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Labor in the United States

Basic Statistics for Social Security

By W. S. WOYTINSKY

A
REPORT PREPARED FOR THE
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FOREWORD

THE INITIATION of unemployment compensation and old age insurance in the United States created needs for new types of industrial, occupational and employment statistics. Existing official statistics, such as the basic occupational data provided by the decennial censuses, were designed to meet various other purposes but did not give adequate information on a number of important points to guide the administration of the social insurances.

A sharp distinction between statistics relating to employers and self-employed persons on the one hand, and to employees on the other, is particularly important inasmuch as contributions and benefits are based on the earnings of employees, while employers are responsible for paying taxes and for submitting reports on wage payments. Social insurance operations are also concerned with industrial groups rather than with individual occupations, and for certain purposes require classifications of data by size of establishment rather than for industries as a whole. Employers and employees are not sharply segregated in currently available official statistics, the basic classification used in past censuses is largely occupational rather than industrial, and the size of establishment groupings heretofore used do not correspond with the coverage provisions of many of the new state unemployment compensation laws.

The Committee on Social Security therefore concluded that one of the primary tasks of its research staff should be the reclassification and retabulation of census and other data into categories more usable and pertinent for social security administration and of greater significance for labor market and general economic analyses. An integral part of this undertaking was an analysis by sex, race, age, industry, class of work, size of establishment, and expected period of work of the gainful workers included in and excluded from the old-age and unemployment insurance programs. The extent to which workers may be expected to shift back and forth between covered and non-covered industries and establishments was also extensively explored.

Any reclassification or adaptation of statistical data in the light of new concepts and of new needs which were non-existent when the data were collected necessarily involves many hazards. The resulting materials have been prepared with conscientious care and a high degree of skill but are frankly presented as estimates which are subject to qualifications both because of the difficulties of adaptation and because of the basic limitations of some of the underlying data. Modifications will doubtlessly follow in the course of further study or when more precise data become available.

It is believed that the investigation has thrown much light upon the problem of planning the 1940 census and other statistical undertakings in a way which will be more directly useful for social insurance administration in the future. In the meantime it has contributed materially in the development of a body of working tools, however rough these may be in part, for use in immediate administrative processes and in the evaluation of the economic effects of the social security program.

The scope of Mr. Woytinsky's study is more fully defined in his Introduction. A part of his materials were made available to technicians in this and related fields in a preliminary report published by the Committee on Social Security in December 1936, and reissued in July 1937, under the title, *The Labor Supply in the United States*. In view of the availability of this preliminary report, a number of the detailed basic tables presented in it have been abridged in the present volume. An additional body of materials developed in the course of this investigation, dealing with the impact of problems of seasonal unemployment upon the social insurances, will be presented in a separate report which will be published by the Committee on Social Security under the title, *Seasonal Variations in Employment in the United States*.

An acknowledgment of especial indebtedness is due to J. Frederic Dewhurst who initiated and guided this study while director of the Committee on Social Security and who aided immeasurably in the final preparation and review of the manuscript, and to Stuart A. Rice, Chairman of the Central Statistical Board, who first directed the author's attention to the statistical problems involved in the inauguration of the social security program. Appreciation is expressed also for the critical observations and suggestions given by Aryness Joy, J. Parker Bursk, Robert Nathan,

and Frederick Stephan, and for the suggestions and courteous cooperation of J. Douglas Brown and Leo Wölman, and of many members of the staffs of the Social Security Board, the Bureau of the Census, the Bureau of Labor Statistics and the Department of Agriculture. The occupational statistics for the year 1930 used in the first part of the study were reclassified under the author's direction by Helen Anderson. Mary Charles Cole performed the arduous task of editing the manuscript in detail and of preparing it for publication.

While the study has been sponsored by the Committee on Social Security the resulting report has not been submitted to the Committee for formal review or approval. The statements and conclusions of the author are therefore entirely his own and do not necessarily reflect the opinions or attitudes of the members of the Committee or of the Social Science Research Council.

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Social Science Research Council

June 1, 1938

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INTRODUCTION

THE ADMINISTRATION of old-age insurance and unemployment compensation requires comprehensive information on the number and distribution of employers and employees, and on shifts of workers among industries and occupations. Inasmuch as the statistics being collected by social security agencies for administrative purposes cannot provide all the information required, they must be supplemented by the more extensive data of the censuses of population, of unemployment, the industrial censuses, and other enumerations. These general statistics are especially necessary when administrative agencies are facing new and unexplored problems at the beginning of their activity. However, because the needs which dictated the outlines of these censuses do not coincide with the needs of social security administration, census data must be rearranged and retabulated, sometimes interpolated, and almost always critically interpreted before they can be used by social security agencies.

There is nothing unusual in this approach to statistical sources. The President's Committee on Economic Security, in preparing the outline of the Social Security Act, had to do statistical pioneering before it could visualize how this or that provision of the Act would work. In the every-day activity of the new agencies, and particularly whenever plans are being considered for the development and extension of present social security laws, a further rearrangement of existing statistics will be required.

The purpose of this volume is to extract from several statistical sources data which are *basic* for social security. In attempting to carry out this purpose, available census reports have been examined, retabulated, and interpreted from the point of view of three fundamental provisions of the Social Security Act. They are:

(1) That taxes shall be collected upon the income of *employees* and upon the amount of wages paid by *employers*. (Social Security Act, Title VIII)

(2) That from the funds collected, annuities shall be paid to former *employees* upon reaching the age of sixty-five. (Social Security Act, Title II)

(3) That a special excise tax shall be imposed on *employers* of eight or more, with the provision that similar contributions paid by employers into a state unemployment fund may be credited against 90 per cent of the excise tax. (Social Security Act, Title IX)

The Act therefore applies exclusively to persons who either receive or pay *salaries or wages*. Consequently basic statistics for social security concern *salary and wage earners* on the one hand, and *employers* on the other, and both groups should be clearly separated from the rest of the working population. However, not all salary and wage earners are covered by the Social Security Act, the exemptions being established by the definition of the term "employment."

Title II concerning old-age insurance (Sec. 210, b) provides:

"The term 'employment' means any service of whatever nature, performed within the United States by an employee for his employer, except—

- (1) Agricultural labor;
- (2) Domestic service in a private home;
- (3) Casual labor not in the course of the employer's trade or business;
- (4) Service performed as an officer or member of the crew of a vessel documented under the laws of the United States or of any foreign country;
- (5) Service performed in the employ of the United States Government or of an instrumentality of the United States;
- (6) Service performed in the employ of a State, a political subdivision thereof, or an instrumentality of one or more States or political subdivisions;
- (7) Service performed in the employ of a corporation, community chest, fund, or foundation, organized and operated exclusively for religious, charitable, scientific, literary, or educational purposes, or for the prevention of cruelty to children or animals, no part of the net earnings of which inures to the benefit of any private shareholder or individual."

Title VIII (old-age insurance) exempts from taxes wages paid for

"Service performed by an individual who has attained the age of sixty-five."

Title IX (unemployment compensation) exempts from the excise tax wages paid for

"Service performed by an individual in the employ of his son, daughter, or spouse, and service performed by a child under the age of twenty-one in the employ of his father or mother."

Only the last two provisions are based on the personal status of the employee. All other exemptions relate to service of whatever kind performed, in specified industries, or in specified groups of establishments, or for specified groups of employers. These exemptions are *industrial* rather than *occupational* in their nature, and consequently the provisions of the Act relating to them require the classification of employers and salary and wage earners by *industry*.

Up to now no clear distinction between employers and employees has been made in the decennial censuses, which have placed primary emphasis on the occupation or kind of work performed by respondents rather than on their economic status and industrial affiliation. Consequently, the occupational groups defined in the population census do not correspond to the groups specified in the Social Security Act.

The industrial censuses use classifications which more nearly meet the needs of social security administration. But unfortunately these censuses provide only fragmentary information on employment, as they do not cover all industries. Furthermore, the industrial censuses fail to show the distribution of employed workers by sex and age, particularly important features for the social security program.

In order to present in a usable form statistics which are basic for social security, the 1930 occupational statistics have been reclassified and retabulated. The outline used is tentative, but it is hoped that it will show how future statistical inquiries, especially the 1940 Census, may provide more useful information for the administration of modern social legislation.

Book One of the present study deals with occupational statistics which have been interpreted as statistics of the *supply of labor*. Book Two deals with industrial employment statistics which have been regarded as statistics of the *demand for labor*.

In Book One an attempt has been made to derive from available occupational statistics information on the workers included in old-age insurance, on those excluded, and on those who shift between insured and uninsured pursuits. In Chapter I problems relating to occupational classification are discussed, and a method of adjusting 1930 occupational statistics to the concepts and needs of social security administration is suggested. In accordance with

the proposed outline, a distribution of the working population by industry and by class of work, sex, race, and age is presented in the next four chapters. In Chapter VI the tabulation of gainful workers by class of work is used as the starting point for an analysis of median ages, and of the expected period of work and of employment in insured industries. The next two chapters, likewise based on the retabulated occupational statistics, contain a discussion of typical shifts of workers from one class of work to another, especially from the salary and wage earner class to independent pursuits and from insured to uninsured occupations. The effects of these shifts upon old-age insurance are also discussed. In Chapter IX an estimate is made of future changes in the working population and of the probable number and distribution of persons who will be registered for old-age insurance in the coming decades.

Book One is based essentially on the 1930 Census of Population. The attention paid to figures which are now eight years old seems to be justified by the following considerations:

(1) The next census of population will not be taken until 1940 and its reports will probably not become available before 1942. Therefore, for the next four years the 1930 occupational statistics will remain the principal source of information on the socio-economic structure of the working population.

(2) Obviously the composition of the working population at present differs from what it was in 1930. But it is easier to measure recent developments if conditions at the starting point are clarified.

(3) Not all characteristics of the population vary appreciably from year to year. This is true, for example, with respect to differences in the distribution of the several classes of workers by sex, age, and race. Such comparatively stable features are examined with particular attention in this volume.

(4) More recent data supplied by local enumerations cannot replace the last general census of population. They do provide valuable amendments but the premise of a useful amendment is that the data amended are themselves usable.

Book Two deals with industrial statistics of employment, namely, data of the Censuses of Agriculture, Mines, Manufactures, Construction, Distribution, Business, etc. The extent to which data from these censuses are comparable to occupational statistics and the question as to whether these two sources may be combined and used alternatively, is discussed in Chapter X.

In the next chapter a systematic comparison of industrial and occupational statistics is made for a score of industries and it is shown that, in so far as the limits of industries are similarly determined, the statistics of the two sources agree fairly well. Chapter XII deals with the distribution of employees by size-classes of establishments, and attempts to reduce the different size classifications used by several censuses to a common denominator, i.e. number of employees. Particular attention is paid to the method of estimating the number of small establishments, a question of special significance for unemployment compensation in view of the exclusion of small firms. Chapter XIII summarizes the findings of the two preceding chapters and shows the distribution of employers and employees in insured and uninsured industries, distinguishing regular from intermittent employers. The effects of the size limit exemption provided by state unemployment compensation laws are likewise discussed in this chapter.

The attempt to scrutinize systematically the scope of the industrial censuses is justified by the fact that they constitute the principal source of basic statistics of employment. To be sure, workers are classified in these statistics by *establishments* rather than by *employers*, and this will cause considerable difficulties for social security statisticians. However, with an adjustment for chain stores and multi-unit concerns, industrial census reports provide reliable information not only on the number and distribution of salaried employees and wage earners, but also on the number and distribution of employing units. In this double quality industrial statistics belong to the necessary scientific equipment of social security agencies.

The interpretation of available statistics in the present study is preceded by methodological discussions deemed necessary because of the kind of data examined and the kind of information required for the administration of social insurance. Almost all statistics analyzed in the following pages refer to the United States as a whole. Most social security agencies, however, deal with regional and state statistics rather than with national totals, and for them the methodological discussions will be of greater use than the descriptive and analytical chapters.

Finally, it may be well at the outset to emphasize that various estimates which appear in the following pages represent only the

best obtainable approximations. Any attempt to recast and recompute data gathered for one purpose in order to meet a new and different purpose inevitably involves the use of many assumptions and it is therefore impossible to claim definitiveness or precise accuracy for the resulting figures.

The original outline of this study included also a discussion of seasonal variations in employment which greatly affect unemployment compensation administration as well as other forms of social insurance. In view of the special character of this discussion, which is based on sources and methods completely different from those used in Books One and Two, this part of the study will be published separately.

BOOK ONE
SUPPLY OF LABOR
STATISTICS OF THE WORKING POPULATION

CHAPTER I

OBJECTIVES AND METHODS

THE OLD-AGE insurance system inaugurated by the Social Security Act, like the compulsory old-age insurance systems of other industrial nations, covers only salaried employees and wage earners.¹ Therefore, statistics are required which provide a clear segregation of *employees* from *employers and self-employed persons*. The same segregation is required for unemployment compensation.

This distinction between employees and employers is, however, not so simple as it seems, for many pursuits are of an intermediate and marginal character. For example, is a share-cropper whose remuneration is measured in terms of a share of the harvest, a self-employed operator or a farm laborer? Is an insurance agent an independent business man or an employee of the company for which he sells insurance? How should physicians or teachers be classified if they receive part of their income as fixed salary and part from independent professional work?

Numerous persons are also intermittently engaged in independent pursuits for gain and in dependent employment for a salary or wage. A farmer or a craftsman, for example, might be self-employed during the greater part of the year, an employer of others in the peak season, and a wage earner in the slack season.

Furthermore, there are proprietors such as officers of corporations owned by themselves or their families, whose incomes consist, at least partly, of salaries paid to them by their corporations. In a legal sense they are employees and therefore subject to social security taxes, but in an economic sense they are employers.

These borderline cases are too important to be disregarded. They include more than 1 million farm tenants, about 2 million farmers who occasionally work for wages, a considerable portion

¹ Other systems of compulsory insurance are also conceivable. For example, old-age insurance might cover all gainful workers or all persons having incomes within certain limits.

of the officers of 500,000 incorporated enterprises, many junior "partners" who are paid salaries, about 500,000 insurance and real estate agents, hundreds of thousands of small contractors in building industries, and numerous professional persons and service workers. The total number of persons who intermittently or simultaneously are employers and employees is probably as high as 7 or 8 million, which is greater than the number of employers in the exact sense of the term. Obviously, no clear idea of the socio-economic structure of the working population can be obtained without an analysis of these marginal groups.

It has been pointed out in the Introduction that the exceptions provided by the Social Security Act apply, essentially, to certain *industrial* groups of employees.² On the other hand, the Act makes no distinction between workers by sex, race, or kind of work performed. All employees under the age of 65 engaged in covered industries, whether men or women, colored or white, managers, corporation officers, clerical workers, professional persons, skilled or unskilled wage earners, are covered by insurance. Obviously, this does not mean that these statistical characteristics of the working population are of no significance for social security. The distribution of insured persons by sex is of great importance from the actuarial standpoint because of the contrast between the average retirement ages of male and female workers. Their distribution by age is a factor in determining the average expected period of employment. The distribution by race is important as a general characteristic of the population groups included in insurance. A distinction between salaried employees and wage earners, and between skilled and unskilled workers is of significance in unemployment compensation because of differences in unemployment risks, and likewise affects old-age insurance so far as the average incomes of insured workers are concerned.

The principal statistical characteristics of the working population important for social security administration are:

- (1) The number of employers and self-employed persons on the one hand, and of employees on the other, in insured and uninsured pursuits;
- (2) The distribution of employees in insured and uninsured pursuits, by industry, class of work, sex, race, and age.

² See page xviii of the Introduction.

Since the main source of these statistics is the Census reports on occupations, the starting point should be an analysis of these reports.

OCCUPATIONAL STATISTICS IN THE 1930 CENSUS

The occupational statistics of the United States, in contrast to those of other important countries, fail to show the number of employers as distinguished from the number of employees in the nation. They are designed rather to show the numerical strength and composition of individual occupations, with only minor emphasis on the distribution of the working population by industries. It is difficult, for example, to determine from the occupational census reports how many persons in 1930 were employed in manufactures, in the sense in which this term is used by the Census of Manufactures. "The present census classification of occupations is the result of more than a century of development," the Bureau of the Census pointed out in its 1930 General Report on Occupations.⁸ The long and gradual development of the classifications used by this Census partly explains the fact that it gives more recognition to individual crafts and occupations than to the industrial categories of modern factory production.

Although different *classes of work* were not segregated in the published reports, the schedule used by the 1930 Census did make such a distinction. The columns referring to occupation had the following captions:

OCCUPATION AND INDUSTRY				EMPLOYMENT Whether actually at work yesterday (or the last regular working day)	
Occupation	Industry	Code	Class of worker	Yes or No	If not, line num- ber on Un- employment Schedule
Trade, profession, or particular kind of work, as spinner, salesman, riveter, teacher, etc.	Industry or business, as cotton mill, dry-goods store, shipyard, public school, etc.	(For office use only. Do not write in this column)			
25	26	D	27	28	29

⁸ Fifteenth Census of the United States: 1930, Population, Volume V, p. 4. See also Note 1, page 235: "Occupational Statistics in the United States, 1820-1930."

Column 27 was to be answered by abbreviations: E = employer; W = salary or wage earner; O = working on own account; NP = unpaid worker, member of the family. The tabulation of these answers with an accurate distribution of gainful workers by industry would have provided the socio-economic cross-section of the working population needed by social security administration. However, the occupational classification in the Census report was based chiefly on the answers given in Column 25, the information in Columns 26 and 27 being used only to amend occupational descriptions.

In classifying the occupations returned on the population schedules, the 1930 Census distinguished 534 "occupations." In some cases, such as mechanics, operatives, laborers and others, occupations reported in Column 25 were pursued in several industries and were distributed under the industries in which they were found. For example, "laborer" was the general name used for more than 100 separate occupations, each differentiated by the industry in which it was performed. However, except for 108 such occupations, designated "repeaters" and coded both by occupation and industry, the Census assumed that the code symbols of most "occupations" were sufficient indication of the industrial affiliation of the person enumerated. The double coding of "repeater" occupations, by kind of work and by industry, explains the construction of the tables in which occupational statistics are presented in the Census report. Two kinds of tabulation were used in the 1930 Census: the standard classification termed "occupational rather than industrial;" and a supplementary tabulation based on classification by both industry and occupation.

The standard tables grouped together all persons in a specified "occupation," both repeaters and non-repeaters, and then distributed these groups among ten general industrial divisions: Agriculture; Forestry and Fishing; Extraction of Minerals; Manufacturing and Mechanical Industries; Transportation and Communication; Trade; Public Service; Professional Service; Domestic and Personal Service; and Clerical Occupations.

The supplementary classification, used exclusively in Table 2 of Chapter 7 in Volume V of the Census Report, distributed all gainful occupations under 128 industries, assigning each non-repeater occupation *as a unit* to one or another industry, while

the 108 repeater occupations were broken down and allocated to the industries in which they were specifically pursued. Some of the latter groups were: skilled trades (blacksmiths, boilermakers, brick and stone masons, carpenters, etc.); some professional persons (draftsmen, technical engineers, etc.); clerical workers (agents, collectors, and credit men; bookkeepers, cashiers, and accountants; clerks; messengers; stenographers and typists); and a part of the service workers.

Neither the standard classification nor the supplementary tabulation was consistent. The first segregated approximately half the gainful workers by industry while the rest were classified by kind of work performed.⁴ In the second tabulation, only the "repeater" occupations were classified by appropriate industries, while workers in non-repeater occupations were not always counted in the industry in which they were engaged.

The results of both classifications used by the 1930 Census are compared in Table 1.

As mentioned above, the standard classification counted in the same divisions of occupations persons who were actually engaged in different industries. For instance, almost 2 million workers enumerated in manufacturing and mechanical industries were in reality employed in transportation and trade (skilled workers, electricians, etc.), whereas more than 2 million employees of manufacturing establishments were counted in the occupational divisions of transportation (truck drivers), trade (sales persons), clerical occupations (stenographers), and domestic and personal service (janitors).

Misclassifications are also found in the supplementary tabulation, but these are of minor importance and in most cases are easily explained. For example, when one sees in the alphabetical index of the Bureau of the Census that cantors in synagogues were counted as professional persons in recreation and amusement,⁵ this at first appears rather strange. It, however, is in accord with the classification of "repeaters" and "non-repeaters."

⁴ Classified by industry: farmers, farm laborers, all operatives, all laborers, and several other groups for which industrial and occupational designations were identical.

⁵ U. S. Department of Commerce, Bureau of the Census, *Alphabetical Index of Occupations*, 1930, p. 97; for the code symbol 7V, cf. p. 16.

TABLE 1. THE OCCUPATIONAL AND INDUSTRIAL CLASSIFICATIONS OF GAINFUL WORKERS IN THE UNITED STATES, 1930

Industries (Divisions of occupations)	Gainful workers classified by occupation (standard classification of the 1930 Census Report)	Gainful workers classified by industry (Table 2, Chapter 7, Volume V of the 1930 Census Report)
ALL INDUSTRIES.....	48,829,920	48,829,920
Agriculture.....	10,471,998	10,483,917
Forestry and fishing.....	250,469	268,992
Extraction of minerals.....	984,323	1,156,377
Manufacturing and mechanical industries.....	14,110,652	14,341,372
Transportation and communication	3,843,147	4,438,413
Trade.....	6,081,467	7,530,064
Public service (not elsewhere classified).....	856,205	1,049,576
Professional service.....	3,253,884	3,408,947
Domestic and personal service....	4,952,451	4,814,573
Clerical occupations.....	4,025,324	—
Not specified industries and services.....	—	1,337,689

Source: Fifteenth Census of the United States: 1930, Population, Volume V, pp. 39 and 408-410.

A cantor has to sing; this is his kind of work; therefore he was reported in the group of musicians, a non-repeater group which was classified industrially under recreation and amusement. Much more important is the fact that many thousand teachers of music likewise were counted in recreation and amusement instead of being tabulated with other teachers.*

Another example of confusion is the division of "Public Service, not elsewhere classified." This division contained not more than one-third of the persons employed by government and its agencies, the remaining two-thirds being counted in professional services (teachers), transportation and communication, etc. On the other hand public service included a number of persons who in fact followed pursuits totally different from public service, for instance, agents of private "detective" bureaus. The reason

* Teachers of dancing and athletics were counted in the same industrial group as school teachers and teachers of art. Exception was made only in the case of teachers of music.

for their being included is simple: they called themselves "detectives" and this occupation is a "non-repeater."

For the same reason all switchboard and telephone operators were counted in the telegraph and telephone group,⁷ although such operators are found in all business and industrial establishments.

In spite of these and similar difficulties of classification, the outline of Table 2, Chapter 7, Volume V has the great advantage of attempting an approximate segregation of gainful workers according to the industries in which they were engaged. Nevertheless, it does not meet the requirements of social security administration as it uses an inadequate industrial framework and fails to distinguish between employees and employers. These shortcomings, however, can to a large extent be eliminated by a rearrangement and reclassification of Census data.

REARRANGEMENT OF 1930 OCCUPATIONAL STATISTICS

During the last 40 years the Census occupational statistics have been rearranged and reclassified several times in an attempt to make them answer questions which were not emphasized in Census reports. The purpose of these rearrangements has always been the same: to replace the hundreds of individual occupations enumerated in the Census by a few large groups which describe the socio-economic structure of the working population. The method of rearrangement has consisted essentially in the aggregation of occupations which supposedly belong to the same socio-economic class.⁸

For the purposes of this study, the 1930 occupational statistics have been reclassified in two respects:

- (1) The long list of individual occupations has been replaced by a few classes of work, with emphasis on the distinction between employers and employees; and
- (2) The industrial framework of the classification has been adjusted to that of industrial censuses and current labor statistics.

⁷ Fifteenth Census of the United States: 1930, Population, Volume V, pp. 45 and 554.

⁸ See Note 2, page 236: "Rearrangements of Occupational Statistics."

The suggested reclassification is based on Table 2, Chapter 7, Volume V of the 1930 Census report which distributed individual occupations among five groups :

1. Proprietary, official and supervisory pursuits.
2. Professional pursuits.
3. Clerical and kindred pursuits.
4. Skilled trades.
5. Other pursuits.

The original table makes it possible in most industries to subdivide all of these groups. For example, in the first group employers and self-employed persons can in most cases be separated from salaried officials. Likewise, some distinctions can be made in the fourth and fifth groups.

Obviously the classification suggested below can take into account only those classes of work which can be discerned in the Census report. With this important restriction, the following outline seems to meet the needs of social security and to provide the classifications necessary for observations of the labor market :

1. Employers and self-employed persons.
2. Unpaid family workers.
3. Professional persons.
4. Salaried employees :
 - 4-a. Managers and officials.
 - 4-b. Clerks and kindred workers.
 - 4-c. Sales persons.
5. Skilled workers :
 - 5-a. Foremen.
 - 5-b. Other skilled workers.
6. Semi-skilled workers :
 - 6-a. Apprentices to skilled pursuits.
 - 6-b. Other semi-skilled workers.
7. Unskilled workers.
8. Service workers.

In abbreviated form this classification would contain only 8 main groups. If necessary, it could be condensed still further, by counting together groups 5, 6, 7, and 8 as wage earners.

This classification, inasmuch as it deals exclusively with criteria found in 1930 occupational statistics, has obvious shortcomings : it cannot make a distinction between employers and self-employed persons ; it does not segregate corporation officers in a special

group; and it counts all professional persons together without distinguishing between salaried professional workers and persons engaged independently in professional pursuits.

On the other hand, it will be readily recognized that the distinction between skilled, semi-skilled, and unskilled workers is experimental. No attempt has been made to define exactly these classes of work, nor to revise the list of individual occupations classified in the Census reports as semi-skilled (operatives) or unskilled (laborers). However, the statistical characteristics of these three classes of workers justify their segregation. They differ from each other in their composition by sex, race, and age. It may be supposed that they represent different classes of income.⁹

The distinction between skilled, semi-skilled, and unskilled workers, therefore, has been retained in the present study, in spite of the obvious fact that the borderlines between the three groups cannot be defined with accuracy.

A detailed enumeration of the individual occupations reported by the 1930 Census in each of the 12 classes of work shown in the outline above may be found in Note 3.¹⁰ It will be noticed that some heterogeneous occupational groups have been counted

⁹ This supposition is supported by the *Michigan Census of Population and Unemployment* taken in January 1935, which included an inquiry on income received during 1934 by employed workers ("employed" being used in the sense of "occupied"). The data thus collected were tabulated by class of work, industry, age, etc. For skilled, semi-skilled, and unskilled workers the following percentage distribution by size-classes of income was reported:

Size-classes of income in 1934	Skilled workers	Semi-skilled workers	Unskilled workers
Total	100.0	100.0	100.0
Less than \$200.....	2.4	7.7	16.6
\$200 to \$499.....	11.4	21.5	38.7
\$500 to \$999.....	29.4	39.0	31.6
\$1000 to \$1499.....	33.0	24.0	11.2
\$1500 to \$1999.....	14.9	5.4	1.6
\$2000 or more.....	8.9	2.4	.3

Source: Michigan Emergency Welfare Relief Commission, *Total Income during 1934 of Gainful Workers* ("Michigan Census of Population and Unemployment, First Series, Number Six," Lansing, Michigan, March 1937), p. 2.

Although the tri-modal distribution in this case is not very sharp, it does suggest that a segregation of skilled, semi-skilled and unskilled workers from each other corresponds to real differences in socio-economic status.

¹⁰ See Note 3, page 240: "Distribution by Class of Work of Occupations Enumerated by the 1930 Census of Population."

in one or another class of work according to the supposed status of the *majority* of the workers in such groups. Certainly such a classification is open to criticism and it will be readily recognized that it is partly based on assumptions and guesses. Admitting that the distinction between employees and employers is somewhat doubtful in the present classification, it should be emphasized that this distinction is particularly necessary for the administration of social security as well as for an analysis of labor market conditions. Since official statistics on occupations fail to supply the number of salary and wage earners, estimates and guesses cannot be avoided. The choice to be made is between different estimates rather than between guesses and "exact" statistics.

In grouping individual occupations by class of work, the industrial framework of Table 2, Chapter 7, Volume V of the 1930 Census has been revised. The purpose of the revision has been to form industrial groups comparable with those used by special censuses (Mines and Quarries, Manufactures, Distribution, Services, etc.). For this purpose the industrial branches used in occupational statistics have been regrouped and partially combined.

The most important modifications have been made in the division of Manufacturing and Mechanical Industries, which in the 1930 Census included not only manufacturing establishments but also construction firms, automobile repair shops, electric light and power plants, and independent hand trades. In order to make occupational statistics comparable with industrial census data on the one hand, and with the employment reports of the Bureau of Labor Statistics on the other, it has been necessary to exclude from this heterogeneous division the industries which do not belong to manufactures as this term is used by the industrial censuses.

Likewise, this condensed division of Manufactures has been reclassified. In the 1930 occupational statistics industrial groups were listed alphabetically, i.e. Building, Chemical Industries, Cigar Factories, Clay Industries, Clothing Industries, etc., as were the individual industries within each group. This arrangement has been replaced in the present study by a systematic classification

similar to that used in industrial censuses and employment statistics.¹¹

As independent hand trades are excluded from social insurance as well as from censuses of manufactures and the employment surveys of the Bureau of Labor Statistics, they have been grouped in a separate industrial division in the present classification.

Building trades have been combined with construction and maintenance of streets, bridges, etc., to form the division of Construction.

The division of Transportation and Communication has been reconstituted to include utilities. Persons engaged in the construction and maintenance of streets, roads, etc., have been excluded. Automobile repair shops have been grouped with garages and filling stations. Electric light and power plants have been added to other utilities.

No substantial revision was possible in the divisions of Trade, Public Service, and Professional Service. These sections of the industrial framework of Table 2, Chapter 7, Volume V of the 1930 Census are particularly open to criticism. In the division of Trade, proprietors were classified by branch of trade, whereas employees in all branches of wholesale and retail distribution

¹¹ In spite of all efforts to make occupational statistics comparable with data of censuses of manufactures, no absolute agreement between them could be reached because of differences in methods used by the two censuses as well as in their dates of enumeration.

(a) Occupational statistics are obtained from general population schedules and are based on information collected by enumerators in house-to-house canvasses. However, the enumerators have no means of verifying the declarations of persons questioned (usually wives of gainful workers), nor has the Census Bureau the means of verifying the reports of enumerators. Censuses of manufactures are taken under more favorable conditions. Their schedules provide a detailed description of each establishment. Each dubious or contradictory report can be easily checked, and the resulting classification of establishments and their workers by industry may be supposed to be accurate and reliable.

(b) Occupational statistics on the number of persons engaged in different pursuits include unemployed workers, as well as persons no longer employable who report themselves as workers out of jobs. On the other hand, censuses of manufactures enumerate workers on the payrolls of establishments (including those temporarily out of jobs because of illness if they were on payroll during part of the pay period).

(c) As no Census of Manufactures was taken in 1930, the occupational statistics of April 1930 must be compared with industrial statistics for 1929.

In spite of these dissimilarities, the deviations of properly reclassified occupational statistics from industrial census data should not be excessive, provided that individual industries may be supposed to be correctly delimited by the Census of Occupations. In fact, comparison shows that in most cases occupational and industrial statistics agree with each other fairly well.

were counted together. The division of Public Service included some public officials as well as employees in private enterprises. In the division of Professional Service, only "professional persons" were distributed by individual pursuits, while all other workers employed by the same enterprises were counted together and cannot be segregated. For this reason it is impossible to ascertain from the 1930 Census the total number employed in each of the groups which collectively form the division of Professional Service, such as health service, education and science, religious organizations, etc.

The industrial classification used in the present study distinguishes 100 industries grouped in 11 main industrial divisions and 20 subdivisions as follows:

- I. Agriculture, forestry, fishing.
- II. Extraction of minerals.
- III. Manufactures.

Subdivisions:

- 1. Food and allied products.
- 2. Textiles and their products.
- 3. Forest products.
- 4. Paper and allied products.
- 5. Printing and publishing.
- 6. Chemical and allied products.
- 7. Products of petroleum and coal.
- 8. Rubber products.
- 9. Leather and its manufactures.
- 10. Stone, clay and glass products.
- 11. Iron and steel: Blast furnaces and steel rolling mills.
- 12. Machinery, not including transportation equipment.
- 13. Transportation equipment.
- 14. Nonferrous metals and their products.
- 15. Miscellaneous industries.
- 16. Not specified industries.

- IV. Independent hand trades.
- V. Construction.
- VI. Transportation, communication and utilities.

Subdivisions:

- 1. Transportation.
- 2. Communication and utilities.

- VII. Trade.

Subdivisions:

- 1. Banking, insurance and real estate.
- 2. Wholesale and retail trade.

- VIII. Public service.
- IX. Professional service.
- X. Domestic and personal service.
- XI. Not specified industries and services.

A list of the individual industries included in each group is shown in Note 4.¹²

Crossing the classification by *industry* with that by *class of work*, a distribution of gainful workers by socio-economic groups¹³ is provided which may be combined in several different ways. For example, the borderline between agricultural and non-agricultural pursuits, or that between production and services, may be stressed. On the other hand, the borderlines between different groups of wage earners or salaried employees may be eliminated. Statistics of the distribution of workers by sex, race, and age may thus be computed for each socio-economic group, as well as for each major division.

¹² See Note 4, page 245: "Industrial Classification of Gainful Workers."

¹³ See Note 5, page 249: "On Methods of Occupational Classification."

CHAPTER II

WORKERS BY INDUSTRY AND CLASS OF WORK

SUMMARY

THIS CHAPTER deals with the number, and distribution by industry and class of work, of gainful workers in pursuits covered and not covered by social insurance.

The total number of gainful workers reported by the 1930 Census—over 48.8 million—was understated because of the under-enumeration of unpaid family workers. Excluding these, the remaining almost 47.2 million probably represents with sufficient accuracy the number of persons in 1930 who usually worked for gain or pay.

For the purposes of social security administration, the nation's gainfully occupied population as reported by the 1930 Census should be segregated into two main groups: employers and self-employed who may be defined as *independent* workers, aggregating nearly 10.6 millions; and salaried employees and wage earners, including those temporarily out of jobs, who may be defined as *dependent* workers, aggregating 36.5 millions. A line of demarcation between these two groups cuts across the class of professional persons as enumerated by the Census, because some are independent and others work for salary.

The 10.6 million independent workers would have been excluded because they were not employees. In addition, about 9.5 million dependent workers in 1930 were engaged in pursuits exempt from the old-age insurance provisions of the Social Security Act. Another 750,000, being 65 years of age or over, would also have been excluded. Thus, out of the 47.2 million persons in 1930 who usually worked for gain or pay, 20.9 million would have been excluded, leaving approximately 26.3 million "employees" engaged in "employment" as these terms are defined in the old-age insurance sections of the Act. Of this number, about 1.8 million would have been insured under the Railroad Retirement Act and 24.5 million under the Social Security Act.

NUMBER OF GAINFUL WORKERS IN THE UNITED STATES

The Census of 1930 returned 48,829,920 gainful workers. This number is generally used as the starting point of unemployment estimates¹ as well as of estimates of the future working popula-

¹ See estimates of the American Federation of Labor, National Industrial Conference Board, Robert Nathan, and others.

tion. Supposedly it includes all persons who usually spend the equivalent of one day per week or more in a gainful occupation.

Among the gainful workers were 1,659,792 persons who were shown as "unpaid family workers on farms." This number is very low, however, in comparison with that returned by the 1935 Census of Agriculture, which reported 4,273,166 members of farmers' families working without pay at least *two days* in the first week of January 1935, when activity on farms is at the lowest seasonal ebb. The current reports of crop-reporting farmers to the Department of Agriculture likewise indicate a large participation of family members in unpaid work on farms.*

No unpaid family workers were shown by the 1930 Census in independent hand trades, retail stores, hotels and boarding houses, and other industries in which there are known to be many family enterprises. Although some unpaid family workers could have been reported as managers, bookkeepers, cashiers, sales persons, errand boys, etc. in these industries, such a classification in many cases was highly improbable or even impossible. It seems, therefore, that the 1930 Census understated the number of unpaid family workers, and consequently also the total number of gainful workers in the nation. The exact number of "gainful workers," as defined in the Census Bureau's instructions to enumerators, is unknown. However, it may be accepted that, without unpaid family workers, there were in the United States in 1930 approximately 47.2 million persons who usually worked for gain or pay.

DISTRIBUTION OF GAINFUL WORKERS BY INDUSTRY AND CLASS OF WORK

The socio-economic status of a worker is determined (1) by class of work, i. e., whether employer, professional person, salaried employee, wage earner, etc., and (2) by industry.

Table I in the Appendix summarizes the results of the rearrangement of occupational statistics obtained by a cross-tabulation of the industrial classification with that by class of work. It segregates all gainful workers enumerated by the 1930 Census into 12 classes of work and 100 industries grouped in 11 main

* See Note 6, page 251: "Enumeration of Unpaid Family Workers by the 1930 Census of Population."

divisions. Unpaid family workers are shown only in agriculture, in accordance with Census practice.

The two sets of figures below show the distribution of the total number of gainful workers by classes of work and by industrial divisions.

Classes of work	Number of gainful workers in April 1930	Per cent
ALL CLASSES OF WORK	48,829,920	100.0
(1) Employers and self-employed persons.....	9,936,124	20.4
(2) Unpaid family workers.....	1,659,792	3.4
(3) Professional persons	2,957,446	6.1
(4) Salaried employees :		
(4-a) Managers	869,796	1.8
(4-b) Clerks and kindred workers.....	5,421,408	11.1
(4-c) Sales persons	1,988,050	4.1
(5) Skilled workers :		
(5-a) Foremen	547,735	1.1
(5-b) Other skilled workers.....	5,955,327	12.2
(6) Semi-skilled workers :		
(6-a) Apprentices	87,404	.2
(6-b) Other semi-skilled workers.....	6,852,920	14.0
(7) Unskilled workers	8,286,962	17.0
(8) Service workers	4,266,956	8.7
Industrial divisions		
ALL INDUSTRIES	48,829,920	100.0
I. Agriculture (including Forestry and Fishing) .	10,752,909	22.0
II. Extraction of minerals.....	1,149,252	2.4
III. Manufactures	10,866,020	22.3
IV. Independent hand trades.....	360,329	.7
V. Construction	3,029,791	6.2
VI. Transportation, communication (including postal service) and utilities.....	4,530,770	9.3
VII. Trade	7,530,064	15.4
VIII. Public service (excluding postal service, edu- cation and health).....	1,049,576	2.1
IX. Professional service (including education and health)	3,408,947	7.0
X. Domestic and personal service.....	4,814,573	9.9
XI. Not specified industries and services.....	1,337,689	2.7

A better description of the composition of the working population in 1930 is provided by percentage distributions of the number of persons in each industrial division by class of work, and of the number of persons in each class of work by industry. The first classification is applied in Table 2 and Diagram I, and the second in Table 3 and Diagram II.

TABLE 2. PERCENTAGE DISTRIBUTION OF GAINFUL WORKERS IN DIFFERENT INDUSTRIAL DIVISIONS, BY CLASS OF WORK, IN THE UNITED STATES, 1930

Industries	All classes of work	Employers and self-employed	Unpaid family workers	Professional persons	Salaried employees	Skilled workers	Semi-skilled workers	Unskilled workers	Service workers
ALL INDUSTRIES.....	100.0	20.4	3.4	6.1	17.0	13.3	14.2	17.0	8.7
PRODUCTION OF GOODS:									
I. Agriculture.....	100.0	56.6	15.4	0.0	0.8	0.1	0.1	26.9	0.0
II. Extraction of minerals.....	100.0	1.4		0.9	4.0	11.1	81.1	0.5	1.0
III. Manufactures.....	100.0	1.7		1.5	14.7	25.4	35.8	19.9	1.0
IV. Independent hand trades.....	100.0	99.3		—	—	—	0.7	—	—
V. Construction.....	100.0	5.5		1.2	2.6	62.4	3.2	24.2	0.8
SERVICES:									
VI. Transportation, communication and utilities.....	100.0	2.3		1.1	31.1	25.8	17.1	19.3	3.2
VII. Trade.....	100.0	35.8		0.2	52.4	2.1	3.2	7.4	0.9
VIII. Public service.....	100.0	0.0		4.6	29.8	26.1	19.0	14.7	5.8
IX. Professional service.....	100.0	1.7		76.9	10.2	0.7	1.6	1.9	7.0
X. Domestic and personal service.....	100.0	8.4		—	3.0	0.6	10.9	2.8	74.2
XI. Not specified industries and services.....	100.0	0.1		0.7	23.1	4.4	16.6	33.5	1.5

Sources: Table I in the Appendix, page 291.

As seen in Table 2 and Diagram I, except for independent hand trades, agriculture had the highest proportion of employers and self-employed, with nearly 57 per cent of the total engaged in the industry, followed by trade, where almost 34 per cent of the total were employers or self-employed.

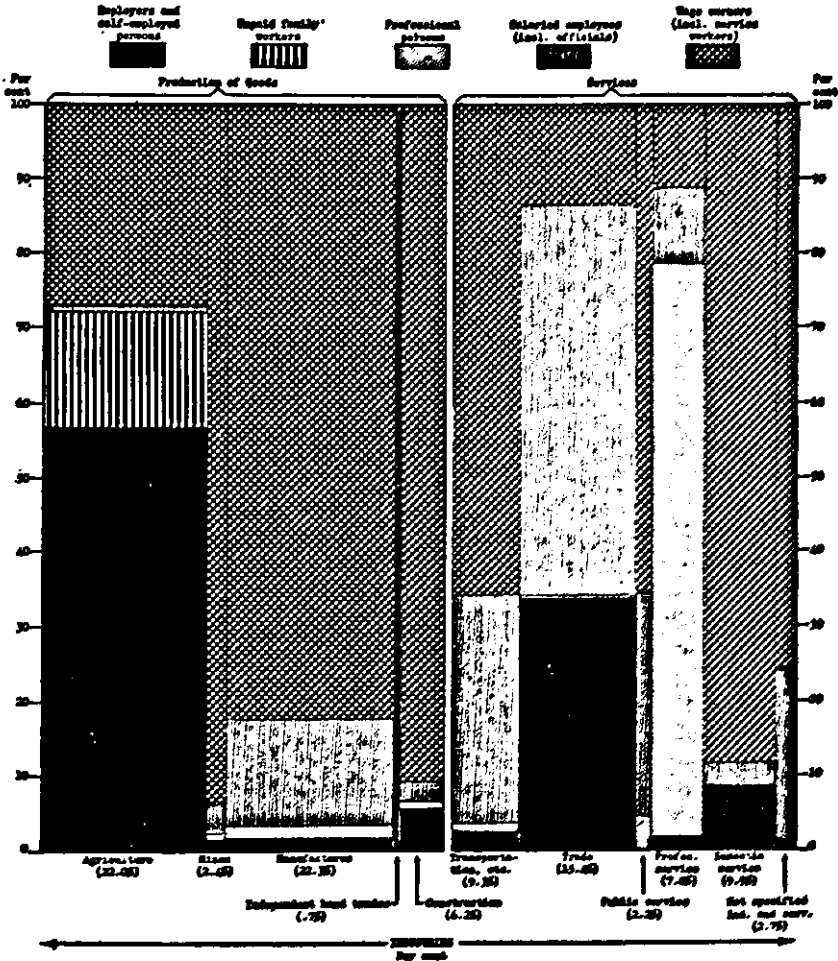
Semi-skilled workers, or operatives according to the Census description, predominated in extraction of minerals, with more than 80 per cent of the total, but this classification may be inaccurate as some operatives in mines should properly be classified as skilled workers while others are unskilled laborers.

The borderlines between skilled, semi-skilled and unskilled workers in manufacturing industries were more clearly established. But here too, in certain industrial branches, as textiles, skilled workers were not clearly distinguished from semi-skilled operatives.

In independent hand trades several groups of self-employed craftsmen without paid helpers and a few apprentices were included. Craftsmen with hired helpers were presumably counted in manufactures.

DIAGRAM I

DISTRIBUTION OF GAINFUL WORKERS IN DIFFERENT INDUSTRIAL DIVISIONS BY CLASS OF WORK, IN THE UNITED STATES, 1930



The preponderance of skilled workers, with more than 62 per cent of the total, and the insignificant proportion of semi-skilled operatives in construction, were due partly to traditional occupational classifications in the building trades.

In the chief service divisions, such as transportation, communication and utilities, trade, and public service, salaried employees constituted the most important group of workers.

Professional service included, in addition to professional persons amounting to nearly 77 per cent, a number of employees, helpers and service workers who have been counted in their respective classes of work.

In domestic and personal service the number of independent workers shown in Table 2 is probably understated. All barbers, hairdressers, manicurists, and boot-blacks, for example, have been tabulated as service workers, although some of them were self-employed or even employers.

The preceding analysis of the socio-economic structure of the gainful population is supplemented by Table 3 and Diagram II which show the percentage distribution of each class of work by industrial divisions.

TABLE 3. PERCENTAGE DISTRIBUTION BY INDUSTRIAL DIVISIONS OF VARIOUS CLASSES OF WORK IN THE UNITED STATES, 1930

Industries	All classes of work	Employers and self-employed	Unpaid family workers	Service workers	Unskilled workers	Semi-skilled workers	Skilled workers	Salaried employees	Professional persons
ALL INDUSTRIES.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
PRODUCTION OF GOODS...	53.6	68.7	100.0	3.6	69.8	70.9	73.7	21.9	7.2
I. Agriculture.....	22.0	61.3	100.0	0.1	34.9	0.1	0.2	1.1	0.1
II. Extraction of minerals.....	2.7	0.2		0.2	0.1	13.4	2.0	0.6	0.3
III. Manufactures.....	22.3	1.9		2.7	26.0	56.0	42.4	19.3	5.5
IV. Independent hand trades.....	0.7	3.6		0.0	0.0	0.0	0.0	0.9	0.0
V. Construction.....	6.2	1.7		0.6	8.8	1.4	29.1	0.0	1.3
SERVICES.....	43.7	31.4		95.9	21.6	25.9	25.4	74.4	92.5
VI. Transportation, communication, and utilities.....	9.3	1.0		3.4	10.6	11.2	18.0	17.0	1.7
VII. Trade.....	15.4	25.7		1.7	6.7	3.4	2.4	47.6	0.5
VIII. Public service.....	2.2	0.0		1.4	1.9	3.0	4.2	3.8	1.6
IX. Professional service.....	7.0	0.6		5.6	0.8	0.8	0.4	4.2	88.6
X. Domestic and personal service.....	9.9	4.1		83.7	1.6	7.5	0.4	1.8	0.0
XI. Not specified industries and services.....	2.7	0.0		0.5	8.6	3.2	0.9	3.7	0.3

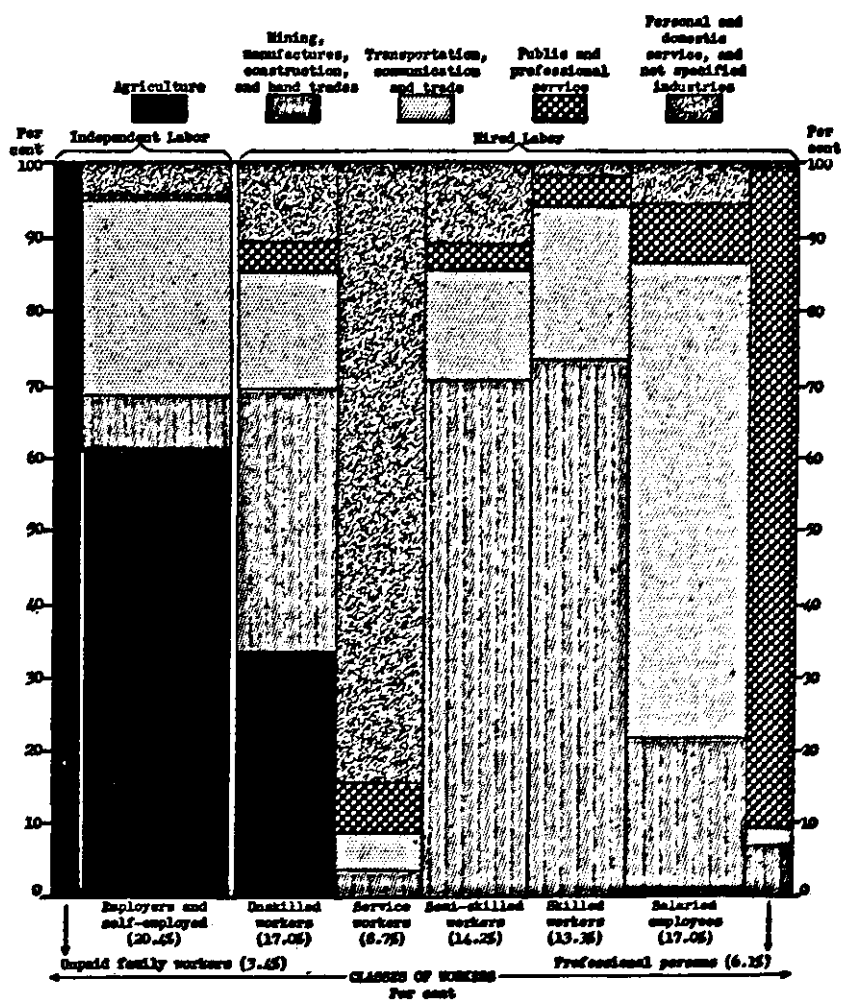
Source: Table I in the Appendix, page 291.

DISTRIBUTION OF PROFESSIONAL PERSONS

From the standpoint of social insurance, professional persons do not fall into a single class of work, for some of them are salaried employees and others are self-employed or employers.

DIAGRAM II

DISTRIBUTION OF DIFFERENT CLASSES OF WORKERS BY INDUSTRIAL DIVISIONS, IN THE UNITED STATES, 1930



On the basis of the 1930 Census, the number of professional persons has been estimated at 2,957,446, among whom 2,620,284 have been classified in professional service (including all educational and health establishments), 47,791 in public service, and 289,371 in all other industrial divisions. These latter, engaged

in mining, manufacturing, trade and other industries, were essentially salaried employees.

In the division of Professional Service, professional persons may be distributed by main fields of activity as follows:

Professional service (except recreation):	
Church, justice, and social welfare.....	360,377
Teaching, art, science, literature, and press ³	1,323,633
Public health	560,345
Architects, engineers, and inventors.....	132,248
Recreation and amusement:	
Actors, showmen, musicians, etc.....	243,681

The following classification shows an approximate distribution of professional persons between pursuits in which independent work, or work for salary prevails:⁴

	Predominantly independent work (self-employed persons)	Predominantly dependent work (employees)
Professional service (except recreation):		
Church, justice, and social welfare.....	330,953	29,424
Teaching, art, science, literature, and press	69,714	1,253,919
Public health	272,394	287,951
Architects, engineers, and inventors.....	24,300	107,948
Recreation and amusement.....	—	243,681
Professional persons in other industrial divisions	12,809	324,353
Totals.....	710,170	2,247,276

The first column in all probability includes many workers who are really salaried employees, while the second may well include many who are actually self-employed. Furthermore, the income of many professional persons is derived partially from salaried and partially from independent work. The assumption therefore that in 1930 all persons in the first column were independent and all in the second were salaried employees is only a very rough estimate.

³ Including 47,942 persons reported under "other professional occupations." According to the 1930 Classified Index of Occupations, this group includes all kinds of scientific workers (anthropologists, archaeologists, bacteriologists, biologists, botanists, entomologists, ethnologists, geographers, geologists, linguists, magnetic observers, mathematicians, meteorologists, mineralogists, naturalists, physicists, psychologists, technologists, zoologists, etc.), professional persons, researchers and scientists not elsewhere classified, school managers and secretaries, special experts, economists, statisticians, vocational advisers, etc.

⁴ See Note 7, page 254: "Independent and Dependent Professional Persons."

"INDEPENDENT" AND "DEPENDENT" WORKERS

If the persons classified by the 1930 Census as professional persons are divided between independent and dependent pursuits, as explained above, then a summary of all gainful workers by classes of work will be as follows:

Employers and self-employed persons (including independent professional persons).....	10,646,294
Unpaid family workers (in agriculture).....	1,659,792
Salaried employees and officials (including salaried professional persons)	10,526,530
Wage earners	25,997,304

The total of *salaried employees and wage earners*—managers and officials, salaried professional persons, clerks, sales persons, wage earners, and servants, including workers temporarily unemployed—was about 36.5 million.

As seen in Table 4 which shows the distribution by major industrial divisions of "independent" and "dependent" workers in the United States (excluding unpaid family members), dependent workers were distributed about equally between industries engaged in the "production of goods" and in providing "services."

NUMBER OF PERSONS WHO WOULD HAVE BEEN COVERED BY OLD-AGE INSURANCE IN 1930

Not all salary and wage earners in the nation are covered by the provisions of the Social Security Act. In addition to workers employed in agriculture, domestic and personal service, and other uninsured industries, persons who continue to work in insured industries after reaching the age of 65 are exempted from old-age insurance contributions. Furthermore, employers of workers in small establishments are exempt from the federal excise tax which constitutes the basis of unemployment compensation. The following analysis refers only to old-age insurance, while the effects of the exclusion of small establishments will be discussed later in Chapter XIII of Book Two.

On the basis of 1930 occupational statistics, the number of salary and wage earners, including professional persons in dependent pursuits, has been estimated at 36,523,834. The assumption is made that, during a registration period for old-age insurance in 1930, all of these workers were employed long enough to have

TABLE 4. INDEPENDENT AND DEPENDENT WORKERS IN PRODUCTION OF GOODS AND IN SERVICES IN THE UNITED STATES, 1930

Industries	Independent workers (employers, incl. "independent" pro- fessional persons)		Dependent workers (employees)	
	Number	Per cent	Number	Per cent
ALL INDUSTRIES.....	10,646,294	100.0	36,523,834	100.0
PRODUCTION OF GOODS	6,819,680	64.1	17,678,829	48.4
I. Agriculture.....	6,090,942	57.2	3,002,175	8.2
II. Extraction of minerals.....	15,834	0.1	1,133,418	3.1
III. Manufactures.....	187,159	1.8	10,678,861	29.2
IV. Independent hand trades....	357,934	3.4	2,395	0.0
V. Construction.....	167,811	1.6	2,861,980	7.8
SERVICES	3,824,899	35.8	17,509,031	47.9
VI. Transportation, communica- tion, and utilities.....	102,210	1.0	4,428,560	12.1
VII. Trade.....	2,548,037	23.9	4,982,027	13.6
VIII. Public service.....	13,162 ^a	0.1	1,036,414	2.8
IX. Professional service.....	756,931 ^a	7.1	2,652,016	7.3
X. Domestic and personal service.....	404,559	3.8	4,410,014	12.1
XI. Not specified industries and services.....	1,715	0.0	1,335,974	3.7

^a\$9,923 employers and self-employed persons in public and professional service, as shown in Table I, and 710,170 professional persons in predominantly independent pursuits (see page 23).

Source: Table I in the Appendix, page 291.

been counted in the registration. Of the total registered, approximately 9.5 million employees would have been excluded from old-age insurance because they were engaged in uninsured industries,⁸ and an additional 750,000 persons because they were 65 years of age or more, leaving 26.3 million persons who, in 1930, would have been eligible for insurance according to the definition of "employment" in the Social Security Act. About 1.8 million of these eligible workers would have been covered by the Railroad Retirement Act, and the remaining 24.5 million workers would have been under the jurisdiction of the Social Security Board.

The occupations and estimated number of persons who would have been excluded from old-age insurance in 1930 by Section 210 (b) of the Social Security Act follow:⁹

⁸ See Introduction, page xviii.

⁹ These figures have been computed on the basis of Table 2, Chapter 7, Volume V of the 1930 Census of Population. The purpose of this survey is to estimate the total number of salary and wage earners excluded from old-age insurance rather than to find out the number affected by each individual provision of Section 210 (b) of the Social Security Act. Therefore, occupational groups which may be affected by more than one provision of the Act have not been distributed under the respective paragraphs but have been counted as one unit.

1:	Farm laborers (wage earners).....	2,732,972	
2:	Domestic service in private homes ⁷	2,550,247	
3:	"Casual labor not in the course of the employer's trade or business." Probably the two following groups in not specified industries and services would fall under this provision:		
	General and not specified laborers.....	695,865	
	Operatives (not elsewhere classified).....	153,152	849,017
4:	Members of crews: ⁸		
	Captains, masters, mates and pilots.....	24,485	
	Sailors and deck hands.....	64,700	89,185
5	Public service (in employ of the United States and Government, a State, a subdivision thereof):		
6:	Gainful workers in public service (except self-employed, etc.)	1,036,414	
	Postal service	283,936	
	About 25 per cent of salary and wage earners in construction and maintenance of roads, electric power plants, gas works ⁹.....about	210,000	
	School teachers, college professors, etc. ¹⁰	1,105,921	
	Trained nurses (95 per cent).....	273,554	about 2,910,000
7:	Service performed in the employ of a non-profit establishment for religious, charitable, scientific, literary or educational purposes, or for the prevention of cruelty to children or animals (without overlapping cases, i.e., teachers, nurses employed by public hospitals, etc., counted under 5 and 6 above):		
	Cemetery keepers	9,762	
	Keepers of charitable and penal institutions, officials of lodges and societies.....	29,535	
	Librarians (75 per cent).....	22,210	
	Other occupations ¹¹	280,000	about 340,000
Total salary and wage earners excluded by Section 210 (b)		about 9,470,000	

⁷ This group includes the following occupations reported by the Census in domestic and personal service, not elsewhere classified: Servants, 1,240,086; cooks, 273,594; housekeepers and stewards, 195,808; chauffeurs, etc., 94,777; elevator tenders, janitors, firemen, guardians, etc. 134,657; laborers, 53,351; launderers and laundresses, not in laundries, 357,525; untrained nurses, 153,443; porters, 24,461; waiters, 12,131.

⁸ According to a ruling of the Bureau of Internal Revenue, this provision applies to all persons employed on vessels by shipping companies, including clerical and service workers. They are not separately shown in the Census report, but it may be assumed that in addition to captains, sailors, etc., there would be excluded approximately 40,000 persons reported as employed in water transportation (clerks and stenographers; stationary engineers, machinists, mechanics, and electricians; firemen, oilers and painters; cooks, housekeepers, janitors, and waiters).

⁹ As estimated by President's Committee on Economic Security.

¹⁰ Including teachers in private schools, some of which are non-profit organizations. Their employees are excluded by Section 210, b, 7.

To this total of 9.5 million should be added approximately 750,000 persons 65 years of age or more who would be excluded by Section 811, b, 4 of the Social Security Act.¹²

Summarizing, there would have been excluded from old-age insurance in 1930:

Proprietors and unpaid family workers.....	12,300,000
Employees in uninsured industries.....	9,470,000
Employees 65 years or over in insured industries.....	750,000
Total.....	22,520,000

Out of the total of 48,829,920 gainful workers in 1930, therefore, 26.3 million would have been covered by old-age insurance.

The coverage of the Social Security Act is curtailed by the "Railroad Retirement Act of 1935" enacted fifteen days after the passage of the Social Security Act. This Act provides that services performed in the employ of railroads and their auxiliary enterprises are excluded from the old-age insurance system established by the Social Security Act and are placed under the Railroad Retirement Board.¹³ In 1930 these services employed about 1.8 million workers.

¹² In Table I in the Appendix, there have been counted in professional service:

Managers, officials, clerks and kindred workers.....	311,175
Skilled, semi-skilled, and unskilled workers.....	95,677
Service workers	182,287
Total.....	589,139

Excluding keepers of charitable and penal institutions, and officials of lodges and societies, there remain about 560,000 other salary and wage earners employed in all kinds of professional services. It is assumed that approximately 280,000 of these were employed in schools, hospitals, religious and charitable establishments and other non-profit institutions excluded by Section 210, b, 7, of the Social Security Act. Clergymen and religious workers have been omitted from the preceding enumeration because in the present classification they have been tabulated as *independent* professional persons.

¹³ For the age distribution of gainful workers, see Chapter V.

¹⁴ The following establishments are covered by the provisions of the Railroad Retirement Act:

"The term 'carrier' means any express company, sleeping-car company, or carrier by railroad, subject to the Interstate Commerce Act, and any company which may be directly or indirectly owned or controlled thereby or under common control therewith, and which operates any equipment or facilities or performs any service (other than trucking service) in connection with the transportation of passengers or property by railroad, or the receipt, delivery, elevation, transfer in transit, refrigeration or icing, storage, or handling of property transported by railroad, and any receiver, trustee or other individual or body,

Table 5 and Diagram III show the number of persons who in 1930 would have been included or excluded by the Social Security and the Railroad Retirement Acts.

TABLE 5. ESTIMATED NUMBER OF PERSONS IN VARIOUS CLASSES OF WORK INCLUDED IN AND EXCLUDED FROM OLD-AGE INSURANCE IN THE UNITED STATES, 1930

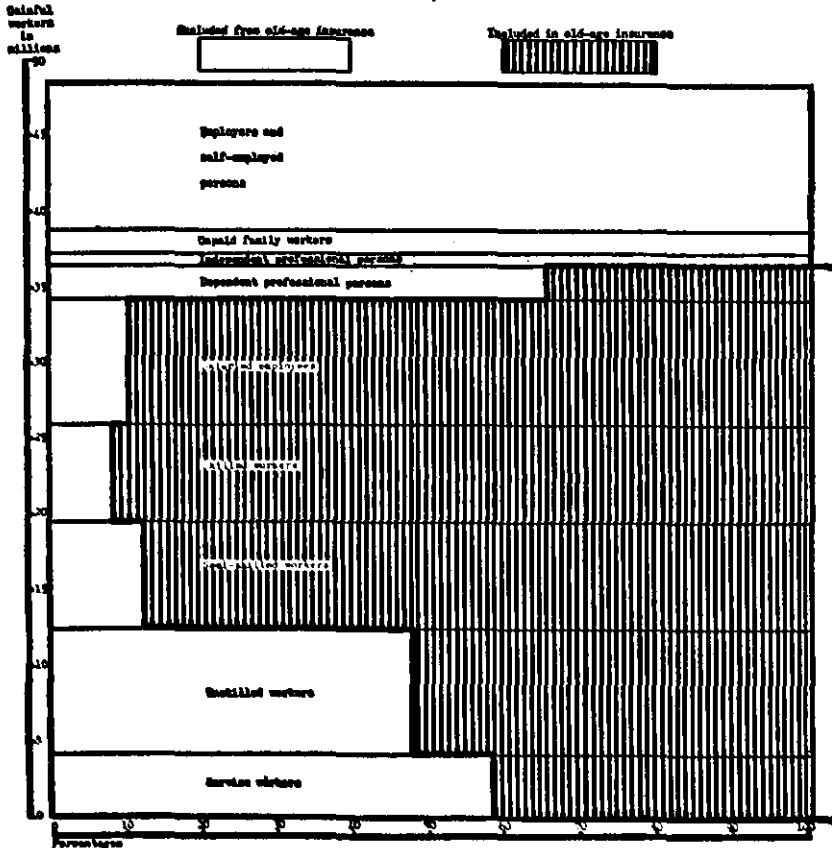
Classes of work	Number of gainful workers in April 1930	Excluded from old-age insurance	Included in old-age insurance	Percentage of gainful workers included in old-age insurance
		<i>In thousands</i>		
ALL CLASSES OF WORK.....	48,830	22,520	26,310	53.9
Employers and self-employed persons	9,930	9,930	—	0.0
Unpaid family workers (in agriculture).....	1,660	1,660	—	0.0
Professional persons:				
Independent.....	710	710	—	0.0
Dependent.....	2,250	1,480	770	34.2
Salaried employees.....	8,280	870	7,410	89.5
Skilled workers.....	6,500	550	5,950	91.5
Semi-skilled workers.....	6,940	820	6,120	88.2
Unskilled workers.....	8,290	3,990	4,300	52.1
Service workers.....	4,270	2,510	1,760	41.2

The figures in Table 5, which are based partly on estimates and partly on the existing classifications of occupational statistics, are not exact. It should be kept in mind that they include persons who were temporarily out of jobs when the 1930 Census was taken. On the other hand, a census provides only a static cross-section of the population by principal occupation at the date of enumeration, and allowance should be made for the possibility that intermittent and subsidiary employment in insured industries will greatly swell the number of persons registered for old-age insurance. Employment of farmers and farm laborers in non-agricultural industries in winter, casual work by persons not registered by a census as gainful workers, and work for pay by persons reported as employers or self-employed, will enlarge the

judicial or otherwise, when in the possession of and operating the business of any such 'carrier': Provided, however, That the term 'carrier' shall not include any street, interurban, or suburban electric railway, unless such railway is operating as a part of a general steam-railroad system of transportation, but shall not exclude any part of the general steam-railroad system of transportation, now or hereafter operated by any other motive power." (Public No. 399—74th Congress, Railroad Retirement Act, Section 1, a.)

DIAGRAM III

NUMBER OF PERSONS IN VARIOUS CLASSES OF WORK EXCLUDED FROM AND INCLUDED IN OLD-AGE INSURANCE IN THE UNITED STATES, 1930



number on the old-age insurance register by millions of persons who are not considered as gainful workers in covered pursuits. Therefore, a *current* registration will necessarily show totals higher than those resulting from an analysis of census data. In Chapter VIII the number of persons who would have been registered currently in 1930 will be examined in greater detail.

CHAPTER III WORKERS BY SEX

SUMMARY

OF THE TOTAL gainful population of 48,829,920 persons in the United States in 1930, the Census reported 38,077,804 male and 10,752,116 female workers.

The highest percentages of female workers were found in personal and domestic service, independent hand trades and professional service, while the proportion was insignificant in extraction of minerals, construction, and transportation.

Women were in the majority among service workers and professional persons in dependent pursuits. They were almost as numerous as male workers in clerical occupations. In the field of manual labor, women were more frequently employed as semi-skilled operatives than as skilled or unskilled workers.

The industrial exclusions provided by the Social Security Act affect women to a higher degree than men. In 1930, only 51.1 per cent of the gainfully occupied women would have been included in the definition of "employment" given in the Act, the corresponding rate for men being 54.5 per cent. The contrast would be much more striking if female family workers, excluded from insurance, had been identified as gainful workers in the Census report.

MALE AND FEMALE WORKERS BY INDUSTRY

According to the 1930 Census, women constituted 22.0 per cent of the entire gainfully occupied population. The largest numbers of female workers were reported in domestic and personal service with 3,153,549, or 29.3 per cent of the total number of gainfully occupied women, in manufactures with 2,143,772, or 19.9 per cent, in professional service with 1,760,917, or 16.4 per cent, and in trade with 1,714,729, or 15.9 per cent. The number of female workers reported in agriculture is of questionable validity because of the under-enumeration of family workers. This may also be true of trade, where it is known that large numbers of unpaid female members of families are engaged.

The highest percentages of female workers were found in domestic and personal service with 65.5 per cent of total gainful workers, in independent hand trades with 55.8 per cent, in pro-

fessional service with 51.7 per cent, in the textile industries with 47.0 per cent, and in communication and utilities with 31.9 per cent.

Female workers were relatively more numerous in the services than in the production of goods. In agriculture, extraction of minerals, manufactures, and the building trades, they constituted only 12.6 per cent of the gainful workers, whereas in transportation, distribution and other services, 32.2 per cent were women.

(See Table 6 and Diagram IV.)

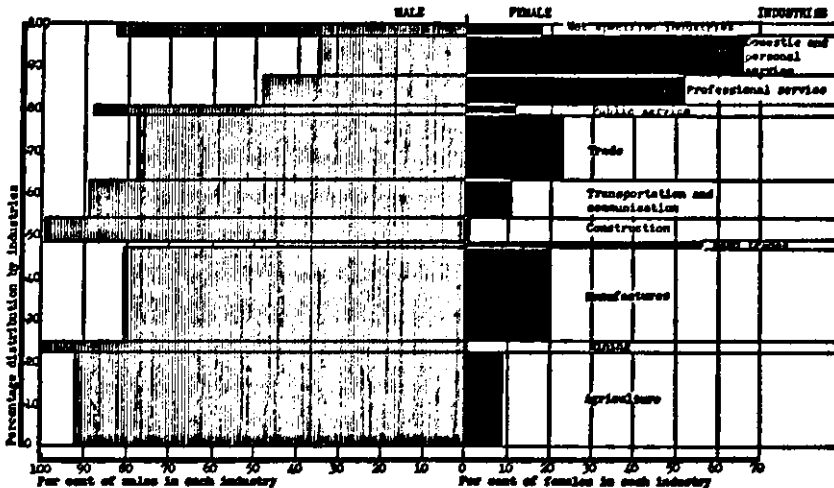
TABLE 6. GAINFUL WORKERS, BY INDUSTRY AND SEX, IN THE UNITED STATES, 1930

Industries	Total	Male	Female	Percent- age of female workers
ALL INDUSTRIES.....	48,829,920	38,077,804	10,752,116	22.0
I. Agriculture, forestry, fishing....	10,752,909	9,837,065	915,844	8.5
NON-AGRICULTURAL PURSUITS (II-XI)...	38,077,011	28,240,739	9,836,272	25.8
II. Extraction of minerals.....	1,149,252	1,142,537	6,715	0.5
III. Manufactures.....	10,866,020	8,722,248	2,143,772	19.7
Food and allied products.....	907,253	738,541	168,712	18.6
Textiles and their products....	1,973,275	1,064,721	908,554	47.0
Forest products.....	906,493	860,048	46,445	5.1
Paper and allied products....	243,389	191,980	51,409	21.1
Printing and publishing.....	544,606	429,918	114,688	21.1
Chemical and allied products..	340,383	274,848	65,535	19.3
Products of petroleum and coal	288,728	266,403	22,325	7.7
Rubber products.....	166,391	130,784	35,607	21.4
Leather and its manufactures	374,069	259,335	114,734	30.7
Stone, clay and glass products	371,961	341,550	30,411	8.2
Blast furnaces, etc.....	620,894	602,358	18,536	3.0
Machinery.....	1,819,261	1,629,281	189,980	10.4
Transportation equipment....	968,693	919,579	49,114	5.1
Nonferrous metals.....	332,976	277,851	55,125	16.6
Miscellaneous industries.....	542,089	375,658	166,431	30.7
Not specified industries.....	465,559	359,393	106,166	22.8
IV. Independent hand trades.....	360,329	159,293	201,036	55.8
V. Construction.....	3,029,791	3,001,658	28,133	0.9
VI. Transportation, communication and utilities.....	4,530,770	4,061,052	469,718	10.4
Transportation.....	3,370,013	3,270,820	99,193	2.9
Communication and utilities..	1,160,757	790,232	370,525	31.9
VII. Trade.....	7,530,064	5,815,335	1,714,729	22.8
Banking, insurance, etc.....	1,484,762	1,069,815	414,947	27.9
Retail and wholesale trade....	6,045,302	4,745,520	1,299,782	21.5
VIII. Public service.....	1,049,576	927,882	121,694	11.6
IX. Professional service.....	3,408,947	1,648,030	1,760,917	51.7
X. Domestic and personal service..	4,814,573	1,661,024	3,153,549	65.5
XI. Not specified industries and services.....	1,337,689	1,101,680	236,009	17.7

Source: W. S. Woytinsky, *The Labor Supply in the United States* (revised ed., Washington, D. C., 1937). Committee on Social Security, Social Science Research Council, Table II, pp. 45-69.

DIAGRAM IV

PERCENTAGE DISTRIBUTION OF GAINFUL WORKERS IN DIFFERENT INDUSTRIAL DIVISIONS, BY SEX, IN THE UNITED STATES, 1930



In the production of goods, exclusive of agriculture, the proportion of female workers was comparatively high in the manufacture of non-durable goods with 31.5 per cent, and low in the manufacture of durable goods,¹ extraction of minerals, and construction.

MALE AND FEMALE WORKERS BY CLASS OF WORK

In service work and dependent professional occupations female workers were in the majority, with more than 60 per cent of total gainful workers. They constituted almost half of all clerical workers. Next in importance came sales persons with 27.3 per cent, and semi-skilled workers with 26.2 per cent. It will be noticed that in all industrial divisions and individual industries

¹ According to the classification used by the Bureau of Labor Statistics, manufactures of "durable goods" include forest products; stone, clay and glass products; blast furnaces and steel rolling mills; machinery; transportation equipment; nonferrous metals.

Manufactures of "non-durable goods" include food products; textile and clothing industries; paper and allied products; printing and publishing; chemical industries including products of petroleum and coal; rubber and leather industries; independent hand trades.

the proportion of women among semi-skilled operatives was much higher than among skilled craftsmen and unskilled laborers, and fairly small among employers, managers, and foremen.

(See Table 7 and Diagram V.)²

FEMALE WORKERS BY SOCIO-ECONOMIC GROUPS

A classification of gainful workers by both industry and class of work makes it possible to compute the proportion of females in each of the socio-economic groups which results from this double tabulation.³

Listed below are the twelve socio-economic groups with the largest numbers of female workers in 1930:

Socio-economic groups	Female workers	
	Number	Percentage of total gainful workers
Service workers, in domestic and personal service...	2,574,185	72.0
Salaried employees, in trade.....	1,477,729	37.4
Professional workers, in professional service.....	1,431,476	54.6
Operatives, in manufactures.....	1,431,139	36.8
Salaried employees, in manufactures.....	498,085	31.2
Salaried employees, in transportation, etc.....	453,450	32.1
Semi-skilled workers, in domestic and personal service	311,156	59.4
Employers in agriculture (farmers).....	262,863	4.3
Salaried employees, in professional service.....	240,729	69.3
Independent hand trades.....	198,875	55.6
Salaried employees, in not specified industries.....	190,346	61.8
Employers, in domestic and personal service.....	186,717	46.2

Source: Table II in the Appendix, page 296.

MALE AND FEMALE WORKERS IN INSURED AND UNINSURED INDUSTRIES

In 1930 women constituted 25.7 per cent of the 36.5 million salary and wage earners, and only 11.2 per cent of the proprietary group which included 12.3 million employers and self-employed, unpaid family workers and independent professional persons.

³ Cf. Note 8, page 256: "Selected Occupations in Which Female Workers Pre-dominate."

² See Table II in the Appendix, page 296.

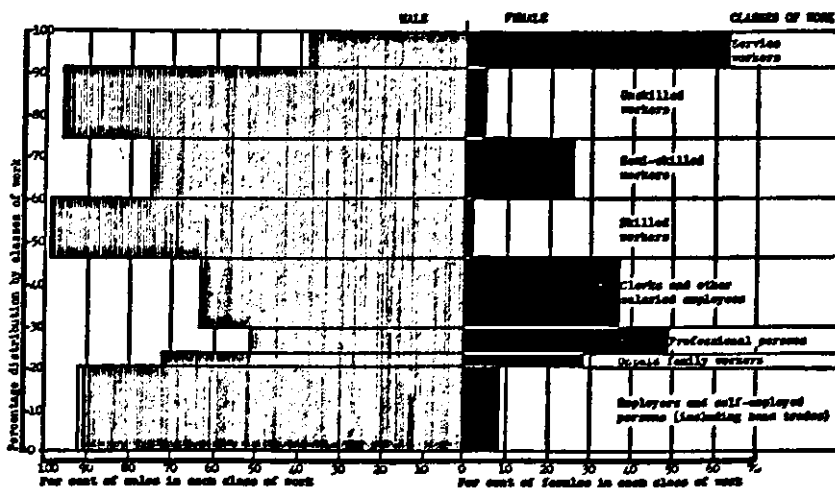
TABLE 7. GAINFUL WORKERS BY CLASSES OF WORK AND SEX IN THE UNITED STATES, 1930

Classes of work	Total	Male	Female	Percentage of female workers
ALL CLASSES OF WORK	48,829,920	38,077,804	10,752,116	22.0
Employers and self-employed	9,936,124	9,109,404	826,720	8.3
Unpaid family workers	1,659,792	1,184,784	475,008	28.6
Professional persons:				
Independent	710,170	632,169	78,001	11.0
Dependent	2,247,276	875,529	1,371,747	61.0
Managers	869,796	819,199	50,597	5.8
Clerks and kindred workers	5,421,408	2,949,794	2,471,614	45.8
Sales persons	1,988,050	1,445,459	542,591	27.3
Foremen	547,735	511,230	36,505	6.7
Other skilled workers	5,955,327	5,884,355	70,972	1.2
Apprentices	87,404	83,169	4,235	4.8
Other semi-skilled workers	6,852,920	5,056,511	1,796,409	26.2
Unskilled workers	8,286,962	7,927,497	359,465	4.3
Service workers	4,266,956	1,598,704	2,668,252	62.5

Source: Woytinsky, *op. cit.*, Table II, pp. 45-49.

DIAGRAM V

PERCENTAGE DISTRIBUTION OF GAINFUL WORKERS IN DIFFERENT CLASSES OF WORK, BY SEX, IN THE UNITED STATES, 1930



Of the salary and wage earners, the following were excluded as they were employed in uninsured industries in 1930:

	Total	Male	Female	Percentage of female workers
<i>In thousands</i>				
Farm laborers	2,732	2,562	170	6.2
Servants	2,550	414	2,136	83.0
Casual laborers	849	807	42	5.0
Members of crews.....	89	89	—	.0
Public service*	1,530	1,370	160	10.4
Employees in public educa- tion, health and non-profit organizations	1,720	410	1,310	76.6
Total.....	9,470	5,652	3,818	40.3

Another 690,000 men and 60,000 women, having attained the age of 65, would have been excluded from old-age insurance.

Thus, among all male and female gainful workers in 1930, the following would have been excluded from or included in old-age insurance:

	Total	Male	Female	Percentage of female workers
<i>In thousands</i>				
ALL GAINFUL WORKERS.....	48,830	38,078	10,752	22.0
Excluded:				
Proprietary group	12,306	10,926	1,380	11.2
Salary and wage earners in uninsured industries..	9,470	5,652	3,818	40.3
Persons 65 years of age and over	750	690	60	8.0
Included	26,300	20,800	5,500	20.9

* Including postal service, public construction and maintenance of roads, etc.

CHAPTER IV WORKERS BY RACE

SUMMARY

THE 1930 Census reported a higher percentage of gainful workers among the colored¹ than among the white population. This is explained partly by the more complete enumeration of unpaid family workers on farms operated by colored persons.

The proportion of native whites was particularly high in transportation, communication and utilities, trade, public and professional service. Foreign-born whites were comparatively numerous in mining, manufacturing, construction and independent hand trades, in each of which the proportion was more than 20 per cent. Colored workers were most numerous in agriculture, with over 20 per cent, and in domestic and personal service, with over 30 per cent of total workers engaged in these industries.

So far as classes of work are concerned, native whites constituted almost 89 per cent of professional persons and salaried employees, about 75 per cent of employers and skilled workers, 72.5 per cent of semi-skilled workers, about 60 per cent of unskilled laborers, and less than half of service workers. Foreign-born whites constituted more than 20 per cent of skilled and semi-skilled workers, and somewhat less than 20 per cent of service workers. Colored persons were most frequently employed as service workers, of whom they constituted 36 per cent, and as unskilled laborers, slightly less than a fourth of whom were colored.

In 1930 the old-age insurance provisions of the Act would have covered more than 74 per cent of the native white, nearly 80 per cent of the foreign-born white, and only 48.4 per cent of the colored salary and wage earners.

DISTRIBUTION OF GAINFUL WORKERS BY RACE²

The 1930 Census revealed important contrasts in the proportions of gainful workers among different racial groups, as indicated in the following tabulation:

	Percentage of gainful workers		
	Total	Male	Female
Native white	47.0	73.4	20.5
Foreign-born white	56.1	88.4	18.8
Negro	59.2	80.2	38.9
Other races	51.2	78.0	15.2

Source: Fifteenth Census of the United States: 1930, Population, Volume V, p. 74.

¹ The term "colored" is used here, as it is in the Census of Agriculture to include all others than native or foreign-born whites.

² See Woytinsky, *op. cit.*, Tables II to VII. Cf. Fifteenth Census of the United States: 1930, Population, Volume V, pp. 73-106.

Factors accounting for these differences were (1) the different age composition of racial groups and their uneven distribution between agricultural and non-agricultural pursuits, and (2) the more complete enumeration of unpaid family workers among the colored rural population.

WORKERS OF DIFFERENT RACES BY INDUSTRY

Workers of different races were unevenly distributed by industries. There was a preponderance of native whites in trade and public and professional service, a comparatively high proportion of foreign-born whites in mining and manufacturing industries, hand trades, and construction, while colored workers were largely concentrated in domestic service and agriculture.

(See Table 8 and Diagram VI.)

DIAGRAM VI

PERCENTAGE DISTRIBUTION OF GAINFUL WORKERS IN DIFFERENT INDUSTRIAL DIVISIONS, BY RACE, IN THE UNITED STATES, 1930

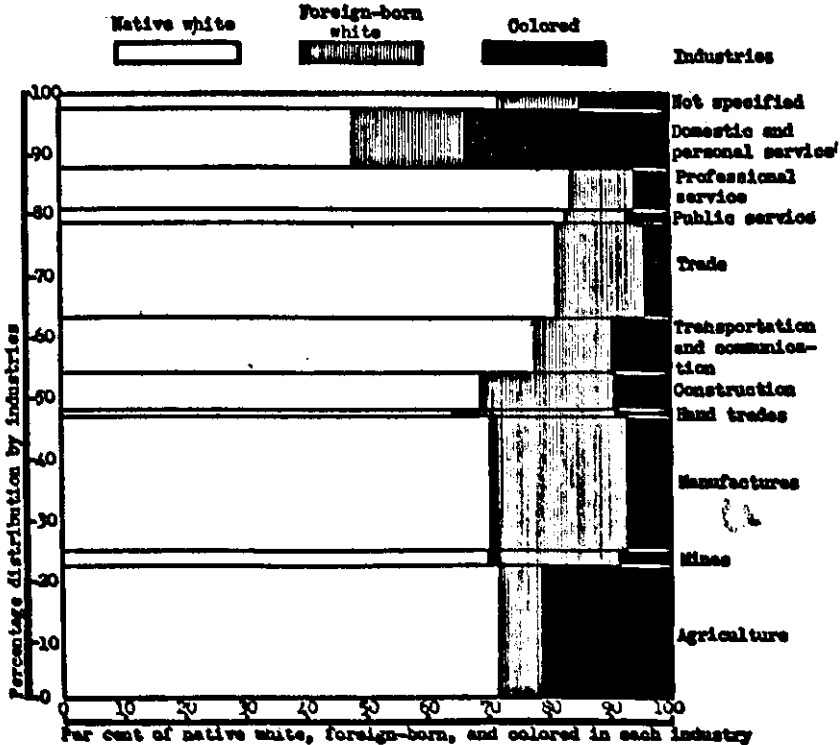


TABLE 8. PERCENTAGE DISTRIBUTION OF GAINFUL WORKERS BY INDUSTRY, RACE AND SEX IN THE UNITED STATES, 1930

Industries	Native white			Foreign-born white			Colored		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
	<i>Distribution of workers in each industry by race and sex</i>								
ALL INDUSTRIES	72.0	56.3	15.7	15.2	12.8	2.4	12.8	8.8	4.0
Agriculture	71.7	68.2	3.5	6.7	6.5	.2	21.6	16.8	4.8
Extraction of minerals	70.2	69.6	.6	21.4	21.4	—	8.4	8.4	—
Manufactures	70.2	54.2	16.0	22.8	19.9	2.9	7.1	6.2	.9
Independent hand trades	64.4	23.8	40.6	26.8	18.0	8.8	8.8	2.4	6.4
Construction	69.2	68.3	.9	21.8	21.7	.1	9.1	9.1	—
Transportation, etc.	78.5	68.7	9.8	12.1	11.6	.5	9.4	9.3	.1
Trade	81.0	60.7	20.3	15.0	13.0	2.0	3.9	3.5	.4
Public service	83.2	72.4	10.8	10.1	9.7	.4	6.6	6.3	.3
Professional service	84.1	38.3	45.8	10.3	6.7	3.6	5.6	3.4	2.2
Domestic service	48.5	17.0	31.5	18.7	9.1	9.6	32.9	8.5	24.4
Not specified	72.2	57.0	15.2	13.3	11.7	1.6	14.4	13.6	.8
	<i>Distribution of workers of each race and sex by industry</i>								
ALL INDUSTRIES	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Agriculture	21.9	26.7	4.9	9.7	11.1	2.3	37.1	41.8	26.7
Extraction of minerals	2.3	2.9	.1	3.3	3.9	—	1.5	2.2	—
Manufactures	21.7	21.4	22.7	33.3	34.5	26.9	12.3	15.6	4.8
Independent hand trades . . . . .	.7	.3	1.9	1.3	1.0	2.7	.5	.2	1.2
Construction	6.0	7.5	.3	8.9	10.5	.1	4.4	6.4	—
Transportation, etc.	10.1	11.3	5.8	7.4	8.4	1.8	6.8	9.8	.2
Trade	17.4	16.6	20.0	15.3	15.6	13.2	4.7	6.1	1.5
Public service	2.5	2.8	1.5	1.4	1.6	.4	1.1	1.5	.2
Professional service	8.1	4.7	20.4	4.8	3.7	10.7	3.0	2.6	3.9
Domestic service	6.6	3.0	19.8	12.1	7.0	40.0	25.3	9.5	60.8
Not specified	2.7	2.8	2.7	2.4	2.5	1.8	3.1	4.2	.6

Source: Woytinsky, *op. cit.*, Table II, pp. 43-49.

WORKERS OF DIFFERENT RACES BY CLASSES OF WORK

In comparison with the average for all gainful workers in 1930, native whites were particularly numerous among professional persons, with 86 per cent, and salaried employees with 89.8 per cent, as shown in Table 9. Their proportion was relatively low among unskilled laborers and service workers. Foreign-born whites were found most frequently in skilled and semi-skilled occupations and less frequently among professional and clerical workers. Colored workers were concentrated in unpaid family work and service occupations.

(See Table 9 and Diagram VII.)

TABLE 9. PERCENTAGE DISTRIBUTION OF GAINFUL WORKERS BY CLASS OF WORK, RACE AND SEX IN THE UNITED STATES, 1930

Classes of work	Native white			Foreign-born white			Colored		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
<i>Distribution of workers in each class of work by race and sex</i>									
ALL CLASSES.....	72.0	56.3	15.7	15.2	12.8	2.4	12.8	8.8	4.0
Employers and self-employed.....	74.9	69.1	5.8	14.1	12.9	1.2	11.0	9.7	1.3
Unpaid family workers.....	62.7	52.7	10.0	.9	.7	.2	36.4	17.9	18.5
Professional persons.....	86.0	42.3	43.7	9.7	6.5	3.2	4.3	2.2	2.1
Independent.....	81.2	72.2	9.0	13.4	11.8	1.6	5.3	5.0	.3
Dependent.....	87.5	32.9	54.6	8.5	4.8	3.7	3.9	1.2	2.7
Salaried employees.....	89.8	55.5	34.3	8.9	6.5	2.4	1.3	1.0	.3
Skilled workers.....	74.4	73.1	1.3	22.2	21.9	.3	3.3	3.3	—
Semi-skilled workers.....	72.5	52.8	19.7	20.1	15.8	4.3	7.4	5.4	2.0
Unskilled workers.....	59.5	57.5	2.0	15.9	15.6	.3	24.5	22.5	2.0
Service workers.....	44.8	17.4	27.4	19.1	9.7	9.4	36.1	10.4	25.7
<i>Distribution of workers of each race and sex by class of work</i>									
ALL CLASSES.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Employers and self-employed.....	21.1	24.9	7.5	18.9	20.5	10.4	17.6	22.4	6.7
Unpaid family workers.....	3.0	3.2	2.1	.2	.2	.2	9.7	6.9	15.9
Professional persons.....	7.2	4.6	16.8	3.9	3.0	8.3	2.0	1.4	3.3
Independent.....	1.6	1.9	.8	1.3	1.3	1.0	.6	.8	.1
Dependent.....	5.6	2.7	16.0	2.6	1.7	7.3	1.4	.6	3.2
Salaried employees.....	21.1	16.7	37.0	9.9	8.6	17.2	1.8	1.9	1.4
Skilled workers.....	13.8	17.3	1.1	19.5	22.8	1.6	3.5	4.9	.2
Semi-skilled workers.....	14.3	13.3	17.8	18.8	17.6	25.6	8.3	8.7	7.2
Unskilled workers.....	14.0	17.3	2.2	17.8	20.7	2.1	32.5	43.3	8.6
Service workers.....	5.4	2.7	15.3	11.0	6.6	34.5	24.7	10.3	56.8

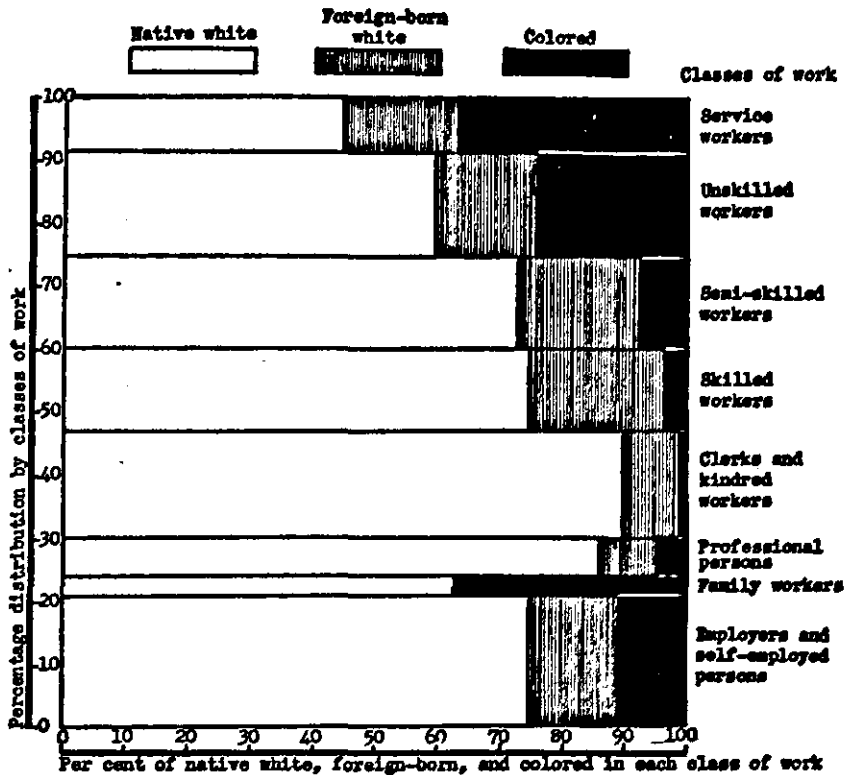
Source: Woytinsky, *op. cit.*, Table II, pp. 45-49.

The contrasts in the distribution of workers of different races by class of work are more easily discernible if all salary and wage earners are grouped in three large classes: "white-collar employees" including salaried employees and dependent professional persons; "skilled trades" including besides skilled workers semi-skilled workers and apprentices; and "unskilled labor" including also service workers. The distribution of salary and wage earners of different races under these three groups in 1930 is shown in the survey on page 40 and on Diagram VIII.

(See Diagram VIII.)

DIAGRAM VII

PERCENTAGE DISTRIBUTION OF GAINFUL WORKERS IN DIFFERENT CLASSES OF WORK, BY RACE, IN THE UNITED STATES, 1930



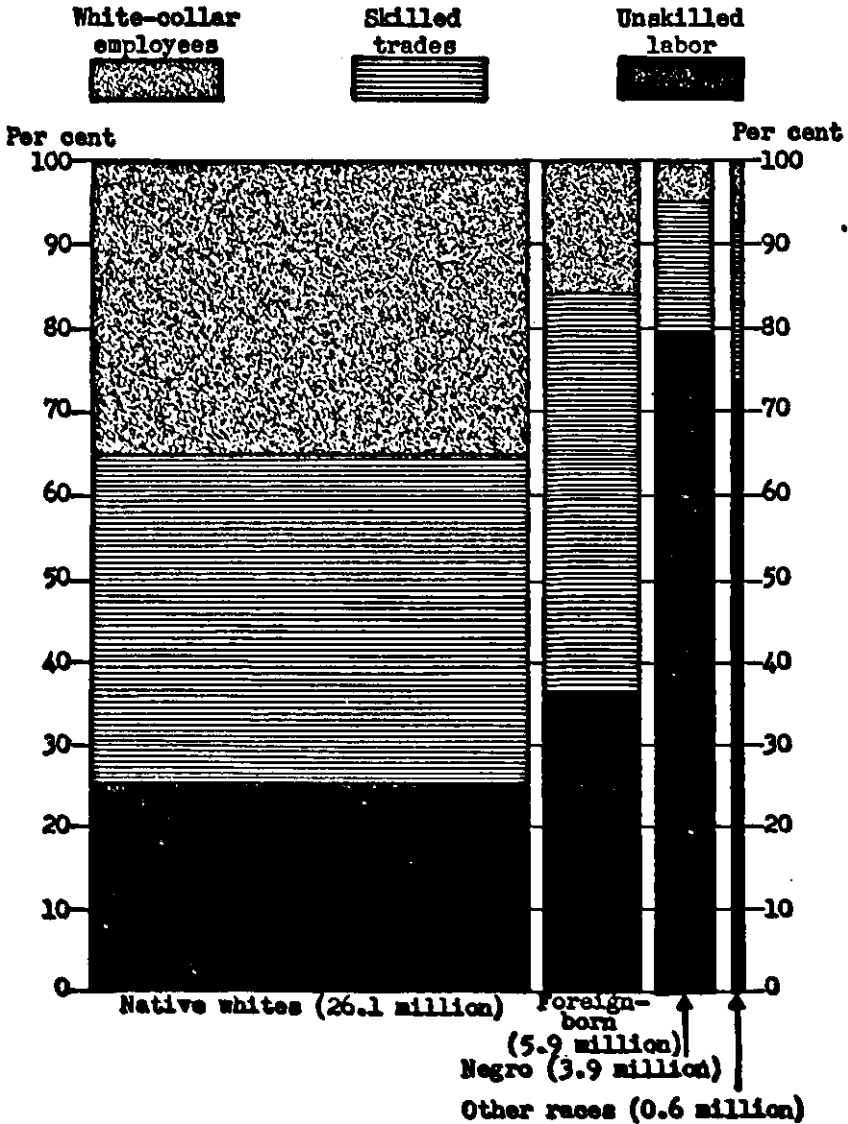
Percentage distribution of salary and wage earners

	Native white	Foreign-born white	Negro	Other races
Total	100.0	100.0	100.0	100.0
"White-collar" employees	37.3	16.0	4.9	7.6
Skilled trades	37.1	47.9	15.8	18.7
Unskilled labor	25.6	36.1	79.3	73.7

WORKERS OF DIFFERENT RACES BY SOCIO-ECONOMIC GROUPS

If the gainful workers engaged in each of the main industrial divisions are segregated by principal classes of work, a number of socio-economic groups are formed. The racial composition of each of these groups is shown in Table V in the Appendix by a

DIAGRAM VIII
 DISTRIBUTION OF SALARY AND WAGE EARNERS OF DIFFERENT RACES
 IN THREE PRINCIPAL CLASSES OF WORK IN THE
 UNITED STATES, 1930



percentage distribution among native whites, foreign-born whites, and colored persons.³ This table indicates that the percentages of native whites, foreign-born whites, and colored persons vary from industry to industry as well as from one class of work to another. However, the diversity among industries is usually less pronounced than the diversity among classes of work.⁴

WORKERS OF DIFFERENT RACES IN INSURED AND UNINSURED INDUSTRIES

In Chapter II it was shown that of the total of 48.8 million gainful workers enumerated by the 1930 Census, about 36.5 million were salary and wage earners.⁵ They were distributed by race as follows:

	All races	Native white	Foreign- born white	Colored
		<i>In thousands</i>		
Total	36,524	26,116	5,902	4,506
Male	27,152	19,262	4,880	3,010
Female	9,372	6,854	1,022	1,496

Salary and wage earners in uninsured industries, and persons 65 years of age and over who would have been excluded from old-age insurance in 1930, were distributed by race and sex as follows:

Exclusions	Native white		Foreign-born white		Colored	
	Male	Female	Male	Female	Male	Female
	<i>In thousands</i>					
Farm laborers ...	1,785	38	183	2	594	131
Servants	154	829	91	323	169	984
Casual laborers ..	526	28	115	5	166	9
Members of crews	52	—	28	—	9	—
Public service ...	1,120	150	144	6	106	4
Employees in public education, health and non-profit organiza- tions	334	1,165	49	85	27	60
Total.....	3,972	2,210	610	421	1,071	1,188
Persons 65 years of age and over	460	40	170	10	60	10

³ See Table V in the Appendix, page 299.

⁴ See Note 9, page 256: "Selected Occupations of Different Races."

⁵ See Table 4 on page 25.

Thus, the following percentages of male and female gainful workers of each race would have been excluded from old-age insurance in 1930:

	Native white		Foreign-born white		Colored	
	Male	Female	Male	Female	Male	Female
Employers, self-employed persons and unpaid family workers	30.0	10.5	22.0	11.6	30.2	22.7
Salary and wage earners	16.1	29.4	12.6	37.3	26.4	61.9

(See Diagram IX.)

After these eliminations, the approximately 26.3 million persons who would have been covered by old-age insurance in 1930 were distributed by race as follows:

	Total workers covered by insurance	Male	Female
		<i>In thousands</i>	
Total	26,300	20,800	5,500
Native white	19,430	14,820	4,610
Foreign-born white	4,690	4,100	590
Colored	2,180	1,880	300
		<i>In per cent</i>	
Total	100.0	79.2	20.7
Native white	73.9	56.4	17.4
Foreign-born white	17.8	15.6	2.2
Colored	8.3	7.2	1.1

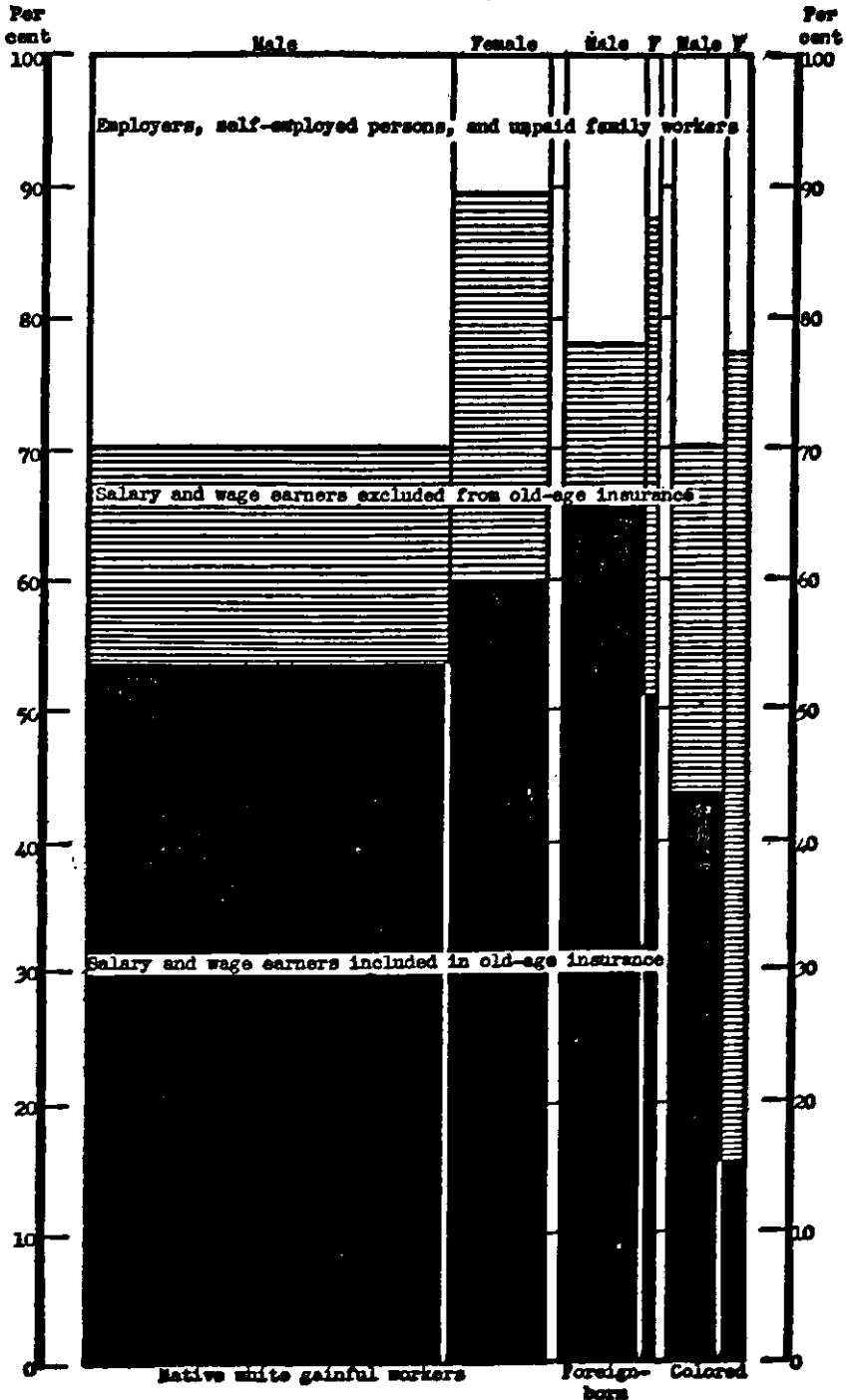
Persons of each race and sex who would have been covered by old-age insurance in 1930 constituted the following percentages among all gainful workers and among salary and wage earners of the same sex and race:

	Per cent of gainful workers	Per cent of salary and wage earners
Native white:		
Male	53.2	76.9
Female	60.1	67.3
Foreign-born white:		
Male	65.4	84.0
Female	51.1	57.5
Colored:		
Male	43.6	62.4
Female	15.4	20.0

The percentage of insured persons among colored workers was low because of the exclusion of agriculture and domestic service.

DIAGRAM IX

PER CENT OF GAINFUL WORKERS OF DIFFERENT RACES INCLUDED IN AND EXCLUDED FROM OLD-AGE INSURANCE IN THE UNITED STATES, 1930



CHAPTER V WORKERS BY AGE

SUMMARY

IN THIS and the two following chapters, questions relating to the age structure of the gainfully occupied population in the United States in 1930 are discussed, namely, the age distribution of workers, median ages and expected period of work, and economic shifts, so far as they are evidenced by the age composition of different population groups.

In the age classes from 25 to 50, about 97 per cent of the men were gainfully occupied, a proportion which declined gradually in the more advanced age classes. As the interpolation of census data shows, the highest proportion of gainfully occupied women was at the age of 21, while at the age of 35, the proportion dropped by half, mostly because of the retirement of married women from gainful work.

The percentage of agricultural workers in the lowest age classes, from 10 to 19, was unusually large. In higher age classes, it declined, reaching its lowest point in the ages from 30 to 34 for men and from 25 to 29 for women, and rose again in the more advanced age classes.

The percentages of different classes of work among the gainfully occupied population likewise varied with age. The increasing proportion of employers, independent professional persons, and service workers as age advanced, and the diminishing proportion of salaried employees and wage earners, were noticeable. There was an increase in the proportion of dependent professional persons up to the age class of 25 to 34, and of clerks and kindred workers up to 19 years. Both groups declined continuously in later years. Among wage earners, the proportion of skilled workers increased gradually up to the age class of 45 to 54 and decreased thereafter, whereas that of semi-skilled operatives declined continuously from the age of 18 years.

DISTRIBUTION OF GAINFUL WORKERS BY AGE

When the total population is grouped by age classes, it is apparent that the proportion of gainful workers varies with increasing age and differs widely for males and females. Table 10 and Diagram X show these disparities as they were in 1930. In the younger ages, the proportion of gainfully occupied persons in 1930 would have been larger if the number of children who assisted their parents had not been understated. This is likewise true of the 1920 Census.

TABLE 10. DISTRIBUTION OF THE POPULATION, 10 YEARS OLD AND OVER, BY SEX AND AGE CLASSES, IN THE UNITED STATES, 1930

Age classes	Male			Female		
	Total number	Gainfully occupied		Total number	Gainfully occupied	
		Number	Per cent		Number	Per cent
ALL AGES.....	49,949,798	38,077,804	76.2	48,773,249	10,752,116	22.0
10 to 15 years...	7,223,425	460,742	6.4	7,077,151	206,376	2.7
16 and 17 years...	2,339,070	964,494	41.5	2,324,067	514,347	22.1
18 and 19 years...	2,264,107	1,599,768	70.7	2,329,172	942,445	40.5
20 to 24 years...	5,336,815	4,799,505	89.9	5,533,563	2,347,548	42.4
25 to 29 years...	4,860,180	4,714,266	97.0	4,973,428	1,541,411	31.0
30 to 34 years...	4,561,786	4,454,400	97.6	4,558,635	1,112,927	24.4
35 to 39 years...	4,679,860	4,571,641	97.7	4,528,785	1,047,601	23.1
40 to 44 years...	4,136,459	4,036,561	97.6	3,853,736	844,737	21.9
45 to 49 years...	3,671,924	3,569,094	97.2	3,370,355	706,976	21.0
50 to 54 years...	3,131,645	2,996,041	95.7	2,844,159	559,050	19.7
55 to 59 years...	2,425,992	2,256,771	93.0	2,219,685	383,293	17.3
60 to 64 years...	1,941,508	1,684,743	86.8	1,809,713	265,785	14.7
65 to 69 years...	1,417,812	1,072,900	75.7	1,352,793	154,142	11.4
70 to 74 years...	991,647	570,233	57.5	958,357	72,669	7.6
75 years and over.....	915,752	295,616	32.3	997,444	39,407	4.0
Age unknown...	51,816	31,029	59.9	42,206	13,402	31.8

Source: Fifteenth Census of the United States: 1930, Population, Volume V, p. 115.

The censuses of 1910, 1920 and 1930 reported a declining percentage of working boys and girls 14 and 15 years of age. Although these percentages, at least in 1920 and 1930, were understated, it seems reasonably certain that the figures shown below reflect the actual trend since there has been no significant change in the Census definition of "gainful occupation" during this time.

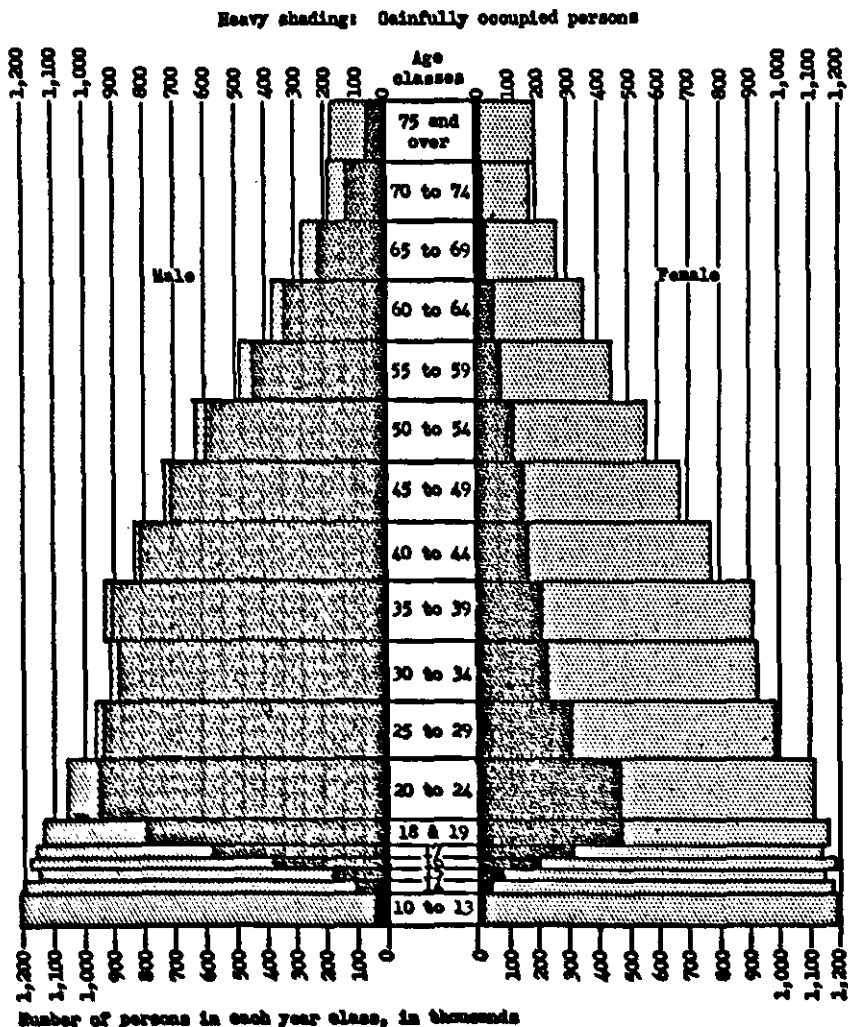
Census	Boys		Girls	
	14 years	15 years	14 years	15 years
	<i>Absolute numbers</i>			
1910.....	324,500	419,609	148,998	201,142
1920.....	174,683	281,306	82,911	143,895
1930.....	110,839	187,643	46,821	86,487
	<i>Percentages</i>			
1910.....	34.7	48.7	16.3	23.4*
1920.....	16.9	30.4	8.2	15.4
1930.....	9.2	16.3	4.0	7.6

There was also a decrease in gainful employment between the ages of 16 and 19,¹ whereas in the group from 20 to 24 years

¹ Persons aged 18 and 19 were counted together in the Census reports for 1920 and 1930. It is, therefore, impossible to determine whether the percentage of gainful workers declined in both year classes or only in the age of 18.

DIAGRAM X

DISTRIBUTION OF THE POPULATION, TEN YEARS OLD AND OVER, BY SEX AND AGE CLASSES, IN THE UNITED STATES, 1930



and over, the percentage of gainful workers among men did not vary noticeably from census to census while the proportion of working women increased, as shown below:

Age	Percentage of gainful workers			
	Among males		Among females	
	1920	1930	1920	1930
16 years	51.3	32.7	27.9	17.0
17 years	65.0	49.9	35.7	27.5
18 and 19 years.....	78.3	70.7	42.3	40.5
20 to 24 years.....	91.0	89.9	38.1	42.4
25 to 44 years.....	97.2	97.5	22.4	25.4

The striking differences in the proportions of working men and women in various age classes become more noticeable when the figures reported by the 1930 Census are interpolated for each year class: *

Age	Percentage of gainful workers	
	Among males	Among females
16 years	33	17
17 years	50	27
18 years	65	38
19 years	77	42
20 years	82	44
21 years	87	45
22 years	91	44
23 years	93	42
24 years	95	38.5
25 years	97	35

At the age of 25 approximately 97 per cent of the male population were gainfully occupied, and in subsequent age classes up to the 50's the percentage of male gainful workers apparently ranged between 97 and 98 per cent. Practically, this means that all male persons, except the insane, cripples, inmates of prisons, etc., were usually engaged in work for gain or pay. Beyond 50 years of age, the percentage of gainfully occupied men declined because of gradual voluntary or involuntary retirement from work. The proportions of retired men, including those no longer employable, may be roughly estimated on the basis of the 1930 Census as follows:

50 to 54 years of age.....	1 to 3 per cent
55 to 59 years of age.....	4 to 7 per cent
60 to 64 years of age.....	8 to 15 per cent
65 to 69 years of age.....	17 to 30 per cent
70 to 75 years of age.....	about 35 to 50 per cent

* Percentages computed by interpolating the empirical figures for groups of several years cannot be very accurate. In some cases they are based on guesses. The interpolated figures for women 20 to 24 years of age are particularly questionable. (See the peak of the double curve in Diagram XI.)

Among women, the highest proportion of gainful workers, amounting to 42.4 per cent, was reported for the five-year period from 20 to 24 years as indicated in Diagram XI. However, interpolation of the 1930 Census figures indicates that the percentage must be higher than the average in the early years and lower in the later years of this age group, probably reaching a peak of nearly 45 per cent at the age of 21. Its sharp drop thereafter was due to the retirement of married women from gainful work.

Differences in the age of entry into and retirement from gainful work on the part of men and women become particularly evident if the highest percentages of the gainfully occupied in both sexes (98 per cent for men and 45 per cent for women) are considered equal to 100, and if the percentages for various ages are expressed by index numbers. Peak employment for women was reached at an earlier age than for men, but half the women retired in their middle 30's, as shown in Diagram XII.

WORKERS IN AGRICULTURAL AND NON-AGRICULTURAL PURSUITS BY AGE

The most interesting feature to be observed in the age distribution in 1930 of gainful workers in agricultural and non-agricultural pursuits was the relatively large number of both young and old men, and the comparatively small number of middle-aged men, in agricultural pursuits.

These trends are shown in Table 11 and Diagram XIII. The percentage distribution among agricultural and non-agricultural pursuits of gainful workers of different ages is shown on Diagram XIV.

An important factor which modifies the age composition of rural and urban workers is the more usual employment of children on farms than in urban industries. Also the age limit of gainful work is generally higher for agricultural than for non-agricultural workers, which accounts for the relatively large number of farmers who work beyond the age at which only a few dependent workers in cities are still employable. The number of older farmers is further increased in Census reports by those who continue to be regarded as farmers long after they are really

DIAGRAM XI

PER CENT OF GAINFUL WORKERS AMONG MALES AND FEMALES OF DIFFERENT AGES IN THE UNITED STATES, 1930

(Interpolation of official statistics)

Horizontal lines: Per cents reported by the 1930 Census for different age classes

Continuous curves: Per cents estimated (interpolated) for individual year classes

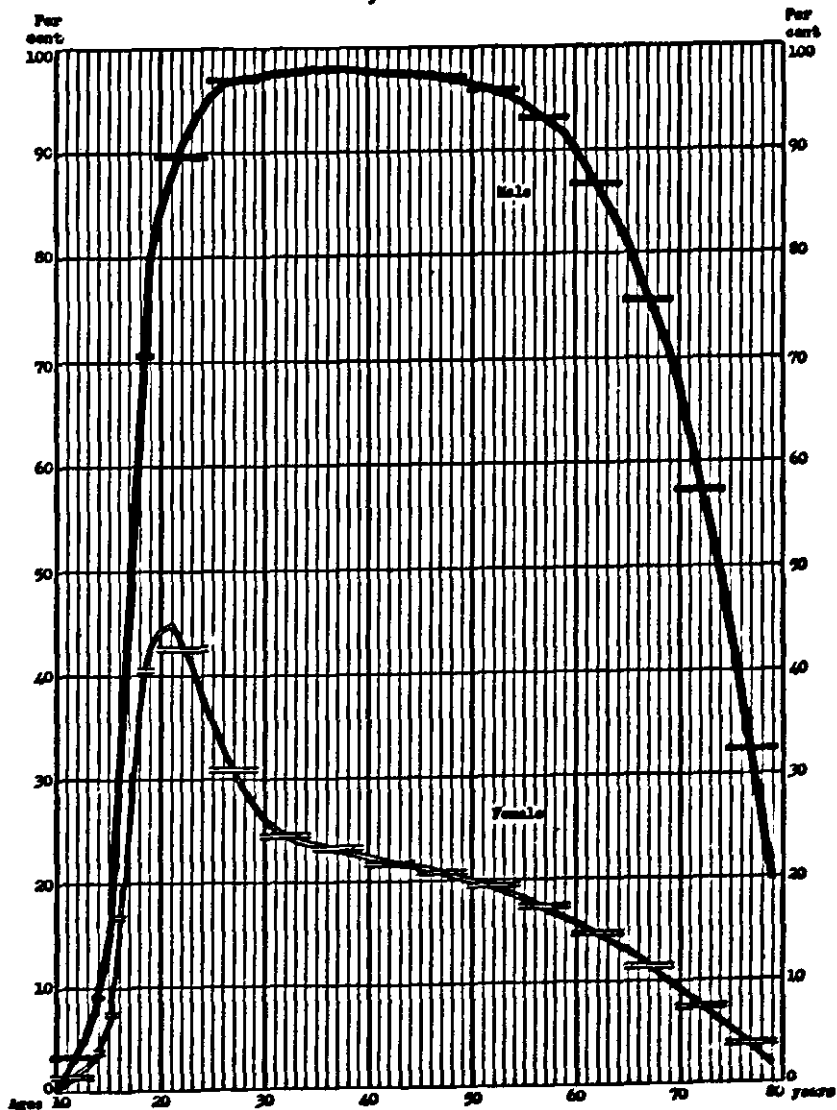


DIAGRAM XII

INDEX NUMBERS SHOWING THE VARYING PROPORTIONS OF GAINFUL WORKERS AMONG MALES AND FEMALES OF DIFFERENT AGES IN THE UNITED STATES, 1930

The highest proportion (98 per cent for male, 45 per cent for female) = 100

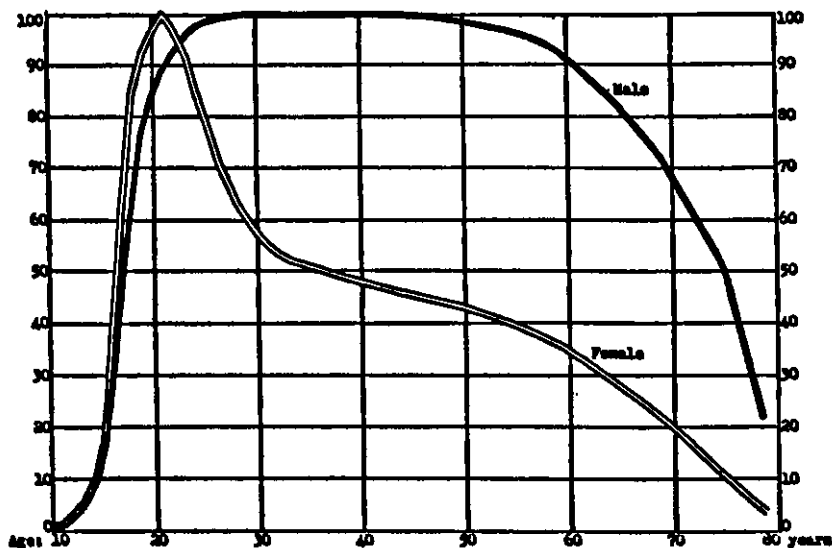


TABLE 11. GAINFUL WORKERS IN AGRICULTURAL AND NON-AGRICULTURAL PURSUITS, BY AGE AND SEX, IN THE UNITED STATES, 1930*

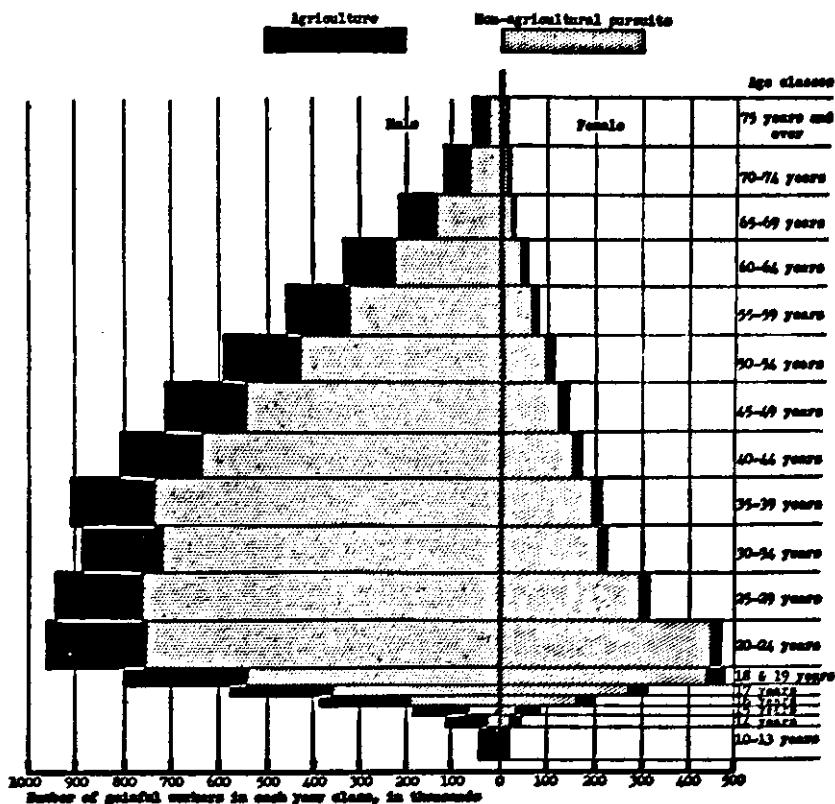
Age classes	Male			Female		
	Agri- culture	Non- agri- cultural pursuits	Per cent in agri- culture	Agri- culture	Non- agri- cultural pursuits	Per cent in agri- culture
	<i>In thousands</i>			<i>In thousands</i>		
ALL AGES.....	9,562	28,516	25.1	910	9,842	8.5
10 to 19 years...	1,304	1,721	43.1	267	1,396	16.1
20 to 24 years...	1,157	3,643	24.1	113	2,235	4.8
25 to 34 years...	1,728	7,441	18.8	128	2,526	4.8
35 to 44 years...	1,745	6,863	20.3	134	1,758	7.1
45 to 54 years...	1,647	4,918	25.1	128	1,138	10.1
55 to 64 years...	1,201	2,740	30.5	84	565	12.9
65 to 74 years...	628	1,015	38.2	42	185	18.5
75 years and over.....	147	148	49.8	12	27	30.8
Age unknown...	5	26	16.1	—	13	—

* The distribution in this table is in accordance with the "occupational rather than industrial" classification, resulting in an understatement of figures for agriculture because skilled workers, clerks, professional persons and a number of other workers employed on farms were counted in non-agricultural pursuits.

Sources: Fifteenth Census of the United States: 1930, Population, Volume V, p. 116.

DIAGRAM XIII

DISTRIBUTION OF GAINFUL WORKERS IN AGRICULTURAL AND NON-AGRICULTURAL PURSUITS, BY SEX AND AGE, IN THE UNITED STATES, 1930



performing any appreciable amount of work. The exodus of farm children to the cities in their youth and the return of many of them to farms in their later years,³ which are evident on Diagram XIV, should also be mentioned.

WORKERS IN DIFFERENT CLASSES OF WORK BY AGE ⁴

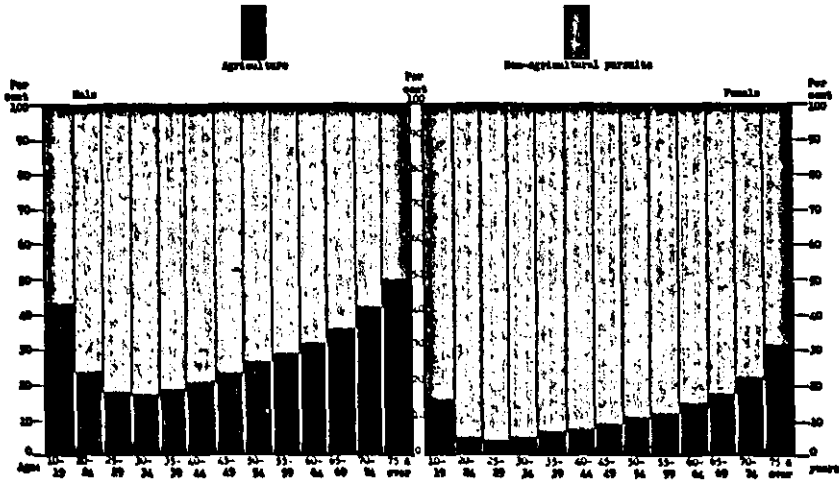
The distribution of male and female gainful workers in 1930 by eight classes of work and by age groups is shown in Table VI

³ See Chapter VII, pages 85-86.

⁴ For details see Woytinsky, *op. cit.*, Tables V-A and V-B, pp. 79-111.

DIAGRAM XIV

PERCENTAGE DISTRIBUTION OF MALE AND FEMALE GAINFUL WORKERS OF DIFFERENT AGES IN AGRICULTURAL AND NON-AGRICULTURAL PURSUITS, IN THE UNITED STATES, 1930



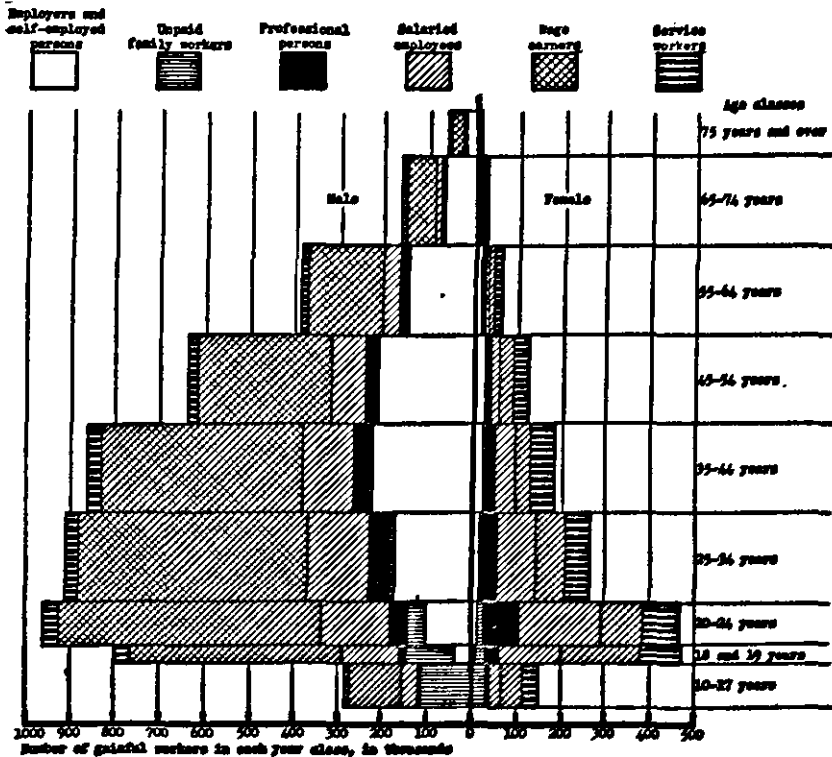
in the Appendix.⁶ The same distribution is shown in abbreviated form in Diagram XV and Table 12, in which skilled, semi-skilled and unskilled workers have been counted together, thereby reducing the number of classes to six. With increasing age the proportions of different classes of work varied as follows:

- (1) The employer group increased continuously among both men and women;
- (2) There was a continuous decrease of unpaid family workers among both men and women up to the age class of 55 to 64 years;
- (3) The professional persons group increased up to the age class of 25 to 34 years, declined in higher age groups among women, and changed little among men;
- (4) The group of salaried employees was largest at 20 to 24 years, decreasing thereafter for both men and women;
- (5) The wage earner category was largest in the age span of 20 to 25 years for male workers, and in the group from 10 to 17 years for women;

⁶ See Table VI in the Appendix, page 301.

DIAGRAM XV

DISTRIBUTION OF GAINFUL WORKERS BY SEX, AGE AND CLASS OF WORK IN THE UNITED STATES, 1930



(6) Service workers increased continuously among men, whereas among women their proportion declined up to 20 to 24 years and increased thereafter.

(See Table 12 and Diagram XVI.)

WORKERS OF DIFFERENT CLASSES IN NON-AGRICULTURAL PURSUITS, BY AGE

Tabulation of 1930 occupational statistics by classes of work and by age shows that within the division of non-agricultural pursuits the proportions of different classes of workers changed from one age group to another so that each class of work seemed

DIAGRAM XVI

PERCENTAGE DISTRIBUTION OF MALE AND FEMALE GAINFUL WORKERS OF DIFFERENT AGES, BY CLASS OF WORK, IN THE UNITED STATES, 1930

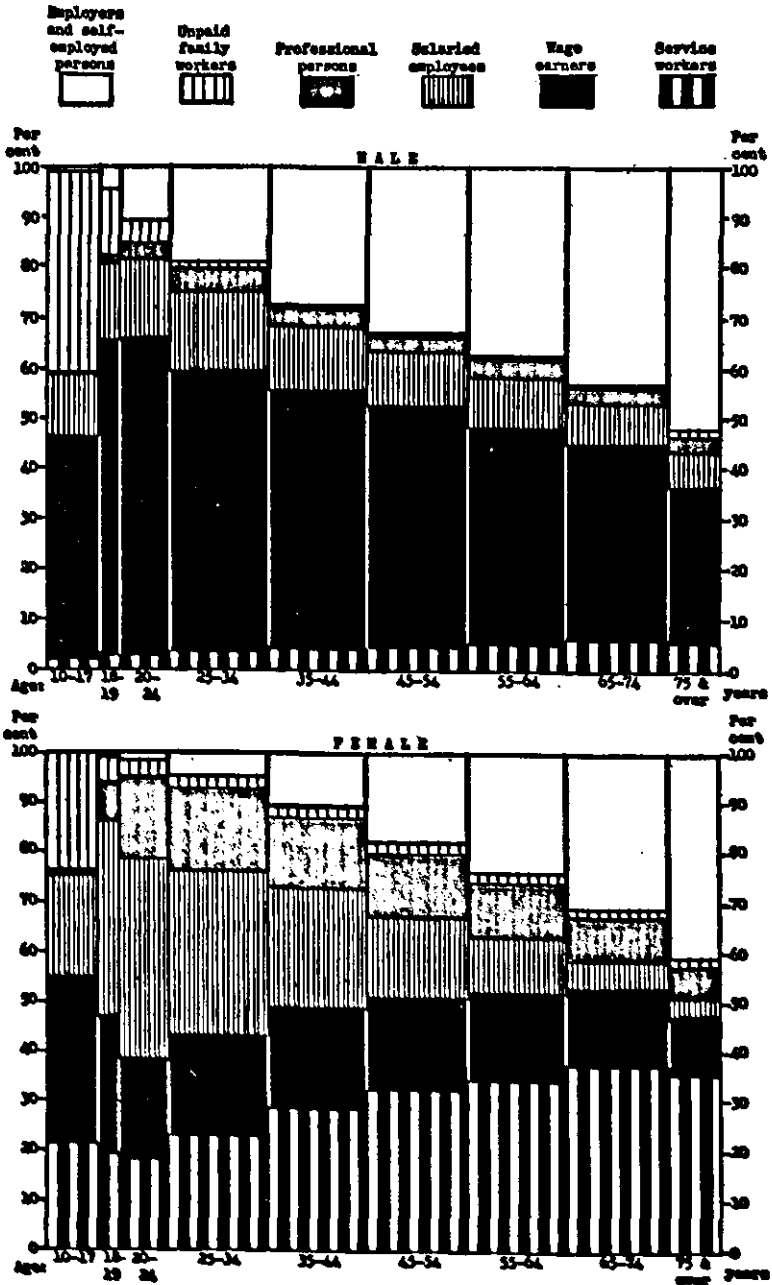


TABLE 12. PERCENTAGE DISTRIBUTION OF MALE AND FEMALE GAINFUL WORKERS OF EACH AGE CLASS, BY CLASSES OF WORK, IN THE UNITED STATES, 1930

Classes of work	All ages	10-17 years	18-19 years	20-24 years	25-34 years	35-44 years	45-54 years	55-64 years	65-74 years	75 years and over
<i>Male</i>										
ALL CLASSES OF WORK....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Employers.....	23.9	.5	4.3	10.4	19.2	27.0	32.4	37.1	42.7	51.8
Unpaid family workers.....	3.1	40.4	14.3	5.0	1.0	.3	.2	.2	.5	1.2
Professional persons.....	4.0	.2	1.2	3.3	4.9	4.2	4.0	4.2	4.0	4.9
Salaried employees...	13.7	13.4	16.0	16.4	15.8	13.6	11.7	10.6	8.6	6.5
Wage earners...	51.1	42.3	60.7	61.4	55.2	50.7	47.2	42.8	38.0	29.6
Service workers	4.2	3.2	3.5	3.5	3.8	4.2	4.5	5.1	6.2	5.9
<i>Female</i>										
ALL CLASSES OF WORK....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Employers.....	7.7	.1	.6	1.4	4.3	10.9	17.6	24.0	31.0	41.0
Unpaid family workers.....	4.4	24.3	5.6	3.3	2.7	2.7	2.5	1.9	1.6	1.8
Professional persons.....	13.5	.8	7.2	16.6	17.1	13.9	12.5	11.5	8.6	6.3
Salaried employees...	28.5	20.2	39.4	40.0	33.2	23.4	16.4	10.6	5.7	3.6
Wage earners...	21.1	33.1	27.5	20.4	19.2	20.4	19.0	17.7	15.5	11.4
Service workers	24.8	21.5	19.7	18.3	23.5	28.7	32.0	34.3	37.6	35.8

Source: Woytinsky, *op. cit.*, Tables V-A and V-B, pages 79-111.

to have a distinctive "age pyramid," as seen in Diagram XVII and Table 13.*

The proportional growth and decline of each of these classes of work in successive age groups are shown graphically on Diagrams XVIII and XIX. The increasing proportion of employers and self-employed persons up to the age class of 25 to 34 years appears to be influenced by the gradual entry into gainful work of persons with inherited wealth. On the other hand, the increas-

* Cf. Table VII in the Appendix, p. 302. If Diagram XVII (non-agricultural pursuits) is compared with Diagram XV (all gainful workers), the following contrasts may be noted:

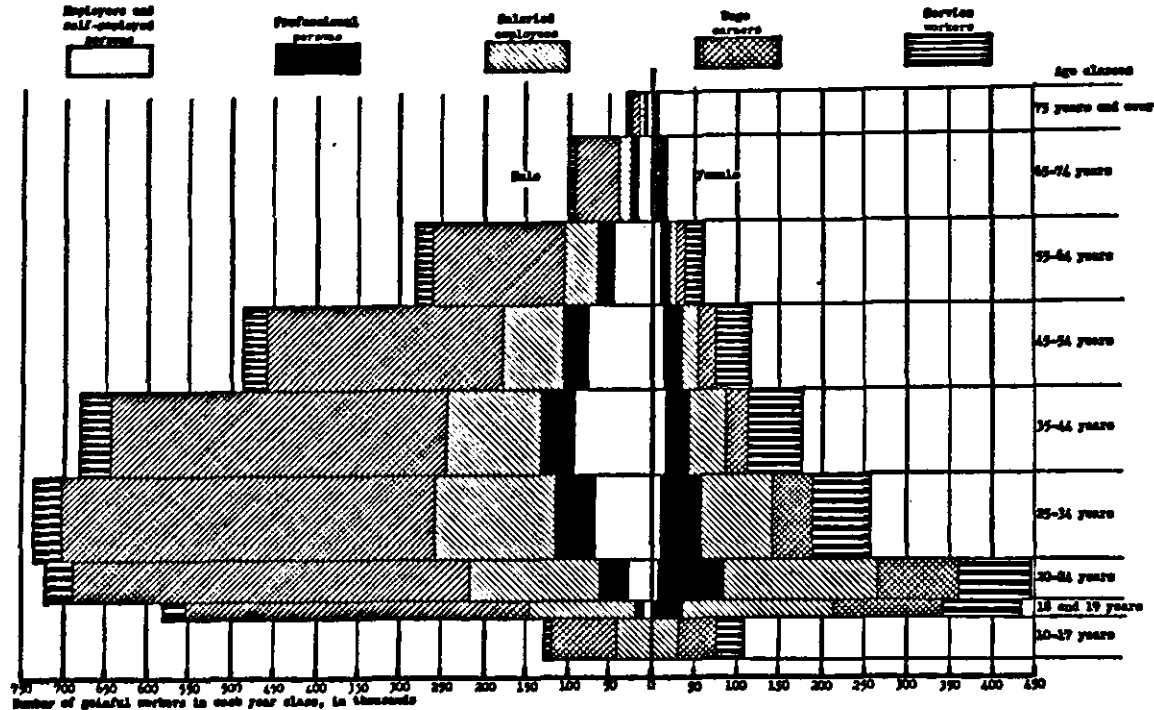
(a) Diagram XVII shows no unpaid family workers in the lower sections of the age pyramid;

(b) The percentage of employers and self-employed persons is smaller in non-agricultural pursuits and increases more slowly with advancing age than the average for all industries;

(c) The decline in the proportion of wage earners with advancing age is less pronounced in non-agricultural pursuits than is the average decline for all industries.

DIAGRAM XVII

DISTRIBUTION OF GAINFUL WORKERS IN NON-AGRICULTURAL PURSUITS BY SEX, AGE AND CLASS OF WORK IN THE UNITED STATES, 1930



WORKERS BY AGE

TABLE 13. PERCENTAGE DISTRIBUTION OF MALE AND FEMALE GAINFUL WORKERS OF EACH AGE CLASS IN NON-AGRICULTURAL PURSUITS, BY CLASS OF WORK, IN THE UNITED STATES, 1930

Classes of work ¹	All ages	10-17 years	18-19 years	20-24 years	25-34 years	35-44 years	45-54 years	55-64 years	65-74 years	75 years and over
<i>Male</i>										
ALL CLASSES OF WORK....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Employers.....	11.6	.4	1.7	4.2	9.3	13.9	16.0	17.5	18.8	22.0
Professional....	5.3	.5	1.7	4.4	6.1	5.3	5.5	6.1	6.5	9.8
Salaried employees...	18.2	29.8	24.1	21.7	19.5	17.0	15.4	15.0	13.6	12.9
Skilled workers	22.6	2.4	12.6	18.3	23.1	25.3	25.2	24.5	22.3	18.1
Semi-skilled....	18.2	29.4	27.0	24.2	20.1	16.7	14.4	12.3	10.7	8.8
Unskilled workers.....	18.4	30.2	27.6	22.5	17.1	16.4	17.5	17.3	17.9	16.7
Service workers	5.6	7.1	5.3	4.6	4.8	5.3	6.0	7.5	10.2	11.7
<i>Female</i>										
ALL CLASSES OF WORK....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Employers.....	5.7	.1	.7	1.3	3.7	8.7	13.0	16.5	19.3	20.0
Professional....	14.7	1.1	7.8	18.0	18.0	14.9	13.9	13.3	10.6	9.3
Salaried employees...	31.1	28.0	42.5	41.5	34.9	25.2	18.3	12.1	7.0	5.1
Skilled workers	1.1	.4	.9	.8	1.1	1.5	1.4	1.3	1.0	.7
Semi-skilled....	18.3	36.5	24.2	17.4	16.1	17.0	16.2	15.9	14.6	11.1
Unskilled workers.....	1.9	4.2	2.8	1.8	1.6	1.8	1.6	1.4	1.3	1.5
Service workers	27.1	29.7	21.2	19.3	24.7	30.9	35.6	39.4	46.2	52.3

¹ Salaried employees include managers and officials, clerks and kindred workers, and sales persons. Foremen have been counted with skilled workers, and apprentices with semi-skilled operatives.

ing proportion of employers in the middle and senior age classes is due apparently to the shift into the employing class of persons who formerly belonged to other work classes.

If the professional persons, who have been grouped in one class in Table 13 and Diagrams XVIII and XIX, are divided into two groups, those who work independently and those who are dependent on a salary or wage, a striking difference in the age distribution of the two groups may be noticed. In Diagram XX this difference is shown by a comparison of the index numbers of the proportions of professional persons of each group among male and female non-agricultural gainful workers in different age classes. Index numbers for independent professional persons exhibit about the same trend as those of employers and self-employed persons in non-agricultural pursuits. Index numbers

DIAGRAM XVIII
 PER CENT OF DIFFERENT CLASSES OF WORK AMONG NON-
 AGRICULTURAL MALE GAINFUL WORKERS OF DIFFERENT AGES
 IN THE UNITED STATES, 1930

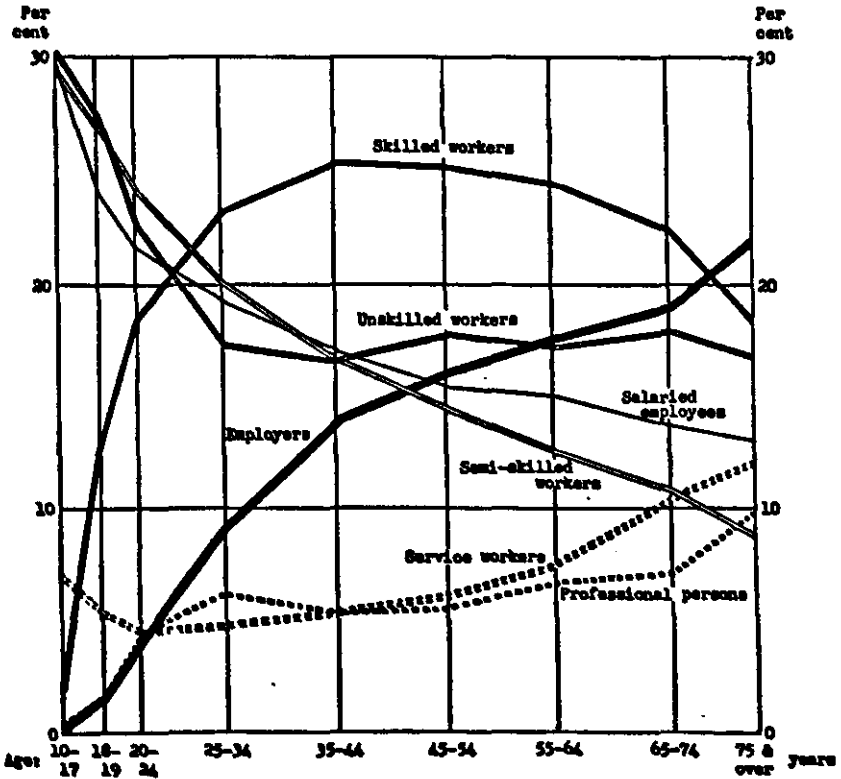
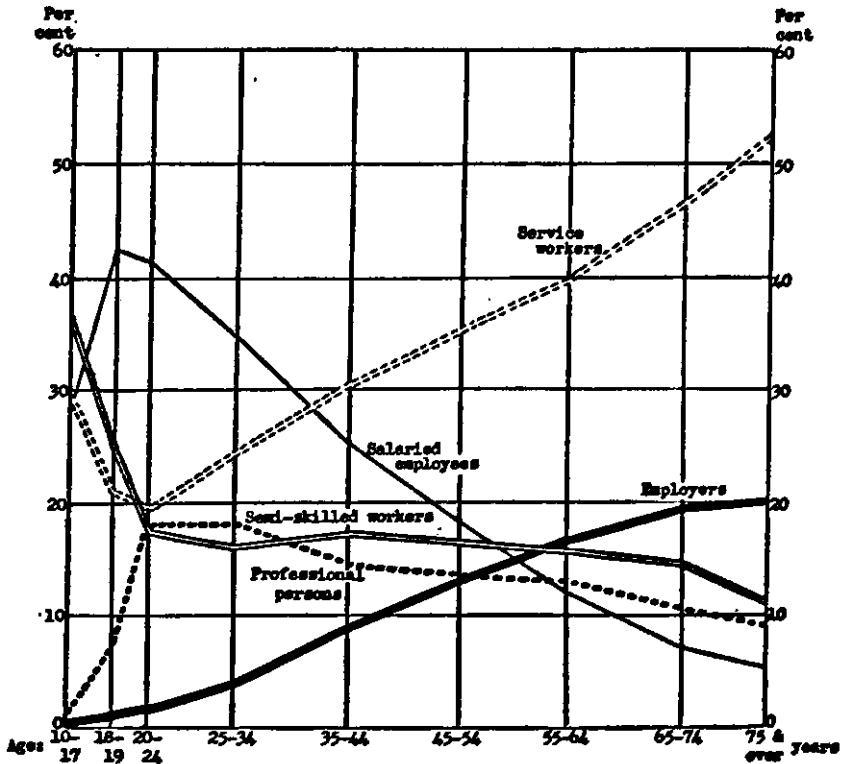


DIAGRAM XIX

PER CENT OF DIFFERENT CLASSES OF WORK AMONG NON-AGRICULTURAL FEMALE GAINFUL WORKERS OF DIFFERENT AGES IN THE UNITED STATES, 1930



of dependent professional persons form curves similar to those of clerks and kindred workers.

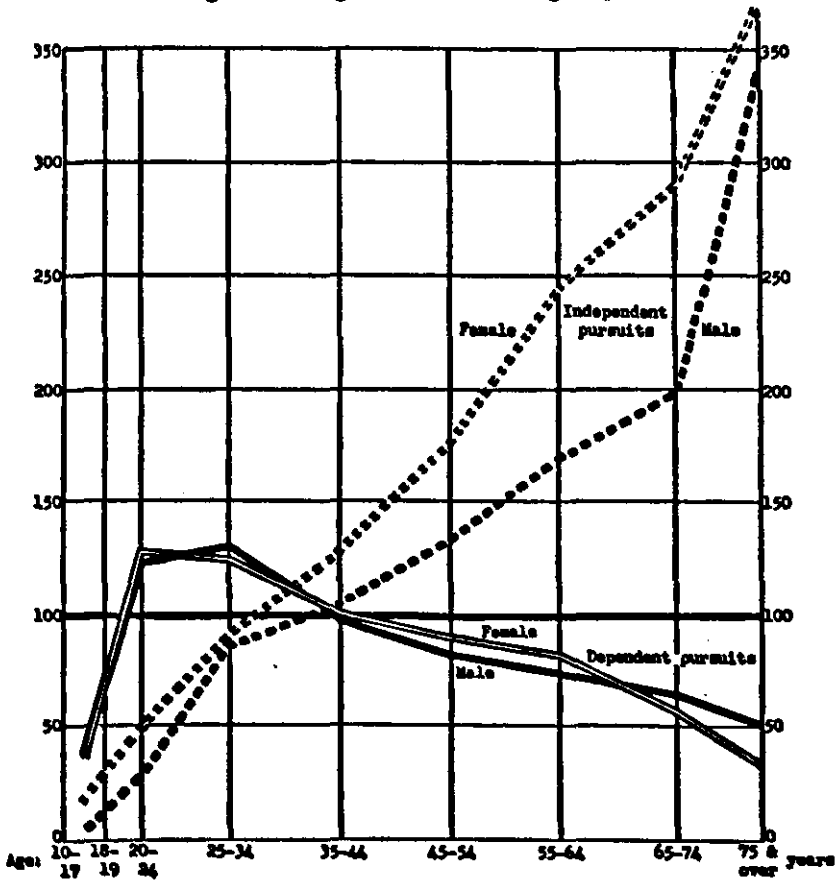
(See Diagram XX.)

The group of salaried employees is composed of managers and officials, clerks and kindred workers, and sales persons. Employees

DIAGRAM XX

INDEX NUMBERS SHOWING THE VARYING PROPORTIONS OF PROFESSIONAL PERSONS AMONG NON-AGRICULTURAL GAINFUL WORKERS OF DIFFERENT AGES IN THE UNITED STATES, 1930

Average for all age classes in each group = 100



of different ages have been distributed among these three groups in percentages, as follows:

Age classes	MALE				FEMALE			
	All salaried em- ployees	Man- agers, officials	Clerks, kindred workers	Sales- men	All salaried em- ployees	Man- agers, officials	Clerks, kindred workers	Sales- women
10 to 19 years...	100.0	.3	77.9	21.8	100.0	.1	83.3	16.6
20 to 24 years...	100.0	3.1	68.1	28.8	100.0	.5	87.1	12.4
25 to 34 years...	100.0	10.8	57.6	31.6	100.0	1.4	83.1	15.5
35 to 44 years...	100.0	20.2	50.6	29.2	100.0	3.2	71.4	25.4
45 to 54 years...	100.0	24.7	49.1	26.2	100.0	5.3	63.1	31.7
55 to 64 years...	100.0	25.9	50.3	23.8	100.0	8.1	60.0	32.0
65 to 74 years...	100.0	25.1	50.4	24.4	100.0	11.1	58.3	30.5
75 years and over	100.0	24.4	50.5	25.0	100.0	13.8	59.9	26.4

The class of skilled workers includes foremen, who constitute the upper layer of manual labor, a rank usually attained after 40. The percentages of foremen and other skilled workers in each age group among non-agricultural male gainful workers are noted below:

Age classes	Foremen	Other skilled workers
10 to 17 years.....	.0	2.4
18 to 19 years.....	.2	12.4
20 to 24 years.....	.7	17.6
25 to 34 years.....	1.7	21.5
35 to 44 years.....	2.3	23.0
45 to 54 years.....	2.5	22.8
55 to 64 years.....	2.3	22.2
65 to 74 years.....	1.6	20.7
75 years and over.....	.8	17.3

These proportions are shown as index numbers on Diagram XXI, taking as a basis of comparison the average percentages of foremen (1.8 per cent) and other skilled workers (20.8 per cent) in all age classes as equalling 100. The result seems to indicate that in 1930 the number of foremen, compared with the number of other skilled workers, was particularly high between the ages of 45 and 54 and dropped abruptly thereafter.

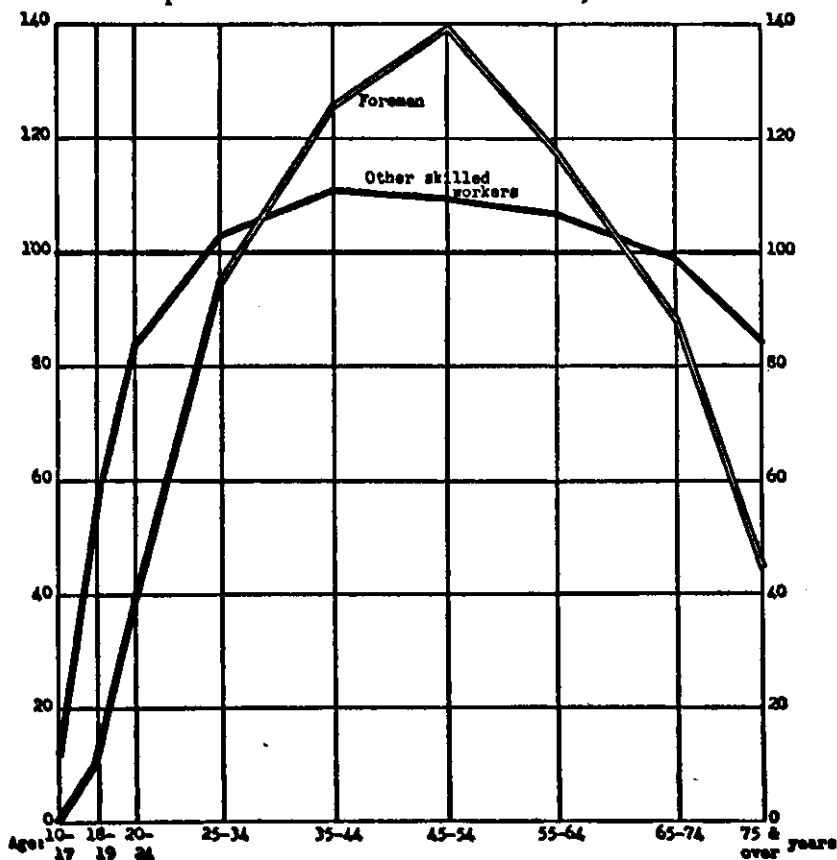
(See Diagram XXI.)

It also indicates that the percentage of skilled workers among male wage earners increased up to the age class of 35 to 44 years, remained fairly steady during the succeeding 20 years, and

DIAGRAM XXI

INDEX NUMBERS SHOWING THE VARYING PROPORTIONS OF FOREMEN AND OTHER SKILLED WORKERS AMONG NON-AGRICULTURAL MALE GAINFUL WORKERS OF DIFFERENT AGES IN THE UNITED STATES, 1930

Average for all age classes (1.8 per cent for foremen and 20.8 per cent for other skilled workers) = 100



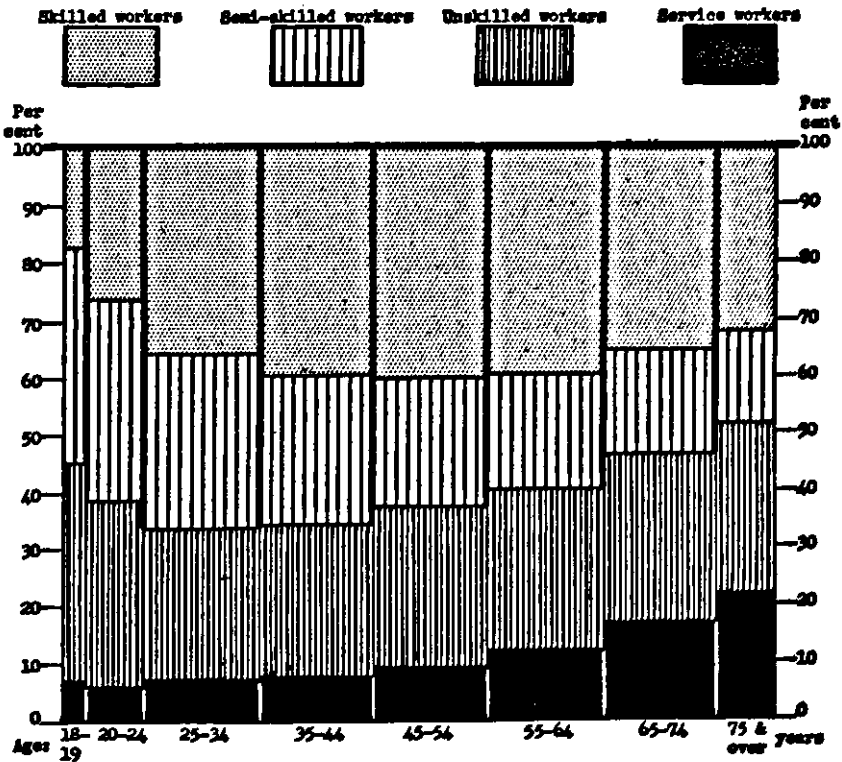
declined thereafter. The percentage of unskilled and service workers declined up to the age class 25 to 34 and increased rapidly thereafter.

(See Diagram XXII.)

Within the class of service workers, various occupational groups sufficiently different in age composition to warrant separate

DIAGRAM XXII

PERCENTAGE DISTRIBUTION OF MALE WAGE EARNERS OF DIFFERENT AGES IN NON-AGRICULTURAL PURSUITS, BY CLASS OF WORK, IN THE UNITED STATES, 1930



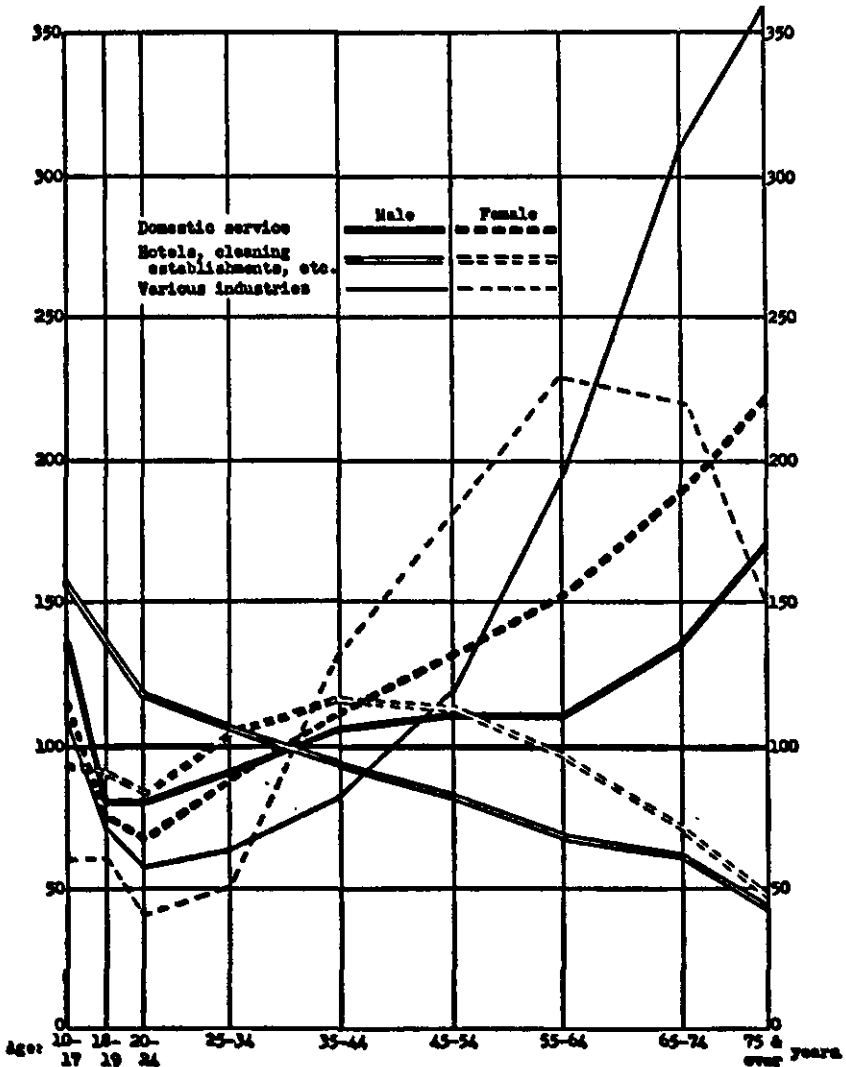
examination, were found. These sub-groups were: (1) domestic servants; (2) workers in hotels, restaurants, cleaning establishments, etc.; and (3) service workers not in domestic and personal service.

Diagram XXIII presents as index numbers the percentages of each sub-group for both men and women in each age class, the percentage of the respective group in all age classes being considered equal to 100. Domestic servants were comparatively numerous in the age class of 10 to 17 years, but their number declined up to 19 and then increased gradually from 20 to 75. Similar but more pronounced variations occurred in the group

DIAGRAM XXIII

INDEX NUMBERS SHOWING THE VARYING PROPORTIONS OF SERVICE WORKERS AMONG NON-AGRICULTURAL GAINFUL WORKERS OF DIFFERENT AGES IN THE UNITED STATES, 1930

Average for all age classes in each group = 100



of male service workers in "various industries" not in domestic and personal service. Their proportion increased rapidly after 65 in view of the fact that numerous older workers are generally employed as watchmen in factories and in similar service tasks. An opposite trend was evident in the group of workers employed by hotels, restaurants, and cleaning establishments. The proportion of male workers declined steadily, while that of female workers reached a peak at 35 to 44 years and decreased thereafter.

WORKERS IN DIFFERENT INDUSTRIES BY AGE

The age distribution of workers in each industry is determined primarily by the kinds of labor it employs. Younger people predominate in industries whose work is done by clerical, semi-skilled, and unskilled workers, whereas one requiring skilled and professional workers must employ older persons. Besides, industries follow different policies in selecting their personnel, some of them preferring young people altogether. Labor also shows certain preferences. Young workers are attracted to new or expanding industries where there are opportunities for advancement, while older persons remain in old or declining industries.

The 1930 occupational statistics confirm the existence of this tendency among skilled and semi-skilled workers, and partly also with respect to service workers. Younger workers predominated in printing and publishing and chemical and food industries, which had been growing rapidly in the preceding ten years. On the other hand, older workers were more numerous in the manufacture of forest products, stone, clay and glass products, and leather industries which had been reducing their personnel in the previous decade.⁷ This relationship was of course affected by many other influences and was partly concealed by the industrial classification in which both "old" and "new" industries were included in most of the industrial divisions. A brief survey of selected occupations of young and old workers may be found in Note 10.⁸

⁷ See Woytinsky, *op. cit.*, Table VI-A, pp. 115-119.

⁸ See Note 10, page 259: "Selected Occupations of Young and Old Workers."

AGE DISTRIBUTION OF WORKERS IN INSURED AND UNINSURED INDUSTRIES

As has been estimated in Chapter II, approximately 26.3 million persons in 1930 would have been insured for old-age benefits under the Social Security and Railroad Retirement Acts. In order to estimate their age distribution, it is necessary to subtract from the total number of gainfully occupied persons in each age class, as shown in Table 10, the number in each of the following excluded groups:

- (a) Employers and self-employed persons, professional persons in independent pursuits, and unpaid family workers;
- (b) Salary and wage earners engaged in uninsured industries;
- (c) Salary and wage earners 65 years of age or more in insured industries.

The age distribution of persons enumerated under (a) and (b) is shown in Table VIII in the Appendix. The remaining number of workers who would have been covered by old-age insurance were distributed by sex and age classes as follows:

	<i>In thousands</i>		
	Total	Male	Female
All ages .....about	26,300	20,800	5,500
10 to 17 years.....	963	583	380
18 and 19 years.....	1,584	940	644
20 to 24 years.....	4,517	3,073	1,444
25 to 34 years.....	7,305	5,829	1,476
35 to 44 years.....	5,982	5,084	898
45 to 54 years.....	3,942	3,470	472
55 to 64 years.....	1,993	1,813	180

The percentage distribution of insured workers by age classes differed from that of uninsured workers, as shown in Table 14.

The age distribution of the entire group of insured workers is shown on Diagram XXIV by an age pyramid within the age pyramid for the total gainfully occupied population.

(See Diagram XXIV.)

TABLE 14. PERCENTAGE DISTRIBUTION BY AGE CLASSES OF GAINFUL WORKERS INCLUDED IN AND EXCLUDED FROM OLD-AGE INSURANCE IN THE UNITED STATES, 1930

Groups of workers	All ages	10-17 years	18-19 years	20-24 years	25-34 years	35-44 years	45-54 years	55-64 years	65 years and over
ALL GAINFUL WORKERS:									
MALE.....	100.0	3.7	4.2	12.6	24.1	22.6	17.2	10.4	5.2
FEMALE.....	100.0	6.7	8.8	21.8	24.7	17.6	11.8	6.0	2.6
EXCLUDED FROM OLD-AGE INSURANCE:									
Proprietors and unpaid family workers:									
Male.....	100.0	5.3	2.8	7.0	18.3	22.9	20.9	14.4	8.4
Female.....	100.0	12.8	4.3	8.6	14.8	19.9	19.6	13.0	7.0
Occupational exemptions (Social Security Act, Sec. 210b):									
Male.....	100.0	4.6	6.4	17.1	23.8	18.2	14.5	10.0	5.5
Female.....	100.0	4.3	6.2	20.5	25.5	18.8	13.7	7.6	3.4
Persons 65 years and over:									
Male.....	100.0	—	—	—	—	—	—	—	100.0
Female.....	100.0	—	—	—	—	—	—	—	100.0
INCLUDED IN OLD-AGE INSURANCE:									
Male.....	100.0	2.8	4.5	14.8	28.0	24.5	16.7	8.7	.1
Female.....	100.0	6.9	11.7	26.3	26.9	16.3	8.5	3.3	—

¹ Including age unknowns.

The percentage of gainful workers eligible for old-age insurance declined as age increased, beginning at 20 to 24 for men and at 18 to 19 years for women, as indicated in Table 15.

(See Diagram XXV.)

In the youngest age classes the proportion of "gainful workers" eligible for old-age insurance was small because of the large number of unpaid family workers. In higher age groups the proportion was reduced by the growth of the proprietary group, particularly in agriculture.

DIAGRAM XXIV

AGE PYRAMID OF GAINFUL WORKERS INCLUDED IN OLD-AGE INSURANCE IN THE UNITED STATES, 1930

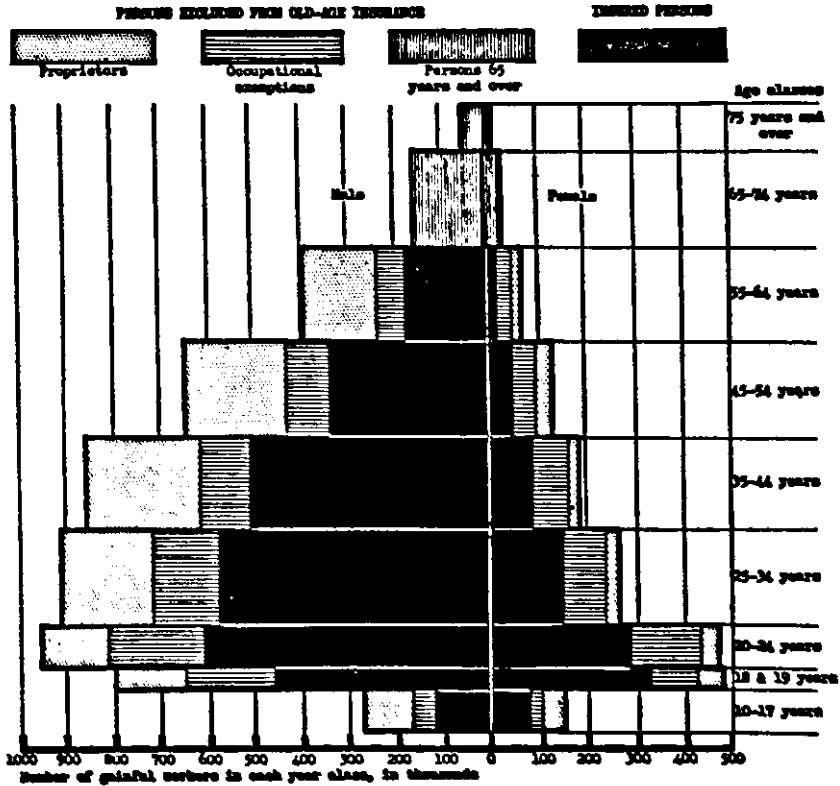
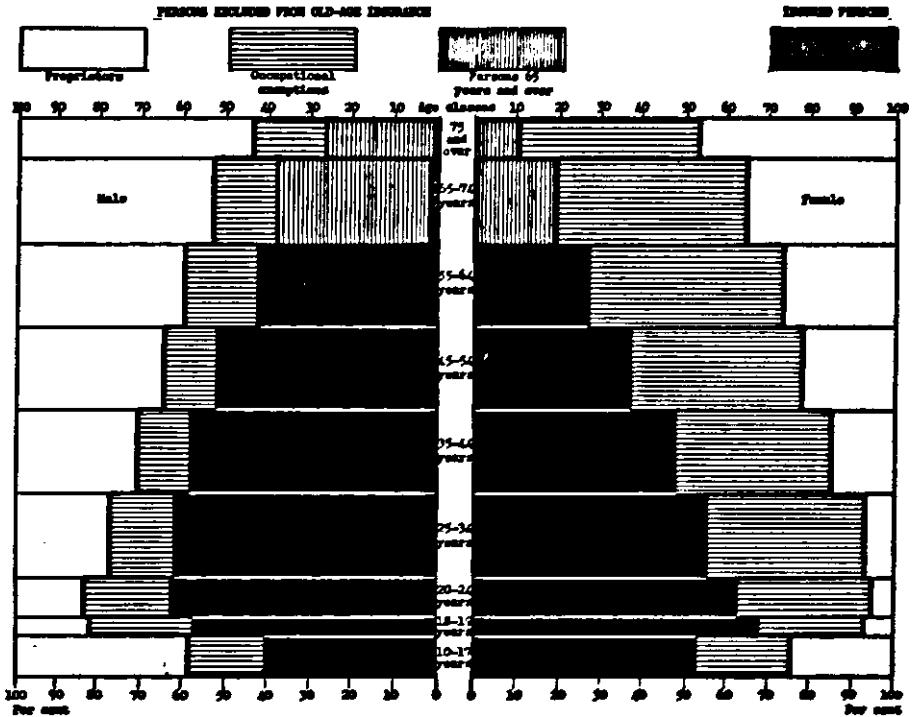


TABLE 15. PERCENTAGE DISTRIBUTION OF GAINFUL WORKERS OF DIFFERENT AGES IN INSURED AND UNINSURED OCCUPATIONS IN THE UNITED STATES, 1930

Age classes	Male			Female		
	Insured	Uninsured		Insured	Uninsured	
		Salary and wage earners	Independent and family workers		Salary and wage earners	Independent and family workers
ALL AGES.....	54.6	16.7	28.7	50.9	36.3	12.8
10 to 17 years.....	40.9	18.3	40.8	52.7	22.9	24.4
18 and 19 years.....	58.7	22.5	18.8	68.3	25.3	6.4
20 to 24 years.....	64.0	20.1	15.9	61.4	33.5	5.1
25 to 34 years.....	63.5	14.7	21.8	55.4	36.9	7.7
35 to 44 years.....	59.0	12.0	29.0	47.2	38.3	14.5
45 to 54 years.....	52.8	12.5	34.7	36.9	41.8	21.3
55 to 64 years.....	45.9	14.1	40.0	27.4	45.0	27.6
65 to 74 years.....	0.0	54.1	45.9	0.0	65.6	34.4
75 years and over....	0.0	43.2	56.8	0.0	51.3	48.7

DIAGRAM XXV

PERCENTAGE DISTRIBUTION OF MALE AND FEMALE GAINFUL WORKERS OF DIFFERENT AGES IN INSURED AND UNINSURED OCCUPATIONS IN THE UNITED STATES, 1930



The declining percentage in the middle and upper age classes of persons covered by old-age insurance has important implications for the differences in the median ages and expected period of work for insured and uninsured persons. These questions are discussed in the following chapter.

CHAPTER VI

MEDIAN AGES AND EXPECTED PERIOD OF WORK

SUMMARY

THE ADJUSTMENT of contributions to benefits in old-age insurance must be based on the relationship between the expected period of work, and of life after the age of retirement. Long experience is required to determine this relationship, and statistics supplied by censuses of population cannot in this case replace data which will be collected by social security agencies. But census statistics are useful in a preliminary exploration of the problem.

The expected period of work can be computed for each sufficiently numerous group of workers if their age distribution is known and if it can be assumed that this distribution will remain fairly steady in the near future. "Age distribution" means in this case distribution by single year classes rather than by classes of several years. Therefore, the computation of data on the expected period of work for separate groups of workers is based on the supposition that census statistics on their age distribution can be interpolated.

The interpolation of 1930 age statistics permits also the calculation of median ages, which are one of the most instructive aspects of the age composition of different groups of workers. Median ages are usually higher for men than for women workers. They vary from industry to industry, and more particularly from one class of work to another. In 1930 the highest median ages were found among employers and self-employed persons, managers, and officials, independent professional persons, foremen, and service workers, and the lowest among clerical workers.

The median ages of groups covered by old-age insurance are noticeably lower than those of all gainful workers because (1) insured employment ceases at the age of 65, (2) a number of workers shift in their mature years from dependent to independent pursuits, and (3) the occupations excluded from old-age insurance present work opportunities for older people.

MEDIAN AGES OF WORKERS BY INDUSTRY AND CLASS OF WORK

The great diversity in the age distribution of gainful workers of different classes in different industries is reflected in the considerable variation in their median ages.¹

¹ The median ages used in the present study have been computed by the method of straight linear interpolation of cumulative percentage curves or ogives which

The median ages of men are usually higher than those of women in the same class and the same industry. This difference is explained by the fact that the peak of employment for women occurs at an early age and tapers off sharply after 20 because of marriage, whereas men are engaged in gainful occupations for a greater number of years. There are, however, a few exceptions, the most striking being observed among employers and self-employed persons where the median ages for women are considerably higher than for men.

The following median ages were characteristic of the male and female workers reported by the 1930 Census in the principal industrial divisions and subdivisions:

Industries	Median ages	
	Male	Female
ALL INDUSTRIES	37.4 years	30.1 years
I. Agriculture (including forestry and fishing) .	38.4 "	30.8 "
NON-AGRICULTURAL PURSUITS (II-XI).....	37.1 "	30.1 "
II. Extraction of minerals.....	36.9 "	28.0 "
III. Manufactures	35.9 "	25.7 "
Food and allied products.....	35.1 "	26.0 "
Textiles and their products.....	36.6 "	26.8 "
Forest products	35.8 "	26.2 "
Paper and allied products.....	35.5 "	24.8 "
Printing and publishing.....	34.1 "	26.9 "
Chemical and allied products.....	35.3 "	24.0 "
Products of petroleum and coal.....	34.6 "	25.6 "
Rubber products	34.0 "	25.3 "
Leather and its manufactures.....	36.1 "	25.9 "
Stone, clay, and glass products.....	36.6 "	29.8 "

show the percentages of persons in ages up to 17, 19, 24, 34, etc. This method is based on the assumption that the curvature of the imaginary cumulative curve in its *middle section* can be disregarded, in other words, that the persons enumerated in the middle age class are *evenly distributed within this class*.

Median ages computed in this way are slightly higher than the values which would be obtained if a more elaborate method of interpolating empirical data were used. The over-statement due to the assumption made above is the more important the larger the distance of the median age from the limits of selected age classes (34 years, 44 years, etc.). On the other hand, the curvature of the imaginary ogive in the middle section depends upon the difference between the percentage of persons returned in the preceding and the following age classes, assuming that the three age classes contain equal numbers of years. If the median age falls exactly in the middle of the corresponding age classes, the most unfavorable case, then the deviation is roughly expressed by the formula

$$0.625 \cdot \frac{\Delta_1 - \Delta_2}{\Delta_3}$$

in which Δ_2 designates the number of persons in the middle age class, and Δ_1 and Δ_3 those in the preceding and the following age classes. Usually the deviation does not exceed 0.1 year, and in nearly half of all cases examined, it is practically 0.0.

Industries	Median ages	
	Male	Female
Iron and steel: Blast furnaces, etc.....	36.4 years	25.1 years
Machinery (not including transportation equipment)	36.3 "	24.0 "
Transportation equipment	38.9 "	25.0 "
Nonferrous metals and their products.....	36.5 "	24.1 "
Miscellaneous industries	36.6 "	26.0 "
Not specified industries.....	35.9 "	24.7 "
IV. Independent hand trades.....	46.1 "	44.1 "
V. Construction	40.3 "	27.6 "
VI. Transportation, communication, and utilities.	35.9 "	25.5 "
Transportation	36.3 "	29.7 "
Communication and utilities.....	34.5 "	24.6 "
VII. Trade	36.9 "	28.1 "
Banking, insurance, and real estate.....	38.5 "	26.4 "
Wholesale and retail trade.....	36.6 "	28.8 "
VIII. Public service	38.7 "	33.5 "
IX. Professional service	39.6 "	30.2 "
X. Domestic and personal service.....	37.5 "	35.0 "
XI. Not specified industries and services.....	36.4 "	24.5 "

Source: Table IX in the Appendix, page 304.

Excluding independent hand trades, really a class of work rather than an industry, the diversity of median ages was much greater for women than for men. For women the variation was from 24.0 to 35.0 years, and for men, from 34.0 to 40.3 years.

From the following tabulation it is apparent that the variations of median ages by classes of work in 1930 were much more significant than by industrial groups:

Classes of work	Median ages	
	Male	Female
ALL CLASSES OF WORK.....	37.4 years	30.1 years
Employers and self-employed persons.....	44.5 "	47.3 "
Managers	43.1 "	40.6 "
Foremen	41.6 "	34.6 "
Service workers	39.9 "	34.1 "
Skilled workers (excluding foremen).....	38.6 "	34.1 "
Professional persons:		
Independent	44.3 "	40.4 "
Dependent	34.0 "	26.2 "
Sales persons	33.8 "	30.1 "
Unskilled workers	33.6 "	27.9 "
Semi-skilled workers (excluding apprentices).....	33.5 "	27.7 "
Clerks and kindred workers.....	32.1 "	25.0 "
Unpaid family workers.....	over 18.0 "	20.6 "
Apprentices	about 18.0 "	under 18.0 "

Source: Table IX in the Appendix, page 304.

For both sexes the highest median ages were found among employers and self-employed persons, managers, independent professional workers, and foremen; service workers and skilled

workers followed; then closely clustered, came professional persons in dependent pursuits, sales persons, and unskilled and semi-skilled workers. Clerks and kindred workers had the lowest median ages among gainful workers, next to unpaid family helpers and apprentices.

It has already been pointed out that the median ages for women among employers and self-employed persons are usually higher than for men. That this relationship existed in 1930 in all industrial divisions is shown below:

Industries	Median ages of employers and self-employed persons	
	Male	Female
ALL INDUSTRIES	44.5 years	47.3 years
Agriculture	45.4 "	51.9 "
Extraction of minerals.....	47.8 "	45.1 "
Manufactures	45.9 "	46.2 "
Independent hand trades.....	46.2 "	44.3 "
Construction	46.0 "	46.4 "
Transportation, communication, utilities.....	39.9 "	43.4 "
Trade	42.8 "	43.5 "
Professional service	41.4 "	42.2 "
Domestic and personal service.....	43.7 "	47.2 "

In individual industries, there was a great diversity in the median ages of service workers, as the following figures show:

Industries	Median ages of service workers	
	Male	Female
Hotels, restaurants, cleaning shops, etc.....	34.3 years	31.6 years
Domestic and personal service.....	39.3 "	34.3 "
Other industries (not in domestic and personal service)	46.0 "	41.1 "

In the first group, the median ages of service workers differ little from the median ages of semi-skilled or unskilled workers. Domestic service generally employs older people, while among service workers in other industrial divisions there are night watchmen, janitors, and porters whose age has eliminated them from competition with younger workers in their former occupations.

The relatively low median ages of female professional persons in dependent pursuits apparently is due to the numerous younger women among school teachers, who constitute the largest group of women in professional service.

Skilled workers in various industries have higher median ages than professional persons in the same industries who are white-collar employees.

Median ages for unskilled workers are generally somewhat higher than for semi-skilled workers maybe because the unskilled tend to continue in gainful employment longer than semi-skilled workers.

Median ages for apprentices and unpaid family workers are usually about 18 years, or, as in the case of female family workers in agriculture, in the interval between 20 and 21 years. From available age statistics, it is not possible to compute median ages for these year classes.

The distribution of median ages for 10 specified classes of work and 28 different but not specified industries is presented graphically on Diagram XXVI. This chart is constructed as a frequency distribution table. The 513 median ages³ have been distributed under 14 classes, each class covering an interval of 2.5 years. The lowest class includes median ages between 20.1 and 22.5 years, and the highest between 52.6 and 55.0 years and over. The entry of observed cases is shown by dots in the corresponding field of the chart, black dots being used for men and white dots for women.

(See Diagram XXVI.)

The diversity of median ages by industries and by classes of work reveals important shifts of workers in the economic system. Three principal types of distribution of workers of different ages by industry and class of work are conceivable. First, if each

³ Table IX in the Appendix, page 304, presents the median ages of men and women in each class of work in 11 main divisions and 20 subdivisions of economic activity. In order to avoid duplications, figures referring to major divisions for which two or more subdivisions are shown, have been omitted. Thus the number of industrial fields observed has been reduced from 31 to 28: agriculture, extraction of minerals, 16 branches of manufactures, independent hand trades, construction, 2 subdivisions for transportation, communication, and utilities, 2 subdivisions for trade, public service, professional service, domestic and personal service, and not specified industries and services. Unpaid family workers and apprentices have been excluded. There remain 560 groups. However, this number has been reduced to 513 because no workers except employers or self-employed persons were reported in independent hand trades; no women employers were counted in the manufacturing of products of petroleum and coal and in public service; sales persons were missing in 4 cases, foremen in 6, skilled workers in 2, and semi-skilled and unskilled workers in 1 case. In addition, median ages in 13 cases have been omitted because they refer to less than 50 persons.

DIAGRAM XXVI

DISTRIBUTION BY SIZE-CLASSES OF MEDIAN AGES FOR MALE AND FEMALE WORKERS IN VARIOUS SOCIO-ECONOMIC GROUPS IN THE UNITED STATES, 1930

Black dots—median ages for males
White dots—median ages for females

Size-classes	Service workers	Employer and self-employed persons	Managers and officials	Foremen	Skilled workers	Professional persons	Sales persons	Unskilled workers	Semi-skilled workers	Clerks and kindred workers
52.6-55.0 years	••••• •••••									
50.1-52.5 years	•••••	•••••								
47.6-50.0 years	•••	••••• •••	•							
45.1-47.5 years	••••• •••••	••••• ••••• ••••• •••••	•••••		•					
42.6-45.0 years	••••• •••••	••••• ••••• •••••	••••• •••	•••••	•••••		•			
40.1-42.5 years	••••• •••••	••	••••• ••••• ••••• •••••	••••• ••••• •••••	•••••	•		••	•	
37.6-40.0 years	•••	•	••••• ••••• •••••	••••• •••••	••••• •••••	•••	••••• •••••	•••••		••
35.1-37.5 years	•		•••••	••••• •••••	••••• •••••	••••• •••••	••••• ••••• •••••	••••• •••••	•••	•••
32.6-35.0 years	•••••			••••• •••••	•••	••••• ••••• •••••	••••• ••••• •••••	••••• •••••	•••	•••
30.1-32.5 years				•	•••••	••••• ••••• •••••	••• •••	••	••••• ••••• •••••	••••• ••••• •••••
27.6-30.0 years					•••		•••	•••••	••• •••	••• •••
25.1-27.5 years					••			••••• •••••	••••• •••••	••••• •••••
22.6-25.0 years					••••• •••••			••••• •••••	••••• •••••	••••• •••••
20.1-22.5 years							•			

worker during his entire work life remained in the same class of work and in the same industry, the median ages of the different socio-economic groups would show only slight variations resulting from different ages of entry into and retirement from gainful work, and because of different death rates by industries and occupations. Second, if each worker remained in the same class of

work, and a sufficient number changed in the latter part of their work lives from industry to industry, there would be great contrasts in median ages by industries, but minor differences by classes of work. Third, if each worker remained in the same industry, but some moved to better-paid classes of work while others moved in their senior years from skilled to unskilled and service pursuits, striking contrasts in median ages by classes of work and insignificant differences by industries would become evident.

However, none of these three suppositions corresponds exactly to the facts revealed by Table IX in the Appendix, and by Diagram XXVI. Actually, median ages vary considerably both by industries and by classes of work, but the extent of their variations by classes of work is much larger. This statement is confirmed by Table 16, which shows median ages for male workers in 10 classes of work in 10 major industrial divisions. The arrangement of classes of work and industrial divisions by descending average median ages results in a general decrease of the figures from the upper left-hand corner of the table to the lower right-hand corner.

TABLE 16. MEDIAN AGES OF MALE WORKERS IN 10 CLASSES OF WORK IN 10 MAJOR INDUSTRIAL DIVISIONS IN THE UNITED STATES, 1930

Industrial divisions	Service workers	Employers and self-employed	Managers	Foremen	Skilled workers	Professional persons	Unskilled workers	Sales persons	Clerks and kindred workers	Semi-skilled workers	Unweighted average for all classes
Public service	45.2	45.9	46.0	—	39.9	40.1	42.3	—	39.0	28.3	40.8
Extraction of minerals...	44.1	47.8	44.3	42.4	38.8	37.6	39.8	36.8	33.7	36.1	40.1
Agriculture...	46.8	45.4	42.5	42.6	40.6	38.5	29.9	43.4	38.1	29.2	39.7
Professional service...	45.2	41.4	46.8	—	43.0	39.6	36.9	34.7	33.1	31.7	39.2
Construction	47.3	46.0	42.9	42.5	41.6	34.5	36.6	37.9	31.7	30.3	39.1
Manufactures	35.5	45.9	41.9	41.0	38.0	33.4	34.5	36.0	31.6	33.7	38.9
Not specified industries and services	48.4	45.1	41.3	41.4	40.7	33.8	39.1	35.6	28.9	31.5	38.6
Domestic and personal service...	37.1	43.7	38.8	37.5	43.1	39.0	37.6	31.9	35.0	32.4	37.6
Transportation, communication, and utilities	40.0	39.9	44.0	43.0	34.9	33.6	35.4	32.4	35.4	33.8	37.2
Trade	50.3	42.8	42.1	40.0	33.5	36.8	31.2	33.7	29.8	30.8	37.1
Unweighted average for all industrial divisions	45.8	44.4	43.0	41.3	39.4	36.7	36.3	35.8	33.4	31.8	38.8

Source: Table IX, in the Appendix, page 304.

A comparison of the figures in Table 16 by columns and by horizontal lines shows a substantial difference between the two movements. The decline of the figures in columns, i. e. for the same class of work in different industrial divisions, is irregular and in several cases insignificant. The differences between the largest and smallest figures in each column range from 5.5 for foremen, to 16.4 for service workers, and average 9.6. The decrease of median ages horizontally, i. e. for different classes of workers in the same industry, is much more pronounced, the differences ranging from 11.6 to 21.9, and averaging 16.7. The distribution of median ages in Table 16 seems to indicate that the contrasts of median ages in different socio-economic groups depend to a greater extent upon the class of work than upon the industry in which this work is performed.³

EXPECTED PERIOD OF WORK AND OF INSURED EMPLOYMENT

The median ages of salary and wage earners who would have been covered by old-age insurance in 1930 was 34.9 years for men and 26.9 years for women, as compared with 37.4 and 30.1 years, respectively, in the case of all gainful workers. To a great extent these contrasts are due to the fact that insured employment ends at the age of 65, while among all gainful workers there are persons older than this. Differences in the age limits for all gainful work and for insured employment cause differences in the cumulative curves (ogives) representing the age distribution of insured workers and of all gainful workers, as shown on Diagram XXVII.

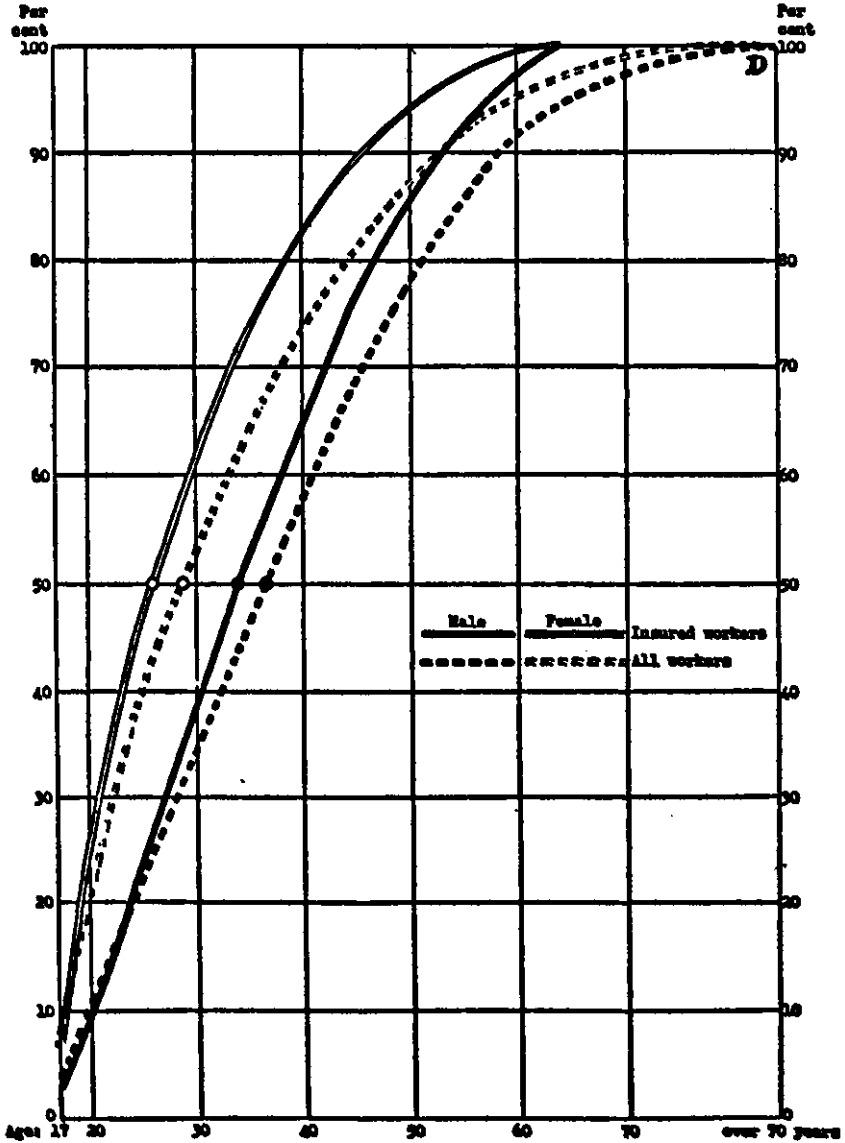
Ogives showing cumulative age distribution may be used to estimate the expected average period of work for all gainful workers and particularly of employment for insured workers at different ages, the term "employment" meaning work in any one of the occupations covered by old-age insurance.⁴

³ This problem is examined in detail in Chapter VII.

⁴ See Note 11, page 261: "Computation of the Expected Period of Work."

DIAGRAM XXVII

CUMULATIVE CURVES OF PERCENTAGE DISTRIBUTION BY AGE OF ALL GAINFUL WORKERS, AND OF WORKERS COVERED BY OLD-AGE INSURANCE IN THE UNITED STATES, 1930



The expected period of employment for insured workers is lower at each age than the expected period of work for all gainful workers, as shown below and on Diagram XXVIII.

Gainful workers	All gainful workers (Expected period of work)		Insured workers (Expected period of insured employment)	
	Male	Female	Male	Female
20 years old	36.4 years	17.3 years	30.6 years	14.4 years
25 " "	32.1 "	17.9 "	26.2 "	14.9 "
30 " "	27.8 "	21.0 "	22.2 "	16.6 "
35 " "	23.2 "	18.7 "	18.3 "	14.3 "
40 " "	19.3 "	16.5 "	14.6 "	12.1 "
45 " "	15.4 "	14.3 "	11.0 "	10.3 "
50 " "	13.6 "	12.1 "	9.3 "	9.0 "
55 " "	11.6 "	9.7 "	7.5 "	7.3 "
60 " "	9.1 "	8.4 "	4.6 "	4.4 "
65 " "	6.7 "	6.8 "	—	—

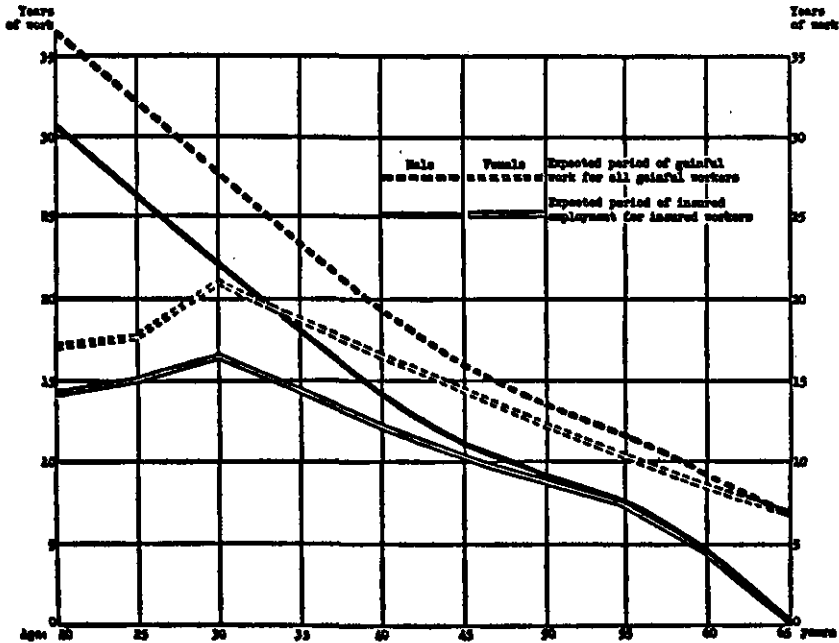
Among other reasons for the disparity between the expected period of work for all gainful workers, and the expected period of employment for insured workers are the following: (1) employment of insured persons, as stated earlier, ceases at the age of 65, while gainful work can continue beyond this limit; (2) employment in an insured occupation automatically ceases whenever an insured employee becomes self-employed or an employer; and (3) instances of gainful work after the age of 65 are most numerous in agriculture and in independent pursuits, which are excluded from old-age insurance.

Particularly in the higher age classes, insured persons are nearer the end of insured employment than are all gainful workers to the end of their working lives. In the higher age classes, the expected period of insured employment is almost the same for men and women, but the converse is true in the lower ages, particularly for persons 20 and 25 years of age.

In connection with the figures given above, certain reservations should be stated. The figures are based on a number of assumptions, the most important and the most questionable being that the age distribution of gainful workers will remain the same as in 1930. In reality important changes in the age structure of the population may be anticipated. As the higher age classes increase in proportion, expected periods of both gainful work and insured employment will lengthen. Therefore, all figures shown above are somewhat understated. Probably the under-

DIAGRAM XXVIII

EXPECTED PERIOD OF GAINFUL WORK AND OF INSURED EMPLOYMENT FOR MALE AND FEMALE WORKERS OF DIFFERENT AGES IN THE UNITED STATES, 1930



statement is relatively more important for women than for men. On the other hand, the figures above apply to the expected period of work and insured employment and not to the duration of actual work (without taking into account periods of unemployment). In so far as the expected duration of actual employment in insured industries is concerned, the figures on page 80 are probably too high, but it is hardly possible to estimate the net effect of the two groups of opposing factors which influence the expected duration of actual work and employment.

CHAPTER VII

ECONOMIC SHIFTS OF WORKERS

SUMMARY

SHIFTS OF workers between insured and uninsured pursuits reflect the general industrial and occupational mobility so characteristic of the working population of the United States. No socio-economic group remains static, no borderline between diverse population groups is rigid.

Temporary or seasonal shifts should be distinguished from movements which more permanently change the status of workers. Only the latter type of movements will be analyzed in this chapter.¹ This includes two distinct kinds of shifts: one may be designated as *horizontal*, i. e. changes in industrial affiliation; and the other, *vertical*, i. e. changes in class of work. The principal horizontal shifts which can be inferred from available statistics occur between agricultural and non-agricultural pursuits. Apparently many persons commence gainful work at early ages on farms, leave in their 20's and return again in their 40's. An attempt has been made in this chapter to estimate the extent of this movement.

The age distribution of different classes of agricultural workers suggests that a considerable number who commence work as farm laborers become farmers in their 30's and 40's. This is an example of a vertical shift, a rise up the "ladder" of agricultural labor.

Economic shifts in non-agricultural pursuits are more complex. Some persons who were salary and wage earners at 25 years of age become employers or independent workers in their later years. Likewise, some clerks and sales persons become managers; unskilled and semi-skilled workers become skilled workers or foremen. On the other hand, some skilled workers drop to the ranks of unskilled or service workers in their later years.

Similar economic shifts may be observed within the various classes of work. There are indications that the median incomes of proprietors, professional persons, clerical, skilled, semi-skilled, and unskilled workers increase up to the age of about 40, and decline thereafter.

Because of the continuous shifting of workers between insured and uninsured occupations, the registers of the Social Security Board will include an increasing number of persons who, at some time or other, have been "employees" as defined by the Social Security Act, but for whom contributions are no longer being paid.

¹ Temporary shifts between insured and uninsured pursuits are discussed in Chapter VIII.

CONTRASTS IN THE AGE DISTRIBUTION OF DIFFERENT GROUPS OF WORKERS AS EVIDENCE OF ECONOMIC SHIFTS

If an economic system could be conceived of in which each individual at the beginning of his gainful work chose an occupation in which he remained until retirement or death, there would still be differences in the age composition of socio-economic groups because of the varying ages at which work is begun, and is ended by retirement in each group, as well as in the death rates. Each of these factors affects diversely the socio-economic composition of the lowest, the highest and the middle age classes, respectively.

The lowest and highest age groups constitute a very small minority of the whole gainfully occupied population, while the diversity in death rates influences continuously, over several decades, the composition of the middle age classes which include the greatest proportion of workers. For this reason, it would be desirable to ascertain typical death rates for each industry and class of work, but unfortunately available information on this subject is rather vague. It may be taken for granted that there are industries and occupations with particularly high mortality rates, and also that death rates are usually lower among persons with higher incomes. However, there are no statistics which show how great these differences are.²

In any case, except for pursuits which are particularly dangerous for the health of the worker and those which are exercised under exceptionally favorable conditions, the differences in the death rates of the middle age classes are not large enough to explain the striking contrasts in the age distribution of the various socio-economic groups. If there were no economic shifts, large differences would appear in the lowest and the highest strata of the age pyramid. In the middle age classes, and especially among men, only minor variations in the occupational proportions would be anticipated as the result of uneven immigration in past years, or of an unequal development in different industries.³

² The study of *Death Rates by Occupation* based on data of the U. S. Census Bureau, 1930, published by the National Tuberculosis Association in June 1934, attracted attention to this problem but could not solve it. See Note 12, page 263: "Death Rates in Different Classes of Work."

³ This does not mean that the converse conclusion is true: homogeneity in the age structure of different occupations provides no evidence of the rigidity of occupational and social boundaries, as the same result may be obtained by evenly balanced shifts from opposite directions.

The economic system of the United States, with its considerable diversity in the age distribution and in the median ages of socio-economic groups, is exactly opposite to the imaginary system described above. Differences in the occupational composition of the various age classes are to a large extent explained by the well known fact that a number of persons shift from one class of work to another as well as from industry to industry with successive years.

These shifts may be measured by a simple procedure. Let it be assumed that in a closed economic system all male workers are divided into two groups, A and B (for example, employees and employers, respectively), and that the proportion of each of these groups among gainful workers varies with advancing age, as shown on Diagram XXIX. The following conclusions would then appear reasonable:

(1) The small proportion of group B among gainful workers under 18 years indicates that few young persons begin their gainful activity with work in this group.

(2) The extremely high proportion of group B in the ages over 70, and especially over 75, indicates a strong probability that persons of this group usually retire from gainful pursuits at more advanced ages than do persons of group A.

(3) Within the years from 25 to 50, i. e., the age classes in which practically all men are gainfully occupied, the proportion of persons in group B increases, while group A diminishes. The decline of group A from 80 per cent of the total gainfully occupied population at the age of 25, to 40 per cent at the age of 50, indicates that about half the persons who were in group A at the age of 25, have moved into group B at the age of 50, if they had not died in the meantime.

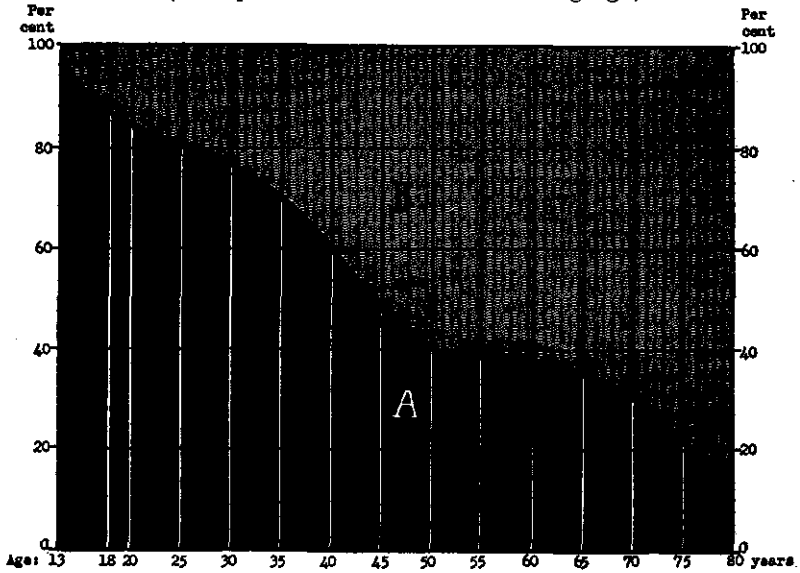
(4) The growth of group B in comparison with group A slows down after 50 years of age. This seems to indicate that the shifts from A to B become less frequent in the later years of active work.⁴

The most important of these statements relates to the age classes from 25 to 50 years. However, so far as minor variations in the age structure of individual occupational or industrial groups are concerned, this conclusion is not valid. If, for example, young workers predominate in one branch of production and older persons

⁴The same contrasts in the age structure of two groups could have been caused by differences in their history. The reasoning would be invalid if comparison were made, for example, between an old and declining industry and a new and expanding industry.

DIAGRAM XXIX

EXAMPLE OF THE VARYING DISTRIBUTION OF PERSONS OF DIFFERENT AGES BETWEEN TWO UNSPECIFIED OCCUPATIONAL GROUPS
(Occupational shifts with increasing age)



in another, the reason may be the diversity in the rates of growth of the two industries, or in their management policies, or in other factors.

In any case, statistics of age distribution can reveal only the most important shifts, or, to be more exact, their net balance. They cannot explain the details of the very complex and confused age pyramid of the working population.

SHIFTS OF WORKERS BETWEEN AGRICULTURAL AND NON- AGRICULTURAL PURSUITS

The most important industrial (horizontal) shift, shown by occupational statistics, is between agricultural and non-agricultural pursuits.⁵

The 1930 Census reported that about 24 per cent of the male gainful workers in the age class of 20 to 24 years were occupied in

⁵ See Chapter V, pages 49-52.

agriculture. Probably the proportion was somewhat greater in the lower part of this age class and somewhat smaller in its upper part. Interpolating the Census statistics, one finds that at the age of 25, when practically all men physically able to work are usually either working or seeking work, approximately 22 to 23 per cent of them were occupied on farms. The same or a somewhat higher proportion was reported by the 1930 Census among male gainful workers after the age of 45, while in the age class from 30 to 34 years, the percentage of agricultural workers dropped to 18.5.* These differences seem to indicate that a number of persons who were engaged in agriculture in their youth, were employed in non-agricultural pursuits between the ages of 25 and 45, and that an approximately equal number returned to farming in their later years. Among the latter there were probably some city-bred persons who wished to try their hand at farming, but they probably were less numerous than sons who returned to inherit paternal farms. From the standpoint of social security, this means that a number of persons engaged in agricultural pursuits during the greater part of their working lives will be insured during a comparatively short period of time, probably 10 to 15 years, as a result of their non-agricultural work.

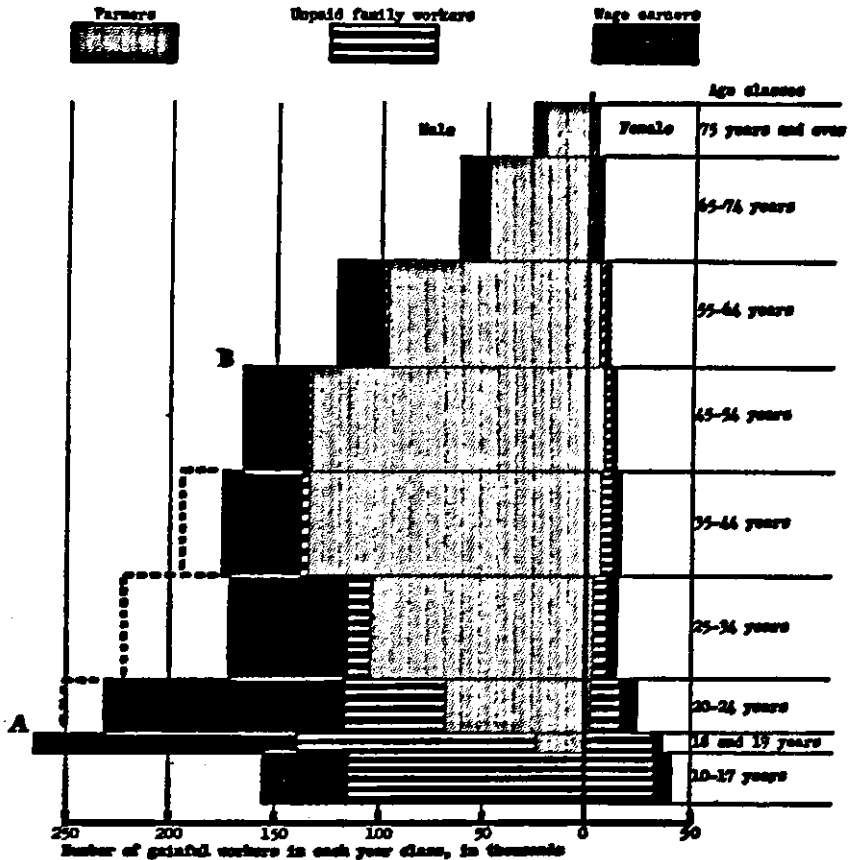
A closer analysis of the 1930 statistics makes it possible to estimate the number of persons who work temporarily in non-agricultural occupations. With all the reservations that naturally go with an estimate of this kind, their probable number was from 300,000 to 350,000 between the ages of 25 and 34, and approximately 200,000 between 35 and 44. These numbers would be somewhat lower if allowance were made for those persons who were born in cities and never engaged in agriculture until their later years when they became farmers.

These figures represent the net balance of shifts which may have partly counterbalanced each other. The total number of persons who spend part of their working lives on farms and part in non-agricultural pursuits is probably much higher. No estimate can be made of the number of women temporarily engaged in non-agricultural pursuits.

* Interpolation of Census figures shows that this percentage was probably 18 per cent or even somewhat lower at the ages of 29 and 30.

DIAGRAM XXX

DISTRIBUTION OF GAINFUL WORKERS IN AGRICULTURE BY SEX, AGE AND CLASS OF WORK IN THE UNITED STATES, 1930



of 35, and that in the age group from 45 to 54, it was almost as large as in the group from 25 to 44 years. The effects of the movements from farms to cities and from cities to farms in different age classes may be observed on Diagram XXX in the irregular conformation of the left side of the age pyramid, namely, in the section between points A and B.

If there were no horizontal shifts between agricultural and non-agricultural pursuits, the number of farmers and farm laborers in consecutive age classes would decline approximately as

the total number of gainful workers declines with advancing age. The age pyramid of the rural population would be flanked by gradually receding broken lines similar to those shown on Diagram XV. If such a line is drawn between points A and B on Diagram XXX, the shifts of male workers from farms to cities in their 20's and from cities to farms in their later years become evident.

But this does not explain the marked changes in the proportions of different classes of workers in the agricultural population with increasing years. The continuous growth in the number of farmers was undoubtedly due partly to the fact that numerous persons who had been unpaid family workers in their earlier years later became farmers. However, this movement alone would not suffice to explain the rapid increase in the number of proprietors in the upper age classes. On the assumption of a unilateral movement of unpaid family workers into the ranks of farmers, the total number of persons in both groups should remain in constant proportion to the total number of gainful workers in corresponding age classes. In reality, however, this proportion increased with age in 1930, as shown below :

Age classes	Total gainful workers	Gainful workers in agriculture	Farmers and unpaid family workers		
			Number	Per cent of gainful workers in agriculture	Per cent of total gainful workers
<i>In thousands</i>					
M A L E					
20 to 24 years.....	4,800	1,158	580	50.0	12.1
25 to 34 years.....	9,169	1,730	1,147	66.3	12.5
35 to 44 years.....	8,608	1,747	1,379	78.9	16.0
45 to 54 years.....	6,565	1,649	1,344	81.5	20.5
55 to 64 years.....	3,942	1,202	969	82.3	25.1
F E M A L E					
20 to 24 years.....	2,348	114	82	72.2	3.5
25 to 34 years.....	2,654	129	92	71.7	3.5
35 to 44 years.....	1,892	134	104	77.3	5.5
45 to 54 years.....	1,266	129	107	83.1	8.5
55 to 64 years.....	649	85	74	88.0	11.5

The continuous increase of the four sets of percentages indicates that many persons of the non-farming population became farmers, and that numerous farm laborers became owners or tenants in their later years, following the usual "ladder" of agricultural labor. A boy begins work as an unpaid family helper; he becomes a hired laborer after 17, and a farm operator in his 30's. Frequently beginning as a tenant, he becomes an owner in his 40's or 50's.

On the basis of the age distribution of male farm laborers in 1930, the expected period of their employment on farms up to the age of 65 can be roughly estimated as follows: ¹⁰

Farm laborers	Expected period of employment
20 years old.....	10 years
25 years old.....	12 years
30 years old.....	15 years
35 years old.....	17 years
40 years old.....	18 years
45 years old.....	15 years
50 years old.....	11 years
55 years old.....	8 years
60 years old.....	4 years
65 years old.....	—

Obviously, if old-age insurance were extended to cover farm laborers, the amount of earnings received by them during a comparatively short period of employment on farms would not entitle them to substantial benefits after 65. However, as most of them become self-employed farmers in their later years, the modest old-age annuities to which they would be entitled as a result of their previous employment as farm laborers, and of occasional work in other insured industries, would supplement the income they would continue to receive from their farm property after retirement from active work. In addition, many farmers would have earned substantial sums as a result of their work for pay in covered industries during winter months.

ECONOMIC SHIFTS OF WORKERS IN NON-AGRICULTURAL PURSUITS

The distribution by class of work of persons of different ages engaged in non-agricultural pursuits was discussed in Chapter V.¹¹ The increase in the proportions of certain classes of work and the decrease of other classes as age advances, may be regarded as indications of economic shifts. However, this interpretation of age distribution statistics becomes impossible if a substantial number of persons in the age classes examined are not engaged in gainful pursuits. In such a case, the proportions of the different classes of work may vary because of the entry of new workers into gainful

¹⁰ For the method of estimation, see Note 11, page 261: "Computation of the Expected Period of Work."

¹¹ See Table 13, page 58 and Diagram XVII, page 57.

pursuits, or because of retirement from the various classes of work, without appreciable shifts within the gainfully occupied population. For example, in view of the retirement of women from gainful work at the time of marriage, and the entry of women into gainful pursuits upon the deaths of their husbands, age statistics cannot provide evidence of the economic shifts of women. Therefore, the following tentative analysis is limited to male workers in non-agricultural pursuits.

The general trends in the economic shifts of men become particularly evident if age statistics are interpolated, as shown on Diagram XXXI. This diagram is constructed by the same method as Diagram XXIX, with the sole difference that instead of two economic groups, nine classes of work are shown. The principal significance of this diagram is its indication of the probability of shifts from dependent to independent pursuits, from clerical occupations to managers, from semi-skilled and unskilled labor to skilled trades, and, in the more advanced ages, from skilled labor to service work.

A comparison of the proportions of salary and wage earners and of employers and self-employed persons in the different age classes suggests the probability that the following percentages of men, who were salary or wage earners in non-agricultural pursuits at the age of 25 and lived to maturer years, became employers or self-employed :

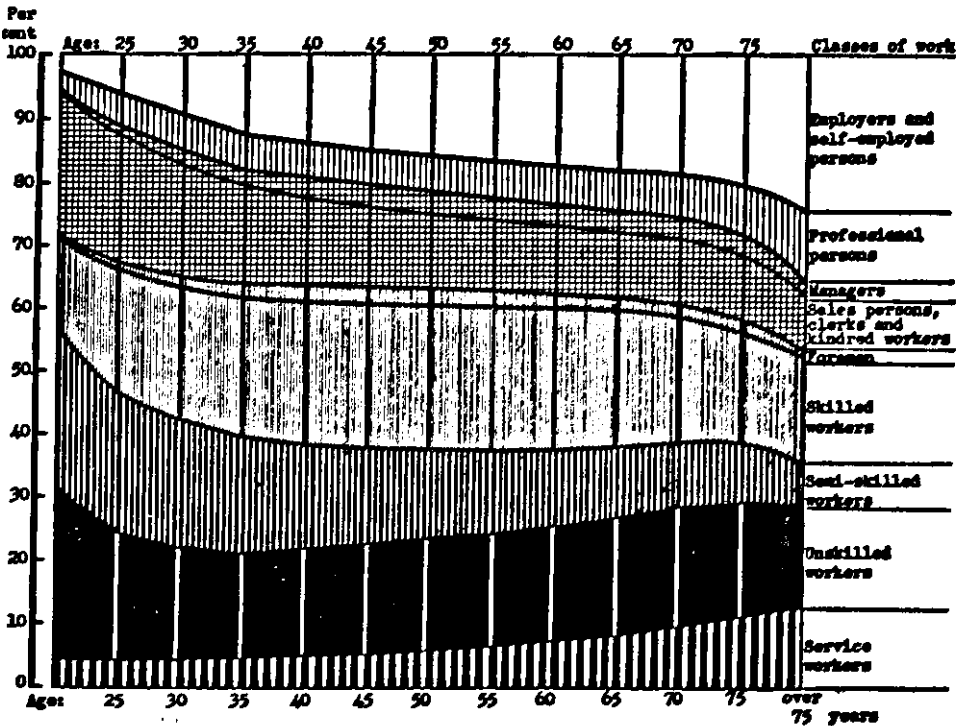
before 35 years of age.....	8 per cent
before 45 years of age.....	10 per cent
before 55 years of age.....	12 per cent
before 65 years of age.....	15 per cent

These figures include, of course, sons and heirs of proprietors who at 25 years of age were employees, frequently for the purpose of acquiring the experience necessary to operate their own businesses later.

The decrease in the percentage of sales persons and clerical workers after the age of 25 requires comment. It would be unreasonable to assume that the cause of the decline was a high death rate, or that a number of clerks became unskilled workers in their later years. Probably, they advanced upward into the ranks of managers and officials or employers and self-employed, rather than

DIAGRAM XXXI

PERCENTAGE DISTRIBUTION OF MALE WORKERS OF DIFFERENT AGES
IN NON-AGRICULTURAL PURSUITS, BY CLASS OF WORK,
IN THE UNITED STATES, 1930



downward to the level of service workers. This supposition is confirmed by the continuous increase of the upper classes of work in the maturer ages. The following percentages of men, who were clerks or sales persons in non-agricultural pursuits at the age of 25 and remained alive, apparently became independent or attained positions as managers or officials :

- before 35 years of age..... 14 per cent
- before 45 years of age..... 23 per cent
- before 55 years of age..... 25 per cent

Even allowing for a few downward shifts, these figures show that the chance of attaining a higher class of work was much greater among white-collar employees than among all salary and wage

earners. Moreover, it must be remembered that the white-collar class includes such widely different occupations as newsboys at one extreme and corporation officers at the other. Probably most of the persons with inherited wealth for whom entry into the employer group is only a question of time, are included in their younger years.

If all wage earners, including service workers, are grouped together, the borderline which on Diagram XXXI separates them from employers, professional persons and white-collar employees, shows a slight decline in the early ages but does not descend appreciably until after 60 years. This seems to indicate that the net shifts from manual labor to independent and clerical occupations were not numerous enough to influence noticeably the age distribution of gainful workers in non-agricultural pursuits.

The proportion of unskilled laborers and semi-skilled operatives declined with age, in contrast to the growth in the proportion of skilled workers. This may be explained by the supposition that the following percentages of men, who at 25 years of age were unskilled or semi-skilled workers, including servants and apprentices, and remained alive, became skilled workers or foremen :

before 35 years of age.....	15 per cent
before 45 years of age.....	19 per cent
before 55 years of age.....	21 per cent

After 55 there were but few changes.

Besides the possibility of shifting to higher classes of work, there was, beyond the age of 35, a downward shift from higher classes, and especially from skilled work, to the ranks of unskilled laborers and servants. The following proportions of men who were skilled or semi-skilled workers or perhaps white-collar employees, at the age of 35, probably shifted downward into the ranks of unskilled or service workers :

before 45 years of age.....	2 to 3 per cent
before 55 years of age.....	5 to 6 per cent
before 65 years of age.....	10 to 12 per cent

ECONOMIC SHIFTS OF WORKERS IN DISTRIBUTION

The shifts from dependent to independent pursuits are so pronounced in the division of retail and wholesale trade that they

warrant separate consideration. The age distribution of gainful workers enumerated in this division by the 1930 Census was very similar to that of all gainful workers in non-agricultural pursuits, as is indicated below :

	Percentage distribution of gainful workers by age classes			
	Retail and wholesale trade		All non-agricultural pursuits	
	Male	Female	Male	Female
ALL AGE CLASSES.....	100.0	100.0	100.0	100.0
10 to 17 years.....	3.4	5.4	2.3	5.3
18 and 19 years.....	4.0	10.7	3.8	8.9
20 to 24 years.....	12.7	24.3	12.8	22.7
25 to 34 years.....	26.1	25.5	26.1	25.7
35 to 44 years.....	23.6	18.3	24.1	17.9
45 to 54 years.....	16.6	10.6	17.2	11.6
55 to 64 years.....	9.4	4.0	9.6	5.7
65 to 74 years.....	3.6	.9	3.6	1.9
75 years and over ¹.....	.6	.2	.6	.4

¹ Including ages unknown.

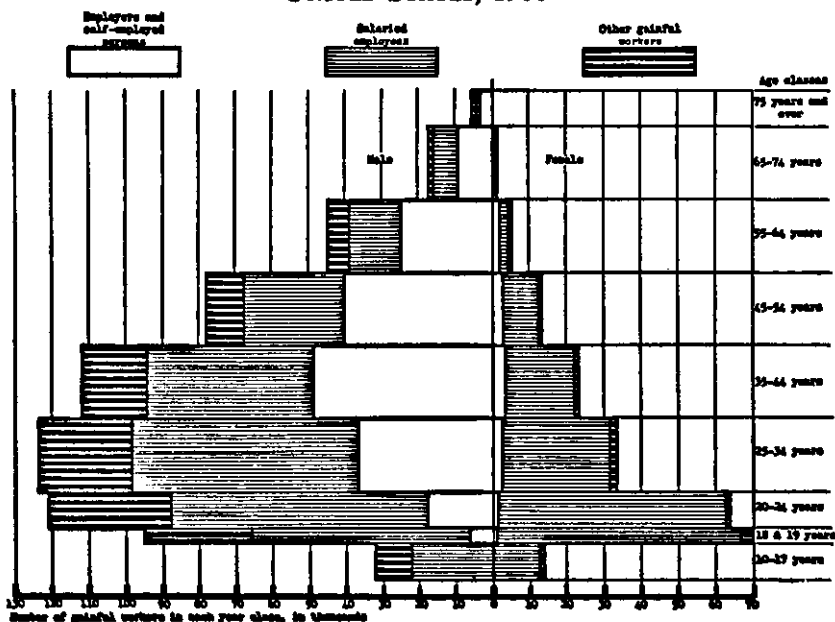
Source: Woytinsky, *op. cit.*, Table VI-A (pp. 115-119) and Table VI-B (pp. 123-127).

Certainly there is no evidence that all persons engaged in retail and wholesale trade remain throughout their lives in this pursuit; rather, continuous horizontal shifts take place between distribution and other fields of activity. But the percentages above show that these shifts fail to influence the age pyramid of workers in the distribution trades. The percentage distribution by age of the men engaged in 1930 in each of the three principal classes of work represented on Diagram XXXII was as follows :

Age classes	All classes of work	Proprietors	Salaried employees	Other workers
10 to 17 years.....	100.0	1.7	65.6	32.7
18 and 19 years.....	100.0	6.2	62.3	31.5
20 to 24 years.....	100.0	14.8	58.2	27.0
25 to 34 years.....	100.0	29.7	50.3	20.0
35 to 44 years.....	100.0	43.7	40.1	16.1
45 to 54 years.....	100.0	50.7	34.7	14.6
55 to 64 years.....	100.0	54.1	34.1	11.8
65 to 74 years.....	100.0	56.4	30.0	13.6
75 years and over.....	100.0	60.0	24.4	15.6

By interpolating these figures the shifts among classes of work in wholesale and retail trade become more evident.

DIAGRAM XXXII
DISTRIBUTION OF GAINFUL WORKERS IN RETAIL AND WHOLESALE
TRADE BY SEX, AGE AND CLASS OF WORK IN THE
UNITED STATES, 1930



In round numbers, the percentages of proprietors and white-collar employees in retail and wholesale trade in 1930 varied with age as follows:

	All classes of work	Proprietors	Salaried employees	Other workers
at 25 years of age.....	100	22	55	23
at 35 years of age.....	100	37	45	18
at 45 years of age.....	100	47	38	15
at 55 years of age.....	100	52	34	13
at 65 years of age.....	100	55	32	13

(See Diagram XXXIII.)

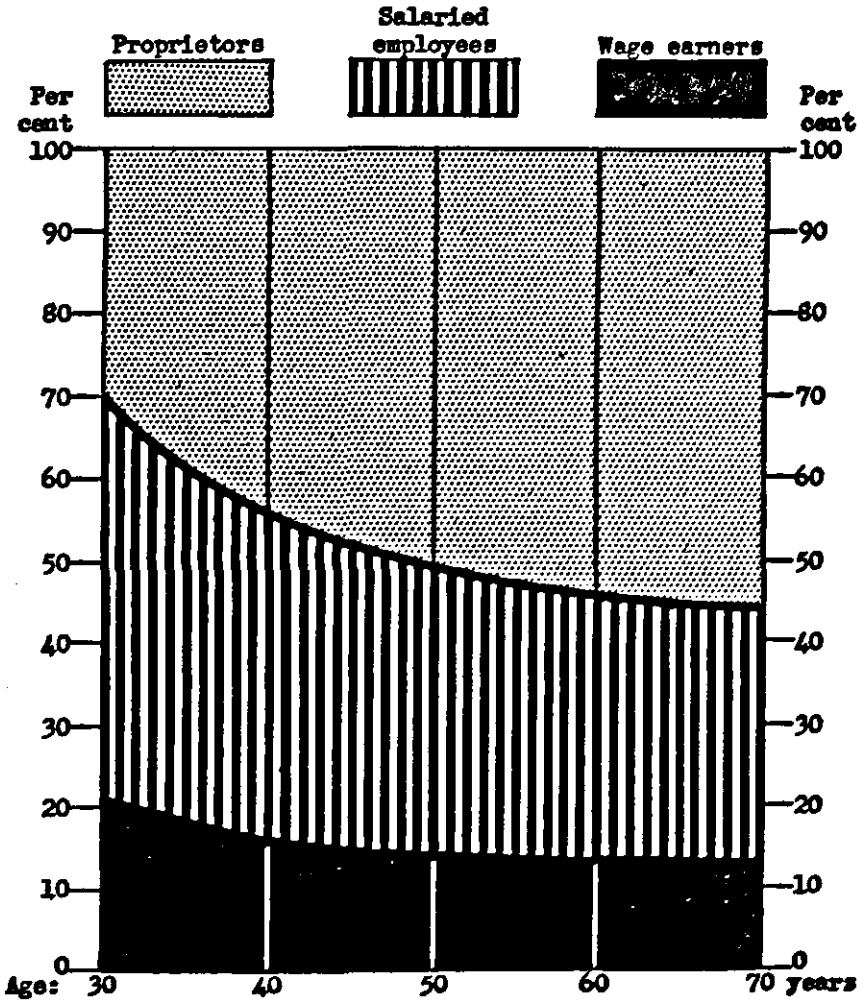
Very probably the increase in the proportion of proprietors was due not only to the advancement of employees within distribution but also to accessions from without. The assumption is reasonable, however, that the greater number moved up the occupational "ladder" from employee to owner.

SHIFTS BETWEEN INCOME CLASSES WITH INCREASING AGE

The method used in the preceding pages shows the typical shifts across the borderlines between different classes of work. Similar

DIAGRAM XXXIII

PER CENT OF PROPRIETORS, SALARIED EMPLOYEES, AND WAGE EARNERS AMONG MALE PERSONS OF DIFFERENT AGES ENGAGED IN WHOLESALE AND RETAIL TRADE, IN THE UNITED STATES, 1930



shifts taking place within each socio-economic group could be disclosed by income statistics classified by ages of workers. Unfortunately statistics of this kind are not sufficiently adequate to permit definite conclusions on typical income variations with increasing age.

Instructive data on this subject are supplied by the Michigan Census of Population and Unemployment taken January 14, 1935.¹² Income statistics for about 1.4 million gainfully occupied persons were tabulated by ages of workers and by size-classes of annual income for each of six major socio-economic groups: professional persons; proprietors, including managers and officials; clerical workers; skilled workers; semi-skilled operatives; and unskilled laborers.

(See Table X in the Appendix, page 306, and Diagram XXXIV.)

In all classes of work the smallest incomes were most frequently found in the lowest and in the highest age groups, while comparatively large incomes were most usual in the middle age classes.

The median annual incomes of different age groups in each class of work were as follows:

Classes of work	15 to 24 years	25 to 34 years	35 to 44 years	45 to 54 years	55 to 64 years	65 years and over
Professional ..	\$585	\$1,270	\$1,665	\$1,735	\$1,600	\$1,520
Proprietors ...	550	980	1,065	890	690	480
Clerical	630	1,080	1,285	1,270	1,180	985
Skilled	705	1,080	1,180	1,135	1,065	955
Semi-skilled ..	505	820	865	830	730	590
Unskilled	320	520	590	560	520	450

The highest median incomes were found within the age group from 35 to 44 years except among professional persons, whose incomes were larger in the age class from 45 to 54 years. The economic status of most workers apparently improved gradually up to 40 or perhaps somewhat later, and declined after this age.¹³ It must be remembered, however, that these data have limited significance; they refer only to one year during which economic conditions were still below normal, and only to one state which cannot be considered representative.

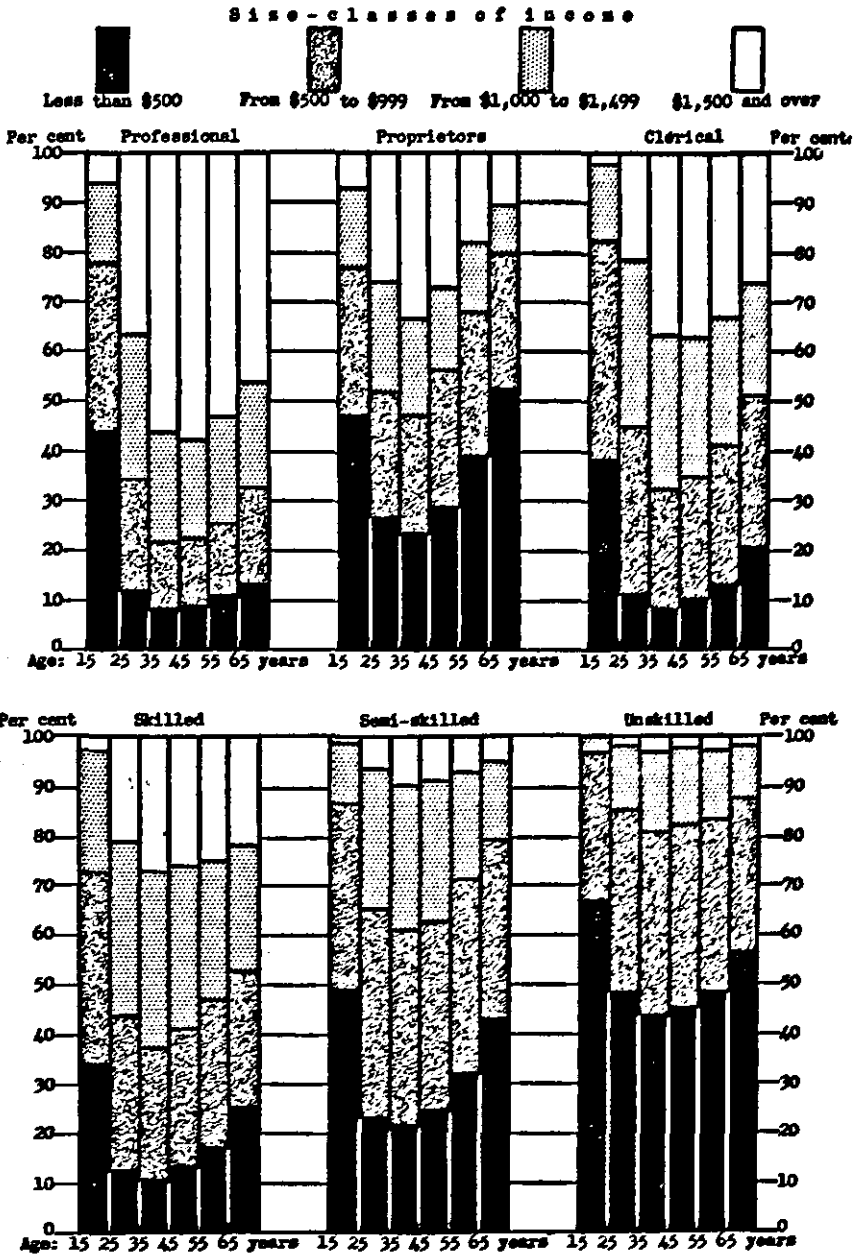
Similar income variations as age increases are revealed by the reports from 52,589 professional engineers to the Bureau of Labor

¹² Michigan Emergency Welfare Relief Commission, *Total Income during 1934 of Gainful Workers* ("Michigan Census of Population and Unemployment, First Series, Number Six," Lansing, Michigan, March 1937).

¹³ Most striking was the drop in the median income of older proprietors. This may be explained by shifts from salaried work to independent pursuits in advanced ages. Among persons who became "independent" after 55, there were many small dealers and craftsmen who earned less than the average for an employee.

DIAGRAM XXXIV

PERCENTAGE DISTRIBUTION OF PERSONS OF DIFFERENT AGES IN DIFFERENT CLASSES OF WORK, BY SIZE-CLASSES OF INCOME, IN THE STATE OF MICHIGAN, 1934



Statistics in connection with a survey undertaken at the request of the American Engineering Council.¹⁴ The median annual earnings of engineers in 1934 were:

at 25 years of age.....	\$1,275
at 29 years of age.....	2,023
at 31 to 32 years of age.....	2,294
at 33 to 36 years of age.....	2,569
at 37 to 40 years of age.....	2,977
at 41 to 44 years of age.....	3,211
at 45 to 52 years of age.....	3,380
at 53 to 60 years of age.....	3,502
at 61 to 68 years of age.....	3,497
at 69 years of age and over.....	3,138

Income increased with advancing age, reaching the highest point at the age of about 60, and declined thereafter.¹⁵

SHIFTS BETWEEN INSURED AND UNINSURED OCCUPATIONS

It has been stated previously that the old-age insurance register will contain the names of persons who at some time in the past have been engaged in insured pursuits, and that the number of such "inactive" accounts will increase steadily from month to month and year to year. The effects of typical shifts due to advancing age are discussed here, and in Chapter VIII attention is directed to the effects of other movements.

It has been shown in Chapter V that the percentage of gainful workers who would have been insured in 1930 declined with age among both men and women.¹⁶ In each age class up to 65 the product of the percentage of insured persons among gainful workers multiplied by the percentage of gainful workers in the total population shows the proportion of insured persons in the entire

¹⁴ U. S. Department of Labor, Bureau of Labor Statistics, *Monthly Labor Review*, August 1937, pp. 412-445. Cf. Maurice Leven, *The Income Structure of the United States* (Washington, D. C.: The Brookings Institution, 1938), p. 52.

¹⁵ See Note 13, page 266: "Vertical Mobility of Workers in an American Community."

¹⁶ See pages 69-70.

population. In this way the percentages of the total number of persons in each age class up to 65 years who would have been covered by old-age insurance in 1930 are found:

	18 and 19 years	20 to 24 years	25 to 34 years	35 to 44 years	45 to 54 years	55 to 64 years
Male	42.2	57.5	61.8	57.6	51.0	41.5
Female	21.3	29.0	17.1	12.5	9.5	4.4

Interpolation of these figures results in the following series tentatively showing the proportions of the total male and female population employed in 1930 in insured industries at each age from 18 to 64:

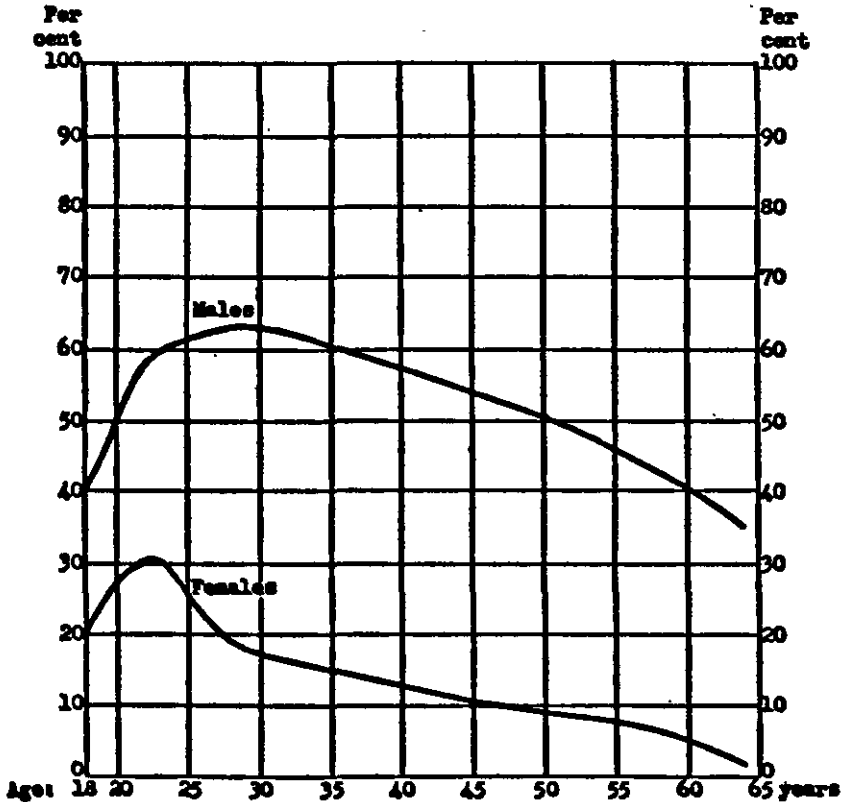
Age	Percentage of persons insured		Age	Percentage of persons insured	
	Male	Female		Male	Female
18 years.....	40.0	20.2	42 years.....	56.2	11.6
19 years.....	44.5	24.0	43 years.....	55.6	11.2
20 years.....	51.0	27.0	44 years.....	55.0	10.8
21 years.....	55.5	29.0	45 years.....	54.3	10.4
22 years.....	58.5	30.0	46 years.....	53.6	10.0
23 years.....	60.0	31.0	47 years.....	52.9	9.8
24 years.....	61.0	28.0	48 years.....	52.1	9.6
25 years.....	61.5	25.0	49 years.....	51.3	9.4
26 years.....	62.0	22.5	50 years.....	50.5	9.2
27 years.....	62.5	21.0	51 years.....	49.6	9.0
28 years.....	63.0	19.2	52 years.....	48.7	8.8
29 years.....	63.2	18.0	53 years.....	47.8	8.6
30 years.....	63.0	17.0	54 years.....	46.9	8.2
31 years.....	62.7	16.5	55 years.....	45.9	8.0
32 years.....	62.3	16.0	56 years.....	44.9	7.5
33 years.....	61.8	15.5	57 years.....	43.8	7.0
34 years.....	61.2	15.0	58 years.....	42.7	6.4
35 years.....	60.6	14.5	59 years.....	41.6	5.7
36 years.....	60.0	14.0	60 years.....	40.5	4.9
37 years.....	59.4	13.6	61 years.....	39.4	4.1
38 years.....	58.8	13.2	62 years.....	38.3	3.3
39 years.....	58.2	12.8	63 years.....	37.2	2.5
40 years.....	57.6	12.4	64 years.....	36.1	1.7
41 years.....	57.0	12.0	65 years.....	.0	.0

(See Diagram XXXV.)

The proportion of persons who would have been covered by insurance in 1930 increased rapidly in the early years, reaching a peak of 31 per cent for women at the age of 23 and of 63.2 per cent for men at the age of 29. Thereafter the percentages declined, gradually in the case of men and more rapidly in the case of women, reflecting shifts from dependent to independent pursuits as well as retirement from gainful work. These persons, although no longer

DIAGRAM XXXV

PER CENT OF PERSONS OF DIFFERENT AGES COVERED BY OLD-AGE INSURANCE IN THE UNITED STATES, 1930



"employees" in the sense of the Social Security Act, would retain their account numbers and remain on the old-age insurance register with all acquired rights until they died or reached the age of 65. This will have important implications in connection with registration for old-age insurance as shown below.

Let it be assumed that the occupational and age distribution of the population of the United States at the date of the first registration for old-age insurance had not changed since the 1930 Census, and that it will remain unchanged for a further period of time. It will be noticed by referring to the interpolated figures on page 100

that the percentage of insured persons increases up to the age of 29 for men and up to 23 for women. Therefore, as persons in the lower age classes become older and more of them become employed in insured industries, part of those who were not formerly insured will receive account numbers. On the other hand, the declining proportion of persons employed in insured industries at the more advanced ages will not result in a corresponding decline in the number of persons in those age classes carried on the old-age insurance register.

Therefore, the percentage of persons registered at early ages will not change (on the assumption that the structure of the population will remain unchanged), whereas the percentage of registered persons in the middle and advanced ages will gradually increase. This is illustrated in Table 17 and Diagram XXXVI.

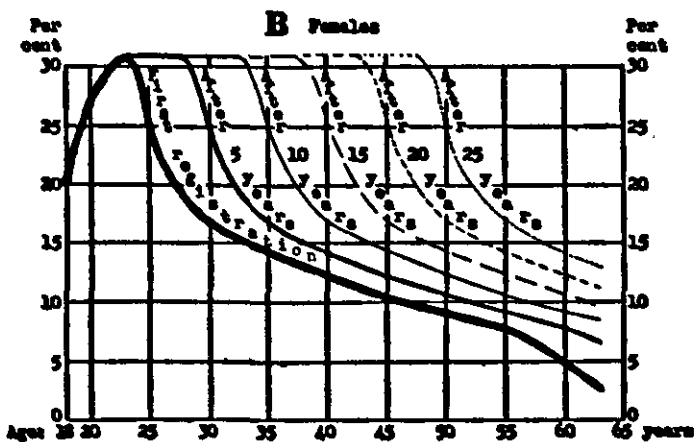
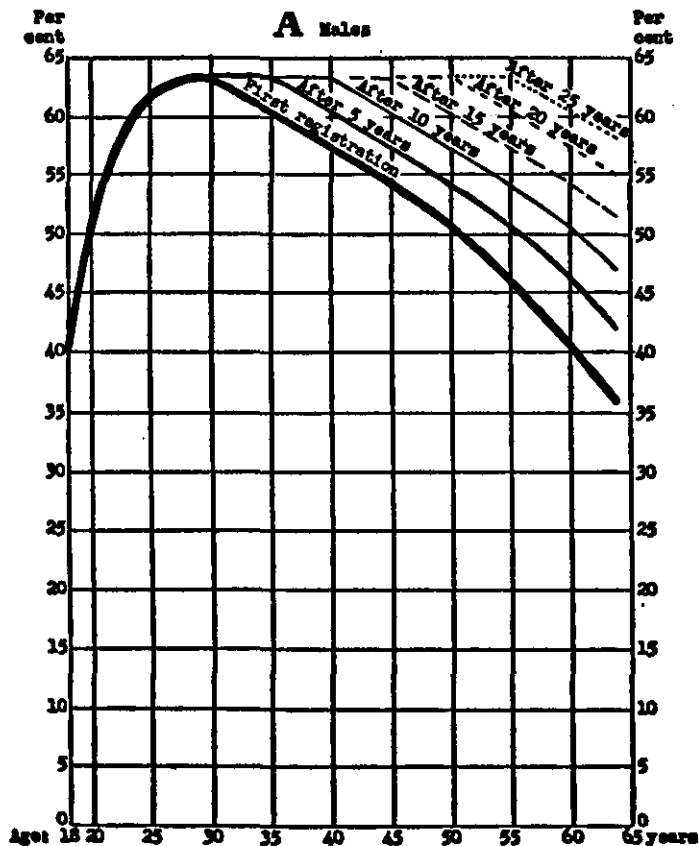
TABLE 17. ESTIMATED PERCENTAGES OF PERSONS HAVING OLD-AGE INSURANCE ACCOUNT NUMBERS AMONG MALES AND FEMALES OF DIFFERENT AGES, ON THE ASSUMPTION THAT THE POPULATION STRUCTURE AND THE PROVISIONS OF THE SOCIAL SECURITY ACT WILL REMAIN UNCHANGED

Age	At first registration	Number of years after first registration				
		5	10	15	20	25
MALE						
18 years.....	40.0	40.0	40.0	40.0	40.0	40.0
20 years.....	51.0	51.0	51.0	51.0	51.0	51.0
25 years.....	61.5	61.5	61.5	61.5	61.5	61.5
30 years.....	63.0	63.0	63.0	63.0	63.0	63.0
35 years.....	60.6	63.0	63.0	63.0	63.0	63.0
40 years.....	57.6	60.6	63.0	63.0	63.0	63.0
45 years.....	54.3	57.6	60.6	63.0	63.0	63.0
50 years.....	50.5	54.3	57.6	60.6	63.0	63.0
55 years.....	45.9	50.5	54.3	57.6	60.6	63.0
60 years.....	40.5	45.9	50.5	54.3	57.6	60.6
65 years.....	0.0	0.0	0.0	0.0	0.0	0.0
FEMALE						
18 years.....	20.2	20.2	20.2	20.2	20.2	20.2
20 years.....	27.0	27.0	27.0	27.0	27.0	27.0
25 years.....	25.0	27.0	27.0	27.0	27.0	27.0
30 years.....	17.0	25.0	27.0	27.0	27.0	27.0
35 years.....	14.5	17.0	25.0	27.0	27.0	27.0
40 years.....	12.4	14.5	17.0	25.0	27.0	27.0
45 years.....	10.4	12.4	14.5	17.0	25.0	27.0
50 years.....	9.2	10.4	12.4	14.5	17.0	25.0
55 years.....	8.0	9.2	10.4	12.4	14.5	17.0
60 years.....	4.9	8.0	9.2	10.4	12.4	14.5
65 years.....	0.0	0.0	0.0	0.0	0.0	0.0

The differences between the percentages shown in Table 17 at first registration and for each specific age at periods 5, 10, 15, 20

DIAGRAM XXXVI

PER CENT OF PERSONS, MALE AND FEMALE, OF DIFFERENT AGES, HAVING OLD-AGE INSURANCE ACCOUNT NUMBERS AT FIRST REGISTRATION, AND 5, 10, 15, 20 AND 25 YEARS THEREAFTER



and 25 years after first registration, indicate the relative number of persons who will remain on the register, even though they have retired from gainful work or have shifted from insured to uninsured pursuits. For example, 5 years after the first registration, the old-age insurance register will contain the names of 63 per cent of all the men who are then 35 years old, in spite of the fact that only 60.6 per cent of them will be employed in insured industries at that time. The difference of 2.4 per cent represents the number of men who were employed in insured industries at the age of 30 but had shifted to uninsured pursuits by the age of 35. Thus, 5 years after the first registration, 3.8 per cent ($2.4 \div 63$) of registered men 35 years of age will no longer be employed in insured industries. The figures for various ages computed in this way are shown in Table 18.

TABLE 18. ESTIMATED PERCENTAGES OF PERSONS NO LONGER EMPLOYED IN INSURED PURSUITS, AMONG MALES AND FEMALES OF DIFFERENT AGES ON THE OLD-AGE INSURANCE REGISTER

Age	Number of years after first registration				
	5	10	15	20	25
MALE					
35 years.....	3.8	3.8	3.8	3.8	3.8
40 years.....	4.9	8.6	8.6	8.6	8.6
45 years.....	5.7	10.4	13.8	13.8	13.8
50 years.....	7.0	12.3	16.6	20.0	20.0
55 years.....	9.3	15.5	20.4	24.3	27.1
60 years.....	11.8	19.8	25.4	29.7	33.2
FEMALE					
25 years.....	7.4	7.4	7.4	7.4	7.4
30 years.....	32.0	37.0	37.0	37.0	37.0
35 years.....	14.7	42.0	46.7	47.6	46.7
40 years.....	14.5	27.1	50.4	54.1	54.1
45 years.....	16.1	28.3	38.8	58.4	61.5
50 years.....	11.5	25.8	36.6	45.9	63.2
55 years.....	13.0	23.1	35.5	44.9	53.1
60 years.....	51.2	64.1	62.5	68.5	72.4

Obviously an estimate of this kind cannot pretend to be accurate. It is not a forecast; it only expresses numerically *one* artificially isolated factor which in reality conflicts with numerous other influences.¹⁷ The sole purpose of this estimate is to show that the typical economic shifts which occur with increasing age will greatly affect

¹⁷ See Chapter IX, pages 134-138.

the old-age insurance system. In many cases the payment of contributions will be *discontinued* long before the age of 65. The lapse of time between the last contribution and the application for benefits will often extend to 10 or 15 years or more. Particularly so far as women are concerned, cases of uninterrupted payment of contributions up to 65 will be exceptions rather than the general rule.

CHAPTER VIII OLD-AGE INSURANCE AND EMPLOYMENT

SUMMARY

ONCE AN account number has been assigned to a worker, his name remains on the old-age insurance register until his death, whether or not he is continuously employed in a covered industry. Before long, therefore, the register will include the names of millions of workers who have become unemployed or have shifted to activities not included within the scope of the Social Security Act.

Among the groups whose names will be on the register of the Social Security Board are the following:

(1) Salary and wage earners who are employed in insured industries and for whom contributions are currently being paid;

(2) Workers for whom contributions were formerly paid but who are temporarily out of jobs;

(3) Former salary and wage earners who have become independent or have retired from gainful work before reaching 65 years of age;

(4) Public officials who possess account numbers issued to them because of their previous employment in insured industries;

(5) Farmers and farm laborers registered as a result of their temporary employment in non-agricultural pursuits;

(6) Domestic servants and casual laborers who shift between insured and uninsured industries;

(7) Temporary workers employed in insured industries during part of the year.

Groups (1) and (2) together correspond to the "normal" coverage of old-age insurance as provided in the Social Security Act. They constitute what may be called the "active files" of the Board. The number of persons who would have been counted in these two groups in 1930 has been estimated in Chapter II at approximately 26.3 millions, including railroad employees.

Groups (3) and (4) which include persons for whom contributions are no longer being paid, may be considered as the "inactive files" of the Board.

Groups (5), (6) and (7) which differ from the preceding groups in that more or less irregular contributions will be paid for them, may be considered as the "intermittently active files" of the Board.

In the following pages the groups in the intermittently active and inactive files are examined. In Chapter IX an attempt is made to estimate the probable growth in the total coverage of old-age insurance in the coming years.

UNEMPLOYED WORKERS ON THE OLD-AGE INSURANCE REGISTER

Unemployment interrupts the accumulation of the contributions which, in effect, determine the amount of benefits the worker is entitled to after 65, but neither temporary nor permanent interruption of earnings affects the rights acquired by the worker insured by reason of his former-employment and earnings. In either event, he retains his account number.

When registration for old-age insurance was begun in November 1936, millions of workers were unemployed. Although not forbidden to do so, they had little reason to apply for account numbers. After a few months of registration, it became apparent that the number of applications for accounts greatly exceeded the number of workers currently employed by insured industries. The explanation that many accounts had been opened for workers who had become employed in covered pursuits for short periods only is confirmed by the following analysis of the effects of labor turn-over on the old-age insurance register.

The labor turn-over reports of the Bureau of Labor Statistics cover more than 5,000 representative manufacturing establishments which in December 1935 employed nearly 2.3 million workers. The reports give rates of "separation" and "accession" in terms of the percentages of employees on the payrolls of the reporting establishments. It is assumed for the purpose of this analysis that workers who quit or were discharged after receiving account numbers joined the ranks of the unemployed, and that they have about the same chance as the other unemployed workers to find jobs.¹

In November 1936, when the Social Security Board started its registration, about 9 million persons were employed in manufacturing industries and were assigned account numbers. The number of unemployed workers who were looking for jobs in manufacturing pursuits at that time and who presumably had not applied for account numbers is unknown. The classification by industry of the registrants in the active files of the United States Employment

¹ Probably the chances of newly discharged workers for re-employment are somewhat better than the average for all unemployed workers, because among the latter are persons who have been out of work for years and have become less employable. On the other hand, it seems probable that not all workers discharged by employers belong to the cream of the labor market and that some of them may have difficulty in finding new jobs.

Service shows that in July 1936 there were 1,086,252 unemployed factory workers. In addition, many factory workers were among the 1,473,847 "miscellaneous unclassifiable" registrants, so that the total number of persons on the Employment Service register who could have been hired for factory work was probably not far from 2 million. As it is generally recognized that these registers included approximately 60 to 70 per cent of all job seekers, the actual number of persons looking for jobs in factories in November 1936 may be estimated very roughly at 3 million. The probability that each one of them would find a job in a manufacturing industry during a specific month was determined by the relation of the number of accessions during this month to the number of job-seekers.

The Bureau of Labor Statistics reported the following rates of labor turn-over in factories :

	Rates per 100 employees on payroll	
	Separation	Accession
December, 1936	3.41	4.41
January, 1937	3.38	4.60
February, 1937	2.85	4.71
March, 1937	3.20	4.74

Source: U. S. Department of Labor, Bureau of Labor Statistics, *Monthly Labor Review*, June 1937, p. 149.

In order to simplify further analysis, it is assumed that separations took place at the beginning of each month, and that accessions were distributed throughout the month.²

In December 1936, there were :

discharged 3.41 per cent of 9,000,000 = 306,900 persons
 hired 4.41 per cent of 9,000,000 = 396,900 persons

In accordance with the assumption, the number of job-seekers in December 1936 equalled the number of job-seekers at the end of November (3,000,000) plus the number discharged at the beginning of December (306,900), or a total of 3,306,900. The number of persons hired during December—396,900—was, therefore, equal to about 12 per cent of the number of job-seekers.

² This assumption augments deliberately the "statistical chance" of re-employment for persons discharged during the month as compared with those who were actually out of work at the end of the preceding month. In fact, this means that a recently separated worker will have during each week of the month in which separation occurs, twice as great a chance to find a new job as other job-seekers who have been unemployed for a longer period.

Now, it has been assumed that the hiring rate was the same for persons discharged at the beginning of the month as for those formerly unemployed. Therefore, 12 per cent of the 306,900 workers discharged in December, or 36,828 persons, may be supposed to have been re-employed by the end of that month, and the remaining 270,072 workers who were assigned account numbers in November 1936, are assumed to be still out of jobs at the end of December. The distribution of employed and unemployed workers on December 31, 1936 was then as follows:

Workers who, on Dec. 1, 1936, were:	Total	Distribution on December 31, 1936	
		Employed	Unemployed
Employed	9,000,000	8,729,928	270,072 (with account numbers)
Unemployed ...	3,000,000	360,072	2,639,928 (without account numbers)
Total.....	12,000,000	9,090,000	2,910,000

The same reasoning should be applied to the succeeding months. In January 1937 there were:

discharged.... 3.38 per cent of 9,090,000=307,242 persons
 hired 4.60 per cent of 9,090,000=418,140 persons

The 307,242 workers discharged at the beginning of January 1937 were added to the 2,910,000 unemployed carried over from the preceding month. Therefore, among the job-seekers at the beginning of the month there were 270,072+307,242=577,314 persons *with account numbers*, and 2,639,928 persons *without account numbers*, or a total of 3,217,242 unemployed. Out of this latter number, 418,140 or 13 per cent, were hired during the month. It is assumed, therefore, that 13 per cent of the 577,314 formerly employed workers with account numbers, or 75,051, were re-employed during January 1937, while 502,263 remained unemployed. Both those re-employed and those remaining out of work, however, retained their account numbers. The distribution of employed and unemployed workers on January 31, 1937 was as follows:

Workers who, on Dec. 1, 1936, were:	Total	Distribution on January 31, 1937	
		Employed	Unemployed
Employed	9,000,000	8,497,737	502,263 (with account numbers)
Unemployed ...	3,000,000	703,161	2,296,839 (without account numbers)
Total.....	12,000,000	9,200,898	2,799,102

In February 1937 there were :

discharged 2.85 per cent of 9,200,898 = 262,226 persons
 hired 4.71 per cent of 9,200,898 = 433,362 persons

The 262,226 workers discharged at the beginning of this month were added to the 502,263 other job-seekers with account numbers, making a total of 764,489. During February 1937, 14.1 per cent of them $[433,362 \div (2,799,102 + 262,266)]$, or 107,793 formerly employed workers returned to work in factories, and 656,796 persons with account numbers remained out of jobs. There probably remained :

Workers who, on Dec. 1, 1936, were:	Total	Distribution on February 28, 1937	
		Employed	Unemployed
Employed	9,000,000	8,343,304	656,696 (with account numbers)
Unemployed . . .	3,000,000	1,027,015	1,972,985 (without account numbers)
Total	12,000,000	9,370,319	2,629,681

In March 1937 there were :

discharged 3.20 per cent of 9,370,319 = 299,850 persons
 hired 4.74 per cent of 9,370,319 = 444,153 persons

The 299,850 workers discharged were added to the 656,696 other job-seekers with account numbers among the unemployed remaining from preceding months, making a total of 956,546. During March 1937, 15.2 per cent of them, or 145,495, were re-employed, and there remained :

Workers who, on Dec. 1, 1936, were:	Total	Distribution on March 31, 1937	
		Employed	Unemployed
Employed	9,000,000	8,188,949	811,051 (with account numbers)
Unemployed . . .	3,000,000	1,326,909	1,673,091 (without account numbers)
Total	12,000,000	9,515,858	2,484,142

Thus, four months after the first registration for old-age insurance more than 1.3 million of the 3 million workers out of jobs in November 1936 had been hired by manufacturing industries. But factory employment during the same four months had only increased about 500,000 and therefore approximately 800,000 workers who had obtained account numbers because of their employment in preceding months, were no longer employed at the end of February 1937.

Continuing this computation, it will be found that six months after the first registration for old-age insurance, approximately half the unemployed factory workers had been assigned account numbers. By November 1937, the percentage of insured among unemployed factory workers was probably still larger, and in time practically all unemployed workers, except those no longer employable, will be on the old-age insurance register of the Social Security Board.

Similar shifts take place in non-manufacturing industries, but unfortunately only fragmentary statistics of the labor turn-over in these industries are available.

In construction the labor turn-over is extremely high, partly because of the seasonality of this industry and partly because in many cases contractors hire workers for a short period and discharge them after the work for which they were hired is finished. Besides this, the number of job-seekers in building trades is particularly large, so that each worker's chance for re-employment is comparatively smaller than in manufacturing industries. In November 1936, the date of the first registration for old-age insurance, building trades were at the end of their season. In the following months of January and February contractors probably discharged about 40 to 50 per cent of their workmen, and the total number of construction workers who lost their jobs between November 1936 and the spring of 1937 may have been from 400,000 to 500,000.³

The number of workers employed in transportation, communication, and utilities in November 1936 was about 3.3 million. Excluding railroads, there remain somewhat more than 2 million salary and wage earners in this division.⁴ Labor turn-over is comparatively small in telegraph and telephone services; and electric power plants. On the other hand, separation and accession rates are high in water transportation and trucking. For this entire indus-

³ According to the construction censuses taken in 1929 and 1934, employment in building trades in January and February is usually about 30 per cent under the November level. Likewise, current reports of the Bureau of Labor Statistics show a 30 per cent decline in employment in construction from November 1936 to February 1937. However, not all construction workers employed in February 1937 were registered as employed in November. Undoubtedly there were shifts between employed and unemployed workers. Therefore the number of construction workers who lost their jobs after account numbers had been assigned to them must be larger than the net difference between employment in November and in February.

⁴ Crew members are not included in this estimate.

trial division, the average labor turn-over rate may reasonably be assumed to be as high as in manufacturing industries, or only slightly lower. On this assumption, the total number of workers who in November 1936 were registered as employed in transportation, communication, and utilities but who shifted during the next six months to unemployment or to uninsured pursuits, may be estimated at 150,000 to 200,000.

Wholesale and retail trade, which employs an average of over 4 million salary and wage earners, is characterized by important seasonal variations as well as by rapid labor turn-over. In January 1937, employment in retail trade dropped by 14.2 per cent in comparison with December 1936. This means that approximately 400,000 to 500,000 workers previously registered for old-age insurance were discharged. Among these discharged workers were many who were employed only for the short period of the Christmas season and who cannot be regarded as regular gainful workers. Most of them, however, are on the register of the Social Security Board.

The effects of labor turn-over in retail stores and wholesale establishments at other periods cannot be properly measured. There are no labor turn-over statistics for this industrial division, and the number of persons looking for jobs in retail and wholesale establishments is unknown. The insignificant number of sales persons registered by public employment offices, however, suggests that the chances of re-employment for discharged workers in distribution is comparatively large. It seems then that labor turn-over does not affect the number of trade employees registered under the Social Security Act in the same degree as it affects registered factory workers. It is estimated that, in addition to the 400,000 to 500,000 persons discharged by retail dealers after the Christmas season, 300,000 to 400,000 shifted from employment to unemployment in the period from November 1936 to May 1937.

There remain about 3 million persons employed by hotels and boarding houses, recreation and amusement establishments, barber shops and other personal service establishments, commercial health and educational establishments, etc. In these pursuits unemployment is rather high, and small establishments with seasonal and intermittent employment are numerous. On the other hand, the

boundaries between these industries and uninsured pursuits (casual labor, domestic service, independent or quasi-independent work) are extremely vague, and it may be assumed that some service workers are employed intermittently in insured and uninsured industries. If more than 1 million unemployed factory workers were assigned account numbers after six months of current registration, the number of inactive accounts in the service industries must be relatively greater. It may be conservatively estimated that the number of unemployed workers in these industries who were on the register of the Social Security Board in the summer of 1937 was from 400,000 to 500,000.

Summarizing briefly, the number of workers employed in insured industries in November 1936 or at some time afterwards, who have become unemployed or have shifted to uninsured pursuits during the first half-year of registration, was probably not far from 3 million, distributed as follows:

in manufacturing industries	1,000,000	to	1,200,000
in construction	400,000	to	500,000
in transportation, communica- tion and utilities	150,000	to	200,000
in distribution	700,000	to	900,000
in other services	400,000	to	500,000
Total	2,650,000	to	3,300,000

FARMERS AND FARM LABORERS ON THE OLD-AGE INSURANCE REGISTER

Although agricultural labor is excluded from old-age insurance, many farmers and farm laborers will obtain account numbers as the result of employment in industries covered by the Social Security Act. An attempt to estimate the number of account numbers issued in this way to farmers has been made on the basis of the censuses of agriculture.

The schedule of the 1930 Census of Agriculture carried the following questions relating to the occupations of farmers *off their farms*:

"42. How many days in 1929 did you work for pay at jobs not connected with the farm operated? (If none, write 'None.') (Omit labor exchanged) days ——"

In the "Farm and Ranch Schedule" of 1935, this question was amended as follows:

"5. How many *days* in 1934 did you work *for pay* or income at jobs, business, or professions not connected with farm you operate? (Omit labor exchanged.) (If no days, write 'None.')—days."

"6. Principal *occupation* on days worked as reported above in question 5....."

The 1930 schedule required information on work for pay only, whereas the 1935 schedule referred to all kinds of work for pay or income. It is recognized, however, that independent work for gain (the operation of filling stations, lodging and boarding houses, etc.) was not completely excluded in the 1930 Census of Agriculture.⁵

The number of farmers reporting occupations not connected with their farms was 1.9 million in 1929 and over 2 million in 1934. They were distributed by number of days of such reported occupation as follows:

Duration of work off the farm	1929	1934
Total	1,902,898	2,077,474
Under 25 days.....	516,102	595,472
25 to 49 days.....	328,068	360,628
50 to 74 days.....	217,032	235,277
75 to 99 days.....	118,427	125,325
100 to 149 days.....	183,080	188,815
150 to 199 days.....	143,485	159,336
200 to 249 days.....	129,400	115,667
250 days and over.....	267,304	296,954

Sources: Fifteenth Census of the United States: 1930, Agriculture, Volume IV, p. 430. United States Census of Agriculture: 1935, Volume III, p. 219.

Not all farm operators who reported work off their farms were farmers in the sense of the occupational statistics. One must exclude persons for whom farming was a secondary source of income and in 1929 these probably included operators reporting 250 days and over of work in "other" occupations. With the omission of this group, the remaining number of farmers corresponds fairly well to that reported in the occupational statistics.

⁵ The report of the 1935 Census of Agriculture expresses the opinion that farmers who were self-employed on jobs not connected with their farms in 1929 "may not have reported in all instances the number of days worked at such jobs." (United States Census of Agriculture: 1935, Volume III, page 218.)

Conditions in 1934 were not so clear. The number of farms increased from 6,288,648 in 1929 to 6,812,350 in 1934, more than half the increase being in farms with less than 20 acres (918,121 in 1929 and 1,254,283 in 1934). It is assumed that most of the additional farms were small subsistence farms of industrial workers in suburban areas which had not existed or were not counted in 1929. This means that among farm operators reporting "other" occupations, persons who were not farmers in the sense of occupational statistics were probably more numerous in 1934 than in 1929, and that they were found not only in the group of farm operators who worked 250 days and over off their farms but also among those with a smaller number of days spent at "other" occupations. Then, too, it was not as easy to find a job in 1934 as in 1929, and many farmers in 1934 probably had other occupations only during part of the time in which they did not work on their farms. Therefore, the numbers for the two years are more comparable if farmers with 150 to 249 days of "other" occupation are excluded from the 1934 figures. On this assumption, the number of "farmers" in the sense of occupational statistics who reported occupations for gain or pay off their farms, would be:

in 1929 (under 250 days)	1,635,000
in 1934 (under 150 days)	1,505,000

The number of days these farmers worked off their farms, according to the censuses of agriculture, was 110 million in 1929 and about 70 million in 1934; the average number of days worked per farmer was 65 to 70 in 1929 and 45 to 50 in 1934. It may have been that some of the farmers reporting other occupations were engaged in independent pursuits, such as the operation of filling stations, trucking, lodging and boarding, retailing and contracting. It seems, however, that subsidiary *independent* work by farmers was not so usual as work *for pay* either on other people's farms or in commercial and industrial establishments. Practically 5 out of every 6 farmers reporting other occupations indicated that their principal work off their farms was in non-agricultural pursuits.* Moreover, there is no evidence that even those farmers

* Reported as principal occupations in 1934:

Agricultural pursuits	278,622
Non-agricultural pursuits	1,483,719

whose principal occupation off their farms was in agriculture, were not occasionally employed in non-agricultural pursuits.

Not all non-agricultural pursuits are covered by old-age insurance, but most of the excluded pursuits, such as public service, non-profit organizations, maritime work and domestic service, offer few opportunities to farmers. Openings in insured industries, such as mines, factories and construction, are much more numerous. It is assumed that most of the farmers who reported other occupations worked at least part of the year in enterprises covered by old-age insurance. It is conservatively estimated, therefore, that at the end of the first year of registration there will be on the registers of the Social Security Board and the Railroad Retirement Board from 1.2 to 1.3 million farmers with account numbers obtained while working in insured industries off their farms.

This number will be further increased by the return to agriculture of persons who worked in cities in covered industries in their 20's and 30's.⁷ Moreover, not always the same farmers seek subsidiary jobs every year, and it may be expected that each year new account numbers will be issued to farm operators.

No statistics are available concerning the secondary occupations of farm laborers, but it is known that most of them work on farms only part of the year. Hired help was employed during 1929 on 2,631,601 farms, which reported a total of 411 million paid work-days. This total was distributed among the following groups of workers:

- (1) Regular farm laborers who numbered 2,733,000 in 1930;
- (2) Casual laborers who shifted between agricultural and non-agricultural pursuits;
- (3) Farmers who worked temporarily on other people's farms;
- (4) Temporary workers who were not counted as gainful workers in occupational statistics, but who worked for pay on farms in the summer, especially in the harvest season.

It is reasonable to assume that the total of paid man-days reported by farmers was understated. Farmers are usually bad record-keepers. When filling out census schedules, there is a tendency to under-estimate the total wage expenditures for temporary workers and even the number of laborers. But even if *all* temporary workers were omitted in the farmers' returns, the share of regular

⁷ See Chapter VII, pages 85-86.

farm laborers in the total of paid man-days was less than 400 million, so that the average period of work on farms per farm laborer was under 150 days a year.

As some farm laborers are employed on farms during the whole year, the others must be employed in agriculture for less than 6 months. What is their status during the rest of the year?

Some field hands are "temporary gainful workers" who in slack seasons are supported by members of their families and disappear from the labor market. But most of these temporary laborers would not have been reported as farm laborers in the 1930 Census of Population, because it was taken on April 1st, a date between active seasons of farm work. The 2.7 million farm laborers enumerated by this Census were in most cases regular farm laborers who do not disappear from the labor market in the winter.

It seems probable that in slack farm seasons most of these farm laborers are either intermittently unemployed or are engaged in various kinds of casual non-agricultural work. It would be exceptional if a farm laborer should find employment in a non-agricultural establishment every time he leaves farm work. Likewise, it would be exceptional if a farm laborer looking for employment in slack seasons never found a job in an industrial establishment covered by old-age insurance. It may be safely assumed, therefore, that most farm laborers will sooner or later obtain account numbers as a result of their subsidiary occupations. Probably they will not all be registered during the first year, but gradually an increasing number of them will infiltrate into the registers of the Social Security Board and the Railroad Retirement Board. There they will remain until they reach the age of 65, while part of them will mount the "ladder" of agricultural labor and become self-employed farmers.

In this way, old-age insurance in effect will be extended to the agricultural section of the economic system. In the first year, from 1.2 to 1.3 million farmers and a considerable part of the farm laborers will be registered; in succeeding years registration will continue, and in addition, a number of workers previously insured in other pursuits will join the ranks of farmers. Of course, farmers and farm laborers insured by reason of non-agricultural employment will be eligible for benefits only in proportion to the

total amount of their earnings for which contributions have been paid. In most cases, therefore, they will not be entitled to large benefits on retirement.

DOMESTIC SERVANTS, CASUAL WORKERS, AND PUBLIC OFFICIALS ON THE OLD-AGE INSURANCE REGISTER

The following groups of non-agricultural salary and wage earners estimated on the basis of the 1930 Census, as shown in Chapter II, were excluded from old-age insurance: *

Domestic servants in private homes.....	2,550,000
Casual laborers	849,000
Members of crews.....	89,000
Employees in public service.....	about 2,910,000
Employees in non-profit educational, religious, charitable establishments, etc.	about 340,000
Total.....	about 6,740,000

Probably many of these workers cross the borderline between insured and uninsured industries at some time or another. Domestic servants, for example, are excluded from old-age insurance in so far as they work *in the homes of their employers*. But they are entitled to insurance if they are employed by hotels, boarding houses or restaurants. Typical service occupations are scattered in insured and uninsured industries as follows:

Occupations	Total number returned by the 1930 Census	Excluded (employed in homes of employers)	Insured (employed by commercial establishments)
Servants	1,433,741	1,240,086	193,655
Chauffeurs	972,418	94,777	877,641
Cooks	565,392	273,594	291,798
Elevator tenders, janitors, etc...	377,239	135,649	241,590
Waiters	393,288	12,131	381,157
Housekeepers and stewards.....	256,746	195,808	60,938

Source: Fifteenth Census of the United States: 1930, Population, Volume V, pp. 44, 48, 49, 582.

Employment office files show that many persons registered as domestic servants, nurses, etc., are applying simultaneously for work in homes and for jobs in factories, stores, or any other industrial establishment. It appears probable that the number of domestic servants who will never happen to be employed in insured establishments will steadily decrease.

* See Chapter II, page 26.

In the case of casual laborers, this is particularly evident. "Casual labor not in the course of the employers' trade or business," as defined by the Social Security Act, is not a specific occupation, and it may be assumed that individuals counted as casual laborers in occupational statistics are engaged intermittently in all sorts of insured and uninsured occupations. Special studies of the occupations of transient casual workers show, for example, that the same individuals work intermittently on farms, in the building trades, in mines and factories, on railroads, etc. Because of the mobility of casual labor, it is highly probable that most persons registered as casual laborers in the 1930 Census will sooner or later become insured for old-age benefits, although, of course, contributions will not be paid for them continuously.

Another instance of shifts between insured and uninsured employment is that of public officials. Those in office at the date of the first registration were excluded from old-age insurance. But many new employees entering public service from private industry will possess account numbers. This is likewise true with respect to employees in educational, charitable and similar non-profit establishments. In this field of activity, teaching constitutes probably the sole important profession which can be entered at a comparatively young age and which is clearly separated from insured occupations.

It seems probable that of 6.7 million non-agricultural workers who in 1930 would have been excluded by the provisions of Section 210 (b) of the Social Security Act, approximately one-half (casual laborers and domestic servants in private homes) would appear on the old-age insurance register a comparatively short time after first registration, perhaps two or three years. The infiltration of employees of public and non-profit organizations will require a longer period. No statistics are available for an estimate of the probable speed of this movement.

TEMPORARY WORKERS ON THE OLD-AGE INSURANCE REGISTER

Persons who work for pay during a short season and pursue no gainful occupation for the rest of the year are not usually counted as gainful workers. They constitute a sort of reserve which meets seasonal peaks in the demand for labor. No adequate statistics are

available on the number and distribution of these temporary workers. As examples, there should be mentioned :

College and high-school students who are employed in the summer on farms, in forestry, hotels, restaurants, tourist camps, etc. ;

Members of farmers' families who work for pay during the harvest season ;

Sales persons employed temporarily for the Christmas season.

The economic role of these "labor reserves" is more important in a period of general labor shortage than during a depression when the seasonal demand for labor can be met by the regular labor supply.

As the payment of contributions for old-age insurance begins for each salary or wage earner simultaneously with employment in an insured establishment, account numbers will be issued to all temporary workers in insured pursuits (especially in trade and services). It will, of course, be impossible at the time of registration to make a distinction between regular and temporary workers, the essential difference between them being in the continuity of their earnings and contributions.

CHAPTER IX
NUMBERS OF PERSONS WHO WILL BE INSURED
FOR OLD-AGE BENEFITS IN
THE FUTURE

SUMMARY

AN ATTEMPT has been made in the following pages to describe recent trends in the growth and distribution of the working population and to estimate the probable numbers of workers who in the future will be registered for old-age insurance and who will be eligible to receive old-age annuities.

It seems fairly probable that the growth of the working population will slow down in the coming years. The rate of increase was 17.3 per cent in the decade from 1920 to 1930, and is estimated at 12.1 per cent from 1930 to 1940. Its course after 1940 will depend upon numerous conditions which cannot be foreseen now, but it is possible that the rate of increase in the gainfully occupied population will fall to about 7.3 per cent in the period from 1940 to 1950 and to 3.6 and 3.7 per cent respectively in the two following decades. The number of gainful workers will hardly increase after 1970.

Recent trends justify the anticipation that the number of persons engaged in agricultural pursuits will not change much and that the services will exhibit greater expansion than industrial production.

The proportion of employers and self-employed persons in non-agricultural pursuits will probably remain fairly steady, or will increase slightly rather than decrease in the next 20 to 25 years.

The number of persons registered for old-age insurance will grow more swiftly than the number of persons for whom contributions will be currently paid. The number of persons in the "active files" of the Social Security Board will increase with the number of salary and wage earners in non-agricultural pursuits; those in the "intermittently active files" will increase rapidly during the first years of registration and thereafter approximately in the same proportion as the number of persons in the active files. The number of persons in the "inactive files" will grow continuously at a greater speed than the number in the active files.

The proportion of annuitants among persons of 65 years or more will be considerably larger than the proportion of insured persons in the gainfully occupied population. According to estimates of the future growth of the population, the number of annuitants in 1980 will probably not be less than 12,500,000 to 13,150,000.

GROWTH OF THE GAINFULLY OCCUPIED POPULATION

The decennial censuses show the following growth in the population of the United States: ¹

	Inhabitants	Increase over preceding 10 years
1870.....	38,558,371	26.6 per cent
1880.....	50,155,783	26.0 per cent
1890.....	62,947,714	25.5 per cent
1900.....	75,994,575	20.7 per cent
1910.....	91,972,266	21.0 per cent
1920.....	105,710,620	14.9 per cent
1930.....	122,775,046	16.1 per cent

Source: Statistical Abstract of the United States, 1936, p. 2.

This rapid increase was due to high birth rates on the one hand and to the influx of immigrants on the other. The future growth of the population has been estimated by P. K. Whelpton on the basis of different assumptions concerning future trends in fertility, mortality and migration. His estimates for 1980 vary from 128 million, on the assumption of low fertility, high mortality, and no net migration, to 187 million on the assumption of high fertility, low mortality and a net annual immigration of 200,000 foreign-born persons.² These two numbers may be regarded as the highest and lowest conceivable estimates of the future population, and somewhere between them will be the most *probable* development. The two estimates are reproduced below as the "minimum" and "maximum" number of inhabitants in the United States in the specified years:

	Inhabitants		Increase (+) or decrease (-) over preceding 10 years	
	Minimum	Maximum	Minimum	Maximum
1930.....	123,233,000		+16.1 per cent	
1940.....	131,749,000	133,282,000	+6.9 per cent	+ 8.2 per cent
1950.....	136,725,000	146,829,000	+3.8 per cent	+11.0 per cent
1960.....	137,570,000	160,246,000	+ .6 per cent	+ 9.1 per cent
1970.....	134,473,000	173,657,000	-2.3 per cent	+ 8.4 per cent
1980.....	127,947,000	186,713,000	-4.9 per cent	+ 7.5 per cent

Source: The absolute numbers are taken from National Resources Committee, *Population Statistics, National Data*, pp. 19 and 21, but in the source these numbers are not termed "maximum" and "minimum."

(See Diagram XXXVII.)

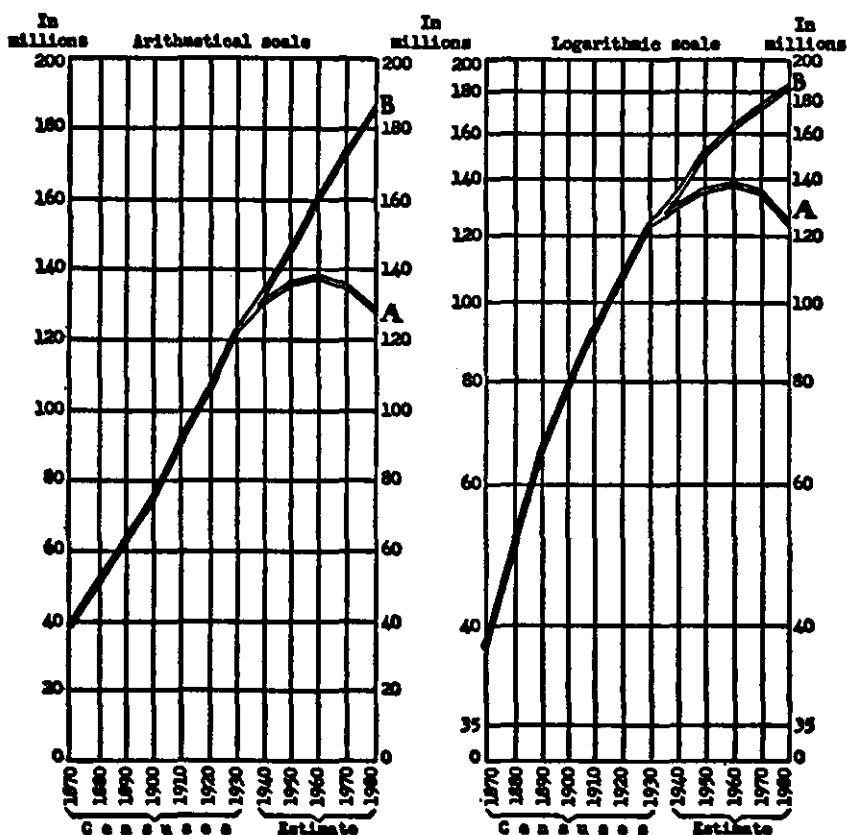
¹ As the enumeration of 1870 was incomplete, the percentage increases for the decades 1860-70 and 1870-80 have been corrected by the Bureau of the Census.

² National Resources Committee, *Population Statistics, National Data*, October 1937, pp. 1-25.

DIAGRAM XXXVII

POPULATION OF THE UNITED STATES FROM 1870 TO 1930 AND ITS ESTIMATED GROWTH FROM 1930 TO 1980

Assumption A: Low fertility, high mortality, no net migration
 Assumption B: High fertility, low mortality, immigration of 200,000 annually



To estimate the number of gainful workers in the future, the total population must be distributed by age classes.⁹ Even on the assumption of high fertility, low mortality and continuous net immigration, the absolute and the relative increase of the population in the middle age classes will slow down after 1940. It will come to a standstill in the 1960's and decrease continuously in the 70's if

⁹ Up to 39 means less than 40 full years, i.e., up to 39 years and 364 days. The same is true for the upper limits of the other age classes.

fertility should be low and mortality high, with no net migration taking place. If the growth of the population should follow the middle course between the two extremes of the estimate, the number of persons 15 to 65 years of age will increase by approximately 10 million from 1930 to 1940, by 7 million from 1940 to 1950, by 5 million from 1950 to 1960, by 3 million from 1960 to 1970, and will remain unchanged from 1970 to 1980.

(See Table 19.)

TABLE 19. NUMBER OF PERSONS 15 YEARS OF AGE AND OVER IN THE UNITED STATES IN 1930, AND ESTIMATED NUMBER FROM 1940 TO 1980

Estimated on two assumptions:

A: Low fertility, high mortality, no net migration (Minimum).

B: High fertility, low mortality, immigration of 200,000 annually (Maximum).

Year	Male			Female		
	15 to 39 years	40 to 64 years	65 years and over	15 to 39 years	40 to 64 years	65 years and over
	<i>Number of persons, in thousands</i>					
CENSUS OF 1930.....	25,196	15,308	3,325	25,389	14,098	3,309
ESTIMATED						
1940						
A. Minimum.....	27,483	17,811	4,146	27,696	17,466	4,247
B. Maximum.....	27,519	17,860	4,174	27,737	17,506	4,269
1950						
A. Minimum.....	28,471	19,601	5,359	27,970	20,329	5,643
B. Maximum.....	29,616	19,949	5,579	28,776	20,754	5,845
1960						
A. Minimum.....	26,792	21,770	6,688	26,025	22,682	7,352
B. Maximum.....	30,591	22,930	7,530	29,134	23,905	8,133
1970						
A. Minimum.....	23,776	24,235	7,506	23,000	24,549	8,681
B. Maximum.....	31,319	26,796	9,457	29,660	26,969	10,570
1980						
A. Minimum.....	21,258	23,622	8,783	20,548	23,509	10,211
B. Maximum.....	33,009	28,254	12,180	31,251	27,478	13,559

Source: Statistical Abstract of the United States, 1933, p. 39; National Resources Committee, *Population Statistics, National Data*, 1937, pp. 19, 21.

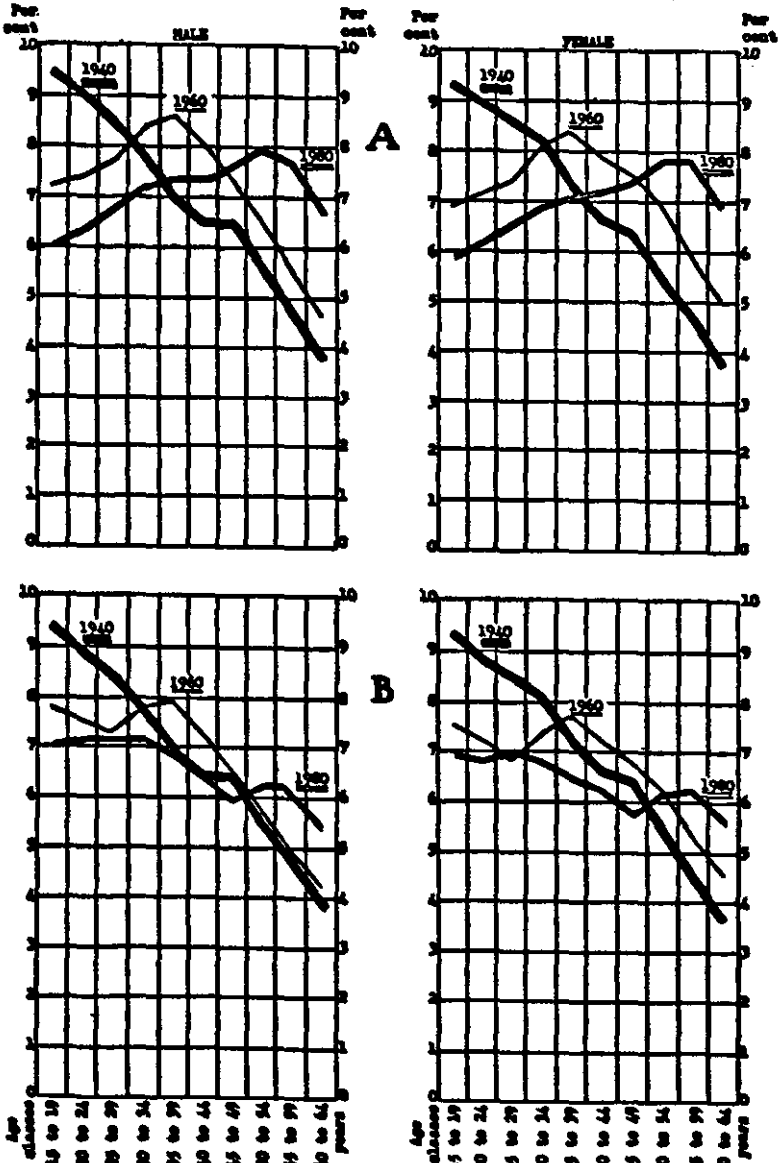
In any case, the group of persons 65 years of age and over will rapidly increase. At the same time the distribution of persons within the middle age classes will change in that the proportion of persons from 15 to 34 years will decline, while the proportion from 45 to 64 years will grow. These changes will be more pronounced in the event of low fertility and high mortality without net migration than if there should be high fertility and low mortality with annual immigration. The two extremes of conceivable development are shown on Diagram XXXVIII.

DIAGRAM XXXVIII

ESTIMATED DISTRIBUTION OF THE POPULATION BY FIVE-YEAR CLASSES IN THE UNITED STATES IN 1940, 1960 AND 1980

Estimated number of persons in each 5-year class in percentages of the totals of males and females, under assumptions A and B

ASSUMPTION A: Low fertility, high mortality, no net migration
ASSUMPTION B: High fertility, low mortality, immigration of 200,000 annually



For estimating the number of gainful workers in future years, it may be assumed that the proportion of gainful workers among both younger and older persons, under 18 and over 64, will decline, while the proportion within the middle age classes will remain more or less steady. To be sure, these assumptions are little more than guesses. For example, gainful work by women, especially married women, may become more prevalent and a tendency on the part of older persons to remain in their usual occupation after the age of 65 may develop. However, the assumptions made above are sufficiently justified by the declining trend in the employment of children and young people on the one hand, and by the anticipation that old-age insurance itself will tend to remove older workers from the labor market, on the other.

Granting that the decrease in the number of gainful workers under 18 and over 64 is probable, it is hardly possible to forecast the speed of the decrease. In the following estimate it is assumed that the total number of gainful workers under 18 and over 64 years will decline not less than 10 per cent and not more than 25 per cent in each decade. Although these rates are chosen arbitrarily, the spread between them is wide enough to include all probable developments. Thus the number of gainful workers in the future may be estimated as follows:

	A. Under conditions of "minimum" growth in the total population		B. Under conditions of "maximum" growth in the total population
	<i>In millions</i>		
1930.....		48.8	
1940.....	53.7 to 55.4		54.0 to 55.7
1950.....	57.5 to 58.6		58.9 to 60.0
1960.....	57.3 to 58.5		63.1 to 64.3
1970.....	56.3 to 57.5		68.8 to 70.0
1980.....	52.0 to 53.4		70.9 to 72.3

The range between the two estimates increases as time goes on, but it seems very improbable that either of the extremes will prove to be an accurate forecast. If the growth of population should follow a course midway between the extremes, the number of gainful workers in the nation will probably be about 54.7 million in 1940, 58.7 million in 1950, 60.8 million in 1960, 63.1 million in 1970 and 62.1 million in 1980.

This last estimate, which simply emphasizes one of numerous possibilities, implies the following changes in the gainful population after 1930:

	In millions	In per cent
from 1920 to 1930.....	+7.2	+17.3
from 1930 to 1940.....	+5.9	+12.1
from 1940 to 1950.....	+4.0	+ 7.3
from 1950 to 1960.....	+2.1	+ 3.6
from 1960 to 1970.....	+2.3	+ 3.7
from 1970 to 1980.....	-1.0	- 1.6

It will be noticed that in comparison with other sources of uncertainty, the assumption regarding the decline in the number of gainful workers under 18 and over 64 has little effect on the final results of the estimate. But there are a number of other assumptions which make these estimates little more than guesses. Nevertheless, the general trend in the growth of the gainfully occupied population in the United States is evident. The number of gainful workers will increase in the decades to come, but the speed of this increase will decline from year to year.

TRENDS IN THE DISTRIBUTION OF GAINFUL WORKERS BY INDUSTRY AND CLASS OF WORK

From the point of view of social insurance, the trend in the distribution of the working population between independent and dependent pursuits is of the greatest significance. It is affected by two sets of conditions:

- (1) Changes in the industrial distribution of the gainfully occupied population, especially among agriculture, production of non-agricultural goods, and services;
- (2) The extent of concentration of employment in large industrial and commercial establishments.

The *industrial distribution* of the gainfully occupied population since the Civil War has been characterized by a declining percentage of agricultural workers and a continuously growing proportion in all non-agricultural pursuits. From 1910 to 1930 the decline in the relative and absolute numbers of agricultural workers was accompanied by a large expansion in the services, whereas the percentage of gainful workers in non-agricultural production remained fairly constant (it grew from 1910 to 1920 and thereafter declined). Table 20 presents briefly the figures provided by the

Censuses of 1910, 1920, and 1930, reclassified in accordance with the plan used in this study.*

(See Table 20 and Table XI in the Appendix.)

TABLE 20. DISTRIBUTION OF GAINFUL WORKERS (EXCEPT UNPAID FAMILY WORKERS) BY INDUSTRIAL DIVISIONS IN THE UNITED STATES, 1910-1930

Industrial divisions	Absolute numbers, in thousands			Percentages		
	1910	1920	1930	1910	1920	1930
ALL INDUSTRIES ¹	34,857	39,764	47,170	100.0	100.0	100.0
AGRICULTURE.....	9,323	9,092	9,071	26.7	22.9	19.2
NON-AGRICULTURAL PURSUITS ¹	25,534	30,672	38,100	73.3	77.1	80.8
Non-agricultural production	11,776	14,533	15,789	33.8	36.6	33.5
Extraction of minerals...	976	1,109	1,011	2.8	2.8	2.1
Manufactures ¹	7,759	10,804	11,458	22.3	27.2	24.3
Independent hand trades	759	490	357	2.2	1.2	0.8
Construction.....	2,282	2,130	2,963	6.5	5.4	6.3
Services.....	13,004	15,369	21,155	37.3	38.6	44.9
Transportation, com- munication, and utilities.....	2,819	3,547	4,323	8.1	8.9	9.2
Trade.....	4,060	5,098	7,196	11.6	12.8	15.3
Public service.....	508	878	1,038	1.5	2.2	2.2
Professional service.....	1,805	2,365	3,514	5.2	5.9	7.4
Domestic and personal service.....	3,813	3,482	5,083	10.9	8.8	10.8
Not specified industries and services.....	755	770	1,156	2.2	1.9	2.4

¹ In 1910, including 98,000, and in 1920, 282,000 workers not classified in the retrospective survey prepared by the Bureau of the Census.

Source: Table XI in the Appendix, page 308.

* The figures in Table 20 for 1910 and 1920 have been partly estimated, both for the distribution of clerks and kindred workers by industrial divisions, and for skilled manual trades, which were not classified by industries in the retrospective survey of the Census Bureau.

On the basis of the 1930 statistics which were classified both by industry and occupation, it has been assumed that several skilled trades enumerated in manufacturing and mechanical industries in the retrospective survey of the Census Bureau, were distributed as follows:

Blacksmiths: 67 per cent in manufactures, 33 per cent in independent hand trades.

Electricians: 50 per cent in manufactures, 30 per cent in construction, 20 per cent in utilities.

Plumbers, gas and steam fitters: 30 per cent in manufactures, 70 per cent in construction.

In addition, minor adjustments appeared necessary for the tabulation of firemen, 80 per cent of whom have been counted as industrial workers and 20 per cent as service workers, and of policemen, 90 per cent of whom have been counted as skilled workers and 10 per cent as service workers such as watchmen and guards.

An increasing concentration of employment in large enterprises, accompanied by a decline in independent pursuits, was characteristic of economic development in the nineteenth century. This trend was more evident in manufacturing and mining industries, however, than in agricultural pursuits or distribution and other services.

In the decade from 1920 to 1930, the proportion of independent workers in non-agricultural pursuits did not decline, but showed rather a slight increase, from 11.9 to 12.0 per cent. With the declining percentage of gainful workers in agriculture and independent hand trades, the two main fields of independent work were narrowed. On the other hand, the expansion in distribution provided new opportunities for independent entrepreneurs.

(See Table 21.)

TABLE 21. DISTRIBUTION OF GAINFUL WORKERS (EXCEPT UNPAID FAMILY WORKERS) BETWEEN INDEPENDENT AND DEPENDENT PURSUITS IN THE UNITED STATES, 1910-1930

Industrial divisions	1910			1920			1930		
	Number of workers, in thousands		Per cent of independent	Number of workers, in thousands		Per cent of independent	Number of workers, in thousands		Per cent of independent
	Independent	Dependent		Independent	Dependent		Independent	Dependent	
ALL INDUSTRIES	9,867	24,990	28.3	10,101	29,663	25.4	10,680	36,490	22.6
AGRICULTURE	6,207	3,116	66.6	6,447	2,645	71.0	6,091	2,980	67.2
NON-AGRICULTURAL PURSUITS	3,660	21,874	14.3	3,654	27,018	11.9	4,589	33,510	12.0
Non-agricultural production	1,171	10,506	9.9	777	13,474	5.3	746	15,044	4.7
Extraction of minerals	14	962	1.3	17	1,092	1.6	16	995	1.5
Manufactures	236	7,423	3.0	184	10,338	1.7	208	11,250	1.8
Independent hand trades	747	12	98.4	485	4	99.1	355	2	99.4
Construction	174	2,108	7.6	90	2,040	4.2	168	2,796	5.7
Services	2,489	10,313	19.1	2,878	12,491	18.7	3,844	17,310	18.2
Transportation, communication, and utilities	15	2,804	0.5	47	3,500	1.3	81	4,241	1.9
Trade	1,607	2,453	39.6	1,889	3,209	37.1	2,579	4,616	35.8
Public service	—	508	0.0	—	878	0.0	—	1,038	0.0
Professional service	354	1,251	30.7	645	1,720	27.3	778	2,736	22.2
Domestic and personal service	313	3,500	8.2	297	3,184	8.5	605	4,679	8.0
Not specified industries and services	—	754	0.0	—	770	0.0	—	1,156	0.0

Sources: Table XI in the Appendix, page 308.

Under the influence of opposing factors, the number of independent persons (i. e., employers and self-employed) varied from 1910 to 1920 and from 1920 to 1930 as follows:

Industries	Increase (+) or decrease (-)	
	1910 to 1920	1920 to 1930
	<i>In thousands</i>	
Agriculture	+240	-356
Non-agricultural pursuits ..	- 6	+935
Total.....	+234	+579

Moreover, the large industrial divisions shown in Tables 20 and 21 include branches with different trends. Divergence is particularly noticeable within the field of transportation where the retrospective survey of the Census Bureau reports the following number of gainful workers in the main branches:

Industries	1910	1920	1930
	<i>In thousands</i>		
Water transportation	153	179	180
Road and street transportation.....	781	962	1,656
Railroad transportation	1,306	1,395	1,269

Source: Fifteenth Census of the United States: 1930, Population, Volume V, pp. 44-45.

Water and railroad transportation in 1930 employed practically the same number of workers as in 1910, whereas the number of workers in road and street transportation more than doubled. Since 1910 automobiles have encroached on railroads, and this is reflected in the increasing number of automobile repair shops, filling stations and garages, as well as in the growth of industries connected with the construction and maintenance of roads. In view of the decisive influence of new methods of transportation, it should be pointed out that the greater part of the decade from 1910 to 1920 still belonged to the era of the predominance of railroads. Although the last two or three years of this period saw a great increase in the use of the motor car, in reality the new era in transportation began in the 20's. Therefore, changes in the distribution of the gainful population in this period rather than in the previous decade should be regarded as typical of recent trends.

TRENDS IN THE PROPORTIONS OF DIFFERENT CLASSES OF WORK ⁵

Occupational statistics for 1910, 1920, and 1930 show that the labor required by the economic system became more diversified

⁵ See Note 14, page 268: "Trends in the Socio-Economic Structure of the Working Population in the United States."

from decade to decade. Professional and white-collar workers exhibited the greatest growth. The number of skilled workers increased more than the number of semi-skilled operatives, whereas the proportion of unskilled labor declined.

(See Table 22 and Table XI in the Appendix.)

ESTIMATED NUMBERS OF INDEPENDENT AND DEPENDENT WORKERS UP TO 1980

The statistics in the preceding tables are not sufficient to permit a definite forecast, but two trends seem fairly probable:

(1) The percentage of gainful workers engaged in agriculture will probably decline, but their absolute number will not diminish considerably in comparison with 1935. Recent estimates by the Census Bureau and the Bureau of Agricultural Economics^a show that the farm population on January 1, 1930 was 30,169,000; on January 1, 1935 it was 31,801,000; and a year later it was slightly higher—31,809,000. The number of gainful workers on farms increased from 10,750,000 in 1930 to 11.4 million in 1935, dropped to 10.8 million in 1936 and again exceeded 11 million in 1937. The net result is that there were more agricultural workers in 1937 than in 1930, but there is no evidence that this trend will persist in the future. On the other hand, it should be kept in mind that the movement of the population from farms to towns between 1920 and 1930 was due at least partly to the agricultural depression and to the insufficient income of farmers. If farmers' incomes increase at the same rate as the national income, there will be less reason for them to relinquish their farms as they did in the period from 1920 to 1930. These observations seem to justify the opinions of the experts of the Department of Agriculture who are inclined to anticipate a very slow decline in the number of gainful workers on farms in the next two or three decades.⁷ The estimate below is based on two alternative possibilities: (A) that the

^a U. S. Department of Agriculture, Bureau of Agricultural Economics, *Farm Population Estimates, January 1, 1936* (mimeo.), October 27, 1936.

⁷ The assumption that the absolute number of persons engaged in agriculture will remain practically stable with only a very slight decline, does not exclude the continuous migration from rural areas to towns, but it takes for granted only that this migration will be less in the next decade or two than in the past. (Cf. *General Conditions and Tendencies Influencing the Nation's Land Requirements*, Part I of the Report on Land Planning prepared by experts of the Department of Agriculture and the Agricultural Adjustment Administration for the National Resources Committee, Washington, 1936, p. 15.)

TABLE 22. DISTRIBUTION OF GAINFUL WORKERS BY CLASS OF WORK IN THE UNITED STATES, 1910-1930

Classes of work	1910	1920	1930
	<i>In thousands</i>		
ALL INDUSTRIES ¹	38,167	41,614	48,830
Employers and self-employed persons.....	9,344	9,503	9,962
Unpaid family workers.....	3,311	1,850	1,660
Professional persons.....	1,640	2,060	2,958
Salaried employees (including managers).....	4,075	6,127	8,251
Skilled workers (including foremen).....	4,382	5,334	6,512
Semi-skilled workers (including apprentices).....	4,409	6,006	6,926
Unskilled workers.....	7,751	7,533	8,319
Service workers.....	3,157	2,920	4,244
AGRICULTURE.....	12,633	10,942	10,730
Employers and self-employed persons.....	6,207	6,447	6,091
Unpaid family workers.....	3,311	1,850	1,660
Salaried employees.....	62	107	87
Skilled workers.....	5	6	4
Unskilled workers.....	3,049	2,533	2,889
NON-AGRICULTURAL PURSUITS ¹	25,534	30,672	38,100
Employers and self-employed persons.....	3,317	3,056	3,871
Professional persons:			
Independent pursuits.....	523	598	719
Dependent pursuits.....	1,117	1,462	2,239
Salaried employees.....	4,013	6,020	8,164
Skilled workers.....	4,378	5,328	6,508
Semi-skilled workers.....	4,409	6,006	6,926
Unskilled workers.....	4,702	5,000	5,430
Service workers:			
In establishments.....	1,161	1,307	2,029
In homes.....	1,996	1,613	2,214

¹ In 1910, including 98,000, and in 1920, 282,000 workers not classified in the retrospective survey prepared by the Bureau of the Census.

Source: Table XI in the Appendix, page 308.

number of agricultural workers will remain unchanged; and (B) that their number will decline approximately 500,000 in each decade.

(2) The percentage of independent persons among gainful workers in non-agricultural pursuits will hardly decline in the near future.

This expectation is justified by the trends evident from 1920 to 1930, especially the continuous expansion in service industries, and by the reports of the 1935 Census of Business.

According to the trend in the distribution of workers between agriculture and other pursuits, the estimated number of gainful workers in the United States after 1930 would be distributed approximately as follows:

	Total gainful workers	In agriculture	In non-agricultural pursuits
<i>In millions</i>			
(A) Under conditions of "minimum" growth in the total population			
1930.....	48.8	10.5	38.3
1940.....	53.7 to 55.4	11.0	42.7 to 44.4
1950.....	57.5 to 58.6	10.5 to 11.0	46.5 to 48.1
1960.....	57.3 to 58.5	10.0 to 11.0	46.3 to 48.5
1970.....	56.3 to 57.5	9.5 to 11.0	45.3 to 48.0
1980.....	52.0 to 53.4	9.0 to 11.0	41.0 to 44.4
(B) Under conditions of "maximum" growth in the total population			
1930.....	48.8	10.5	38.3
1940.....	54.0 to 55.7	11.0	43.0 to 44.7
1950.....	58.9 to 60.0	10.5 to 11.0	47.9 to 49.5
1960.....	63.1 to 64.3	10.0 to 11.0	52.1 to 54.3
1970.....	68.8 to 70.0	9.8 to 11.0	57.8 to 60.5
1980.....	70.9 to 72.3	9.0 to 11.0	59.9 to 63.3
(C) Under conditions midway between (A) and (B)			
1930.....	48.8	10.5	38.3
1940.....	54.7	11.0	43.7
1950.....	58.7	10.5 to 11.0	47.7 to 48.2
1960.....	60.8	10.0 to 11.0	49.8 to 50.8
1970.....	63.1	9.5 to 11.0	52.1 to 53.6
1980.....	62.1	9.0 to 11.0	51.1 to 53.1

Assuming that the growth of the population will follow the middle course, workers in non-agricultural pursuits after 1930 would be distributed between the two principal classes of work as follows:

	Employers and self-employed	Salary and wage earners
<i>In millions</i>		
1930.....	4.6	33.7
1940.....	5.2	38.5
1950.....	5.7 to 5.8	42.0 to 42.4
1960.....	5.9 to 6.0	43.9 to 44.8
1970.....	6.2 to 6.4	45.9 to 47.2
1980.....	6.1 to 6.2	45.0 to 46.7

The approximate increase after 1930 in the number of salary and wage earners, including officials and salaried professional workers, in non-agricultural pursuits would be :

	In millions	In per cent
from 1920 to 1930.....	+6.5	+23.9
from 1930 to 1940.....	+4.8	+14.3
from 1940 to 1950.....	+3.5 to 3.9	+8.0 to 10.0
from 1950 to 1960.....	+1.9 to 2.4	+4.5 to 5.1
from 1960 to 1970.....	+2.0 to 2.4	+4.5 to 5.1
from 1970 to 1980.....	-.9 to -1.5	-2.0 to -1.1

Although these variations in the socio-economic structure of the population are not any more probable than others which may be found by modifying some of the assumptions on which the preceding calculation is based, the numbers above can be used as a bench mark for estimates of the future development of social insurance under existing laws. The probable upward and downward deviation from these numbers will hardly exceed ± 2 per cent in 1940, ± 3 per cent in 1950, and ± 6 per cent in 1960. The range of possible deviation for 1970 is ± 12 per cent and for 1980 as high as ± 20 per cent. This increasing range of possible error should be kept in mind when using the numbers given above and shown on Diagram XXXIX.

(See Diagram XXXIX.)

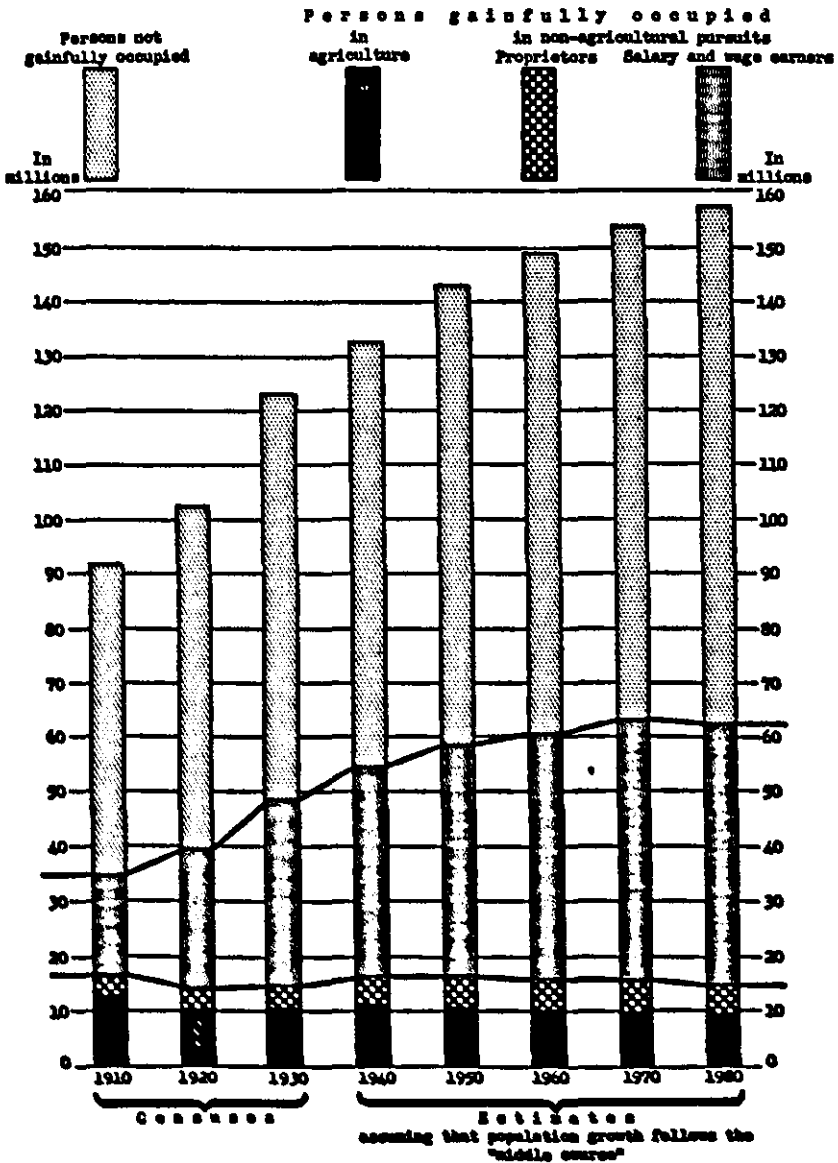
In addition to the limitations inherent in the assumptions made for the preceding calculation, the resulting figures are subject to further reservations. If a new depression should sweep agricultural areas, dispossess hundreds of thousands of farmers, and compel them and their children to look for jobs in cities; or if a wave of centralization of industrial and commercial establishments should transform a number of former proprietors into salaried employees; or if one of a number of other factors which cannot now be foreseen, should produce similar upheavals; then the number of salary and wage earners in non-agricultural pursuits would obviously increase with greater speed.

ESTIMATED NUMBER OF OLD-AGE INSURANCE ACCOUNTS UP TO 1980

Approximately 26.3 million of the 36.5 million salary and wage earners estimated on the basis of the 1930 Census would have been

DIAGRAM XXXIX

ESTIMATED VARIATIONS IN THE SOCIO-ECONOMIC STRUCTURE OF THE POPULATION IN THE UNITED STATES, FROM 1910 TO 1980



covered by old-age insurance, as has been stated in Chapter II. Thus, about 72 per cent of the salary and wage earners in 1930 would have been entitled to receive account numbers for old-age insurance. Leaving unemployment out of consideration, approximately the same percentage of salary and wage earners would have been covered by the first registration inaugurated in November 1936. However, the occupational shifts analyzed in Chapters VII and VIII will rapidly change this proportion. After a few years of registration the number of old-age insurance accounts will exceed the number of salary and wage earners because of the following factors:

(1) As the result of shifts between employment and unemployment, account numbers will be issued to practically all salary and wage earners usually employed in insured industries after a year or so of registration.

(2) As the result of shifts between insured and uninsured pursuits, account numbers will be assigned to many domestic servants and casual laborers, to persons in public service and in the employ of non-profit establishments, and to many farm laborers. There will of course remain a number of salary and wage earners to whom no account numbers will be assigned, but on the other hand many farmers, independent craftsmen, and dealers will be registered for old-age insurance because of their subsidiary occupations for pay. Thus, the total number of persons in the active and intermittently active old-age insurance files will hardly be much less than the total number of salary and wage earners.

(3) To insured persons for whom contributions are being paid (continuously or intermittently) will be added former salary and wage earners who have retired from gainful work (especially married women) or have moved to uninsured pursuits (especially to independent business). On the basis of the analysis given in Chapter VII* their number may be roughly estimated as follows:

	Number of years after first registration		
	5	15	25
Male	900,000	2,200,000	3,000,000
Female	1,100,000	3,000,000	4,200,000
Total.....	2,000,000	5,200,000	7,200,000

(4) To gainful workers, as defined in occupational statistics, should be added persons engaged in gainful pursuits for part of the year. However, their number will not be as large as it may seem at first. In most cases, temporary workers are persons retired from gainful

* See Table 17, page 102.

occupations, or young boys and girls who will become regular gainful workers in the near future. Retired workers will have account numbers assigned in their former occupations. Therefore, the number of additional accounts issued to temporary workers will soon reach a limit which will not be exceeded. No one knows how high this limit will be, but tentatively it may be estimated at from 4 to 7 millions after 1960.

An idea of what may be anticipated is shown in the following roughly estimated minimum numbers of persons 18 to 64 years of age who will be insured for old-age benefits :

	1940	1950	1960	1970	1980
	<i>In millions</i>				
<i>Regularly</i> employed in insured industries:					
Social Security Board	26.2	28.7	30.5	32.0	31.6
Railroad Retirement Board	1.5	1.5	1.5	1.5	1.5
<i>Intermittently</i> employed in insured industries:					
Regular gainful workers	10.0	15.0	18.0	20.0	20.0
Temporary workers	3.0 to 5.0	3.5 to 6.0	4.0 to 7.0	4.0 to 7.0	4.0 to 7.0
<i>No longer employed</i> in insured industries, or retired..	2.0	5.2	7.2	9.0	10.5
Total.....	42.7 to 44.7	53.9 to 56.4	61.2 to 64.2	66.5 to 69.5	67.6 to 70.6

It is hardly necessary to emphasize that this is only a very approximate estimate based on numerous assumptions and guesses. Its purpose is to indicate the factors which may lead to the issuance of more old-age insurance account numbers than there are gainful workers in the country. No allowance has been made in the estimate for the probability of duplications on the registers. As a result of the mobility of labor and particularly of shifts from insured to uninsured occupations, a number of workers will probably be registered twice or even more. In many cases, the error may not be discovered until the insured worker applies for his old-age benefit. Probably errors and duplications will be most frequent at the beginning. Their number will certainly diminish as the experience of employees, employers, and social insurance agencies increases, but it is doubtful whether they will disappear completely.

It seems fairly certain, therefore, that in the near future the old-age insurance register will be greatly inflated in comparison with the estimate tentatively suggested above. It is conceivable that by 1940 the number registered may approach 50 million. Probably its growth in succeeding years will be slower and in the 1950's it will be nearer the estimates on page 137.

NUMBER OF ANNUITANTS IN OLD-AGE INSURANCE

The estimates prepared by the President's Committee on Economic Security, after slight revision by the experts of the Social Security Board, assume that the number of annuitants in old-age insurance will increase as follows:

1945.....	681,000
1950.....	1,680,000
1960.....	3,528,000
1970.....	4,705,000
1980.....	5,912,000

However, this estimate of annuitants corresponds to the expected number of "full-year jobs" in insured industries rather than to the probable number of individuals eligible for old-age annuities. The fact that during the first 18 months of registration for old-age insurance more than 38 million account numbers have been issued, while the number of full-year jobs was hardly over 24 million, makes it necessary to revise the estimate of the President's Committee.

The following reasoning refers not to the number of full-year jobs but to the number of individuals who probably will be on the old-age insurance register and will be eligible for benefits at the age of 65 and over. This number cannot be deduced from that of persons employed in insured industries at any specified time, such as the date of a census. The census figures indicate, in fact, the number of insured jobs, but do not show the number of persons among whom these jobs will be distributed during a year. Over a longer period of time, the latter number will increase continuously. The number of annuitants in 1980 will be determined by the proportion in the higher age classes of such persons who, in the preceding 42 years, were engaged at any time in insured pursuits and whose cumulative earnings were not less than \$2,000. To estimate

this number, the probable number of men and women over 65 years should be taken as the starting point, and from this there should be excluded:

- (a) Persons who were never gainful workers;
- (b) Workers who were never employed for pay;
- (c) Employees who never worked in insured industries;
- (d) Insured workers whose cumulative earnings were less than \$2,000.

Persons in group (a) will constitute approximately 2 per cent among men and hardly more than 30 per cent among women. Among persons who were gainful workers, there will be but few who during their entire work life were employers or were self-employed and consequently never worked for a wage or salary. The number of such persons in group (b) has been estimated at 5 per cent of all former gainful workers. The proportion of persons in group (c) may be somewhat higher. It will include persons who spent their work life in agriculture (farm laborers who later became farmers and who were never employed in industrial pursuits), public servants, railroad employees, teachers, domestic servants, etc. This proportion has been estimated at 10 per cent for male and 30 per cent for female salary and wage earners. Persons in group (d) will be few, the proportions being 5 per cent for male and 15 per cent for female registered workers.

After these exclusions, there will remain approximately 80 per cent of the male and 40 per cent of the female gainful workers of 65 years or over who will be eligible for old-age benefits in 1980. These rates do not pretend to be exact, but they appear to be conservative rather than exaggerated. Applying them to the numbers of persons 65 years of age and over as estimated by Whelpton, the probable number of annuitants in 1980 will be as follows:

	A. Under conditions of "minimum" growth in the total population	B. Under conditions of "maximum" growth in the total population
Male	7,026,000	9,744,000
Female	4,084,000	5,424,000
Total.....	11,110,000	15,168,000

On the assumption that the growth of the population will be somewhere between these figures but nearer the lower limit, the

approximate number of annuitants in 1980 will be somewhere between 12 and 13 millions.

It is fairly probable that the prospect of obtaining old-age insurance will contribute to the increase in the number of persons temporarily working for pay, such as women who otherwise might not have accepted jobs. It would seem, therefore, that the number of annuitants in 1980 will hardly be less than 13 millions.

Probably the discrepancy between what will be the actual number of annuitants and the preliminary estimate of the Committee on Economic Security will increase gradually. If the actual number of annuitants should not be far from 681,000 in 1945, it will probably increase thereafter approximately as follows:

1950.....	2,000,000 to 2,200,000
1960.....	5,000,000 to 5,300,000
1970.....	8,000,000 to 8,500,000
1980.....	12,500,000 to 13,500,000

BOOK TWO
DEMAND FOR LABOR
STATISTICS OF THE DISTRIBUTION OF
EMPLOYEES BY ESTABLISHMENTS

CHAPTER X

OBJECTIVES AND METHODS

SOCIAL INSURANCE administration requires not only occupational statistics, or data on the number of salary and wage earners and their distribution by industry, but also employment statistics, or information on the number of workers actually employed. Book One presents an analysis of the occupational statistics provided by the Census of Population, while Book Two attempts to adjust the employment statistics provided by the industrial censuses to social security requirements, and to clarify methodological questions which make adjustment difficult.

The Social Security Act designates *employers* to collect and forward to the federal Treasury their own and their employees' old-age insurance contributions. They are also responsible for the payment of unemployment compensation contributions. Therefore data on the distribution of insured workers by employers are necessary for the administration of social security.

The distribution of salary and wage earners by employers is not identical with that by *establishments* or physically distinct places of employment, as reported by the industrial censuses. The two classifications coincide in the case of a single employer operating a single establishment, or when, for technical convenience, several establishments owned by the same proprietor are regarded as independent "employers." But there is a substantial difference in the way in which the two classifications treat chain stores and similar multi-unit concerns.

In practice, social security agencies use a classification of insured employees which is based partly on their distribution by employers and partly by establishments. An employer who operates establishments in several states obtains several identification numbers. Likewise he generally obtains separate identification numbers for establishments which, though located in the same state, belong to different industrial groups. On the other hand, such units as chain stores are assigned only one identification number in each registration area. Although the classification of multi-unit concerns used

by state unemployment compensation agencies differs in details from that used by the federal old-age insurance administration, in the main they follow the same pattern. It appears therefore that a classification of employees by establishments, with *special provisions for small units controlled by large chain companies and multi-unit concerns*, meets the practical needs of social security administration.

This refers not only to statistics collected by social security agencies but also to the general statistics they use. Their needs are adequately met by the tabulations of chain stores and multi-unit enterprises prepared especially for the Social Security Board by the 1935 Census of Business.¹ Unfortunately similar tables are lacking for manufacturing and other production industries. However, in these industries multi-unit enterprises are less usual than in trade and services, and so far as the total number of workers employed in each industry is concerned, the distinction between "independent" and "dependent" establishments does not substantially change the results. Therefore, the employment statistics supplied by industrial censuses, supplemented by the special tabulations of the 1935 Census of Business, may be used successfully by social security agencies as a substitute for more specific information on the distribution of insured workers by employers.

Industrial *employment statistics* cannot replace the *occupational statistics* supplied by censuses of population, but these sources complement each other. Occupational statistics show the distribution of workers by sex, race, and age, but do not indicate their distribution by employing units. Industrial censuses provide this information, but fail to indicate the sex, race, and age of the workers. The necessity of using alternatively the statistics from the two sources raises the question whether they are at all comparable. Differences in methods, definitions and classifications inevitably cause discrepancies between them. But how important are these discrepancies, and can they be reconciled? This question involves methodological problems fundamental for social security and for studies of the labor market. The comparability of different data

¹ The 1935 Census of Business prepared a tabulation of this kind for independent service and amusement establishments and hotels with less than 15 employees. Further references are made to this tabulation on pages 203, 204, 217-19.

is best checked by actual comparison, but no comparison of heterogeneous statistics is possible without preliminary adjustment. The method of mutually adjusting the occupational and industrial statistics is discussed in the following pages. In Chapter XI the respective data for each industrial division are compared and it is shown that the two sources do agree fairly well, at least so far as the volume of employment in different industries in the nation as a whole is concerned. This answers in the affirmative the question concerning the comparability of occupational and industrial statistics. At the same time the comparison has served to show that there was no general under-statement or over-statement of total unemployment in the 1930 Unemployment Census.

Because the proprietors of small firms are exempt from the excise tax for unemployment compensation, a segregation of establishments by size is of particular significance. Data on size of establishments are abundant but they are not uniformly classified. For example, in the Census of Agriculture farms are usually tabulated by acreage, and not until 1935 were they also classified by number of laborers. Mines and factories are classified by value of products and number of wage earners, retail and wholesale stores by amount of net sales, theatres by receipts, and hotels by number of rooms. The best common yardstick for classifying industrial establishments by size is the number of persons employed. The number of employees is also the basis for determining whether an employer is included under the state unemployment compensation laws. In order to reduce the available statistics to this common denominator, they must be uniformly interpolated. The method to be used for this purpose is explained in the following pages and is applied to the statistics of several industrial censuses in Chapter XII.

In Chapter XIII an attempt is made to estimate the number of concerns in various industries and in the nation as a whole which employ, regularly or intermittently, salary and wage earners. The enterprises in industries covered by the Social Security Act are distributed by the number of persons they employ, and the effects of the exclusion of small concerns from state unemployment compensation programs are shown.

Changes in the distribution of enterprises by size-classes within an industry are usually attributed to tendencies toward concentra-

tion or deconcentration, or to differences in the *degree of sensitiveness* to business fluctuations on the part of large and small concerns. However, significant changes in distribution may also be the result of a strictly *proportional* increase or decrease in the personnel of *all enterprises* in an industry. In the following pages, a method is developed by which these changes may be distinguished and an analysis is made of the recent changes in the distribution of enterprises or establishments by size within several industries.

EMPLOYMENT STATISTICS

Comprehensive statistics on the number and distribution of all persons working for salaries or wages would be provided by a general census of employment covering all business, industrial, and agricultural establishments, public and private institutions, and individual households which employ domestic servants. Since such a census has never been taken, employment statistics must be derived from the other sources. The following are most frequently used: (a) occupational censuses, combined with censuses of unemployment; (b) industrial censuses; and (c) current reports of selected firms to the Department of Labor.

Censuses of population which are based on information obtained from individuals in family households and in "quasi-family groups" include among gainful workers not only persons actually at work but also those unemployed at the date of enumeration and those on temporary lay-off because of illness, disability, or other causes. Experience shows that the number of persons out of jobs for personal reasons is far less variable than the number of workers unemployed because of seasonal or cyclical fluctuations in production and employment. For practical purposes, therefore, the number of persons on temporary lay-off may be estimated in terms of a constant percentage of all workers.² If both groups are subtracted from the number of workers reported by the census, the remainder represents the number actually employed, i.e. those on payroll at the date of enumeration. The number of persons reported as actually employed may be compared with data from industrial censuses collected for the same periods, while data col-

² This procedure is used by British employment statistics, which are probably the best in the world. The same method has been successfully applied in other countries, for example in Germany.

lected for other periods should be adjusted with the aid of current employment indexes before a comparison is made. Allowances must, of course, be made for inadequate industrial descriptions in the occupational censuses, as well as for the under-enumeration of some of the small establishments in the industrial censuses, and for the impossibility of drawing an exact dividing line between persons who are self-employed and those who are employed either regularly or intermittently for a salary or wage. However, by using a uniform industrial classification for occupational statistics, industrial statistics, and current employment statistics, the discrepancies can be minimized.

Industrial censuses cover agriculture, mines, manufactures, contracting construction, steam and street railroads, several branches of utilities, distribution, banks and financial institutions, recreation and amusement, service establishments, and hotels. Current employment indexes based on a fairly wide sampling are also available for most of these industries. On the other hand, no adequate information is available for professional pursuits, force-account construction, water transportation, service in apartment houses and office buildings, and domestic service. In some cases special reports may be used to amend industrial statistics, and here the national income estimates published by the Department of Commerce are particularly valuable.³ These sources are examined in Chapter XI.

UNEMPLOYMENT CENSUS OF 1930

A nation-wide census of unemployment was taken on April 1, 1930 as part of the regular Census of Population.⁴ Enumerators were requested to make an entry for each gainful worker in the column entitled "employment" indicating whether the respondent

³ U. S. Department of Commerce, Bureau of Foreign and Domestic Commerce, *National Income in the United States 1929-35*. Prepared in the Division of Economic Research. (See Table XV in the Appendix, page 320.)

⁴ An inquiry concerning unemployment was included also in the schedules for 1880, 1890, 1900 and 1910. The 1910 schedule requested all employees to report "whether out of work on April 15, 1910, and the number of weeks out of work during the year 1909." Out of five questions on occupation in 1910, two dealt with employment and unemployment. Unfortunately, the answers to these questions were not tabulated in the Census report. In the censuses of 1890 and 1900 only fragmentary data on unemployment were published.

had been at work the last regular working day before the enumeration. If not, a special "unemployment schedule" with the following questions was filled out:

"Does this person usually work at a gainful occupation? Does this person have a job of any kind?"

"If this person has a job—

How many weeks since he has worked on that job?

Why was he not at work yesterday?

Does he lose a day's pay by not being at work?

How many days did he work last week?

"If this person has no job of any kind—

Is he able to work?

Is he looking for a job?

For how many weeks has he been without a job?

Reason for being out of a job (or for losing his last job)?"

On the basis of the answers to these questions, all persons who were not at work on the last regular working day before the enumeration were divided into seven classes as follows:

Class A.	Persons out of a job, able to work, and looking for a job...	2,429,062
Class B.	Persons having jobs but on lay-off without pay, excluding those sick or voluntarily idle.....	758,585
—————		
Class C.	Persons out of a job and unable to work.....	172,661
Class D.	Persons having jobs but idle on account of sickness or disability	273,588
Class E.	Persons out of a job and not looking for work.....	87,988
Class F.	Persons having jobs but voluntarily idle, without pay.....	84,595
—————		
Class G.	Persons having jobs and drawing pay, though not at work (on vacation, etc.).....	82,335

An additional 162,050 cases were rejected: 20,474, claiming to be unemployed, were not reported as gainful workers; of the remaining 141,576 cases, 100,252 were entered as unemployed but failed to fill out the special unemployment schedule, and 41,324 were rejected for other reasons.⁵

The report of the 1930 Census of Unemployment dealt mainly with Classes A and B, apparently on the assumption that only persons counted in these two classes, a total of 3,187,647, were really unemployed. However, the persons reported in Classes C, D,

⁵ Fifteenth Census of the United States: 1930, Unemployment Bulletin, United States Summary, Unemployment Returns by Classes, p. 84.

E, and F (618,832), as well as the 141,576 gainful workers whose declarations were rejected, were likewise *out of jobs* and should be subtracted from the number of *gainful workers* if the volume of employment on April 1, 1930 is to be determined.

With the exception of persons in Class E, these 760,408 workers were not distributed by industry and occupation in the Census report, but for the purposes of this study it is assumed that all of them were salary and wage earners about evenly distributed among all industries. This group constitutes approximately 2 per cent of the total number of salary and wage earners. Therefore, besides the Class A and B unemployed in each industry, the additional 2 per cent of salary and wage earners on temporary lay-off should be excluded.⁶

In Volume I of the 1930 Census report, the Class A and B unemployed gainful workers were classified by 55 industries but not by occupation. In Volume II they were tabulated by selected occupations, using the standard classification of the Bureau of the Census, but not by industry.⁷ These statistics have been rearranged in the present study in accordance with the outline presented in Book One and are shown in Table XII in the Appendix. The imperfections are obvious. In addition to the "rejected cases," more than 200,000 unemployed were reported in the division of Not Specified Industries and Services, and almost as many "unclassified" workers, although distributed by industrial divisions, could not be assigned to any particular class of work.

No attempt has been made here to examine critically the returns of the 1930 Census of Unemployment. They have been used exclusively in connection with occupational statistics to determine the 1930 volume of employment to be compared with the data of the industrial censuses.⁸ In Chapter XI this comparison is made for

⁶ See page 146.

⁷ Fifteenth Census of the United States: 1930. For industrial classification, see Volume I, Tables 9, 10, and 21 to 42, pp. 15, 16 and 53 to 85. For occupational classification, see Volume II, Tables 3 to 16, pp. 13 to 310.

⁸ For each industrial division, the number of salary and wage earners employed on April 1, 1930 has been computed as follows:

The number of salary and wage earners reported by the 1930 Census of Population,
minus 2 per cent of this number for those on temporary lay-off because of sickness or other reasons,
minus the number of unemployed salary and wage earners (Classes A and B) enumerated by the 1930 Census of Unemployment.

agriculture, extraction of minerals, manufactures, transportation and communication, trade, and other industrial divisions. In most cases a satisfactory agreement is found between the data from the two sources. Discrepancies in other cases were due to the inadequate industrial classifications of the occupational statistics. Outside of the possibility of voids in local enumerations, there is no indication that the totals of the 1930 Unemployment Census appreciably *understated* the number totally unemployed.

INTERPOLATION OF STATISTICS ON THE DISTRIBUTION OF WORKERS BY SIZE OF ESTABLISHMENT

The size-classes used by industrial censuses are not always in accord with the practical needs of social security administration, either because they are too large or because they are determined by some other criterion than number of employees. It therefore becomes necessary to devise a method by which a large size-class may be broken down into several smaller ones, and a classification by number of employees may be substituted for other criteria.

The method used here is that of "graphic interpolation" which may be illustrated by the following example. Suppose 10,000 establishments or enterprises are canvassed and for each the number of employees is reported. The distribution of these concerns by number of employees may be shown on a chart, each establishment or enterprise being represented by a vertical line measuring the number of its employees, beginning at the left with the smallest concerns. A connecting curve is drawn over the top of each line.*

(See *Diagram XL-A.*)

Such a curve will usually have the shape of a *hyperbole* flanked by two asymptotes at right angles to each other. The vertical ordinate of each point on the curve will measure the number of employees in individual concerns; the horizontal ordinate will show how many concerns have no more workers than the number indicated by the

* This curve is essentially the same as a cumulative ogive. It can be transformed to an ogive of the usual type if the number of establishments is shown by vertical ordinates, and the numbers of workers are indicated on the horizontal axis, progressing from left to right. The figures presented in Diagram XL-A are proportional to those reported by the 1929 Census of Manufactures.

vertical ordinate. Because of the large number of small concerns and comparatively small number of large ones, the curve will run almost parallel to the horizontal axis on the left side of the chart, and will rise sharply on the right almost parallel to the vertical axis. The curve can be analyzed more easily if a logarithmic rather than arithmetical scale is used on the vertical axis, as in Diagram XL-B.

Presented in this way, the distribution of individual establishments or enterprises by *size* may easily be converted into a distribution by *size-classes*. The limits of the size-classes are marked on the vertical axis; horizontal lines are drawn over the limit points, and their intersections with the original curve indicate the number of concerns within each size-class.

On the other hand, if in the census reports enterprises are distributed by several size-classes, a number of points of the distribution curve are plotted on the chart and a continuous curve is drawn over them. Then, by the method described above, each size-class can be subdivided into smaller groups.

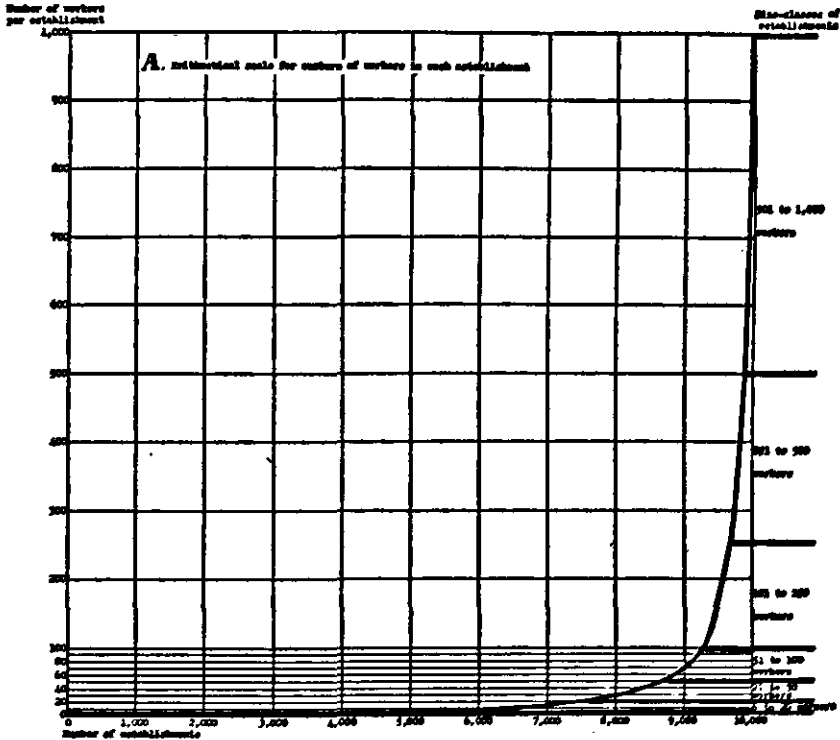
A more detailed classification of small concerns is particularly necessary for unemployment compensation. Most industrial censuses tabulate establishments by size-classes with 1 to 5, 6 to 20, 21 to 50, 51 to 100 workers, etc. As the size exemption limit in state unemployment compensation laws varies between 1 and 8 employees, the first two size-classes are too broad. It is not always feasible to estimate the frequency distribution of establishments of different sizes within the size-class with 1 to 5 workers, as the composition of this class is affected by the way in which the smallest establishments with intermittent employment of hired labor have been enumerated. It is possible, however, to make a satisfactory estimate of the number of establishments with 6, 7 and 8 workers within the size-class with 6 to 20 workers by methods outlined in Note 15.¹⁰ In cases where establishments are tabulated by some other criterion than number of employees, such as net sales or receipts, the method of interpolation described above must be modified as explained in Note 16.¹¹

¹⁰ See Note 15, page 272: "Interpolation of Statistics on Establishments with 6 to 20 Workers."

¹¹ See Note 16, page 281: "Interpolation of Statistics on Size of Establishments Classified by a Criterion other than Number of Employees."

DIAGRAM XL

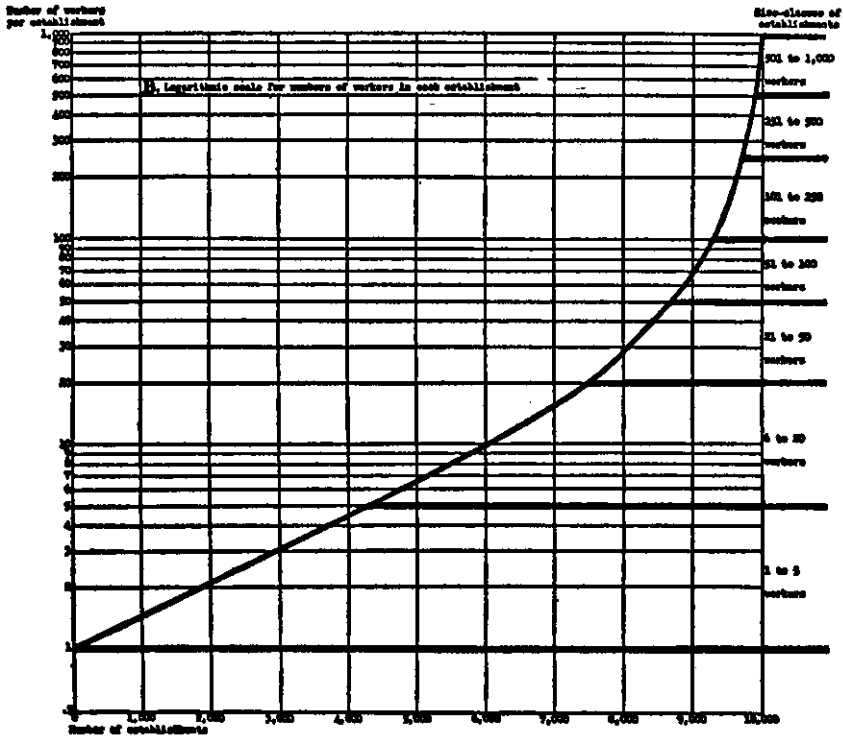
EXAMPLE OF THE DISTRIBUTION OF ESTABLISHMENTS BY NUMBER OF WORKERS EMPLOYED



VARIATIONS IN THE DISTRIBUTION OF ESTABLISHMENTS BY SIZE-CLASSES

Consecutive industrial censuses show considerable variations in the distribution of establishments or enterprises by size-classes which at first seem to be the result of movements toward concentration or deconcentration or of the differing reactions of large and small concerns to fluctuating business conditions. However, the same variations may also result from a strictly proportional increase or decrease in the personnel of all establishments.

Suppose the establishments in an industrial division were distributed by size-classes of not more than 5 employees, 6 to 20, 21 to 50, 51 to 100 employees and so on. If all these establishments should augment their personnel proportionally, a number of

DIAGRAM XL. *Continued*

firms would shift from lower to higher size-classes, thereby increasing the relative importance of large units. Likewise, if all establishments should discharge part of their employees, a number of firms would be transferred from higher to lower size-classes and the relative importance of small units would be increased. In both cases successive censuses would show unequal variations in the numbers of employees in different size-classes of establishments, but this inequality would not prove that there was a disparity in the increase or decrease of employment in the small as compared with the large firms. This statement may be illustrated by an example.

The total number of factories in the United States in 1919 was approximately the same as in 1909, and during the same period the number of factory employees increased by 37.5 per cent. This

increase in personnel was accompanied by the following percentage changes in the distribution of establishments by size-classes : ¹²

SIZE-CLASSES Establishments with...wage earners	Percentage increase (+) or decrease (-) 1909-1919	
	Factories	Wage earners
None	+36.9	—
1 to 5.....	+ 4.0	.0
6 to 20.....	- 1.7	- 1.5
21 to 50.....	+ 7.8	+ 8.5
51 to 100.....	+13.1	+ 13.6
101 to 250.....	+24.1	+ 25.7
251 to 500.....	+23.9	+ 24.3
501 to 1000.....	+43.0	+ 44.0
1001 and over.....	+89.1	+136.6
All size-classes	+ 4.3	+ 37.5

It is apparent that large concerns more than doubled their personnel, while in factories with 1 to 20 workers employment declined slightly. The question to be determined is the extent to which these divergent trends reflect real contrasts in the growth of employment in large and in small concerns, and the extent to which they were due to the shifting of concerns from lower to higher size-classes because of the general increase in factory employment during this ten-year period. In order to answer this question, the distribution of factories by size in 1909 is shown by a distribution curve on a logarithmic scale in Diagram XLI.

On the logarithmic scale, a proportional growth of all vertical ordinates results in an even shift upward of all points of the curve so that the new curve has exactly the same shape as the original one and runs strictly parallel to it. The redistribution of factories by size-classes after the equal increase of employment may be determined by the points of intersection of the new curve with the horizontal lines which mark the limits of the size-classes. All of these points are displaced from right to left (B_1 , C_1 , D_1 , etc.). In this way there may be ascertained how many factories in 1919 would have been in each size-class *if there had been a strictly proportional growth in their personnel*. The distribution of factories

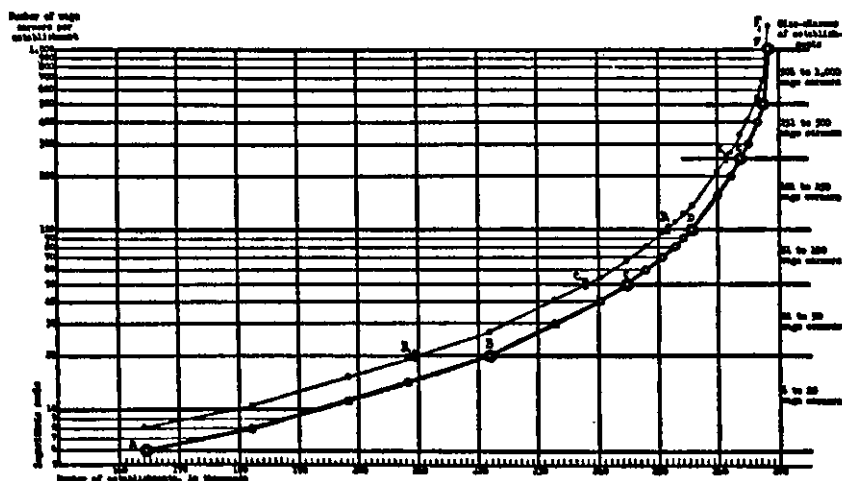
¹² Cf. Table XIV-B in the Appendix, page 319.

DIAGRAM XLI

EXAMPLE OF THE REDISTRIBUTION OF ESTABLISHMENTS, BY SIZE-CLASSES, RESULTING FROM A PROPORTIONAL CHANGE IN VOLUME OF EMPLOYMENT IN ALL CONCERNS

A, B, C, D, E, F—Distribution of establishments with 6 to 1,000 wage earners in 1909

B₁, C₁, D₁, E₁, F₁—Distribution of the same establishments after a proportional increase of their personnel by 37.5 per cent



and wage earners that would have resulted from this movement in 1919 is estimated as follows :

SIZE-CLASS Establishments with...wage earners	Factories	Wage earners
1 to 5.....	123,000	338,000
6 to 20.....	57,300	654,000
21 to 50.....	27,700	909,000
51 to 100.....	15,200	954,000
101 to 250.....	10,700	1,665,000
251 to 500.....	4,100	1,458,000
501 to 1000.....	1,740	1,151,000
1001 and over.....	1,020	1,967,400
All size-classes	240,800	9,096,400

A comparison of these hypothetical figures with the actual reports of the 1919 Census of Manufactures (Table XIV-B in the Ap-

pendix) shows the following discrepancies in the different size-classes of establishments :

SIZE-CLASSES Establishments with... wage earners	Census data are higher (+) or lower (-) than estimates			
	Absolute differences		Differences in percentage of estimated numbers	
	Number of factories	Number of wage earners	Factories	Wage earners
1 to 5.....	+18,700	- 26,400	+15.2	- 7.8
6 to 20.....	- 1,100	- 22,700	- 1.9	- 3.5
21 to 50.....	- 2,300	- 79,700	- 8.3	- 8.8
51 to 100.....	- 2,800	- 65,700	-18.4	- 6.9
101 to 250.....	- 630	- 83,200	- 5.9	- 5.0
251 to 500.....	- 500	-207,100	-12.2	-14.2
501 to 1000.....	+ 10	+ 54,600	-	+ 4.7
1001 and over...	-	+430,200	-	+21.9
All size-classes..	+11,400	-	+ 4.7	-

From the actual and hypothetical numbers shown above, the comparative importance of the two causes of increased employment in large concerns between 1909 and 1919 may be determined :

In factories with	Total increase in number of employees reported by censuses ¹³	Increase due to proportional growth in employment ¹⁴	Increase due to greater employment by large factories ¹⁵
more than 250 employees.....	1,997,300	1,719,200	278,100
more than 500 employees.....	1,752,900	1,267,700	485,200
more than 1000 employees.....	1,384,700	954,100	430,600

If the influence of changes in the coverage of these censuses is eliminated, a comparison of the data of the 1919 and 1929 Censuses of Manufactures shows that in this decade the volume of factory employment dropped about 2 per cent. The decline was most pronounced in large establishments.¹⁶

A comparison of 1929 and 1933 Census data shows the following changes in the number of factories in the different size-classes and their workers :

¹³ See Table XIV-B in the Appendix, page 319.

¹⁴ See hypothetical numbers above.

¹⁵ The difference between the numbers in the two preceding columns.

¹⁶ Of the total decrease in number of wage earners in manufactures from 1919 to 1929 (257,629), more than 90 per cent (237,607) was in factories with 1001 wage earners and over (See Table XIV-B in the Appendix).

SIZE-CLASSES Establishments with... wage earners	Number of factories			Number of wage earners		
	1929 ¹⁷	1933	Decrease in per cent	1929 ¹⁷	1933	Decrease in per cent
None	7,395	4,518	38.9	—	—	—
1 to 5.....	95,204	57,152	40.0	278,391	158,275	43.1
6 to 20.....	53,212	40,176	24.5	592,402	445,088	24.9
21 to 50.....	24,893	18,576	25.4	810,305	600,670	25.9
51 to 100.....	12,426	9,262	25.5	888,802	659,347	25.8
101 to 500.....	14,016	10,304	26.5	2,917,345	2,126,216	27.1
501 to 2500.....	2,510	1,661	33.8	2,319,258	1,519,974	34.5
2501 and over...	206	120	41.7	1,015,254	546,166	46.2
All size-classes..	209,862	141,769	32.4	8,821,757	6,055,736	31.4

Source: Statistical Abstract of the United States, 1936, p. 734.

It would seem after only a cursory examination of these figures that factories of different sizes were unequally affected by the depression, and that the "net mortality" of firms and the reduction of employment were more marked in the lowest and highest size-classes of factories than in the intermediate groups. The accuracy of this premise may be checked by the method used earlier to measure the changes from 1909 to 1919. It is found that aside from the probable under-enumeration of small establishments in 1933, the actual size distribution of factories as reported by the 1933 Census was identical with a distribution which would have resulted from a proportional 13 per cent decrease in number of factories, combined with an equal 20 per cent decrease in employment in factories still in operation.¹⁸

It is probable that the tendencies since 1933 were the same but their direction was reversed, i.e., that the relative growth of employment was approximately equal in small and large concerns, and that the return of factory employment to the pre-depression level is related to the return of the size distribution of factories to its former status.

An analysis of the trends in retail distribution leads to similar conclusions. In the period from 1929 to 1935 large and small stores were equally affected by changes in business conditions. They discharged approximately the same percentage of their employees during the depression, and increased their personnel equally

¹⁷ Figures for 1929 have been adjusted to the classification used by the 1933 Census of Manufactures, and therefore differ slightly from those shown in Table XIV-B in the Appendix.

¹⁸ See Note 17, page 283: "Changes in the Distribution of Factory Employment among Establishments of Different Sizes from 1929 to 1933."

when business began to improve. In some sections of retail distribution variations in employment differed from the general trend; for example, the number of small eating and drinking places has greatly increased since the repeal of prohibition. However, these deviations did not noticeably affect the distribution of retail trade among stores of different sizes.¹⁹

In more general terms, analyses of trends in extraction of minerals, manufactures, and retail trade indicate that after 1919 there was no pronounced tendency on the part of large concerns to employ a greater percentage of the workers in these industries. Nor could the opposite tendency toward decentralizing employment be observed. Rather, *the visible variations in the distribution of employees among establishments of different sizes since 1919, and particularly since 1929, were due to changes in the general volume of employment.*

This statement may be used as the basis of estimates of the probable influence of depression and recovery on the distribution of employed workers among large, small, and middle-size establishments. So long as statistics are available for a certain date, say, 1929 or 1933 or 1935, and the increase or decrease in volume of employment after that date is known, the redistribution of employees among concerns of various sizes may be roughly estimated on the assumption that employment in large and small concerns increased or decreased *equally*.²⁰

¹⁹ See Note 18, page 286: "Changes in the Distribution of Employment in Retail Trade Among Stores of Different Sizes from 1929 to 1935."

²⁰ Obviously, this method is not fine enough to be applied to small industrial groups or geographical areas which can be greatly affected by special or local influences. The essential element of any method of estimation is that the base must be sufficiently wide to permit random deviations to counterbalance each other.

CHAPTER XI

DISTRIBUTION OF EMPLOYMENT BY INDUSTRIES

SUMMARY

A COMPARISON of the number of persons employed in different industries as reported by industrial and occupational censuses shows that:

(1) Industrial censuses omit some small establishments, and occupational statistics fail to classify all gainful workers by industry, reporting some of them instead in "not specified industries";

(2) Principal officers of corporations are counted with the salaried group in the industrial censuses. Especially in the censuses of distribution, dealers whose income consists partly of fixed salary and partly of profits from their business are excluded from the employer group designated as "proprietors not on payroll." On the other hand, the owner of several enterprises for which separate schedules are filled out is usually reported on each schedule as the active proprietor, and therefore if the data of several industrial censuses are added, there will be duplications in the total number of proprietors. Thus, industrial censuses fail to show the exact number of proprietors engaged in each industry. The numbers of proprietors supplied by occupational statistics are likewise open to question inasmuch as in several instances self-employed persons are not clearly separated from salary and wage earners.¹ In many cases the number of proprietors among the gainful workers in an industry can be estimated only approximately by comparing the data of occupational and industrial statistics. Occasionally, the clue is provided by the number and distribution of establishments as reported by the industrial censuses.

(3) If salary and wage earners are counted together, and officers of corporations and other proprietors on their own payrolls are excluded, the totals shown by industrial and occupational statistics agree fairly well with each other. However, the number of salaried employees is overstated and that of wage earners understated in occupational statistics.

The number of salary and wage earners employed in different industries on April 1, 1930, as reported by the occupational and industrial censuses, is shown in Table 23. There is substantial agreement between the two sources in mines and quarries, manufactures, auto-

¹ Employers and self-employed are included among building workers, drivers and chauffeurs, hairdressers, etc. Salaried employees, on the other hand, are included among independent professional persons (physicians, teachers, etc.), insurance and real estate agents, and managers and officials who could not be distinguished from owners. Wage earners cannot be segregated from proprietors among fishermen and oystermen.

motive transfer and services, communication and utilities, wholesale and retail trade, banking and insurance, laundries and cleaning establishments.

**TABLE 23. EMPLOYMENT IN THE UNITED STATES ON APRIL 1, 1930,
ACCORDING TO OCCUPATIONAL AND INDUSTRIAL STATISTICS
(Estimated number of salary and wage earners employed)**

Industries	Occupational statistics (excluding workers out of jobs)	Industrial statistics (adjusted to the status of employment on April 1, 1930)
Agriculture.....	2,545,000	?
Forestry and fishing.....	130,000	?
Mines and quarries.....	766,000	772,000
Oil and gas wells.....	160,000	?
Manufactures.....	9,366,000	9,390,000
Construction ^a		
Salaried employees.....	160,000	115,000
Wage earners.....	1,800,000	800,000
Transportation:		
Air transportation.....	17,000	4,600
Water transportation.....	250,000	360,000
Steam railroads.....	1,500,000	1,710,000
Street railways.....	185,000	230,000
Truck, transfer, and cab companies, Garages, automobile repair shops, etc.....	1,190,000 ^b	1,173,000
Automobile agencies, stores, and filling stations.....		
Pipe lines.....	25,000	25,000
Other and not specified transportation and communication.....	20,000	?
Communication and public utilities:		
Telegraph and telephone.....	555,000	530,000
Postal service.....	275,000	280,000 ^c
Electric light and power.....	275,000	300,000
Wholesale and retail trade ^d	3,690,000	3,750,000

^a Salaried employees in construction include foremen. From the number of workers reported by occupational statistics, 270,000 supposedly self-employed persons (small entrepreneurs) have been subtracted. The 1929 Census of Construction covered less than half the building activities in the nation. (See pp. 170-171.)

^b It is assumed that 140,000 owner-drivers were reported among wage workers in trucking.

^c Excluding postal contractors and clerks of third-class post offices.

^d Excluding the automotive group, restaurants, and eating places, but including funeral establishments. Automobile agencies, stores, filling stations, garages, etc., have been counted with truck, transfer and cab companies. Restaurants and eating places have been tabulated with hotels.

TABLE 23. *Continued*
(Estimated number of salary and wage earners employed)

Industries	Occupational statistics (excluding workers out of jobs)	Industrial statistics (adjusted to the status of employment on April 1, 1930)
Banking, insurance, and real estate:		
Banking.....	380,000	340,000
Insurance.....	230,000	220,000
Advertising agencies.....	60,000	?
Real estate.....	50,000	?
Public service:		
Public service (not elsewhere classified).....	1,000,000	} 2,650,000
Public health and welfare service....	300,000	
Public education.....	1,120,000	
Professional service:		
Private professional service (including self-employed persons)....	1,415,000	1,445,000
Recreation and amusement.....	285,000	185,000
Hotels, restaurants, boarding houses...	890,000*	—
Laundries, cleaning establishments, etc.:		
Laundries.....	270,000	255,000
Cleaning establishments, etc.....	85,000	68,000
Personal service (not elsewhere classified).....	2,620,000	2,620,000
Omitted from the above industries and probably reported in "Not Specified Industries and Services" ..	500,000	—
Water transportation.....	60,000	—
Steam railroads.....	210,000	—
Street railways.....	50,000	—
Automobile transportation.....	60,000	—
Wholesale and retail trade.....	30,000	—
Public service.....	50,000	—
Office buildings.....	40,000	—
Casual laborers and other workers not attached to any particular industry.	545,000	—

* Office buildings were not included in this figure. However, they were included in this group in the national income estimates of the Department of Commerce.

Thus the volume of employment in different industries as reported in occupational statistics is confirmed by a score of special censuses and reports which cover about 90 per cent of all non-agricultural pursuits. In no field of activity can an important over-statement of employment by the 1930 Census of Population be detected. This fact substantiates the conclusion that the total volume of unemployment was not understated by the 1930 Unemployment Census.²

In the following pages the industrial groups enumerated in Table 23 are reviewed to ascertain the number of *employed workers* in each group in April 1930. In Chapter XIII they are reviewed to determine the number of *employers*, more especially in industries covered by the old-age insurance provisions of the Social Security Act and by state unemployment compensation laws.

EMPLOYMENT IN AGRICULTURE

The main sources of statistics on employment in agriculture are the quinquennial censuses of agriculture and the current reports of crop-reporters to the Department of Agriculture.

The 1930 Census of Agriculture had no specific question relating to farm labor, but its schedule on farm expenditures in 1929 carried the following inquiry regarding hired help:³

"38. Amount expended in cash in 1929 for farm labor (exclusive of housework)	\$	_____
"39. Number of days of farm work done in 1929 by hired laborers of all ages (exclusive of housework)	days."	_____

In answer to these questions the Census reported:

Farms with hired helpers in 1929.....	2,631,601
Days of hired labor in 1929.....	410,985,000

The 2.6 million farms reporting hired labor at some time during 1929 may be regarded as the total number of *regular and intermittent employers* in agriculture.

The "Farm and Ranch Schedule" of the 1935 Census of Agriculture omitted the inquiry on expenditures for hired labor, but asked the following:⁴

² This statement refers to national totals only, and does not exclude the possibility of local and partial voids in the 1930 enumeration of unemployed. The method of comparison used in the following pages is not sufficiently refined to reveal and explain minor discrepancies.

³ Fifteenth Census of the United States: 1930, Agriculture, Volume IV, p. 968. For explanations see p. 505. Question 38 has been asked since 1900; question 39 was asked for the first time in the 1930 Census.

⁴ Instructions to enumerators were: "(a) Include as family labor the farm operator and those members of his family who have worked on this farm without

"28. Number of persons working on this farm, first week in January (do not include persons doing housework):

(a) *Family labor*, include yourself and members of your family doing farm work without wages. No. —

(b) *Hired help*, include monthly, day, and piece work hands, and members of your family paid wages by you. No. —"

The apparent purpose of this question was to ascertain the volume of farm employment at its seasonally lowest point. It may be supposed that farms which retain wage workers in the first week of January also employ them the year around.

On the basis of this question, the 1935 Census reported:

Total number of farms on January 1, 1935.	6,812,350
Farms reporting work in the first week of January 1935. .	6,640,286
" with family labor only.	5,672,692
" with family labor and hired help.	816,154
" with hired help only.	151,440

Persons working in the first week of January 1935 can be classified as follows:

Farmers (operators)	6,488,846
Unpaid members of farmers' families.	4,273,166
Hired help	1,645,602

The differences between the enumerations of unpaid family workers by the 1930 Census of Population and by the 1935 Census of Agriculture have been previously discussed.⁸

The number of hired helpers was seriously affected by seasonal variations and by changes due to the depression, but figures for January 1935 and for April 1930 can be mutually adjusted with the aid of the statements of crop-reporters which are published monthly by the Department of Agriculture. On the first day of

pay for the equivalent of two or more days (at work other than housework) during the week beginning January 1, 1935, and who did not work longer than this during the same week at some paid occupation. Note that members of the family who are paid wages for work on this farm are to be reported as hired help. Exclude all members of the family who were living on this farm but were not working on this farm; for example, adult sons and daughters who are unemployed or visitors, and whose services are not used on this farm. (b) Report as *hired help* all who received (or will receive) wages for working the equivalent of two or more days during the week beginning January 1, 1935. This should include members of the family who are paid wages for work on this farm."

⁸ See Chapter II, page 17, and Note 6, page 251.

each month since October 1923, crop-reporters have been asked to state the number of persons on their farms, exclusive of household workers, as follows:

- (a) Family labor, including operators.
- (b) Hired labor, including monthly, day, and piece work hands.

However, crop-reporters represent a sampling on a narrow basis and are not characteristic of "average farms." On the contrary, "it has been found that crop-reporters have larger farms, that they have a larger percentage of their farms in crops, and that they have on their farms a larger number of live-stock than the average farm. The number per farm should therefore not be applied to the six million farms in the United States to obtain a total of farm employment. The figures are more valuable when used as an index."*

According to the statements of crop-reporters, there were 92 hired laborers per 100 reporting farms on April 1, 1930 compared with 65 laborers in the first week of January 1935, or 44 per cent more in 1930 than in 1935. This difference may be due largely to the usual seasonal differences in farm employment in April and in January. As experts generally recognize that the total employment of farm labor is influenced by sharper seasonal fluctuations than is revealed in the statements of crop-reporters, the difference between the number of laborers employed on the "average farm" in 1930 and in 1935 must be larger than 44 per cent.

The 1930 occupational statistics reported 2,732,972 farm laborers. From these, 132,890 unemployed (Classes A and B) should be subtracted, and an additional 2 per cent who were on temporary lay-off because of sickness, disability and other reasons. The remainder of about 2,545,000 employed farm laborers was 55 per cent more than the 1,645,345 laborers reported by the 1935 Census of Agriculture, a difference that could be expected in view of the statement above regarding crop-reporters. Essentially, therefore, the occupational statistics of April 1930 agree with the Agricultural Census of January 1935.

* U. S. Department of Agriculture, *Crops and Markets*, Monthly Supplement, October 1926, p. 308.

EMPLOYMENT IN EXTRACTION OF MINERALS

(See Table XIII-A and B in the Appendix, pages 316-317.)

Basic employment statistics in extraction of minerals are compiled on special schedules for the Census of Mines and Quarries as part of the general population censuses. They are complemented by the monthly employment indexes of the Bureau of Labor Statistics.

The 1930 Census of Population enumerated 1,149,252 gainful workers engaged in extraction of minerals. Excluding oil and gas wells, there remained 950,806 gainful workers in pursuits covered by the Census of Mines and Quarries. Among them were 6,278 proprietors, 33,265 salaried employees including professional persons and managers and officials, and 911,263 wage earners.[†] Subtracting from the total of salary and wage earners about 159,000 unemployed (Classes A and B),[‡] and an additional estimated 19,000 who were out of jobs because of temporary disability, there remained approximately 766,000 salary and wage earners who were actually employed.

On the other hand, the Census of Mines and Quarries reported in 1929 the following numbers of enterprises and persons engaged in these industries :

Industries	Number of enterprises	All classes of work	Persons engaged			Wage earners
			Proprietors and firm members	Principal salaried officers of corporations	Other salaried officers and employees	
Anthracite	198	150,494	38	163	7,492	142,801
Bituminous coal	4,976	482,541	2,983	2,682	18,144	458,732
Iron ore mines.....	180	30,707	9	22	2,160	28,516
Copper mines	143	48,043	76	62	3,403	44,502
Lead, zinc, gold and silver mines	633	36,526	192	262	2,219	33,853
Quarries and non-metalliciferous mining ..	3,969	111,035	1,599	2,409	9,013	98,014
Total.....	10,099	859,346	4,897	5,600	42,431	806,418

Source: Fifteenth Census of the United States: 1930, Mines and Quarries, 1929, pp. 23-24.

Between the period covered by these statistics and April 1930, the depression had already affected employment in mines. There-

[†] See Table I in the Appendix, page 291.

[‡] The 1930 Census of Unemployment reported 175,328 unemployed (Classes A and B) in extraction of minerals, but 16,027 of them were in oil and gas wells.

fore in order to estimate the number of wage earners employed in April 1930, the Bureau of Labor Statistics employment indexes for this date should be used:

Industries	Average number of wage earners in 1929 (Census of Mines and Quarries)	Employment index April 1, 1930* (average 1929 = 100)	Estimated number of employed wage earners on April 1, 1930
Anthracite	142,801	84.1	120,000
Bituminous coal	458,732	94.7	434,000
Metalliferous mining	106,871	89.3	92,000
Quarrying and non-metal- liferous mining	98,014	87.3	86,000
Total.....	806,418	—	732,000

However, the decline in the number of salaried employees between 1929 and April 1, 1930 was less pronounced. Excluding principal officers of corporations, there were probably 40,000 salaried employees and 732,000 wage earners, or a total of 772,000 who were actually employed in April 1930. This number is close to the 766,000 workers reported by the 1930 Census of Population as engaged in the extraction of minerals in April of that year.¹⁰

EMPLOYMENT IN MANUFACTURING INDUSTRIES

(See Table XIV-A and B in the Appendix, pages 318-319.)

The main sources for employment statistics in manufacturing industries are the censuses of manufactures and the monthly employment indexes computed by the Bureau of Labor Statistics on the basis of a very broad sampling. Every two years these indexes are compared with the latest Census of Manufactures. The comparison has shown that in most cases changes in the volume of employment indicated by two consecutive enumerations differ somewhat from the movement of employment indexes in the same time period. The deviations of employment indexes from the actual changes in employment vary from industry to industry and from year to year. Some indexes tend to overstate the decrease in employment and to understate its growth, while in others the

* It is assumed that the status of employment on April 1st corresponds to the average for March 15th and April 15th.

¹⁰ The 1930 occupational statistics reported correctly the total number of workers engaged in extraction of minerals as well as their distribution by its main branches, but are less reliable in its minor subdivisions.

opposite tendency is apparent. However, in manufacturing industries as a whole the downward deviations of the indexes prevail. It would seem therefore that a general tendency to understate the volume of employment is inherent in most of the employment indexes.¹¹ The accumulated deviation was 3.7 per cent from 1927 to 1929, approximately 4 per cent from 1929 to 1931, slightly more than 4 per cent from 1931 to 1933, and 3 per cent from 1933 to 1935. When deviations occur the index numbers have been adjusted upwards, the last revision having been made in December 1936 after the 1933 Census of Manufactures became available.

The adjusted figures of the 1930 Census of Population show in manufactures 187,159 employers, 1,761,331 salaried employees including professional persons and managers and officials, and 8,917,530 wage earners.¹² Subtracting from the total of 10,678,861 factory employees the 1,098,390 unemployed workers¹³ and the additional 2 per cent on temporary lay-off, there remained 7,694,000 wage earners and 1,672,000 salaried employees, or a total of 9,366,000. This total derived from the 1930 Census of Population should be compared with the data of the Census of Manufactures.

Since 1919 the censuses of manufactures have canvassed the following number of factories with products valued at not less than \$5,000:

1919.....	214,383	1929.....	209,862
1921.....	196,267	1931.....	174,255
1923.....	196,309	1933.....	141,769
1925.....	187,390	1935.....	169,111
1927.....	190,938		

¹¹ The essential source of deviation is that employment indexes do not reflect adequately the turn-over of establishments. The index registers the closing down of reporting enterprises but fails to report the new enterprises which replace the shut-downs.

¹² See Table I in the Appendix, page 291.

¹³ The 1930 Census of Unemployment covered in manufacturing industries:

	Unemployed (Classes A and B)
Salaried employees	53,658
Wage earners (including service workers)	946,387
Unclassified workers	98,345
	Total..... 1,098,390

Source: Table XII in the Appendix, page 313. In this estimate, unclassified workers have been added to wage earners.

It will be noticed that up to 1929 there were about 200,000 factories, which number is not far from the 187,159 "manufacturers" enumerated by the 1930 Census of Population.

The 1929 Census of Manufactures reported :

Establishments ¹⁴	210,959
Proprietors (December 15, 1929).....	133,210
Salaried employees, including officers of corporations and managers (December 15, 1929).....	1,358,775
Wage earners (average for 1929).....	8,838,743

Source: Fifteenth Census of the United States: 1930, Manufactures, 1929, Volume II, p. 15.

The number of proprietors (133,210) was 77,749 lower than the number of establishments, and approximately 55,000 lower than the number of "manufacturers" enumerated by the 1930 Census of Population. As several establishments may be owned and operated by the same person, the number of individual employers in manufacturing industries must be substantially smaller than 210,000. On the other hand, some proprietors of incorporated enterprises, counted as "manufacturers" by the Population Census, were reported as officers of corporations on the schedules of the Census of Manufactures and were counted in the group of salaried employees. A comparison of the data of the two sources seems to indicate that in 1930 there were approximately 55,000 persons in this marginal group. As officers of corporations are simultaneously employers and salaried employees, the question as to which group they should be counted in is to a great extent one of terminology. If they are regarded as proprietors, 55,000 should be subtracted from the 1,358,775 salaried employees reported by the 1929 Census of Manufactures, leaving about 1,300,000 salaried employees and 8,840,000 wage earners, or a total of approximately 10,140,000.

An estimate of the number of wage earners on April 1, 1930 may be made with the aid of the Bureau of Labor Statistics employment index which indicates that on this date employment was 7.9 per cent under the 1929 average. There are no similar statistics for salaried employees, but the probability is that the rate of decline in the number of salaried employees was hardly more than half that of wage earners, or 4 per cent. Applying these per-

¹⁴ Here the number of establishments in 1929 differs slightly from the number shown on page 167 since the latter has been adjusted to the coverage of more recent censuses.

centages to the data of the 1929 Census of Manufactures, the estimated volume of employment in April 1930 was about 1,250,000 salaried employees and 8,140,000 wage earners, or a total of 9,390,000. This number obtained from the 1929 Census of Manufactures agrees fairly well with the total of 9,366,000 obtained from the 1930 Census of Population. It should be noted, however, that the industrial census shows about 400,000 fewer salaried employees, and a correspondingly larger number of wage earners than the occupational census. This appears to reflect a "qualitative over-statement" in the occupational returns.

EMPLOYMENT IN CONSTRUCTION

For the purposes of this study, construction includes the building trades, as well as the construction and maintenance of roads, streets, sewers, and bridges.

In these industries the 1930 Census of Population enumerated more than 3 million gainful workers. Deducting the 570,000 reported as unemployed and the additional 2 per cent on temporary lay-off, the remainder of about 2.4 million gainful workers were presumably actively engaged in construction on April 1st. Of these about 170,000 were proprietors, about 160,000 were salaried employees, and the remaining 2,070,000 were wage earners. These figures cover the "contracting" business as well as force-account work, but do not include the carpenters, masons and other construction workers employed by mines, factories, railroads, utilities, etc. More than 250,000 construction workers were reported by the 1930 Census in industries other than building trades, construction and maintenance of roads, streets, etc.¹⁸ It is fairly certain that at least a part of these workers were employed in force-account construction. Furthermore, some of the figures in

¹⁸ The 1930 Census of Population reported:

Occupations	Total	In building trades	In construction and maintenance of roads, streets, etc.	In other industries
Carpenters	929,426	766,787	6,994	155,645
Brick masons	170,903	157,180	857	12,866
Painters (building)	430,105	415,027	751	14,327
Plumbers	237,814	164,601	356	72,857
Structural iron workers (building)	28,966	25,400	2,782	784

Source: Fifteenth Census of the United States: 1930, Population, Volume V, pp. 40, 41, 426 and 544.

the occupational statistics were understated and some were overstated. For example, dealers in construction supplies and real estate agents who also operated building businesses were not registered as builders or contractors, and small entrepreneurs were classified as wage earners.¹⁶

If the number of carpenters, masons, painters, plumbers, etc. who were "working on own account" is roughly estimated at 250,000 to 300,000, the status of employment in construction based on the 1930 occupational census may be summarized as follows:

Employers and self-employed persons.....	420,000 to 470,000
Salaried employees, including foremen.....	160,000
Wage earners	1,770,000 to 1,820,000

The first Census of Construction collected statistics on the "contracting group" in 1929. It canvassed 144,396 firms whose business had a net value of \$5.8 billion, somewhat less than half the total amount of construction business in the United States in 1929.¹⁷ This Census reported the following figures, partly based on estimates:

	Total	Firms in 1929 with a business of	
		Less than \$25,000	\$25,000 or more
Number of establishments.....	144,396	113,799	30,597
Active proprietors	141,754	113,799 ¹⁸	27,955
Salaried employees (average for the year)..	129,292	22,826	106,466
Wage earners (average for the year).....	998,671	169,899	828,772

Source: Fifteenth Census of the United States: 1930, Construction Industry, pp. 20, 22, 88.

¹⁶ The Classified Index of Occupations, used in tabulating the returns of the 1930 Census, listed numerous groups of independent proprietors and persons "working on own account" with wage earners. For example, among carpenters were included building contractors and woodworkers who owned their shops; among painters were independent contractors, decorators and floor finishers. The term "working on own account" is confusing, leaving to guesswork whether all persons "working on own account" belonged to independent hand trades or were small contractors who on the day of the census happened to have no paid helpers. There may also have been cases of small employers with paid help who misinterpreted "working on own account" to mean economic independence.

¹⁷ The Federal Employment Stabilization Board estimated the 1929 volume of construction at \$11,630 million. Of this sum \$4,610 million was expended for private construction, \$4,260 million for public utilities, and \$2,760 million for public works. (N. G. Bookholtz and C. Judkins, *The Construction Industry, including a List of Selected Trade Associations*, U. S. Department of Commerce, Bureau of Foreign and Domestic Commerce, mimeo., April 1936, p. 13.) These numbers include force account construction fulfilled by industrial firms. Some construction workers employed by these firms were not counted in the construction industry by occupational statistics. See footnote 15 on page 169.

¹⁸ Assuming that each proprietor owned only one establishment.

According to the reports of the American Federation of Labor, employment in building trades in April 1930 was approximately 20 per cent under the 1929 average. There is, however, no evidence that employment by the contracting firms canvassed by the Census of Construction declined in exactly the same proportion. It is more probable that the personnel of these firms was affected by the depression more severely than the average of union members in building trades. On this basis it is estimated that the firms covered by the Census of Construction employed on April 1, 1930 not more and probably somewhat less than 915,000 workers, including 115,000 salaried employees and 800,000 wage earners. Thus the canvassed firms handled somewhat less than half the workers registered by the 1930 Census of Population as employed in building trades.¹⁹

EMPLOYMENT IN TRANSPORTATION

(See Table XV in the Appendix, pages 320-322.)

According to the classification used in the present study, transportation includes: air transportation; water transportation; steam railroads, including Pullman and express companies; street railways; truck, transfer, and cab companies; garages, greasing stations, and automobile laundries; automobile repair shops; and a small number of unspecified transportation and communication establishments. For the reasons given on page 174, this division in Table 23 includes also automobile agencies, stores and filling stations.

Air transportation. Among the 18,189 gainful workers reported by the 1930 Population Census in civil aeronautics, there

¹⁹ In 1935 another Census of Construction was taken as part of the Census of Business. The new tabulations consist of data furnished by all contractors and builders whose business in 1935 amounted to \$500 or more. However, the coverage is not complete. The Census canvassed 75,047 establishments whose total business amounted to \$1,623 million. Only 69,838 establishments reported the number of persons in their employ, the average for the year being 409,137 employees. (Census of Business: 1935, Construction Industry, Volume I, p. 1.) As the business volume of the latter group of establishments was \$1,458 million, the total number of persons employed in all establishments canvassed by the Census may be estimated at 450,000. It varied between approximately 300,000 in January and February, and 550,000 in the active season from July to October. The Federal Employment Stabilization Board estimated that the value of construction work in 1935 exceeded \$5 billion, including private and public force-account construction.

were 74 proprietors, 4,081 salaried employees, and 14,034 wage earners. Included in the latter were 6,097 civil aviators. Subtracting the 490 unemployed and the 2 per cent on temporary lay-off, the remainder of about 5,500 aviators was actually employed in civil aeronautics. However, the average number of aviators employed in 1930 by all civil aviation companies was only 675,²⁰ and the entire personnel totaled 4,585.²¹ Obviously many workers in aviation improperly reported themselves as "aviators" or were so reported by some member of their families.

Water transportation includes crews and shore employees of foreign, coastwise, inland, and lake carriers, stevedores and longshoremen, and harbor services. Among approximately 300,000 gainful workers enumerated by the 1930 Census of Population, about 50,000 were out of jobs,²² leaving 250,000 employed. This is much less than the number indicated for 1930 in the national income estimates of the Department of Commerce, which included 518 employers, 48,941 salaried employees, 156,822 stevedores and longshoremen, and 104,914 other wage earners. In addition, an estimated 50,000 persons were engaged in harbor services in 1929.

The discrepancy of approximately 110,000 in the group of wage earners, including stevedores and other harbor workers, may be partly explained by the fact that a number of steamers were on the open sea when the 1930 Census of Population was taken, and perhaps, too, some harbor workers were classified as casual laborers in not specified industries and services.

Steam railroads. The 1930 Census of Population enumerated 1,645,306 workers on steam railroads, including Pullman and express companies. Subtracting 115,000 unemployed,²³ and 33,000 who were temporarily laid off, there remained about 1.5 million who were employed on April 1, 1930.

²⁰ U. S. Department of Commerce, Bureau of Air Commerce, *Air Commerce Bulletin*, April 15, 1935.

²¹ U. S. Department of Commerce, Bureau of Foreign and Domestic Commerce, *National Income in the United States, 1929-35*, pp. 134 and 257.

²² The 1930 Census of Unemployment reported the number unemployed in selected occupations of water transportation. Of the total of 168,782 gainful workers, 25,362 were unemployed, the rate of unemployment being 15 per cent, to which has been added the 2 per cent on temporary lay-off.

²³ The 1930 Census of Unemployment returned 76,710 unemployed in selected occupations on railroads. As the total number of workers in these occupations was 1,170,965, the rate of unemployment was 7 per cent. This rate has been applied to the total number of gainful workers enumerated on railroads, including express companies.

On the basis of the Interstate Commerce Commission reports, the Department of Commerce in its national income estimates indicated that the total employment on railroads in 1930 was 1,659,030, including 397,251 salaried employees and 1,261,779 wage earners. The Bureau of Labor Statistics employment index for Class I Steam Railroads stated that employment on April 1, 1930 was higher by 3 per cent than the average for 1929. Therefore, the number of railroad workers in April 1930 may be estimated at 1,710,000. The difference of about 210,000 in the two estimates is probably due to the inclusion of casual railroad laborers in not specified industries and services in the occupational census.

Street railways. On the basis of the 1930 Census of Population it is estimated that there were about 24,000 salaried employees and 170,000 wage earners of whom about 10,000 were out of jobs,²⁴ leaving approximately 185,000 persons actually employed by street railways.

The Census of Electric Railways taken in 1932 reported 20,260 salaried employees, 78,928 conductors, motormen, etc., and 82,977 other wage earners, or a total of 182,165.²⁵ Applying to this total the Bureau of Labor Statistics employment index for "Electric Railroads and Motor Bus Operation and Maintenance," it may be estimated that 230,000 persons were employed in this industry on April 1, 1930.

The 1930 occupational census apparently included all salaried employees but omitted approximately 45,000 wage earners other than conductors. Probably their occupation was not described clearly enough in the population schedule and they may have been tabulated in not specified industries and services.

Truck, transfer and cab companies. In the rearranged occupational statistics used in the present study, there were included in this branch of transportation in 1930, 483,148 gainful workers, among them 30,752 proprietors and 452,396 salary and wage earners, including professional persons.²⁶ As about 30,000 to 35,000 employees were out of jobs on April 1, 1930, the number

²⁴ The classification of unemployed workers in street railways by the 1930 Census of Unemployment is confused. Only conductors were separately reported, and their number was remarkably low: 908 unemployed in an occupational group of 36,680, or less than 3 per cent. An additional allowance of 2 per cent has been made for those on temporary lay-off.

²⁵ See Statistical Abstract of the United States, 1936, p. 395.

²⁶ See Table I in the Appendix, page 294.

employed was approximately 420,000. The national income estimates of the Department of Commerce stated that 317,204 proprietors and 533,149 employees were engaged in trucking in 1930.

The striking difference in the numbers of "proprietors" in the two sets of figures is probably due to the fact that the occupational census made no distinction between self-employed cab and truck drivers and drivers employed by owners of for-hire motor vehicles. It reported proprietors among chauffeurs and truck and tractor drivers in various industrial divisions, and also in not specified industries and services. Statistics of the distribution of trucking enterprises by size-classes justify the supposition that in this industry in 1930 there were not 30,000 but at least 170,000 employers and self-employed persons.²⁷ This means that among the 420,000 employed workers enumerated by the 1930 Census, approximately 140,000 were proprietors, while among the 317,204 proprietors of trucking enterprises reported in the national income estimates, approximately 147,000 were supposed to have had other principal occupations.

If this explanation is true for the proprietary group, then the difference between the two sets of figures for employees becomes still larger. The national income estimates showed 533,000 employees, while in occupational statistics there were only 280,000. A possible explanation for this large discrepancy may be in the difficulty of drawing an exact distinction between trucking and other enterprises connected with automobile transportation, such as garages, greasing and filling stations, automobile stores and repair shops.

In *garages, greasing and filling stations, automobile laundries, repair shops, agencies, etc.*, the 1930 Census of Population enumerated the following numbers of gainful workers:

Garages, greasing stations, automobile laundries.....	423,843
Automobile repair shops.....	257,925
Automobile agencies, stores, and filling stations.....	498,350
Total.....	1,180,118

Source: Table I in the Appendix, page 294.

Of the total, 218,228 persons presumably were proprietors, and 961,890 salary and wage earners.

²⁷ This is a highly conservative estimate based on the assumption that in most cases the operation of small one-truck enterprises was not the main pursuit of the owner. Only one-third of the owners of such firms have been counted as proprietors in the trucking industry. Cf. Chapter XII, page 197.

In April 1930 unemployment in these pursuits amounted to about 5 or 6 per cent, including the 2 per cent allowance for temporary lay-off. After deducting the workers out of jobs, there remained about 910,000 employed salary and wage earners.

The 1929 Census of Distribution on the other hand reported in the automotive group only 628,333 full-time, and 57,644 part-time employees.²⁸ Assuming that 1,000 part-time employees are the equivalent of 200 full-time employees and that employment on April 1, 1930 was about as high as the average for 1929, the number employed in this group of establishments in April 1930 may be estimated at 640,000, which is 270,000 less than the number reported by occupational statistics. This difference just about counterbalances the under-statement of the number employed by truck, transfer and cab companies in the Population Census. The total number of persons employed on April 1, 1930 in trucking and services related to automobile transportation, including the automotive group in distribution, was 1,190,000 according to occupational statistics and 1,173,000 according to industrial censuses.

Other and not specified transportation and communication include pipe lines with 25,001 gainful workers enumerated by the 1930 Census of Population, livery stables with 9,642 gainful workers, and other and not specified establishments with 11,747 gainful workers. Industrial statistics agree closely with the figure for pipe lines. For the other two branches no industrial data are available.

²⁸ The 1929 Census of Distribution reported:

Kind of business	Establishments	Employees	
		Full-time	Part-time
Motor vehicle, dealers.....	45,301	343,570	13,009
Accessories, tires and batteries..	22,313	50,886	4,330
Filling stations	121,513	126,721	23,800
Garages and repair shops.....	66,793	104,009	16,120
Motorcycles, bicycles, and other.	1,765	3,147	385
Total.....	257,685	628,333	57,644

Source: Fifteenth Census of the United States: 1930, Distribution, Volume I, p. 47.

The Census of Distribution enumerated more filling stations (121,513) than the Population Census did *proprietors* of filling stations (89,120). The discrepancy may be explained by the fact that ownership of a filling station is not necessarily the proprietor's main occupation and that one proprietor may own several stations.

EMPLOYMENT IN COMMUNICATION AND UTILITIES

(See Table XV in the Appendix, pages 320-322.)

The division of Communication and Utilities in the classification used in this study includes telegraph and telephone, postal service, and electric light and power plants. The 1930 Unemployment Census reported an insignificant number unemployed in these services.²⁹ It is estimated that of 587,566 persons enumerated in telegraph and telephone services by the 1930 occupational census, 30,000 to 35,000 were out of jobs, and approximately 555,000 were employed. This is about 25,000 more than the number reported by the companies themselves. However, it should be remembered that the Census counted all telephone operators employed by industrial and commercial establishments in the division of Telegraph and Telephone.³⁰

In the postal service, the 1930 Population Census agrees perfectly with statistics published by the Civil Service Commission as to the number employed. The Census enumerated 283,936 gainful workers. The number unemployed among them was unknown, but it could not have been very high since only .6 per cent of mail carriers were unemployed. Deducting the 2 per cent on temporary lay-off, the remaining 275,000 postal workers were employed.

The Civil Service Commission reported 317,316 employed postal workers at the end of 1929, and 315,724 at the end of 1930.³¹ The probable number of persons employed on April 1, 1930 was somewhat over 315,000. However, included in this

²⁹ The 1930 Unemployment Census reported in selected occupations:

	Gainful workers	Unemployed workers (Classes A and B)	
		Number	Per cent
Telegraph operators	67,821	2,496	3.7
Telephone operators	248,884	6,242	2.5
Telegraph and telephone linemen.....	71,625	3,067	4.3
Telegraph messengers	16,176	1,464	9.0
Mail carriers and postmasters.....	155,754	987	.6

Source: Fifteenth Census of the United States: 1930, Unemployment, Volume II, pp. 16-17.

³⁰ The 1930 Census enumerated 67,821 telephone operators, none of whom was tabulated in industries other than telephone and telegraph (Fifteenth Census of the United States: 1930, Population, Volume V, p. 554).

³¹ Statistical Abstract of the United States, 1932, p. 155.

total were approximately 35,000 clerks of third-class post offices and postal contractors (excluded since 1932) who probably were not counted in postal services in occupational statistics. Exclusive of this group, there would remain, according to the Civil Service Commission, approximately 280,000 persons employed on April 1, 1930.

The number of workers in electric light and power plants covered by the 1930 Census of Population—98,753 salaried employees and 190,373 wage earners, or a total of 289,126—is fairly close to that reported directly by employing establishments. Deducting approximately 5 per cent for unemployment and sickness, there remained about 275,000 employed salary and wage earners. On the other hand, 3,429 light and power plants reported 110,453 salaried employees and 134,120 wage earners or a total of 244,573 workers on June 30, 1932.²² As the Bureau of Labor Statistics employment index for April 1930 was more than 20 per cent higher than for June 1932, there should have been a total of about 300,000 employed salary and wage earners in April 1930.

EMPLOYMENT IN WHOLESALE AND RETAIL TRADE

In wholesale and retail trade, except the automotive group, the 1930 Census of Population reported the following numbers of workers, as adjusted in this study:

Industries	Total	Employers and self-employed persons	Salaried employees (including professional persons)	Wage earners
Grain elevators	31,124	1,704	14,564	14,856
Stockyards, warehouses, and cold-storage plants	77,157	1,456	26,367	49,334
Wholesale and retail trade (including other and not specified trade)	5,438,671	1,677,637	2,904,839	856,195
Total.....	5,546,952	1,680,797	2,945,770	920,385

Source: Table I in the Appendix, page 295.

From the total of 3,866,155 salary and wage earners, about

²² Statistical Abstract of the United States, 1936, p. 352.

175,000 who were unemployed²³ or temporarily laid off should be deducted, leaving approximately 3,690,000 employed salary and wage earners. The 1930 Census of Unemployment also reported about 30,000 "unemployed dealers" who should be excluded from the proprietary group, leaving about 1,650,000 of them actively engaged in trade.

On the other hand, the 1929 Census of Distribution reported the following numbers of establishments and persons engaged in wholesale and retail trade:

	Total	Wholesale trade	Retail trade ²⁴
Establishments	1,333,489	169,654	1,163,835
Proprietors (not on payroll)	1,225,202	90,772	1,134,430
Employees { Full-time Part-time }....	4,977,103	1,605,042	{ 2,801,668 570,393

Only about 1,225,000 active proprietors were reported, whereas 1,650,000 were counted by the 1930 Census of Population. This

²³ The 1930 Unemployment Census reported:

Occupations	Gainful workers	Unemployed workers (Classes A and B)	
		Number	Per cent
Salesmen and saleswomen.....	2,069,003	98,273	4.8
"Clerks" in stores.....	401,991	21,200	5.2
Floor walkers, foremen, overseers..	38,163	910	2.4
Commercial travellers	223,732	7,020	3.1
Retail dealers	1,703,522	28,701	1.6

Source: Fifteenth Census of the United States: 1930, Unemployment, Volume II, p. 17.

²⁴ Excluding the automotive group, restaurants and eating places, but including funeral establishments, as reported by the 1930 Census of Business. In these branches the 1929 Census of Distribution reported:

	Stores	Proprietors (not on payroll)	Employees	
			Full-time	Part-time
Automotive group	257,685	242,800	628,333	57,644
Restaurants and eating places	134,293	148,948	419,994	57,782
Total.....	391,978	391,748	1,048,327	115,426

Source: Fifteenth Census of the United States: 1930, Distribution, Volume I, pp. 47-48.

For funeral establishments, the 1933 Census of Business reported:

Establishments	12,655
Proprietors	15,571
Employees { Full-time	16,414
{ Part-time	9,260

Source: Census of American Business: 1933, Services, Amusements, and Hotels, Volume I, p. 1. It has been assumed that the same number of funeral establishments existed in 1929.

discrepancy is probably accounted for by the fact that the Distribution Census counted as employees all officers of corporations, partners, firm members and independent dealers who received stated salaries or commissions. The two censuses can be reconciled if it may be assumed that the difference of 425,000 represents the number of dealers whose income, at least in part, was in the form of salary or commission. In accordance with this assumption, approximately 30,000 persons in wholesale and 395,000 in retail trade who were reported as employees by the Census of Distribution, should be transferred to the proprietary group. There would then remain a total of 4,550,000 full-time and part-time employees.⁵⁵

Average earnings for 1929 in retail trade were \$1,312 for full-time workers and \$239 for part-time.⁵⁶ Assuming that both received approximately the same daily salary, part-time employees worked an average of one day a week, or eight to nine weeks during the year. Moreover, it seems that frequently *cases* of part-time employment were counted rather than *persons* employed on a part-time basis. Window washers, decorators, advertising agents, commission men, legal advisers, etc., who worked during the reported week in several stores were returned as "part-time employees" by each employer. Besides this, it seems probable that family members who assisted small dealers were occasionally reported as part-time workers; this in fact is the only way they could have been reported if their services were remunerated. Therefore, the number of part-time employees reported in retail trade by the 1929 Census of Distribution must be reduced in the ratio of their earnings to the average annual earnings of full-time workers, i.e., from 570,393 to approximately 100,000.

The same reasoning is applicable to wholesale establishments. Although recent censuses have shown that part-time work in wholesale establishments is less usual than in retail stores, hardly less than 10 per cent of the 1,605,042 employees enumerated by the 1929 Census of Distribution were employed on a part-time

⁵⁵ The Census schedule defined as part-time those employees who worked part of a full working day or week nearest to the 15th of the reported month. Persons employed only part of the year but working on a full daily and weekly basis were returned as full-time employees. (Fifteenth Census of the United States: 1930, Distribution, Volume I, p. 40.)

⁵⁶ *Ibid.*, p. 47.

basis. These 160,000 part-time workers are equivalent to about 30,000 full-time workers.

A summary of the data of the 1929 Census of Distribution may be presented as follows :

	Total	Wholesale trade	Retail trade
Proprietors not on payroll.....	1,225,202	90,772	1,134,430
Proprietors on payroll, about.....	425,000	30,000	395,000
Full-time employees, about.....	3,820,000	1,415,000	2,405,000
Part-time employees, counted on basis of full-time work.....	130,000	30,000	100,000

Thus, the total number of *employees* in wholesale and retail trade in 1929 was about 3,950,000. But this figure is based on averages for April, July, October and December 1929, and the Bureau of Labor Statistics employment index shows that employment in retail trade in April 1930 was approximately 5 per cent under this average. Therefore, the number of employees in distribution in April 1930 was about 3,750,000. This number is higher by 60,000 than that determined on the basis of occupational statistics. The discrepancy probably has two sources :

(1) A difference of about 30,000 may result from the tabulations of brokerage enterprises. The Census of Population counted brokers and commission agents in banking and brokerage; the Census of Distribution included many of them in wholesale trade.

(2) Approximately 30,000 employees, probably registered without an exact indication of their industrial affiliations, may have been counted in not specified industries and services.

EMPLOYMENT IN BANKING, INSURANCE, AND REAL ESTATE

(See Table XV in the Appendix, pages 320-322.)

The 1930 Population Census presumably covered in banking, brokerage, advertising agencies, insurance, and real estate 716,543 proprietors, 720,056 salaried employees and 48,163 wage earners, including service workers. It is assumed that the percentage of unemployed in these pursuits was approximately the same as in the whole of trade, i.e., about 6 per cent including the 2 per cent on temporary lay-off. Deducting these, approximately 680,000 salaried employees and 40,000 wage earners were employed in April 1930. Of the total, 380,000 were employed by banks and

brokerage houses, 230,000 by insurance companies, 60,000 by advertising agencies, and 50,000 by real estate agencies.

The national income estimates of the Department of Commerce computed on the basis of direct returns from banks and insurance companies, showed that in 1930, 341,368 persons were employed in commercial, savings, and other banks and 219,341 in insurance companies. However, it should be remembered that in this estimate brokerage was not included with banking. The difference between the two enumerations of insurance company employees (230,000 in occupational statistics and 220,000 in the national income estimates) may be due to different interpretations in the case of "agents" who were paid regular salaries in addition to commissions on sales.

No inclusive statistics on employment in real estate are available, and advertising agencies were only partially covered by censuses of business.

EMPLOYMENT IN PUBLIC SERVICE

In occupational statistics public service does not as a rule include those public employees who "occupationally, can be better classified elsewhere," i.e. public school teachers, postal employees, etc.⁸⁷ In the 1930 Census the division included employees of government agencies, the Army and Navy, officials and inspectors of all kinds, members of legislatures, sanitation inspectors, inspectors of schools, etc. However, a number of private occupations were likewise included⁸⁸ while hundreds of thousands of employees of various public agencies were counted elsewhere than in public service. In several cases high and subordinate officials of the same organization were counted in different industrial divisions.⁸⁹

⁸⁷ Fifteenth Census of the United States: 1930, Population, Volume V, footnote 5 on p. 573. This limitation is in direct contradiction to the underlying idea of a cross-tabulation by both industry and occupation which always involves the distribution of occupationally uniform groups among several industrial divisions. Public service is precisely this, an industrial division including different occupations. It appears illogical to exclude from it certain groups of workers because "occupationally" they can be "better classified elsewhere."

⁸⁸ The Classified Index of Occupations lists the following occupations to be included in public service: guards, doorkeepers and gate keepers in establishments not owned by government; detective and secret service men employed by *private* agencies; meter inspectors and repairers of *private* water companies, etc. (Fifteenth Census of the United States: 1930, Classified Index of Occupations, pp. 179-185.)

⁸⁹ Prison guards were counted in public service, but prison keepers and officers were listed under "semi-professional and recreational pursuits." On the contrary,

Workers employed by public works, health board departments, city parks, and municipalities, for instance, were counted partly in public service, partly in professional service, and partly in building industries. Hospital keepers were reported in professional service, morgue keepers partly in public service and partly in professional service, and cemetery keepers in domestic and personal service.

The total number of employed persons enumerated in public service by the 1930 Census of Population was somewhat under 1 million, less than one-third the number who were actually on government payrolls at the time. According to the national income estimates of the Department of Commerce the average number of persons in public service in 1930 was 3,228,702. If the 1,120,000 persons employed in public education and the 280,000 employed in postal service are deducted from this number, and if the remainder is adjusted to the status of employment in April 1930 with the aid of the Bureau of Labor Statistics employment index, it appears that approximately 1,730,000 persons were employed in public service. The discrepancy between this figure and that reported by the occupational census is due, among other reasons, to the following: (1) Many persons on government payrolls could not be registered by the 1930 Census because they were not in the territory of continental United States, e.g., diplomatic service, Panama Canal, some in the Navy; (2) the number of soldiers, sailors, and marines was understated; (3) the personnel of public health and welfare establishments was counted in professional service; (4) workers employed by governments for construction and maintenance of roads, bridges, canals and other public works on a force account basis were tabulated in construction; (5) some seasonal workers on government payrolls at the end of 1930 were not employed by government in April of that year and were probably listed by the Census as casual and not specified laborers.

An exact distribution of the 730,000 workers employed by governmental agencies and not counted by the 1930 Census in public service, is impossible, but some items may be estimated. In 1930 the Army and Navy had on their payrolls 266,420 persons,**

in public education higher officials were counted in public service, whereas school teachers were tabulated in professional pursuits.

** U. S. Department of Commerce, Bureau of Foreign and Domestic Commerce, *National Income in the United States, 1929-35*, p. 194.

133,790 more than the number of soldiers, sailors and marines enumerated by the 1930 Census as resident in continental United States. The difference may be accounted for partly by service abroad and partly by occasional under-enumeration. The personnel of public health and welfare establishments has been estimated by experts of the Social Security Board at 300,000. The number of public construction workers is unknown, but it has been assumed that approximately 50 per cent of the 400,000 workers enumerated as employed in construction and maintenance of roads, streets, etc., were on government payrolls.

EMPLOYMENT IN PROFESSIONAL SERVICE

(See Table XV in the Appendix, pages 320-322.)

In professional service, exclusive of recreation and amusement, the 1930 Census of Population covered approximately 700,000 independent persons and 2,265,000 salary and wage earners. Allowing the 2 per cent for temporarily disabled independent workers, and 5 per cent for salary and wage earners either unemployed or temporarily laid off, there remained 685,000 proprietors and 2,150,000 salary and wage earners at work in April 1930. Of this number about 1,120,000 persons were employed in public education and 300,000 in public health and welfare services, leaving about 1,415,000 in private professional service. The last number is not far from the national income estimates of the Department of Commerce, i.e., an average of 1,420,810 persons in 1929 and 1,456,967 in 1930.⁴¹ Straight linear interpolation based on the national income estimates shows that somewhat less than 1,450,000 persons were engaged in private professional service on April 1, 1930. An explanation of the difference of approximately 30,000 between the two estimates may be that in occupational statistics teachers of music were counted in recreation and amusement and not in professional service.

In recreation and amusement, the 1930 occupational statistics covered 59,570 independent persons and 383,635 salary and wage

⁴¹ U. S. Department of Commerce, Bureau of Foreign and Domestic Commerce, *National Income in the United States, 1929-35*, p. 205. The total for 1929 included 147,754 clergymen, 191,101 in private education, 540,336 in private health services, 294,241 in private hospitals, 196,737 in legal professional service, and 50,641 in consulting engineering service.

earners. The 165,128 musicians and teachers of music form the most numerous single occupational group in this industrial division. Music teachers should be deducted, leaving in recreation and amusement about 340,000 to 350,000 employees.

The 1930 Census of Unemployment indicated a comparatively high unemployment rate in this division.⁴² Deducting the additional 2 per cent for temporary disability, the number of employed salary and wage earners in recreation and amusement is reduced to 280,000 or 290,000.

In the national income estimates of the Department of Commerce, the incomplete statistics on amusement industries supplied by the 1933 Census of Business were amended, extrapolated and combined with data on motion picture production, which is not a part of amusements as this term is used in the occupational statistics. According to the national income estimates there was an average of 33,602 proprietors and 186,041 employees in 1930. Comparing these numbers with occupational statistics, there is an unreconciled difference of 26,000 for proprietors and of approximately 100,000 for employees.

EMPLOYMENT IN HOTELS, RESTAURANTS, BOARDING HOUSES, ETC.

The 1930 Census of Population covered 366,625 proprietors and 990,756 salary and wage earners in hotels, restaurants, etc. Unpaid family workers, numerous in these pursuits, were not shown separately. Among salary and wage earners the rate of unemployment was rather high,⁴³ about 10 per cent including the 2 per cent on temporary lay-off. In addition, several thousand proprietors were reported unemployed. After subtracting the unemployed, 360,000 proprietors and 890,000 employees were actually engaged in the hotel and restaurant business.

The special industrial censuses provide incomplete employment statistics for hotels and restaurants. Business censuses did not

⁴² For example, among 75,296 actors and showmen 10,601 were out of jobs.

⁴³ For selected occupations in hotels, restaurants, etc., the 1930 Unemployment Census reported:

	Gainful workers	Unemployed workers
Cooks	243,670	22,283
Porters	57,612	4,698
Other servants	193,655	13,459

canvass boarding and lodging houses, tourist homes, club dormitories and similar establishments, and omitted a number of seasonal hotels. The 1929 Census of Business limited its canvass to hotels with 25 or more guest rooms. Restaurants were canvassed by censuses of retail distribution (taken as part of the business censuses in 1929, 1933 and 1935), but it seems highly probable that some of the small units without regular hired help were omitted. No industrial statistics are available for boarding and lodging houses, which were counted with hotels and restaurants in occupational statistics.⁴⁴

Because of these voids in the industrial reports, there can be no accurate comparison of occupational and industrial data on hotels, restaurants, boarding houses, etc.

EMPLOYMENT IN LAUNDRIES, CLEANING ESTABLISHMENTS, ETC.

The 1930 occupational census reported 15,440 proprietors of laundries with 294,939 employees, and 16,275 proprietors of cleaning, dyeing and pressing establishments with 92,970 employees. Taking into account that unemployment in these pursuits was not particularly severe in the spring of 1930 and allowing for the 2 per cent on temporary lay-off, the number of active employees may be estimated at 270,000 for laundries and at 85,000 for cleaning, dyeing, and pressing establishments.

Both branches were canvassed by the 1929 Census of Manufactures, but the results were not included in the totals for manufacturing industries. The 1929 Census of Manufactures reported:

	Establishments	Proprietors and firm members	Salaried officers and employees	Wage earners
Laundries	6,776	5,220	21,964	233,187
Cleaning, dyeing and pressing	5,296	4,912	9,244	59,148

Source: Fifteenth Census of the United States: 1930, Manufactures, 1929. Volume II, pp. 1393-1406.

It appears that about 1,550 proprietors of laundries and approximately 400 proprietors of cleaning, dyeing, and pressing estab-

⁴⁴ In April 1930, 144,371 boarding and lodging house keepers (among them 499 unemployed) were reported. Servants and other workers in their employ were not shown separately.

lishments were included among salaried officers and employees. Excluding these proprietors, an average of about 253,600 persons were employed in laundries in 1929 and 68,000 in cleaning, dyeing, and pressing establishments. Because of the small amount of unemployment in these industries, it is assumed that employment on April 1, 1930 was the same as the averages for 1929. On this basis, the numbers reported by the Census of Manufactures were somewhat less than those deduced from the Population Census, a discrepancy which may be accounted for by the failure of the former to enumerate all small establishments.

EMPLOYMENT IN DOMESTIC AND PERSONAL SERVICE

This branch includes service in establishments, and domestic service in private homes.

The 1930 Census of Population tabulated in domestic and personal service (not elsewhere classified) a total of 3,037,568 gainful workers: probably 6,219 proprietors, 8,651 salaried employees, and 3,022,698 wage earners.⁴⁵ Of the wage earners, 2,550,247 were in domestic service in private homes. Unemployment in this division in April 1930 was hardly more than 8 per cent including the 2 per cent temporarily laid off, leaving about 2.8 million employed. However, not all of the persons tabulated as wage earners were paid stated wages. For example, the 1933 Census of Business reported 128,709 proprietors of barber shops, 45,807 proprietors of beauty parlors, and 7,027 proprietors of shoe shine parlors, totaling 181,543 for the three groups. The corresponding number in 1930 was probably still higher, but in the 1930 occupational census not all of these proprietors were distinguished from wage earners. Therefore, the number of employed service workers reported by the 1930 Census of Population should be reduced from 2.8 million to approximately 2,620,000.⁴⁶

⁴⁵ See Table I in the Appendix, page 295.

⁴⁶ In the national income estimates of the Department of Commerce the number of employees in domestic service, apartment houses and office buildings, and other personal services was 2,755,000 in 1929 and 2,575,000 in 1930. Straight linear interpolation of these numbers gives exactly 2,620,000 for April 1, 1930. However, the agreement of the two estimates does not prove much as to the exactness of either set of figures, as both are based on the same original data.

EMPLOYMENT IN NOT SPECIFIED INDUSTRIES AND SERVICES

The 1930 Census of Population included in this division cases which could not be definitely classified in other industrial branches. Besides "casual laborers" who were engaged in no single occupation or industry, the Census included persons whose occupations were described, but whose industrial affiliations were not clearly indicated on the schedule. It is estimated that there were 1,715 employers and self-employed persons, 318,079 salaried employees, and 1,017,895 wage earners.

Unemployment was particularly high in this division. Among the 695,865 "general and not specified laborers" who constituted the majority of this group, the 1930 Unemployment Census reported 201,906 unemployed in Classes A and B, but there is no evidence that the rate of unemployment was the same for the rest of the group. Deducting the unemployed and an additional 2 per cent for temporary disability, the total number of workers actually employed in not specified industries and services in April 1930 is reduced, probably to 1,045,000. The preceding analysis of employment in the different industrial divisions provides the basis for a tentative classification of some of these workers who probably were occupied in the following industries on April 1, 1930:

Water transportation	60,000
Steam railroads	210,000
Street railways	50,000
Automobile transportation	60,000
Wholesale and retail trade.....	30,000
Public service	50,000
Office buildings	40,000
Total.....	500,000

The remaining 545,000 persons whose industrial affiliations are not known were probably the "casual laborers" referred to above.

CHAPTER XII

DISTRIBUTION OF EMPLOYMENT BY SIZE OF ESTABLISHMENT

SUMMARY

IN THE FOLLOWING pages an attempt has been made to provide a cross-section of the distribution of establishments by number of workers in various industries, and especially to determine the number of small establishments. No comprehensive statistics exist on the structure of all industries at any single date, so that the reports of several industrial censuses taken at different dates must be used. The year 1929 has been chosen for mining, manufacturing, construction industries, telephone, retail trade, laundries, and cleaning, dyeing, and pressing establishments; 1935 statistics have been examined for agriculture, trucking, service establishments, recreation and amusement, and hotels; for wholesale trade, reference has been made to 1933 figures. In some cases several successive censuses have been used to determine the prevailing trend.

The reports of all these censuses have been analyzed and interpolated by methods explained in Chapter X and in Notes 15 and 16. The findings may be briefly summarized as follows:

In agriculture less than 1 million farms employing about 1,650,000 laborers throughout the year absorb the great majority of man-days of hired labor. In January 1935, approximately 1 million laborers were employed by 860,000 farms with 1 or 2 helpers, 400,000 were employed by 100,000 farms with 3 to 9 helpers, and 244,000 by 11,400 farms with 10 or more helpers.

In extraction of minerals, large establishments generally prevail, especially in anthracite and metal ore mining, while small concerns are comparatively numerous in bituminous coal mining, quarrying, and production of crude petroleum.

In manufactures the 206 largest establishments employed in 1929 over 1 million wage earners, i.e. more than the total personnel of 156,000 small establishments having not more than 20 wage earners.

Employment in construction is not as concentrated as in manufactures. Small firms are usual, particularly those employing workers only intermittently, but no comprehensive statistics on these enterprises are available.

Statistics on the distribution of employment in transportation are fragmentary. The highest degree of concentration has been observed in railroads where large concerns with more than 100,000 employees prevail. Extreme decentralization is characteristic in trucking where enterprises either with no hired labor or with intermittent employment predominate. No statistics exist on the size distribution of enterprises in water transportation and related industries.

In retail trade there were 1,543,000 stores in 1929, among them about 475,000 with a yearly average of less than 0.5 employees, 525,000 with 1 employee, 225,000 with 2 employees, 100,000 with 3 employees, 60,000 with 4, and 35,000 with 5 employees. Approximately 123,000 stores had a yearly average of more than 5 employees. Only about 4,000 stores had more than 100 employees.

In wholesale trade there were probably more than 50,000 establishments in 1933 with an average of less than 1 employee during the year, and 800 establishments with more than 100 employees. In 1929 small establishments were less numerous, whereas the number of large concerns with more than 100 employees was probably as high as 1,000.

The highest degree of decentralization of employment in non-agricultural pursuits has been observed in services. In 1935, of the total of about 575,000 independent establishments only 2,330 employed an average of 15 or more workers during the year, 11,000 had from 6 to 14 employees, 183,000 had from 1 to 5 employees, 51,000 employed workers only part of the year, and 328,000 had no employees at all.

EMPLOYMENT IN AGRICULTURE

The 1930 Census of Agriculture reported for 1929, 2,631,601 farms with hired help.¹ As the harvest season when laborers are most needed is not the same for all crops in all parts of the country, the number of farms with hired laborers at any one time of the year must be somewhat smaller. The 967,594 farms which, according to the 1935 Census of Agriculture, had hired laborers in the first week of January of that year may be regarded as the number of establishments which employed labor throughout the year. These farms were distributed by size-classes as follows:

SIZE-CLASSES Farms with ... hired helpers	Number of farms	Number of laborers
1	722,645	722,645
2	137,670	275,340
3	43,470	130,410
4	22,486	89,944
5	12,533	62,665
6	8,220	49,320
7	3,730	26,110
8	3,834	30,672
9	1,596	14,364
10 or more.....	11,410	244,132
All size-classes	967,594	1,645,602

Source: United States Census of Agriculture: 1935, Volume III, p. 164.

¹ Cf. Chapter XI, page 162.

Probably the number of laborers employed by these farms in the summer and autumn was 40 to 50 per cent higher, totalling from 2.3 to 2.5 million workers. In addition seasonal labor was employed on about 1,650,000 farms for periods varying from the length of the harvest season to 5 or 6 months.

EMPLOYMENT IN MANUFACTURING INDUSTRIES

The 1929 Census of Manufactures reported the following distribution of factories by size-classes:

SIZE-CLASSES Establishments with ... wage earners	Establishments		Wage earners	
	Number	Per cent	Number	Per cent
None	7,426	3.5	—	—
1 to 5.....	95,767	45.4	279,734	3.2
6 to 20.....	53,524	25.4	595,708	6.7
21 to 50.....	25,022	11.9	814,465	9.2
51 to 100.....	12,467	5.9	891,671	10.1
101 to 250.....	10,195	4.8	1,589,040	18.0
251 to 500.....	3,840	1.8	1,331,145	15.1
501 to 1000.....	1,722	.8	1,176,991	13.3
1001 to 2500.....	796	.4	1,144,735	12.9
2501 and over.....	200	.1	1,015,254	11.5
All size-classes	210,959	100.0	8,838,743	100.0

Source: Abstract of the Fifteenth Census of the United States: 1930, pp. 794-795. See also Table XIV-B in the Appendix, page 319.

The size-classes used in this classification are too large to meet the needs of social security administration. In most states enterprises with less than 8 employees are exempt from unemployment compensation taxes, in other states the exemption limit is lower, and in a few states all employers with 1 or more employees are included. Therefore, in order to visualize the distribution of employment between insured and uninsured concerns, it is necessary to break down the number of factories with 1 to 5 and 6 to 20 wage earners into smaller groups. This may be done approximately by means of interpolation.

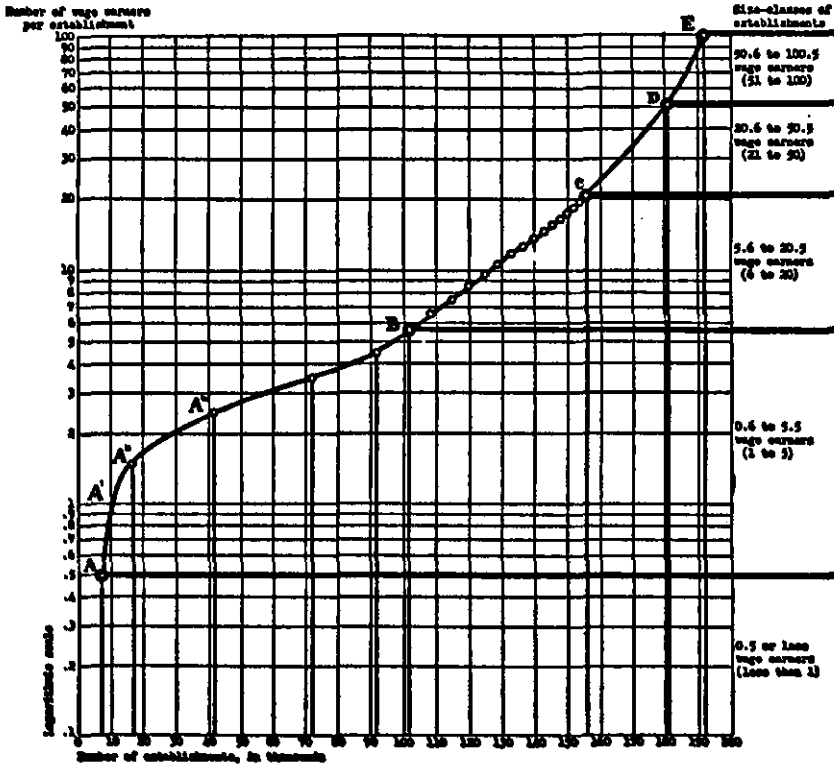
(See Diagram XLII.)

The curve in Diagram XLII shows the distribution of factories with 1 to 5, 6 to 20, and 21 to 100 wage earners in 1929. The limit points between size-classes are determined by the returns of the 1929 Census of Manufactures.² A curve is drawn over

² The classification in the industrial censuses of enterprises or establishments according to number of wage earners is based on the average number employed

DIAGRAM XLII

INTERPOLATION OF STATISTICS ON SIZE DISTRIBUTION OF MANUFACTURING ESTABLISHMENTS WITH 0.6 TO 100.5 WAGE EARNERS IN THE UNITED STATES, 1929



these points in accordance with the reported total number of wage earners in each size-class of establishments.²

during the year. This means that monthly figures reported by canvassed concerns are added and the sum divided by 12. Concerns with not more than 0.5 wage earners (i.e. those reporting not more than 6 man-months of wage work during the year) are tabulated as having no wage earners; concerns with more than 0.5 but not more than 5.5 (7 to 66 man-months of work), are counted in the group with 1 to 5 wage earners, etc. Thus, concerns with intermittent employment are tabulated either as having no employees or as having 1 employee.

² For example, the conformation of the section AB of the curve is determined by the fact that the 95,767 establishments in the size-class of 1 to 5 workers employed 279,734 wage earners, or an average of 2.9 workers per establishment. This means either that the 95,767 factories must be distributed almost evenly in groups with 1, 2, 3, 4, and 5 wage earners, or that there were in this size-class comparatively few factories with 1 wage earner (because of the exclusion of

The distance from the left edge of the chart to point A' where the curve crosses the horizontal line representing 1 wage earner, indicates the number of establishments (approximately 10,000) with an average of less than 1 wage earner a year. The horizontal projection of the section AA" of the curve shows the number of factories (likewise about 10,000) with over 0.5 to 1.5 wage earners, or an average of 1 worker a year. The projection of the section A"A'" shows that there were about 25,000 establishments with over 1.5 to 2.5 wage earners, or an average of 2 workers a year, and so on.

So far as establishments with 6 to 20 wage earners are concerned, the data returned by the 1929 Census of Manufactures may be conveniently interpolated on the assumption that the numbers of establishments of consecutive sizes (with 6, 7, 8 wage earners, etc.) decrease gradually at a constant rate, i.e. in geometric progression.* In this way, the following approximate numbers of establishments and wage earners have been found:

Establishments with ... wage earners	Estimated number Establishments	Wage earners	Establishments with ... wage earners	Estimated number Establishments	Wage earners
Less than 1..	7,000	2,000	11.....	3,960	43,560
1.....	10,000	10,000	12.....	3,560	42,720
2.....	25,000	50,000	13.....	3,200	41,600
3.....	30,000	90,000	14.....	2,880	40,320
4.....	20,000	80,000	15.....	2,590	38,850
5.....	10,000	50,000	16.....	2,330	37,280
6.....	6,700	40,200	17.....	2,100	35,700
7.....	6,040	42,280	18.....	1,890	34,020
8.....	5,430	43,440	19.....	1,700	32,300
9.....	4,890	44,010	20.....	1,530	30,060
10.....	4,400	44,000			

EMPLOYMENT IN EXTRACTION OF MINERALS

(See Table XIII-B in the Appendix, page 317.)

Employment in coal and metal mining is generally concentrated in large concerns, in contrast to quarrying where nearly 50 per cent

establishments with a business volume of less than \$5,000), many establishments with 2 and 3 workers, and a smaller number with 4 and 5 workers. The first assumption is as likely as any other, but it becomes improbable when, upon interpolating the figures for the next higher size-class, it is shown that the number of factories with 6 wage earners cannot exceed 7,000. The contrast between the numbers of factories with 5 and 6 wage earners appears too abrupt in this case. The second assumption is tried out and it is found that the curve AA'A"A'B is sufficiently smooth and meets the requirements fairly well.

* See Note 15, page 272: "Interpolation of Statistics on Establishments with 6 to 20 Workers."

of the wage earners are employed by enterprises with less than 50 workers. In 1929 enterprises with more than 500 workers employed:

in all mining and quarrying industries.. 40.9 per cent of workers
 in anthracite mines..... 90.0 per cent of workers
 in copper, lead, iron and zinc mines.... 54.9 per cent of workers
 in bituminous mines..... 31.0 per cent of workers
 in quarries 4.6 per cent of workers

In all mining and quarrying industries there were enumerated in 1929:^a

SIZE-CLASSES Enterprises with ... wage earners	Enterprises	Wage earners
1 to 5.....	2,742	8,194
6 to 20.....	3,004	34,079
21 to 50.....	1,611	53,183
51 to 100.....	1,055	76,362
101 to 250.....	988	158,623
251 to 500.....	416	145,883
501 to 1000.....	169	110,931
1001 and over.....	83	219,163
All size-classes	10,068	806,418

Interpolating the numbers for the two lowest size-classes by the same method used for manufacturing industries, the following figures have been found:

Enterprises with ... wage earners	Estimated number	
	Enterprises	Wage earners
1.....	400	400
2.....	600	1,200
3.....	800	2,400
4.....	550	2,200
5.....	400	2,000
6.....	350	2,100
7.....	320	2,240
8.....	292	2,336
9.....	267	2,403
10.....	244	2,440
11.....	223	2,453
12.....	203	2,436
13.....	186	2,418
14.....	170	2,380
15.....	155	2,325
16.....	141	2,256
17.....	129	2,193
18.....	118	2,124
19.....	108	2,052
20.....	98	1,960

^a See footnote 2 on pages 190-191.

Employment in oil and gas wells is less concentrated. Small concerns are more usual than in other branches of extraction of minerals. The 1930 Census of Population enumerated 9,212 owners, operators and proprietors in this industry, and it may be supposed that the number of establishments was still larger. In 1929 they employed about 190,000 workers, or slightly more, but there are no statistics on their distribution by size of establishment.

EMPLOYMENT IN CONSTRUCTION

The 1929 Census of Construction canvassed 113,799 contractor enterprises (general contractors and sub-contractors) with an annual business of less than \$25,000, and 30,597 enterprises with greater amounts of business. The larger enterprises were classified by receipts, and since the number of employees for each size-class was also computed, it is possible to convert the reported figures to a classification based on the average number of workers.* Interpolating the converted figures, the following segregation of firms with a business exceeding \$25,000 has been found:

SIZE-CLASSES Firms with ... wage earners	Estimated number	
	Firms	Wage earners
1 to 5.....	5,410	24,200
6 to 20.....	16,250	169,800
21 to 50.....	5,610	167,400
51 to 100.....	1,860	124,700
101 to 250.....	1,170	172,000
251 to 500.....	200	70,600
501 and over.....	100	100,000
All size-classes	30,600	828,700

A comparison of the amounts of wages paid by the 113,799 small firms and by the larger firms supports the estimate that approximately 170,000 workers were employed during 1929 by these small firms. On the basis of information collected for 20 per cent of this group, it may be estimated that among these small firms slightly more than 40,000 had less than 1 employee during the year, approximately 30,000 had 1 or 2 employees, 15,000 had 2 or 3 employees, and 21,000 to 22,000 had 3 to 5 employees.

* See Note 16, page 281: "Interpolation of Statistics on Size of Establishments Classified by a Criterion other than Number of Employees."

To this last group should be added the 5,410 firms in the size-class of 1 to 5 wage earners whose business exceeded \$25,000.

The next following size-class (6 to 20 workers per firm) can be segregated as follows :

Firms with ... wage earners	Estimated number		Firms with ... wage earners	Estimated number	
	Firms	Wage earners		Firms	Wage earners
6.....	2,500	15,000	14.....	760	10,640
7.....	2,150	15,050	15.....	660	9,900
8.....	1,850	14,800	16.....	570	9,120
9.....	1,590	14,310	17.....	490	8,330
10.....	1,370	13,700	18.....	420	7,560
11.....	1,180	12,980	19.....	360	6,840
12.....	1,020	12,240	20.....	310	6,200
13.....	885	11,505			

EMPLOYMENT IN TRANSPORTATION

In the reports of the Interstate Commerce Commission, operating *railroads* are divided into three classes: Class I, with more than \$1,000,000 of annual operating revenue; Class II, with \$100,000 to \$1,000,000; and Class III, with less than \$100,000. Switching and terminal railroads, and non-operating auxiliary railroads are counted separately. Employment statistics for railroads are shown in Table 24.

TABLE 24. DISTRIBUTION OF RAILROADS BY SIZE-CLASSES IN THE UNITED STATES, 1929 AND 1935

Classes of railroads	1929		1935	
	Number of carriers	Number of employees	Number of carriers	Number of employees
Railroads, Class I.....	167	1,662,840	147	995,319
With more than 100,000 employees	2	280,217	1	107,912
" 50,001 to 100,000 "	3	183,046	1	89,711
" 10,001 to 50,000 "	33	876,781	27	565,308
" 5,001 to 10,000 "	23	166,834	15	98,057
" 1,001 to 5,000 "	54	127,931	46	110,269
" 101 to 1,000 "	51	27,982	55	23,933
" 100 or less "	1	49	2	129
Railroads, Class II.....	240	25,687	204	15,011
Railroads, Class III.....	341	7,505	259	4,272
Switching and terminal roads.....	235	58,420	216	38,980
Total.....	983	1,754,452	826	1,053,582

Source: Interstate Commerce Commission, *Annual Reports on the Statistics of Railways in the United States, for the years ended December 31, 1929 and December 31, 1935.*

To the larger enterprises should be added the Pullman Company[†] and two express companies, bringing the total number of employees in concerns with more than 1,000 employees to more than 1,720,000 in 1929. Of these, the majority (more than 900,000) were employed by companies with 10,001 to 50,000 wage earners.

Pipe lines may be classified on the basis of reports of the Interstate Commerce Commission as follows:

SIZE-CLASSES Companies with ... employees	1929		1935	
	Pipe lines	Em- ployees	Pipe lines	Em- ployees
Less than 100.....	5	220	13	550
101 to 1,000.....	23	7,530	28	8,634
More than 1,000.....	8	15,707	8	12,331
All size-classes	36	23,457	49	21,515

Sources: Interstate Commerce Commission, *Annual Report on the Statistics of Railways in the United States, 1929*, p. CXI; 1935, p. 8-163.

Small enterprises are the general rule in *trucking*, but there are no comprehensive statistics on the distribution of employees by establishments. The 1935 Census of Business, in the first enumeration of this industry, canvassed 61,216 enterprises with 158,283 employees, but these figures did not cover the trucking operations of concerns primarily engaged in retail or wholesale trade, warehousing, garage operation, etc.

Enterprises canvassed by the 1935 Census of Business were distributed by size-classes as follows:

SIZE-CLASSES Establishments with ... annual revenue	Number of establish- ments	Number of active proprietors	Number of employees (average for the year)
Under \$1,000	19,516	19,273	2,248
\$1,000 to \$4,999.....	30,044	30,397	17,954
\$5,000 to \$9,999.....	4,499	4,720	11,100
\$10,000 to \$49,999.....	5,235	4,453	37,984
\$50,000 to \$99,999.....	1,018	545	21,539
\$100,000 to \$499,999.....	808	232	44,217
\$500,000 and over.....	96	1	23,241
All size-classes	61,216	59,621	158,283

Source: Census of Business: 1935, *Motor Trucking for Hire, United States Summary*, p. 44.

Interpolating these figures by the method explained in Note 16, the results show that the number of enterprises in various size-classes was probably as follows:

[†] With 29,250 employees in 1929.

SIZE-CLASSES Enterprises with ... wage earners		Estimated number of enterprises
0.5 or less.....	about	40,000
1 to 5.....	"	13,500
6 to 20.....	"	5,800
21 to 50.....	"	1,410
51 to 100.....	"	430
101 and over.....	"	76

With respect to small firms, these figures are greatly understated.

Size distribution statistics computed by the NRA code authorities in 1934 were more comprehensive, but no attempt was made to distinguish from general trucking the business done as a side-line by other enterprises, such as garages, contractor firms, dealers, etc. The code authorities estimated the total number of trucks in the nation at 500,000 and segregated them by the number owned by each firm, as follows :

SIZE-CLASSES Firms with ... trucks	Estimated number of trucks
1	262,000
2	64,500
3 to 5.....	69,750
6 to 10.....	37,250
11 to 25.....	32,500
26 to 50.....	19,000
51 to 75.....	7,500
76 to 100.....	3,000
101 or over.....	4,500
All size-classes	500,000

Source: U. S. Department of Commerce,
Bureau of Foreign and Domestic
Commerce, *National Income in the
United States, 1929-35*, p. 268.

In the national income estimates of the Department of Commerce, it was assumed that all one-truck establishments were operated by owner-drivers with no employees; that half of the two-truck establishments were partnerships in which the owners were the only drivers, the other half employing one worker each; that in half of the three-truck establishments the owner drove one truck and employed two drivers, while in the other half, three drivers were employed, etc. This means that of the total of approximately 320,000 trucking enterprises, about 262,000 were one-man enterprises, 16,125 were partnerships without hired labor, and approximately 42,000 firms employed salary and wage earners.

In motor bus transportation, the 1935 Census of Business enumerated 1,751 concerns operating regular common carrier bus transportation, and distributed them in size-classes determined by amount of revenue as follows:

SIZE-CLASSES Concerns with ... annual revenue	Number of concerns	Number of employees	Employees per concern
Under \$10,000	742	922	1.3
\$10,000 to \$24,999	358	1,745	4.9
\$25,000 to \$49,999	234	2,561	11.0
\$50,000 to \$99,999	148	3,137	21.2
\$100,000 to \$249,999	148	6,015	40.7
\$250,000 to \$499,999	55	4,082	72.4
\$500,000 or over	66	21,151	320.5
All size-classes	1,751	39,613	—

Source: Census of Business: 1935, Motor Bus Transportation, p. 7.

By means of interpolation, the distribution of these concerns by number of employees has been estimated as follows:

SIZE-CLASSES Concerns with ... employees	Estimated number	
	Concerns	Employees
0.5 or less	500	125
1 to 5	434	1,103
6 to 20	400	4,000
21 to 50	296	9,152
51 to 100	55	4,082
101 or more	66	21,151

Available statistics provide no information on the size distribution of concerns with 101 or more employees.

EMPLOYMENT IN TELEGRAPH AND TELEPHONE

Two large telegraph companies (Western Union Telegraph Company and the Mackay Companies) controlled approximately 97 per cent of the total telegraph business in 1929 and employed 97 per cent of the entire personnel in this industry. The remaining 3 per cent of the business was divided among a dozen or so small concerns. Companies which reported to the Interstate Commerce Commission were distributed as follows:

SIZE-CLASSES Companies with ... employees	1929		1932	
	Companies	Employees	Companies	Employees
Less than 100	9	200	8	158
101 to 1,000	4	1,131	1	311
1,001 to 10,000	1	1,915	2	16,309
10,001 to 100,000	2	89,712	1	48,338
All size-classes	16	92,958	12	65,116

Sources: Interstate Commerce Commission, Annual Reports on Statistics of Railways in the United States, 1929, p. CXI; 1932, p. S-125.

Telephone systems were reported as follows :

SIZE-CLASSES Systems with ... annual revenue	1927		1932	
	Systems and lines	Em- ployees	Systems and lines	Em- ployees
Less than \$10,000.....	58,780	18,533	43,910	13,322
More than \$10,000.....	1,368	356,739	918	320,763
All size-classes	60,148	375,272	44,828	334,085

Source: Statistical Abstract of the United States, 1936, p. 342.

Most telephone lines with less than \$10,000 annual income have no employees of their own. About 90 per cent of all telephone communication is controlled by the Bell System, the most important private employer in the nation, which had 324,343 persons on its payroll in 1930.

EMPLOYMENT IN WHOLESALE AND RETAIL TRADE

Small establishments are usual in distribution, particularly in *retail* trade. The size distribution of establishments in the 1929 Census of Distribution, based on amount of sales during the year, was as follows: *

SIZE-CLASSES Stores with ... annual sales	Stores	Sales in millions of dollars
Less than \$10,000.....	673,686	2,793
\$10,000 to \$19,999.....	312,865	4,441
\$20,000 to \$49,999.....	350,225	10,948
\$50,000 to \$99,999.....	128,869	8,746
\$100,000 to \$199,999.....	49,497	6,731
\$200,000 to \$499,999.....	21,433	6,314
\$500,000 to \$999,999.....	4,524	3,080
\$1,000,000 or over.....	2,059	6,062
All size-classes	1,543,158	49,115

Source: Statistical Abstract of the United States, 1936, p. 790.

The number of employees in each size-class was first computed in the 1933 Census of Business, whose report has been used as the key for converting the 1929 tabulation of stores by amount of sales into a classification by number of employees. The 1933 Census of Business showed that annual sales per full-time employee in stores of different sizes did not vary greatly, at least

* Statistics on the distribution of retail stores by size-classes are available for 1929, 1933, and 1935 (see Table XVI in the Appendix, page 323). Cf. Note 18, page 286: "Changes in the Distribution of Employment in Retail Trade Among Stores of Different Sizes from 1929 to 1935."

not for the stores whose business totaled from \$10,000 to \$999,999. The average amount of sales per employee for all size-classes of stores was \$9,262 in 1933 and \$12,810, or 38.3 per cent more, in 1929. The decrease from 1929 was due to the drop in prices and to the decline in the physical volume of sales during the depression. It seems correct to assume that different size-classes of stores were affected more or less evenly by the depression, and that in all size-classes the annual sales per full-time employee in 1929 were 38.3 per cent larger than in 1933. If the total volume of sales and the approximate amount of sales per employee are known, the number of full-time employees in each group of stores may be estimated. This number divided by the number of stores in each size-class (shown on the preceding page), indicates the average number of employees per store in each size-class. The results of these calculations are shown below:

SIZE-CLASSES Stores with ... annual sales	Annual sales per full-time employee		Estimated number of full-time employees in 1929	
	1933 (Census)	1929 (Estimate)*	In each size- class of stores	Per store
Less than \$10,000.....	\$10,031	\$13,873	197,000	.3
\$10,000 to \$19,999.....	9,616	13,299	328,000	1.0
\$20,000 to \$29,999.....	9,681	13,589	304,000	1.7
\$30,000 to \$49,999.....	9,983	13,806	480,000	2.7
\$50,000 to \$99,999.....	9,824	13,587	632,000	5.0
\$100,000 to \$199,999.....	9,299	12,860	513,000	10.2
\$200,000 to \$299,999.....	8,979	12,418	247,000	19.0
\$300,000 to \$499,999.....	8,511	11,771	266,000	31.4
\$500,000 to \$999,999.....	8,581	11,868	255,000	56.4
\$1,000,000 or more.....	7,033	9,727	612,000	300.0
Average for all size-classes.	\$9,262	\$12,810	3,834,000	2.5

As the average number of employees in stores with annual sales of less than \$10,000 is 0.3, it is obvious that most of these stores had hired help for less than 6 months. Similarly, some of the concerns with annual sales of \$10,000 to \$19,999 had less than 1 and others more than 1 year-round employee, etc.

* 38.3 per cent more than reported in 1933.

Interpolation of the figures shown on page 200 by the method explained in Note 16, results in the following approximate distribution by size-classes of stores canvassed in 1929:

SIZE-CLASSES ¹⁰ Stores with ... employees (average for the year)	Estimated number	
	Stores	Employees
0.5 or less.....	475,000	48,000
1	525,000	475,000
2	225,000	450,000
3	100,000	300,000
4	60,000	240,000
5	35,000	175,000
6	25,000	150,000
7	18,000	126,000
8	14,000	112,000
9	11,000	99,000
10	10,000	100,000
11 to 20.....	25,000	325,000
21 to 50.....	12,000	325,000
51 to 100.....	4,000	250,000
101 or over.....	4,000	659,000
All size-classes	1,543,000	3,834,000

Statistics on the size distribution of *wholesale* establishments are available for 1933 only. Furthermore, only wholesale merchants, including importers and manufacturers' sales branches with stock, were classified by amount of net sales: ¹¹

SIZE-CLASSES Establishments with ... annual sales	Wholesale merchants		Manufacturers' sales branches	
	Establish- ments	Full-time employees	Establish- ments	Full-time employees
Less than \$10,000.....	16,439	10,773	1,055	1,126
\$10,000 to \$49,999.....	27,008	70,912	3,241	9,727
\$50,000 to \$99,999.....	12,498	73,074	1,864	12,359
\$100,000 to \$199,999.....	10,008	94,755	1,890	21,384
\$200,000 to \$299,999.....	4,342	61,163	1,034	16,741
\$300,000 to \$499,999.....	3,994	77,522	1,199	23,121
\$500,000 to \$999,999.....	2,916	85,465	1,167	36,713
\$1,000,000 to \$1,999,999.....	1,184	66,822	601	30,257
\$2,000,000 to \$4,999,999.....	498	49,520	294	23,708
\$5,000,000 to \$9,999,999.....	100	14,857	56	7,225
\$10,000,000 and over.....	45	14,831	43	10,816
All size-classes	79,032	619,694	12,444	193,177

Source: Census of American Business: 1933, Wholesale Distribution, Vol. I, pp. A-47 to 53.

¹⁰ The size-classes used here have been determined in the same way as in the censuses of manufactures: "1 employee" means 0.6 to 1.5 employees," etc.

¹¹ The following figures indicate the importance of these two groups in comparison with the total wholesale trade canvassed by the 1933 Census of Business:

	Total (Census)	Wholesale merchants	Manufac- turers' sales branches with stock	Both groups in per cent of total
Number of establishments....	164,170	79,032	12,444	55.6
Net sales in millions of dollars.	\$32,151	\$12,079	\$5,145	53.5
Number of full-time employees	1,096,977	619,694	193,177	74.1

Average sales per employee in retail trade tend to be constant, while average sales in wholesale trade increase substantially the larger the size of the establishment.¹²

If reported figures are interpolated in the usual way, the following approximate distribution of wholesale establishments in 1933 is found:

SIZE-CLASSES Establishments with ... employees	WHOLESALE MERCHANTS Estimated number		MANUFACTURERS' SALES BRANCHES Estimated number	
	Establish- ments	Employees	Establish- ments	Employees
0.5 or less.....	10,000	2,000	200	80
1 to 5.....	38,000	100,000	4,100	10,800
6 to 10.....	15,000	100,000	2,700	19,000
11 to 20.....	9,300	135,000	2,700	41,300
21 to 50.....	5,700	162,000	2,000	50,000
51 to 100.....	680	50,000	520	37,000
More than 100.....	350	70,000	220	35,000
All size-classes	79,030	619,000	12,440	193,180

In 1933 an additional 72,694 wholesale establishments with 274,106 full-time employees were reported, but no statistics were computed on their distribution by size-classes. Small establishments prevailed in this group although some large concerns were also included.

The total number of wholesale establishments with more than 100 employees in 1933 was about 800. In 1929 the number was probably higher, possibly 1,000. On the other hand, probably more than 50,000 canvassed wholesale establishments had less than 1 employee, a remarkably large number of establishments in view of the fact that the Census did not cover small commission

¹² Annual sales per full-time employee in 1933 were:

SIZE-CLASSES Establishments with ... annual sales	Wholesale merchants	Manufacturers' sales branches
Less than \$10,000.....	\$6,724	\$4,737
\$10,000 to \$49,999.....	9,650	8,878
\$50,000 to \$99,999.....	11,288	10,852
\$100,000 to \$199,999.....	14,756	12,623
\$200,000 to \$299,999.....	17,387	15,136
\$300,000 to \$499,999.....	19,636	20,096
\$500,000 to \$999,999.....	23,375	22,302
\$1,000,000 to \$1,999,999.....	23,893	26,761
\$2,000,000 to \$4,999,999.....	29,295	36,703
\$5,000,000 to \$9,999,999.....	46,508	51,605
\$10,000,000 and over.....	48,657	97,950
All size-classes	\$19,492	\$26,632

and brokerage houses which had neither employees nor places of business.¹⁸

The total number of establishments canvassed in wholesale and retail trade was about 1.8 million in 1929 and 1933, more than 1.9 million in 1935, and by 1937 this number had probably increased to about 2 million. However, these numbers represent establishments rather than employers, as this term is used in the Social Security Act. In fact, many of the establishments enumerated above belonged to multi-unit concerns and chains. The following numbers for retail trade show the importance of chain distribution:¹⁴

	1929	1933	1935
Number of chains.....	7,061	5,546	6,079
Number of stores.....	159,638	152,308	139,810
Employees, full-time and part-time..	—	1,104,406	1,171,671

These numbers increase considerably if all kinds of multi-unit concerns are added to chains. The special tabulation prepared for the Social Security Board by the 1935 Census of Business reports the following data:

	Establishments with more than 1 employee		
	Total	Multi-unit concerns and chains	Independent
Wholesale trade:			
Establishments	143,762	55,026	88,736
Employees	1,257,760	585,952	671,808
Retail trade:			
Stores	892,927	204,583	688,344
Employees	3,910,888	1,422,353	2,488,535

The exact number of employing units which control "dependent" establishments and stores is unknown. But even if it ranges in several tens of thousands, the number of actual employers in distribution should be reduced by approximately 200,000.

EMPLOYMENT IN SERVICES, AMUSEMENT ESTABLISHMENTS, AND HOTELS

The division of Service includes barber shops, beauty parlors, cleaning establishments, funeral establishments, shoe repair shops, etc., business services, repair services and custom industries. Some

¹⁸ Fifteenth Census of the United States: 1930, Distribution, Volume II, p. 1.

¹⁴ Census of Business: 1935, Retail Chains, p. 6.

establishments classified in this division by the 1935 Business Census have been included in independent hand trades in the occupational classification used in the present study.

Statistics of the distribution of *service establishments* by number of employees were computed for the first time in 1935. In addition to classifying the canvassed establishments by annual receipts as was done in 1933,¹⁵ the 1935 Census of Business prepared for the Social Security Board a special tabulation by number of employees of independent establishments with less than 15 workers. A similar tabulation was prepared for *amusement and recreation establishments*, which had been classified by receipts in the 1933 Census of Business, and for *hotels* which had been classified by number of guest rooms.¹⁶ These tabulations are summarized below:

Establishments	Services		Amusement establishments		Hotels	
	Establishments	Employees	Establishments	Employees	Establishments	Employees
ALL ESTABLISHMENTS	574,708	634,232	37,677	157,789	28,822	291,165
INDEPENDENT	561,120	535,069	31,862	100,645	27,069	223,653
with no employees	314,049	—	9,772	—	4,529	—
with not more than 14 employees	244,741	440,386	20,877	62,688	20,139	71,698
with 15 or more employees	2,330	94,683	1,213	37,957	2,401	151,955
OTHER THAN INDEPENDENT	13,588	99,163	5,815	57,144	1,753	67,512

Source: Unpublished memorandum prepared for the Social Security Board by the 1935 Census of Business.

Independent establishments with not more than 14 employees were distributed as follows:

Establishments with . . . employees	Services	Amusement establishments	Hotels
Less than 5	28,649	1,755	655
0.5 to 1	22,127	1,864	890
1	96,696	5,324	4,512
2	47,479	3,570	3,868
3	22,823	2,266	2,865
4	9,752	1,341	1,775
5	6,206	1,243	1,432
6	3,421	805	970
7	2,590	741	830
8	1,398	471	507
9	1,065	433	440
10	807	287	391
11	608	234	308
12	471	216	256
13	376	193	243
14	273	134	187

¹⁵ Census of American Business: 1933, Services, Amusements and Hotels, Volume I, p. XXI.

¹⁶ Census of American Business: 1933, Services, Amusements and Hotels, Volume I, pp. XXII-XXIII.

**LAUNDRIES AND CLEANING, DYEING, AND PRESSING
ESTABLISHMENTS**

The 1929 Census of Manufactures canvassed the following establishments with receipts of not less than \$5,000:

SIZE-CLASSES Establishments with ... wage earners	Laundries		Cleaning, dyeing and pressing	
	Establish- ments	Wage earners (average for the year)	Establish- ments	Wage earners (average for the year)
None	17	—	34	—
1 to 5.....	1,350	6,779	2,688	9,218
6 to 20.....	2,271	28,954	1,939	20,340
21 to 50.....	1,877	60,988	470	14,579
51 to 100.....	812	57,108	126	8,535
101 and over.....	449	79,358	39	6,476
All size-classes	6,776	233,187	5,296	59,148

Source: Fifteenth Census of the United States: 1930, Manufactures, 1929, Volume II, pp. 1400 and 1410.

In marked contrast, the 1930 Census of Population returned 15,440 proprietors of laundries and 16,275 proprietors of cleaning, dyeing and pressing establishments. It seems a reasonable assumption that the number of "proprietors" is not far from the number of "establishments," and that the 1929 Census of Manufactures failed to canvass approximately 9,000 small laundries and 11,000 cleaning, dyeing and pressing establishments. Although most of these shops probably had annual receipts of less than \$5,000, very likely some of them employed workers at least during part of the year.¹⁷

¹⁷ This supposition is corroborated by the following considerations:

(a) The number of wage earners in laundries, cleaning establishments, etc., reported by the Census of Manufactures was less than that reported by the 1930 Census of Population;

(b) The average number of wage earners per establishment in the size-class with 1 to 5 wage earners was unusually high: 5.0 for laundries and 3.4 for cleaning, dyeing, and pressing establishments. This indicates that the smallest establishments (laundries with 1 to 4 workers and cleaning establishments with 1 to 2 workers) were not enumerated.

CHAPTER XIII
EMPLOYERS AND EMPLOYED WORKERS IN
INSURED INDUSTRIES

SUMMARY

IN THIS CHAPTER the results of the detailed analyses of various industries in the preceding two chapters have been summarized and an attempt has been made to estimate the probable distribution of employed workers and employers in insured and uninsured industries in the summer of 1937, before the recession in the fall of that year.

In industry as a whole, employment steadily increased in the three years after 1933. The exact number of workers in industrial employment in the summer of 1937 was not known, but it is generally accepted that this number was approximately the same as in 1929. This does not mean that each industry employed the same number of workers as before the depression. Fewer workers were employed by mining and construction industries and especially by railroads, while more were employed in public utilities, several branches of distribution, trucking, hotels and service establishments. In general, it seems reasonable to say that employment statistics for 1929 are more indicative of the situation in the summer of 1937 than are the data of censuses taken during the depression.

Moreover, all censuses give only a simplified and static cross-section of an economic system which actually is in continuous movement. Many thousands are gainful workers only part of the year, and no rigid line can be drawn to separate those with and without gainful work. Because a great many agricultural workers are usually engaged in non-agricultural pursuits in the slack season, and many industrial workers are employed on farms during the harvest season, no precise line can be drawn between agricultural and non-agricultural labor. Hundreds of thousands of small proprietors are counted as wage earners, such as construction workers, truck drivers, barbers and hairdressers, etc., and as many more who occasionally work for salaries or wages are counted as self-employed, such as fishermen and oystermen, independent craftsmen, insurance agents, physicians in hospitals, etc.; hence there can be no rigid line between "independent" and "dependent" workers.

Similar limitations apply to industrial statistics. Industrial enumerations may be fairly comprehensive and exact in canvassing large establishments, but it is impossible for them to cover all small enterprises and one-man businesses. Therefore, they have a tendency to

show a greater concentration of employment than actually exists in each industry. Industrial census data for numbers of employers are usually less reliable than for employees since the multitude of un-cannvassed small employers have few workers in the aggregate.

For these reasons, estimates of the probable distribution of employed workers and employers in insured and uninsured industries cannot be very exact.

The volume of private industrial employment in 1929 may be determined by the method of exclusions. If employers and self-employed persons, unpaid family workers, and farm laborers are excluded from the total number of gainful workers, the remaining 33.3 million was the number of *salary and wage earners in non-agricultural pursuits* in 1929. Further subtraction of the unemployed and workers temporarily laid off because of illness or other reasons puts the total of *non-agricultural employment* at 31.1 to 31.7 million. After deducting public employment and domestic service, the volume of private industrial employment is found to be 25.1 to 25.9 million. Excluding a few additional occupations, and persons 65 years old and over, the approximate volume of *employment in insured industries* was 24.1 to 24.9 million in the summer of 1937 as well as in 1929.

The probable number of applicants for old-age insurance has been estimated in Book One. In 1930 there probably would have been about 29 to 30 million applications after a year of current registration although the actual number at work in insured industries at any one time would have been considerably less than this. At the beginning of 1938, registration probably exceeded this total by 6 or 7 million, without taking into account the possibility of duplication.

The number of *employers* affected by old-age insurance may be estimated as follows. In 1929 there were approximately 2 million non-agricultural enterprises employing salary and wage earners the year round, and an additional 1.1 to 1.2 million which employed labor intermittently during the year. These numbers are at least as large now as they were in 1929 and it may be expected that they will be exceeded in the current registration of employers in connection with old-age insurance.

The Social Security Act exempts from unemployment compensation taxes from 1.1 to 1.2 million intermittent employers and approximately 1.3 million small concerns with year-round employment of less than 8 persons, thereby reducing to 700,000 the number of employers on whom the federal excise tax is imposed. Approximately 3.6 million employees, unevenly distributed by industries, are excluded from unemployment compensation in this way. However, as the exemption limit in 20 state laws, including the District of Columbia, is lower than in the Social Security Act, the actual exclusion of employers and employees is somewhat less. In addition to intermittent employers, about 1 million small enterprises with 2.5 million workers

are excluded. It may be anticipated, however, that because of shifts between small and large enterprises most of these workers will be "intermittently insured." As a result of shifts from insured to uninsured industries, the number of names in the files of unemployment compensation agencies will become inflated in the same way as the old-age insurance register, but not to the same extent because persons for whom no contributions are paid during 2½ years will in most cases lose their rights to benefits and their names will probably be dropped from the files, although they remain in old-age insurance until death or the age of 65. At an employment level about the same as in 1929, there would be about 21.5 to 22.3 million persons employed in enterprises which are now covered by unemployment compensation programs, but in any current registration for unemployment compensation, many more would be counted. The surplus would probably be 5 or 6 million soon after the beginning of this registration, and might become twice as large two years later.

NUMBER OF EMPLOYED WORKERS IN INSURED AND UNINSURED INDUSTRIES BEFORE THE DEPRESSION

The number of workers employed in 1929 in industries covered by old-age insurance may be determined by the method of exclusions. First, the probable volume of *non-agricultural* employment should be found; next, from this total, employment in public and domestic services should be excluded; and finally, from the remaining *private industrial employment*, occupational and age groups not covered by old-age insurance should be subtracted.

(a) *Non-agricultural employment in 1929*

Because of the natural growth of population, the number of gainful workers returned by the 1930 Census of Population was somewhat larger than the average for the preceding year. An analysis of the distribution of population by age classes shows that the difference was probably about 250,000 to 300,000. On the other hand, agricultural pursuits absorbed about 300,000 more workers in 1929 than in 1930. Therefore, the average number of gainful workers engaged in non-agricultural pursuits in 1929 was approximately 500,000 or 600,000 less than the number enumerated on April 1, 1930, and it is assumed that the difference in the number of non-agricultural salary and wage earners was somewhat

less than 500,000. On the basis of the 1930 Census it has been estimated that 33,775,000 salary and wage earners were usually engaged in non-agricultural pursuits, including dependent professional persons. The number for 1929 probably would have been about 33.3 million. From this number should be excluded:

(1) *1.0 to 1.5 million unemployed.* The exact figure for 1929 is unknown but these approximate figures agree fairly well with reports of the 1930 Census of Unemployment.

(2) *2 per cent of the total number of salary and wage earners* who were supposedly out of jobs temporarily because of illness or other reasons.

Thus, the following distribution of non-agricultural salary and wage earners in 1929 is found:

	In millions
Salary and wage earners.....	33.3
Subtract:	
Unemployed (average for the year)...	1.0 to 1.5
Temporarily laid off (2 per cent).....	0.6 to 0.7
Actually employed	31.1 to 31.7

The probable actual employment in the early part of 1937 was under this level, but it is assumed that this status was reached by the middle of 1937 or shortly thereafter.

(b) Private industrial employment in 1929

From the total number of salary and wage earners actually employed in non-agricultural pursuits in 1929 should be excluded:

(1) *About 3.1 million public employees.* This number is obtained by deducting from the total of 3,123,362 persons on federal and local government payrolls in 1929, the public employees who were working outside the United States.¹

(2) *2.7 to 2.9 million domestic servants and casual laborers* outside business or industry. According to the 1930 Census of Population as adjusted in this study, 2,550,247 domestic servants, including unemployed and temporarily idle, were usually employed in private homes. Allowing for sickness, unemployment and changes in the population, the number of domestic servants in 1929 may be estimated at 2.2 to 2.3 millions, to which should be added "casual labor not in the course of the employer's trade or business."

¹ Cf. Chapter XI, page 182.

Thus, the total number of non-agricultural salary and wage earners actually employed in 1929 may be segregated as follows :

	In millions
Actually employed salary and wage earners.....	31.1 to 31.7
Subtract:	
Public employees	3.1
Domestic servants (including part of casual labor).	2.7 to 2.9
<hr/>	
Employed in private industry.....	25.1 to 25.9

While this distribution does not correspond exactly to conditions in 1937, changes since 1929 have to a large extent counterbalanced each other. Employment in public service has grown steadily in recent years, while employment in domestic service decreased during the depression and since 1933 has hardly regained the loss. Therefore, it is assumed that the total of public employment and employment in domestic service in the summer of 1937 was about the same as before the depression, or only slightly under this level.

(c) *Employment in insured industries in 1929*

The largest occupational exemptions specified by Section 210 of the Social Security Act refer to occupations outside of private industrial employment. Rural labor, public service, domestic service in employers' homes, and casual labor have already been excluded, and there remain to be excluded members of crews, employees of private non-profit organizations and persons 65 years of age or over. Employees in the last three categories total approximately 1 million (crews, about 100,000; non-profit organizations, somewhat under 200,000; persons 65 or more, about 750,000). Thus, the number of workers employed in insured industries in 1929 has been estimated at 24.1 to 24.9 millions. It was as high or slightly lower, about 23.5 to 24.5 million, in the autumn of 1937.

REGISTRATION FOR OLD-AGE INSURANCE

The preceding estimate refers to the average number of persons who would have paid contributions continuously during 1929 rather than to the number of persons who would have been registered. Because of the shifts between independent and dependent pursuits, employment and unemployment, agricultural

and non-agricultural pursuits, private and public employment, domestic service in establishments and in private homes, etc., the number of persons registered for old-age insurance in the course of a year would have been considerably higher than the number of persons employed continuously in insured industries. The surplus on the registers would have included:

	Estimated numbers
Most of the temporarily unemployed in insured industries.	500,000 to 1,000,000
Workers out of jobs because of temporary disability.....	500,000
Domestic servants and casual workers occasionally employed in insured industries.....	1,000,000
Farmers employed in insured industries in winter.....	1,000,000
Farm laborers occasionally employed in insured industries	500,000
Persons who retired from gainful occupations, or became independent, or shifted to uninsured industries after having been registered.....	1,000,000
Persons employed during part of the year but not counted as gainful workers in occupational statistics.....	500,000
Total.....	5,000,000 to 5,500,000

All these estimates are on the conservative side, and some of them are deliberately understated, as for instance the number of farmers and farm laborers registered as a result of employment in insured industries. The total represents the minimum conceivable deviation of the number of registrants, after a year of current registration, from the level of actual employment. On the basis of these estimates, the total number of accounts opened in 1929 probably would have been 29 to 30 million or more.

For 1937 the discrepancy between the number of persons registered for old-age insurance and the number of workers continuously paying contributions must be much more important. In Chapter VIII on pages 107-113, it has been shown that shifts between employment and unemployment tend in due time to bring most of the unemployed onto the register of the Social Security Board. If in 1929 these shifts would have caused a surplus of 500,000 to 1 million as estimated above, in the summer of 1937 the surplus, including WPA workers, would be several times as great. It seems probable also that the number of temporary or occasional gainful workers increased because of the depression, and that shifts between agricultural and non-agricultural pursuits were larger in 1937 than in 1929.

It may be readily seen why toward the end of the year 1937, when the volume of industrial employment was close to the 1929

level, the number of account numbers issued for old-age insurance was as high as 37 million. Besides, in the preceding analysis no allowance has been made for the possibility of duplicate registration which experience has shown can greatly increase the number of accounts. It is an exceedingly difficult and laborious task to correct these duplications, and probably for some time to come the old-age insurance register will carry more accounts than the number estimated in Chapter IX, page 137.

NUMBER OF ESTABLISHMENTS IN INSURED INDUSTRIES AND THEIR DISTRIBUTION BY NUMBER OF WORKERS EMPLOYED

The number of employers who act as collecting and reporting agents in social security administration cannot be determined on the basis of occupational statistics because these make no distinction between proprietors who employ workers regularly or intermittently and those who do not. A substitute is found in industrial statistics which segregate canvassed establishments by size-classes, making it possible to separate approximately the establishments with regular employment, with intermittent employment, and without hired labor. To be sure, these statistics are not comprehensive so far as small enterprises and seasonal establishments are concerned. But this restriction does not apply to retail trade and service establishments. Since these establishments must be fairly visible in order to attract patrons, the probability is that a house-to-house canvass will cover practically all establishments in these industries which are in operation during the period of enumeration.

(a) *Mining, manufacturing, and construction industries*

In these industries there were the following approximate numbers of establishments and workers in 1929:

	Establishments	Salary and wage earners employed
Mining and quarrying.....	10,000	850,000
Oil and gas wells.....	10,000	190,000
Manufacturing industries ..	211,000	10,140,000
Construction ²	144,000	1,000,000
Total.....	375,000	12,180,000

Source: See Chapter XI, pages 165, 168, 170.

² Without force-account construction.

The number of "establishments" in extraction of minerals and manufacturing industries may be regarded as identical with the number of "employers." Conditions are different in the construction industry in which many operators for whom construction is only an auxiliary business are employers in the sense of the Social Security Act but not in the sense of the Construction Census. Likewise, the numbers shown above do not include self-employed carpenters, masons, painters, plumbers, etc., who occasionally hire helpers and who should be classified as intermittent employers.

Statistics on the distribution of employees by size-classes of establishments are available for wage earners in mines and factories and for all employees in part of the construction industry. These statistics were examined in Chapter XII and are summarized in Table 25.

TABLE 25. DISTRIBUTION OF EMPLOYMENT IN MINING, MANUFACTURING, AND CONSTRUCTION INDUSTRIES BY SIZE OF ESTABLISHMENT IN THE UNITED STATES, 1929

Industries	Total	Size-classes of establishments						
		1 to 5 workers	6 to 20 workers	21 to 50 workers	51 to 100 workers	101 to 250 workers	251 to 1000 workers	1001 workers or over
ESTABLISHMENTS								
Mines.....	10,068	2,742	3,004	1,611	1,055	988	585	83
Manufactures.....	210,959	103,193 ^b	53,524	25,022	12,467	10,195	5,562	996
Construction..	144,396	119,206	16,250	5,610	1,860	1,170	300	—
Total.....	365,423	225,141	72,778	32,243	15,382	12,353	6,447	1,079
WORKERS								
Mines.....	806,418	8,194	34,079	53,183	76,362	158,623	256,814	219,163
Manufactures.....	8,838,743	279,734	595,708	814,465	891,671	1,589,040	2,508,136	2,159,989
Construction..	998,700	194,200	169,800	167,400	124,700	172,000	170,600	—
Total.....	10,643,861	482,128	799,587	1,035,048	1,092,733	1,919,663	2,935,550	2,379,152

^a Enterprises.

^b Including 7,426 factories with no wage workers (average of 0.5 or less during the year).

^c Without force-account construction.

Sources: See Chapter XII, pages 190, 193, 194-195.

In addition, mining and manufacturing establishments employed approximately 1.3 million salaried employees (excluding proprietors on payroll), or 15 salaried employees per 100 wage earners. The distribution of salaried employees by establishment size-classes was not reported by the censuses, but there is no visible correlation between the proportion of salaried employees and the average size of establishments in individual industries. Likewise, there is no evidence that in the same industry the proportion of salaried employees varies with size of establishment. It has been

assumed, therefore, that in all size-classes there was approximately the same percentage of salary earners among total employees.

This assumption means that the number of wage earners in each establishment size-class as classified in Table 25 should be increased by 15 per cent. So far as the size distribution of establishments is concerned, the result would be exactly the same as if there had been a proportional increase of 15 per cent in the personnel of all concerns with the result that some concerns would be transferred from lower to higher size-classes, causing a redistribution by size of all enumerated firms.

Adding 1.3 million salaried employees to the personnel of establishments enumerated in Table 25, and distributing the 10,000 oil and gas wells with their 190,000 employees by size-classes in approximately the same way as other concerns of similar average size, the following rough distribution of all mining, manufacturing and building establishments is found:

SIZE-CLASSES Establishments with ... employees	Estimated number	
	Establishments	Salary and wage earners
0.5 or less.....	50,000	20,000
1 to 5.....	154,000	430,000
6 to 20.....	95,000	1,020,000
21 to 50.....	37,000	1,200,000
51 to 100.....	18,000	1,260,000
101 to 250.....	12,600	1,960,000
251 to 1000.....	7,000	3,170,000
1001 or over.....	1,400	3,120,000
All size-classes	375,000	12,180,000

The number of establishments with 0.5 or less employees (intermittent employers) is greatly understated because the industrial censuses did not cover all enterprises of this size, and many small proprietors were counted either in independent hand trades, or with wage earners as in construction.

A break-down of the 154,000 establishments with 1 to 5 employees and the 95,000 establishments with 6 to 20 employees computed by means of interpolation is shown on page 215: *

* The method used for obtaining numbers for the size-class from 6 to 20 employees is described in Note 15.

Establishments with ... employees	Estimated number	
	Establishments	Salary and wage earners
0.5 or less.....	50,000	20,000
1.....	28,000	28,000
2.....	40,000	80,000
3.....	40,000	120,000
4.....	28,000	112,000
5.....	18,000	90,000
6.....	13,430	80,580
7.....	11,810	82,670
8.....	10,380	83,040
9.....	9,130	82,170
10.....	8,020	80,200
11.....	7,050	77,550
12.....	6,200	74,400
13.....	5,430	70,590
14.....	4,800	67,200
15.....	4,220	63,300
16.....	3,710	59,360
17.....	3,260	55,420
18.....	2,870	51,660
19.....	2,520	47,880
20.....	2,210	44,200

(b) *Transportation and communication*

The recovery of employment in transportation and communication began later than in manufacturing industries and its trend in recent years does not indicate that it will return to the 1929 level in the near future. Employment on steam railroads and pipe lines in 1937 was nearer the status of 1935 than that of 1929,⁴ and only 1935 statistics are available for trucking. Therefore, in Table 26, 1935 statistics of the size distribution of establishments in transportation have been used. The figures in Table 26 are not inclusive as they cover neither air and water transportation, nor electric railways, while in trucking approximately 40,000 small enterprises with intermittent employment have been omitted. Including these 40,000 concerns, the total number of employers in the transportation branches enumerated in Table 26 would be about 85,000, while the number of persons in their employ would exceed 1.8 million, about 80 per cent of them on the payrolls of 100 large concerns.

⁴ The average number of employees on railroads was 1,694,042 in 1929, 990,839 in 1932, 1,013,654 in 1935, and 1,036,405 in 1936.

TABLE 26. DISTRIBUTION OF EMPLOYMENT IN TRANSPORTATION AND COMMUNICATION BY SIZE OF ESTABLISHMENT IN THE UNITED STATES

Industries	Total	Size-classes of establishments						
		1 to 5 workers	6 to 20 workers	21 to 50 workers	51 to 100 workers	101 to 250 workers	251 to 1000 workers	1001 workers or over
ESTABLISHMENTS								
Railroads ¹	829	—	—	259	182	254	41	93
Pipe lines.....	49	1	3	4	5	16	12	8
Trucking ²	42,000	33,000	7,000	1,500	230	70	—	—
Motor bus transportation	1,751	934	400	296	55	66		—
Telegraph ³	16	—	—	9	—	4	—	3
Telephone ⁴	1,098	?	?	?	?	?	?	1
WORKERS								
Railroads ¹	1,112,005	—	—	4,272	12,129	44,577	21,357	1,029,670
Pipe lines.....	21,515	4	30	135	381	2,729	5,905	12,331
Trucking ²	210,500	71,000	71,400	44,600	15,000	8,500	—	—
Motor bus transportation	39,613	1,228	4,000	9,152	4,082	21,151		—
Telegraph ³	92,958	—	—	200	—	1,131	—	91,627
Telephone ⁴	350,360	?	?	?	?	?	?	324,343

¹ Including Pullman and express companies. All Class III railroads have been counted in the size-class from 21 to 50 workers; Class II railroads in size-classes from 51 to 100 and 101 to 250 workers; switching and terminal companies in the size-class from 101 to 250 workers.

² Without one-truck enterprises which may occasionally employ hired labor.

³ Data for 1929.

⁴ Data for 1930. Only systems and lines with annual revenue of more than \$10,000. The Bell System has been counted as one concern.

Source: See Chapter XII, pages 195-199

(c) Wholesale and retail trade

After a sharp decline from 1929 to 1933 and gradual recovery thereafter, employment in wholesale and retail trade has recently approached the 1929 level. Yearly employment indexes of the Bureau of Labor Statistics on the basis of 1929 as 100 were as follows:

	1933	1934	1935	1936	1937
Wholesale trade	76.1	82.8	84.0	86.7	92.0
Retail trade	76.1	82.1	82.3	85.7	89.8

As it is assumed that these indexes deviate downward in the same way as the indexes of factory employment,^a the present size distribution of wholesale and retail concerns should be estimated on the basis of 1929 statistics.

^a This assumption is based on a comparison of Bureau of Labor Statistics employment indexes with the variations in employment in retail trade as revealed by the 1929 Census of Distribution and the 1933 and 1935 Censuses of Business.

For the distribution of retail stores, the report of the 1929 Census of Distribution may be used, after its classification of stores by amount of sales has been interpolated and converted to a classification by number of employees.⁶

More laborious calculations are required with respect to wholesale establishments. As pointed out in Chapter XII⁷ the 1933 Census of Business classified by size only wholesale merchants and manufacturers' sales branches with stock. Therefore, Census figures, interpolated and converted as explained in Chapter XII, should be combined with an estimated distribution of other kinds of wholesale establishments. The figures obtained for each size-class should then be adjusted in accordance with the Bureau of Labor Statistics employment indexes shown on page 216. The figures calculated on the assumption that employment was 30 per cent above the 1933 level are shown below. These are supplemented by the special tabulation prepared for the Social Security Board by the 1935 Census of Business for independent wholesale and retail enterprises with less than 15 employees, in which all units operated by a chain or multi-unit concern were counted as one enterprise.⁸ These figures have been adjusted to the 1929 level of employment on the assumption that the personnel in each establishment was 20 per cent greater in 1929 than in 1935.

SIZE-CLASSES Establishments with ... employees	ALL ESTABLISHMENTS Estimated number		INDEPENDENT UNITS Estimated number	
	Establishments	Employees	Establishments	Employees
0.5 or less.....	495,000	53,000	690,000	20,000
1 to 5.....	1,022,500	1,830,500	715,000	1,400,000
6 to 10.....	130,000	831,500	82,000	607,000
11 to 20.....	46,700	640,200	56,000	1,823,000
21 to 50.....	21,500	595,000		
51 to 100.....	6,670	455,000		
101 or over.....	5,000	854,000		
All size-classes	1,727,370	5,259,200	1,429,600	3,850,000

⁶ Chapter XII, page 201.

⁷ Ibid., pages 201-202.

⁸ The importance of the exclusion of multi-unit concerns and chains in this special tabulation is evident from the figures shown on page 203.

Establishments with 1 to 20 employees may be further segregated as follows:

Establishments with ... employees	ALL ESTABLISHMENTS Estimated number		INDEPENDENT UNITS Estimated number	
	Establishments	Employees	Establishments	Employees
1.....	550,000	500,000	325,000	325,000
2.....	244,000	488,000	215,000	430,000
3.....	114,000	342,000	90,000	270,000
4.....	71,000	284,000	50,000	200,000
5.....	43,500	216,500	35,000	175,000
6.....	33,000	198,000	28,000	168,000
7.....	26,000	182,000	20,000	140,000
8.....	21,000	168,000	15,000	120,000
9.....	17,000	153,000	11,000	99,000
10.....	13,000	130,000	8,000	80,000
11.....	11,000	121,000	6,000	66,000
12.....	9,000	108,000	5,000	60,000
13.....	7,000	91,000	4,500	58,500
14.....	5,000	70,000	4,000	56,000
15.....	3,700	55,500	?	?
16.....	3,000	48,000	?	?
17.....	2,500	42,500	?	?
18.....	2,100	37,800	?	?
19.....	1,800	34,200	?	?
20.....	1,600	32,000	?	?

(d) *Services, amusement establishments, and hotels*

In the estimate of the size distribution of amusement and service establishments and hotels, the special tabulation of the 1935 Census of Business has been used again. Adjustment to changes in the employment level has been made on the assumption that the personnel of each establishment was 20 per cent larger in 1937 than in 1935, resulting in the following distribution of establishments by size-classes:

	1935 (Census of Business)		1937 (Estimate)	
	Establishments	Employees	Establishments	Employees
All establishments	641,207	1,083,186	641,200	1,300,000
Chains and multi-unit concerns	21,156	223,819	21,150	280,000
All independent establishments	620,051	859,367	620,050	1,020,000

SIZE-CLASSES Independent establishments with ... employees	1935	1937	1935	1937
	Establishments	Employees	Establishments	Employees
0.5 or less.....	359,419	7,744	355,000	7,700
1	131,413	133,014	116,000	100,000
2	54,917	109,834	54,000	108,000
3	27,954	83,862	33,000	99,000
4	12,868	51,472	19,400	77,600
5	8,881	44,405	10,300	51,500
6	5,196	31,176	8,000	48,000

EMPLOYERS AND EMPLOYEES IN INSURED INDUSTRIES 219

SIZE-CLASSES Independent establishments with ... employees	1935 (Census of Business)		1937 (Estimate)	
	Establishments	Employees	Establishments	Employees
7	4,161	29,127	5,200	36,400
8	2,376	19,008	3,400	27,200
9	1,938	17,442	2,400	21,600
10	1,485	14,850	1,300	13,000
11	1,150	12,650	1,200	13,200
12	943	11,316	1,100	13,200
13	812	10,556	1,000	13,000
14	594	8,316	900	12,600
15 or over.....	5,944	284,595	7,850	378,000

(e) All industries

The survey of industries in the preceding pages is not inclusive. Among omitted groups are public and domestic service; force-account construction; banking, insurance and real estate; educational and health establishments; non-profit organizations; boarding houses and tourist camps; and private professional service. Besides these omissions it may be supposed that the industrial censuses, on which the foregoing estimates have been based, did not report all small concerns with intermittent hired help.

With these limitations the greater part of private industry has been covered in the analysis, and more than 20 million employees have been tentatively distributed by size-classes of establishments on the assumption of a status of employment identical with that in 1929.

**SUMMARY OF THE DISTRIBUTION OF EMPLOYMENT IN
MINING, MANUFACTURING, CONSTRUCTION, TRANSPORTATION AND COMMUNICATION, WHOLESALE AND
RETAIL TRADE, SERVICES, AMUSEMENTS AND HOTELS**

SIZE-CLASSES Establishments with ... employees	Estimated number	
	Establishments	Employees
0.5 or less.....	900,000	110,000
1 to 5.....	1,505,000	2,870,000
6 to 20.....	276,500	2,820,000
21 to 50.....	91,100	2,405,000
51 to 250.....	43,500	4,455,000
251 to 1000.....	7,300	3,410,000
1001 or over.....	1,600	4,500,000
All size-classes	2,825,000	20,570,000

In addition, approximately 4 million salary and wage earners were employed in 1929 in industries for which no statistics on the distribution of establishments by size-classes are available. In most

of these industries small concerns are the general rule. Including these industries, the total number of establishments in insured pursuits would probably reach 3.5 million. Excluding the establishments controlled by multi-unit concerns and chains, this number, or the number of employers, would be reduced to approximately 3.2 million.

Summarizing, approximately 8 million, or one-third of all insured workers are employed by less than 9,000 establishments with 251 employees or more; about 12.5 million, or more than half the total, are on the payrolls of 52,400 concerns with 51 or more employees. On the other hand, 60 per cent of the employers in insured industries employ barely more than 2 or 3 per cent of all insured workers.

It should be made clear again that this is a very rough estimate based on numerous assumptions and on statistics which are neither strictly comparable nor completely reliable.

The same limitations apply to the following tentative distribution by number of workers of the establishments in the surveyed industries which have from 1 to 20 employees :

Establishments with ... employees	Estimated number	
	Establishments	Employees
1.....	760,000	690,000
2.....	345,000	690,000
3.....	195,000	585,000
4.....	120,000	480,000
5.....	70,000	350,000
6.....	52,000	312,000
7.....	42,000	294,000
8.....	33,000	264,000
9.....	27,900	251,100
10.....	23,700	237,000
11.....	20,100	221,100
12.....	17,100	205,200
13.....	14,500	188,500
14.....	12,300	172,200
15.....	10,400	156,000
16.....	8,800	140,800
17.....	7,500	127,500
18.....	6,400	115,200
19.....	5,400	102,600
20.....	4,600	92,000

The distribution of establishments in insured industries not covered by the preceding survey can only be guessed at. In allowing for these concerns, the numbers of establishments with 1 to 5

employees shown above should be increased by approximately 25 per cent, and the numbers of establishments with 6 to 20 employees, by 20 per cent. The total number of establishments in both size-classes would then be increased by approximately 430,000, but it should be diminished by about 300,000 if establishments owned by multi-unit concerns are excluded. Thus, the numbers of *establishments* in the surveyed industries shown above are not far from the probable numbers of *employers* of the specified number of workers in all insured industries, including those not covered by the preceding analysis.

REGULAR AND INTERMITTENT EMPLOYERS IN INSURED AND UNINSURED INDUSTRIES

On the basis of the foregoing analysis of the size distribution of establishments in different industries, it is possible to estimate the number of regular employers, i.e. those with hired help throughout the year, and intermittent employers, i.e. those who only occasionally hire helpers.

Although there are no inclusive statistics on the continuity of employment by industries and by size of establishments, the probability is that establishments with intermittent or seasonal employment are more numerous than the industrial censuses report them to be. A concern reporting an average of 0.5 or less workers during the year obviously belongs to the group of *intermittent* employers, as does a concern with an average of from 0.6 to 0.9 workers. This group, however, also includes concerns which, though they have an average of more than 1 worker a year, employ no help continuously during the year. Moreover, each self-employed worker engaged in non-agricultural pursuits is a potential employer of labor, and it may be assumed that most of the proprietors reported as having no employees actually are, or can be, *intermittent* employers.

The distribution of employers operating private industrial and commercial establishments in industries covered by old-age insurance is shown in Table 27.

Thus, the total number of regular employers in industries included in Table 27 must be somewhat over 2 million. Inter-

TABLE 27. ESTIMATED NUMBER OF REGULAR AND INTERMITTENT EMPLOYERS IN INSURED INDUSTRIES IN THE UNITED STATES

Industries	Total	Regular employers	Intermittent employers
Mines (including oil and gas wells).....	20,000	20,000	—
Manufactures.....	210,000	200,000	10,000
Construction.....	145,000	105,000	40,000
Steam railroads.....	1,000	1,000	—
Trucking.....	82,000	42,000	40,000
Other transportation and communication..	4,000	4,000	—
Retail trade (including automotive group, restaurants and eating places).....	1,380,000	840,000	540,000
Wholesale trade.....	165,000	115,000	50,000
Banking, insurance and real estate.....	200,000	200,000	—
Recreation and amusement, hotels and service establishments (independent units).....	636,000	336,000	300,000
Laundries, cleaning, pressing, etc.....	30,000	10,000	20,000
Boarding houses, tourist camps, etc.....	200,000	200,000	—
Private professional service.....	100,000	100,000	—
Total¹.....	3,173,000	2,023,000	1,150,000

¹ Boarding houses, tourist camps, etc., and private professional service establishments have been evenly distributed in the total between regular and intermittent employers.

mittent employers, estimated at 1.1 to 1.2 million, employ on the average hardly more than 300,000 to 350,000 workers a year, or 1.2 to 1.4 per cent of the total amount of hired labor (measured in man-months).

Obviously, during the course of a year, the total number of regular and intermittent employers collecting and paying contributions for old-age insurance will be larger than the number of employers on any one day of the year. Not only will seasonal enterprises be included, but also those which operate only part of the year and then go out of business, as well as those starting up in the middle of the year. Probably there are hundreds of thousands of such concerns and it may be assumed that their number in the old-age insurance records of the Social Security Board will increase steadily from year to year.

The number of employers in uninsured industries is more than twice as large as in insured pursuits. The two most numerous groups among them are farmers, including almost 1 million regular and 1.6 million intermittent employers, and employers of domestic servants. No statistics are available on the distribution of servants who work in their employers' homes, but it seems fairly probable that the number of servants with two or more employers during

a week is considerably larger than the number of homes with several servants, and therefore that the number of employers of domestic servants should be higher than the number of servants. If temporary employers of casual laborers, nurses, washerwomen, etc., are counted, the number of employers will be still higher.

The following numbers of employers in uninsured industries represent a rough guess rather than an estimate: 500,000 public enterprises and non-profit organizations (including more than 200,000 churches, public schools, hospitals, foundations, etc.); about 2.6 million farmer-employers; over 3 million more or less regular employers of domestic servants; and, in addition, hundreds of thousands of "casual" employers.

ESTABLISHMENTS EXEMPT FROM THE EXCISE TAX FOR UNEMPLOYMENT COMPENSATION

According to the provisions of Title IX, Section 907 of the Social Security Act, employers in covered industries who had in their employ a total of eight or more persons for some portion of the day (whether or not at the same moment of time), on each day of some twenty days during the taxable year, each day being in a different calendar week, shall pay an excise tax of 1 per cent of total wages up to \$3,000 for each worker in 1936, 2 per cent in 1937, and 3 per cent beginning in 1938.

Employers with *less than eight* employees, and those with a larger number of hired helpers for a period of *less than 20 days* in 20 different weeks in a year, are exempt from this tax.

The number of exempt employers may be estimated on the basis of statistics of the distribution of establishments by size-classes, but such an estimate necessarily will be rough, not only because adequate statistics are lacking, but still more for the following methodological reasons:

(a) The line drawn by the Social Security Act between exempt and participating employers differs essentially from the usual statistical classification of establishments by number of employees. The latter is based on the *average* number employed during the 12 weeks which include the 15th day of each month in the year (or during the next representative active week of the same month). In this classification, establishments reporting less than 90 man-months of employment during the year are considered as having less than 8 employees.

It can happen, however, that establishments reporting more than 90 man-months—for example, seasonal enterprises employing 25 workers during 4 months—will be exempt from the excise tax, while establishments with less than 90 man-months—for example, enterprises employing 10 workers during 5 months—will be obliged to pay the tax.

(b) The classification of manufacturing establishments by size is based on the number of *wage earners* only, while the exemption limit in the Social Security Act is determined by the *total number of persons employed*, including both salaried employees and wage earners.

(c) Almost all available statistics on size of establishments refer to technical units such as factories or stores, whereas the Social Security Act provides a limitation by number of persons in the employ of a single proprietor, whether in one or several establishments.

Besides these methodological considerations, the provisions of the Social Security Act can effect important changes in marginal establishments. Some employers with eight or more employees, in the meaning of Section 907, may discharge some workers in order to escape the tax.

With these restrictions in mind, the number of employers which were exempt from the federal excise tax in 1937-38 and the number of their employees may be estimated roughly as follows: *

	Estimated number		Per cent of total	
	Establishments	Employees	Establishments	Employees
Concerns with intermittent employment	1,150,000	310,000	36	1.3
Concerns with 1 to 7 employees	1,334,000	3,201,000	42	13.1
Total.....	2,484,000	3,511,000	78	14.4

These exemptions correspond to the provisions of the federal Social Security Act. Actually, however, because several state

* This estimate is based on the distribution of establishments in insured industries for which size distribution statistics are available. (Cf. pp. 219-221.) The group of concerns with intermittent employment includes 900,000 establishments reporting a yearly average of 0.5 employees or less, and 250,000 establishments with 0.6 to 0.9 employees (counted in the group of concerns with one worker). No allowance has been made for industries not covered by the preceding survey, as it is taken for granted that their omission is to a large extent compensated by the fact that about 300,000 establishments controlled by large multi-unit concerns and chains have been counted as independent units in the lower size-classes of establishments. Percentages have been computed on the basis of an estimated total of 3.2 million employers and 24.5 million employed salary and wage earners in industries covered by old-age insurance. They are substantially lower than the percentages of the surveyed industries, as shown on page 228.

unemployment compensation laws have lower exemption limits than those in the federal law, not as many of the small establishments will be excluded from unemployment compensation. In the fall of 1937, 28 state unemployment compensation laws included only employers of 8 or more, while in 19 states, and in the District of Columbia, the laws were more liberal. Employers of 1 or more pay the excise tax in 10 states (Arkansas, Delaware, District of Columbia, Idaho, Michigan, Minnesota, Montana, Nevada, Pennsylvania, and Wyoming); in 2 states employers of 3 or more must pay (Arizona and Ohio); in 7 states the limit is fixed at 4 employees (Kentucky, New Hampshire, New Mexico, New York, Oregon, Rhode Island, and Utah); and in 1 state (Connecticut) employers of 5 and more pay the excise tax.¹⁰

The relative importance of these provisions for the national labor market can be measured by the number of applicants for old-age insurance in states in which the size-of-firm exemption is variously limited. On June 30, 1937 the total number of applicants for old-age insurance was 29,954,821. Of this number 5,328,561 applications or 17.8 per cent were registered in the 10 states in which employers of 1 or more pay the excise tax; 1,983,900 applications or 6.6 per cent were made in states in which employers of 3 or more must pay; 5,407,381 applications or 18.7 per cent in the 7 states which fix the exemption limit at 4 employees; and 556,137 or 1.9 per cent in the state in which employers of 5 and more pay the excise tax. The remaining 16,678,842 applications, or 55 per cent, were filed in states where the exemption limit is 8 employees. On the assumption that small concerns are more or less evenly distributed over all states, the following percentages of enterprises of different sizes must pay state unemployment compensation taxes:

Employers of an average of less than 1 worker.....	None
Employers of 1 or 2 workers.....	17.8 per cent
Employers of 3 workers.....	17.8 + 6.6 = 24.4 per cent
Employers of 4 workers.....	24.4 + 18.7 = 43.1 per cent
Employers of 5, 6 or 7 workers.....	43.1 + 1.9 = 45.0 per cent
Employers of 8 or more workers.....	45.0 + 55.0 = 100.0 per cent

¹⁰ California and Maryland extended their laws to include employers of 4 or more after January 1, 1938, while Massachusetts has made the same change, to become effective after January 1, 1939. The Wisconsin law includes firms with 7 or more employees in 1938, and those with 6 or more in 1939. After January 1, 1938 Michigan changed from employers of 1 or more, to 8 or more employees.

Consequently, the approximate number of enterprises excluded and included by state laws in each size-class and their employees will be as follows:

SIZE-CLASSES Enterprises with ... employees	Excluded		Included	
	Enterprises	Employees	Enterprises	Employees
0.5 or less.....	900,000	110,000	—	—
1	625,000 ¹¹	575,000 ¹¹	135,000	135,000
2	284,000	568,000	61,000	122,000
3	145,000	435,000	50,000	150,000
4	68,000	272,000	52,000	208,000
5	38,500	192,500	31,500	157,500
6	28,600	171,600	23,400	140,400
7	23,100	161,700	18,900	132,300
All size-classes ..	2,112,200	2,485,800	371,800	1,045,200

(See Diagram XLIII.)

Thus, state unemployment compensation programs include approximately 370,000 concerns and 1,045,000 employees which are exempt from the federal excise tax.

The above estimate is subject to the same limitations as the estimate of the distribution of small establishments in insured industries. It is based on a number of assumptions including that of mutual compensation of errors resulting from the inadequacy of available statistics.

The significance of the size-of-firm exemptions varies considerably for different industries. In manufacturing industries, for example, establishments exempt from the federal excise tax had in their employ in 1929 the following percentages of all wage earners in these industries:

	Per cent		Per cent
Rubber products .....	.2	Machinery	2.6
Transportation equipment .	.6	Forest products	3.4
Paper and allied products..	.8	Chemicals, stone, clay and glass	4.1
Iron and steel.....	1.1	Nonferrous metals and products	4.5
Leather	1.1	Food and kindred products.	11.3
Textiles	1.3	Printing and publishing....	13.7
Petroleum and coal.....	1.5		

The diversity of conditions in various industries will be still more striking if individual industries instead of major industrial groups are considered.

¹¹ These numbers include probably 250,000 establishments with intermittent employment (0.6 to 1.0 employees, and sometimes more, as the average for the year). Their total personnel is estimated at 200,000. (Cf. estimate on page 222.)

DIAGRAM XLIII

SMALL ESTABLISHMENTS IN THE UNITED STATES INCLUDED IN AND EXCLUDED FROM UNEMPLOYMENT COMPENSATION BY STATE LAWS
(Status in December 1937)

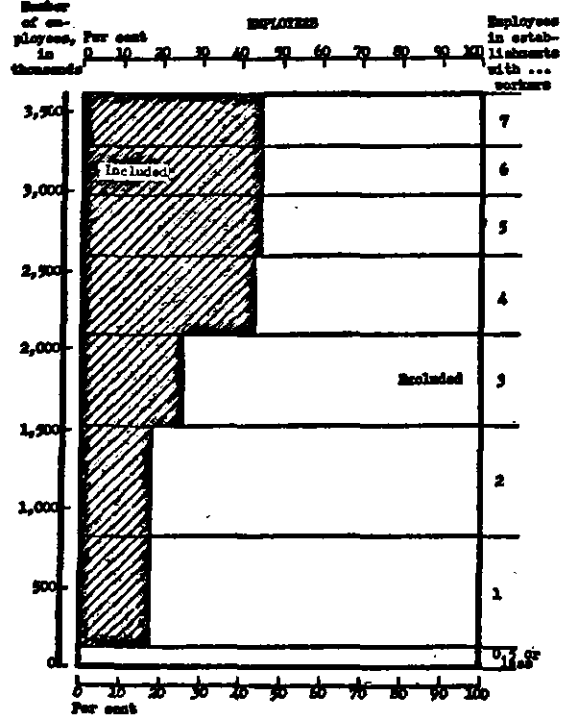
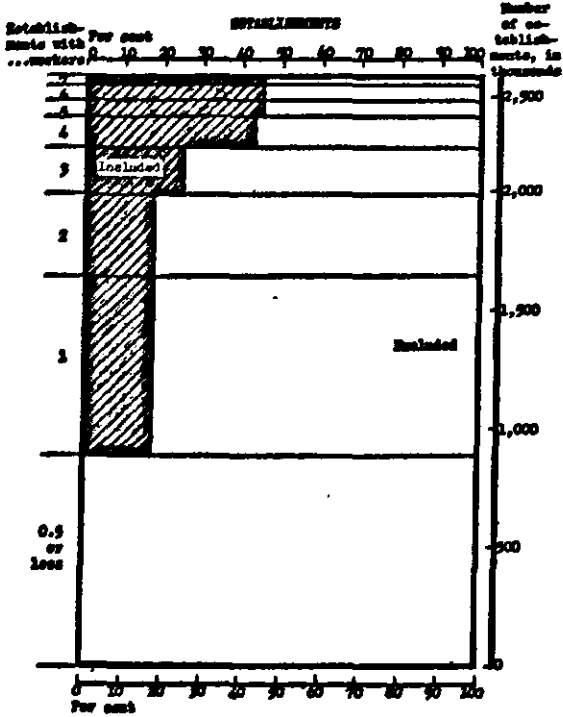


Table 28 shows the magnitude of the exemptions provided by Title IX of the Social Security Act and by state laws in the industries analyzed in the preceding pages.

TABLE 28. ESTIMATED NUMBER OF INDUSTRIAL ESTABLISHMENTS AND EMPLOYEES EXEMPTED FROM UNEMPLOYMENT COMPENSATION TAXES BY THE SOCIAL SECURITY ACT AND BY STATE LAWS

Industries	Total		Exempted by the Social Security Act		Exempted by state laws	
	Establishments	Employees	Establishments	Employees	Establishments	Employees
	<i>Absolute numbers</i>					
Mining, manufacturing and construction . . .	375,000	12,180,000	230,000	615,000	176,000	405,000
Transportation and communication	85,000	1,830,000	75,000	95,000	68,000	65,000
Wholesale and retail trade	1,730,000	5,260,000	1,518,000	2,265,000	1,335,000	1,558,000
Amusement, hotels and services	635,000	1,300,000	601,000	546,500	535,000	400,000
Total	2,825,000	20,570,000	2,484,000	3,621,000	2,114,000	2,428,000
	<i>Percentages</i>					
Mining, manufacturing and construction . . .	100.0	100.0	60.1	5.6	46.7	3.3
Transportation and communication	100.0	100.0	88.2	5.2	82.4	3.5
Wholesale and retail trade	100.0	100.0	91.2	45.1	77.2	29.6
Amusement, hotels, and services	100.0	100.0	94.3	42.0	84.2	30.8
Total	100.0	100.0	87.8	17.4	74.8	12.1

EFFECTS OF THE EXEMPTION OF SMALL ESTABLISHMENTS FROM UNEMPLOYMENT COMPENSATION

It appears highly probable that differences in the taxation of industrial enterprises of various sizes will affect the structure of individual industries and the stability of employment, as well as the relationship between contributions and benefits in unemployment compensation programs.

Small establishments are favored, but only so long as they do not increase their personnel beyond the exemption limits. When the excise tax reaches 3 per cent of the payroll, an employer now just over the limit may yield to pressure to reduce personnel

enough to avoid paying the tax. An employer now just under the limit may hesitate to employ extra workers since to do so will not only increase his payroll by the amount of their wages, but will also add another 3 per cent to his total payroll.

In addition, the provision of the Social Security Act and state laws that employers are exempt from the excise tax unless they employ the specified number of workers on each of some 20 days in the taxable year, each day being in a different calendar week,¹² will favor those employers who operate their establishments only part of the year, i.e., less than 5 months. Seasonal enterprises will probably compress their production into a period of less than 20 weeks and avoid employing during the balance of the year the number of workers which will make them liable to the tax. This may result in an even greater irregularity of employment in such industries as ice cream, ice manufacturing, and canning and preserving in which the season usually lasts about 5 months.¹³

However, workers in small concerns will not be excluded altogether from unemployment compensation as many of them shift back and forth between insured and uninsured concerns. Although there is no provision in the Social Security Act itself concerning the insurance rights of employees in small establishments, state laws have varying provisions on eligibility for benefits and the maximum duration of benefit payments which attempt an adjustment of benefits to contributions.

Because there are no statistics on the shifts of workers between establishments of different size, and especially because of inadequate information on duration of unemployment, it is hardly possible to foresee the effects of intermittent insurance on the unemployment compensation funds. It seems highly probable, however, that these funds will be subject to a considerable drain because of workers shifting between insured and uninsured establishments. Contributions for these workers will be paid only

¹² The fact that this provision varies from state to state does not affect the following reasoning.

¹³ In 1931 these industries reported the following number of wage earners, in thousands:

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Ice cream	15.1	15.0	15.0	17.0	19.3	21.6	22.8	21.9	19.6	16.5	14.9	14.5
Ice manufacturing.	17.1	18.7	19.5	23.2	26.8	31.6	35.1	34.8	31.9	25.7	20.2	17.9
Canning & preserv- ing	44.9	47.3	52.8	58.4	57.1	88.9	117.3	181.3	195.4	113.0	63.5	45.4

intermittently although they are exposed to the same risk of unemployment as workers continuously employed by insured concerns.

An unfortunate effect of the exemption of small establishments from the excise tax is the confusion concerning the rights of employees to benefits. In some cases it will be impossible to decide before the end of a calendar year whether or not the applicant's employer had on his payroll the specified number of workers in 20 different weeks and was subject to the excise tax. Until this is determined, the right of the applicant can be questioned.

ESTIMATED COVERAGE UNDER UNEMPLOYMENT COMPENSATION

If a registration of all employed workers covered by unemployment compensation programs could be taken in one day (as is a census of population), the number registered would, disregarding some minor differences in statutory provisions relating to coverage under the old-age and unemployment compensation programs, equal

the number of workers covered by old-age insurance,
minus the unemployed, and
minus the workers employed in small firms excluded
from coverage.

Such a registration currently maintained sooner or later would include the unemployed who in the meantime had been employed, even temporarily, in insured pursuits. In the same way, workers who were employed by small concerns excluded from coverage would have accounts opened for them if they had worked temporarily in larger enterprises. Under employment conditions similar to those in 1929, this would mean that after one year or somewhat more of current registration, there would be approximately 21.5 or 22.3 million workers for whom contributions would be collected continuously, while the number of persons registered for unemployment compensation would be fairly close to 27 or 28 million. This number would increase as a result of shifts between insured and uninsured pursuits, registration of occasional workers, the natural turn-over of the working population, etc. However, growth in the number of registrants would be restrained by the exclusion of persons for whom no contributions were paid

during a period up to 2½ years. Therefore, the "inactive" accounts for unemployment compensation would not reach the same proportions as those for old-age insurance. Probably, to the first 5 to 6 million inactive registrants, i.e., those out of work or employed by small concerns, a further 5 or 6 million workers who shift between insured and uninsured establishments would be added in the two years following registration. In the future, the number of persons registered for unemployment compensation would lag behind the registration for old-age insurance, and the distance between the two would increase from year to year.

NOTES

NOTE 1. OCCUPATIONAL STATISTICS IN THE UNITED STATES, 1820-1930

The first occupational census in the United States was taken in 1820 and reported the number of persons, including slaves, in each family engaged in three large industrial fields: agriculture, commerce and manufacturing. Twenty years later 7 industrial divisions were distinguished: mining; agriculture; commerce; manufactures and trades; navigation of the ocean; navigation of canals, lakes and rivers; and "learned professions and engineers."

Since 1850 the population schedule has carried a question on the occupation or trade followed by each individual reported. The 1850 occupational query, however, applied only to free men over 15 years of age. With each census occupational statistics were refined. As early as 1880 F. A. Walker, the superintendent of the Tenth Census, suggested an additional inquiry to determine the number of employers and persons working on their own account, as distinguished from those receiving wages or salary. But the first step in this direction was not made until 30 years later.

The 1910 population schedule included three principal occupational questions: the trade or profession of, or particular kind of work done by, each person engaged in gainful labor; the general character of the industry, business or establishment in which the respondent worked; and whether the respondent was an *employer*, an *employee*, or *working on his own account*,¹ the last being designated as "*class of work*."

The 1910 Census report used an *occupational classification with an industrial framework*: "It was thought that such a classification would give the most vivid picture of the occupational position of each and every worker, and that it would best show the specific services rendered, work done, or processes performed by each worker," this report explains.² With this attempt scientific occupational statistics began in the United States.

The next Census in 1920 did not continue the tabulation set up in the preceding one.³ The industrial classification was abandoned and individual occupations were combined along occupational rather than industrial lines.⁴

¹ Thirteenth Census of the United States: 1910, Population, Volume IV, p. 15.

² *Ibid.*, p. 17.

³ Fourteenth Census of the United States: 1920, Population, Volume IV.

⁴ *Ibid.*, p. 11.

In 1930 there was a partial return to the ideas of the 1910 Census. While the classification in general followed the 1920 form and was *occupational* rather than *industrial*, one table (Table 2, Chapter 7, Volume V of the 1930 General Report) was arranged by both industry and occupation.⁵ It is this table which has been examined in detail in the present study.

NOTE 2. REARRANGEMENTS OF OCCUPATIONAL STATISTICS

The first attempt to group the occupations enumerated by the censuses according to "character of employment" appears to have been made in 1897 by William C. Hunt, of the Department of Labor.⁶ He distributed the gainful workers enumerated in 1870, 1880 and 1890 in four groups:

- A. Proprietor class.
- B. Clerical class.
- C. Skilled workers.
- D. Laboring class.

In this classification professional persons were counted in group A, semi-skilled workers were divided between groups C and D, and servants were included in group B.

Hunt's classification was substantially improved by I. A. Hourwich in 1911. In the latter's study of the socio-economic classes of the working population of the United States, all occupations were arranged in ten groups:⁷

1. Farmers.
2. Agricultural laborers, members of family.
3. Agricultural laborers, hired help.
4. Entrepreneurs.
5. Professional and quasi-professional.
6. Agents and commercial travellers.
7. Salaried employees.
8. Selling force.
9. Industrial wage earners.
10. Servants.

Hourwich arranged along these lines the reports of four decennial censuses, beginning with 1870, with a view chiefly to tracing the

⁵ Fifteenth Census of the United States: 1930, Population, Volume V, pp. 5, 412-587.

⁶ William C. Hunt, *Workers in Gainful Occupations at the Federal Censuses of 1870, 1880, and 1890*, U. S. Department of Labor Bulletin No. 11, July 1897.

⁷ Isaac A. Hourwich, "The Social-Economic Classes of the Population of the United States," *Journal of Political Economy*, February 1911, p. 120. For practical purposes, Hourwich used an abbreviated classification, combining groups 2 and 3, and groups 7 and 8.

distribution between employers and employees, a very important improvement in comparison with the classification proposed by Hunt.

The occupational statistics of the 1910 Census were rearranged by A. M. Edwards who, though continuing the method first used by Hourwich, modified his classifications so as to obtain the following distribution of gainful workers by socio-economic groups:⁶

Socio-economic groups	Total persons	Male	Female
ALL GROUPS	38,167,336	30,091,564	8,075,772
I. Proprietors, officials and managers.	8,689,724	8,164,159	525,565
II. Clerks and kindred workers.....	3,781,446	2,707,187	1,074,259
III. Skilled workers	4,021,598	3,951,071	70,527
IV. Semi-skilled workers	5,691,102	3,623,688	2,067,414
V. Laborers	11,227,214	9,594,860	1,632,354
VI. Servants	2,719,227	752,002	1,967,225
VII. Public officials	128,779	116,276	12,503
VIII. Semi-official public employees.....	263,278	262,952	326
IX. Professional persons	1,644,968	919,369	725,599

Source: *Quarterly Publications of the American Statistical Association*, June 1917, p. 653. (The survey is reproduced in abbreviated form.)

Compared with Hourwich's classification, this arrangement had certain advantages: it could be applied to each industrial division; the most numerous group of Hourwich's classification (industrial wage earners) was subdivided into skilled workers, semi-skilled workers, and laborers; and all groups were adjusted to the outlines of the occupational classification used by the 1910 Census. In other respects, however, Edwards' classification had some disadvantages: its conception of social classes was confused; it made no attempt to separate employers from employees; and it counted unpaid family workers as well as self-employed persons with wage earners.

After the 1920 Census reports had been published, the Bureau of Labor Statistics attempted, in view of voids in the new occupational statistics, to *estimate* the number of employees engaged in various industries. Two efforts in this direction should be noted:

(1) The Bureau of Labor Statistics made use of the Edwards' classification and prepared a new table "on the assumption that males and females in 1920 were distributed among the various occupational groups on the same percentage basis" as in 1910.⁷

(2) A reclassification of the 1920 occupational data by industry and class of work was attempted by applying certain percentage

⁶ Alba M. Edwards, "Socio-Economic Groups of the United States: gainful workers of the United States, classified by social-economic groups or strata," *Quarterly Publications of the American Statistical Association*, June 1917, pp. 79-97.

⁷ U. S. Department of Labor, Bureau of Labor Statistics, *Monthly Labor Review*, May 1922, pp. 131-133. The number of proprietors, officials and managers was estimated as 8,378,398. Two months later another and higher figure was computed.

coefficients to the groups returned by the Census, in so far as it could be supposed that these groups contained both employees and employers or persons working on their own account.¹⁰

The essential purpose of the last rearrangement was to segregate independent and hired labor. Officials and managers were separated from employers and self-employed persons; home farm laborers were counted with self-employed persons; and the industrial classification was improved. But since the estimate was based entirely upon assumed percentages of independent persons in different occupational groups, it was naturally open to criticism. Moreover, the groups reported could not be broken down by age, sex, color, or race.

The figures estimated by the Bureau of Labor Statistics on the basis of the 1920 Census follow:

Industries	Total	Employees	Officials & managers	Employers, independent workers, etc.
ALL INDUSTRIES	41,614,248	28,968,350	908,194	11,737,704
Agriculture and forestry...	10,953,158	2,699,064	2,095	8,251,999 ^a
Extraction of minerals....	1,090,223	1,055,898	16,991	17,334
Manufacturing	10,158,253	9,372,595	254,615	531,043
Construction	2,468,039	2,292,097	—	175,942
Transportation	3,023,854	2,818,068	73,172	132,614
Public utilities	177,784	177,784	—	—
Trade	3,295,066	1,893,217	206,598	1,195,251
Clerical and professional...	9,835,085	8,046,841	354,723	1,433,521
Miscellaneous	612,786	612,786	—	—

^a Includes 1,850,119 home farm laborers (unpaid family workers).

Source: U. S. Department of Labor, Bureau of Labor Statistics, *Monthly Labor Review*, July 1923.

A similar attempt to rearrange official occupational statistics was made by W. I. King. After excluding unpaid family members, he distributed all other workers in three classes: entrepreneurs; salaried workers; and wage workers. The following survey presents his results in condensed form:

Industries	Total	1910			Total	1920		
		Entrepreneurs	Salaried workers	Wage workers		Entrepreneurs	Salaried workers	Wage workers
ALL INDUSTRIES	35,100	9,884	4,673	20,543	40,008	10,060	6,740	23,208
Agriculture	8,814	6,307	60	2,447	8,871	6,381	71	2,419
Manufacturing	8,176	259	905	7,012	11,389	206	1,448	9,735
Mines, etc.	1,099	33	44	1,023	1,239	22	75	1,142
Construction	1,650	175	96	1,379	1,092	160	82	850
Transportation	2,597	9	479	2,109	3,494	8	742	2,743
Banking	158	4	155	—	232	4	228	—
Mercantile	3,783	1,253	410	2,120	4,618	1,403	522	2,693
Government	1,709	—	1,709	—	2,719	—	2,719	—
Unclassified	7,115	1,845	816	4,454	6,355	1,876	853	3,626

Source: W. I. King, *The National Income and its Purchasing Power*. (New York: National Bureau of Economic Research, 1930), Tables II-VI, pp. 60-62. The original tables contain estimated figures for the years 1909 to 1927.

¹⁰ Carl Hookstadt, "Reclassification of the United States 1920 Occupation Census by Industry," *Ibid.*, July 1923.

The totals for each class of work in all industries were estimated by King on the basis of official census reports. However, he modified the census figures for agriculture by omitting family workers. For the other industrial divisions, his figures were compiled from special censuses, reports and investigations. Transportation might better have been termed "Transportation, Communication and Utilities" as it included railroads, Pullman and express companies, water transportation, street railways, private electric light and power plants, and telephone and telegraph. The "unclassified" group was computed as the difference between the numbers estimated on the basis of the censuses of occupations for each class of work and the totals for each industry as reported in the special censuses.

In more recent years, A. M. Edwards made a new classification which has been frequently quoted and used. He combined a distribution of gainful workers by class of work, with a distinction between the principal industrial (or occupational) divisions. The following socio-economic groups were segregated:¹¹

1. Professional persons.
2. Proprietors, managers, and officials:
 - 2-a. Farmers (owners and tenants).
 - 2-b. Wholesale and retail dealers.
 - 2-c. Other proprietors, managers and officials.
3. Clerks and kindred workers.
4. Skilled workers and foremen.
5. Semi-skilled workers:
 - 5-a. Semi-skilled workers in manufacturing.
 - 5-b. Other semi-skilled workers.
6. Unskilled workers:
 - 6-a. Farm laborers.
 - 6-b. Factory and building construction laborers.
 - 6-c. Other laborers.
 - 6-d. Servant classes.

The disadvantage of this outline is that insufficient attention was given to the distinction between employers and employees. Managers and officials were counted with proprietors, independent craftsmen were listed as skilled or semi-skilled workers, and unpaid family workers on farms were added to farm laborers. This outline has been used without modification in a recently published study of the Bureau of the Census.¹²

¹¹ Alba M. Edwards, "A Social-Economic Grouping of the Gainful Workers in the United States," *Journal of the American Statistical Association*, December 1933. "Composition of the Nation's Labor Force," *The Annals of the American Academy of Political and Social Science*, March, 1936.

¹² U. S. Department of Commerce, Bureau of the Census, *A Social-Economic Grouping of the Gainful Workers of the United States: Gainful workers of 1930 in social-economic groups, by color, nativity, age, and sex, and by industry, with comparative statistics for 1920 and 1910, 1938.*

**NOTE 3. DISTRIBUTION BY CLASS OF WORK OF OCCUPATIONS
ENUMERATED BY THE 1930 CENSUS OF POPULATION**

All occupations enumerated in each individual industry in Table 2, Chapter 7, Volume V of the 1930 Census reports have been distributed in this study among the following twelve classes of work:

1. Employers and self-employed persons.
2. Unpaid family workers.
3. Professional persons.
4. Salaried employees:
 - 4-a. Managers and officials.
 - 4-b. Clerks and kindred workers.
 - 4-c. Sales persons.
5. Skilled workers:
 - 5-a. Foremen.
 - 5-b. Other skilled workers.
6. Semi-skilled workers:
 - 6-a. Apprentices to skilled pursuits.
 - 6-b. Other semi-skilled workers.
7. Unskilled workers.
8. Service workers.

Each individual occupation mentioned in the 1930 Census report has been allocated to one of these 12 classes. Overlapping occupational groups have been counted in the class which seems best to fit their characteristics, and no occupation has been distributed under two or more classes of work.

A detailed explanation as to which occupations have been included in each class of work follows:

(1) Employers, including self-employed persons

In the group of employers and self-employed persons, 9,936,124 persons reported in the 1930 Census (6,090,942 in agriculture and 3,845,182 in non-agricultural pursuits) have been included. Independent professional persons have not been included. No distinction has been made between persons working on their own account with no employees, and proprietors with employees. This segregation would be highly desirable but it is impossible on the basis of the occupational statistics now available. For example, farmers were listed in the 1930 Census as farmers, and retail dealers as retail dealers, whether or not they had salaried employees.

In the present study the following individual occupations have been allocated to the proprietary group:

Farmers (owners and tenants).....	6,012,012
Owners and proprietors of log and timber camps.....	5,650
Fishermen and oystermen ¹³	73,280

¹³ These persons were classified with proprietors in the 1930 Census (Volume V, p. 412). They were counted as unskilled workers in Edwards' classifica-

Owners, operators and proprietors of mining establishments.....	15,834
Manufacturers	187,159
Persons in independent hand trades (excluding apprentices) ¹⁴	357,934
Builders and building contractors (including construction and maintenance of roads, etc.).....	167,811
Owners and proprietors of garages, truck, transfer and cab companies, automobile repair shops and other establishments in transportation, communication and utilities.....	102,210
Bankers and bank officials, brokers and commission men.....	221,504
Insurance agents ¹⁵	256,927
Real estate agents ¹⁵	234,427
Retail and wholesale dealers.....	1,677,637
Owners and proprietors of advertising agencies, grain elevators, stockyards, etc.	6,845
Owners and proprietors of automobile agencies, stores, and filling stations	150,697
Keepers and owners of billiard rooms, dance halls, pleasure resorts, race tracks, theaters, etc.....	59,570
Keepers of boarding and lodging houses, ¹⁶ restaurants, and lunch rooms	366,625

(2) *Unpaid family workers*

The 1930 Census returned 1,659,792 unpaid family workers who were separately reported only in agriculture. For an analysis of this number, see Chapter II, page 17, and Note 6.

(3) *Professional persons*

In the present study the occupational classification of this group in the 1930 Census has been followed closely. Most of the 2,957,446 gainful workers the Census reported in this class of work were counted in the division of Professional Service, and the rest (371,150) were distributed under manufactures, trade, and other industrial divisions.

The professions reported exclusively in professional service by the Census were:

Clergymen and religious workers.....	180,138
Lawyers	139,059
Abstractors, notaries, and justices of the peace.....	11,756

tion, and the President's Committee on Economic Security assumed that 50 per cent were self-employed.

¹⁴ This group includes 76,388 shoemakers, 41,456 blacksmiths, 27,125 jewelers and watchmakers, 158,380 dressmakers and seamstresses, 44,948 milliners and millinery dealers, 6,102 piano and organ tuners, etc. The classification of these persons in the 1930 Census is confused. In Edwards' classification they were counted among skilled and semi-skilled workers. The Committee on Economic Security counted them all, without excluding apprentices, as self-employed.

¹⁵ Only 50 per cent of these persons were considered by the Committee on Economic Security as *self-employed*. All were classified among *clerks and kindred workers* by Edwards.

¹⁶ These persons were classified in the 1930 Census with proprietors (Volume V, p. 580), and were also counted as employers by the Committee on Economic Security, but appeared as semi-skilled workers in Edwards' classification.

Social and welfare workers.....	29,424
College presidents and professors.....	61,905
Teachers	1,062,615
Artists, sculptors, and teachers of art.....	57,265
Authors	12,449
Editors and reporters.....	51,844
Librarians	29,613
Physicians and surgeons.....	153,803
Dentists, osteopaths, chiropractors, and healers.....	106,728
Veterinary surgeons	11,863
Trained nurses	294,189
Architects and inventors.....	24,300
Other professional pursuits (not elsewhere classified).....	47,942
Actors and showmen.....	75,298
Musicians and teachers of music.....	165,128

On the other hand, the following professional occupations were reported partly in professional service, and partly in other industrial fields:

Mechanical, mining, electrical, and other technical engineers.....	226,249
Designers, draftsmen, and photographers.....	142,259
Chemists, essayers, and metallurgists.....	47,068

The *semi-professional pursuits* and *attendants and helpers* of the 1930 Census classification have been divided under different classes of work in the present study, as follows:

Professional persons:	
Religious workers	31,290
Abstractors, notaries and justices of the peace.....	11,756
Chiropractors and healers (not elsewhere classified).....	29,556
Managers and officials:	
Keepers of charitable and penal institutions.....	15,020
Clerks and kindred workers:	
Officials of lodges and societies.....	14,515
Technicians and laboratory assistants.....	15,988
Dentists', physicians', surgeons' and librarians' attendants and assistants	29,622
Architects', designers', etc., apprentices, and other semi-professional pursuits	6,724
Skilled workers:	
Other attendants and helpers.....	48,259
Unskilled workers:	
Laborers (listed as attendants and helpers).....	25,383
Service workers:	
Porters (listed as attendants and helpers).....	7,766

As pointed out in the text of this study, the class of professional persons includes *independent* and *dependent* pursuits. For their segregation see Chapter II, pages 21-24.

(4-a) *Managers and officials*

This group includes 546,397 persons reported by the 1930 Census as managers and officials of agricultural, mining, manufacturing,

business and other establishments, and the following additional occupations:

Foresters, forest rangers, timber cruisers.....	8,057
Officials and superintendents on steam and street railroads.....	37,989
Captains, masters, mates and pilots.....	24,485
Conductors on steam railroads.....	73,332
Postmasters.....	34,421
Officials and inspectors (state and United States, city and county).....	130,095
Keepers of charitable and penal institutions.....	15,020

All of these persons were counted among proprietors, managers and officials in Edwards' outline, and were classified with salaried employees in the surveys prepared for the President's Committee on Economic Security.

Probably the total of 869,796 contains a number of officers (presidents, vice-presidents or treasurers) of corporations owned by themselves or their families. As there were more than 500,000 incorporated enterprises in the United States, the minimum number of such officers was more than 1,500,000 but not all of them could be considered as gainful workers. On closer examination, it is obvious that most of them did not report themselves as "officials." Of these, some were not counted at all and others were registered as proprietors. Actually, the number of proprietors reported by the 1930 Census in various industrial divisions corresponds approximately to the number of enterprises in the United States. From the standpoint of the Social Security Act, a separate tabulation of corporation officials as salaried employees would be desirable, for they are employees in a legal sense and are covered by old-age insurance.

(4-b) *Clerks and kindred workers*

This group contains the greater part of salaried employees or white-collar workers (4,421,408 persons). It is somewhat broader than the division of Clerical Occupations in the 1930 Census and includes the following occupations:¹⁷

Clerks (except "clerks" in stores)*.....	1,997,000
Bookkeepers, cashiers and accountants*.....	930,648
Stenographers and typists*.....	811,190
Agents, collectors and credit men*.....	196,107
Messengers, errand and office boys and girls*.....	90,379
Officials of lodges and societies, assistants and attendants to professional persons, and other semi-professional pursuits.....	66,849
Agents in transportation.....	47,713
Telegraph, telephone and radio operators.....	321,660
Telegraph messengers and mail carriers.....	137,509
"Clerks" in stores.....	401,991
Commercial travellers.....	223,732
Advertising agents.....	49,020
Canvassers, auctioneers, sales agents, demonstrators.....	80,671
Newsboys.....	38,993

¹⁷ The occupations classified as clerical occupations in the 1930 Census are indicated by asterisks.

Some minor occupations have also been counted in this class of work, but it does not include sales persons, who have been listed separately.

(4-c) *Sales persons*

About 2 million salesmen and saleswomen reported by the 1930 Census in all industrial divisions have been included in this group (1,856,633 in wholesale and retail trade, 108,794 in manufactures, 22,623 in all other industries). No attempt has been made to count similar occupations with them, for example, commercial travellers, "clerks" in stores, etc.

(5-a) *Foremen*

Among 547,735 foremen a certain number of overseers who could not be distinguished from foremen have been included.

(5-b) *Other skilled workers*

This class of workers constitutes the upper layer of manual labor. Among 6 million skilled workers, the following have been counted:

Blacksmiths, forgemen and hammermen ¹⁸	106,013
Boilermakers	49,923
Brick and stone masons and tile layers.....	170,903
Cabinet makers and carpenters ¹⁸	986,922
Compositors, linotypers and typesetters.....	183,632
Electricians	280,317
Engineers (stationary), cranemen, hoistmen, etc.....	316,964
Mechanics ¹⁸	638,027
Machinists, millwrights and toolmakers ¹⁸	761,072
Molders, founders and casters.....	105,158
Painters, glaziers and varnishers—building.....	430,105
Painters, glaziers and varnishers—factory.....	93,068
Plasterers and cement finishers.....	85,480
Plumbers and gas and steam fitters.....	237,814
Tailors and tailoresses.....	169,283
Telegraph and telephone linemen.....	71,625
Tinsmiths and coppersmiths ¹⁸	80,831
Upholsterers ¹⁸	51,383

In addition to skilled manual trades, the following occupations have also been counted in this group:

Conductors, bus and street railway.....	36,699
Inspectors, transportation	52,120
Locomotive engineers and firemen.....	168,297
Firemen, fire departments	73,008
Marshals, sheriffs, detectives, policemen (public service) ¹⁹	173,510
Attendants and helpers in professional services (not elsewhere classified) ²⁰	48,259

¹⁸ Except independent hand trades, which have been added to self-employed persons (41,456 blacksmiths, 401 cabinet makers and carpenters, 226 mechanics, 23 machinists, 2,559 tinsmiths and coppersmiths and 69 upholsterers).

¹⁹ Policemen attached to various industries have been counted among service workers (with watchmen and guards).

²⁰ See page 242 of this Note.

(6-a) Apprentices

This group follows exactly the classification of the 1930 Census.

(6-b) Other semi-skilled workers

This class of work covers essentially the pursuits described in the 1930 Census report as "operatives" in various industrial divisions. Among others, it includes "operatives" employed in mining industries, although it may be assumed that some of them are skilled workmen or unskilled laborers. In addition, this group covers some occupations listed in the Census among "other pursuits," such as:

Chauffeurs, truck and tractor drivers.....	972,418
Brakemen, motormen, switchmen, flagmen and yardmen (railroads) ..	251,693
Boatmen, canal men and lock-keepers.....	5,643
Meat cutters (wholesale and retail trade).....	45,108
Oilers of machinery.....	31,210
Sailors and deckhands.....	64,700
Soldiers, sailors and marines.....	132,830
Midwives and nurses (not trained).....	157,009
Attendants and helpers in professional service (not elsewhere classified)	48,259

(7) Unskilled workers

This group is the second largest in the present tabulation. It covers 8,286,962 workers, essentially those reported by the 1930 Census as "laborers" without further definition. It includes also longshoremen and stevedores, heaters (in metal industries), firemen (except locomotive, fire department, public, and domestic service), deliverymen (in trade, bakeries and laundries), and "other occupations" in transportation and communication, trade, and public service.

(8) Service workers

This group includes 4,266,956 persons. No attempt has been made to assemble here the least skilled kinds of work. In accordance with the classification of the United States Employment Service, there have been counted in this group "people who clean and care for houses, public buildings, factories, streets, etc., clean and arrange wearing apparel, or prepare food." In addition to maids, cooks, waiters, housekeepers and stewards, janitors and sextons, elevator tenders, porters, guards, watchmen, doorkeepers, firemen (in public and domestic service), boiler washers, and engine hostlers, the group contains barbers, hairdressers and manicurists. It also includes a small number of persons occupied in agriculture, mining, manufactures and construction which were counted by the 1930 Census in "other occupations."

NOTE 4. INDUSTRIAL CLASSIFICATION OF GAINFUL WORKERS

The industrial framework of the occupational classification used in the present study segregates 100 branches of industries and services grouped in 11 major divisions with 20 subdivisions. Of 100 industrial branches, 80 correspond exactly to the individual industries listed in

Table 2, Chapter 7, Volume V of the 1930 Census report, and 20 branches cover the same field as the remaining 48 individual industries in the Census report. The following list shows by industry how the two classifications correspond.

Industrial classification of the present study	Code symbol of the 1930 Census	Industrial classification of the present study	Code symbol of the 1930 Census
I. AGRICULTURE, FORESTRY, FISHING		27. Suit, coat, overall and other factories, including knitting mills	IV, 50
1. Agriculture	VV	28. Other and not specified textile industries, including carpet mills, lace and embroidery mills, rope and cordage factories, sail, awning and tent factories	54, 56, 57, 58, 59
2. Forestry	VI	29. Other clothing factories	10
3. Fishing	VO	FOREST PRODUCTS	
II. EXTRACTION OF MINERALS		30. Saw, planing and woodworking industries, not elsewhere classified	44, 45
4. Coal	V2	31. Furniture factories, including piano and organ factories	42, 43
5. Iron ore	V5	32. Turpentine farms and distilleries	67
6. Copper, lead, zinc, gold and silver	V3, V4, V6	PAPER AND ALLIED PRODUCTS	
7. Quarries	V9	33. Paper and pulp mills	47
8. Other and not specified industries	V7, V8	34. Converted paper products ^a	46, 48
9. Oil wells and gas wells	XV	PRINTING AND PUBLISHING	
III. MANUFACTURES		(35)	49
FOOD AND ALLIED PRODUCTS		CHEMICAL AND ALLIED PRODUCTS	
10. Butter, cheese, and condensed milk	12	36. Ammunitions, explosives, fireworks	X3
11. Fish, curing and packing	14	37. Fertilizer factories	X4
12. Slaughter and packing houses	17	38. Paint and varnish factories	X6
13. Bakeries	11	39. Rayon factories	X8
14. Flour and grain mills	15	40. Soap factories	X9
15. Fruit and vegetable canning	16	41. Salt wells and works	X0
16. Candy factories	13	42. Other chemical factories, including charcoal and coke works	OV, X2
17. Sugar factories and refineries	18		
18. Other food industries	19		
19. Beverages	20		
TEXTILES AND THEIR PRODUCTS			
20. Hemp, jute and linen mills	55		
21. Cotton mills	5V		
22. Silk, woolen, dyeing and finishing mills	51, 52, 53		
23. Corset factories	06		
24. Glove factories	07		
25. Hat factories	08		
26. Shirt, collar and cuff factories	09		

^a Blank book, envelope, tag, paper bag, paper box factories.

Industrial classification of the present study	Code symbol of the 1930 Census
PRODUCTS OF PETROLEUM AND COAL	
43. Gas works	X5
44. Petroleum refineries..	X7
RUBBER PRODUCTS (45).....	65
LEATHER AND ITS MANUFACTURES	
46. Tanneries	40
47. Shoe factories	39
48. Leather goods, etc. factories	38
49. Harness, saddle, trunk and bag factories.	37, 41
STONE, CLAY AND GLASS PRODUCTS	
50. Brick, tile and terracotta factories	01
51. Lime, cement, artificial stone factories.	03
52. Marble and stone yards	04
53. Glass factories	02
54. Potteries	05
IRON AND STEEL: BLAST FURNACES AND STEEL ROLLING MILLS (55).	
56. Agricultural implements	21
57. Electrical machinery and supply factories	63
58. Other and not specified machinery and metal factories ..	28, 29
TRANSPORTATION EQUIPMENT, LAND AND WATER	
59. Automobile factories.	22
60. Wagon and carriage factories	27
61. Car and railroad shops	25
62. Ship and boat building	26
NONFERROUS METALS AND THEIR PRODUCTS	
63. Clock and watch factories	30
64. Copper, lead and zinc factories	31, 34
65. Gold and silver factories	32
66. Jewelry	33

Industrial classification of the present study	Code symbol of the 1930 Census
67. Brass mills, tinware and other metal factories	3V, 35, 36
MISCELLANEOUS INDUSTRIES	
68. Cigar and tobacco factories	00
69. Other miscellaneous manufacturing industries ²²	.60, 61, 66, 68
NOT SPECIFIED INDUSTRIES (70)	
IV. INDEPENDENT HAND TRADES (71)	64
V. CONSTRUCTION	
72. Building trades	XI
73. Construction and maintenance of roads, streets, etc.	71
VI. TRANSPORTATION, COMMUNICATION AND UTILITIES	
TRANSPORTATION	
74. Air transportation ...	70
75. Water transportation.	80
76. Steam railroads ²³ ..	77, 72
77. Street railroads	78
78. Truck, transfer and cab companies	8V
79. Garages, greasing stations and automobile laundries	73
80. Automobile repair shops	23
81. Other and not specified transportation ²⁴	74, 75, 81
COMMUNICATION AND UTILITIES	
82. Telegraph and telephone ²⁵	79, 6V
83. Postal service	76
84. Electric light and power plants	62
VII. TRADE	
BANKING, INSURANCE AND REAL ESTATE	
85. Banking and brokerage	83
86. Advertising agencies .	82
87. Insurance	85
88. Real estate	86

²² Broom and brush, button, straw factories, and other miscellaneous industries.
²³ Including express companies.
²⁴ Livery stables; pipe lines; other and not specified transportation and communication.
²⁵ Including radio broadcasting and transmitting.

Industrial classification of the present study	Code symbol of the 1930 Census	Industrial classification of the present study	Code symbol of the 1930 Census
WHOLESALE AND RETAIL TRADE		95. Recreation and amusement	7V
89. Grain elevators	84	X. DOMESTIC AND PERSONAL SERVICE	
90. Stockyards, warehouses and cold storage plants ...	87, 88	96. Hotels, restaurants, boarding houses, etc.	9V
91. Automobile agencies, stores and filling stations	89	97. Cleaning, dyeing and pressing shops	98
92. Wholesale and retail trade, incl. not specified trade ..	90, 91, 92	98. Laundries	97
VIII. PUBLIC SERVICE (93).....	93	99. Domestic and personal service, not elsewhere classified ...	96
IX. PROFESSIONAL SERVICE		XI. NOT SPECIFIED INDUSTRIES AND SERVICES (100). 99	
94. Professional service, except recreation.	94, 95		

The principal departure of this classification from that of the 1930 Census report is in the selection and grouping of industries in Division III. Manufactures (Nos. 10-70).

The following comparison of the number of gainful workers, including the unemployed, reported by the 1930 Census of Population in each of the 16 industrial groups, and the number reported in the same groups by the 1929 Census of Manufactures, which included proprietors, salaried employees and wage earners, shows that the distribution of gainful workers by *industrial groups* in occupational statistics is fairly accurate. The occupational statistics for *individual industries* are less reliable.

Industrial groups	Number of gainful workers on April 1, 1930 (including unemployed)	Average number of persons occupied, average for 1929 (Census of Manufactures)
ALL GROUPS	10,866,020	10,330,728
Food and allied products.....	907,253	892,255
Textiles and their products.....	1,973,275	1,862,755
Forest products	906,493	995,483
Paper and allied products.....	243,389	287,570
Printing and publishing.....	544,606	578,321
Chemical and allied products....	340,383	331,274
Products of petroleum and coal..	288,728	187,630
Rubber products	166,391	172,092
Leather and its manufactures....	374,069	343,092
Stone, clay, and glass products...	371,961	354,687
Iron and steel: Blast furnaces and steel rolling mills.....	620,894	601,416
Machinery, not including transportation equipment	1,819,261	1,775,542
Transportation equipment	968,693	1,045,369
Nonferrous metals	332,976	353,653
Miscellaneous industries	542,089	549,589
Not specified industries.....	465,559	—

NOTE 5. ON METHODS OF OCCUPATIONAL CLASSIFICATION

Occupational classification tends to reduce extremely diversified occupations and jobs to the compass of a few clearly defined groups. Choice of the method by which this is done depends upon one's judgment concerning the relative significance of this or that group and the feasibility of segregating those groups which require separate treatment for practical or purely scientific purposes.

In the modern industrial system occupational groups are very different. Some are sufficiently characterized by the kind of work performed, others are determined by their industrial affiliations, and still others should be described by these two criteria combined. As it is impossible to devise a simple classification to meet all needs, one desirable factor has to be sacrificed for another which is considered more important. Selection depends upon whether the classification is focused on the skilled trades or on the labor market as a whole. In the first case, emphasis is placed on kind of work performed without regard to the industry in which the worker is engaged, and in the second, industrial affiliation is emphasized. The first point of view was entirely sound in the middle of the nineteenth century when the outlines of occupational statistics in the United States were being formed, but became less so with the progress of modern mass production.

The methodological implications of this question concern not only the United States but all highly developed industrial countries. Recently the problem was examined by an international committee of statistical experts appointed by the League of Nations.²⁶ The report issued by the Committee on April 29, 1937 contains the following statement:

"The Committee's recommendations with regard to the classification by branches of economic activity assume that the census lists or cards *contain a question, or even several questions, on the nature of the establishment in which the activity is exercised.* Information obtained by means of a question regarding the individual occupation only does not enable the grouping recommended from the international point of view to be carried out. On the other hand, a question regarding the individual occupation furnishes supplementary information which is very useful and sometimes even indispensable for grouping persons by branches of economic activity, especially in cases where the same establishment carries on different branches of activity.

"The Committee is of the opinion that the main object of a classification by branches of economic activity for the purposes of statistics of the gainfully occupied population is to show the absolute and

²⁶ League of Nations, Committee of Statistical Experts, *Report to the Council on the work of the Sixth Session, held in Geneva April 19-24, 1937.* (Series of League of Nations Publications: Economic and Financial, 1937, II, A.5.) The United States is represented on the Committee by E. Dana Durand.

relative importance of the various branches of industry.²⁷ It should be understood that industries are carried on in establishments and that a branch of industry should therefore comprise *all the persons occupied in a given kind of establishment regardless of what individual occupation they perform within that establishment*. That being so it is the aim of the classification by individual occupations to show how the personnel belonging to a given branch of industry is composed from the point of view of individual occupations and to supply, if desired, total figures for all persons exercising the same individual occupations. The Committee thinks that *any procedure under which persons might, on account of their individual occupation, be assigned to another branch of industry than that in which they are actually employed would distort reality, and lead to rather meaningless results from every point of view*.

"The Committee wishes to make this point of principle entirely clear, because it is of the utmost importance for the international comparability of the various branches of economic activity and because its practical application involves, in certain cases, great difficulties."

The Committee recommended also that the industrial classification be crossed by one based on the personal status of the worker:

"The Committee recommends the following, or a similar, classification, distinguishing between the following groups:

"1. Employers: Persons working on their own account *with the help of paid assistants* or of members of their family.

2. Persons working alone on their own account (e.g., small craftsmen).

3. Members of families assisting the head of the family in the exercise of his occupation.

4. Person in receipts of salaries or wages:

(a) Directors and managers;

(b) Employees (administrative and office staff);

(c) Workmen, including domestic servants and wage earners in irregular employment, working for different persons at different times, such as day laborers, dockers, dressmakers working by the day at customers' houses, etc."²⁸

The principles set forth by the international committee are identical with those applied in the present study.²⁹ There are, however, some points in which the present classification differs from that recom-

²⁷ For convenience, the term "industry" is frequently used throughout this statement for all branches of human economic activity.

²⁸ *Ibid.* Italics not in original.

²⁹ See also W. S. Woytinsky, *The Labor Supply in the United States* (revised ed.; Washington, D. C.: Committee on Social Security of the Social Science Research Council, June 1937).

mended by the Committee, the most important being that the Committee was opposed to segregating workers as skilled, semi-skilled and unskilled.

NOTE 6. ENUMERATION OF UNPAID FAMILY WORKERS BY THE 1930 CENSUS OF POPULATION

There are different kinds of "unpaid family work," varying from the equivalent of a full-time paid job or the work of a proprietor to occasional assistance in a family enterprise. The proper enumeration of unpaid family workers requires a clear distinction between those among them who should be counted as gainful workers and those who cannot be regarded as such, but no distinction of this kind was made in the 1930 Census instructions to enumerators. For this purpose the general definition of "gainful occupation" could probably be used. In the 1930 instructions the definition was worded as follows:

"A *gainful occupation* in census usage is an occupation by which the person who pursues it earns money or a money equivalent, or in which he assists in the production of marketable goods.⁸⁰ The term 'gainful worker,' as interpreted for census purposes, does not include women doing housework in their own homes, without wages, and having no other employment, nor children working at home, merely on general household work, on chores, or at odd times on other work. (Par. 186.)

"Occasionally there will be doubt as to whether an occupation should be returned for a person who works only a small part of the time at the occupation. In such cases the rule may generally be followed that, unless the person spends at least the equivalent of one day per week at the occupation, he or she should not be returned as gainful workers." (Par. 187.)

The last limitation might be expected to apply to persons who assist the head of the family as well as to those who work for gain or pay. However, additional instructions regarding the registration of working women and children conflicted with this point of view.

"In the case of a woman doing housework in her own home and having no other employment, the entry in Column 25⁸¹ should be *none*. . . ." (Par. 194.)

"Where a woman not only looks after her own home but also has employment outside or does work at home for which she receives payment, the outside work or gainful employment should ordinarily be reported as her occupation, unless this takes only a very small fraction of the woman's time. . . ." (Par. 195.)

⁸⁰ The term "marketable goods" was not specifically explained. However, the intention was clear that all kinds of commodities and services were to be included.

⁸¹ See Chapter I, page 5.

"A woman who works only occasionally, or only a short time each day at outdoor farm or garden work, or in the dairy, or in caring for livestock or poultry, should not be returned as a farm laborer; but for a woman who works regularly and most of the time at such work, the return in Column 25 should be farm laborer." (Par. 197.)

"In the case of children who work regularly for their own parents on a farm, in an orchard, on a truck farm, etc., the entry in Column 25 should be farm laborer, orchard laborer, or garden laborer, as the case may be." (Par. 199.)

"Children who work for their parents at home merely on general household work, at chores, or at odd times on other work, should be reported as having no occupation. Those, however, who somewhat regularly assist their parents in the performance of work other than household work or chores should be reported as having the occupation represented by this work." (Par. 200.)

These instructions presume that no particular kind of activity can exist which can be properly described as "unpaid family work" but cannot be fitted into a specific pattern of regular occupations. Consequently enumerators had no choice but to report family workers either under the same occupations as regular workers for gain or pay, or as having no occupation.

According to Paragraph 187 quoted above, however, women and children apparently should be counted as gainful workers if they work regularly without pay in the family enterprise at least the equivalent of one day per week, or slightly more than one hour daily. It is conceivable that even this amount of work may be so effective that without it a small enterprise could not operate, but the kind of work performed by family members of the proprietor does not always fit the usual terms of "farm laborer," "cashier," "bookkeeper," "overseer," or "messenger." In this event the family worker cannot be listed as a gainful worker in a specific occupation, according to Paragraph 200, and in all probability the entry in Column 25 will be "none." These general considerations lead to the following attempt to check the number of "unpaid family workers" reported by the 1930 Census.

On April 1, 1930, 1,659,792 unpaid family workers were reported in agriculture and none in other pursuits. The first question to be considered is how comprehensive was the enumeration in agriculture, and second, how important was the omission of family workers in other industries.

(1) While occupational statistics are supposed to show the *usual* occupations of registered persons, it is extremely difficult to distinguish between *usual* and *actual* occupations. The number and status of workers reported by the Census were, of course, their *actual* number and status on April 1, 1930.

In comparing this number with that reported by the 1935 Census of Agriculture for the first week in January of that year, two points

should be borne in mind. First, the depression had forced many persons who were engaged in non-agricultural pursuits in 1930 to return to the farms of their parents, and many others who might have sought work in cities were compelled to remain at home. On the other hand, because of the seasonal character of agricultural work, there are fewer family workers on farms in January than in April. It appears probable that the seasonal factor more than counterbalanced the increase of family farm labor as a result of the depression. This supposition is supported by the statements of crop-reporters to the Department of Agriculture, who indicated that on their farms there was an average of 1.15 unpaid family workers per farm in January 1935, compared with 1.38 in April 1930.

The Census of Agriculture reported 4,273,166 unpaid family workers on farms in the first week of January 1935, or 2,613,374 more than the 1930 Census had reported. The importance of this difference is increased in view of the fact that the 1935 Census of Agriculture did not count as family workers those members of farmers' families who were engaged in farm work for less than 2 days during the surveyed week.²² While most agricultural experts assume that the figures for 1935 were inflated because of depression influences, the statements of crop-reporters to the Department of Agriculture indicate that farmers were *not* inclined to count as family workers all family members who had returned to their farms or had remained at home because of the depression. However, if the number of unpaid family workers reported by farmers for the first week in January 1935 was not overstated, it appears highly improbable that the total number of unpaid family workers on all farms increased by 165 per cent in a period in which the number of family workers on reporting farms dropped by 17 per cent. The increased number of unpaid workers in 1935 cannot be explained entirely by the more comprehensive enumeration of farms by the 1935 Census of Agriculture as it enumerated only about 8 per cent more farms than the 1930 Census of Population. This could only partly counterbalance the seasonal decline in the number of family workers per farm, which was evidenced by the statements of the crop-reporters.

Rather than an over-statement of family workers by the 1935 Census of Agriculture, the difference between the two enumerations seems to point to an under-statement by the 1930 Census of Population. This under-enumeration cannot be explained by assuming

²² Instructions of the 1935 Census of Agriculture relating to family labor were: "Include as *family labor* the farm operator and those members of his family who have worked on this farm without pay for the equivalent of two or more days (at work other than housework) during the week beginning January 1, 1935, and who did not work longer than this during the same week at some paid occupation. Note that members of the family who are paid wages for work on this farm are to be reported as *hired help*. Exclude all members of the family who were living on this farm but were not working on this farm, for example, adult sons and daughters who are unemployed, or visitors, and whose services are not used on this farm."

that farmers' wives who assisted their husbands were registered as wage workers. The 1930 Census returned 36,034 white female wage workers on farms and only 12,120 of them were married.²³ It appears almost certain, therefore, that the number of unpaid family workers on farms reported by the 1930 Census was understated.

(2) Besides the under-statement in agriculture, the 1930 Census showed no unpaid family workers in non-agricultural pursuits, such as independent hand trades and retail trade, in which there are many thousands of small family enterprises. If the wives of retail dealers and craftsmen who assisted their husbands had been reported as having occupations represented by their work, in accordance with Paragraph 200 of the Census instructions, there would have been an unusually high percentage of married women in such occupations as saleswomen, bookkeepers, cashiers, etc., and this was not the case.²⁴

In this connection the number of unpaid family workers reported in non-agricultural pursuits in one state, Michigan, are revealing. The Michigan Census of Population and Unemployment on January 14, 1934 reported that of a total of 961,675 persons working or seeking work in cities of over 40,000 inhabitants, 19,876 or 2.1 per cent were unpaid family workers. In cities of 3,000 to 40,000 inhabitants, the proportion was 1.4 per cent. If the same percentage rates were applied to the urban population in all states, the total number of unpaid family workers would be about 400,000.

How many unpaid family workers both in agricultural and non-agricultural pursuits were not reported by the enumerators of the 1930 Census of Population is unknown, but there may well have been a very large number.²⁵

NOTE 7. INDEPENDENT AND DEPENDENT PROFESSIONAL PERSONS

A segregation of professional occupations by class of work must necessarily be rough and in many cases arbitrary. In the present classification an attempt has been made solely to draw an approximate borderline between those professional persons who should be classified as salaried employees and those who belong in the class of self-employed persons and proprietors.

²³ Fifteenth Census of the United States: 1930, Population, Volume V, p. 291.

²⁴ The following percentages of married women among female gainful workers were reported: in agriculture, 34.6; in extraction of minerals, 30.9; in manufacturing industries, 32.4; in transportation and communication, 24.9; in trade, 35.3; in public service, 35.1; in professional service, 19.3; in domestic and personal service, 35.0; in clerical occupations, 18.3. (Fifteenth Census of the United States: 1930, Population, Volume V, pp. 276-280.)

²⁵ The author has discussed this problem with the officials of the Bureau of the Census responsible for occupational statistics. After further consideration of their comments, the author is still of the opinion that his analysis of the data discussed in this Note justifies his conclusion that the number of unpaid family workers was substantially understated.

The economic status of persons listed by the 1930 Census in the group of church, justice, social welfare, etc., is particularly difficult to determine. While lawyers generally are self-employed, clergymen and judges are on the payrolls of religious organizations and state or federal governments. It would seem correct, however, to consider these professions as *independent*. In these groups the following numbers of persons were reported in 1930:

Clergymen and religious workers.....	180,138
Lawyers, abstractors, justices.....	150,815
Total.....	330,953

Source: Fifteenth Census of the United States: 1930, Population, Volume V, pp. 574-576.

The most numerous single profession in the field of teaching, art, and related subjects, is that of teachers.²⁸ Most of them are salaried employees of educational institutions. Likewise, most librarians, editors and reporters are salaried employees. On the other hand, it has been assumed that the 12,449 persons reported in 1930 as authors and the 57,265 reported as artists, sculptors, and teachers of art were self-employed.

In public health, more than half the persons returned were trained nurses, most of whom were employed in hospitals. The following numbers of persons were reported in professions where independent work is usual:

Physicians and surgeons.....	153,803
Dentists, osteopaths, chiropractors and healers	106,728
Veterinary surgeons	11,863
Total.....	272,394

Source: *Ibid.*

In the group of architects, engineers, etc., independent work prevailed only among the 22,000 architects and 2,300 inventors, whereas the others in this group were mostly salaried employees.

Professional persons employed in recreation and amusement establishments were largely salaried employees.

The remaining 47,791 professional persons were reported by the 1930 Census in public service. To be consistent, the few lawyers, judges and justices in this group should be classified with the self-employed lawyers and justices reported in professional service. The rest belong for the most part among salaried employees.

²⁸ The 1930 Census enumerated 1,044,016 school teachers, 61,905 college presidents and professors, and 18,599 teachers of athletics and dancing. Music teachers are counted as musicians in recreation and amusement.

**NOTE 8. SELECTED OCCUPATIONS IN WHICH FEMALE WORKERS
PREDOMINATE**

In the occupations listed below female workers usually are in the majority. For 1930 the following numbers of male and female workers were reported:

	Male	Female	Percent- age of female workers
Domestic and personal service:			
Keepers of boarding and lodging houses.	17,093	127,278	88.1
Cooks	194,297	371,095	65.6
Servants in hotels and in homes.....	169,877	1,263,864	88.2
Waiters	161,315	231,973	58.9
Midwives and untrained nurses.....	13,867	143,142	90.6
Housekeepers and stewards.....	20,383	236,363	91.7
Launderers and laundresses.....	84,794	516,943	86.2
Clerical occupations:			
Stenographers and typists.....	36,050	775,140	95.6
Bookkeepers and cashiers.....	273,380	465,697	61.7
Telephone operators	13,625	235,259	96.1
Professional service:			
School teachers	190,049	853,967	81.8
Trained nurses	5,452	288,737	98.2
Independent hand trades:			
Dressmakers and seamstresses.....	452	157,928	99.7
Milliners and millinery dealers.....	4,846	40,102	89.4

Source: Fifteenth Census of the United States: 1930, Population, Volume V, pp. 76-85.

Likewise, women usually constitute the majority of operatives in textile and clothing industries (537,911 males and 779,020 females in 1930) and in some branches of food and chemical industries.

NOTE 9. SELECTED OCCUPATIONS OF DIFFERENT RACES ⁸⁷

Though native whites prevail in professional and clerical occupations, very few pursuits are exercised by them exclusively or nearly so. In the following occupations native whites constituted more than 90 per cent of all reported workers in 1930:

⁸⁷ Fifteenth Census of the United States: 1930, Population, Volume V, pp. 76-85. These occupations are grouped on pages 257 and 258 without regard to the industries in which they were found and are not segregated by sex.

	Native white		Foreign-born white		Colored	
	Number	Per cent	Number	Per cent	Number	Per cent
Clerks (except in stores).....	1,801,637	90.2	165,456	8.3	29,907	1.5
Teachers	961,314	90.5	44,435	4.2	56,866	5.4
Editors and reporters.....	46,935	90.5	4,261	8.2	648	1.3
Marshals, sheriffs and detectives..	37,900	90.6	3,228	7.7	695	1.7
Firemen (in fire departments)..	66,730	91.4	5,637	7.7	641	0.9
Bookkeepers, cashiers and accountants	851,932	91.5	73,547	7.9	5,169	0.6
Locomotive engineers	92,732	91.6	8,314	8.2	155	0.2
Bankers, brokers and money lenders	203,004	91.6	17,731	8.0	769	0.3
Officials and inspectors:						
State and United States....	47,786	92.4	3,498	6.7	416	0.8
City and county.....	71,891	91.7	6,105	7.8	399	0.5
Lawyers, judges and justices...	148,015	92.2	11,120	6.9	1,470	0.9
Stenographers and typists.....	765,792	94.4	40,688	5.0	4,710	0.6
Telephone operators	237,866	95.5	10,196	4.1	822	0.3

Foreign-born whites are particularly numerous in skilled trades and crafts. Many of them are also engaged in trade, usually as dealers rather than sales persons. In the following trades they exceeded 25 per cent of total workers reported in 1930:

	Native white		Foreign-born white		Colored	
	Number	Per cent	Number	Per cent	Number	Per cent
Machinists, toolmakers	555,374	73.0	195,173	25.6	10,548	1.4
Blacksmiths	102,830	69.7	37,813	25.7	6,826	4.6
Firemen (except locomotive and fire department)	74,165	58.3	34,040	26.8	19,089	14.9
Plasterers and cement finishers..	47,938	56.1	22,874	26.8	14,668	17.2
Upholsterers	35,794	69.6	14,463	28.1	1,195	2.3
Filers, grinders, buffers and polishers	51,119	65.0	25,670	32.7	1,811	2.3
Brick and stone masons.....	99,231	58.1	58,830	34.4	12,842	7.5
Molders	57,337	54.5	38,565	36.7	9,256	8.8
Bakers	72,348	51.5	61,467	43.7	6,985	4.9
Cabinet makers	28,792	49.7	28,432	49.1	673	1.2
Shoemakers (not in factories)..	26,004	34.0	44,916	58.8	5,468	7.2
Tailors and tailoresses.....	38,614	22.8	121,014	71.5	9,655	5.7

As operatives and laborers, foreign-born whites were found in relatively high proportions in the following industries in 1930:

	Native white		Foreign-born white		Colored	
	Number	Per cent	Number	Per cent	Number	Per cent
Operatives:						
Coal mines	383,914	61.8	175,914	28.3	61,833	9.9
Clothing industries	299,698	61.4	162,627	33.3	26,584	5.4
Iron and steel industries....	452,785	69.5	170,983	26.2	27,630	4.2
Leather industry	194,023	72.5	71,038	26.6	2,457	0.9
Laborers:						
Iron and steel industries....	313,721	47.4	223,494	33.7	124,916	18.9
Other metal industries.....	33,625	53.9	21,230	34.0	7,543	12.1

There was also a high proportion of foreign-born whites in water transportation:

	Native white		Foreign-born white		Colored	
	Number	Per cent	Number	Per cent	Number	Per cent
Sailors and deck hands.....	35,626	55.1	20,422	31.6	8,652	13.4
Captains, masters, mates and pilots	16,229	66.2	8,011	32.7	245	1.0
Longshoremen and stevedores...	20,789	28.1	27,265	36.9	25,890	35.0

Foreign-born whites are numerous in a number of independent pursuits. Among proprietors and operators in manufactures in 1930, 36.9 per cent were foreign-born whites, in independent hand trades 26.9 per cent, in construction 23.3 per cent, in trade 23.2 per cent and in domestic and personal service 21.1 per cent.

Colored workers are usually concentrated in unskilled occupations. In the following groups in 1930 they constituted more than 40 per cent:

	Native white		Foreign-born white		Colored	
	Number	Per cent	Number	Per cent	Number	Per cent
Servants (except cooks).....	583,257	40.4	263,361	18.7	587,123	40.9
Bootblacks	3,250	17.3	5,758	30.6	9,776	52.0
Cooks	163,010	28.9	105,819	18.7	296,563	52.5
Porters (except in stores).....	15,994	12.6	16,238	12.7	95,256	74.7
Launderers and laundresses (not in laundries) ³⁸	67,607	18.7	15,268	4.2	278,158	77.0

Colored persons seldom reach the status of semi-skilled or skilled workers and clerical employees. In several professional pursuits, however, they are comparatively numerous. The proportions in 1930 were as follows:

	Native white		Foreign-born white		Colored	
	Number	Per cent	Number	Per cent	Number	Per cent
Teachers (school)	945,206	90.5	42,247	4.0	56,563	5.4
Actors and showmen.....	60,423	80.2	9,592	12.7	5,281	7.0
Musicians and teachers of music.	129,029	78.2	23,925	14.5	12,174	7.4
Clergymen	95,116	63.9	27,838	18.7	25,894	17.4

In contrast to these proportions, only 0.3 per cent of the technical engineers and 0.9 per cent of the lawyers, judges and architects were colored.

³⁸ Colored workers prevailed only among launderers and laundresses not in laundries. They constituted not more than 29.4 per cent among operatives employed in laundries and 28.4 per cent of all persons engaged in these establishments, including proprietors and officials.

NOTE 10. SELECTED OCCUPATIONS OF YOUNG AND OLD WORKERS

Although most occupational groups include both young and old workers, there are certain occupations in which the lowest and the highest age groups predominate.

Nearly 10 per cent of all gainful workers reported by the 1930 Census were *under 20 years* of age, as shown in the following summary:

	Male		Female	
	10 to 17 years	18 and 19 years	10 to 17 years	18 and 19 years
ALL INDUSTRIES	1,425,236	1,599,768	720,723	942,445
Agriculture	783,774	539,251	199,562	68,477
Non-agricultural pursuits	641,462	1,060,517	521,161	873,968

Among these workers 804,615 boys and 227,618 girls were reported as unpaid family workers. Young workers between the ages of 10 and 19 in non-agricultural pursuits were most frequently employed in clerical occupations or in unskilled, semi-skilled and service work, as shown below:

	Male		Female	
	10 to 17 years	18 and 19 years	10 to 17 years	18 and 19 years
ALL OCCUPATIONS	641,462	1,060,517	521,161	873,968
Employers and self-employed.....	4,171	18,021	739	5,833
Professional persons	3,065	18,397	5,819	68,053
Managers	—	1,524	—	316
Clerks, sales persons.....	191,174	253,917	145,730	370,704
Skilled workers, including foremen...	15,483	133,890	1,968	7,465
Apprentices	40,968	19,166	3,354	430
Semi-skilled workers	147,320	266,971	187,105	211,452
Unskilled workers	193,528	292,721	21,698	24,521
Service workers	45,753	55,910	154,748	185,194

Source: Woytinsky, *op. cit.*, pp. 67, 72.

Young workers were particularly numerous in the following clerical occupations: clerks, 146,432 boys and 114,057 girls; stenographers and typists, 6,341 boys and 150,955 girls; bookkeepers and cashiers, 16,857 boys and 59,376 girls. In addition 60,852 boys and 5,489 girls were messengers or office boys and 30,896 boys and 307 girls were newsvendors.

In professional pursuits young people are relatively numerous only among school teachers and trained nurses. In 1930 there were 2,243 male and 28,191 female teachers, and 156 male and 33,142 female trained nurses under 20.

In service work 128,006 boys and 238,396 girls were reported as servants, and 14,033 boys and 45,818 girls as waiters and waitresses.⁸⁹

⁸⁹ Fifteenth Census of the United States: 1930, Population, Volume V, pp. 118-137.

As in the case of young persons, the older ones, those 55 years of age or more and especially those 65 and over, are relatively more numerous in agricultural than in non-agricultural pursuits. In these groups, the 1930 Census reported the following as gainful workers:

	Male		Female	
	55 to 64 years	65 years and over	55 to 64 years	65 years and over
ALL INDUSTRIES	3,941,514	1,938,749	649,078	266,218
Agriculture	1,229,513	787,294	84,627	54,739
Non-agricultural pursuits	2,712,001	1,151,455	564,451	211,479

Most older workers in agriculture were farmers or unpaid members of farmers' families. The proportion of elderly persons in various classes of work in non-agricultural pursuits is presented in the following survey:⁴⁰

	Male		Female	
	55 years and over Per cent	65 years and over Per cent	55 years and over Per cent	65 years and over Per cent
Employers and self-employed..	21.1	6.7	23.9	7.3
Managers and officials.....	19.4	5.3	14.4	3.3
Foremen	15.6	3.4	6.8	1.2
Service workers ⁴¹	20.2	7.5	12.0	3.7
Skilled workers	14.2	4.0	9.6	2.4
Professional persons ⁴²	16.2	5.3	6.7	1.5
Sales persons	9.3	2.6	4.8	.8
Unskilled workers	13.0	4.0	5.7	1.5
Semi-skilled workers	9.0	2.4	6.7	1.7
Clerks and kindred workers....	9.6	2.7	2.0	.3

Source: Woytinsky, *op. cit.*, pp. 115, 123.

Persons 65 years of age and over constituted about 10 per cent or more of all workers in the following occupations:⁴³

⁴⁰ Classes of work have been arrayed according to the declining median age for all industries.

⁴¹ Among service workers in various industries other than domestic and personal service, 31.6 per cent of the men and 18.1 per cent of the women were 55 years of age or more.

⁴² In essentially independent pursuits, 25.1 per cent of the men and 20.5 per cent of the women were 55 years of age and over.

⁴³ Fifteenth Census of the United States: 1930, Population, Volume V, pp. 118-137.

	Gainful workers		Persons 65 years and over	
	Male	Female	Male	Female
Farmers	5,749,367	262,645	628,243	45,250
Clergymen	145,572	3,276	15,387	233
Physicians	146,978	6,825	14,915	646
Healers (not elsewhere classified) .	7,866	9,774	786	1,092
Inventors	2,279	21	364	5
Real estate agents.....	203,119	31,308	20,342	2,212
Abstractors, notaries, etc.....	9,848	1,908	2,477	53
Hotel keepers	39,538	17,310	3,934	1,352
Boarding and lodging house keepers	17,093	127,278	3,389	13,593
Keepers of charitable and penal in- stitutions	9,468	5,552	938	366
Postmasters	20,818	13,603	2,475	602
Blacksmiths	124,365	8	13,348	—
Shoemakers (not in factories)....	76,127	261	8,351	9
Guards, watchmen, etc.....	147,115	1,000	32,619	127
Laborers in street cleaning.....	16,672	1	2,160	—
Janitors and sextons.....	273,805	35,820	43,369	2,043
Laborers in domestic and personal service	67,337	4,350	6,732	189
Midwives	—	3,566	—	688
Cemetery keepers	9,705	57	2,637	7

NOTE 11. COMPUTATION OF THE EXPECTED PERIOD OF WORK

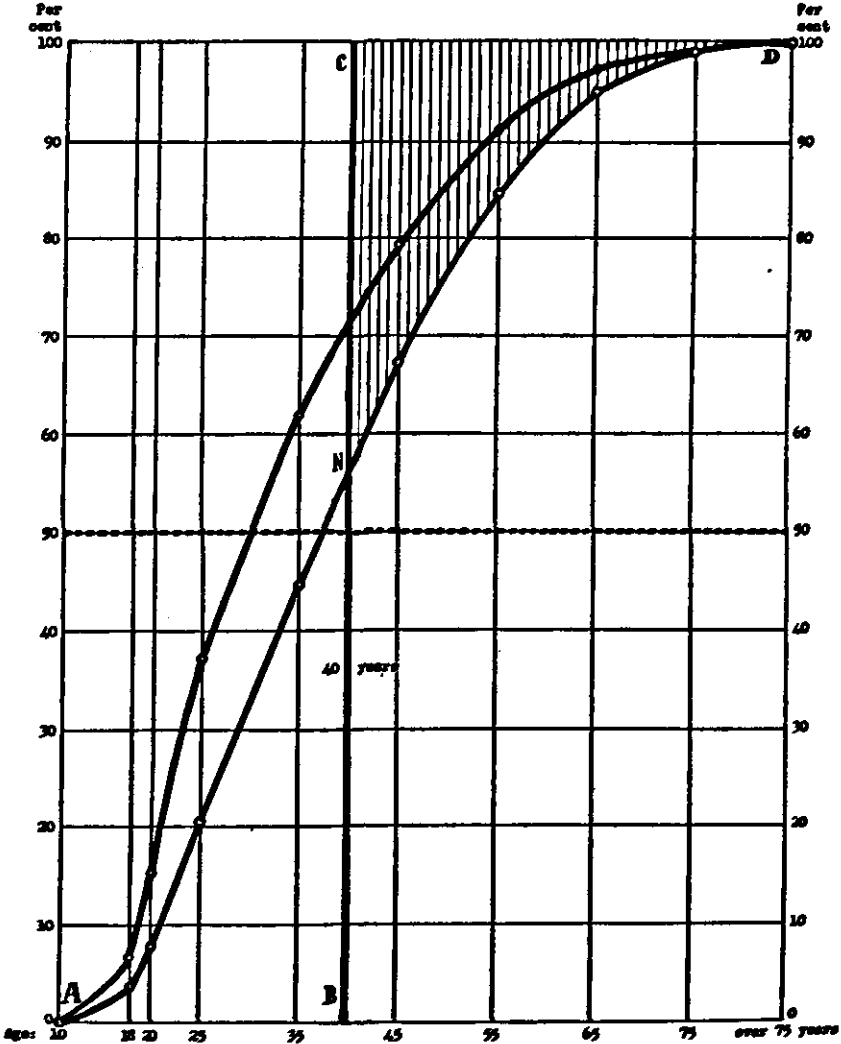
The expected period of work for a determined group of workers may be calculated on the basis of their age distribution. The distribution by 10-year classes as reported by the censuses is not sufficient for this purpose, so that census data must be interpolated to determine the number of persons in each single-year class. The method is based on the interpretation of cumulative age distribution curves or ogives.

Ogives of this type (see Diagram XLIV) run from the lower left-hand corner (A) of the chart to its upper right-hand corner (D). Since the proportion of persons in consecutive year classes usually declines after 19, most age distribution ogives have the conformation of an arch. Census data on the distribution by age classes of a determined group of the population permit the location of several points on the imaginary curve, namely, the points at which it intersects the age class limits 18, 20, 25, 35, 45 years, etc. Then the curve is drawn through these points by the free-hand method. Marking the points where the curve intersects the verticals indicating years, one can estimate approximately the proportion of persons in each single-year class.

The vertical line marking a certain age (for example, line BC in Diagram XLIV marks 40 years) is cut into two parts by the ogive; the lower section BN shows the percentage of persons *under* age N (40 years), and the upper section NC indicates the proportion of persons over this age on the date of the census. This distribution

can be taken as the starting point for an estimate of the expected period of work for persons who have reached age *N*. The estimate

DIAGRAM XLIV
 EXAMPLES OF CUMULATIVE CURVES OF AGE DISTRIBUTION



is based on the assumption that the conditions revealed by the ogive are typical for the examined population group and that they will not change much in the near future. Thus, the numbers of persons in

those to whom such figures have value," says the preface of this study.

The findings of the Association are briefly analyzed here not only because they differ markedly from the opinion expressed in the text of this volume but also because they bring up methodological questions of great importance. The observations presented in the following pages, although critical, are not intended in any way to minimize the value of the Association's study.

Their study is based on death reports for 1930 in 10 states (Alabama, Connecticut, Illinois, Kansas, Massachusetts, Minnesota, New Jersey, New York, Ohio, and Wisconsin) which contain 38 per cent of the population of the United States. These states represent the industrial East and the agrarian Middle West, with one typical Southern state added. More than 120,000 death cases were examined and classified by age and occupational groups. The figures obtained were compared with the numbers of gainful workers in the same occupational and age classes reported in these states by the 1930 Census of Population. In this way, death rates were computed for the age classes from 15 to 24 years, 25 to 44, and 45 to 64 years in each occupation. In addition, "standardized death rates" were calculated for the major socio-economic groups, according to their age distribution in 1930.⁴⁸ These groups were formed in accordance with the classification used by A. M. Edwards, except that farmers were not counted with proprietors but with farm laborers as "agricultural workers."

The results of the study may be summarized briefly showing the "standardized death rates" per 1,000 male gainful workers 15 to 64 years of age:

Professional men	7.00
Proprietors, managers and officials.....	7.38
Clerks and kindred workers.....	7.40
Agricultural workers	6.21
Skilled workers and foremen.....	8.12
Semi-skilled workers	9.86
Unskilled workers	13.10
All classes of work.....	8.70

The contrasts in the death rates by classes of workers are impressive, especially the high mortality in the lower socio-economic groups. It is obvious, however, that the reliability of these figures depends upon the extent to which the classification of deaths by occupations agrees with the occupational classification of gainful workers

⁴⁸ "Standardized death rates" were computed as follows: Of all gainfully occupied males from 15 to 64 years of age reported by the 1930 Census, 19.5 per cent were 15 to 24 years old, 51.0 per cent were 25 to 44, and 29.5 per cent were 45 to 64 years old. These "weights" were applied to the specific death rates obtained for the respective age classes in each socio-economic group.

by the 1930 Census of Population. If a number of persons enumerated in one occupational group by the Census were assigned to another group on the basis of death certificates, the death rate would be understated in the first group and overstated in the second. The question is whether or not such a discrepancy could influence in a decisive way the death rates shown above.

This question is answered by a closer examination of the death rates computed by the Association for individual occupations. However, it should be pointed out that the death rates shown below have not been adjusted to the age distribution of the respective occupational groups and can therefore deviate from the "standardized death rates."

At the beginning of the occupational list of the Association's study, the following statement appears:

	Gainfully occupied males (1930 Census)	Deaths	Death rate per 1,000 males
Farmers	1,182,608	11,427	9.7
Farm laborers	811,353	2,011	2.5

Perhaps the different age distribution of farmers and farm laborers may have caused a slight difference in the death rates of the two occupational groups.⁴⁷ Because of this difference a death rate of 8.2 to 8.7 per 1,000 for farm laborers would probably correspond to the rate of 9.7 per 1,000 for farmers. The expected number of deaths among farm laborers would be about 6,500 to 7,000, whereas only about 2,000 were classified in this occupational group. What became of the remaining 4,500 to 5,000 cases? They could hardly have been allocated to the farmer group because the borderline between the two occupations is sufficiently clear and because such an allocation would have increased greatly the death rate among farmers.

It appears fairly certain that these 4,500 to 5,000 deaths were assigned to the group of "general and not specified laborers" employed in building construction and manufactures, where the following figures were reported by the Association:

	Gainfully occupied males (1930 Census)	Deaths	Death rate per 1,000 males
Laborers and helpers, building construction	196,012	837	4.27
Laborers, manufactures	778,901	4,105	5.27
General and not specified laborers	207,628	14,957	72.05
Total.....	1,182,541	19,899	16.83

The average death rate of 16.83 per 1,000 for these groups, when transformed into the "standardized death rate," becomes 17.26. Among the persons reported in death certificates as "general and not

⁴⁷ See Chapter VII, pages 87-89.

specified laborers," there probably were about 4,500 to 5,000 farm laborers and other persons who may have been variously designated by the Census.

The scale of death rates by socio-economic classes depends upon the way in which "general and not specified laborers" are tabulated. If they were eliminated or reclassified to agree with their status as returned by the Census of Population, it would be necessary to revise *all* death rates and perhaps no striking difference between the mortality of skilled, semi-skilled, and unskilled workers would be found. This supposition is supported by the relationship between the mortality rates of semi-skilled and unskilled workers reported by the Association for individual industries:

	Semi-skilled (operatives)	Unskilled (laborers)
	Per 1,000 male workers	
Chemical and allied industries.....	7.69	5.13
Cigar and tobacco factories.....	19.32	6.21
Clay, glass and stone industries.....	9.78	4.65
Clothing industries.....	4.45	3.83
Food and allied industries.....	7.43	5.30
Iron and steel, machinery, etc.....	7.01	5.51
Metal industries (excluding iron and steel).	6.10	2.90
Leather industries.....	8.31	3.55
Lumber and furniture industries.....	9.33	4.89
Paper, printing, publishing.....	5.90	4.15
Textile industries.....	6.39	3.74
Miscellaneous manufacturing industries....	9.97	4.10
Not specified industries and services.....	49.50	—

The figures given above are extremely irregular and illogical. In each industry the death rate for laborers is lower than for operatives, and yet the average death rate for laborers in all factories and building construction is 70 per cent higher than for semi-skilled workers.

Therefore it would seem that the discrepancy between the occupational classification used in death certificates and in 1930 Census reports is so great that no death rates can be computed either by occupation or by class of work. The results of an analysis of such statistics depend less upon real differences in mortality than upon the way in which doubtful cases are treated.

NOTE 13. VERTICAL MOBILITY OF WORKERS IN AN AMERICAN COMMUNITY

A small but very detailed sample investigation conducted in the winter of 1933-34 in San Jose, California, confirms the importance of the socio-economic shifts determined in Chapter VII on the basis of the age distribution of gainful workers in 1930.⁴⁸

For the purpose of finding out the typical characteristics of the vertical mobility of workers, the San Jose study first distributed the respondents by 6 occupational "levels" which correspond to the prin-

⁴⁸ Percy E. Davidson and H. Dewey Anderson, *Occupational Mobility in an American Community* (Stanford: Stanford University Press, 1937).

cipal socio-economic groups in the classification of A. M. Edwards: professional; proprietors, managers and officials; clerks; skilled workers; semi-skilled workers; unskilled workers. Next, the levels of the regular occupations of respondents at the date of the inquiry were compared with the levels of their first permanent occupations (for 8 months or more) after leaving school, with their second and third occupations, with the occupations of their fathers, etc.

The results of these comparisons are shown in a series of ingeniously arranged tables and charts. In spite of the rather narrow basis of the investigation which covered only 1,242 cases, its findings are remarkably instructive. The principal results have been summarized in the following table:

Level of first regular occupation	Total	Professional	Proprietors, etc.	Clerks	Skilled	Semi-skilled	Unskilled
Percentage of respondents whose <i>second</i> regular occupations were on level indicated							
Professional	100.0	35.5	22.6	11.3	17.7	8.1	4.8
Proprietors, etc.	100.0	5.2	19.0	37.9	19.0	6.9	12.1
Clerks	100.0	4.5	8.9	47.8	16.4	17.9	4.5
Skilled	100.0	1.2	4.9	12.2	52.4	14.6	14.6
Semi-skilled	100.0	5.0	3.7	11.2	20.0	42.5	17.5
Unskilled	100.0	—	5.3	6.6	5.3	22.4	60.5
Percentage of respondents whose <i>third</i> regular occupations were on level indicated							
Professional	100.0	58.3	12.5	12.5	12.5	—	4.2
Proprietors, etc.	100.0	22.7	13.6	22.7	27.3	4.5	9.1
Clerks	100.0	6.1	12.1	39.4	6.1	15.2	21.2
Skilled	100.0	—	2.7	13.5	45.9	16.2	21.6
Semi-skilled	100.0	—	2.5	12.5	12.5	45.0	27.5
Unskilled	100.0	—	—	10.7	7.1	17.9	64.3
Percentage of respondents whose <i>last</i> regular occupations were on level indicated							
Professional	100.0	77.8	8.6	3.7	4.9	2.5	2.5
Proprietors, etc.	100.0	17.8	51.1	8.9	4.4	11.1	6.7
Clerks	100.0	12.8	17.8	37.2	9.9	11.6	10.7
Skilled	100.0	8.9	11.1	11.1	46.7	8.9	13.3
Semi-skilled	100.0	6.2	8.4	10.3	30.0	34.4	10.6
Unskilled	100.0	6.2	9.8	10.3	14.7	17.2	41.7

Source: Davidson and Anderson, *op. cit.*, pp. 95, 100, 101.

When interpreting these figures, it should be kept in mind that there were comparatively few respondents who indicated not only their first regular occupation but likewise the second and the third occupations. Therefore the first and second sections of the table above refer to a smaller number of cases than the last section. Besides, the "levels" used in this tabulation do not always indicate the actual direction of the reported shift. Take the case of a former farmer who shifts to an industrial occupation for pay. In this table there appears to be a downward shift from the proprietary level to that of a clerk or wage

earner, although actually, so far as the wage scale is concerned, the farmer may have shifted upward.

These limitations should be borne in mind when reading the conclusions of the authors: "For every occupational level of respondents the characteristic movement from occupation to occupation is within the level and not up or down the occupational ladder. Movements are not, however, confined to nearest levels. About two-fifths of the experience of professional persons has been distributed over the five other levels. Proprietors draw most heavily upon clerical experience, few having been on the professional level. More than a fourth of the working experience of clerks has been in semi-skilled or unskilled occupations, and almost 10 per cent has been in proprietary pursuits. About 10 per cent of the previous occupations of skilled artisans have been on the clerical level and more than two-fifths of them on the semi-skilled or unskilled laboring levels. The semi-skilled group has worked more frequently on the unskilled level than on any other, yet in the course of their working lives 28 per cent of their occupational experience has been above their present level of labor."⁴⁰

The authors emphasize that the movement from the first permanent job to the regular occupation shows a general trend from unskilled, semi-skilled and clerical occupations to skilled, proprietary, and professional levels. An opposite tendency is noticed for the second regular occupation: in comparatively many cases it falls below the level of the first job in all but the lowest levels of occupations.⁴¹

The annual incomes of the respondents varied considerably among the age groups. The mean income from 1928 to 1932 was \$1,364 for persons 20 to 34 years of age, \$2,117 for persons 35 to 54 years of age, and \$1,707 for persons 55 or more.⁴² These figures seem to indicate very clearly the typical movements up and down the occupational ladder as age advances. There is a striking contrast between the clearly pronounced up-and-down movements of incomes by age classes and the confused shifts of individual workers from one occupational level to another as shown in the table in this Note. Maybe the scale of occupational levels used in the California study was too rough or the distribution of individual occupations by these levels was inadequate.⁴³ In any case the findings of this investigation are so significant that it is to be hoped that other sampling studies of the same type will be attempted.

NOTE 14. TRENDS IN THE SOCIO-ECONOMIC STRUCTURE OF THE WORKING POPULATION IN THE UNITED STATES

The first attempt to measure the changes in the socio-economic structure of the working population of the United States was made by

⁴⁰ *Ibid.*, p. 89.

⁴¹ *Ibid.*, p. 185.

⁴² *Ibid.*, p. 148.

⁴³ *Ibid.*, pp. 193-199 (appendix).

William C. Hunt, who computed the following figures showing the distribution of gainful workers among four large classes of work in 1870, 1880 and 1890:

	1870	1880	1890
Total	12,505,923	17,392,099	22,735,661
A. Proprietor class	3,922,338	5,627,176	7,492,886
B. Clerical class	350,074	627,679	1,343,180
C. Skilled workers	2,542,129	3,603,295	5,480,435
D. Laboring class	5,691,382	7,533,949	8,419,160

Source: William C. Hunt, *Workers in Gainful Occupations at the Federal Censuses of 1870, 1880, and 1890*, U. S. Department of Labor Bulletin No. 11, July, 1897, pp. 416-419.

These figures justify Hunt's statement that "there has been a steady increase in the proportions found in each of the first three groups in 1880 and 1890 as compared with 1870, with a corresponding decrease in the proportion of persons constituting group D, and that the changes in proportions have been especially marked during the decade ending in 1890."⁸³

Hunt also investigated the trends in the distribution of men, women and children engaged in gainful occupations among the four groups. His tabulation is briefly summarized in percentages as follows:

	Men			Women			Children		
	1870	1880	1890	1870	1880	1890	1870	1880	1890
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Group A	37.4	38.5	37.4	7.9	11.3	16.4	.1	.2	.4
Group B	3.3	4.1	6.2	.6	1.6	5.0	1.1	1.8	2.4
Group C	21.2	20.8	23.9	20.0	24.9	26.7	9.5	10.6	14.7
Group D	38.1	36.6	32.5	71.5	62.2	51.9	89.3	87.4	82.5

Source: *Ibid.*, p. 423.

Carroll D. Wright applied the same distribution of occupations by four classes of work to census data covering the period from 1870 to 1900. He pointed out that "the increase in the proportion of people employed to the whole number of people is found in the numbers engaged in the skilled trades and in semi-professional callings. Hence the inevitable conclusion that the ranks of skilled labor, which are constantly being increased, are drawing from the ranks of unskilled labor; for the proportion of common labor of every kind . . . remains nearly stationary, so far as numbers are concerned."⁸⁴

The problem was explored in greater detail by I. A. Hourwich.⁸⁵ The table below briefly summarizes his findings:

⁸³ U. S. Department of Labor, Bulletin No. 11, July, 1897, p. 423.

⁸⁴ Carroll D. Wright, *Outline of Practical Sociology* (New York: Longmans, Green and Co., 5th edition, 1904), p. 255.

⁸⁵ I. A. Hourwich, "The Social Economic Classes of the Population of the United States," *Journal of Political Economy*, February 1911, pp. 213-214.

Socio-economic groups	1870	1880	1890	1900
NUMBER OF GAINFUL WORKERS.....	12,506	17,392	22,736	28,494
AGRICULTURE:	<i>In thousands</i>			
	<i>Percentage distribution</i>			
Farmers and planters.....	24.3	24.9	24.0	20.4
Agricultural laborers	23.1	19.1	13.2	13.5
NON-AGRICULTURAL PURSUITS:				
Entrepreneurs	7.2	7.8	7.9	7.3
Professional and quasi-professional.....	3.5	4.0	4.5	5.2
Agents and commercial travellers.....	0.2	0.4	1.0	1.2
Salaried employees	2.6	3.2	5.0	6.3
Industrial wage earners.....	27.4	29.5	32.7	34.8
Servants	7.8	6.2	6.4	5.1
Unclassified	3.9	4.9	5.3	6.2

According to Hourwich, the most significant feature of the economic evolution of the United States from the Civil War to the end of the nineteenth century was the difference in the rapidity of development in agricultural and non-agricultural pursuits. From 1870 to 1900 the percentage of gainful workers engaged in agriculture declined from 47.4 per cent to 33.9 per cent. On the other hand, in non-agricultural occupations neither the proportion of "entrepreneurs" nor the percentage of industrial wage earners changed greatly. The principal characteristic of the urban labor market during the same period was the increasing percentage of salaried employees and the decreasing proportion of domestic servants.

Alvin H. Hansen applied practically the same method to the returns of the 1910 and 1920 Censuses.⁸⁶ A summary of the trends in the social structure of the population at these dates is presented in the following table:

Socio-economic groups	1870	1880	1890	1900	1910	1920
NUMBER OF GAINFUL WORKERS.....	12,506	17,392	22,736	29,073	38,167	41,614
	<i>In thousands</i>					
	<i>Percentage distribution</i>					
1. Farm laborers	23.1	19.1	13.2	15.2	16.1	10.0
2. Farmers	24.0	24.6	23.6	19.8	16.3	15.5
3. Proprietors and officials.....	4.6	4.6	5.9	6.4	7.5	7.6
4. Professional	3.3	3.8	4.9	5.4	5.4	6.6
5. Lower salaried	2.5	3.0	4.3	4.6	6.3	9.6
6. Servants	7.8	6.2	6.4	5.0	4.1	3.1
7. Industrial wage earners.....	26.6	30.4	32.4	35.3	38.2	42.4
8. Unclassified	8.1	8.2	9.3	8.5	6.0	5.1
MAJOR SOCIAL CLASSES:						
Urban, upper and middle class (groups 3, 4, 5)....	10.4	11.4	15.1	16.2	19.2	23.8
Rural groups (1, 2).....	47.1	43.7	36.8	35.0	32.4	25.5
Urban workers (6, 7).....	34.4	36.8	38.8	40.3	42.3	45.5
Unclassified (8)	8.1	8.2	9.3	8.5	6.0	5.1

⁸⁶ Alvin H. Hansen, "Industrial Class Alignments in the United States," *Quarterly Publication of the American Statistical Association*, December 1920, pp. 417-425; "Industrial Classes in the United States in 1920," *Journal of the American Statistical Association*, December 1922, pp. 79-82.

The irregular development of the percentages of farm laborers and farmers from 1900 to 1920 is partially accounted for by changes in the time of year the censuses were taken.⁸⁷

So far as non-agricultural pursuits are concerned, Hansen aggregated the socio-economic groups into major social classes and emphasized that during the observed period the urban upper and middle classes, i.e., proprietors, professional persons and salaried employees, grew more swiftly than the whole group of urban workers including servants.

This conclusion is confirmed by more recent studies of A. M. Edwards, based on the occupational statistics of 1910, 1920 and 1930. A summary follows:

Socio-economic groups	Absolute numbers, in thousands			Percentages		
	1910	1920	1930	1910	1920	1930
TOTAL	38,167	41,614	48,830	100.0	100.0	100.0
1. Professional persons	1,633	2,050	2,946	4.3	4.9	6.0
2. Proprietors, managers and officials	8,480	9,181	9,666	22.2	22.1	19.8
2-a. Farmers	6,132	6,387	6,012	16.1	15.3	12.3
2-b. Wholesale and retail dealers	1,246	1,402	1,787	3.3	3.4	3.7
2-c. Other proprietors, managers and officials.....	1,101	1,391	1,866	2.9	3.3	3.8
3. Clerks and kindred workers	3,827	5,705	7,949	10.0	13.7	16.3
4. Skilled workmen and foremen..	4,464	5,571	6,283	11.7	13.4	12.9
5. Semi-skilled workers	5,512	6,639	7,978	14.4	16.0	16.3
5-a. In manufacturing	3,674	4,357	4,558	9.6	10.5	9.3
5-b. Other semi-skilled workers	1,838	2,281	3,420	4.8	5.5	7.0
6. Unskilled workers	14,252	12,469	14,009	37.3	30.0	28.7
6-a. Farm laborers	6,206	4,186	4,393	16.3	10.1	9.0
6-b. Factory and building construction laborers	2,660	3,136	3,374	7.0	7.5	6.9
6-c. Other laborers	2,822	2,891	2,903	7.4	6.9	5.9
6-d. Servant classes	2,565	2,256	3,339	6.7	5.4	6.8

Source: *Journal of the American Statistical Association*, December 1933, p. 383.

The trends in the population of the United States indicated by Edwards become clearer if agricultural and non-agricultural pursuits are separated. Then the following percentage distribution of the non-agricultural gainfully occupied population is obtained:

	1910	1920	1930
Professional persons	6.4	6.6	7.6
Proprietors, managers and officials..	9.2	9.1	9.5
Clerks and kindred workers.....	14.8	18.4	20.7
Skilled workers and foremen.....	17.3	18.0	16.4
Semi-skilled workers	21.3	21.4	20.7
Unskilled workers	31.1	26.7	26.3

⁸⁷ In 1890 and 1900 the Censuses were taken on June 1; in 1910, on April 15; in 1920, on January 1; in 1930 on April 1. It is generally agreed that the 1920 Census date caused an appreciable under-statement of gainful workers in agriculture.

Except for a slight drop in 1920, the proprietary group has increased, as well as the professional group.

However, the difference between the proprietary group in Edward's classification and the group of employers and self-employed persons used in the present study should be pointed out. The percentages of the last four of the socio-economic groups shown immediately above do not indicate the proportion of salary and wage earners in the total population in as much as they contain hundreds of thousands of self-employed persons and omit other thousands of salaried employees included in the proprietary and professional groups.

A more precise measurement of recent trends in the socio-economic structure of the population is given by the tabulation of the same data by class of work and industry in Table XI in the Appendix of this volume. This table is based on the retrospective survey computed by the Bureau of the Census ⁶⁶ in accordance with its standard outline. In Table XI Census data for 1910 and 1920 have been reclassified as follows:

Skilled workers assigned in the survey to manufacturing and mechanical industries have been distributed under different industrial divisions in the same proportions as they were in 1930. The division of clerical occupations set up in the survey has been broken down and distributed under individual industrial divisions. In 1930, 4,025,324 persons were reported as engaged in clerical occupations. In addition, 4,225,308 salaried employees, including managers and sales persons, were assigned to other industrial divisions. It is assumed that this total of 8,250,632 white-collar employees was distributed under different industries in the same proportions as shown in Table 2, Chapter 7, Volume V of the 1930 Census report, and this provides the basis for the industrial distribution of the 4,025,324 persons returned in the division of Clerical Occupations. The same proportions have been applied to the industrial distribution of clerical workers in 1910 and 1920.

NOTE 15. INTERPOLATION OF STATISTICS ON ESTABLISHMENTS WITH 6 TO 20 WORKERS

The interpolation of statistics of industrial establishments with 6 to 20 workers should be based on their characteristic features, as revealed by censuses of manufactures. The 1933 Census provides the following classification of factories and their workers by size of establishment:

⁶⁶ Fifteenth Census of the United States: 1930, Population, Volume V, pp. 40-49.

SIZE-CLASSES Establishments with ... wage earners	Number of establishments	Number of wage earners
None	4,518	—
1 to 5.....	57,152	158,275
6 to 20.....	40,176	445,088
21 to 50.....	18,576	600,670
51 to 100.....	9,262	659,347
101 to 500.....	10,304	2,126,216
501 to 2500.....	1,661	1,519,974
2501 or more.....	120	546,166
Total.....	141,769	6,055,736

This distribution of establishments is shown on Diagram XLV-A. A diagram of this shape, however, does not give an exact idea of the distribution of frequencies in the size of establishments within each size-class because the classes in which the observed cases are distributed include varying numbers of individual sizes: 5 different sizes within the class with 1 to 5 wage earners, 15 sizes within the class with 6 to 20 wage earners, 30 sizes within the next higher class, etc. In Diagram XLV-B the size-classes with 1 to 5, 6 to 20 and 21 to 100 wage earners are represented by rectangles with widths corresponding to the number of individual sizes and with lengths corresponding to the average number of establishments of each individual size within the size groups. The areas of these rectangles correspond to the number of establishments in each size-class. Presented in this way, the Census figures show that the number of establishments decreases rapidly as the size of establishment increases.

The task is to determine the distribution of establishments in the second rectangle. If each section within the group considered contained the same number (i.e., $40,176 \div 15 = \text{about } 2,678$) of establishments, the total number of wage earners in all establishments of this group would have been 522,288, i.e., an average of 13 persons per establishment. However, the Census reports in this group only 445,088 wage earners, i.e., an average of 11.078 persons per factory. For individual industrial groups, the corresponding numbers in 1933 were:

Industrial groups	Average number of wage earners per establishment within the group of factories employing 6 to 20 persons ($\frac{A}{N}$)
Food and kindred products.....	10.4
Textiles and their products.....	11.9
Forest products	11.8
Paper and allied products.....	12.4
Printing, publishing and allied products.....	10.4
Chemical and allied products.....	11.2
Products of petroleum and coal.....	11.2
Rubber products	12.4
Leather and its manufactures.....	11.4

Industrial groups	Average number of wage earners per establishment within the group of factories employing 6 to 20 persons
	$\left(\frac{A}{N}\right)$
Stone, clay, and glass products.....	11.0
Iron and steel and their products.....	11.3
Nonferrous metals and their products.....	10.7
Machinery, not including transportation equip- ment	11.3
Transportation equipment, air, land and water..	11.7
Railroad repair shops.....	12.0
Miscellaneous industries	10.7

Thus, if N is the number of establishments in the group, and A the total number of wage earners they employ, then in all industrial groups $A \div N$ is usually less than 13. This shows that in all industrial groups, small establishments are more numerous than large ones, i.e., the frequency decreases within the class from its lower sections to the higher ones. It is evident that it decreases more rapidly the lower the ratio $A \div N$.

This is all that is known positively on the distribution of establishments by individual sections within the group. A further step requires an assumption concerning the order of the decrease of frequencies in the group. The following estimates are based on two different assumptions: (a) the number of establishments is supposed to decrease within the group from section to section evenly, by a constant amount, i.e., in an arithmetical progression; (b) it is supposed to decrease by a geometric progression, so that the number for each section is smaller by the same per cent than the number for the preceding section. Under either assumption the task is to obtain an estimate of the distribution of establishments by size such that both the number of establishments and the number of wage earners agree with the Census figures for this size-class.

(a) Decrease by Arithmetical Progression

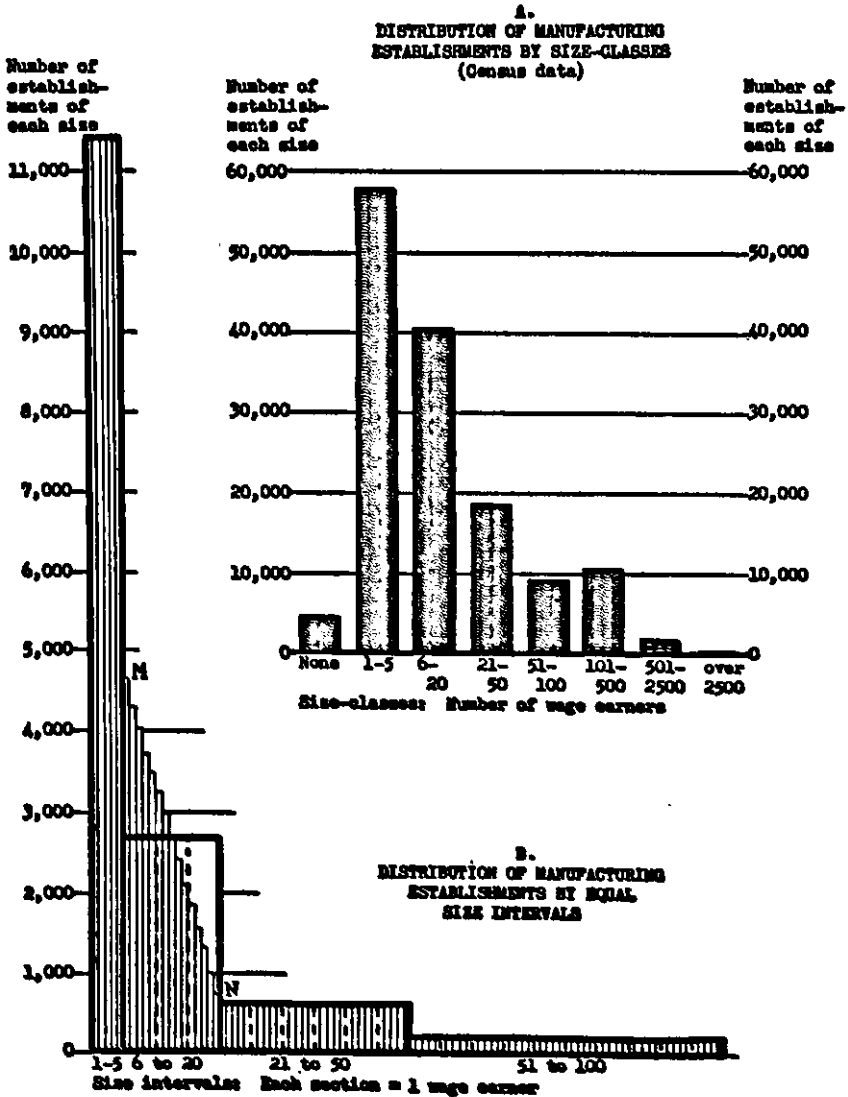
The first assumption is presented by the broken line MN on Diagram XLV-B. The number of establishments with i wage earners being represented by the symbol f_i and the difference between the numbers of establishments of two adjacent sizes being d , the following distribution of establishments and wage earners will be found:

Establishments with ... wage earners (i)	Number of establishments (f_i)	Number of wage earners ($i f_i$)
6	f_6	$6f_6$
7	$f_7 = f_6 - d$	$7f_7 = 7f_6 - 7d$
8	$f_8 = f_6 - 2d$	$8f_8 = 8f_6 - 16d$

18	$f_{18} = f_6 - 12d$	$18f_{18} = 18f_6 - 216d$
19	$f_{19} = f_6 - 13d$	$19f_{19} = 19f_6 - 247d$
20	$f_{20} = f_6 - 14d$	$20f_{20} = 20f_6 - 280d$

DIAGRAM XLV

DISTRIBUTION OF MANUFACTURING ESTABLISHMENTS BY NUMBER OF WAGE EARNERS, IN THE UNITED STATES, 1933



The total number of establishments (N) and wage earners (A) in the examined size-class will be:

$$N = f_6 + f_7 + f_8 + \dots + f_{18} + f_{19} + f_{20} = 15f_8 - 105d \quad (1)$$

$$A = (6+7+8+\dots+18+19+20)f_8 - (7+16+\dots+216+247+280)d = 195f_8 - 1645d \quad (2)$$

These two equations can be solved for d and f_8 , as follows:

$$d = \frac{13N - A}{280} = \frac{N}{280} \left[13 - \frac{A}{N} \right]$$

$$f_8 = \frac{47N - 3d}{120} = \frac{N}{120} \left[47 - \frac{3A}{N} \right]$$

If $\frac{A}{N} = 11.078$, as reported by the 1933 Census for all manufacturing establishments, d equals 0.687 of one per cent of N , or 276, while $f_8 = 4,608$.

For different values of $\frac{A}{N}$, d and f_8 may be conveniently expressed in per cent of N , as follows:

$\frac{A}{N}$	d in per cent of N	f_8 in per cent of N
12.5	0.179	7,920
12.4	0.214	8,165
12.3	0.250	8,417
12.2	0.286	8,668
12.1	0.321	8,919
12.0	0.357	9,166
11.9	0.393	9,418
11.8	0.429	9,670
11.7	0.464	9,915
11.6	0.500	10,167
11.5	0.536	10,419
11.4	0.571	10,664
11.3	0.607	10,916
11.2	0.643	11,168
11.1	0.679	11,420
11.0	0.714	11,665
10.9	0.750	11,917
10.8	0.786	12,169
10.7	0.822	12,421
10.6	0.857	12,666
10.5	0.893	12,918
10.4	0.928	13,163
10.3	0.964	13,415
10.2	1.000	13,667

For $\frac{A}{N}$ falling within the intervals of this table the values of d and f_8 may be found by means of interpolation. The numbers computed by this method fall along straight line MN in Diagram XLV-B. Since

the true distribution of establishments by size is supposed to be represented by a curved line, they tend to understate the true number of the largest and the smallest establishments in the size group. A better set of estimates can be obtained by a geometric progression.

(b) Decrease by Geometric Progression

If the numbers of establishments in individual sections of the whole group decrease by a geometric progression, the number for the first section may be designated by f_0 , and the ratio between adjacent sections by r . In this case the following distribution of establishments and wage earners will be found:

Establishments with ... wage earners (l)	Number of establishments (f_l)	Number of wage earners (l.f _l)
6	f_0	$6f_0$
7	$f_1 = r.f_0$	$7f_1 = 7r.f_0$
8	$f_2 = r^2.f_0$	$8f_2 = 8r^2.f_0$
.....
18	$f_{18} = r^{18}.f_0$	$18f_{18} = 18r^{18}.f_0$
19	$f_{19} = r^{19}.f_0$	$19f_{19} = 19r^{19}.f_0$
20	$f_{20} = r^{20}.f_0$	$20f_{20} = 20r^{20}.f_0$

The total number of establishments in the examined size-class will be:

$$N = f_0 + f_1 + f_2 + \dots + f_{18} + f_{19} + f_{20} = f_0 (1 + r + r^2 + \dots + r^{18} + r^{19} + r^{20}) \quad (3)$$

$$\text{or } N = f_0 \cdot \frac{1 - r^{21}}{1 - r} \quad (4)$$

$$\text{Therefore, } f_0 = N \frac{1 - r}{1 - r^{21}} \quad (5)$$

On the other hand, the number of wage earners in this size-class of establishments is:

$$A = 6f_0 + 7f_1 + 8f_2 + \dots + 18f_{18} + 19f_{19} + 20f_{20} = f_0(6 + 7r + 8r^2 + \dots + 18r^{18} + 19r^{19} + 20r^{20}) \quad (6)$$

Multiplying both parts of equation (6) by r and adding to them N , as expressed in equation (3), the following new equation will be found:

$$A \cdot r + N = f_0 (6r + 7r^2 + 8r^3 + \dots + 18r^{19} + 19r^{20} + 20r^{21}) + f_0 (1 + r + r^2 + r^3 + \dots + r^{18} + r^{19}) = f_0 (1 + 7r + 8r^2 + 9r^3 + \dots + 19r^{18} + 20r^{19} + 20r^{20}) \quad (7)$$

Subtracting (7) from (6):

$$A - A \cdot r - N = f_0 \cdot (5 - 20r^{21}) \quad (8)$$

In equation (8), f_0 may be replaced by its value as expressed in (5).

Therefore,

$$A - A \cdot r = N + N \frac{1-r}{1-r^{15}} (5 - 20r^{15}) \quad (9)$$

$$A \cdot (1-r) = N \left\{ 1 + \frac{(1-r)(5-20r^{15})}{1-r^{15}} \right\} \quad (10)$$

Dividing both parts of equation (10) by $N(1-r)$, the formula for $\frac{A}{N}$ is found:

$$\frac{A}{N} = \frac{1}{1-r} + \frac{5-20r^{15}}{1-r^{15}} \quad (11)$$

If the numbers of establishments (N) and of workers they employ (A) are known, the value of r which corresponds to formula (11) may be found by calculating values of $\frac{A}{N}$ which correspond to a set of consecutive values of r . In the following table these values are calculated on the basis of intervals of 0.005 for all values of r which correspond to the values of $\frac{A}{N}$ varying from 10.2 to 12.7, a range somewhat wider than that shown on pages 273-274.

r	$\frac{A}{N}$	r	$\frac{A}{N}$	r	$\frac{A}{N}$
0.990	12.704	0.940	11.863	0.890	10.932
0.985	12.671	0.935	11.768	0.885	10.840
0.980	12.623	0.930	11.673	0.880	10.751
0.975	12.544	0.925	11.578	0.875	10.662
0.970	12.439	0.920	11.484	0.870	10.575
0.965	12.338	0.915	11.390	0.865	10.489
0.960	12.243	0.910	11.296	0.860	10.405
0.955	12.148	0.905	11.205	0.855	10.323
0.950	12.053	0.900	11.114	0.850	10.241
0.945	11.958	0.895	11.023	0.845	10.160

Now, if $\frac{A}{N} = 11.078$, as reported by the 1933 Census of Manufactures for all manufacturing establishments, r ought to have a value between 0.900 and 0.895. A more exact value will be obtained if a table of values for r and $\frac{A}{N}$ based on intervals of 0.001 is computed.

r	$\frac{A}{N}$
0.900	11.1140
0.899	11.0922
0.898	11.0727
0.897	11.0543
0.896	11.0373

This auxiliary table shows that r lies between 0.899 and 0.898, nearer to 0.898.

Now a still more exact evaluation may be attempted. The decrease of r by 0.001 from 0.899 to 0.898 is followed by a decrease of $\frac{A}{N}$ from 11.0922 to 11.0727, i.e., by 0.0195. But the empirical value of $\frac{A}{N}$ is 11.0782, or 0.0055 more than it would be if r were equal to 0.898. This indicates that r must be approximately 0.0003 higher than 0.898, namely, 0.8983. In other words, the number of establishments decreases from one size to the next by 10.17 per cent.

Next f_0 can be calculated according to equation (5) :

$$f_0 = 0.1271 \cdot N \text{ or } 12.71 \text{ per cent of } N$$

Therefrom the following values for different individual sizes of establishments in the group of factories with 6 to 20 wage earners will be found :

Establishments with ... wage earners (i)	Number of establishments (f_i)	Number of wage earners ($i \cdot f_i$)
6	5,108	30,648
7	4,588	32,116
8	4,122	32,976
9	3,702	33,318
10	3,326	33,260
11	2,988	32,868
12	2,684	32,208
13	2,411	31,343
14	2,166	30,324
15	1,945	29,175
16	1,748	27,968
17	1,570	26,690
18	1,410	25,380
19	1,267	24,073
20	1,138	22,760

(See dotted curve MN in Diagram XLVI.)

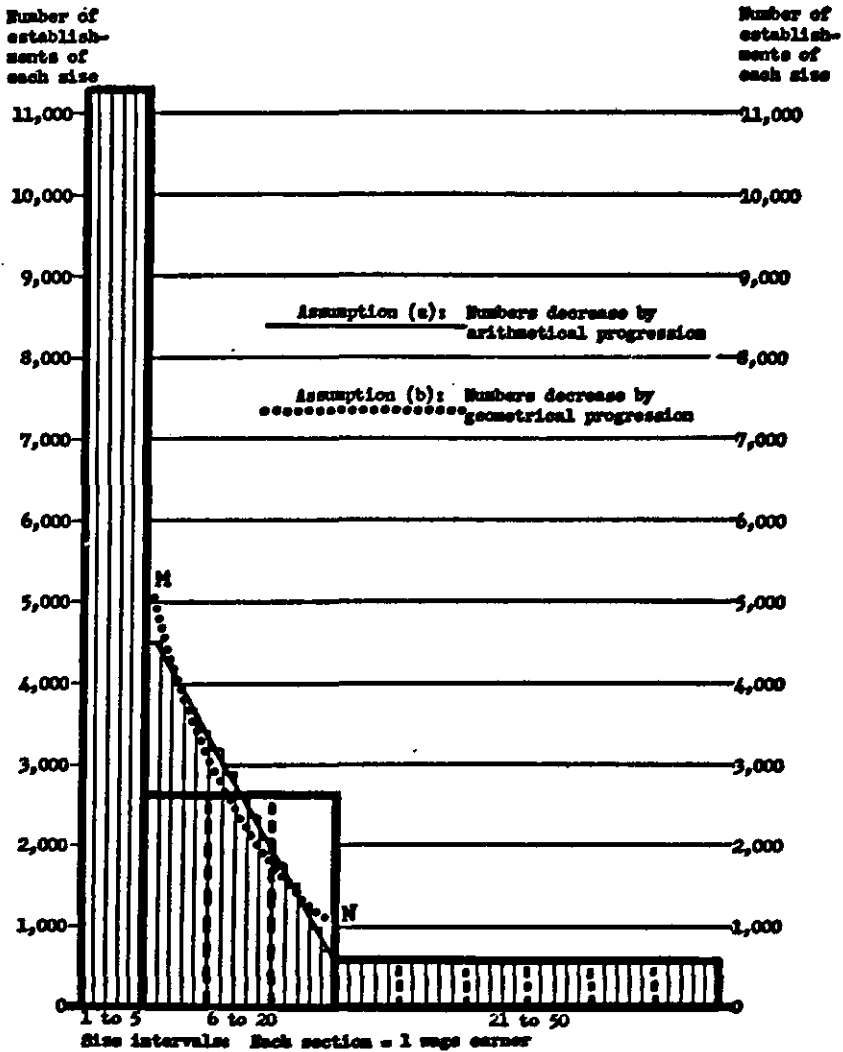
The total of estimated numbers will be 40,173 establishments and 445,107 wage earners.

For different values of $\frac{A}{N}$, r and the ratio $f_0 \div N$ may be calculated as follows:

$\frac{A}{N}$	r in per cent	f_0 in per cent of N
12.5	2.7	8.01
12.4	3.2	8.29
12.3	3.7	8.56
12.2	4.2	8.85
12.1	4.8	9.19
12.0	5.3	9.49

DIAGRAM XLVI

ESTIMATED DISTRIBUTION OF MANUFACTURING ESTABLISHMENTS EMPLOYING 6 TO 20 WAGE EARNERS, IN THE UNITED STATES, 1933



$\frac{A}{N}$	r in per cent	f_0 in per cent of N
11.9	5.8	9.79
11.8	6.3	10.12
11.7	6.9	10.46
11.6	7.4	10.81
11.5	7.9	11.16
11.4	8.4	11.52
11.3	9.0	11.88
11.2	9.5	12.25
11.1	10.1	12.63
11.0	10.6	13.04
10.9	11.2	13.46
10.8	11.7	13.89
10.7	12.3	14.32
10.6	12.8	14.75
10.5	13.4	15.18
10.4	14.0	15.62
10.3	14.6	16.08
10.2	15.2	16.56

NOTE 16. INTERPOLATION OF STATISTICS ON SIZE OF ESTABLISHMENTS CLASSIFIED BY A CRITERION OTHER THAN NUMBER OF EMPLOYEES

In cases where the criterion for the size distribution of establishments is other than number of employees, such as net sales or receipts, the basis of classification may be conveniently changed if both the number of establishments and the number of workers are reported for each size-class. The method of conversion is explained by the following example.

The 1930 Census of Construction reported the following distribution of firms by size of business during 1929:

SIZE-CLASSES Firms with ... annual business	General contractors		Sub-contractors	
	Firms	Workmen	Firms	Workmen
\$25,000 to \$50,000....	3,642	20,440	6,169	32,060
\$50,000 to \$100,000....	4,116	42,110	4,620	46,710
\$100,000 to \$250,000....	3,326	66,010	2,480	47,800
\$250,000 to \$500,000....	2,729	118,000	1,334	55,720
\$500,000 to \$1,000,000....	1,015	94,480	314	29,780
\$1,000,000 and over.....	688	231,560	164	44,100
All size-classes	15,516	572,600	15,081	256,170

In order to find out the distribution of the same firms by number of workers, the *average number* of workmen per firm in each size-class should be computed and the distribution of firms presented as follows:

General contractors		Sub-contractors	
SIZE-CLASSES Average number of workmen per firm	Number of firms	SIZE-CLASSES Average number of workmen per firm	Number of firms
5.6.....	3,642	5.2.....	6,169
10.2.....	4,116	10.1.....	4,620
19.8.....	3,326	19.3.....	2,480
43.2.....	2,729	41.8.....	1,334
93.1.....	1,015	94.8.....	314
336.6.....	688	268.9.....	164
All size-classes .. 15,516		All size-classes .. 15,081	

(See Diagram XLVII.)

These numbers may be represented by *histograms* on a logarithmic scale, which will facilitate further analysis. Obviously each size-class contains firms with numbers of workmen *under* and *over* the average that is characteristic of the respective group of establishments. According to the assumption that the upper points of vertical lines measuring the individual firms arrayed by size constitute a *continuous* curve, the broken borderline of each histogram may be interpolated. First, a tentative curve should be drawn by the free-hand method, and then it should be checked and corrected. The numbers of establishments of different sizes corresponding to the tentative curve are found and the resulting number of workmen within each size-class may be compared with that returned by the Census.

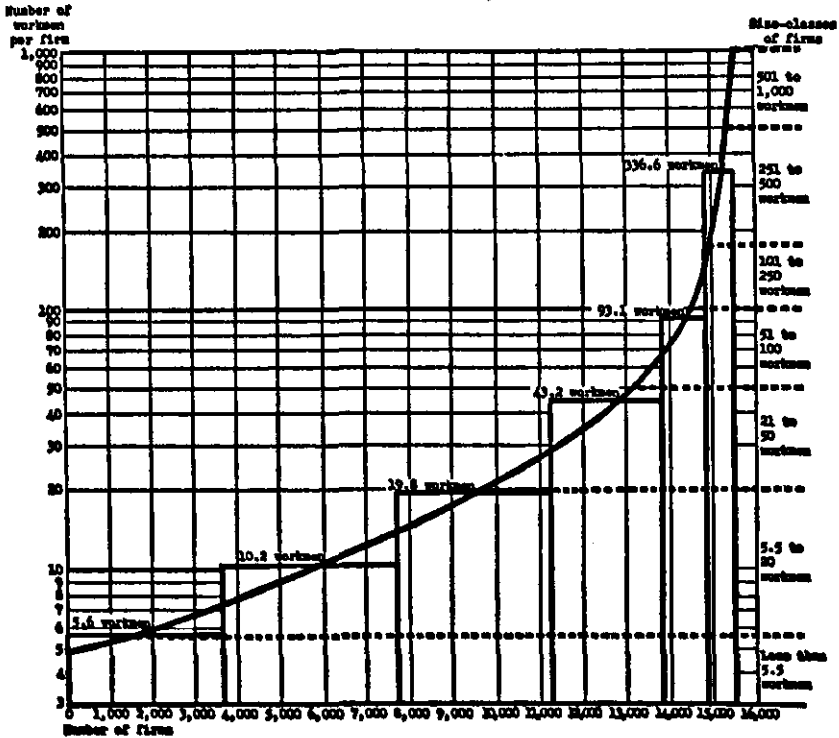
It should be kept in mind that there must be 20,440 workmen in the 3,642 smallest firms of general contractors and 32,060 workmen in the 6,169 smallest firms of sub-contractors, etc. If the resulting total is too large, this indicates that the number of smallest establishments in this size-class is understated, while the number of larger establishments is overstated. The curve is then adjusted and checked again.

Experience shows that this method does not leave much freedom of arbitrary judgment on the part of the estimator. The problem is liable to more than one correct solution, but satisfactory solutions are fairly similar to each other.

After the interpolated curve is drawn, it may be divided into size-classes in the usual way. Horizontal lines may be drawn through the limit points fixed on the vertical axis, the points of intersection of these lines with the curve are noted, and the projections of each section of the curve on the horizontal axis may be measured. It should be pointed out that this method tends to over-estimate slightly the number of smallest establishments and to under-estimate the number of largest concerns. It may be used for statistics of establishments which are fairly uniform in character, as in the case examined above.

DIAGRAM XLVII

EXAMPLE OF INTERPOLATION OF FIGURES SHOWING THE DISTRIBUTION OF ESTABLISHMENTS BY AMOUNT OF BUSINESS (Construction Industry in the United States, 1929, General Contractors)



NOTE 17. CHANGES IN THE DISTRIBUTION OF FACTORY EMPLOYMENT AMONG ESTABLISHMENTS OF DIFFERENT SIZES FROM 1929 TO 1933

When analyzing changes in the distribution of factory employment by size of establishments from 1929 to 1933, the conditions under which the 1933 Census of Manufactures was taken should be clearly understood. In that year the Census enumerated 62,000 factories with not more than 5 wage earners, i.e., 40,000 less than in 1929. However, this should not be regarded as conclusive evidence that 40,000 small establishments had been forced to close during the depression. Some were excluded by the \$5,000 limit which grew in significance as a result of the depression,⁸⁸ some failed to make returns, and others

⁸⁸ The index of production dropped 32 per cent between 1929 and 1933. Simultaneously prices of finished products fell approximately 25 per cent. Thus, if all factories had reduced production *equally*, those with products valued at somewhat less than \$10,000 in 1929 would have been excluded in 1933 by the \$5,000 limit.

were not on mailing lists to receive schedules. These omissions could not be carefully checked by the Census Bureau because there were no appropriations for field work.⁶⁰

It should not be assumed that no actual reduction occurred in the number of factories in all size-classes between 1929 and 1933, but the under-enumeration of small establishments in 1933 makes it impossible to determine exactly the extent of the decrease. The only assumption that can be made is that, if small establishments had been correctly enumerated, factory employment in 1933 would have been about 30 per cent under the 1929 level, and that this reduction resulted from a combined decline in number of factories and of wage earners per establishment. The total decline of 30 per cent could have been brought about by a 10 per cent drop in number of factories and a 23 per cent reduction of personnel in the remaining factories, or the respective proportions of losses may have been 11 and 22, or 12 and 21 per cent, etc.

Experimenting with different assumptions within these limits, it will be found that a distribution of employment very similar to that reported by the 1933 Census could have been caused by a decline of 13 per cent in the number of factories in each size-class in comparison with 1929, combined with an equal reduction of 20 per cent of the number of employees in the remaining factories. On this basis the following distribution of factories and their employees by size-classes of establishments in 1933 is found:

SIZE-CLASSES Establishments	Estimated numbers		Numbers reported by the 1933 Census of Manufactures are higher (+) or lower (-) than estimated numbers of	
	Factories	Wage earners	Factories	Wage earners
with ... wage earners				
None	33,400	—	-28,880	—
1 to 5.....	77,800	220,000	-20,650	-60,000
6 to 20.....	41,300	450,000	-1,120	-5,000
21 to 50.....	17,700	560,000	+ 880	+40,000
51 to 100.....	9,300	670,000	- 40	-10,000
101 to 500.....	10,200	2,100,000	+ 100	+25,000
501 to 2500.....	1,650	1,520,000	+ 10	—
2501 and over.....	130	580,000	- 10	-35,000
All size-classes ...	191,480	6,100,000	-49,710	-45,000

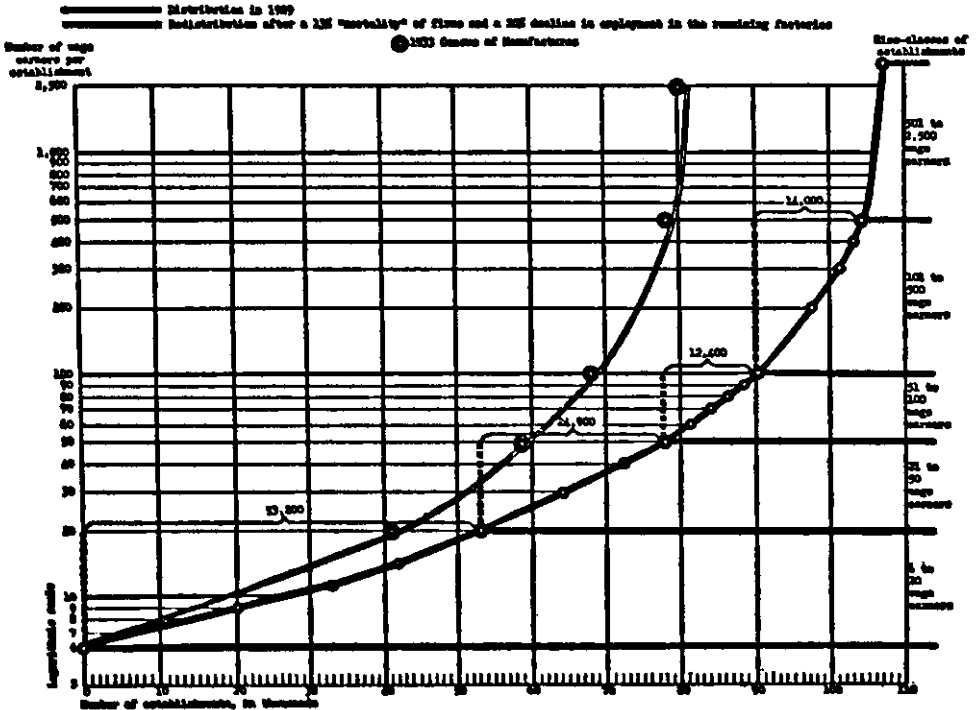
If the estimated size distribution of factories with more than 5 wage earners is plotted on a diagram and compared with data actually reported by the 1933 Census of Manufactures, their agreement becomes evident.

(See Diagram XLVIII.)

⁶⁰ The 1933 Census of Manufactures attempted an estimate of the probable source of errors caused by the omission of small establishments. It states that 8,595 establishments which reported for 1931 failed to report in 1933. The number of wage earners thus omitted is estimated at 0.9 per cent of the total. (Biennial Census of Manufactures, 1933, p. 3.) This estimate makes no allowance for small establishments whose existence was not reported to the Census.

DIAGRAM XLVIII

DISTRIBUTION OF MANUFACTURING ESTABLISHMENTS BY SIZE-CLASSES IN 1929 AND THEIR REDISTRIBUTION RESULTING FROM AN EQUAL REDUCTION OF EMPLOYMENT IN ALL FACTORIES COMBINED WITH AN EQUAL "MORTALITY" OF ENTERPRISES IN ALL SIZE-CLASSES



However, there is a marked difference in the estimated and reported numbers of establishments with 5 wage earners or less. This might mean either that the estimated number of factories in the first two size-classes is greatly over-stated or that many small establishments were omitted by the 1933 Census for one or another of the reasons previously mentioned.

Assuming that the Census reported accurately the number of small establishments, their "net mortality" would have been 44.3 per cent, as compared with 13 per cent in size-classes of establishments with more than 5 wage earners. However, this contrast in the "net mortality" of small and large establishments is contrary to experience which has shown that small factories can be operated without net profits or even with continuous losses so long as their proprietors

receive modest returns for their own services. Of course, between 1929 and 1933 many were forced to close, but others opened in spite of the depression. This turn-over could not be disclosed by the 1933 Census of Manufactures as small establishments in operation only part of the year were not counted. Nevertheless, they existed and probably averaged in the tens of thousands for the Census year. Therefore, the difference in the estimated and reported figures for small factories in 1933 should not invalidate the estimate.

**NOTE 18. CHANGES IN THE DISTRIBUTION OF EMPLOYMENT IN
RETAIL TRADE AMONG STORES OF DIFFERENT SIZES FROM
1929 TO 1935**

(See Table XVI in the Appendix, page 323.)

The number of employees in retail stores is closely correlated to amount of sales,⁶¹ and therefore it may be assumed that trends in the distribution of employees among stores of different sizes are about the same as in the distribution of sales.

The 1935 Census of Business made the following comparison of the distribution of sales by size-classes of stores:

SIZE-CLASSES Stores with ... annual sales	Percentage of stores			Percentage of sales		
	1929	1933	1935	1929	1933	1935
Less than \$5,000.....	27.2	64.4	41.5	2.0	13.8	4.4
\$5,000 to \$9,999.....	16.5		18.5	3.7		6.5
\$10,000 to \$19,999.....	20.3	17.1	17.7	9.0	14.5	12.3
\$20,000 to \$29,999.....	11.2	7.1	7.9	8.5	10.4	9.5
\$30,000 to \$49,999.....	11.4	5.8	7.3	13.7	13.3	13.9
\$50,000 to \$99,999.....	8.3	3.6	4.4	17.8	15.0	15.1
\$100,000 to \$299,999.....	4.0	1.6	2.2	20.1	15.0	17.6
\$300,000 and more.....	1.0	.3	.5	25.1	17.9	20.7
All size-classes	100.0	100.0	100.0	100.0	100.0	100.0

Source: Census of Business: 1935, Retail Distribution, Volume VI, p. 17.

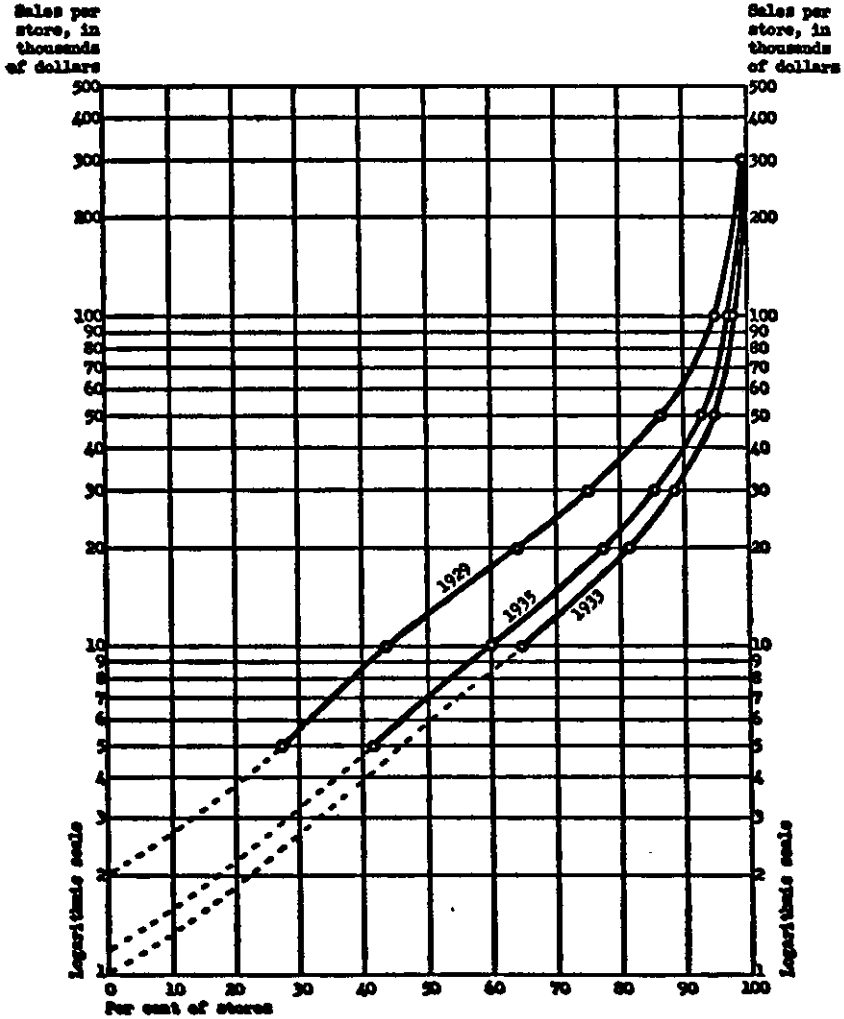
The first impression that changes in business conditions affected unequally the distribution of stores and sales among large and small concerns is misleading. If the retail stores canvassed by these three censuses are arrayed by amount of sales, the distribution curves for the three years will run strictly parallel to each other, just as if there were no changes either in the relative number of large and small stores or in the relative amounts of their business. The variations are the same as if the sales of *all* stores in 1933 had been reduced by about 49 per cent, and *all* had returned in 1935 to 61 per cent of the 1929 volume of business.

(See Diagram XLIX.)

⁶¹ See Chapter XII, pages 199-200.

DIAGRAM XLIX

DISTRIBUTION OF RETAIL STORES BY AMOUNT OF SALES IN THE UNITED STATES IN 1929, 1933, AND 1935



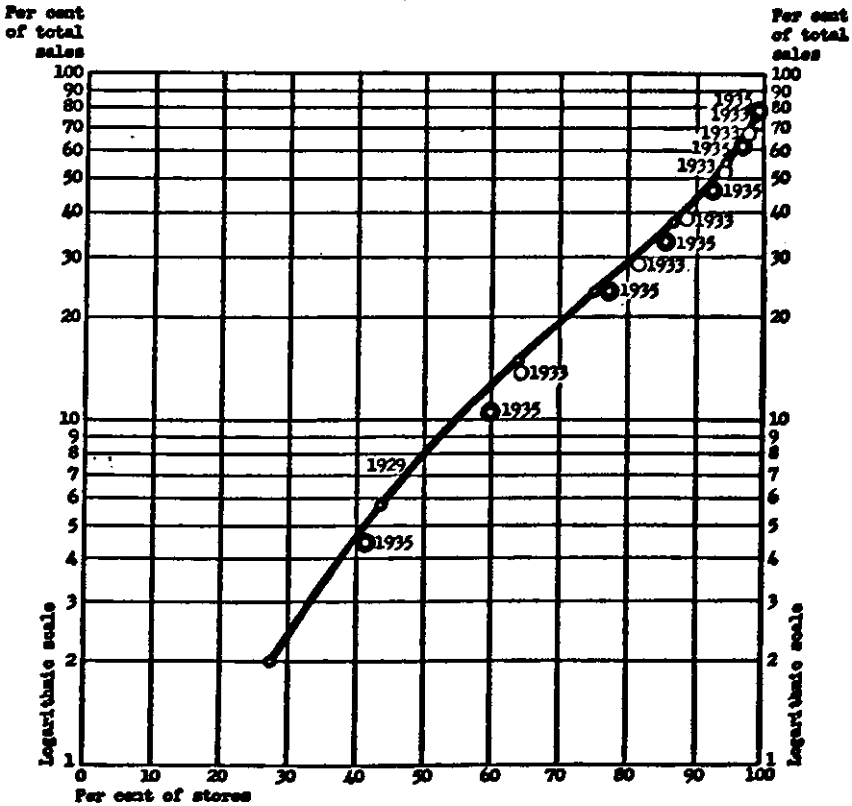
This characteristic of retail distribution becomes still more evident if the sales of each size-class of stores are measured in per cent of total sales in the respective years. Cumulative curves of the size distribution of stores can be constructed so that the horizontal ordinate of each point will show the percentage of stores, beginning with the

smallest, which total 1 per cent, 2 per cent, 3 per cent, etc., of all sales, the percentages being marked on the vertical ordinate. An arithmetical scale is used for the horizontal axis and a logarithmic scale for vertical ordinates. On Diagram L, constructed according to these specifications, a continuous curve is drawn for 1929, while for 1933 and 1935 only the points shown by the censuses are marked on the chart.

(See Diagram L.)

DIAGRAM L

CUMULATIVE CURVE OF THE DISTRIBUTION OF RETAIL STORES BY PER CENT OF TOTAL SALES IN THE UNITED STATES IN 1929, 1933, AND 1935



It will be noticed that the points for 1933 and 1935 are closely clustered around the 1929 curve, showing that large and small stores were *equally* affected by the decline in purchasing power and in prices of commodities.

APPENDIX TABLES

TABLE I. OCCUPATIONAL DISTRIBUTION OF GAINFUL WORKERS 10 YEARS OLD AND OVER IN THE UNITED STATES, 1930

Industries	Total	Em- ployers and self- em- ployed persons	Unpaid family workers	Profes- sional persons	Salaried employees			Skilled workers		Semi-skilled workers		Un- skilled workers	Service workers
					Man- agers	Clerks and kindred workers	Sales persons	Fore- men	Other skilled workers	App- ren- tices	Other semi- skilled workers		
ALL INDUSTRIES	48,829,920	9,936,124	1,659,792	2,957,446	869,796	5,421,408	1,988,050	547,735	5,955,327	87,404	6,852,920	8,286,962	4,266,956
I. Agriculture, Forestry, Fishing	10,752,909	6,090,942	1,659,792	1,572	76,528	10,105	285	3,910	8,896	—	6,494	2,889,111	5,274
Agriculture.....	10,483,917	6,012,012	1,659,792	748	67,222	5,888	264	—	4,117	—	275	2,732,972	627
Forestry.....	195,165	5,650	—	812	9,306	3,945	21	3,910	4,664	—	6,163	156,139	4,555
Fishing.....	73,827	73,280	—	12	—	272	—	—	115	—	56	—	92
NON-AGRICULTURAL PURSUITS	38,077,011	3,845,182	—	2,955,874	793,268	5,411,303	1,987,765	543,825	5,946,431	87,404	6,846,426	5,397,851	4,261,682
II. Extraction of Minerals	1,149,252	15,834	—	10,167	15,098	30,527	589	27,845	99,324	111	932,424	5,612	11,721
Coal.....	691,288	2,863	—	2,713	3,888	8,612	103	14,083	28,388	39	623,669	1,946	4,984
Iron ore.....	31,936	21	—	608	241	990	—	1,143	3,579	—	24,451	440	463
Copper, lead, zinc, gold, silver	82,299	797	—	1,580	912	1,742	—	1,942	8,239	—	65,881	315	891
Quarries.....	98,344	1,604	—	389	2,928	2,794	175	3,490	12,576	21	72,411	876	1,080
Other n.s.a. industries.....	46,939	993	—	2,234	1,256	2,047	53	1,212	4,502	—	33,856	261	525
Oil wells and gas wells.....	198,446	9,556	—	2,643	5,873	14,342	258	5,975	42,040	51	112,156	1,774	3,778
III. Manufactures	10,866,020	187,159	—	163,957	268,670	1,219,910	108,794	303,016	2,455,158	49,662	3,836,457	2,158,042	115,195
<i>Food and Allied Products</i>	907,253	33,335	—	4,704	39,132	134,292	24,959	22,666	189,974	2,048	268,778	175,587	11,778
Butter, cheese, condensed milk	88,900	2,821	—	708	8,104	14,071	3,084	2,316	3,399	56	34,085	19,608	648
Fish, curing and packing.....	16,288	305	—	19	497	918	37	479	611	—	6,946	6,271	205
Slaughter and packing houses	164,882	1,146	—	747	5,359	30,147	6,938	5,288	8,052	58	59,644	44,473	3,030
Bakeries.....	281,885	14,852	—	234	6,231	37,344	4,435	4,206	144,429	1,821	39,195	26,089	3,049
Flour and grain mills.....	67,233	2,405	—	509	3,872	10,381	2,019	1,439	18,782	—	10,418	16,578	830
Fruit and vegetable canning.....	56,235	990	—	248	2,966	5,574	451	2,333	3,279	—	19,587	19,954	853
Candy factories.....	71,294	2,380	—	156	1,692	9,693	1,740	1,979	1,373	47	45,556	5,800	878
Sugar factories and refineries.....	25,503	46	—	746	834	3,220	83	1,254	2,918	—	4,251	9,578	573
Other food industries.....	86,630	3,932	—	1,016	5,726	16,217	2,899	2,375	4,683	40	30,930	17,779	1,033
Beverages.....	80,403	4,458	—	321	3,851	6,727	3,273	997	2,448	26	18,166	9,457	679
<i>Textiles and Their Products</i>	1,973,275	37,586	—	15,424	23,881	117,734	8,231	43,588	249,497	3,877	1,316,931	142,182	14,344
Hemp, jute and linen mills.....	8,015	184	—	62	232	992	62	284	451	—	4,624	1,004	120
Cotton mills.....	422,204	565	—	758	3,192	11,575	410	9,824	26,461	287	307,491	57,336	3,905
Silk, woolen, dyeing and finishing mills.....	362,676	2,487	—	1,896	4,550	24,817	1,368	11,031	28,327	533	249,457	34,734	3,476
Corset factories.....	15,308	219	—	160	392	2,179	374	393	163	—	10,942	371	115
Glove factories.....	22,896	441	—	8	309	1,431	108	596	160	—	18,534	1,180	129
Hat factories.....	34,770	1,024	—	290	534	3,139	189	744	680	73	26,526	1,226	345
Shirt, collar and cuff factories	68,776	848	—	80	818	4,123	389	1,658	641	41	55,587	4,186	405

Not separately shown except in agriculture

TABLE I—Continued

Industries	Total	Em- ployers and self- em- ployed persons	Unpaid family workers	Profes- sional persons	Salaried employees			Skilled workers		Semi-skilled workers		Un- skilled workers	Service workers
					Man- agers	Clerks and kindred workers	Sales persons	Fore- men	Other skilled workers	Ap- prent- ices	Other semi- skilled workers		
III. Manufactures—Continued													
<i>Textiles and Their Products—Continued</i>													
Suit, coat and overall factories, incl. knitting mills.....	488,050	14,678		1,753	4,412	21,835	1,908	6,498	177,012	2,220	241,878	13,714	2,142
Other s.n.a. textile industries.....	215,622	5,255		3,889	5,037	22,377	1,717	7,111	13,923	411	130,684	23,163	2,055
Other clothing factories.....	334,958	11,883		6,528	4,405	25,266	1,706	5,449	1,679	312	271,208	4,868	1,652
<i>Forest Products.....</i>													
Saw, planing and woodwork- ing industries, n.e.c.....	906,493	20,379		3,670	18,458	45,177	3,638	23,116	197,455	2,047	195,975	388,237	8,141
Furniture factories, including piano and organ.....	576,777	14,617		1,816	12,009	21,594	1,453	15,278	90,083	513	107,082	307,012	5,320
Turpentine farms and distilleries.....	286,249	5,088		1,798	3,937	23,155	2,185	6,847	106,969	1,534	86,934	43,066	2,736
	43,467	874		56	512	428	—	991	403	—	1,959	38,159	85
<i>Paper and Allied Products.....</i>													
Paper and pulp mills.....	243,389	2,323		2,657	7,207	29,543	2,287	7,912	26,558	236	99,220	62,625	2,819
Converted paper products.....	179,792	813		2,182	4,621	19,377	1,436	5,806	20,363	133	67,020	55,814	2,227
	63,597	1,512		475	3,586	10,166	851	2,106	6,195	103	32,200	6,811	592
<i>Printing and Publishing.....</i>													
	544,606	20,970		3,218	22,884	140,410	7,800	8,077	236,492	11,659	76,492	11,472	5,132
<i>Chemical and Allied Products.....</i>													
Ammunitions, explosives, fireworks.....	340,383	6,149		18,139	15,329	68,085	8,360	13,140	30,440	287	89,248	86,166	5,040
Fertilizer factories.....	19,404	112		717	513	2,687	194	820	2,492	39	6,213	5,286	331
Paint and varnish factories.....	28,169	236		209	1,158	2,983	657	829	942	—	2,368	18,478	309
Rayon factories.....	37,074	921		1,457	2,675	10,345	1,548	1,395	2,414	34	9,184	6,428	673
Soap factories.....	33,982	38		778	240	1,798	38	1,559	2,967	20	21,158	5,062	324
Salt wells and works.....	22,983	440		613	941	5,937	1,077	844	1,914	—	3,734	3,075	408
Other chemical factories, incl. charcoal and coke.....	7,125	21		106	287	884	127	287	875	—	4,254	130	154
	191,646	4,381		14,239	9,515	43,451	4,719	7,406	18,836	194	40,337	45,707	2,841
<i>Products of Petroleum and Coal</i>													
Gas works.....	288,728	520		9,088	11,841	68,131	3,978	11,426	53,206	239	49,174	76,359	4,766
Petroleum refineries.....	114,930	76		2,412	4,469	34,157	1,492	5,269	16,679	102	17,365	30,912	1,997
	173,798	444		6,676	7,372	33,974	2,486	6,157	30,527	137	31,809	45,447	2,769
<i>Rubber Products.....</i>													
	166,391	1,001		2,533	4,080	24,829	2,174	5,582	11,490	138	82,336	29,878	2,150

Not separately shown except in agriculture

TABLE I—Continued

Industries	Total	Em- ployers and self- em- ployed persons	Unpaid family workers	Profes- sional persons	Salaried employees			Skilled workers		Semi-skilled workers		Un- skilled workers	Service workers
					Man- agers	Clerks and kindred workers	Sales persons	Fore- men	Other skilled workers	App- ren- tices	Other semi- skilled workers		
III. Manufactures—Continued													
<i>Leather and Its Manufactures...</i>	374,069	4,768		1,258	4,918	29,688	1,869	10,985	8,781	431	268,456	39,882	3,033
<i>Tanneries.....</i>	58,420	643		334	1,055	4,162	188	2,004	2,538	47	29,339	17,503	607
<i>Shoe factories.....</i>	271,451	2,242		695	2,707	20,501	1,178	7,849	4,686	285	210,331	18,906	2,071
<i>Leather goods, etc. factories...</i>	26,634	1,139		199	789	3,740	351	789	774	62	16,640	1,976	175
<i>Harness, saddle, trunk, bag factories.....</i>	17,564	744		30	367	1,285	152	343	783	37	12,146	1,497	180
<i>Stone, Clay and Glass Products</i>	371,961	6,931		5,121	10,881	26,432	3,311	11,914	47,950	911	104,101	151,171	3,238
<i>Brick, tile, terra cotta.....</i>	97,245	1,428		676	3,001	4,919	643	2,889	5,239	96	15,179	62,510	665
<i>Lime, cement, artificial stone...</i>	83,636	1,997		1,818	3,101	6,958	811	3,592	9,257	60	14,731	40,312	999
<i>Marble and stone yards.....</i>	50,430	2,173		1,312	1,730	3,531	1,012	965	21,987	483	8,744	8,258	235
<i>Glass factories.....</i>	97,729	943		902	2,044	8,245	582	3,228	9,958	225	41,875	28,737	990
<i>Potteries.....</i>	42,921	390		413	1,005	2,779	263	1,240	1,509	47	23,572	11,354	349
<i>Iron and Steel: Blast Furnaces and Steel Rolling Mills.....</i>	620,894	1,433		12,580	9,011	55,534	2,406	20,291	146,383	1,365	112,042	253,322	6,527
<i>Machinery, not including Transportation Equipment...</i>	1,819,261	19,223		54,406	50,288	237,745	24,081	55,481	651,691	14,946	415,902	279,164	16,334
<i>Agricultural implements.....</i>	53,244	387		786	1,685	9,650	1,616	1,798	16,100	187	9,291	11,134	610
<i>Electrical machinery and supply.....</i>	383,570	2,902		19,937	10,480	77,565	7,570	12,855	87,036	3,209	120,264	37,863	3,889
<i>Other a.n.s. machinery and metal.....</i>	1,382,447	15,934		33,683	38,123	150,530	14,895	40,828	548,555	11,530	286,347	230,167	11,835
<i>Transportation Equipment, Land and Water.....</i>	968,693	2,963		13,204	11,842	77,335	2,146	29,667	374,053	5,847	257,859	184,283	9,494
<i>Automobile factories.....</i>	640,474	1,965		10,241	9,886	63,846	1,965	20,536	228,333	2,440	168,435	125,911	6,916
<i>Wagon and carriage factories...</i>	9,144	318		35	252	624	44	266	3,116	31	2,834	1,496	128
<i>Car and railroad shops.....</i>	225,638	26		1,082	782	7,886	51	7,296	99,335	2,710	66,144	38,970	1,356
<i>Ship and boat building.....</i>	93,437	654		1,846	922	4,979	86	1,569	43,269	666	20,446	17,906	1,094
<i>Nonferrous Metals and Their Products.....</i>	332,976	6,431		5,280	7,757	37,999	1,785	11,725	97,190	2,410	94,224	64,596	3,579
<i>Clock and watch factories....</i>	25,096	265		215	391	2,889	88	744	3,370	188	15,078	1,595	273
<i>Copper, lead, and zinc factories.....</i>	39,814	147		1,150	733	3,476	129	1,880	9,304	88	5,450	16,840	617
<i>Gold and silver factories.....</i>	19,326	250		289	455	2,797	112	678	7,045	161	5,951	1,350	238

Not separately shown except in agriculture

TABLE I—Continued

Industries	Total	Em- ployers and self- em- ployed persons	Unpaid family workers	Profes- sional persons	Salaried employees			Skilled workers		Semi-skilled workers		Un- skilled workers	Service workers
					Man- agers	Clerks and kindred workers	Sales persons	Fore- men	Other skilled workers	Ap- prenti- ces	Other semi- skilled workers		
III. Manufactures—Continued													
<i>Nonferrous Metals and Their Products—Continued</i>													
Jewelry.....	39,458	1,620		440	751	5,566	251	807	14,290	926	14,029	488	310
Brass mills, tinware, and other metal factories.....	209,282	4,149		3,186	5,447	23,271	1,205	7,616	63,181	1,047	53,716	44,323	2,141
<i>Miscellaneous Industries</i>													
Cigar and tobacco factories....	542,089	17,475		5,943	20,640	67,856	7,964	14,919	44,993	1,162	261,437	94,465	5,235
Other miscellaneous manufac- turing industries.....	149,563	2,654		124	2,009	10,349	1,642	3,321	2,898	180	104,520	20,870	996
	392,526	14,821		5,819	18,651	57,507	6,322	11,598	42,095	982	156,917	73,595	4,239
<i>Not Specified Industries</i>	465,559	5,470		6,732	10,521	59,120	3,803	12,527	88,805	2,059	144,282	118,653	13,585
IV. Independent Hand Trades....													
	360,329	357,934		—	—	—	—	—	—	2,393	—	—	—
V. Construction.....													
Building trades.....	3,029,791	167,811		37,742	24,903	52,703	564	44,006	1,847,967	20,077	76,937	732,610	24,471
Construction and maintenance of roads, streets, etc.....	2,574,968	153,746		21,284	19,116	45,967	528	20,756	1,818,858	19,999	43,773	426,318	4,623
	454,823	14,065		16,458	5,787	6,736	36	23,250	29,109	78	33,164	306,292	19,848
VI. Transportation, Communica- tion and Utilities.....													
	4,530,770	102,210		50,601	248,184	1,151,107	11,234	119,708	1,051,536	11,970	764,445	874,729	145,046
<i>Transportation</i>													
Air transportation.....	3,370,013	101,755		19,400	179,746	420,232	10,142	97,903	882,371	10,586	700,043	816,678	131,157
Water transportation.....	18,189	74		561	1,016	2,321	183	181	10,776	225	781	1,686	385
Steam railroads.....	299,804	877		1,476	27,594	23,893	180	3,166	34,405	80	80,953	99,075	28,105
Street railroads.....	1,645,306	1,001		14,543	108,867	320,850	555	75,544	343,701	2,612	201,544	492,213	83,876
Truck, transfer, cab companies	195,408	19		1,998	3,609	18,372	136	5,827	58,717	81	62,720	41,389	2,540
Garages, greasing stations and automobile laundries.....	483,148	50,752		102	10,332	17,389	261	2,350	6,524	22	327,240	86,914	1,262
Automobile repair shops.....	423,843	50,718		124	19,247	24,863	7,998	6,652	224,126	4,342	11,413	66,911	7,449
Other a. n. s. transportation and communication.....	257,923	16,713		155	6,365	5,441	641	2,135	199,302	3,224	10,762	12,729	458
	46,390	1,601		441	2,716	7,103	188	2,048	4,820	—	4,630	15,761	7,082
<i>Communication and Utilities</i>													
Telegraph and telephone.....	1,160,757	455		31,201	68,438	730,875	1,092	21,805	169,165	1,384	64,402	58,051	13,889
Postal services.....	587,566	326		16,011	20,491	425,190	—	11,190	87,982	629	6,855	13,127	5,765
Electric light and power.....	283,936	—		46	37,268	253,847	—	1,664	1,547	—	1,677	3,900	3,987
	289,253	129		15,144	10,679	71,838	1,092	8,951	79,636	753	55,870	41,024	4,137

Not separately shown except in agriculture

TABLE I—Continued

Industries	Total	Em- ployers and self- em- ployed persons	Unpaid family workers	Profes- sional persons	Salaried employees			Skilled workers		Semi-skilled workers		Un- skilled workers	Service workers
					Mana- gers	Clerks and kindred workers	Sales persons	Fore- men	Other skilled workers	Ap- prentices	Other semi- skilled workers		
VII. Trade.....	7,530,064	2,548,037		14,652	66,216	2,021,004	1,858,605	38,161	119,059	2,787	235,252	554,976	71,315
<i>Banking, Insurance and Real Estate.....</i>	1,484,762	716,543		8,003	41,765	668,316	1,972	565	6,541	—	3,214	8,720	29,123
Banking and brokerage.....	624,783	221,504		2,151	—	367,544	1,972	245	1,929	—	1,976	1,715	25,747
Advertising agencies.....	64,488	3,685		381	6,854	43,746	—	320	2,423	—	256	6,708	115
Insurance.....	507,299	256,927		4,272	29,308	212,026	—	—	1,741	—	609	237	2,179
Real estate.....	288,192	234,427		1,199	5,603	45,000	—	—	448	—	373	60	1,082
<i>Wholesale and Retail Trade.....</i>	6,045,302	1,831,494		6,649	24,451	1,352,688	1,856,633	37,596	112,518	2,787	232,038	546,256	42,192
Grain elevators.....	31,124	1,704		100	7,801	6,456	207	800	1,828	—	896	10,983	349
Stockyards, warehouses, and cold storage plants.....	77,157	1,456		491	6,354	16,782	2,740	3,915	4,108	—	3,850	33,777	3,684
Automobile agencies, stores and filling stations.....	498,350	150,697		99	—	53,874	240,678	—	12,469	33	8,522	30,229	1,749
Wholesale and retail trade, incl. n.e.c. trade.....	5,438,671	1,677,637		5,959	10,296	1,275,576	1,613,008	32,881	94,113	2,754	218,770	471,267	36,410
VIII. Public Service.....	1,049,576	353		47,791	130,093	182,455	—	—	273,678	93	199,534	154,352	61,225
IX. Professional Service.....	3,408,947	59,570		2,620,284	16,943	328,629	1,664	—	23,153	71	55,424	65,105	238,104
Professional services (except recreation).....	2,965,742	—		2,376,603	15,020	296,155	—	—	15,212	37	54,198	26,230	182,287
Recreation and amusement.....	443,205	59,570		243,681	1,923	32,474	1,664	—	7,941	34	1,226	38,875	55,817
X. Domestic and Personal Service.....	4,814,573	404,559		793	14,946	125,907	5,397	7,156	21,239	—	523,857	136,989	3,573,730
Hotels, restaurants, boarding houses.....	1,357,381	366,625		412	—	78,265	4,609	—	8,696	—	1,917	18,494	878,363
Cleaning, dyeing and pressing Laundries.....	109,245	16,275		117	5,841	13,471	788	819	641	—	65,620	4,872	801
Domestic and personal service n.e.c.....	3,037,568	6,219		174	9,105	25,610	—	6,337	4,866	—	205,041	41,724	2,082
XI. Not Specified Industries and Services.....	1,337,689	1,715		90	—	8,561	—	—	7,036	—	251,279	71,899	2,692,484
			Not separately shown except in agriculture	9,887	8,213	299,061	918	3,933	55,317	238	222,096	715,436	20,875

Sources: W. S. Woytinsky, *The Labor Supply in the United States*, (revised ed.; Washington, D. C., 1937) Committee on Social Security, Social Science Research Council, Table I, pp. 41-42.

TABLE II. NUMBER AND PROPORTION OF FEMALE WORKERS, BY INDUSTRY AND CLASS OF WORK, IN THE UNITED STATES, 1930

Industries	All classes of work	Employers and self-employed	Unpaid family workers	Professional persons	Salaried employees	Skilled workers	Semi-skilled workers	Unskilled workers	Service workers
<i>Absolute numbers</i>									
ALL INDUSTRIES.....	10,752,116	826,720	475,008	1,449,748	3,064,802	107,477	1,800,644	359,465	2,668,252
I. Agriculture.....	915,844	262,863	475,008	2	5,077	2	1	171,417	1,474
II. Extraction of minerals.....	6,715	86		81	6,282	6	203	—	57
III. Manufactures.....	2,143,772	5,468		10,636	498,085	80,122	1,431,139	113,954	4,368
IV. Independent hand trades.....	201,036	198,875		—	—	—	2,161	—	—
V. Construction.....	28,133	258		111	24,774	1,689	48	221	1,032
VI. Transportation, communication and utilities.....	469,718	905		576	453,450	1,605	2,614	4,570	5,998
VII. Trade.....	1,714,729	169,127		1,763	1,477,729	17,078	1,139	38,392	9,501
VIII. Public service.....	121,694	—		4,556	105,127	3,340	1,281	1,096	6,294
IX. Professional service.....	1,760,917	2,319		1,431,476	240,729	105	20,933	3,339	62,016
X. Domestic and personal service.....	3,153,549	186,717		115	63,203	3,115	311,156	15,058	2,574,185
XI. Not specified industries and services	236,009	102		432	190,346	415	29,969	11,418	3,327
<i>Percentages</i>									
ALL INDUSTRIES.....	22.0	8.3	28.6	49.0	37.0	1.7	25.9	4.3	62.5
I. Agriculture.....	8.5	4.3	28.6	.1	5.8	—	—	4.1	28.0
II. Extraction of minerals.....	.6	.5		.8	13.6	—	—	—	.3
III. Manufactures.....	19.7	2.9		6.5	31.2	2.9	36.8	5.3	3.8
IV. Independent hand trades.....	55.8	55.6		—	—	—	90.2	—	—
V. Construction.....	.9	.2		.3	31.7	.1	—	—	4.2
VI. Transportation, communication and utilities.....	10.4	.9		1.1	32.1	.1	.3	.5	4.1
VII. Trade.....	22.8	6.6		12.0	37.4	10.9	.5	6.9	13.3
VIII. Public service.....	11.6	—		9.5	33.6	1.2	.6	.7	10.3
IX. Professional service.....	51.7	3.9		54.6	69.3	.5	39.1	5.1	26.0
X. Domestic and personal service.....	65.5	46.2		14.5	43.2	11.0	59.4	11.0	72.0
XI. Not specified industries and services	17.6	5.9		4.4	61.8	.7	13.5	1.6	15.9

Sources: Woytinsky, op. cit., Table II, pp. 43-49.

TABLE III. GAINFUL WORKERS 10 YEARS OLD AND OVER, BY INDUSTRY, RACE AND SEX, IN THE UNITED STATES, 1930

Industries	Native white		Foreign-born white		Colored	
	Male	Female	Male	Female	Male	Female
ALL INDUSTRIES	27,511,862	7,661,508	6,255,071	1,156,056	4,310,871	1,934,552
I. Agriculture	7,338,371	372,338	695,347	26,741	1,803,347	516,765
NON-AGRICULTURAL PURSUITS	20,173,491	7,289,170	5,559,724	1,129,315	2,507,524	1,417,787
II. Extraction of minerals	799,739	6,408	246,408	213	96,390	94
III. Manufactures	5,888,525	1,740,915	2,160,450	310,959	673,273	91,898
Food and allied products.....	503,600	132,020	176,620	20,354	58,321	16,338
Textiles and their products.....	619,662	703,232	402,565	172,417	42,494	32,905
Forest products.....	550,276	38,110	134,501	3,692	175,271	4,643
Paper and allied products.....	144,542	44,801	39,532	5,468	7,906	1,140
Printing and publishing.....	364,194	105,789	56,633	7,665	9,091	1,234
Chemical and allied products.....	188,542	59,287	52,139	5,315	34,167	933
Petroleum and coal.....	209,464	21,268	38,485	957	18,454	100
Rubber products.....	96,614	29,949	30,402	5,525	3,768	133
Leather and its manufactures.....	176,284	98,990	76,935	15,120	6,116	624
Stone, clay and glass products.....	238,874	27,336	67,237	2,008	35,439	1,067
Blast furnaces.....	349,975	16,752	188,735	1,426	63,648	358
Machinery.....	1,157,810	167,545	400,575	21,149	70,896	1,286
Transportation equipment.....	624,306	42,260	238,005	6,361	57,268	493
Nonferrous metals.....	187,499	47,476	78,303	7,131	12,049	518
Miscellaneous industries.....	239,812	121,344	84,775	22,337	51,071	22,750
Not specified industries.....	237,071	84,756	95,008	14,034	27,314	7,376
IV. Independent hand trades	85,672	146,147	65,027	31,620	8,594	23,269
V. Construction	2,069,302	25,896	657,131	1,606	275,225	631
VI. Transportation, communication and utilities	3,112,607	444,514	527,523	20,592	420,922	4,612
Transportation.....	2,419,322	90,339	461,595	5,736	389,903	3,118
Communication and utilities.....	693,285	354,175	65,928	14,856	31,019	1,494
VII. Trade	4,572,188	1,532,358	978,127	152,594	265,020	29,777
Banking, insurance and real estate.....	921,251	384,975	125,891	25,025	22,673	4,947
Retail and wholesale trade.....	3,650,937	1,147,383	852,236	127,569	242,347	24,830
VIII. Public service	759,766	113,139	101,535	4,717	66,581	3,838
IX. Professional service	1,305,585	1,561,223	229,164	123,376	113,281	76,318
X. Domestic and personal service	817,138	1,514,869	437,449	462,261	406,437	1,176,419
XI. Not specified industries and services	762,969	203,701	156,910	21,377	181,801	10,931

Source: Woytinsky, *op. cit.*, Table II, pp. 45-49.

TABLE IV. GAINFUL WORKERS BY CLASS OF WORK, RACE AND SEX, IN THE UNITED STATES, 1930

Classes of work ¹	Native white		Foreign-born white		Colored	
	Male	Female	Male	Female	Male	Female
ALL CLASSES OF WORK	27,511,862	7,661,508	6,255,071	1,156,056	4,310,871	1,934,552
Employers and self-employed.....	6,861,825	576,606	1,280,206	120,399	967,373	129,715
Unpaid family workers.....	875,450	165,820	11,239	2,513	298,095	306,675
Professional persons:						
Essentially independent.....	512,915	64,226	83,675	11,359	35,579	2,416
Essentially dependent.....	739,248	1,226,709	108,717	84,151	27,564	60,887
Salaried employees.....	4,593,954	2,838,424	536,884	199,179	83,614	27,199
Skilled workers.....	4,755,178	86,135	1,427,327	18,414	213,080	2,928
Semi-skilled workers.....	3,663,778	1,364,578	1,098,940	295,979	376,962	140,087
Unskilled workers.....	4,767,908	168,071	1,294,830	24,685	1,864,759	166,709
Service workers.....	741,606	1,170,939	413,253	399,377	443,845	1,097,936

¹ Salaried employees include managers, clerks and kindred workers, and sales persons. Foremen have been counted with skilled workers, and apprentices with semi-skilled operatives.

Source: Woytinsky, *op. cit.*, Table II, pp. 45-49.

TABLE V. PERCENTAGE DISTRIBUTION OF GAINFUL WORKERS BY RACE IN DIFFERENT INDUSTRIES AND CLASSES OF WORK IN THE UNITED STATES, 1930

Industries	All classes of work	Classes of work							
		Employers and self-employed	Unpaid family workers	Professional persons	Salaried employees (including officials)	Skilled workers (including foremen)	Semi-skilled workers (including apprentices)	Unskilled workers	Service workers
<i>Native white</i>									
ALL INDUSTRIES.....	72.0	74.9	62.7	86.0	89.8	74.4	72.5	59.6	44.8
I. Agriculture, forestry, fishing ..	71.7	76.4	62.7	90.1	86.0	80.1	85.9	66.5	65.8
II. Extraction of minerals.....	70.2	91.9		90.3	93.6	87.3	65.9	78.5	80.1
III. Manufactures	70.2	66.3	Not separately shown	81.9	90.1	68.7	72.3	53.9	53.1
IV. Independent hand trades.....	64.4	64.2		—	—	—	83.0	—	—
V. Construction.....	69.2	75.0		90.3	90.6	72.9	84.8	53.4	46.8
VI. Transportation, communication and utilities	78.5	83.8		91.2	92.4	84.2	80.4	52.1	38.1
VII. Trade.....	81.0	74.4		88.7	88.7	82.6	80.1	61.7	48.7
VIII. Public service.....	83.2	78.2		92.8	92.3	89.1	86.9	53.7	64.5
IX. Professional service.....	84.1	76.5		85.9	90.2	77.6	81.4	66.9	62.9
X. Domestic and personal service	48.5	65.2		77.0	84.0	71.2	60.3	52.5	43.0
XI. Not specified industries and services.....	72.2	79.5	Not separately shown except in agriculture	85.2	89.9	78.5	73.7	64.1	52.8
<i>Foreign-born white</i>									
ALL INDUSTRIES.....	15.2	14.1	.8	9.7	8.9	22.2	20.1	15.9	19.0
I. Agriculture, forestry, fishing..	6.7	7.9	.8	9.4	8.4	15.3	5.0	7.4	23.1
II. Extraction of minerals.....	21.4	7.6		9.1	5.9	11.4	24.1	16.8	17.0
III. Manufactures	22.8	36.9	Not separately shown	17.6	9.2	28.6	23.1	23.7	28.3
IV. Independent hand trades.....	26.8	26.9		—	—	—	11.5	—	—
V. Construction.....	21.8	23.3		9.3	9.0	22.3	9.3	23.0	35.7
VI. Transportation, communication and utilities	12.1	13.4		8.6	6.1	12.4	13.3	19.6	16.6
VII. Trade.....	15.0	23.2		10.6	10.2	15.0	9.0	14.7	24.9
VIII. Public service.....	10.1	18.7		6.3	5.7	9.4	7.6	22.3	16.2
IX. Professional service.....	10.3	18.3		9.3	7.8	20.4	14.3	16.7	19.7
X. Domestic and personal service	18.7	25.1		18.9	13.4	24.4	15.0	21.3	18.6
XI. Not specified industries and services.....	13.3	19.0	Not separately shown except in agriculture	14.3	9.2	18.6	15.9	13.5	26.7

TABLE V--Continued

Industries	All classes of work	Classes of work								
		Employers and self-employed	Unpaid family workers	Professional persons	Salaried employees (including officials)	Skilled workers (including foremen)	Semi-skilled workers (including apprentices)	Unskilled workers	Service workers	
					<i>Colored</i>					
ALL INDUSTRIES.....	12.8	11.0	36.4	4.3	1.3	3.3	7.4	24.6	36.1	
I. Agriculture, forestry, fishing..	21.6	15.7	36.4	.5	5.7	4.5	9.1	26.1	11.1	
II. Extraction of minerals.....	8.4	.5		.6	.5	1.3	10.0	4.6	2.9	
III. Manufactures.....	7.1	.8		.5	.6	2.6	4.6	22.4	18.7	
IV. Independent hand trades.....	8.8	8.9		—	—	—	5.5	—	—	
V. Construction.....	9.1	1.7		.4	.4	4.7	5.8	23.6	17.4	
VI. Transportation, communication and utilities	9.4	2.8		.2	1.5	3.5	6.3	28.2	45.3	
VII. Trade.....	3.9	2.4		.7	1.1	2.4	10.9	23.6	26.3	
VIII. Public service.....	6.6	3.1		.9	1.9	1.5	5.4	24.0	19.4	
IX. Professional service.....	5.6	5.2		4.8	1.9	1.9	4.3	16.3	17.4	
X. Domestic and personal service	32.9	9.7		4.0	2.6	4.4	24.8	26.3	38.4	
XI. Not specified industries and services.....	14.4	1.5		.5	.9	2.9	10.4	22.5	20.4	

Source: Woytinsky, *op. cit.*, Table II, pp. 45-49.

TABLE VI. GAINFUL WORKERS BY CLASS OF WORK, AGE AND SEX, IN THE UNITED STATES, 1930

Classes of work ¹	All age classes	Age classes									Age unknown
		10-17 years	18-19 years	20-24 years	25-34 years	35-44 years	45-54 years	55-64 years	65-74 years	75 yrs. and over	
<i>Male</i>											
<i>In thousands</i>											
ALL CLASSES OF WORK	38,077.8	1,425.2	1,599.8	4,799.5	9,168.7	8,608.2	6,565.1	3,941.5	1,643.1	295.6	31.0
Employers.....	9,109.4	6.5	69.3	499.5	1,763.5	2,321.5	2,126.0	1,464.0	700.9	153.0	5.1
Unpaid family workers.....	1,184.8	575.4	229.2	239.1	87.9	22.5	10.2	8.1	8.6	3.6	.2
Professional persons.....	1,507.7	3.1	18.4	160.1	447.7	364.0	268.6	164.9	65.0	14.4	1.5
Salaried employees	5,214.5	191.2	256.3	788.2	1,454.2	1,174.5	767.0	416.9	142.0	20.1	4.0
Skilled workers.....	6,395.6	15.5	134.0	660.2	1,709.8	1,724.8	1,231.1	664.7	224.9	26.6	3.9
Semi-skilled workers.....	5,139.7	188.4	286.6	875.5	1,484.5	1,139.9	703.8	334.5	107.8	12.9	5.8
Unskilled workers..	7,927.5	399.3	549.9	1,409.6	1,868.7	1,500.9	1,166.0	685.6	291.4	47.9	8.2
Service workers....	1,598.7	45.8	56.0	167.3	352.4	360.1	292.3	202.9	102.5	17.2	2.3
<i>Female</i>											
ALL CLASSES OF WORK	10,752.1	720.7	942.4	2,347.5	2,654.3	1,892.3	1,266.0	649.1	226.8	39.4	13.4
Employers.....	826.7	.8	5.8	32.9	114.6	206.5	223.2	155.7	70.2	16.1	.9
Unpaid family workers.....	475.0	174.9	52.7	77.5	71.5	50.1	31.6	12.2	3.7	.7	.1
Professional persons.....	1,449.7	5.8	68.1	401.5	453.8	262.7	158.4	74.9	19.5	2.5	2.6
Salaried employees	3,064.8	145.8	371.5	927.5	881.8	443.7	208.2	68.8	13.0	1.4	3.1
Skilled workers.....	107.5	2.0	7.5	18.5	27.9	25.8	16.5	7.2	1.9	.2	.1
Semi-skilled workers.....	1,800.6	190.5	211.9	387.6	405.8	299.5	183.8	89.8	26.9	3.0	1.9
Unskilled workers..	359.5	46.2	39.8	71.7	75.4	60.8	39.7	17.8	6.4	1.3	.3
Service workers....	2,668.2	154.8	185.3	430.3	623.6	543.3	404.6	222.7	85.3	14.1	4.3

¹ Salaried employees include managers and officials, clerks and kindred workers, and sales persons. Foremen have been counted with skilled workers, and apprentices with semi-skilled workers.

Sources: Woytinsky *op. cit.*, Tables IV-A and IV-B, pp. 67-76.

TABLE VII. GAINFUL WORKERS IN NON-AGRICULTURAL PURSUITS BY CLASS OF WORK, AGE AND SEX, IN THE UNITED STATES, 1930

Classes of work ¹	All age classes	Age classes									
		10-17 years	18-19 years	20-24 years	25-34 years	35-44 years	45-54 years	55-64 years	65-74 years	75 years and over	Age unknown
<i>Male</i>											
<i>In thousands</i>											
ALL CLASSES OF WORK.....	28,241	641	1,061	3,606	7,376	6,801	4,868	2,712	1,005	146	26
Employers.....	3,281	4	18	150	688	947	777	474	189	32	3
Professional persons.....	1,506	3	19	160	447	364	268	165	65	14	1
Salaried employees.....	5,133	191	255	783	1,435	1,153	750	406	137	19	4
Skilled workers.....	6,383	15	134	660	1,707	1,721	1,228	663	224	27	4
Semi-skilled workers.....	5,133	188	286	874	1,482	1,139	703	334	108	13	6
Unskilled workers.....	5,210	194	293	812	1,265	1,118	850	468	180	24	6
Service workers.....	1,595	46	56	167	352	359	292	202	102	17	2
<i>Female</i>											
ALL CLASSES OF WORK.....	9,836	521	874	2,233	2,525	1,758	1,137	565	184	26	13
Employers.....	564	—	6	28	94	153	148	93	36	5	1
Professional persons.....	1,450	6	68	401	454	263	158	75	19	3	3
Salaried employees.....	3,060	146	371	926	880	443	208	69	13	1	3
Skilled workers.....	107	2	7	19	28	26	16	7	2	—	—
Semi-skilled workers.....	1,801	190	212	388	406	299	184	90	27	3	2
Unskilled workers.....	188	22	25	41	40	31	19	8	2	—	—
Service workers.....	2,666	155	185	430	623	543	404	223	85	14	4

¹ Salaried employees include managers and officials, clerks and kindred workers, and sales persons. Foremen have been counted with skilled workers, and apprentices with semi-skilled workers.

Source: Woytinsky, *op. cit.*, Tables IV-A and IV-B, pp. 67-76.

TABLE VIII. AGE DISTRIBUTION OF THE GAINFUL WORKERS IN THE UNITED STATES IN 1930 EXCLUDED BY THE DEFINITION OF "EMPLOYMENT" IN THE SOCIAL SECURITY ACT

Excluded groups	All age classes	Age classes										
		10-17 years	18-19 years	20-24 years	25-34 years	35-44 years	45-54 years	55-64 years	65-74 years	75 years and over	Age unknown	
<i>In thousands</i>												
A. GAINFUL WORKERS OTHER THAN SALARY AND WAGE EARNERS												
ALL GROUPS:												
MALE.....	10,926	582	299	762	1,998	2,500	2,280	1,575	755	168	6	
FEMALE.....	1,380	176	60	119	204	275	271	179	78	18	1	
Employers:												
Male.....	9,109	7	69	499	1,764	2,322	2,126	1,464	701	153	5	
Female.....	827	1	6	33	115	207	223	156	70	16	.9	
Professional persons in independent pursuits:												
Male.....	632	.3	1.4	24	146	156	144	103	45	11	.6	
Female.....	78	.4	1.4	9	18	18	16	11	4	1	.1	
Unpaid family workers:												
Male.....	1,185	575	229	239	88	22	10	8	9	4	.2	
Female.....	475	175	53	77	71	50	32	12	4	1	.1	
B. INDUSTRIAL EXCLUSIONS (SEC. 210 (b) OF THE SOCIAL SECURITY ACT)												
ALL GROUPS:												
MALE.....	5,648	260	360	964	1,343	1,026	815	554	264	50	9	
FEMALE.....	3,826	165	238	785	974	720	524	290	104	16	7	
Farm laborers:												
Male.....	2,562	201	250	573	566	348	289	203	107	23	2	
Female.....	171	24	15	30	35	30	21	10	4	.9	.1	
Servants:												
Male.....	415	13	14	48	103	93	70	45	23	5	.7	
Female.....	2,135	128	141	324	467	422	344	207	84	14	4	
Casual laborers:												
Male.....	808	31	50	119	158	145	135	101	54	10	4	
Female.....	41	4	4	8	8	7	5	3	1	.3	.4	
Member of crews:												
Male.....	89	1	4	15	26	19	13	7	2	.3	.5	
Public services:												
Male.....	1,370	10	34	155	373	336	244	152	57	8	1	
Female.....	162	1	7	30	49	37	24	11	2	.2	.3	
Religious, charitable, scientific and similar institutions:												
Male.....	404	4	8	54	117	85	64	46	21	4	.4	
Female.....	1,317	8	71	393	415	224	130	59	13	1	.2	

Sources: for A, Woytinsky, *op. cit.*, Tables IV-A and IV-B, pp. 67-76; for B, Fifteenth Census of the United States: 1930, Population, Volume V, pp. 118-137.

TABLE IX. MEDIAN AGES OF GAINFUL WORKERS BY SEX, CLASS OF WORK, AND MAJOR INDUSTRIAL DIVISIONS IN THE UNITED STATES, 1930*

Industries	All classes of work	Em- ployers and self- employed persons	Unpaid family workers	Pro- fes- sional per- sons	Salaried employees			Skilled workers		Semi-skilled workers		Un- skilled work- ers	Ser- vice work- ers
					Man- agers	Clerks and kindred workers	Sales per- sons	Fore- men	Other skilled work- ers	Appren- tices	Other semi- skilled workers		
<i>Male</i>													
ALL INDUSTRIES.....	37.4	44.5	over 18	38.4	43.1	32.1	33.8	41.6	38.6	about 18	33.5	33.6	39.9
I. Agriculture, forestry, fishing.....	38.4	45.4	over 18	38.5	42.5	38.1	43.4	42.6	40.6	—	29.2	29.9	46.8
NON-AGRICULTURAL PURSUITS.....	37.1	43.2		38.4	43.2	32.1	33.8	41.6	38.6	over 18	33.5	35.4	39.9
II. Extraction of minerals.....	36.9	47.8		37.6	44.3	33.7	36.8	42.4	38.8	under 18	36.1	39.8	44.1
III. Manufactures.....	35.9	45.9		33.4	41.9	31.6	36.0	41.0	38.0	over 18	33.7	34.3	53.5
Food and allied products.....	35.1	44.3		34.2	41.3	32.6	34.7	39.1	37.0	over 18	32.3	33.2	49.3
Textiles and their products.....	36.6	43.9		39.0	41.9	28.7	35.6	41.7	42.7	under 18	32.9	33.1	54.1
Forest products.....	35.8	47.7		35.8	44.1	34.2	37.8	44.0	40.4	under 18	35.6	31.8	54.9
Paper and allied products.....	35.5	47.5		32.4	43.0	32.1	36.6	41.7	39.0	over 18	33.3	34.2	55.3
Printing and publishing.....	34.1	46.8		32.7	40.3	30.6	36.3	41.3	34.7	over 18	30.2	27.2	47.6
Chemical and allied products.....	35.3	48.2		32.9	42.1	32.5	37.7	39.7	37.9	over 18	32.1	34.6	52.6
Products of petroleum and coal.....	34.6	44.0		31.5	40.1	31.3	33.8	40.5	36.1	under 18	33.0	35.3	52.1
Rubber products.....	34.0	44.5		33.0	40.1	31.1	36.3	38.1	38.1	over 18	32.6	34.2	50.3
Leather and its manufactures.....	36.1	46.1		35.3	43.1	31.1	37.9	42.6	40.0	under 18	35.6	33.2	54.3
Stone, clay, and glass products.....	36.6	48.2		32.8	43.5	33.0	39.0	42.0	40.3	over 18	35.0	34.6	55.9
Iron and steel: Blast furnaces and steel rolling mills.....	36.4	48.3		33.4	44.0	36.8	36.2	41.7	36.8	over 18	34.8	36.7	55.4
Machinery, not including transportation equipment.....	36.3	46.8		32.8	42.0	31.8	36.4	41.1	38.0	over 18	33.0	36.2	55.8
Transportation equipment, land and water.....	38.9	47.4		34.1	40.1	31.5	34.1	40.0	36.6	over 18	34.8	34.9	51.8
Nonferrous metals and their products.....	36.5	46.6		33.1	43.2	31.0	36.7	41.7	38.0	under 18	33.8	35.1	55.9
Miscellaneous industries.....	36.6	46.5		34.3	42.3	31.6	35.8	40.8	38.1	under 18	36.0	33.6	53.5
Not specified industries.....	35.9	46.9		34.0	42.5	30.6	37.4	41.0	38.2	under 18	32.9	34.5	53.8
IV. Independent hand trades.....	46.1	46.2		—	—	—	—	—	—	over 18	—	—	—
V. Construction.....	40.3	46.0		34.5	42.9	31.7	37.9	42.5	41.6	over 18	30.3	36.6	47.3
VI. Transportation, communication and utilities.....	35.9	39.9		33.6	44.0	33.4	32.4	43.0	34.9	under 18	33.8	35.4	40.0
Transportation.....	36.3	39.9		36.6	44.1	35.5	32.4	43.9	35.6	under 18	34.0	35.6	39.6
Communication and utilities.....	34.5	47.9		32.1	43.6	35.3	32.3	39.5	32.0	over 18	30.9	34.2	46.0
VII. Trade.....	36.9	42.8		36.8	42.1	29.8	33.7	40.0	33.5	over 18	30.8	31.2	50.3
Banking, insurance and real estate.....	38.5	42.6		37.7	41.7	27.6	38.7	41.0	37.0	—	31.3	34.7	50.1
Wholesale and retail trade.....	36.6	42.9		35.6	42.8	30.8	33.7	40.0	33.3	over 18	30.8	31.2	50.5
VIII. Public service.....	38.7	45.9		40.1	46.0	39.0	—	—	39.9	under 18	28.3	42.3	45.2
IX. Professional service.....	39.6	41.4		39.6	46.8	33.1	34.7	—	43.0	under 18	31.7	36.9	45.2
X. Domestic and personal service.....	37.5	43.7		39.0	38.8	35.0	31.9	37.5	43.1	—	32.4	37.6	37.1
XI. Not specified industries and services.....	36.4	45.1		33.8	41.2	28.9	35.6	41.4	40.7	under 18	31.5	39.1	48.4

Not separately shown except in agriculture

TABLE IX—Continued

Industries	All classes of work	Employers and self-employed persons	Unpaid family workers	Professional persons	Salaried employees			Skilled workers		Semi-skilled workers		Unskilled workers	Service workers
					Managers	Clerks and kindred workers	Sales persons	Foremen	Other skilled workers	Apprentices	Other semi-skilled workers		
<i>Female</i>													
ALL INDUSTRIES.....	30.1	47.3	20.6	30.5	40.6	25.0	30.1	34.6	34.1	under 18	27.7	27.9	34.1
I. Agriculture, forestry, fishing.....	30.8	51.9	20.6	—	48.6	26.8	—	—	—	—	—	29.4	33.9
NON-AGRICULTURAL PURSUITS.....	30.1	45.1		30.5	40.5	25.0	30.1	34.6	34.1	under 18	27.7	26.7	34.1
II. Extraction of minerals.....	28.0	51.0		31.2	46.9	27.6	—	—	—	—	28.3	—	42.3
III. Manufactures.....	25.7	46.2		32.6	38.8	24.6	33.5	34.2	34.1	under 18	25.7	24.5	42.3
Food and allied products.....	26.0	46.8		32.3	38.9	25.0	28.9	35.3	39.7	—	24.3	26.9	42.7
Textiles and their products.....	26.8	43.9		32.8	38.5	23.7	38.0	34.3	37.7	under 18	26.8	23.9	39.0
Forest products.....	26.2	47.4		33.5	40.2	24.9	33.8	35.6	31.0	—	27.0	25.0	41.3
Paper and allied products.....	24.8	44.5		35.4	38.4	24.8	32.7	36.3	25.0	—	24.7	23.8	46.3
Printing and publishing.....	26.9	46.7		30.3	38.3	25.5	36.8	36.7	32.0	—	27.0	23.5	43.4
Chemical and allied products.....	24.0	50.2		30.4	40.5	24.6	39.7	33.2	24.8	—	22.8	23.5	44.5
Products of petroleum and coal.....	25.6	—		33.3	35.9	25.3	35.8	39.0	—	—	24.7	27.1	43.2
Rubber products.....	25.3	—		34.4	37.2	24.6	—	33.2	24.3	—	25.5	25.9	41.6
Leather and its manufactures.....	25.9	48.4		32.2	42.1	24.2	31.0	35.9	23.7	—	26.6	22.7	45.4
Stone, clay and glass products.....	29.8	50.8		31.1	43.9	25.5	32.8	37.7	23.4	—	24.5	24.2	42.3
Iron and steel: Blast furnaces and steel rolling mills.....	25.1	—		34.9	39.1	25.2	—	37.0	24.5	—	23.6	26.8	44.5
Machinery, not including transportation equipment.....	24.0	45.7		31.1	38.3	24.3	33.8	30.9	24.5	over 18	23.4	23.2	43.5
Transportation equipment, land and water.....	25.0	—		32.9	37.4	24.6	—	33.2	25.9	—	25.8	29.3	40.9
Nonferrous metals and their products.....	24.1	46.7		31.3	37.2	24.5	34.0	34.0	25.7	under 18	23.7	22.1	40.3
Miscellaneous industries.....	26.0	46.8		31.5	39.9	24.3	32.6	32.9	23.9	under 18	26.4	25.6	39.4
Not specified industries.....	24.7	47.5		34.4	38.4	24.5	35.6	34.3	24.7	under 18	24.7	23.7	44.2
IV. Independent hand trades.....	44.1	44.3		—	—	—	—	—	—	under 18	—	—	—
V. Construction.....	27.6	46.4		30.5	39.4	26.1	—	35.0	46.1	—	—	34.9	33.7
VI. Transportation, communication and utilities.....	25.5	43.4		32.5	40.7	24.8	32.4	36.8	28.6	over 18	31.9	36.8	41.8
Transportation.....	29.7	43.3		36.7	37.6	28.9	33.7	42.8	32.8	—	35.9	36.9	41.3
Communication and utilities.....	24.6	—		31.0	40.2	24.2	30.1	33.8	28.0	over 18	23.9	28.5	42.4
VII. Trade.....	28.1	43.5		33.9	37.9	24.8	30.1	33.2	30.7	over 18	27.4	27.7	37.0
Banking, insurance and real estate.....	26.4	43.6		34.4	37.6	24.7	—	37.4	27.8	—	27.1	25.3	41.9
Wholesale and retail trade.....	28.8	43.5		33.7	39.0	24.9	30.1	33.1	30.7	over 18	27.6	27.7	32.9
VIII. Public service.....	33.5	—		36.9	39.8	31.6	—	—	42.6	—	42.8	39.5	47.2
IX. Professional service.....	30.2	42.2		30.5	46.7	26.4	29.3	—	29.6	—	31.0	40.6	41.5
X. Domestic and personal service.....	35.0	47.2		37.0	39.4	28.9	28.4	38.7	—	—	37.5	33.7	33.8
XI. Not specified industries and services.....	24.5	47.2		33.4	38.8	24.0	37.4	35.4	35.9	under 18	28.4	37.5	34.3

*Fractions of years in the ages of persons tabulated in each age class by the 1930 Census of Population have been taken into account in this table. Consequently, these figures are 1 higher than in Table VII of *The Labor Supply*.

Source: Woytinsky, *op. cit.*, Table VII, p. 131.

TABLE X. PERCENTAGE DISTRIBUTION OF PERSONS OF DIFFERENT AGES IN DIFFERENT CLASSES OF WORK BY INCOME CLASSES IN MICHIGAN, 1934

Age classes	Number of gainful workers	Percentage distribution by size-classes of income					
		\$0-199	\$200-499	\$500-999	\$1000-1499	\$1500-1999	\$2000 and over
Professional Persons							
15-24.....	13,814	10.0	34.1	34.8	15.1	4.3	1.7
25-34.....	32,407	2.0	9.7	22.8	28.5	18.7	18.3
35-44.....	24,522	1.3	7.2	13.2	22.1	18.7	37.5
45-54.....	14,096	1.7	7.1	13.3	20.3	16.5	41.1
55-64.....	6,596	2.0	8.7	14.8	21.5	15.2	37.8
65 and over.....	2,208	1.4	11.3	19.5	17.3	13.5	37.0
Proprietors, Managers and Officials							
15-24.....	9,537	9.4	37.4	30.2	16.3	4.3	2.4
25-34.....	42,512	4.0	22.6	25.3	21.8	12.2	14.1
35-44.....	71,629	3.3	19.9	24.2	19.4	11.7	21.5
45-54.....	73,198	4.4	24.5	27.2	17.3	8.4	18.2
55-64.....	50,445	6.8	32.7	28.0	14.2	5.7	12.6
65 and over.....	31,912	11.0	41.5	27.4	9.7	3.3	7.1
Clerical Workers							
15-24.....	61,096	13.4	25.2	43.5	15.2	2.2	.5
25-34.....	80,623	2.5	8.2	34.0	34.0	13.2	8.1
35-44.....	56,355	1.7	6.6	23.7	31.4	18.3	18.2
45-54.....	30,483	2.0	8.1	24.6	28.3	16.3	20.7
55-64.....	13,011	2.3	11.2	27.2	26.0	15.1	18.1
65 and over.....	4,936	3.5	16.8	30.8	22.7	12.4	13.7

TABLE X—Continued

Age classes	Number of gainful workers	Percentage distribution by size-classes of income					
		\$0-199	\$200-499	\$500-999	\$1000-1499	\$1500-1999	\$2000 and over
Skilled Workers							
15-24.....	15,555	11.2	22.7	39.3	21.5	4.4	.8
25-34.....	57,866	1.9	10.2	31.7	35.4	13.8	6.9
35-44.....	71,370	1.9	8.8	26.7	35.2	17.0	10.4
45-54.....	45,688	2.3	11.1	27.7	32.8	16.5	9.6
55-64.....	17,364	3.1	13.4	29.7	29.1	15.3	9.4
65 and over.....	5,207	4.8	20.4	27.2	25.8	12.5	9.3
Semi-Skilled Workers							
15-24.....	66,461	17.1	32.4	37.1	11.9	1.3	.1
25-34.....	109,437	5.2	18.2	41.8	28.0	5.7	1.2
35-44.....	87,505	4.7	17.0	39.2	29.8	7.4	2.0
45-54.....	50,107	5.6	19.1	38.4	27.8	7.0	2.0
55-64.....	20,197	7.1	25.1	38.5	22.4	5.0	1.9
65 and over.....	8,135	10.7	32.7	36.4	14.9	4.3	.9
Unskilled Workers							
15-24.....	59,070	31.9	45.1	19.7	3.1	.2	—
25-34.....	48,508	10.6	37.8	36.5	13.0	1.7	.4
35-44.....	44,725	9.6	33.8	37.7	15.8	2.5	.7
45-54.....	37,480	10.8	34.8	36.7	14.9	2.1	.6
55-64.....	20,512	13.4	35.4	34.5	13.9	2.2	.7
65 and over.....	9,107	18.0	38.7	30.7	10.6	1.5	.5

Source: Michigan Census of Population and Unemployment: Total Income during 1934 of Gainful Workers (Lansing, Michigan, March 1937), p. 6.

TABLE XI. GAINFUL WORKERS IN THE UNITED STATES IN 1910, 1920, AND 1930,
CLASSIFIED BY INDUSTRIAL DIVISIONS, CLASS OF WORK, AND SEX

Industrial divisions and classes of work	1910			1920			1930		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
ALL INDUSTRIES¹	38,167,336	30,091,564	8,075,772	41,614,248	33,064,737	8,549,511	48,829,920	38,077,804	10,752,116
Employers and self-employed	9,343,766	8,245,471	1,098,295	9,502,993	8,676,213	826,780	9,961,514	9,133,632	827,882
Unpaid family workers	3,310,534	2,133,949	1,176,585	1,850,119	1,273,477	576,642	1,659,792	1,184,784	475,008
Professional persons	1,640,083	920,526	719,557	2,060,233	1,070,379	989,854	2,957,553	1,507,782	1,449,771
Independent	523,184	479,493	43,691	597,996	529,660	68,336	718,907	640,723	78,184
Dependent	1,116,899	441,033	675,866	1,462,237	540,719	921,518	2,238,646	867,059	1,371,587
Salaried employees, including managers	4,074,870	2,974,545	1,100,325	6,126,701	3,904,385	2,222,316	8,250,632	5,187,209	3,063,423
Skilled workers, including foremen	4,382,492	4,282,276	100,216	5,334,132	5,235,190	98,942	6,512,409	6,404,889	107,520
Semi-skilled workers	4,408,764	3,156,789	1,251,975	6,005,598	4,431,441	1,574,157	6,925,572	5,124,760	1,800,812
Unskilled workers	7,751,170	7,284,993	466,177	7,532,720	7,089,618	443,102	8,318,829	7,958,926	359,903
Service workers	3,157,335	997,265	2,160,070	2,920,011	1,102,344	1,817,667	4,243,619	1,575,822	2,667,797
In establishments	1,161,002	825,924	335,078	1,307,394	946,385	361,009	2,029,280	1,363,798	665,482
In homes	1,996,333	171,341	1,824,992	1,612,617	155,959	1,456,658	2,214,339	212,024	2,002,315
Agriculture, Forestry, Fishing	12,633,438	10,825,045	1,808,393	10,942,113	9,855,364	1,086,749	10,730,369	9,816,007	914,362
Employers and self-employed	6,206,861	5,933,239	273,622	6,446,511	6,180,547	265,964	6,090,942	5,828,079	262,863
Unpaid family workers	3,310,534	2,133,949	1,176,585	1,850,119	1,273,477	576,642	1,659,792	1,184,784	475,008
Salaried employees, including managers	61,786	52,798	8,988	106,503	89,226	17,277	86,614	81,540	5,074
Skilled workers, including foremen	4,798	4,798	—	6,090	6,090	—	3,910	3,910	—
Unskilled workers	3,049,459	2,700,261	349,198	2,532,890	2,306,024	226,866	2,889,111	2,717,694	171,417
NON-AGRICULTURAL PURSUITS¹	25,533,898	19,266,519	6,267,379	30,672,135	23,209,373	7,462,762	38,099,551	28,261,797	9,837,754
Employers and self-employed	3,136,905	2,312,232	824,673	3,056,482	2,495,666	560,816	3,870,572	3,305,553	565,019
Unpaid family workers	—	—	—	—	—	—	—	—	—
Professional persons	1,640,083	920,526	719,557	2,060,233	1,070,379	989,854	2,957,553	1,507,782	1,449,771
Independent	523,184	479,493	43,691	597,996	529,660	68,336	718,907	640,723	78,184
Dependent	1,116,899	441,033	675,866	1,462,237	540,719	921,518	2,238,646	867,059	1,371,587
Salaried employees, including managers	4,013,084	2,921,747	1,091,337	6,020,198	3,815,159	2,205,039	8,164,018	5,105,669	3,058,349
Skilled workers, including foremen	4,377,694	4,277,478	100,216	5,328,042	5,229,100	98,942	6,508,499	6,400,979	107,520

¹ The totals for 1910 and 1920 include certain groups of workers who could not be classified by industry and class of work in this table because no comparable classification for 1930 was available (1920: 281,690 males and 51 females; 1910: 95,350 males and 2,512 females).

TABLE XI—Continued

Industrial divisions and classes of work	1910			1920			1930		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
NON-AGRICULTURAL PURSUITS—									
<i>Continued</i>									
Semi-skilled workers.....	4,408,764	3,156,789	1,251,975	6,005,598	4,431,441	1,574,157	6,925,572	5,124,760	1,800,812
Unskilled workers.....	4,701,711	4,584,732	116,979	4,999,830	4,783,594	216,236	5,429,718	5,241,232	188,486
Service workers.....	3,157,335	997,265	2,160,070	2,920,011	1,102,344	1,817,667	4,243,619	1,575,822	2,667,797
In establishments.....	1,161,002	825,924	335,078	1,307,394	946,385	361,009	2,029,280	1,363,798	665,482
In homes.....	1,996,333	171,341	1,824,992	1,612,617	155,959	1,456,658	2,214,339	212,024	2,002,315
Extraction of Minerals.....	976,195	973,591	2,604	1,109,468	1,102,626	6,842	1,010,866	1,004,288	6,578
Employers and self-employed...	14,287	14,201	86	17,334	17,216	118	15,511	15,423	88
Salaried employees, including managers.....	26,338	24,474	1,864	41,708	37,188	4,520	46,052	39,773	6,279
Skilled workers, including foremen.....	23,338	23,328	10	36,931	36,923	8	34,286	34,274	12
Semi-skilled workers.....	912,232	911,588	644	1,013,495	1,011,299	2,196	915,017	914,818	199
Manufactures.....	7,660,509	6,322,983	1,337,526	10,521,871	8,613,920	1,907,951	11,458,150	9,328,525	2,129,625
Employers and self-employed...	235,618	231,317	4,301	183,695	178,750	4,945	207,901	202,190	5,711
Salaried employees, including managers.....	708,760	562,622	146,138	1,255,039	897,866	357,173	1,591,783	1,093,947	497,836
Skilled workers, including foremen.....	2,291,587	2,200,660	90,927	3,004,624	2,916,461	88,163	3,685,065	3,603,881	81,184
Semi-skilled workers.....	2,723,281	1,699,762	1,023,519	3,658,482	2,354,846	1,303,636	3,780,273	2,349,314	1,430,959
Unskilled workers.....	1,679,013	1,606,372	72,641	2,391,256	2,237,225	154,031	2,167,669	2,053,734	113,935
Service workers.....	22,250	22,250	—	28,775	28,772	3	25,459	25,459	—
Independent Hand Trades.....	758,534	174,965	583,569	489,783	179,491	310,292	356,888	155,857	201,031
Employers and self-employed...	746,523	174,934	571,589	485,457	179,474	305,983	354,707	155,837	198,870
Semi-skilled workers.....	12,011	31	11,980	4,326	17	4,309	2,181	20	2,161
Construction.....	2,281,983	2,264,687	17,296	2,129,677	2,105,150	24,527	2,963,305	2,936,447	26,858
Employers and self-employed...	174,422	173,573	849	90,109	90,030	79	167,512	167,310	202
Salaried employees, including managers.....	36,782	29,452	7,330	61,770	44,048	17,722	77,896	53,134	24,762
Skilled workers, including foremen.....	1,505,676	1,504,413	1,263	1,580,126	1,579,423	703	1,970,659	1,969,007	1,652
Semi-skilled workers.....	27,705	26,172	1,533	19,194	19,166	28	28,517	28,489	28
Unskilled workers.....	537,398	531,077	6,321	378,478	372,483	5,995	718,721	718,507	214

TABLE XI—Continued

Industrial divisions and classes of work	1910			1920			1930		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
Transportation, Communication and Utilities.....	2,818,972	2,649,826	169,146	3,547,035	3,192,465	354,570	4,322,788	3,859,788	463,000
Employers and self-employed...	15,393	15,205	188	47,129	46,784	345	81,470	80,709	761
Salaried employees, including managers.....	827,001	663,953	163,048	1,167,617	826,127	341,490	1,405,588	952,365	453,223
Skilled workers, including foremen.....	399,390	398,450	940	496,658	495,880	778	502,929	501,553	1,376
Semi-skilled workers.....	333,328	333,040	288	647,188	645,253	1,935	1,351,378	1,349,384	1,994
Unskilled workers.....	1,160,488	1,155,812	4,676	1,137,014	1,127,032	9,982	948,521	942,875	5,646
Service workers.....	83,372	83,366	6	51,429	51,389	40	32,902	32,902	—
Trade.....	4,095,589	3,367,586	692,003	5,097,552	3,895,323	1,202,229	7,195,832	5,492,275	1,703,557
Employers and self-employed...	1,606,785	1,528,894	77,891	1,888,777	1,787,404	101,373	2,579,342	2,408,991	170,351
Salaried employees, including managers.....	1,958,578	1,362,300	596,278	2,671,309	1,601,711	1,069,598	3,932,015	2,455,025	1,476,990
Skilled workers, including foremen.....	39,511	34,236	5,275	49,004	42,748	6,256	75,055	58,202	16,853
Semi-skilled workers.....	15,405	15,378	27	22,884	22,804	80	47,552	47,362	190
Unskilled workers.....	439,310	426,778	12,532	465,578	440,656	24,922	561,868	522,695	39,173
Public Service.....	507,615	474,869	32,746	878,190	800,120	78,070	1,037,566	925,692	111,874
Salaried employees, including managers.....	153,504	122,193	31,311	243,661	170,146	73,515	311,456	206,382	105,074
Skilled workers, including foremen.....	114,987	114,607	380	156,893	155,435	1,458	233,349	230,009	3,340
Semi-skilled workers.....	87,421	87,198	223	246,956	245,812	1,144	174,467	173,199	1,268
Unskilled workers.....	63,007	62,278	729	101,434	99,910	1,524	147,847	146,753	1,094
Service workers.....	88,696	88,593	103	129,246	128,817	429	170,447	169,349	1,098
Professional Service.....	1,805,020	1,012,197	792,823	2,365,014	1,207,574	1,157,440	3,514,427	1,792,008	1,722,419
Employers and self-employed...	31,012	29,676	1,336	46,652	44,956	1,696	59,570	57,251	2,319
Professional persons.....	1,640,083	920,526	719,557	2,060,233	1,070,379	989,854	2,957,553	1,507,782	1,449,771
Independent.....	523,184	479,493	43,691	597,996	529,660	68,336	718,907	640,723	78,184
Dependent.....	1,116,899	441,033	675,866	1,462,237	540,719	921,518	2,238,646	867,059	1,371,587

TABLE XI—Continued

Industrial divisions and classes of work	1910			1920			1930		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
Professional Service—Continued									
Salaried employees, including managers.....	120,091	50,015	70,076	238,198	77,835	160,363	346,021	105,412	240,609
Semi-skilled workers.....	4,720	3,405	1,315	8,907	6,159	2,748	60,891	37,655	23,236
Unskilled workers.....	—	—	—	—	—	—	55,276	53,220	2,056
Service workers.....	9,114	8,575	539	11,024	8,245	2,779	35,116	30,688	4,428
Domestic and Personal Service...	3,812,579	1,264,165	2,548,414	3,481,528	1,251,297	2,230,231	5,083,243	1,842,144	3,241,099
Employers and self-employed...	312,865	144,432	168,433	297,329	151,052	146,277	404,559	217,842	186,717
Salaried employees, including managers.....	60,364	41,938	18,426	107,628	63,193	44,435	145,738	82,567	63,171
Skilled workers, including foremen.....	3,205	1,784	1,421	3,806	2,230	1,576	7,156	4,053	3,103
Semi-skilled workers.....	243,674	53,133	190,541	275,673	62,421	213,252	412,144	101,267	310,877
Unskilled workers.....	238,568	228,397	10,171	97,555	87,280	10,275	133,951	118,991	14,960
Service workers.....	2,953,903	794,481	2,159,422	2,699,537	885,121	1,814,416	3,979,695	1,317,424	2,662,271
In establishments.....	957,570	623,140	334,430	1,086,920	729,162	357,758	1,765,356	1,105,400	659,956
In homes.....	1,996,333	171,341	1,824,992	1,612,617	155,959	1,456,658	2,214,339	212,024	2,002,315
Not Specified Industries and Services.....	754,580	665,900	88,680	770,276	579,717	190,559	1,156,486	924,773	231,713
Salaried employees, including managers.....	121,666	64,800	56,866	233,268	97,045	136,223	307,469	117,064	190,405
Semi-skilled workers.....	48,987	27,082	21,905	108,493	63,664	44,829	153,152	123,252	29,900
Unskilled workers.....	583,927	574,018	9,909	428,515	419,008	9,507	695,865	684,457	11,408

Sources: Fifteenth Census of the United States: 1930, Population, Volume IV, Occupations by States, Table 3 pp. 7-16.

TABLE XII. DISTRIBUTION OF UNEMPLOYED PERSONS (CLASSES A AND B) BY SEX, INDUSTRIAL DIVISIONS, AND CLASSES OF WORK IN THE UNITED STATES, APRIL 1, 1930

Industrial divisions and classes of work	Gainful workers 10 years old and over			Unemployed persons 10 years old and over, Classes A and B		
	Total	Male	Female	Total	Male	Female
ALL INDUSTRIES	48,829,920	38,077,804	10,752,116	3,187,647	2,686,145	501,502
Employers and self-employed.....	9,961,514	9,133,632	827,882	76,265	66,369	9,896
Unpaid family workers.....	1,659,792	1,184,784	475,008	—	—	—
Professional persons:						
Independent.....	718,907	640,723	78,184	2,880	1,787	1,093
Dependent.....	2,238,646	867,059	1,371,587	70,782	37,924	32,858
Salaried employees, including managers.....	8,250,632	5,187,209	3,063,423	336,083	217,586	118,497
Skilled workers, including foremen.....	6,512,409	6,404,889	107,520	710,700	704,891	5,809
Semi-skilled workers.....	6,925,572	5,124,760	1,800,812	725,316	566,365	158,951
Unskilled workers.....	8,318,829	7,958,926	359,903	878,861	851,582	27,279
Service workers:						
In establishments.....	2,029,280	1,363,798	665,482	99,039	66,390	32,649
In homes.....	2,214,339	212,024	2,002,315	95,766	12,056	83,710
Unclassified.....	—	—	—	191,955	161,195	30,760
Agriculture, Forestry, Fishing	10,730,115	9,816,072	914,043	168,848	157,665	11,183
Employers and self-employed.....	6,090,942	5,828,079	262,863	14,704	14,530	174
Unpaid family workers.....	1,659,792	1,184,784	475,008	—	—	—
Salaried employees, including managers.....	86,360	81,605	4,755	1,491	1,475	16
Skilled workers, including foremen.....	3,910	3,910	—	—	—	—
Unskilled workers.....	2,889,111	2,717,694	171,417	152,653	141,660	10,993
Non-agricultural Pursuits	38,099,805	28,261,732	9,838,073	3,018,799	2,528,480	490,319
Employers and self-employed.....	3,870,572	3,305,553	565,019	61,561	51,839	9,722
Unpaid family workers.....	—	—	—	—	—	—
Professional persons:						
Independent.....	718,907	640,723	78,184	2,880	1,787	1,093
Dependent.....	2,238,646	867,059	1,371,587	70,782	37,924	32,858
Salaried employees, including managers.....	8,164,272	5,105,604	3,058,668	334,592	216,111	118,481
Skilled workers, including foremen.....	6,508,499	6,400,979	107,520	710,700	704,891	5,809

TABLE XII—Continued

Industrial divisions and classes of work	Gainful workers 10 years old and over			Unemployed persons 10 years old and over, Classes A and B		
	Total	Male	Female	Total	Male	Female
Non-agricultural Pursuits—Continued						
Semi-skilled workers.....	6,925,572	5,124,760	1,800,812	725,316	566,365	158,951
Unskilled workers.....	5,429,718	5,241,232	188,486	726,208	709,922	16,286
Service workers:						
In establishments.....	2,029,280	1,363,798	665,482	99,039	66,390	32,649
In homes.....	2,214,339	212,024	2,002,315	95,766	12,056	83,710
Unclassified.....	—	—	—	191,955	161,195	30,760
Extraction of Minerals.....	1,002,741	991,263	11,478	175,328	175,223	105
Employers and self-employed.....	15,511	15,423	88	—	—	—
Salaried employees, including managers.....	37,927	26,748	11,179	946	944	2
Skilled workers.....	34,286	34,274	12	1,439	1,439	—
Semi-skilled workers.....	915,017	914,818	199	162,425	162,394	31
Unclassified.....	—	—	—	10,518	10,446	72
Manufactures.....	11,084,821	8,995,573	2,089,248	1,098,390	917,817	180,573
Employers and self-employed.....	207,901	202,190	5,711	—	—	—
Salaried employees, including managers.....	1,218,454	760,995	457,459	53,658	36,333	17,325
Skilled workers.....	3,685,065	3,603,881	81,184	319,791	314,800	4,991
Semi-skilled workers.....	3,780,273	2,349,314	1,430,959	396,159	265,339	130,820
Unskilled workers.....	2,167,669	2,053,734	113,935	228,361	218,991	9,370
Service workers.....	25,459	25,459	—	2,076	2,076	—
Unclassified.....	—	—	—	98,345	80,278	18,067
Construction.....	2,924,455	2,903,086	21,369	568,547	559,320	9,227
Employers and self-employed.....	167,512	167,310	202	11,624	11,619	5
Salaried employees, including managers.....	39,046	19,773	19,273	—	—	—
Skilled workers, including foremen.....	1,970,659	1,969,007	1,652	361,776	361,635	141
Semi-skilled workers.....	28,517	28,489	28	3,296	3,291	5
Unskilled workers.....	718,721	718,507	214	142,678	142,636	42
Unclassified.....	—	—	—	49,173	40,139	9,034

TABLE XII—Continued

Industrial divisions and classes of work	Gainful workers 10 years old and over			Unemployed persons 10 years old and over, Classes A and B		
	Total	Male	Female	Total	Male	Female
Independent Hand Trades.....	356,888	155,857	201,031	10,816	3,266	7,550
Employers and self-employed.....	354,707	155,837	198,870	10,816	3,266	7,550
Semi-skilled workers.....	2,181	20	2,161	—	—	—
Transportation, Communication and utilities.....	4,542,062	3,838,986	703,076	261,759	251,836	9,923
Employers and self-employed.....	81,470	80,709	761	—	—	—
Salaried employees, including managers.....	1,624,862	931,563	693,299	30,513	21,118	9,395
Skilled workers, including foremen.....	502,929	501,553	1,376	24,411	24,390	21
Semi-skilled workers.....	1,351,378	1,349,384	1,994	113,322	113,170	152
Unskilled workers.....	948,521	942,875	5,646	87,669	87,445	224
Service workers.....	32,902	32,902	—	—	—	—
Unclassified.....	—	—	—	5,844	5,713	131
Trade.....	7,582,108	5,878,738	1,703,370	274,920	208,635	66,285
Employers and self-employed.....	2,579,342	2,408,991	170,351	33,674	32,783	891
Salaried employees, including managers.....	4,318,291	2,841,488	1,476,803	185,971	125,348	60,623
Skilled workers, including foremen.....	75,055	58,202	16,853	3,283	2,627	656
Semi-skilled workers.....	47,552	47,362	190	3,585	3,581	4
Unskilled workers.....	561,868	522,695	39,173	42,113	40,032	2,081
Unclassified.....	—	—	—	6,294	4,264	2,030
Public Service.....	991,858	907,319	84,539	29,920	29,647	273
Salaried employees, including managers.....	265,748	188,009	77,739	—	—	—
Skilled workers, including foremen.....	233,349	270,009	3,340	—	—	—
Semi-skilled workers.....	174,467	173,199	1,268	—	—	—
Unskilled workers.....	147,847	146,753	1,094	14,707	14,659	48
Service workers.....	170,447	169,349	1,098	—	—	—
Unclassified.....	—	—	—	15,213	14,988	225

TABLE XII—Continued

Industrial divisions and classes of work	Gainful workers 10 years old and over			Unemployed persons 10 years old and over, Classes A and B		
	Total	Male	Female	Total	Male	Female
Professional Service.....	3,497,819	1,851,183	1,646,636	90,506	53,285	37,221
Employers and self-employed.....	59,570	57,251	2,319	—	—	—
Professional persons:						
Independent.....	718,907	640,723	78,184	2,880	1,787	1,093
Dependent.....	2,238,646	867,059	1,371,587	70,782	37,924	32,858
Salaried employees, including managers.....	329,413	164,587	164,826	—	—	—
Semi-skilled workers.....	60,891	37,655	23,236	12,247	10,125	2,122
Unskilled workers.....	55,276	53,220	2,056	—	—	—
Service workers.....	35,116	30,688	4,428	—	—	—
Unclassified.....	—	—	—	4,597	3,449	1,148
Domestic and Personal Service.....	5,045,838	1,819,493	3,226,345	243,421	97,444	145,977
Employers and self-employed.....	404,559	217,842	186,717	5,447	4,171	1,276
Salaried employees, including managers.....	108,333	59,916	48,417	218	200	18
Skilled workers, including foremen.....	7,156	4,053	3,103	—	—	—
Semi-skilled workers.....	412,144	101,267	310,877	34,282	8,465	25,817
Service workers:						
In establishments.....	1,765,356	1,105,400	659,956	96,963	64,314	32,649
In homes.....	2,214,339	212,024	2,002,315	95,766	12,056	83,710
Unskilled workers.....	133,951	118,991	14,960	8,774	6,320	2,454
Unclassified.....	—	—	—	1,971	1,918	53
Not Specified Industries and Services.....	1,071,215	920,234	150,981	201,906	199,839	2,067
Salaried employees, including managers.....	222,198	112,525	109,673	—	—	—
Semi-skilled workers.....	153,152	123,252	29,900	—	—	—
Unskilled workers.....	695,865	684,457	11,408	201,906	199,839	2,067

Source: Fifteenth Census of the United States: 1930, Volume II, pp. 13-18 (reclassified).

TABLE XIII. EMPLOYMENT IN MINES AND QUARRIES IN
THE UNITED STATES

A. NUMBER OF ENTERPRISES AND WAGE EARNERS BY INDUSTRIES FROM
1909 TO 1929

Industries	Enterprises			Wage earners		
	1909	1919	1929*	1909	1919	1929*
ALL INDUSTRIES . . .	12,089	11,466	9,063	930,680	888,355	788,357
Anthracite	192	254	198	169,367	147,372	142,801
Bituminous coal	3,503	6,636	4,976	511,723	545,798	458,732
Iron ore	176	290	180	47,245	45,741	28,516
Copper	161	195	143	51,643	43,717	44,502
Lead and zinc	977	432	303	16,807	21,884	25,907
Other metals	2,335	945	358	34,210	19,844	11,342
Stones	3,988	1,820	2,249	74,745	42,986	56,835
Other non-metals . . .	757	894	656	24,940	21,013	19,722

* Revised for comparative purposes.

TABLE XIII—Continued
B. DISTRIBUTION OF ENTERPRISES AND WAGE EARNERS BY
SIZE-CLASSES OF ENTERPRISES FROM 1909 TO 1929^b

Industries and years	All-size classes Absolute numbers	Size-classes of enterprises ^a					
		1-5 wage earners	6-20 wage earners	21-100 wage earners	101-500 wage earners	501-1000 wage earners	1000 wage earners and over
ALL MINES AND QUARRIES	<i>Enterprises^a</i>	<i>Percentage distribution of enterprises^a</i>					
1909.....	11,022	32.1	30.0	25.5	9.8	2.5	
1919.....	11,036	27.1	26.4	29.5	14.9	1.4	.8
1929.....	10,099	27.3	29.8	26.4	13.9	1.7	.8
Anthracite							
1909.....	185	21.1	15.1	20.5	23.8	9.7	9.7
1919.....	252	24.6	15.5	13.1	25.0	13.1	8.7
1929.....	198	15.7	10.1	19.2	25.8	17.2	12.1
Bituminous coal							
1909.....	3,453	17.4	27.2	20.3	20.1	3.0	2.2
1919.....	6,574	23.0	23.6	32.4	18.9	1.5	.7
1929.....	4,976	28.1	22.1	26.0	20.9	2.1	.8
Iron ore mines							
1909.....	169	7.1	17.7	35.4	29.1	5.3	5.3
1919.....	285	7.4	15.1	38.9	35.8	2.4	.4
1929.....	179	3.9	7.3	40.8	41.9	5.6	.6
Copper mines							
1909.....	150	32.0	20.0	22.0	12.7	5.3	8.0
1919.....	179	29.6	19.6	21.2	16.8	6.8	6.1
1929.....	141	23.4	28.4	18.4	14.8	5.0	10.0
ALL MINES AND QUARRIES	<i>Wage earners</i>	<i>Percentage distribution of wage earners</i>					
1909.....	1,025,452	1.0	3.7	12.6	23.1	59.6	
1919.....	888,355	.9	3.8	17.5	40.0	12.1	25.7
1929.....	806,418	1.0	4.2	16.1	37.8	13.8	27.2
Anthracite							
1909.....	173,504	.1	.2	1.1	7.0	6.8	84.8
1919.....	147,372	.1	.3	1.1	12.4	14.8	71.3
1929.....	142,801	.1	.2	1.3	8.6	16.3	73.8
Bituminous coal							
1909.....	569,789	.4	1.8	9.2	27.5	12.9	48.2
1919.....	545,798	.8	3.3	19.3	47.5	12.6	16.5
1929.....	458,732	.9	2.7	15.0	50.5	14.6	16.3
Iron ore mines							
1909.....	52,240	.1	.7	5.7	21.8	13.7	58.0
1919.....	45,741	.1	1.3	13.2	67.8	12.5	5.1
1929.....	28,516	.1	.5	15.4	52.4	31.6	
Copper mines							
1909.....	53,143	.3	.7	3.4	9.4	10.4	75.8
1919.....	43,717	.3	.9	3.9	19.8	20.2	54.9
1929.....	44,502	.2	1.1	2.9	11.8	11.5	72.5

^b Figures for 1909 and 1919 omit petroleum and natural gas wells which were not canvassed in 1929. Figures for 1909 refer to producing enterprises only and have not been adjusted for comparison with later enumerations.

^a Only enterprises reporting wage earners.

Sources: Thirteenth Census of the United States; 1910, Mines and Quarries, Volume XI, 1909, p. 35. Fourteenth Census of the United States; 1920, Mines and Quarries, Volume XI, 1919, p. 31. Fifteenth Census of the United States; 1930, Mines and Quarries, 1929, pp. 33-35 and 25-26.

TABLE XIV. EMPLOYMENT IN MANUFACTURING INDUSTRIES
IN THE UNITED STATES

A. NUMBER AND DISTRIBUTION BY CLASS OF WORK OF PERSONS ENGAGED IN
MANUFACTURING INDUSTRIES FROM 1849 TO 1935

Census	Number of establishments	Persons engaged					Wage earners (average for the year)
		Proprietors	Salaried officers of corporations	Superintendents and managers	Other salaried employees		
Factories and hand and neighborhood industries, including building trades:							
1849	123,025	—	—	—	—	—	957,059
1859	140,433	—	—	—	—	—	1,311,246
1869	252,148	—	—	—	—	—	2,053,996
1879	253,852	—	—	—	—	—	2,732,595
1889	355,405	—	—	—	—	—	4,251,535
1899	512,191	—	—	—	—	—	5,306,143
Factories, excluding hand and neighborhood industries and establishments with products less than \$500:							
1899	207,514	—	364,120			—	4,712,763
1904	216,180	225,673	519,556			—	5,468,383
1909	268,491	273,265	80,735	133,173	576,359	—	6,615,046
1914	275,791	259,172	92,671	146,411	725,135	—	7,036,247
1919	290,105	250,571	132,467	281,253	1,033,507	—	9,096,372
Factories, excluding establishments with products less than \$5,000:							
1904	145,033	?	?	?	?	—	5,362,030
1909	175,142	?	?	?	?	—	6,472,616
1914	177,110	?	?	?	?	—	6,896,190
1919	214,383	?	?	?	?	—	9,000,059
1921	196,267	172,871	1,146,380			—	6,946,570
1923	196,309	148,421	1,269,351			—	8,778,156
1925	187,390	133,054	1,255,736			—	8,384,261
1927	190,938	132,203	1,296,037			—	8,334,184
1929	209,862	132,725	1,353,908			—	8,821,757
1931	174,255	—	—			—	6,506,701
1933	141,769	72,267	802,626			—	6,055,736
1935	169,111	—	1,076,073			—	7,378,845

Sources: For Censuses taken in 1849 to 1899 and 1927 to 1933, see Biennial Census of Manufactures, 1933, pp. 18-21. For the years 1899 (excluding establishments with products less than \$500) to 1909, see Thirteenth Census of the United States, 1910, Abstract of the Census, p. 438. For the distribution of persons engaged in manufacturing industries from 1909 to 1919, see Fourteenth Census of the United States, 1920, Manufactures, 1919, p. 20. For the years 1904 to 1929 (excluding establishments with products less than \$5,000), see Fifteenth Census of the United States, Manufactures, 1929, p. 15.

TABLE XIV—Continued

B. RESUMPTION OF ESTABLISHMENTS AND WAGE EARNERS BY SIZE-CLASSES OF ESTABLISHMENTS FROM 1909 TO 1929

Size-class	Establishments with products valued at			
	not less than \$500			not less than \$5000
	1909	1914	1919	1929
Establishments with . . . wage earners	<i>Number of establishments</i>			
None	27,712	32,856	37,934	7,426
1 to 5	136,289	140,971	141,742	95,767
6 to 20	57,198	54,379	56,208	53,524
21 to 50	23,544	22,932	25,379	25,022
51 to 100	10,964	11,079	12,405	12,467
101 to 250	8,116	8,470	10,068	10,195
251 to 500	2,905	3,108	3,599	3,840
501 to 1000	1,223	1,348	1,749	1,722
1001 or over	540	648	1,021	996
Total	268,491	275,791	290,105	210,959
Establishments with . . . wage earners	<i>Number of wage earners</i>			
1 to 5	311,704	317,216	311,576	279,734
6 to 20	640,793	606,594	631,290	595,708
21 to 50	764,408	742,529	829,301	814,465
51 to 100	782,298	791,726	868,344	891,671
101 to 250	1,258,639	1,321,077	1,581,763	1,589,040
251 to 500	1,006,457	1,075,108	1,250,875	1,331,145
501 to 1000	837,473	926,828	1,205,627	1,176,991
1001 or over	1,013,274	1,255,259	2,397,596	2,159,989
Total	6,615,046	7,036,337	9,096,372	8,838,743
Establishments with . . . wage earners	<i>Percentage distribution of wage earners</i>			
1 to 5	4.7	4.5	3.4	3.2
6 to 20	9.7	8.6	6.9	6.7
21 to 50	11.6	10.6	9.1	9.2
51 to 100	11.8	11.3	9.8	10.1
101 to 250	19.0	18.8	17.5	18.0
251 to 500	15.2	15.3	13.8	15.1
501 to 1000	12.7	13.2	13.2	13.3
1001 or over	15.3	17.8	26.4	24.4
Total	100.0	100.0	100.0	100.0

Source: Abstract of the Census of Manufactures, 1914, p. 391. Abstract of the Fifteenth Census of the United States, 1913, pp. 794-795.

TABLE XV. EMPLOYMENT IN TRANSPORTATION, COMMUNICATION, TRADE AND OTHER SERVICES IN THE UNITED STATES, 1929-1934

Industrial divisions	1929	1930	1931	1932	1933	1934
TRANSPORTATION						
STEAM RAILROADS	1,848,818	1,659,030	1,406,013	1,155,127	1,083,517	1,122,775
Principal employees.....	17,700	17,287	15,965	14,200	12,960	12,693
Other salaried employees.....	371,522	350,615	309,466	259,633	235,328	236,254
Wage earners.....	1,363,240	1,203,657	1,005,032	818,440	780,245	817,662
Pullman Company:						
Principal employees.....	276	258	247	246	244	243
Other salaried employees.....	5,224	5,146	4,491	3,713	3,266	3,445
Wage earners.....	25,535	22,306	19,622	15,888	13,003	13,790
Railway Express:						
Principal employees.....	2,302	2,377	2,336	2,010	1,824	2,042
Other salaried employees.....	23,410	21,568	18,813	15,897	13,858	14,831
Wage earners.....	39,609	35,816	30,041	25,100	22,789	21,815
WATER TRANSPORTATION	326,381	311,195	265,241	233,994	226,347	244,325
Employers.....	529	518	475	427	389	402
Salaried employees.....	50,362	48,941	44,587	41,141	45,022	47,133
Wage earners (other than stevedores, etc.).....	112,430	104,914	90,956	81,455	89,373	94,056
Stevedores and long-shoremen.....	163,060	156,822	129,223	110,971	91,563	102,734
MOTOR TRANSPORTATION	879,399	850,353	814,557	771,823	753,401	804,660
Entrepreneurs:						
Motor trucks.....	290,000	282,000	270,000	251,500	246,000	274,500
Taxicabs.....	36,097	35,204	34,053	33,615	32,737	30,774
Employees:						
Buses.....	108,745	107,932	108,399	105,130	96,912	100,893
Motor trucks.....	366,000	349,500	330,000	311,000	310,000	337,000
Taxicabs.....	78,557	75,717	72,105	70,578	67,752	61,493
COMMUNICATION						
Telephone.....	436,420	425,532	367,573	334,085	298,192	298,500
Telegraph.....	96,058	93,838	81,077	68,348	65,681	70,631

TABLE XV—Continued

Industrial divisions	1929	1930	1931	1932	1933	1934
TRADE						
WHOLESALE TRADE	1,651,611	1,569,503	1,403,110	1,253,575	1,231,166	1,332,069
Entrepreneurs.....	90,772	91,701	92,630	93,559	94,487	95,416
Employees.....	1,560,839	1,477,802	1,310,480	1,160,016	1,136,679	1,236,653
RETAIL TRADE	4,883,195	4,728,708	4,373,493	3,964,046	3,906,362	4,108,540
Entrepreneurs.....	1,361,659	1,356,837	1,352,015	1,347,193	1,342,373	1,342,373
Employees.....	3,521,536	3,371,871	3,021,478	2,616,853	2,563,989	2,766,167
FINANCE						
BANKING						
Employees.....	355,226	341,368	319,421	280,733	255,931	278,021
Commercial and savings banks.....	343,902	330,019	308,133	269,044	239,584	255,827
Other banks.....	11,324	11,349	11,288	11,689	16,347	22,194
INSURANCE						
Office employees.....	220,230	219,341	213,158	207,280	204,090	207,667
Life insurance.....	82,659	85,184	87,889	89,317	90,608	92,407
Fire and marine insurance.....	48,737	47,769	44,002	41,174	40,062	41,347
Casualty, surety, and other insurance.....	88,834	86,388	81,267	76,789	73,420	73,913
REAL ESTATE						
Employees.....	291,669	269,145	238,666	209,248	214,691	231,270
GOVERNMENT						
FEDERAL						
Army and Navy.....	267,405	266,420	262,786	259,294	255,782	257,175
Legislative, judicial.....	6,405	6,595	6,671	6,576	6,487	6,528
Civil, incl. postal workers.....	588,185	599,936	610,975	598,100	593,607	676,975
STATE	242,643	253,756	270,733	280,610	283,472	290,796
CITY (excl. education)						
Police department.....	107,460	110,472	111,397	110,857	109,476	108,703
Fire department.....	80,345	82,171	82,089	80,664	80,348	79,214
Civil employees.....	461,245	471,959	438,780	423,398	385,889	397,085
COUNTY, TOWNSHIP AND MINOR CIVIL DIVISIONS	294,524	303,339	298,251	295,796	283,787	289,288
PUBLIC EDUCATION	1,075,150	1,134,054	1,183,693	1,200,576	1,213,473	1,231,455

TABLE XV—Continued

Industrial divisions	1929	1930	1931	1932	1933	1934
SERVICE						
PROFESSIONAL SERVICE	1,420,810	1,456,967	1,454,196	1,429,832	1,435,676	1,464,555
Entrepreneurs.....	482,424	496,755	513,040	523,756	538,723	551,963
Employees.....	938,386	960,212	941,156	906,076	896,953	912,592
PERSONAL SERVICE	2,226,018	2,192,105	2,065,284	1,893,178	1,898,122	2,075,973
Entrepreneurs:						
Hotels.....	44,298	44,156	40,741	36,045	35,096	41,432
Restaurants.....	148,948	162,785	176,622	190,458	231,968	255,126
Power laundries.....	5,220	4,940	4,523	3,866	3,416	3,504
Cleaning, etc.....	4,912	4,526	3,869	3,274	3,090	3,204
Other personal service.....	344,377	343,154	341,936	340,717	339,498	339,498
Employees:						
Hotels.....	331,617	318,913	284,225	243,201	229,257	262,283
Restaurants.....	435,890	440,075	415,142	377,960	388,755	453,249
Power laundries.....	255,151	249,977	237,223	210,471	193,289	198,279
Cleaning, etc.....	68,393	65,378	58,057	51,102	50,267	52,126
Apartment house and office buildings.....	298,014	278,257	249,319	213,980	203,406	229,840
Other personal service.....	289,198	279,944	253,627	222,104	220,080	237,432
RECREATION AND AMUSEMENT	223,267	219,643	195,997	166,485	172,160	181,795
Entrepreneurs.....	33,721	33,602	33,483	33,354	33,225	33,225
Employees:						
Motion picture production.....	19,602	17,387	16,352	15,224	19,221	21,143
Motion picture theaters.....	129,600	129,600	110,792	86,937	89,011	94,298
Other amusements.....	40,344	39,054	35,370	30,970	30,703	33,129
DOMESTIC SERVICE						
Employees.....	2,256,791	2,107,827	1,888,176	1,621,040	1,539,726	1,740,079
BUSINESS SERVICE	153,221	150,181	138,818	124,413	215,494	133,453
Entrepreneurs.....	18,695	18,604	18,907	18,782	18,107	18,165
Employees.....	134,526	131,577	119,911	105,631	197,387	115,288
MISCELLANEOUS	185,613	182,696	175,059	166,032	165,111	169,891
Entrepreneurs.....	106,107	105,731	105,355	104,980	104,604	104,604
Employees.....	79,506	76,965	69,704	61,052	60,507	65,287

Source: United States Department of Commerce, Bureau of Foreign and Domestic Commerce, Division of Economic Research, *National Income in the United States, 1929-35*, pp. 139, 141, 143, 144, 146, 153, 161, 179, 181, 184, 192, 194, 196, 205, 210, 217, 220, 224, 226, 228.

TABLE XVI. DISTRIBUTION OF RETAIL STORES BY SIZE-CLASSES IN THE UNITED STATES IN 1929, 1933, AND 1935

Size-classes Stores with . . . annual sales	1929		1933			1935	
	Stores	Sales in millions of dollars	Stores	Sales in millions of dollars	Full-time employees	Stores	Sales in millions of dollars
<i>Absolute numbers</i>							
Less than \$10,000.....	673,686	2,793	982,193	3,467	345,625	977,616	3,571
\$10,000 to 19,999.....	312,865	4,441	260,590	3,635	378,027	271,059	3,764
20,000 to 29,999.....	173,458	4,200	108,619	2,604	269,011	109,523	2,624
30,000 to 49,999.....	176,767	6,748	89,175	3,341	334,704	90,888	3,458
50,000 to 99,999.....	128,869	8,746	55,625	3,744	381,089	47,582	3,271
100,000 to 199,999.....	49,497	6,731	20,209	2,681	288,870	24,622	3,911
200,000 to 299,999.....	12,966	3,122	4,535	1,083	120,603		
300,000 to 499,999.....	8,467	3,193	2,988	1,115	130,942	5,798	4,679
500,000 to 999,999.....	4,524	3,080	1,409	934	108,863		
1,000,000 or more.....	2,059	6,062	765	2,426	344,999		
All size-classes ¹	1,543,158	49,115	1,526,119	25,037	2,703,325	1,527,088	25,279
<i>Percentage distribution</i>							
Less than \$10,000.....	43.66	5.69	64.36	13.85	12.8	59.94	10.98
\$10,000 to 19,999.....	20.27	9.04	17.07	14.52	14.0	17.69	12.31
20,000 to 29,999.....	11.24	8.55	7.12	10.41	10.0	7.90	9.48
30,000 to 49,999.....	11.45	13.74	5.84	13.35	12.4	7.31	13.91
50,000 to 99,999.....	8.35	17.81	3.65	14.96	14.1	4.40	15.07
100,000 to 199,999.....	3.21	13.70	1.32	10.70	10.7	2.25	17.56
200,000 to 299,999.....	.84	6.36	.30	4.33	4.5		
300,000 to 499,999.....	.55	6.50	.20	4.45	4.8	.51	20.69
500,000 to 999,999.....	.29	6.27	.09	3.74	4.0		
1,000,000 or more.....	.14	12.34	.05	9.69	12.7		
All size-classes.....	100.00	100.00	100.00	100.00	100.00	100.00	100.00

¹ Totals for 1933 include certain stores not distributed by size-classes.

Sources: Census of American Business: 1933, Retail Distribution, 1933. Stores and Sales by Size of Business, pp. II, III. Census of Business: 1935, Retail Distribution, Volume VI, pp. 17, 156.

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