, so close to full employment that the control of costs becomes difficult. Impressed with the "stubborn economic realities of a rapidly changing world, on the one side, and the frailties of human nature in its power to make the appropriate adaptation to change, on the other," we may "prefer to take a course that risks neither a negative policy nor a break-down of collective management."

continuous adjustment of prices between different commodities corresponding to structural changes in the unit cost of production. Without such adjustment uneconomic utilization of the productive resources would result. Thus, while price policy does play an important role, it does not constitute an adequate remedy for the business cycle and for chronic underutilization of resources. Price policy must be integrated with monetary and fiscal policies. It is mainly upon these latter that reliance must be placed to prevent any large decline in business activity and in the national income. If this is done, cyclical price dispersion between cycle-sensitive commodities and cycle-insensitive commodities will be greatly minimized. From the long-run standpoint, reasonably full utilization of the productive resources will facilitate the adaptation of individual prices to structural changes incident to the differential rates of technical progress in different industries.

Alvin H. Hansen

VI. ECONOMIC POLICY AND THE STRUCTURE OF THE AMERICAN ECONOMY

Every proprietor tries to operate his business in such a way as to make profits. Those who are in industries where competition is reasonably effective have to accept the prices set by the myriad of individual transactions, which sum up in the "price set by the market." If they are to make profits, they have to attain those profits by reducing their costs as compared with that price and by increasing quantities sold. Where competition prevails, this everlasting fight for volume helps to hold prices down. In such industries technological improvements which reduce production costs are soon reflected in lower prices, and thus passed on to the benefit of all members of the community.

In other industries, where production is largely centered in a few great concerns, or where competition between concerns is limited by product differentiation, the management has a conscious control over what happens to prices. In these industries the price-making process is quite different. They do not have to seek their profits by accepting the market price and attempting to adjust their costs and volume as effectively as possible to that price. Rather, they have the alternative of themselves changing the price.

Steel Illustrates Corporate Price Policies

The characteristic thinking of the management of such a dominant corporation when faced with the question as to what price to establish was well stated by the representatives of the United States Steel Corporation in their hearings before the Temporary National Economic Committee.[1] First they showed that the variable costs of the concern rise by a practically constant amount per additional ton of steel produced, and that a reduction in the price of steel would directly cause a less than proportionate increase in the volume of sales. From this evidence they came to the further conclusion that it would never pay them to stimulate increased consumption by reducing prices, because such action would increase their total operating costs, but would not increase their gross income. In the corporation's own words:

> It is evident that unless the elasticity of demand for the product exceeds 1 by a substantial margin, the theory that price reduction in and by itself, would produce profits through increased volume is utterly fallacious, not only for the United States Steel Corporation, but for any business or any industry.

[1] See U. S. Steel Corporation, *An Analysis of Steel Prices, Volume and Costs, Controlling Limitations on Price Reductions*, p. 38.

In reaching this conclusion, the steel corporation appraises the probable results of a change in its prices from the very narrow point of view of the immediate and direct effects of that change. Such a price change may have other broad social effects, both on the steel industry or on industry as a whole. If the corporation is not in position to allow for such broad social effects, or is unable to judge the effect of its actions on the total situation, it cannot take these repercussions into account in considering its own policies. The same will be true of dominating concerns in other industries, which have similar discretionary powers over the prices in their industries.

The inability of large corporations to take a broad social point of view in setting their price policies arises in part from their failure to recognize their weight in the industrial structure as a whole, and in part from their inability to coordinate their price policies with those of other concerns.

With respect to automobile steel, for example, the steel corporation states: [2]

> A change in the price of steel could affect the number of automobiles sold only if it were passed on to the ultimate consumer as a reduction in the price of cars. The cost of steel in a car is, however, only approximately 13 percent of the f. o. b. price, or approximately 10 percent of the delivered price of the car. A reduction of 10 percent in the price of automotive steel would therefore permit a reduction of only 1 percent in the delivered price of the car if it were passed on entirely to the consumer. Since this 1 percent reduction in automobile prices would give rise to only a 1.5 percent increase in the number of cars sold, it follows that a 10 percent reduction in the price of steel would give rise to an increased consumption of steel of but 1.5 percent through its effect on the number of cars sold. Thus changes in the price of steel are far from effective in raising the consumption of steel through increasing the volume of car sales.

That is, even though the demand for automobiles is elastic, the demand for steel to be used in automobiles is inelastic, since a change in steel price would affect only a small portion of the cost of a finished car.

The same argument is used by members of the building trades in saying that the wages of bricklayers make up only a small portion of the cost of a finished house; therefore, it would not pay to reduce wage rates. It is met, too, in statements by the lumber industry, the

[2] *An Analysis of the Demand for Steel in the Automobile Industry*, prepared by the special economic research section of the United States Steel Corporation, November 1, 1939, pp. 1-2.

cement industry, the glass industry, and the plumbing fixtures industry.[3]

It can seem to each of many individual elements in the economy that it is to its advantage to reduce output and gain a larger net income, yet at the same time it is obviously impossible for real national income to increase through reducing the output of all component industries.

Simultaneous Restriction Cannot Benefit all Industries

If a single industry were in a position to restrict its output while all other industries, through competition or otherwise, would maintain production, then the single industry which was in position to control its production would reap a disproportionate gain. (If all industries, however, are in a position to restrict their output, the reduction in the national production and national income lowers the level of demand for all industries.) If there is any gain at all, it goes to the industry which makes the most effective job of restricting output, while those in a less fortunate position to push for monopoly returns pay the penalty in the reduced national income and in their reduced share. Even if only a portion of the economy follows a high price policy, that may be sufficient to hold employment and national income far below the potentially attainable levels.

Competition is Limited in Many Industries

(Chapter VIII of *The Structure of the American Economy* shows that inflexible prices prevail in a large portion of the economy.) In general, inflexible prices are evidence of the ability of an industry to control its prices through conscious choice, either by regulation of output, production only to order, or by other means.)

In some industries, the intensity of competition between concerns is diminished because of their ability to establish special markets for their own individual products, through the use of brand names, trademarks, special designs, and other devices to induce consumer discrimination. "Great numbers of consumer goods commonly used today—automobiles, radios, vacuum cleaners, washing machines, electric cooking devices, furniture, even many articles of clothing and numerous food specialties—are given highly distinctive characters by virtue of their differentiated designs and particular specifications. The same is true of some producers' goods—machinery of different types designed to perform the same kind of work. So long as different sets of purchasers either see or are led to believe they see advantages of the one product over the others, the markets for such products will not be fully competitive in the orthodox sense of the term."[4] The extent to which such differentiation of product can lead to sustained high profits is shown by the fact that toilet preparations, with 31.6 percent on investment, and proprietary preparations, with 20.8 percent on investment, both ranked among the 5 industries showing the highest rate of return for the 10 years 1919 to 1928, out of a study of 73 manufacturing industries.[5] (Product differentiation, as well as large scale of industrial or financial organization, is thus a potent factor in reducing the keenness of competition.)

In addition to administered prices arising from corporate domination and from product differentiation, price flexibility in other situations is limited by utility regulation, agricultural or labor legislation, or by labor or farm organizations. If we include in the list of industries with the possibility of restricting output not only those where large-scale organization or product differentiation facilitates price control, but also industries affected by group organization or protected through trade associations, and those regulated through utility commissions, etc., it appears that a large proportion of our economy is operated under conditions where restrictive processes may dominate rather than expansive processes. Control of agricultural production, even under the present Government programs, is much less positive than is production control in many other industries, and for the most part is effective only in minimizing extremes of surpluses and shortages. As a result of this fact and of all the present restrictions, the two most elastic elements left in the economy to take the shock of economic adjustments are the prices of farm products and the employment of labor.

[3] An important bit of economic theory comes in at this point. Although the demand at the final sales price may be elastic for a commodity, the demand with reference to each of the commodities and services whose costs enter into the production of that final commodity may be inelastic. This can be shown as follows:

$$y=f(p)$$

$$p=c_r+c_w+c_c+v_i+w_i+P_a+P_b+\ldots P_n+(\text{various elements of profit})$$

where

p = price per unit of final product.
y = quantity sold.
c_r = retailing costs per unit.
c_w = wholesaling costs per unit.
c_c = converting costs per unit.
v_i = overhead costs per unit in processing industry.
w_i = wage rates in processing industry.
P_a = price of raw material a.
P_b = price of raw material b.
P_n = price of raw material n.

(where the prices are each taken for the quantity of materials or labor involved in producing one unit of final product.)

Now even if the elasticity of demand of the ultimate product taken over the retail counter by the consumer is $e>1$, the elasticity with respect to any of the component prices is very likely to be <1. In general, $e_n=\frac{P_r}{p}(e)$ where e_r is the elasticity of demand with respect to price or cost n. (This formulation is based upon a letter by Von Szeliski to me, written in 1934.)

[4] Ralph C. Epstein, *Industrial Profits in the United States*, 1934, p. 111–112. The theoretical results of such product differentiation are more fully explored by Edward Chamberlin in *The Theory of Monopolistic Competition*, 1936.

[5] Epstein, *op. cit.*, p. 43.

Restricted Competition Retards Economic Progress

The limitation of competition in a large portion of the economic structure has produced a number of repercussions. These include (1) a retardation of the rate at which reductions in production costs resulting from technological improvements are passed along to consumers in lowered prices; (2) a tendency to maintain prices at a level which covers unit costs, even though most concerns are operating far below their capacity, and therefore are producing at unit costs much above those potentially available at higher outputs; (3) in periods of recovery, an unduly rapid increase in profits and dividends, as compared with the increase in pay rolls; (4) a tendency to an intensification of the maldistribution of income in periods of rising national income;[6] and (5) in some controlled industries, a maintenance of profits at a level far above that prevailing in more competitive lines, without new concerns being able to break into the industry and participate in these high profits. All these results have contributed to the chronic unemployment, ranging from 6 to 13 million persons available for employment during recent years. During the last 2 or 3 years there has apparently been a stabilization of unemployment somewhere between 8 and 10 million people available for city employment, with little likelihood that they will be absorbed into employment in the near future.

Restricted Competition Contributes to Hoarding and Unemployment

In addition to the direct effect of restriction of output on unemployment, its effect on the distribution of income is also important, through the effect of this distribution on the subsequent flow of funds. Available studies of corporate income tax returns suggest that a larger share of the income from sales is retained as profits in the case of industries where production and prices are controlled by giant enterprises, or where product differentiation is general, than in industries where freer competition prevails.[7] Certainly industries such as cotton textiles, women's clothing, and retail selling, where something approaching true atomistic competition still prevails, are well known for their chronic low rate of profits on investment.

To the extent that limitation of production does increase the proportion of income which goes into profits and dividends, it intensifies the maldistribution of income.[8] The rapid rise in profits and upper-bracket incomes as national income increased during previous recovery periods, is one indication of this effect. High profits of large corporations also may encourage the retention of large sums as undistributed profits, in addition to the sums disbursed as dividends.[9] To the extent that such corporate savings are held in cash, rather than actually spent for new plant or equipment, they add to the total of hoarded funds.

Both theoretical[10] analysis and the statistical material more recently published by the National Resources Planning Board in its studies of distribution and utilization of consumer income, show clearly the way in which increases in the proportion of income in the upper income brackets may tend to increase the proportion of income saved.[11] Unless offsetting factors simultaneously increase the willingness to invest, or unless the Federal Government takes countervailing action through deficit expenditure programs, the result is to hoard or lose a portion of the current income paid out, reducing the funds spent for productive purposes and thereby restricting employment and the amount of income produced. The distribution of income, and the habits of saving and investment, may be such as to restrict national income in this way even in the absence of monopoly profits. To the extent that such profits are realized, they increase such tendencies. The extension of monopoly power and the resulting intensification of the maldistribution of income thus has a specific effect in restricting the total national income.

Possible Lines of Action

The material presented in the chapters on prices, consumer wants, and on the financial overlay, together with the interpretations above, thus points to basic restrictive influences in the economy. Possible lines of

[6] Available estimates of income distribution are neither accurate enough, nor available for enough successive years, to demonstrate conclusively whether or not the inequality of income distribution becomes more or less during periods of prosperity. The income tax data, however, do show that the number of incomes of very large sizes fluctuates much more widely than does national income as a whole.

[7] Crum finds the highest average rates of return in foods (including sugar and meat packing), liquors, tobacco, printing, and chemicals. The data cover only the period of 1931 to 1936. See William Leonard Crum, *Corporate Size and Earning Power*, 1939, pp. 250–255. See also Ralph C. Epstein, *Industrial Profits in the United States*, 1934.

[8] Dividends go much more to those with high incomes than to those with low incomes. In 1931, for example, 67 percent of the dividends of domestic corporations reported on individual income tax reports were received by those who had net income above $11,000, while the same individuals received only 30 percent of all the persons net income reported for tax purposes. Even in the bad year of 1933, when individuals with net incomes over $11,000 received only 24 percent of all net income reported, they still received 62 percent of the dividends reported. See U. S. Treasury Department, *Statistics of Income for 1931*, pp. 71–73, *Statistics of Income for 1933*, pp. 79–81.

[9] So far as I am aware, no statistical analyses have been published to determine whether the relative volume of undistributed profits is larger in corporations which exercise control over prices than in those which do not. The data assembled by E. D. Kennedy, however, indicate very large additions to surplus by the giant corporations. See *Dividends to Pay*, pp. 163–186.

[10] John Maynard Keynes, *General Theory of Employment, Interest, and Money*, 1936.

[11] The possible extent of this shift in upper-bracket savings with increases in national incomes was shown in a study published in 1937, which applied the different rates of saving at different income levels to the shifting distribution of income reported in the personal income tax returns. This study showed that estimated savings by those with net incomes below $5,000 changed very little between 1925 and 1929, while savings by those above $100,000 net income more than doubled. Estimated savings by those with net incomes of $25,000 or more constituted only 31 percent of the total estimated in 1918, but 46 percent of the total for 1928. See Mordecai Ezekiel, "An Annual Estimate of Savings by Individuals," *Review of Econ. Stat.*, vol. XIX, No. 4, November 1937, pp. 185–6.

action in dealing with these restrictive influences lie along three directions:

A. Those dealing with money.
B. Those dealing with competition.
C. Those dealing with economic planning.)

A. Monetary and Fiscal Proposals

(Actions dealing with money include manipulation of the money mechanism itself, such as gold devaluation, which may produce temporary stimuli to increased activity through a shift in the international exchange rates and through direct speculative reactions. They also include the whole wide field of the use of Government power to redistribute income through fiscal operations, both in the expenditure of Government funds and in the raising of Government funds.)

(*General relief expenditures.*—W. P. A., C. C. C., N. Y. A., farm security grants, etc., constitute an effective and immediate increase in the purchasing power of those without adequate income. When maintained by deficit financing and under conditions (which seem chronic now) where the sale of short- and long-term obligations by the Federal Government does not in any way reduce the volume of funds available for private investment, they provide an exceedingly effective technique for expanding national production and income above that which it would otherwise be.) Such stimulation has the disadvantage, of course, that that expansion is secured at the cost of an unbalanced budget and a continually increasing Federal debt. There are many individuals who mistrust continual deficit financing as a means of maintaining industrial activity. This opposition is particularly marked when deficit financing is proposed not merely as a budget unbalance in periods of depression with the debt reduced in periods of prosperity, but instead is urged as a continuing unbalance in good times as well as bad. There are two lines of action to meet this difficulty. One involves a shift in Treasury bookkeeping procedure, to place public investment on the same basis that is customarily used in private accounting, both for individuals and for business concerns. This is discussed at length subsequently. The second line of action involves frankly accepting the necessity of an unbalanced budget for temporary period, but using that period to make a subsequent reliance on an unbalanced budget unnecessary.

The development of nonbudgetary types of public investment seem likely to be so slow that it would probably be necessary to continue to depend in part upon deficit expenditures, at least for some time ahead. Our national debt is so low compared to our national income that those deficit expenditures could be continued for a number of years without any real difficulty. The present low interest rates on public issues show how little real concern the financial community has over the present amount of debt. Comparison with the French and English national debts in proportion to their national income indicates that it would be possible to expand our national debt to well over 100 billion dollars before it would constitute any real burden on the economy. If we should run an annual deficit as large as from 3 to 5 billion dollars, that would be sufficient to maintain an even larger national income than during recent years. This would provide a further period of 10 to 12 years before the debt would become at all serious. If that period were used to develop effective solutions to the problem of unemployment which would thereafter make unbalanced budgets unnecessary, it would be a good investment. If, however, no progress were meanwhile being made on other more fundamental solutions to the problem, it would be cause for alarm continually to increase the debt. To the extent that permanent correctives began to take effect within the 10 or 12 years, the annual deficit could be gradually reduced and the same total expenditure spread out over a longer transition period.

The subsequent portions of this discussion will indicate the avenues along which lasting solutions to the problem can be sought. A frank facing of the fact that large unbalanced budgets cannot be permanently used, an equally frank recognition of the fact that many years will be required to work out lasting solutions, and clear indication that steps are under way to develop those solutions and make them effective, would make it much easier to get public acquiescence in the interim for maintaining an unbalanced budget of even larger proportions than that which we have had recently.

Changes in the field of social security.—(These could play a significant role in permanent solutions to unemployment. To the extent that the funds for social security payments can be drawn from income which otherwise would not be spent, and to the extent that they are diverted to expenditure by the unemployed, the blind, the aged, and other handicapped or dependent individuals, they produce a diversion of income from that which is likely to be hoarded to that which is almost certain to be fully expended for consumption activity, and thereby tend to produce a permanent increase in the propensity to consume and a permanent decrease in the propensity to hoard.)

Our present methods of financing social security (when considered alone) with its taxes bearing to a considerable extent on consumption, and with a considerable proportion of the funds going into idle reserves rather than into individual expenditures,[12] tends to

[12] To the extent that these idle reserves are borrowed for Government expenditures *which would not be made if these funds were not available*, their effect is neutralized. It is doubtful, however, if the availability of these funds has increased the size of congressional appropriations.

have the opposite effect. One line of action would be to overhaul the social security system so as to make it contribute as much as possible toward increased consumptive power of the country. This would include not only a reconsideration of the old-age reserve principle, but also a reconsideration of the relations between current receipts from taxes for unemployment compensation, and the actual outpayments for unemployment benefits. There is clear evidence that the present tax is too heavy in relation to the outpayments. The rate of compensation or the period of payment could be increased, or the waiting period shortened, or the tax rate reduced, without impairing the fiscal integrity of the system. Beyond that, the entire present contributory basis of the social security system could be reexamined with a view both to merging fund-raising for social security with fund raising for all other governmental purposes, and to shifting the source of those funds to that which would have the minimum depressant effect upon buying power for current consumption.

Further action in the social security field might involve a reconsideration of the present Federal-State arrangements which limit outpayments to what the state legislatures are willing to approve. Partly as a result of these limitations, the number of persons actually receiving unemployment compensation payments and old-age pensions is very low in comparison with those in need of such payments. One procedure which has been suggested is the substitution of a direct federal old-age pension to all persons over 65, for the present Federal grants to states to aid in old-age payments. If such a direct federal pension were made at a moderate amount, with perhaps some graduation for differences in customary living costs in different parts of the country, the states could be left free to supplement that payment by such additional State payment as they felt able to make from state funds.

Taxes and expenditures sufficient to redistribute the national income.—This line of action involves such a reconstitution of our tax system as to take a much larger share of income from those who tend to hoard idle funds, and the expansion of such lines of expenditure through Federal Government programs, both for public services and increased income of those in need, as would redistribute the funds to those with low incomes. The possibilities of action such as this are shown by the British system where income taxes are far heavier than those in this country, where social services are maintained much more from income taxes and less from consumption taxes than they are here, and where prior to the current war the problem of hoarded savings seemed to be much less serious than it was here. In spite of her unfavorable foreign trade situation, the chronic unemployment was much less in England than in this country.

Action in this field would involve not merely a reconsideration of the whole structure of Federal revenues, but also effective action to coordinate the programs of state and local taxation with Federal taxation. The report recently compiled by the Treasury Department [13] on receipts and expenditures of all Government units in the 1937–38 fiscal year, showed that in that year 45 percent of all taxes came from commodity or excise taxes which bear directly on low income groups—sales taxes, liquor and tobacco taxes, pay-roll taxes, and customs; 31 percent came from real property taxes (almost entirely local); while only 24 percent came from corporate taxes, individual income taxes, and estate taxes. Apparently, therefore, only about one-quarter of our aggregate taxation at the present time definitely is of the character that redistributes income and prevents oversaving and hoarding, while something over one-half is of the type which tends to reduce expenditures for consumption.

Effective action in this field might involve setting up an investigating committee on the order of the Temporary National Economic Committee to consider the problem in a broad way and to prepare a specific program of action. If representatives of State and local governments could participate in this investigation and support the program of tax reorganization developed, that might increase the possibilities of action resulting from the study, as contrasted with the repeated inquiries, but almost complete lack of effective action, which have characterized the tax problem for many years.

One line of effective action would undoubtly involve increasing the proportion of taxes which bear on the middle and upper income groups. This might involve relatively little raising of rates, but a material closing of the present loopholes and exemptions. This increased taxation should make it possible for Government agencies to maintain or increase their recent expenditures while at the same time come much nearer to a balanced budget. If that were done, social objectives which now appear ready for action through Federal grants-in-aid in such fields as education,[14] public health,[15] and increased aid to dependent children,[16] could be attacked on a much broader scale than heretofore, while at the same time some approach could be made toward a permanent balanced budget.

A reconsideration of the tax structure should also

[13] "Federal and Estimated State and Local Revenues and Expenditures for General Government Fiscal Year 1938," extract from the Bulletin of the Treasury Department.

[14] *Report of the Advisory Committee on Education*, U. S. Government Printing Office, February 1938.

[15] *National Health Program*, Report of Technical Committee on Medical Care, Interdepartmental Committee to Coordinate Health and Welfare Activities, 1938.

[16] *General Conference Report of White House Conference on Children in a Democracy*, U. S. Government Printing Office, 1940.

give due attention to the alleged effect of taxes on investment. Without doubt there has been a great deal of exaggeration in this field. It seems clear, however, that tax-exempt securities serve to shield a considerable portion of many large fortunes from taxation, and to reduce the incentive to private investment. They should be eliminated. There is also some question whether the present system of taxation, with its double taxation on equity income, and its single taxation on bond income, does not unduly favor risk-free investment over risky investment. There is also question whether the income of very small corporations should be subjected to the same prorata taxation as that of larger corporations. If, for example, the first $10,000 of corporate income were made free of corporate income taxes, that might materially increase the competitive power of small business concerns, and their ability to expand their operations. All of these and related problems, such as the treatment of undistributed earnings and of unspent depreciation deductions, should be thoroughly considered in the suggested investigation.

Separation of current expenditures and capital investment in government accounts.—A considerable part of the objection to deficit financing arises from the tradition that the government may show in its annual accounts its liabilities only. This concentrates attention on the total amount of the debt. If both liabilities and assets were shown, as in the accounts of ordinary business concerns, attention would be concentrated on the relation of the debts to the assets.)

(The direct attack on this problem would involve changing the entire form of government accounting by carrying asset items for all publicly owned properties, and merely including the annual charge for depreciation, interest, and amortization of principal in the annual budget, rather than the capital amount.) Sweden has adopted a budgetary system somewhat along these lines. A good deal of time and discussion would be required before a full shift in that direction would be acceptable to public opinion here. In the meantime, however, some progress in this direction might be made: (*a*) By separating from the Federal budget those uses of public funds which are wholly self-liquidating, and enabling them to be financed independent of the general public debt. This has already been done to a certain extent in the F. C. A. and the R. F. C. It could be carried much further in the case of other self-liquidating activities such as the loans of the R. E. A., the rural rehabilitation and farm tenancy loans of the F. S. A., and other Government financing of self-liquidating construction. (*b*) By having the grants of the Federal Government to stimulate construction based upon grants for annual amortization, rather than providing the entire capital outlay at the time the project is built. This has been used in U. S. H. A. operations, where small annual Federal subsidies are sufficient to activate a much larger investment of private capital. There is no reason why all the building operations of the Federal Government, such as for roads, office buildings, post offices, and the grants for other public works through P. W. A., could not be placed on a similar annual amortization charge basis, with only the annual charge carried in the budget rather than the entire capital expenditure.[17]

To the extent that public capital investments can be financed in either of the ways outlined above, that would increase the amount of public investment which could be carried continuously while supported by popular understanding of its purpose, and would reduce the extent to which higher taxes were necessary to maintain any given volume of public expenditure.

Establishment of a capital banking system.—(In addition to the direct fiscal actions of Government, it has been suggested that the volume of investment and construction could be increased by the establishment of new banking institutions to provide capital and capital credit. Such institutions could not only cater to the needs of small concerns and other private businesses which today are unable to secure adequate capital, but also could provide capital at very low interest rates to projects of a semipublic or public character. Thus hospitals, sanitaria, and schools are needed in many areas where funds for construction are not available.) If capital were provided at a very low rate of interest, repayable through amortization payments over a long term of years, many such projects would become self-financing. Providing capital both for private and public investment which now lies outside the area reached by existing financial institutions would materially increase the level of investment and employment.[18]

Summary, monetary and fiscal action.—(Action on the monetary and fiscal front, through deficit expenditures, can give a temporary and partial solution to the problem of unemployment. Large deficit expenditures continued over a term of years can provide a breathing-spell in which to work out more permanent solutions. A part of the permanent solutions can also be found in the fiscal field, through a redirection of fiscal taxation policies which will help correct some of the maldistribution of income and will increase buying power for consumption, through the development of forms of public expenditure which separate capital investment from expenditures for current consumption, through the expansion of Federal grants-in-aid to

[17] If all Federal investment during the fiscal years from 1934 through 1939 had been financed in the ways suggested here, the Federal debt at the end of the 1939 fiscal year would have been just under 30 billion dollars, instead of slightly over 40 billions.

[18] A. A. Berle, Jr., memorandum on "A Banking System for Capital and Capital Credit," Exhibit No. 620 of the Temporary National Economic Committee, May 23, 1939. See also "Can the Banks Meet the Challenge?" *Survey Graphic*, September 1939, p. 522.

support new useful social services in education, health, child welfare, and related fields, and through the development of a capital banking system to supply increased funds for private and public investment.)

B. Restoration of Competition

Antitrust Suits.—(This field involves attempts to restore the functioning of price competition in those areas of the economy where its absence has helped create conditions outlined above. Historically, the antitrust acts appear to have been remarkably ineffective in producing any real change in the tendency toward corporate concentration or price control. It is too early to pass judgment on the vigorous drive for the enforcement of the antitrust acts now under way, or to judge whether it will provide an adequate test as to how far action in this field can go toward correcting these conditions.) It would appear in those industrial situations where there are a large number of individual entrepreneurs, but where competition has been prevented by the development of illegal collusive action among the individual units, that the pressure of antitrust suits and enforcement may be able to break down these collusive activities. Thus in fields such as house construction, various types of wholesale or retail marketing, and in some restrictive labor union activies, there seems to be clear evidence that despite the large number of concerns, effective competition is prevented and collusive agreements have produced either fixed prices or at least limited competition. The collusive action may take many forms from very informal relations involving interchange of statistics through trade associations, to very formal agreements as to bid prices or limitations on sources or types of materials used. The persistent and continual operation of an effective force of prosecutors may be sufficient to restore competition under such circumstances.

Consent decrees in large-scale industries.—(In industries where very large corporations dominate the market, however, as in steel, automobiles, cement, glass, electric supplies, aluminum, photographic supplies and equipment, etc., there is serious question whether antitrust suits can be sufficient to restore competition. In these industries competition may have disappeared not because of any overt collusion, but merely because of the domination of a few large concerns.[19] There is a slight possibility that under such conditions antitrust suits may be able to prove the absence of true competition. Possibly such suits might force the large concerns into consent decrees which would provide for concerted action to expand output, with some form of Government collaboration (as through a master to administer the decree). This would provide public regulation or control of the actions taken under power of the decree.) Concerted corporate action would face exactly the same problem as to how far it should go and how it would be administered and directed whether it was developed under such consent decrees or whether it was developed under specific enabling legislation. For that reason this line of action will be considered separate from antitrust action to enforce competition, and is included in the subsequent discussion under C.

Yardstick competition.—(This has been discussed from time to time as one means of controlling monopolies, with the idea that if public industries were established to compete with those private businesses whose charges or prices were too high, it would be an effective way of controlling monopoly situations. The T. V. A. is perhaps the largest experiment in this direction.) One of the economic difficulties of this approach, however, is that when Government starts yardstick competition in any field it may have the effect of intimidating private investment in the same field. Private investors say, "We can never tell when the Government will come in and make our investment valueless." How far this is a valid argument it is hard to say. In any case, yardstick competition would not be conducive to concerted action by related concerns, or to the development of programs of expansion carefully worked out in advance. In view of the need for concerted expansion set forth earlier, it would seem more desirable to press for action along lines which would offer the hope of better integrated action, and provide a better basis for cooperation between public agencies and private businesses.

Conclusion.—(It would appear, then, that antitrust action which would really serve to restore competition can only be usefully applied in those industries where the presence of a large number of individual concerns creates conditions under which competition could prevail, if the existing collusive action were broken up. On the other hand, in industries where a few large concerns dominate the market, unless these concerns can be effectively broken up into a number of smaller concerns, the solution may best be found along lines of economic planning in the public interest, which provide the possibility of concerted action for balanced expansion in production and employment.)

C. Economic Planning Under Government Control or Regulation

Previous experience in public regulation.—(The experiments which the Government has made to date in direct economic regulation have as a whole been quite unhappy. The utilities are prime cases.) Whether the illustration taken be the railroads, telephone and tele-

[19] The way in which "pure competition" disappears under such circumstances has been shown theoretically by Edward Chamberlin, in *The Theory of Monopolistic Competition*, 1933.

graph, or electricity, public regulation has not yet shown its ability to control the industrial activity in the interest of the highest national productivity, or to prevent rates and charges which in many cases return profits out of proportion either to the service rendered, or to the going interest rates on new investment.

Much of this unsatisfactory result flows from the fact that public regulation of utilities to date has been based on the concept on the one side of protecting the public against undue charges, and on the other side of insuring the owners of the property of a reasonable rate on their investment. Both legislative drafts and court decisions have so emphasized the protection of owners of the property that the broader public interest in the functioning of the industry so as to be most conducive to increased and maintained national income as a whole all too frequently has been lost sight of. It would appear that unless programs of concerted expansion can provide more effective guidance in the national welfare than public utility regulation has provided to date, they would offer little hope of securing full use of resources or full employment.

It is true, of course, that publicly regulated industries have sometimes been able either to secure such control or to bring such pressures on State and local governments and sometimes on Federal Governments, as themselves to select or dominate the regulatory process. When public regulation actually is operated in the interest of the utility rather than in the interest of the general welfare, that represents a problem in the workings of democracy.

Possibilities in programs of concerted expansion.—As has already been indicated, the fundamental economic weakness in the operations of the monopolistic or monopolistically competitive corporate structure as it now stands lies in the inability of management in any one industry, whether private or public, to view its problems in the light of the national economy as a whole. As a consequence, actions which would be to the advantage both of the single industry and of the general welfare cannot be considered at all, because there is no effective means through which the industry could bring them into effect. Thus, as has been shown, even though the demand of the consuming public for a given product is elastic, it can seem to each particular industry involved in producing that product that the demand for its product is inelastic. In consequence each component industry believes it cannot afford to lower its price in order to stimulate a larger consumption. If some means could be devised to bring about concerted expansion of all industries involved, so that all could simultaneously reduce their prices in proportion to the saving in unit costs which increased volume would yield, the final sales price would be reduced sufficiently to produce an increased volume of output and all the industries participating could gain from the result. If a program of concerted expansion could be developed still more widely, covering a large number of basic heavy industries, the participating industries could gain not only from the larger demand due to the reductions in final prices to consumers, but also from the increased level of national demand resulting from the increased employment and activity in the Nation as a whole. This second phase of increased production obviously would call for concerted action on a much wider scale than would price adjustments only for industries concerned with a single end-product, and would produce increased activity over a much wider field.

Public participation in programs of industry expansion.—There are a wide variety of administrative techniques which might be used to bring about concerted industrial expansion. Theoretically at least, such expansion might be secured merely by voluntary action of businessmen, either under the existing antitrust laws or with some slight modification of them. Persons studying the housing industry long ago suggested concerted action by all elements contributing to house construction to reduce prices of each of the component cost factors, and through the resulting reduction in the cost of the finished house to bring about a material expansion in volume. Such a result might conceivably be brought about under consent decrees in connection with the antitrust drive on the housing industry.[20]

Various forms of public leadership in bringing about concerted expansion have been proposed, with various administrative provisions for working out the programs of expansion and for insuring the participation of individual concerns. Even if the programs were developed by industry on a voluntary basis, public participation of some sort would seem to be essential to insure that the general welfare was protected. If the programs were to be sufficiently broad so as to cover not only the industries involved in a particular product, like those contributing to housing construction, but also concerted expansion in many products, then Government participation would seem to be almost essential not only to guide the programs in the public interest but also to insure that the interrelationships of the various programs to one another were properly considered. The extent of public participation might range all the way from merely checking on the programs and authorizing them under antitrust acts, to providing public sanctions to insure participation of all concerns engaged in a particular industry, clear through to the extreme of public underwriting of the programs and even some form of

[20] See address by Thurman W. Arnold before the Public Dinner of the National Housing Conference on "Public Housing in the City of Tomorrow," September 19, 1939.

public purchase of any accidental surplus resulting from the operation of the programs.

To be fully effective it would be necessary to have programs covering not only current production and consumption, but also some degree of advance budgeting and foresight with reference to future volume of production and to annual investment in equipment and plant. This would help reduce the economic instability which in the past has resulted from the tendency of businessmen to concentrate expenditures for plant expansion within a short period during or immediately following the rapidly rising phase of the business cycle.

Elements covered in concerted programs for expansion.—Programs of concerted expansion would have to consider not only the increases to be made in production and employment, but also the changes to be made in prices and wages. Many of the heavy industries can produce at much less cost per unit when operating near to or at full capacity than when operating far below capacity.[21] To the extent that programs of the sort outlined above would make it possible for these industries to operate nearer to full capacity, they would provide a definite saving in cost per unit. To make the programs effective in maintaining increased output, a considerable part of this gain would have to be diverted to increased incomes of wage earners and reduced prices to consumers, and only a relatively small proportion could be used for increased profits. In the past in periods of rising activity profits have increased more rapidly than buying power of consumers and have diverted an increased proportion of total income to upper-bracket incomes and thus to hoarding of inactive funds. This has been one of the major reasons why periods of expansion are followed so promptly by periods of contraction in demand. In programs of concerted action, it would be essential that buying power of consumers (including payments to wage earners and to raw material producers such as farmers and miners) increase more rapidly than would profits and dividend payments. One of the major objectives of the public participation in the planning process would be to insure that this fundamental economic balance was maintained in developing the programs.

Range of industries to be covered in general expansion programs.—One of the great difficulties in developing any system of economic planning of the sort outlined here is that to secure its full benefits concerted action would have to be taken over many industries. That does not mean that all industries would have to be included in the programs. There are a number of industries where competition is sufficiently effective to keep average profits down to about interest rate levels, and to pass on efficiencies of production quite promptly either as lower prices or higher workers' earnings. Wholesale and retail trade in most lines, farm production, textile manufacturing, and the clothing industries in general seem to be characterized by such moderately effective competition. There would be no need to apply the system of advance programs of expansion to these industries. Only those industries now characterized by monopolistic competition and dominated by very large corporations would need to be brought under the planning scope. At the same time it would be very helpful if industries such as railroads and other regulated utilities could have their programs so modified as to fit into and support the program of concerted expansion. As a whole, then, it would be necessary to develop new programs of concerted expansion only in those industries where sheer size of unit (monopolistic competition) now prevents effective price competition, and to make corresponding adjustments in the action programs in the industries already under public regulation or control. With the concerted programs insuring an expanding volume of production and consumption in the field which previously had been inelastic, the portion of the economic system already elastic would promptly readjust itself to the larger demand and would make its contribution to the larger national income.

Alternative Proposals for Controlling Large-Scale Industry

The program of action in the field of fiscal and monetary policy outlined earlier (under A) provides indirect procedures which will help stimulate and maintain increased consumer buying power and increased employment. In addition to those indirect procedures, direct intervention may be required to deal specifically with prices, wages, and production in those industries where production or price are too closely controlled.

The scheme suggested above, for concerted expansion programs in such industries, provides for such intervention with a minimum of interference by government in the economic process, while maintaining the maximum of democratic participation on the part of owners, managers, workers, and consumers, and a maximum of program making from the bottom up instead of from the top down.

Obviously full Government ownership and operation of all noncompetitive industry is an alternative means by which increased employment might be brought about.

[21] The United States Steel Corporation's testimony before the T. N. E. C. indicated the following cost per ton of average steel products shipped:

Percent of capacity operated:	*Cost per ton, under 1938 conditions*
20	$99.4
40	79.7
60	72.3
80	68.3
100	65.9

(From *An Analysis of Steel Prices, Volume and Costs, Controlling Limitations on Price Reductions*, p. 35.) According to other data submitted, the United States Steel Corporation has operated at annual rates averaging less than 60 percent of capacity in 8 out of the last 20 years, and at rates under 80 percent of capacity in 14 out of the 20 years. See also Mordecai Ezekiel, *Jobs for All*, 1939, pp. 25–33.

The program for concerted industrial expansion outlined above, on the contrary, is a minimum program, sufficient to correct the basic economic difficulties caused by noncompetitive controls, and yet flexible enough to maintain independent initiative, provide opportunity for democratic action, and retain the driving force of capitalistic profit.

More extreme forms of organizing economic activity, such as the full socialism of the U. S. S. R., or such as the various degrees of centralized government control in Fascist Italy and Germany, involve far greater participation of government in the economic process than does the scheme suggested above. Even utility regulation, such as we are familiar with in the United States, involves more of mandatory Government action, and less industry, labor, farmer, and Government cooperation, than does the program for concerted expansion. Another alternative approach which has been suggested is for Federal, State, and local governments to acquire the ownership of all natural monopolies, including railroads, electric utilities, water services, etc., and to operate them directly as the post office is operated. If this were done the Government would then have a much larger field for the useful investment of funds, and could time its investments in this large area in such a way as to counterbalance fluctuations in private investment, and thus help stabilize the whole business cycle. The Swedish Government owns and operates not only most of Sweden's public utilities, but also much of its mines and forests. The large area thus available for useful public investment is one reason why the Swedish Government has been remarkably successful in stabilizing business conditions during past years.

Interim Steps Toward Industrial Coordination

One of the great difficulties in working toward a concerted expansion such as that outlined earlier is that it is in some respects an over-all program. One cannot simultaneously expand activity in all industries where output has been controlled except by developing programs simultaneously for all such industries. This would mean starting on a much broader scale than we are yet prepared to take administrative action on. A partial solution to this problem could be obtained by operating on the level of concerted action by industries contributing to the production of a particular product, the demand for which is elastic. As already indicated, this would enable them to gain the advantages flowing from increased sale of that product, but would not enable them to count on the increased level of general demand due to the higher national activity as a whole. Even so, expansion programs in industries whose products contribute to specific individual products of large magnitude in the economic system, such as houses or automobiles, might provide an appropriate experiment or educational effort before developing a total program for all monopolistic or semi-monopolistic industries.

In any case, before even such smaller programs of concerted action could be developed, it would be essential to have adequate data covering the operations of the industries affected, the relation between production and consumption for the major concerns, the possible elasticities of demand for the product, the relation between percent of capacity and cost per unit, and the interrelationships between that industry and other industries important either as suppliers of raw or semifinished products or as purchasers of finished products. A great deal of work needs to be done in developing better commodity statistics and clearer analyses of the controlling factors in the supply and demand for individual key industrial products before the most effective action could be taken in many of these fields. There is need for greatly intensifying the research work in the field of industrial economics in the Federal Government, State governments, and in the schools of business throughout the country. Current proposals for Federal support to research work in the schools of business might constitute one step in this direction. The inauguration of the new Division of Industrial Economics, and the development of economic research units in transportation, housing, mining, security, wages and hours, and other Federal action agencies, are signs that it may some day be possible to provide a public statistical and economic service to industry and labor comparable in scope, coverage, and accuracy with that provided farmers through the Bureau of Agricultural Economics. Such information would be essential as a basis for the preparation of expansion programs.

It might also be possible to take steps through some Government agency to encourage the advance budgeting of activities among individual business concerns, and to develop procedures by which some industry collaboration could be developed in this advance budgeting. At the present time, individual concerns draw their production and expenditure budgets for the period ahead almost in a vacuum, with different concerns using varying guesses or forecasts as to the levels of expected business activity. Anything that could be done to get these industries to base their programs for future operation on the same forecast of the level of activity, rather than on widely varying forecasts, would increase the possibility that their programs would fit into one another after they got under way, and that the forecasted activity would actually be realized.

Another field in which progress might be developed lies in the allocation of investment. Several Federal agencies now have a limited degree of authority in

approving investments, including the Securities and Exchange Commission clearance of new issues, the Interstate Commerce Commission responsibility for capital issues in the field of the rails, and parallel authority for other regulatory supervision on the local, state, and national levels. In general, these reviews of capital investment have involved only a small amount of coordination of judgments as to their economic effectiveness. In the case of the S. E. C., the legislation seems to have been drafted primarily in the interest of information for the investor, rather than with any attention to its function in the economy as a whole. These limited reviews of new investment might be broadened so as to introduce a larger degree of economic judgment in the approval of investment programs. Certainly the Federal agencies involved, if directed to cooperate with individual industries in determining the desirability or necessity of particular investment programs, could make a good deal of progress in aiding concerns to take a broader view of the relationship of their investment program, both to the programs of the rest of industry and to the general welfare as a whole. Review of investment might thus provide an additional focal point at which the coordination of industry in the general welfare might be strengthened in those industries where private corporate power or public regulation has broken down the regulating force of market competition.

Whatever steps can be taken toward preparing a background for programs of concerted expansion among the heavy industries, it must be recognized that this is only one of the approaches to be used in the attempt to get full production, and that in a total program of governmental effort, activities in this field should be coordinated with activities in the other fields already outlined.[22]

Conclusion

The suggestions above as to means of working towards full use of resources and full employment may be combined into a concerted program as follows:

1. The program of deficit financing, and of purchasing power maintained through Federal expenditures based on deficit financing, may readily continue for a decade or more, without any real danger to the public credit. To be fully effective, however, those years must be accepted and used as a period during which more fundamental and long-term solutions can be developed and gotten into action.

2. Permanent and lasting solutions may meanwhile be developed through activities in the following fields:

(*a*) Development of a system of taxation which reduces the present tax burdens on consumption and which provides the same or larger tax revenues from sources which will bear more heavily on hoarding than on consumption.

(*b*) Expansion of Federal expenditures in the field of old-age pensions and of social security payments in general, and extension of Federal grants to States in the fields of education, health, and child welfare, to support the buying power of low-income groups and raise the physical and intellectual level of the population.

(*c*) The development of other forms of Government financing, such as for self-liquidating projects outside the Budget and for public capital investment separate from the current Budget, which will put public investment in self-liquidating activities or in enduring capital goods on the same long-time or amortization basis as private and corporate investment is now carried.

(*d*) Continuation of the antitrust attack on monopolies in all fields where there are many concerns and where collusive action now restricts production or raises costs, and through restored competiton help to pass on technological improvements as lower prices, higher wages, and increased consumption.

(*e*) In those fields where the concentration of corporate control or direct public regulation of utilities has gone so far that prices or production are under conscious administrative control, and where existing large concerns could not be broken up into many small ones without reducing the productive efficiency of large-scale production and employment, develop means for concerted expansion of production and employment with public participation with appropriate reductions in prices and increases in wages. (This action might be brought about through consent decrees resulting from antitrust suits, through voluntary business action, or under permissive or mandatory federal legislation.) Pending the development of such programs of concerted expansion, develop statistics and industrial information as rapidly as possible, encouraging collaboration by business concerns in coordinating the various forecasts involved in their annual budgets. Also experiment with concerted action for expansion in restricted areas of the economic system heading up toward a single product, before attempting to develop comprehensive concerted programs of expansion for all the industries where production or prices are under control.)

Mordecai Ezekiel

[22] It is obvious that the price policy to which this article relates has to do with what Dr. Hansen, in the preceding article, has discussed as *structural* price changes. The discussion here has little relevance to what he has described as *cyclical* price maladjustments.

It is also obvious that most of the positive action programs discussed here have to do with modifying various of the institutions which make up the economy so as to increase the propensities to consume and to invest, and to reduce the propensity to save, for the society as a whole. Instead of taking these propensities as fixed and unvarying characteristics of the economy, this article outlines ways in which they may be modified so as to make possible a balance between savings and investment at higher levels of national income than heretofore.

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