

PUBLICATION OF THE  
GRADUATE SCHOOL OF BUSINESS ADMINISTRATION  
GEORGE F. BAKER FOUNDATION—HARVARD UNIVERSITY

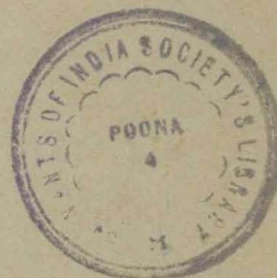
VOLUME XXII

MARCH, 1935

NUMBER 1

CORPORATE EARNING POWER IN THE  
CURRENT DEPRESSION

BY  
WILLIAM LEONARD CRUM



DIVISION OF RESEARCH  
BUSINESS RESEARCH STUDIES — NO. 10

PRICE 50 CENTS

X:878-742.73  
G5  
046210

HARVARD UNIVERSITY  
GRADUATE SCHOOL OF BUSINESS ADMINISTRATION  
BUREAU OF BUSINESS RESEARCH  
SOLDIERS FIELD, BOSTON, MASSACHUSETTS

## DIVISION OF RESEARCH: BUSINESS RESEARCH STUDIES

No. 1.	Merchandising of Cotton Textiles—Methods and Organization, by Melvin T. Copeland and Edmund P. Learned.....	\$1.50
No. 2.	Raw Material Prices and Business Conditions, by Melvin T. Copeland.....	\$1.00
No. 3.	The Behavior of Consumption in Business Depression, by Arthur R. Tebbutt.....	\$1.00
No. 4.	Department Leasing in Department Stores, by Stanley F. Teele.....	\$1.00
No. 5.	International Raw Commodity Prices and the Devaluation of the Dollar, by Melvin T. Copeland ..	\$2.00
No. 6.	Managing Cloth Inventories in the Cotton Textile Industry, by John J. Madigan.....	\$1.00
No. 7.	Truck Selling: Simultaneous Selling and Delivery in Wholesale Food Distribution, by Lars J. Sandberg	\$1.00
No. 8.	The Effect of Size on Corporate Earnings and Condition, by William Leonard Crum.....	\$1.00
No. 9.	Management and the Worker: Technical vs. Social Organization in an Industrial Plant, by F. J. Roethlisberger and W. J. Dickson.....	50 cents
No. 10.	Corporate Earning Power in the Current Depression, by William Leonard Crum.....	50 cents

## BUREAU OF BUSINESS RESEARCH: BULLETINS IN PRINT

### AUTOMOBILE TIRE AND ACCESSORY—RETAIL

No. 48.	Operating Expenses in the Retail Automobile Tire and Accessory Business in 1923.....	50 cents
---------	--	----------

### AUTOMOTIVE EQUIPMENT—WHOLESALE

No. 51.	Operating Expenses in the Wholesale Automotive Equipment Business in 1924.....	50 cents
No. 42.	Operating Expenses in the Wholesale Automotive Equipment Business in 1923.....	50 cents

### BUILDING MATERIALS

No. 81.	Operating Results and Policies of Building Material Dealers in 1928.....	\$2.50
No. 75.	Operating Expenses of Building Material Dealers in 1927.....	\$1.50
No. 64.	Operating Expenses of Building Material Dealers in 1926.....	\$1.50

### CHAIN STORES

No. 95.	Expenses and Profits of Variety Chains in 1933.....	\$1.00
No. 94.	Chain Store Expenses and Profits: An Interim Report for 1932.....	\$1.00
No. 93.	Expenses and Profits of Variety Chains in 1932.....	\$1.00
No. 82.	Department Store Chains and Department Store Ownership Groups in 1931.....	\$1.00
No. 81.	Variety Chains in 1931 Compared with 1929.....	\$1.00
No. 80.	Department Store Chains in 1929.....	\$1.00
No. 79.	Department Store Chains in 1929.....	\$1.00
No. 78.	Department Store Chains in 1929.....	\$1.00
No. 77.	Department Store Chains in 1929.....	\$1.00
No. 76.	Department Store Chains in 1929.....	\$1.00
No. 75.	Department Store Chains in 1929.....	\$1.00
No. 74.	Department Store Chains in 1929.....	\$1.00
No. 73.	Department Store Chains in 1929.....	\$1.00
No. 72.	Department Store Chains in 1929.....	\$1.00
No. 71.	Department Store Chains in 1929.....	\$1.00
No. 70.	Department Store Chains in 1929.....	\$1.00
No. 69.	Department Store Chains in 1929.....	\$1.00
No. 68.	Department Store Chains in 1929.....	\$1.00
No. 67.	Department Store Chains in 1929.....	\$1.00
No. 66.	Department Store Chains in 1929.....	\$1.00
No. 65.	Department Store Chains in 1929.....	\$1.00
No. 64.	Department Store Chains in 1929.....	\$1.00
No. 63.	Department Store Chains in 1929.....	\$1.00
No. 62.	Department Store Chains in 1929.....	\$1.00
No. 61.	Department Store Chains in 1929.....	\$1.00
No. 60.	Department Store Chains in 1929.....	\$1.00
No. 59.	Department Store Chains in 1929.....	\$1.00
No. 58.	Department Store Chains in 1929.....	\$1.00
No. 57.	Department Store Chains in 1929.....	\$1.00
No. 56.	Department Store Chains in 1929.....	\$1.00
No. 55.	Department Store Chains in 1929.....	\$1.00
No. 54.	Department Store Chains in 1929.....	\$1.00
No. 53.	Department Store Chains in 1929.....	\$1.00
No. 52.	Department Store Chains in 1929.....	\$1.00
No. 51.	Department Store Chains in 1929.....	\$1.00
No. 50.	Department Store Chains in 1929.....	\$1.00
No. 49.	Department Store Chains in 1929.....	\$1.00
No. 48.	Department Store Chains in 1929.....	\$1.00
No. 47.	Department Store Chains in 1929.....	\$1.00
No. 46.	Department Store Chains in 1929.....	\$1.00
No. 45.	Department Store Chains in 1929.....	\$1.00
No. 44.	Department Store Chains in 1929.....	\$1.00
No. 43.	Department Store Chains in 1929.....	\$1.00
No. 42.	Department Store Chains in 1929.....	\$1.00
No. 41.	Department Store Chains in 1929.....	\$1.00
No. 40.	Department Store Chains in 1929.....	\$1.00
No. 39.	Department Store Chains in 1929.....	\$1.00
No. 38.	Department Store Chains in 1929.....	\$1.00
No. 37.	Department Store Chains in 1929.....	\$1.00
No. 36.	Department Store Chains in 1929.....	\$1.00
No. 35.	Department Store Chains in 1929.....	\$1.00
No. 34.	Department Store Chains in 1929.....	\$1.00
No. 33.	Department Store Chains in 1929.....	\$1.00
No. 32.	Department Store Chains in 1929.....	\$1.00
No. 31.	Department Store Chains in 1929.....	\$1.00
No. 30.	Department Store Chains in 1929.....	\$1.00
No. 29.	Department Store Chains in 1929.....	\$1.00
No. 28.	Department Store Chains in 1929.....	\$1.00
No. 27.	Department Store Chains in 1929.....	\$1.00
No. 26.	Department Store Chains in 1929.....	\$1.00
No. 25.	Department Store Chains in 1929.....	\$1.00
No. 24.	Department Store Chains in 1929.....	\$1.00
No. 23.	Department Store Chains in 1929.....	\$1.00
No. 22.	Department Store Chains in 1929.....	\$1.00
No. 21.	Department Store Chains in 1929.....	\$1.00
No. 20.	Department Store Chains in 1929.....	\$1.00
No. 19.	Department Store Chains in 1929.....	\$1.00
No. 18.	Department Store Chains in 1929.....	\$1.00
No. 17.	Department Store Chains in 1929.....	\$1.00
No. 16.	Department Store Chains in 1929.....	\$1.00
No. 15.	Department Store Chains in 1929.....	\$1.00
No. 14.	Department Store Chains in 1929.....	\$1.00
No. 13.	Department Store Chains in 1929.....	\$1.00
No. 12.	Department Store Chains in 1929.....	\$1.00
No. 11.	Department Store Chains in 1929.....	\$1.00
No. 10.	Department Store Chains in 1929.....	\$1.00
No. 9.	Department Store Chains in 1929.....	\$1.00
No. 8.	Department Store Chains in 1929.....	\$1.00
No. 7.	Department Store Chains in 1929.....	\$1.00
No. 6.	Department Store Chains in 1929.....	\$1.00
No. 5.	Department Store Chains in 1929.....	\$1.00
No. 4.	Department Store Chains in 1929.....	\$1.00
No. 3.	Department Store Chains in 1929.....	\$1.00
No. 2.	Department Store Chains in 1929.....	\$1.00
No. 1.	Department Store Chains in 1929.....	\$1.00

46210

Corporate Earning

No. 5.	Department Store Chains in 1929.....	\$1.00
No. 4.	Department Store Chains in 1929.....	\$1.00
No. 3.	Department Store Chains in 1929.....	\$1.00
No. 2.	Department Store Chains in 1929.....	\$1.00
No. 1.	Department Store Chains in 1929.....	\$1.00
No. 0.	Department Store Chains in 1929.....	\$1.00

### DEPARTMENT STORES

No. 81.	Operating Results and Policies of Building Material Dealers in 1928.....	\$2.50*
No. 80.	Operating Results and Policies of Building Material Dealers in 1927.....	\$3.50*
No. 79.	Operating Results and Policies of Building Material Dealers in 1926.....	\$3.00*
No. 78.	Operating Results and Policies of Building Material Dealers in 1925.....	\$5.00*
No. 77.	Operating Results and Policies of Building Material Dealers in 1924.....	\$5.00*
No. 76.	Operating Results and Policies of Building Material Dealers in 1923.....	\$2.50
No. 75.	Operating Results and Policies of Building Material Dealers in 1922.....	\$1.50
No. 74.	Operating Results and Policies of Building Material Dealers in 1921.....	\$1.50
No. 73.	Operating Results and Policies of Building Material Dealers in 1920.....	\$1.50
No. 72.	Operating Results and Policies of Building Material Dealers in 1919.....	\$1.50
No. 71.	Operating Results and Policies of Building Material Dealers in 1918.....	\$1.50
No. 70.	Operating Results and Policies of Building Material Dealers in 1917.....	\$1.50
No. 69.	Operating Results and Policies of Building Material Dealers in 1916.....	\$1.50
No. 68.	Operating Results and Policies of Building Material Dealers in 1915.....	\$1.50
No. 67.	Operating Results and Policies of Building Material Dealers in 1914.....	\$1.50
No. 66.	Operating Results and Policies of Building Material Dealers in 1913.....	\$1.50
No. 65.	Operating Results and Policies of Building Material Dealers in 1912.....	\$1.50
No. 64.	Operating Results and Policies of Building Material Dealers in 1911.....	\$1.50
No. 63.	Operating Results and Policies of Building Material Dealers in 1910.....	\$1.50
No. 62.	Operating Results and Policies of Building Material Dealers in 1909.....	\$1.50
No. 61.	Operating Results and Policies of Building Material Dealers in 1908.....	\$1.50
No. 60.	Operating Results and Policies of Building Material Dealers in 1907.....	\$1.50
No. 59.	Operating Results and Policies of Building Material Dealers in 1906.....	\$1.50
No. 58.	Operating Results and Policies of Building Material Dealers in 1905.....	\$1.50
No. 57.	Operating Results and Policies of Building Material Dealers in 1904.....	\$1.50
No. 56.	Operating Results and Policies of Building Material Dealers in 1903.....	\$1.50
No. 55.	Operating Results and Policies of Building Material Dealers in 1902.....	\$1.50
No. 54.	Operating Results and Policies of Building Material Dealers in 1901.....	\$1.50
No. 53.	Operating Results and Policies of Building Material Dealers in 1900.....	\$1.50
No. 52.	Operating Results and Policies of Building Material Dealers in 1899.....	\$1.50
No. 51.	Operating Results and Policies of Building Material Dealers in 1898.....	\$1.50
No. 50.	Operating Results and Policies of Building Material Dealers in 1897.....	\$1.50
No. 49.	Operating Results and Policies of Building Material Dealers in 1896.....	\$1.50
No. 48.	Operating Results and Policies of Building Material Dealers in 1895.....	\$1.50
No. 47.	Operating Results and Policies of Building Material Dealers in 1894.....	\$1.50
No. 46.	Operating Results and Policies of Building Material Dealers in 1893.....	\$1.50
No. 45.	Operating Results and Policies of Building Material Dealers in 1892.....	\$1.50
No. 44.	Operating Results and Policies of Building Material Dealers in 1891.....	\$1.50
No. 43.	Operating Results and Policies of Building Material Dealers in 1890.....	\$1.50
No. 42.	Operating Results and Policies of Building Material Dealers in 1889.....	\$1.50
No. 41.	Operating Results and Policies of Building Material Dealers in 1888.....	\$1.50
No. 40.	Operating Results and Policies of Building Material Dealers in 1887.....	\$1.50
No. 39.	Operating Results and Policies of Building Material Dealers in 1886.....	\$1.50
No. 38.	Operating Results and Policies of Building Material Dealers in 1885.....	\$1.50
No. 37.	Operating Results and Policies of Building Material Dealers in 1884.....	\$1.50
No. 36.	Operating Results and Policies of Building Material Dealers in 1883.....	\$1.50
No. 35.	Operating Results and Policies of Building Material Dealers in 1882.....	\$1.50
No. 34.	Operating Results and Policies of Building Material Dealers in 1881.....	\$1.50
No. 33.	Operating Results and Policies of Building Material Dealers in 1880.....	\$1.50
No. 32.	Operating Results and Policies of Building Material Dealers in 1879.....	\$1.50
No. 31.	Operating Results and Policies of Building Material Dealers in 1878.....	\$1.50
No. 30.	Operating Results and Policies of Building Material Dealers in 1877.....	\$1.50
No. 29.	Operating Results and Policies of Building Material Dealers in 1876.....	\$1.50
No. 28.	Operating Results and Policies of Building Material Dealers in 1875.....	\$1.50
No. 27.	Operating Results and Policies of Building Material Dealers in 1874.....	\$1.50
No. 26.	Operating Results and Policies of Building Material Dealers in 1873.....	\$1.50
No. 25.	Operating Results and Policies of Building Material Dealers in 1872.....	\$1.50
No. 24.	Operating Results and Policies of Building Material Dealers in 1871.....	\$1.50
No. 23.	Operating Results and Policies of Building Material Dealers in 1870.....	\$1.50
No. 22.	Operating Results and Policies of Building Material Dealers in 1869.....	\$1.50
No. 21.	Operating Results and Policies of Building Material Dealers in 1868.....	\$1.50
No. 20.	Operating Results and Policies of Building Material Dealers in 1867.....	\$1.50
No. 19.	Operating Results and Policies of Building Material Dealers in 1866.....	\$1.50
No. 18.	Operating Results and Policies of Building Material Dealers in 1865.....	\$1.50
No. 17.	Operating Results and Policies of Building Material Dealers in 1864.....	\$1.50
No. 16.	Operating Results and Policies of Building Material Dealers in 1863.....	\$1.50
No. 15.	Operating Results and Policies of Building Material Dealers in 1862.....	\$1.50
No. 14.	Operating Results and Policies of Building Material Dealers in 1861.....	\$1.50
No. 13.	Operating Results and Policies of Building Material Dealers in 1860.....	\$1.50
No. 12.	Operating Results and Policies of Building Material Dealers in 1859.....	\$1.50
No. 11.	Operating Results and Policies of Building Material Dealers in 1858.....	\$1.50
No. 10.	Operating Results and Policies of Building Material Dealers in 1857.....	\$1.50
No. 9.	Operating Results and Policies of Building Material Dealers in 1856.....	\$1.50
No. 8.	Operating Results and Policies of Building Material Dealers in 1855.....	\$1.50
No. 7.	Operating Results and Policies of Building Material Dealers in 1854.....	\$1.50
No. 6.	Operating Results and Policies of Building Material Dealers in 1853.....	\$1.50
No. 5.	Operating Results and Policies of Building Material Dealers in 1852.....	\$1.50
No. 4.	Operating Results and Policies of Building Material Dealers in 1851.....	\$1.50
No. 3.	Operating Results and Policies of Building Material Dealers in 1850.....	\$1.50
No. 2.	Operating Results and Policies of Building Material Dealers in 1849.....	\$1.50
No. 1.	Operating Results and Policies of Building Material Dealers in 1848.....	\$1.50

No. 51.	Operating Expenses in the Wholesale Automotive Equipment Business in 1924.....	50 cents
No. 42.	Operating Expenses in the Wholesale Automotive Equipment Business in 1923.....	50 cents

*(continued on inside back cover)*

Bulletins are sold to members of the National Retail Dry Goods Association, which financed the bulletins Nos. 83 and 85 is \$2.00 and of Bulletins Nos. 88, 91, and 92 is \$1.00 and the

Orders should be addressed to the Bureau of Business Research, Harvard Business School, Boston, Massachusetts. Whenever possible the remittance should accompany the order. Checks should be made payable to the Bureau of Business Research.

Discounts: 50% to educational institutions, to professors, and to libraries operated by universities, municipalities, governments, or public institutions. Trade and quantity discounts on application.

CORPORATE EARNING POWER IN THE  
CURRENT DEPRESSION

BY  
WILLIAM LEONARD CRUM



DIVISION OF RESEARCH  
BUSINESS RESEARCH STUDIES — NO. 10

HARVARD UNIVERSITY  
GRADUATE SCHOOL OF BUSINESS ADMINISTRATION  
BUREAU OF BUSINESS RESEARCH  
SOLDIERS FIELD, BOSTON, MASSACHUSETTS

HARVARD UNIVERSITY  
GRADUATE SCHOOL OF BUSINESS ADMINISTRATION  
GEORGE F. BAKER FOUNDATION  
WALLACE B. DONHAM, *Dean*  
MALCOLM P. MCNAIR, *Director of Research*

*Copyright, 1935*  
BY THE PRESIDENT AND FELLOWS OF  
HARVARD COLLEGE

Publication of the Graduate School of Business Administration, Harvard University. Issued at Soldiers Field Station, Boston, Mass., eight times a year, during the months of March, April, May, June, July, August, October, and December. Entered as second class matter, May 17, 1913, at the postoffice at Boston, Mass., under the Act of August 24, 1912.

## CORPORATE EARNING POWER IN THE CURRENT DEPRESSION

The principal object of this report is to bring together and interpret the main bodies of income tax data which reflect the course of corporate profits during the declining phase of the current depression. A setting for this analysis is provided by a brief examination of the entire postwar course of profits, and by a much fuller examination of fluctuations beginning with 1926. The main finding of the study is a confirmation of the generally accepted view that industries supplying durable and producers' goods suffered heavier losses in the depression than did industries supplying nondurable and consumers' goods. The 1931 and 1932 experience is examined from several angles, and particular attention is given to differences in rates of return upon invested capital.

### Postwar Record for Major Divisions

The general course of corporate earnings in recent years is recorded by the profit ratio. This ratio is a derived statistical summary number which I have defined and discussed elsewhere.<sup>1</sup> In calculating the profit ratio from corporate statistics presented in connection with the Federal income tax administration, I have divided the statutory net income less Federal taxes by the stated gross income.<sup>2</sup> The resulting ratios afford an effective record of the time variations in earning power for any particular group of corporations. The ratios do not, however, afford a trustworthy basis of comparing the earning power at a given time of different groups of corporations. The chief reason for this limitation is that the rate of turnover of assets differs among groups of corporations according to the type of industry. A secondary reason for the limitation is that the accounting methods used by typical corporations in certain industrial groups differ from those in others.

The principal tabulations published by the Treasury include aggregate data for all corporations, and also

data for each major industrial division, such as trade, and manufacture; and for each manufacture group, such as foods, and metals. Certain supplementary tabulations, some of which are discussed below, present data for a more detailed industrial classification, data for corporations within each division and group classified according to size, and data compiled for special classes of corporations. The figures for 1933 are from a preliminary publication of Treasury data, covering returns filed through August, 1934. Attention will be given below to the representativeness of these preliminary returns as a sample of all reporting corporations.

The course of the profit ratios since 1919 for each of six major industrial divisions and for all six combined is shown in Table 1. The last column in the table shows the profit ratios for all corporations, except those in finance and in public utilities (including transportation). The operating methods, economic nature, and accounting practices of these two divisions differ sufficiently from those typical of the other divisions to warrant segregating them in a discussion of the earning power of "all" corporations.<sup>3</sup> Until recently returns in the service division were not filed in a form admitting of tabulation of the gross income on a basis comparable with that of the other divisions; but, as service constitutes a small fraction of the total, this disparity can be neglected. Excluded also are the corporations of a small unclassified list, for which separate data are tabulated.

Following wide fluctuations in 1919-1921, the ratio for all corporations combined moved narrowly from 1922 through the entire period of sustained prosperity to 1929. The ensuing depression was accompanied by successive violent reductions in the ratio, which was carried to zero in 1930, sharply below zero in 1931, and below -5 in 1932. Preliminary figures for 1933 indicate a vigorous recovery, but the ratio remained negative. A survey of this record at once discloses the significant fact that by 1931 the present depression was already more severe, from the point of view of corporate profits, than the depression of 1921. The subsequent reduction in profits (increase in loss) in 1932 records a strikingly

<sup>1</sup> *Harvard Business Review*, Vol. XI, No. 3, April, 1933, pp. 336-348; and references given therein.

<sup>2</sup> These statistics are published annually by the Bureau of Internal Revenue, in *Statistics of Income*.

A modified form of the ratio is used in my report, *The Effect of Size on Corporate Earnings and Condition* (Harvard Business School, Division of Research, Business Research Studies No. 8, 1934), pp. 7-14.

<sup>3</sup> For further comment on certain divisions, see Nerlove, S. H., *A Decade of Corporate Incomes, 1920 to 1929* (Business Administration Studies, University of Chicago Press, 1932).

Table 1. Annual Profit Ratios for Each of Six Industrial Divisions and for All Combined

	Agriculture	Mining	Manufacture	Construction	Trade	Service	All Six Divisions
1919	5.64	3.78	6.69	3.65	3.99	5.23	5.64
1920	-1.63	5.70	4.13	2.33	1.20	4.34	3.22
1921	-7.97	-6.72	-1.23	.13	-.55	2.26	-1.21
1922	.027	-.69	5.04	1.67	2.05	3.27	3.57
1923	4.20	-1.68	5.49	2.60	2.50	4.50	4.06
1924	-.62	-1.97	4.34	3.47	1.94	4.31	3.12
1925	1.14	3.83	5.18	4.14	2.06	5.13	3.96
1926	.81	4.74	5.00	3.19	1.70	3.76	3.70
1927	.93	-.21	4.04	3.00	1.60	2.75	2.95
1928	2.68	2.46	5.00	2.76	1.77	2.66	3.63
1929	1.41	4.64	5.35	2.98	1.43	3.11	3.84
1930	-7.41	-2.19	1.31	1.74	-.41	-.75	-.57
1931	-17.50	-11.80	-2.24	-1.70	-2.00	-3.65	-2.55
1932	-24.40	-13.90	-5.97	-7.95	-3.62	-13.80	-5.85
1933*	-12.60	-10.10	.03	-6.40	-.21	-9.93	-.87

\* Preliminary.

more adverse situation than any other which has prevailed since income taxation began, and it is almost certain that no equally unfavorable condition has prevailed since the middle nineties.

Consideration of the record for the individual industrial divisions which make up the aggregate already examined reveals the striking diversity which will be found at various points in the analysis. Such diversity is so emphatic that the record representing any very large and inclusive group of corporations cannot safely be used as a basis for precise inferences. It emphasizes the necessity of studying movements in detail, because less detailed movements can scarcely be typical of the constituents.

The record for the manufacture division, which is the largest of the six divisions and includes about 55% of the aggregate when measured in terms of gross income in 1928 (see Table 2), is remarkably similar to that for the aggregate of all six divisions. The general level of this division's ratio for 1922-1929 was steadily above that for the aggregate; nevertheless, the direction of variation from year to year, and in the main the intensity of fluctuation, were the same for this division as for the aggregate. So far as this division is concerned, then, the aggregate is apparently a roughly typical figure.

In the case of the trade division, the second division

in point of size, a fairly persistent decline in profit ratio had set in long before the depression came, and by 1929 the ratio was much lower than it had been in 1923-1925. During the depression the trade ratio fell far below zero and had not by 1933 returned above zero.

The mining division has never in recent years constituted more than 4% of the total, but a large share of mining operations is covered in the returns of manufacturing corporations. For mining, the fluctuations were much more frequent and violent than those recorded for either of the larger divisions. During the period covered by Table 1, more than half the ratios were negative, and several of them were below -10. Some of the negative or other low ratios resulted from strikes, and in general the unfavorable earnings record for this division reflects prolonged misfortunes in the bituminous coal mining industry. Even in 1933, the slight recovery which had taken place from the low level of 1932 had not lifted the division profit ratio above -10.

Specific comment on the course of the profit ratios for the two remaining small divisions, agriculture and service, may well be limited to emphasis upon the extreme severity of the declines in both divisions during the current depression and the somewhat less severe experience of agriculture in 1921. Inferences from the agriculture record must be qualified on two chief

Table 2. Percentage Distribution of Gross Income Among Six Industrial Divisions

	1926	1927	1928	1929	1930	1931	1932
Agriculture.....	.75	.70	.68	.69	.62	.59	.60
Mining.....	3.90	3.31	2.95	3.17	2.76	2.68	2.70
Manufacture.....	54.30	55.00	55.40	56.40	56.00	52.90	51.80
Construction.....	2.45	2.64	2.45	2.41	2.79	2.69	2.33
Trade.....	35.60	35.30	35.60	34.00	34.20	36.70	37.50
Service.....	2.92	3.10	3.15	3.28	3.83	4.42	5.02

counts: an important share of corporate agricultural operations is covered in other divisions, chiefly manufacture; and corporate agriculture is a small and poor sample of the entire industry. As for the service division, changes in the form of the returns filed and other technical difficulties render the record less homogeneous than the records for the other divisions.

### Postwar Record for Manufacture Groups

Consideration of the groups within the manufacture division brings out the effects of diversity corresponding to that discovered among the industrial divisions. In 1928—and only moderate changes are revealed for other years—the four principal manufacture groups, from the point of view of the amount of gross income, were metals, foods (including tobacco), chemicals, and textiles. (See Table 3.) The dominant constituents of the metals group are automobile and iron and steel companies; these together constitute about one-half the total. The dominant constituents of the foods group, excluding a large miscellaneous class, are packing house, milling, and bakery companies; and these three together cover about 60% of the total. In the chemicals group more than one-half the total gross business is done by petroleum companies, and the record for the group is therefore dominated by the experience of that industry. In the textiles group, about one-third of the

intensity of fluctuation was much greater for the metals group than for the division. From the relatively high point of 8.16 in the final year of prosperity, the group ratio dropped to -15.2 in 1932. The great severity of this reduction in an interval of three years is explained largely by the enormous contraction in the automobile industry and by the almost complete stoppage in the iron and steel industry. Because these two branches of activity happened to be classified in the same manufacture group, in the statistics as compiled, the record for this group was particularly responsive to the depression.

In the foods group appears the first instance in which the current depression did not yield a profit ratio below zero. This circumstance is explained by the sustained high earnings in the tobacco industry; and if that subgroup is excluded from the foods group, the residue has a negative ratio in 1932. Nevertheless, the 1933 recovery, even for the residual foods group, was a remarkable one and carried the ratio above that of 1930.

The chemicals group had the same record of sustained earning power from 1922 to 1929 which has been observed for certain other cases. During the depression, although there was a serious drop in earnings which actually carried the ratio moderately below zero, the decline here was less severe than in the manufacture division as a whole. Manufacturers of consumers' commodities, such as principal lines in the foods group, tobacco, and certain lines in the chemicals group, did not suffer so severely in depression as did basic industry.

This generalization does not extend, however, to the textiles industry. In this case the losses during the depression were extraordinarily severe, even for an industry which had become accustomed to years of low earning power. Throughout the period since 1920 this group had experienced very few years of good earnings, and was already suffering an important decline before the depression occurred. In 1930, the first year of depression, the profit ratio of the industry immediately dropped far below zero, and further important declines occurred in 1931-1932. Various branches of the industry were peculiarly favored by the NRA, and preliminary figures for 1933 show an abrupt recovery to a rate of earnings higher even than that of 1929.

Among the less important groups, lumber has had the most unfortunate recent earnings record. The profit ratio, from a peak in 1923, declined, with only a moderate interruption in 1928-1929, until it reached an extremely low level in 1932. The recovery in 1933, while sharp, left the ratio still far below zero. Considerably less emphatic declines took place in stone, rubber, and leather; but the year 1933 restored positive

**Table 3. Percentage Distribution of Gross Income, in 1928, Among the Manufacture Groups**

Foods.....	21.20	Printing.....	3.99
Textiles.....	11.60	Chemicals.....	14.20
Leather.....	2.56	Stone.....	2.46
Rubber.....	2.06	Metals.....	31.50
Lumber.....	4.23	Miscellaneous.....	3.64
Paper.....	2.57		

total is made up of clothing manufacture, and nearly one-third consists of cotton goods and silk and rayon goods, combined. Attention is called to these classifications within the several groups in order to suggest the probable lack of uniformity in the experience of various subgroups of corporations in any one group. In other words, the group statistics probably conceal notable differences among the subgroups.<sup>1</sup>

The profit ratio record for the several manufacture groups appears in Table 4. For the largest single group, metals, the course of the profit ratio was mainly parallel to that for the entire manufacture division, but the

<sup>1</sup> More extensive discussion of the subgroups is presented below.

Table 4. Annual Profit Ratios for Each Manufacture Group

	Foods, including Tobacco	Foods	Tobacco	Textiles	Leather	Rubber	Lumber	Paper	Printing	Chemicals	Stone	Metals	Miscellaneous	Total Manufacture
1919	2.69	.....	.....	8.84	7.52	7.90	7.99	7.94	6.88	6.87	8.54	8.97	6.43	6.69
1920	1.06	.....	.....	2.07	-3.05	-.83	6.49	9.18	6.08	4.43	8.01	6.50	6.46	4.13
1921	-.67	.....	.....	1.24	-4.27	-15.26	-3.30	-1.18	4.08	-.11	3.30	-3.25	-1.11	-1.23
1922	2.78	.....	.....	5.81	3.65	1.60	5.70	4.48	7.58	5.97	8.03	5.38	5.55	5.04
1923	3.24	.....	.....	5.43	1.75	2.00	7.83	5.73	6.19	4.52	11.09	6.56	6.40	5.49
1924	3.19	.....	.....	1.27	2.02	3.20	3.53	4.06	5.85	5.66	9.06	5.85	4.38	4.34
1925	2.80	.....	.....	3.24	2.50	6.38	4.13	5.71	6.06	6.55	9.39	6.98	5.00	5.18
1926	3.12	2.60	8.56	1.03	2.23	.49	2.67	5.48	5.76	7.57	8.86	7.44	4.98	5.00
1927	2.89	2.33	8.79	3.15	3.76	2.91	.55	5.65	5.39	3.66	6.76	5.54	6.94	4.04
1928	3.42	3.00	8.75	2.00	2.36	-.47	1.96	5.20	6.80	7.21	7.23	6.77	4.82	5.00
1929	3.45	2.94	8.91	1.55	1.85	-.73	1.92	5.08	6.80	7.36	6.82	8.16	3.52	5.35
1930	2.87	2.15	10.20	-4.29	-2.15	-4.81	-6.05	-2.90	3.83	2.46	2.06	2.83	2.50	1.31
1931	1.96	.93	10.10	-5.13	-3.42	-3.12	-13.80	-1.61	1.10	-1.32	-4.04	-3.88	-6.26	-2.24
1932	.97	-.45	10.50	-7.63	-5.41	-6.14	-24.30	-6.62	-2.52	-1.20	-14.70	-15.20	-11.70	-5.97
1933*	3.12	2.71	6.10	1.79	2.51	-.59	-6.54	1.04	.49	1.67	-3.63	-4.03	-3.60	.63

\*Preliminary.

profit ratios for rubber and leather. The paper and printing groups were less adversely affected by the depression than the other smaller groups (except tobacco), but they have a distinctly less favorable record than foods or chemicals.

The diversity of experience, which has so often been encountered in the study of these corporation data, is prominently revealed by the recent movements for manufacture groups as well as for the several divisions of the groups. Because of the advantage derived from examining more specific classifications by line of industry, comment upon certain possible implications of the diversities revealed in depression is given below, where data for narrower groupings of companies are presented.

The imperfections in industrial classification are intensified as we study more and more narrowly limited classes of corporations. When the classification becomes very fine, a particular industrial class of corporations, purporting to be engaged in a rather special type of industry, may include only a small number of companies, among which perhaps a single company dominates the list. If this single company has subordinate activities ramifying through various lines of industry, data for the class under observation may reflect less the specific conditions in the special type of industry than a rough sample of general conditions in a composite of industries.<sup>1</sup>

It is impossible to be sure how much of the diversity disclosed in the study of finer and finer classifications is due to real differences in industrial experience and

<sup>1</sup> In the opinion of J. F. Ebersole, S. S. Burr, and G. M. Peterson, this situation, or something like it, is often encountered in studying even groups including fairly numerous corporations. "Income Forecasting by the Use of Statistics of Income Data", *Review of Economic Statistics*, Vol. XI, No. 4, November, 1929, pp. 174-177.

how much arises from technical imperfections in statistical sampling of the sort just discussed. My opinion is that diversities which are generally consistent with a reasonable economic interpretation are likely to reflect mainly differences which actually exist among industries. I am bound to admit, however, that this approach to the case precludes our reliance upon the statistical data as *conclusive* evidence of the industrial differences sought in the analysis. With reservations such as these, the data are presented and their suggested implications weighed.

#### Recent Record for Subgroups in Metals Manufacture

The official tabulations for 1916 and for all years after 1919 include limited bodies of data for a much finer industrial classification than that discussed above. Except for 1916, these limited bodies of data did not include figures on gross income until 1926 (1925 for certain industrial divisions); and only since that date, therefore, can the profit ratios of these more numerous industrial classes be examined. For certain classes, the record begins in 1927 or 1928. This finer classification includes a breakdown of the several manufacture groups into subgroups, and of the nonmanufacture divisions into groups. First the manufacture subgroups are examined below, and then the nonmanufacture groups. The record ends with 1932, since the data for these finer classifications do not appear in the preliminary editions of *Statistics of Income*.

The basic data for the subgroups in metal industries, which constitute normally the largest manufacture groups, and the derived profit ratios appear in Table 5. The gross income record shows that the two dominant



Table 5. Gross Income (G), Net Income After Taxes (N), and Percentage Profit Ratio (R), for Each Subgroup in the Metals Group

(Unit: For G and N, one million dollars)

		1926	1927	1928	1929	1930	1931	1932
Iron and Steel	G	\$3,772	\$4,779	\$5,232	\$6,160	\$4,265	\$2,695	\$1,316
	N	293.2	178.3	296.2	435.7	111.2	-127.7	-272.1
	R	7.78%	3.74%	5.58%	7.07%	2.61%	-4.74%	-20.7%
Locomotives, etc.	G	\$652	\$455	\$392	\$540	\$409	\$173	\$101
	N	43.9	27.6	10.2	46.3	23.4	-24.0	-23.2
	R	6.75%	6.06%	2.56%	8.56%	5.80%	-13.9%	-22.8%
Motor Vehicles	G	\$5,291	\$4,643	\$5,440	\$6,248	\$3,994	\$2,834	\$1,474
	N	377.3	267.0	301.2	428.2	132.2	8.3	-199.5
	R	7.12%	5.75%	5.54%	6.87%	3.31%	0.29%	-13.5%
Factory Machinery	G	\$835	\$660	\$732	\$813	\$621	\$481	\$300
	N	73.2	49.4	56.0	72.0	13.7	-23.6	-47.5
	R	8.77%	7.49%	7.65%	8.85%	2.21%	-4.92%	-15.8%
Agricultural Machinery	G	\$554	\$593	\$682	\$814	\$650	\$356	\$174
	N	43.7	61.4	85.2	95.5	37.3	-25.5	-47.4
	R	7.89%	10.3%	12.5%	11.7%	5.74%	-7.16%	-27.3%
Electrical Machinery	G	.....	\$1,235	\$1,372	\$1,467	\$1,109	\$821	\$484
	N	.....	92.9	130.9	178.7	73.5	-48.1	-33.3
	R	.....	7.52%	9.54%	12.2%	6.63%	-5.85%	-6.87%
Miscellaneous Machinery	G	.....	\$1,481	\$1,551	\$1,782	\$1,437	\$835	\$438
	N	.....	78.0	108.8	131.8	15.0	-67.3	-115.4
	R	.....	5.27%	7.01%	7.40%	1.05%	-8.06%	-26.3%
Household Machinery	G	.....	\$635	\$581	\$797	\$586	\$487	\$332
	N	.....	51.0	47.0	51.9	19.2	4.6	-21.0
	R	.....	8.04%	8.00%	6.51%	3.27%	.94%	-6.34%
Office Equipment	G	.....	\$422	\$465	\$484	\$376	\$277	\$186
	N	.....	41.1	48.6	60.6	27.0	5.3	-15.1
	R	.....	9.77%	10.5%	12.5%	7.20%	1.90%	-8.11%
Metal Building Material	G	.....	\$830	\$911	\$903	\$744	\$501	\$320
	N	.....	42.6	50.5	56.2	-3.7	-41.9	-70.7
	R	.....	5.12%	5.54%	6.23%	-4.9%	-8.38%	-22.1%
Hardware, etc.	G	.....	\$1,004	\$1,214	\$1,338	\$977	\$641	\$414
	N	.....	78.0	130.6	150.6	15.0	-70.8	-72.6
	R	.....	7.77%	10.7%	11.3%	1.54%	-11.0%	-17.5%
Precious Metals, etc.	G	.....	\$400	\$401	\$400	\$289	\$212	\$153
	N	.....	14.5	20.1	15.9	-10.2	-20.5	-28.4
	R	.....	3.62%	5.02%	3.99%	-3.54%	-9.68%	-18.6%
Other Metal Industries	G	.....	\$2,049	\$2,200	\$2,347	\$1,741	\$1,200	\$815
	N	.....	78.8	147.8	161.9	32.5	-15.1	-46.9
	R	.....	3.84%	6.71%	6.89%	1.87%	-1.26%	-5.76%

subgroups are iron and steel, and motor vehicles; in normally prosperous years each constitutes about one-quarter of the entire group. Subgroups normally next in importance are miscellaneous machinery, electrical machinery, and hardware.

The profit ratios for most of these subgroups showed sustained good earnings, with moderate fluctuations, for 1926-1929; and the 1930 figure, although it reflected a decline in earnings for every subgroup, remained moderately above zero in many cases. In every case

1931 and 1932 brought further declines, in most cases to levels far below zero. In several of the subgroups the precipitous drop of the ratio from 1929 to 1932 exceeded in intensity that experienced in all other lines of manufacture and in most other lines of industry, as will appear below.

This entire metals group obviously produces articles of the large category now constantly referred to as durable goods, and many of the products—practically all of the products of certain subgroups—are producers'

goods rather than consumers' goods. Working here with peculiar force are those influences which have adversely affected the durable goods industries, and especially the capital goods industries, during the depression. The extraordinary declines in profit ratio for these subgroups are the inevitable manifestations of such adverse conditions.

The foregoing observations are made with the understanding that a large negative profit ratio does not necessarily mean a very heavy loss per dollar of investment, any more than a large positive profit ratio necessarily means a handsome profit per dollar of investment. But since, for numerous subgroups, the negative profit ratio for 1932 was two or three times as large numerically as the highest positive ratio of 1926-1929, these industries must have suffered a far more drastic loss than, for example, canned products in the foods group, for which the profit ratio dropped from 6.49 in 1929 to -6.84 in 1932 (see Table 6).

Considered in these terms, the various subgroups may be divided roughly into two lists, as follows:

	High	Low
Very severe declines:		
Precious metals . . . . .	5.02	-18.6
Miscellaneous machinery . . . . .	7.40	-26.3
Metal building material . . . . .	7.28	-22.1
Iron and steel . . . . .	7.78	-20.7
Locomotives . . . . .	8.56	-22.8
Agricultural machinery . . . . .	12.50	-27.3
Motor vehicles . . . . .	7.12	-13.5
Factory machinery . . . . .	8.85	-15.8
Hardware . . . . .	11.30	-17.5
Less severe declines:		
Other metal (miscellaneous) . . . . .	6.89	-5.76
Household machinery . . . . .	8.87	-6.34
Office equipment . . . . .	12.50	-8.11
Electrical machinery . . . . .	12.20	-6.87

Heading the list is a subgroup including mainly producers of luxury goods. Next in order come: that type of machine producers most dependent on the mining and construction industries, makers of building supplies, basic iron and steel works, and makers of locomotives and other railway equipment; all these are directly dependent upon basic industrial conditions. Next, still in the severe-decline list, come: makers of farm equipment, peculiarly sensitive to agricultural prosperity and credit and to foreign trade; makers of automobiles, mainly a durable consumers' good somewhat less clearly a luxury than precious-metal products; makers of factory machines in general, many of which are dependent upon consumer goods industries; and makers of hardware and tools, which are likely to have a moderately sustained replacement demand. In the

list showing less severe declines the striking items are household machinery and electrical machinery; the former is, of course, in the consumers' goods class, and an important share of the equipment and machinery produced by the latter can also be listed as consumers' goods. Peculiar circumstances, partly indeed due to the depression, account for the restriction of loss, even in 1932, for the office equipment subgroup.

Too much significance should not be attached to the exact order of the above lists. Many minor influences are at work to control the profit record for each subgroup, and differences in timing of actual high and low points have some bearing upon the apparent results. But the main outlines of the picture are sufficiently clear to be unmistakable: even in the metals group of manufacturing industries, those industries farthest from the consumer, barring certain undoubted luxuries, suffered the most severe losses in the great depression.

#### Recent Record for Other Manufacture Subgroups

In the foods group (Table 6) are included industries producing goods almost entirely in the consumers' nondurable category. In several of the subgroups here, bakery, milling, and other foods (miscellaneous), the depression, even through 1932, brought no negative profit ratios. And in the cases of most severe decline, canning and sugar, the negative profit ratio of 1932 was only slightly larger than the previous peak positive ratio. In these obviously nondurable goods industries, even for the cases suffering greatest declines, there was no such collapse of earning power as was found for numerous metal industries.

The third most important manufacture group, in terms of normal volume of business, is chemicals (Table 7). Here the results do not clearly fit into the hypothesis discussed above, and the record is somewhat confused. The dominant subgroup is petroleum refining, which is subject to peculiar influences disturbing the response of its supply of raw material to current changes in demand. The products, although in some degree producers' goods, are mainly consumers' nondurable goods; and the low negative profit ratio of 1931 was distinctly smaller numerically than the previous peak positive ratio. Allied chemical substances, covering a wide variety of industries producing partly producers' goods and partly consumers' goods, partly durable goods and partly nondurable, is the second most important subgroup. Its profit ratio has been constantly positive over the six-year record, and the entire decline of 1928-1932 was only moderate. The other subgroups include makers primarily of nondurable goods: chemicals proper showed constantly

Table 6. Gross Income (G), Net Income After Taxes (N), and Percentage Profit Ratio (R), for Each Subgroup in the Foods Group

(Unit: For G and N, one million dollars)

		1926	1927	1928	1929	1930	1931	1932
Bakery and Confectionery	G	\$1,522	\$1,560	\$1,559	\$1,601	\$1,524	\$1,227	\$994
	N	83.5	83.4	86.8	97.5	75.4	47.6	1.07
	R	5.49%	5.34%	5.57%	6.09%	4.95%	3.88%	.20%
Canned Products	G	.....	\$786	\$872	\$907	\$762	\$619	\$492
	N	.....	27.8	48.3	58.9	13.1	-23.6	-33.7
	R	.....	3.54%	5.53%	6.49%	1.71%	-3.81%	-6.84%
Mill Products	G	\$1,466	\$1,486	\$1,457	\$1,381	\$1,003	\$745	\$559
	N	25.2	31.4	28.9	27.5	2.9	10.4	5.5
	R	1.72%	2.11%	1.98%	1.99%	.29%	1.39%	.98%
Packing House Products	G	\$4,802	\$4,992	\$5,303	\$5,446	\$4,855	\$3,656	\$2,596
	N	36.9	4.2	38.7	18.5	14.4	-22.3	-1.59
	R	.77%	.084%	.73%	.34%	.30%	-.61%	-.61%
Sugar	G	\$842	\$923	\$795	\$836	\$799	\$630	\$564
	N	-10.4	12.0	33.6	28.1	4.4	-19.0	-31.4
	R	-1.25%	1.30%	4.23%	3.35%	-.56%	-3.01%	-5.57%
Beverages	G	.....	\$428	\$446	\$439	\$378	\$300	\$261
	N	.....	30.3	40.2	43.1	30.3	5.4	-.80
	R	.....	9.17%	9.01%	9.79%	8.02%	1.79%	-.30%
Other Foods	G	.....	\$2,537	\$2,616	\$2,886	\$2,694	\$2,177	\$1,823
	N	.....	98.1	105.4	122.6	117.6	88.2	27.0
	R	.....	3.87%	4.03%	4.24%	4.37%	4.05%	1.48%

Table 7. Gross Income (G), Net Income After Taxes (N), and Percentage Profit Ratio (R), for Each Subgroup in the Chemicals Group

(Unit: For G and N, one million dollars)

		1926	1927	1928	1929	1930	1931	1932
Petroleum, etc.	G	\$4,334	\$5,037	\$5,265	\$6,046	\$6,084	\$4,405	\$4,213
	N	345.6	69.6	366.2	405.6	83.0	-214.0	-114.6
	R	7.97%	1.38%	6.49%	6.71%	1.36%	-4.86%	-2.72%
Chemicals Proper	G	.....	\$860	\$824	\$1,046	\$932	\$683	\$481
	N	.....	68.8	87.0	109.6	66.1	39.3	14.5
	R	.....	8.00%	10.6%	10.5%	7.10%	5.76%	3.20%
Allied Chemical Substances	G	.....	\$2,715	\$2,876	\$2,979	\$2,521	\$2,117	\$1,678
	N	.....	184.8	226.8	234.1	146.3	89.2	30.3
	R	.....	6.80%	7.89%	7.85%	5.80%	4.44%	3.26%
Fertilizers	G	.....	\$156	\$210	\$217	\$191	\$119	\$86.0
	N	.....	-2.2	9.3	7.1	.20	-11.3	-8.31
	R	.....	-1.38%	4.47%	3.28%	.10%	-9.43%	-9.66%

positive profit ratios, largely parallel to those of allied chemical substances; but fertilizers showed a very severe drop to low negative figures. The decline for fertilizers was about as severe as that observed for agricultural machinery, and reflects the peculiar conditions controlling agricultural businesses.

The fourth large manufacture group, textiles, comprises industries producing, at least in their end products, mainly consumers' goods. Some of these, such as clothing, are moderately durable; and others, such as carpets, are more highly durable and to some extent in the luxury category. The classification within the group (Table 8) aims at segregating those companies producing fabrics, the intermediate producers' commodities used chiefly for the production, by consumers or manufacturers, of the end products. The profit ratio records for certain of these subgroups do not fit the hypothesis as to the distinction in profit experience between makers of producers' and durable goods and makers of consumers' and nondurable goods. All these subgroups showed severe declines, some of them to very large negative profit ratios. In several cases the declines were quite as drastic as those in the metals industries. In one, woolen and worsted goods, there was only one positive profit ratio, and that very small, in the entire record. The record for cotton goods was considerably more favorable in the earlier years, but by no means

such as reflects prosperity. In fact, these two basic textile lines had already suffered several years of depression, or very restricted prosperity, when they plunged in 1930 into three years of destructive losses. The records for the subgroups producing mainly the end products—carpets, clothing, and even knit goods—are not much better. All subgroups in textiles responded to the depression by showing heavy losses as early as 1930, and still heavier losses by 1932.

Data for subgroups in the smaller manufacture groups appear in Table 9. In forest products (called *lumber* above and in earlier official reports) the profit record for the subgroup, sawmill, etc., was strikingly adverse, one of the most adverse shown, even among the durable capital goods industries. Boots and shoes, the dominant subgroup among leather industries, yielded profit ratios only slightly negative in 1931 and 1932; the moderate loss of earning power here is consistent with the fact that these products are consumers' goods and only moderately durable. In the case of tires the record was more emphatically adverse; and, since the bulk of the tire output goes to supply original equipment requirements, the industry is largely in the producers' goods class. Extraordinarily severe declines appeared for radios, a durable consumers' good in the luxury class, and airplanes, a durable capital good. The results for all these subgroups are in substantial

Table 8. Gross Income (G), Net Income After Taxes (N), and Percentage Profit Ratio (R), for Each Subgroup in the Textiles Group

(Unit: For G and N, one million dollars)

		1926	1927	1928	1929	1930	1931	1932
Cotton Goods	G	\$1,462	\$1,401	\$1,367	\$1,404	\$1,013	\$811	\$602
	N	-36.2	64.3	5.0	16.2	-92.6	-64.8	-54.5
	R	-2.48%	4.58%	.37%	1.16%	-9.14%	-7.99%	-9.07%
Woolen and Worsted Goods	G	\$762	\$687	\$693	\$674	\$461	\$431	\$294
	N	-2.1	5.9	-3.1	-11.8	-35.9	-31.8	-37.5
	R	-.28%	.85%	-.45%	-1.74%	-7.78%	-7.37%	-12.8%
Silk and Rayon Goods	G	\$868	\$827	\$802	\$904	\$721	\$563	\$409
	N	34.8	37.8	50.8	31.0	-32.0	-34.4	-27.7
	R	4.01%	4.58%	5.70%	3.43%	-4.45%	-6.10%	-6.78%
Carpets, etc.	G	.....	\$210	\$219	\$218	\$147	\$148	\$91.8
	N	.....	10.5	8.1	1.0	-15.2	-9.2	-15.6
	R	.....	4.98%	3.72%	.47%	-10.3%	-6.23%	-16.9%
Miscellaneous Textiles	G	.....	\$1,571	\$1,462	\$1,659	\$1,206	\$939	\$680
	N	.....	56.4	36.9	36.3	-42.1	-39.7	-51.5
	R	.....	3.58%	2.53%	2.18%	-3.50%	-4.23%	-7.55%
Clothing	G	\$2,228	\$2,375	\$2,438	\$2,586	\$2,171	\$1,858	\$1,383
	N	35.0	45.4	30.7	29.6	-39.7	-68.5	-82.3
	R	1.57%	1.91%	1.26%	1.15%	-1.83%	-3.05%	-5.95%
Knit Goods	G	\$727	\$736	\$766	\$787	\$697	\$552	\$425
	N	20.3	26.0	28.2	25.3	-17.7	-23.7	-27.3
	R	2.80%	3.53%	3.69%	3.21%	-2.54%	-4.30%	-6.43%

Table 9. Gross Income (G), Net Income After Taxes (N), and Percentage Profit Ratio (R), for Each Subgroup in the Leather, Rubber, Lumber, and Miscellaneous Groups

(Unit: For G and N, one million dollars)

		1926	1927	1928	1929	1930	1931	1932
Boots and Shoes	G	\$1,003	\$1,104	\$1,087	\$1,080	\$800	\$740	\$586
	N	27.5	44.8	32.3	37.8	6.3	-9.0	-13.8
	R	2.74%	4.07%	2.97%	3.50%	.79%	-1.12%	-2.35%
Other Leather Products	G	.....	\$627	\$635	\$661	\$509	\$370	\$255
	N	.....	20.3	8.2	-5.4	-36.0	-37.1	-31.7
	R	.....	3.24%	1.29%	-1.82%	-7.07%	-10.0%	-12.5%
Tires and Tubes	G	\$1,292	\$1,201	\$1,153	\$1,209	\$933	\$668	\$529
	N	-1.7	29.7	-19.8	-1.0	-52.9	-17.9	-28.4
	R	-1.13%	2.47%	-1.72%	-.08%	-5.67%	-2.68%	-5.36%
Other Rubber Goods	G	.....	\$194	\$193	\$184	\$146	\$128	\$92.4
	N	.....	10.9	11.6	11.1	.67	-6.5	-10.1
	R	.....	5.58%	6.02%	6.03%	.46%	-5.09%	-10.8%
Bone, etc.	G	.....	\$51.4	\$40.4	\$34.6	\$21.2	\$19.9	\$14.5
	N	.....	1.49	1.74	1.02	-.78	-1.10	-1.31
	R	.....	2.89%	4.28%	2.95%	-3.67%	-5.50%	-9.00%
Sawmills, etc.	G	\$1,730	\$1,480	\$1,479	\$1,464	\$1,038	\$619	\$385
	N	38.2	-2.1	17.5	25.4	-74.4	-110.1	-124.2
	R	2.21%	-1.14%	1.18%	1.73%	-7.16%	-19.2%	-32.3%
Other Wood Products	G	\$1,339	\$1,324	\$1,363	\$1,331	\$949	\$729	\$469
	N	43.6	17.6	38.0	28.3	-45.9	-66.4	-83.6
	R	3.26%	1.33%	2.79%	2.12%	-4.83%	-9.12%	-17.9%
Radios	G	.....	\$132	\$221	\$284	\$251	\$124	\$71.8
	N	.....	1.4	13.4	-4.8	-14.1	-28.4	-13.4
	R	.....	1.06%	6.05%	-1.74%	-5.60%	-22.8%	-18.6%
Musical Instruments	G	.....	.....	\$2,165	\$2,082	\$1,664	\$1,308	\$898
	N	.....	.....	95.4	88.6	-11.9	-51.2	-94.9
	R	.....	.....	4.40%	4.25%	-.72%	-3.91%	-10.6%
Airplanes	G	.....	.....	\$62.8	\$99.6	\$78.3	\$49.1	\$29.9
	N	.....	.....	9.34	2.06	-15.02	-13.3	-9.0
	R	.....	.....	14.8%	2.97%	-19.2%	-27.1%	-30.2%

accord with the hypothesis concerning the relative effect of the depression upon the profits of producers' and durable goods and of consumers' and nondurable goods.

#### Recent Record for Nonmanufacture Groups

The supplementary tabulations for four of the five other divisions, trade, mining, construction, and agriculture, will now be examined. The record for the groups in the trade division appears in Table 10. The principal groups here are wholesale and retail; for each, decline in earnings had set in before the 1929 crisis, 1930 brought a negative ratio, and 1931 and 1932 brought increasing losses. To what extent these losses were due to charges allowing for reductions in the valuation of inventories, the figures do not reveal; but that the violent price declines of 1929-1932 contributed to

the misfortunes of these enterprises cannot be doubted.<sup>1</sup> The less important groups in this division had a somewhat similar profit experience, although that for the miscellaneous group, in which inventory losses were perhaps not of serious proportions, was surprisingly the most unfavorable of all.

Group data for the mining division are given in Table 11. Profit ratio records for these groups, especially in such cases as metal mining and anthracite, accorded with the distinction between producers' and consumers' goods. Special conditions prevailing in the bituminous coal industry, and those in the petroleum industry, accounted largely for the persistence of low and nega-

<sup>1</sup> There is evidence that in some forms of retail trade, including department stores, department store chains, and variety chains, losses were occasioned during the depression years more by high expense ratios than by reductions in inventory valuation. For these trades gross margin rates either did not decrease during the depression or else decreased very much less than the expense rates advanced. The rise in the expense rates was occasioned by the sharp drop in dollar sales volume. See Harvard Business School, Bureau of Business Research, Bulletins Nos. 84-94, inclusive.

Table 10. Gross Income (G), Net Income After Taxes (N), and Percentage Profit Ratio (R), for Each Group in the Trade Division

(Unit: for G and N, one million dollars)

		1926	1927	1928	1929	1930	1931	1932
Wholesale	G	\$20,009	\$15,727	\$15,767	\$15,249	\$12,716	\$10,329	\$8,010
	N	235.6	169.9	202.9	167.2	-67.4	-230.5	-207.3
	R	1.18%	1.08%	1.29%	1.10%	-5.3%	-2.23%	-2.58%
Retail	G	\$12,825	\$16,718	\$18,261	\$19,408	\$17,116	\$14,704	\$11,122
	N	362.6	359.5	398.7	303.2	-51.8	-247.2	-448.3
	R	2.83%	2.15%	2.18%	1.56%	-3.0%	-1.68%	-4.03%
Wholesale and Retail	G	.....	\$4,258	\$4,824	\$4,679	\$4,225	\$3,358	\$2,410
	N	.....	70.4	93.6	90.8	-8.6	-61.7	-87.3
	R	.....	1.65%	1.94%	1.94%	-2.0%	-1.84%	-3.62%
Commission	G	\$2,115	\$2,034	\$2,038	\$2,070	\$1,805	\$1,073	\$692
	N	33.8	32.3	37.1	33.9	-8.1	-21.8	-23.5
	R	1.60%	1.59%	1.83%	1.64%	-4.5%	-2.03%	-3.39%
All Other Trade	G	.....	\$2,207	\$2,314	\$2,048	\$1,347	\$1,130	\$900
	N	.....	25.1	32.7	27.6	-15.9	-49.9	-69.6
	R	.....	1.14%	1.41%	1.34%	-1.18%	-4.42%	-7.76%

Table 11. Gross Income (G), Net Income After Taxes (N), and Percentage Profit Ratio (R), for Each Group in the Mining Division

(Unit: For G and N, one million dollars)

		1926	1927	1928	1929	1930	1931	1932
Metal Mining	G	\$1,121	\$891	\$986	\$1,212	\$762	\$466	\$262
	N	44.1	29.9	80.6	145.2	-24.1	-72.2	-79.5
	R	3.93%	3.36%	8.17%	1.20%	-3.17%	-15.5%	-30.4%
Anthracite	G	.....	.....	\$351	\$316	\$315	\$347	\$266
	N	.....	.....	3.57	1.08	6.84	-2.24	-16.9
	R	.....	.....	1.02%	.34%	2.17%	-6.4%	-6.35%
Bituminous Coal	G	.....	.....	\$949	\$992	\$875	\$625	\$470
	N	.....	.....	-28.0	-15.2	-44.7	-48.8	-51.9
	R	.....	.....	-2.94%	-1.53%	-5.11%	-7.81%	-11.1%
Oil and Gas	G	\$1,190	\$970	\$762	\$974	\$578	\$451	\$434
	N	96.5	-39.1	-5.8	19.2	-17.2	-121.9	-49.6
	R	8.13%	-4.03%	-7.6%	1.97%	-2.97%	-27.0%	-11.5%
Other Minerals	G	.....	\$474	\$434	\$451	\$308	\$285	\$188
	N	.....	30.2	34.9	32.9	17.8	-4.2	-19.1
	R	.....	6.36%	8.06%	7.29%	4.46%	-1.41%	-10.2%
Miscellaneous Mining and Quarrying	G	.....	\$84.2	\$107.2	\$103.0	\$71.7	\$55.0	\$45.0
	N	.....	1.56	3.28	4.72	-4.39	-12.7	-14.8
	R	.....	1.85%	3.05%	4.57%	-6.13%	-23.1%	-32.8%

Table 12. Gross Income (G), Net Income After Taxes (N), and Percentage Profit Ratio (R), for Each Group in the Agriculture and Construction Divisions

(Unit: For G and N, one million dollars)

		1926	1927	1928	1929	1930	1931	1932
Farming	G	\$709	\$681	\$685	\$715	\$551	\$417	\$329
	N	3.4	3.5	18.6	11.3	-43.2	-73.3	-74.0
	R	.48%	.51%	2.72%	1.59%	-7.85%	-17.6%	-22.4%
Related Industries	G	\$155	\$142	\$140	\$168	\$120	\$75.0	\$38.7
	N	3.12	4.14	3.61	1.13	-6.70	-12.6	-15.7
	R	2.01%	2.92%	2.57%	.67%	-5.56%	-16.8%	-39.6%
Building	G	.....	\$1,544	\$1,513	\$1,641	\$1,478	\$1,060	\$715
	N	.....	35.6	30.1	27.5	-21	-40.3	-72.9
	R	.....	2.30%	1.99%	1.68%	-.014%	-3.80%	-10.2%
Other Construction	G	.....	\$1,385	\$1,346	\$1,331	\$1,419	\$1,060	\$648
	N	.....	60.3	54.0	65.7	52.6	6.0	-39.1
	R	.....	4.35%	4.01%	4.94%	3.70%	.57%	-6.04%
Shipbuilding	G	.....	\$126	\$119	\$109	\$145	\$115	\$75.0
	N	.....	-4.17	-1.75	-1.45	-4.48	-3.7	-2.0
	R	.....	-3.30%	-1.48%	-1.33%	.33%	-3.21%	-2.69%

tive ratios. Data for the mining division and its groups probably constitute a particularly imperfect sample; integration of many manufacturing businesses presumably has resulted in more actual mining activity being covered by corporations classified under manufacture than by those here represented.

Table 12 shows corresponding data for groups in the construction and agriculture divisions; in each case the breakdown was so limited that it added little detailed information. All five groups, except the miscellaneous group, other construction, showed very severe declines in the profit ratio; and the other construction group, after retaining positive ratios even to 1931, showed a sharp drop in 1932. Extraordinary circumstances in the shipbuilding industry account for the appearance of a single positive ratio, small indeed, in 1930. Broadly, these groups in construction and agriculture reflect the collapse of the capital goods industries and the critical misfortunes in nearly all lines of farming and related extractive industries. Corresponding data for groups in the service division are not now presented, because recent changes in classification and reporting arrangements for that division have had effects not yet fully understood.

The composite implication of the profit ratio records for individual groups in all five divisions (service being excluded) and individual subgroups in manufacture strikingly corroborates the hypothesis that producers' and durable goods industries suffered far more severe losses than other industries. Exceptions to the general rule appear, but the chief of these can be explained by reference to special factors affecting the particular

industries. The account as a whole is surprisingly consistent; and it lends strength to a doctrine which already had stout statistical and theoretical support on other grounds.

#### Return on Net Worth

The ratios thus far examined express profits in relation to a more or less satisfactory measure of gross volume of business. The profit ratio, in the form used here and in the several variations of that form, states a net income figure as a percentage of a gross revenue figure.<sup>1</sup> This ratio is open to various technical and theoretical objections as a measure of earning power. The principal theoretical objection has been noted above: because of variations among industries in the normal rate of turnover of capital, the profit ratio is not a trustworthy means of comparing the rate of return on capital in different industries.

Several other objections, partly technical and partly theoretical, deserve mention here. The denominator, gross income, is an imperfect measure of the gross volume of business. It excludes income from tax-exempt securities, which is as properly income as several items which are included. It includes items which are net rather than gross, items which are profits or net

<sup>1</sup> Strictly as used here, the profit ratio is statutory net income less income tax, divided by gross income. In *The Effect of Size on Corporate Earnings and Condition* (see footnote 2, p. 1 above), the form of the data led to omission of the deduction for income tax in the numerator, and to substitution of total compiled receipts for gross income in the denominator. Miss Lucille Bagwell, in "Business Income and Profits" (*The Journal of Business*, Vol. 11, October, 1929, pp. 345-360, especially pp. 351 and 355), uses a numerator resulting from the addition of statutory net income, interest paid, and salaries paid to officers. Ralph C. Epstein, in *Industrial Profits in the United States* (National Bureau of Economic Research, New York, 1934, Chap. 4, especially pp. 114-116), uses as a somewhat similar ratio statutory net income divided by sales.

earnings derived from outside activities. It understates the total, in an unknown degree, because of the different extent to which the activities of various corporations, whether or not they file "consolidated" returns, are in fact integrated. It includes an item for net profit on the sale of capital assets; but the corresponding loss item is not included as an offset, for it appears among the statutory deductions; and, in any case, neither of these items is strictly a constituent of income.

The deficiencies in the numerator are, however, of chief concern here. Statutory net income not only excludes tax-exempt interest received but also dividends received. Mr. George O. May has held that this exclusion results in a serious understatement of profits.<sup>1</sup> On this ground alone, where possible, compiled net profits should be used in preference to statutory net income.<sup>2</sup> The two items differ by the amount of tax-exempt interest and dividends received, and the compiled net profits, with an adjustment described in the following paragraph, is the initial figure taken for the numerator of the ratios to be presented below. This initial figure is amended in various ways for specific purposes, as will be explained.

The statutory net income, and likewise the compiled net profits, is reckoned after allowances for gains and for losses from the sale of capital assets. In recent years certain *Statistics of Income* tabulations present the items reflecting capital transactions separately; and, as they bulk fairly large in many lines of industry, an adjustment appears essential. This adjustment has not been made in the numerator of the profit ratios, discussed above; but it is systematically made in the numerator of the ratios referring earnings to capital items, to be discussed below.

Beginning with 1931, *Statistics of Income* tabulations permit comparison, for each industrial division and manufacture group, of the compiled net profits as thus adjusted with a denominator representing aggregate net worth. These tabulations cover all corporations filing balance sheets in connection with their tax returns. This list excludes inactive corporations; but it includes the great bulk, by number and on the basis of economic importance, of all active corporations. Evidence is presented below as to the extent to which this list covers all corporations filing tax returns. For 1931 and 1932, therefore, these figures for percentage return on net worth can be calculated: the numerator is compiled net profits less the excess of net gain over net loss from the sale of capital assets; the denominator

is the aggregate of the stated values of preferred and common stock and of the excess of surplus over deficit. No such ratios are available for 1933, as the preliminary editions of *Statistics of Income* do not give the essential data.

Corresponding analyses are not possible for years before 1931. Comparisons of income data with capital account data for those earlier years were impeded by the fact that not all corporations filing income tax returns filed balance sheets, and by the fact that the *Statistics of Income* tabulations did not include aggregates for income account items and balance sheet items pertaining to an identical list of corporations. Such tabulations are available for 1931 and 1932. For the earlier years attempts have been made to step up the published capital account items, in order to secure a denominator comparable with the published income account items used in the numerator.<sup>3</sup> There have also been particular analyses based upon selected samples of corporations, for which both income account and balance sheet items were available. A conspicuous example of this approach appears in the recent book, already referred to, by Professor Epstein; the main portions of that book cover analyses of specific lists of identical corporations for which both income and capital items were compiled from tax returns.

#### Return on Capital, 1931 and 1932

As has been said, however, an approach to complete coverage of corporate industry becomes possible only with the 1931 *Statistics of Income*. Table 13 presents 1931 and 1932 rates of return on net worth, for each industrial division and manufacture group. In the calculation of these rates the numerator is the Treasury's figure for compiled net profits, adjusted for transactions in capital assets; and the denominator is a net worth figure derived by combining preferred and common capital stock with the excess of surplus over deficit.

There is a theoretical objection to a denominator defined in this way.<sup>4</sup> The essential difficulty is that the net worth figure is a composite of "valuation" items and that, at least in part, the valuations depend upon earnings. To some extent, therefore, there are fluctuations in the denominator responsive to fluctuations in the numerator; and there results some distortion in the movement of the ratio. This condition may be particularly significant during the slump into deep depression, but there seems to be no satisfactory way to allow for

<sup>1</sup> *Recent Economic Tendencies* (National Bureau of Economic Research, New York, 1929), p. 854.

<sup>2</sup> Data on compiled net profits are not published for the manufacture subgroups and nonmanufacture groups, and comparisons in those cases were therefore necessarily based on statutory net income.

<sup>3</sup> For example, Crum, W.L., *Corporate Earning Power* (Stanford University Press, 1929), Chap. VII; Nerlove, S.H., *op. cit.*, Chap. VI and Appendix; Epstein, Ralph C., *op. cit.*, pp. 601-602.

<sup>4</sup> See Nerlove, S.H., *op. cit.*, p. 34, for discussion of this point.



**Table 13. Percentage Rates of Return on Net Worth:  
Compiled Profits, Excluding Capital Gains or  
Losses, Divided by Net Worth**

	1931	1932
All Corporations.....	.54%	-1.56%
Agriculture.....	-4.92	-5.18
Mining.....	-2.42	-2.43
Manufacture.....	-.24	-2.88
Foods.....	3.90	1.91
Tobacco.....	15.3	15.6
Textiles.....	-5.50	-7.15
Leather.....	-4.17	-3.83
Rubber.....	-1.99	-4.03
Lumber.....	-8.31	-9.75
Paper.....	-.085	-3.10
Printing.....	3.74	-.64
Chemicals.....	1.41	.75
Stone.....	-1.50	-5.50
Metals.....	-1.25	-5.91
Miscellaneous.....	-2.75	-7.39
Construction.....	1.25	-6.47
Public Utilities.....	2.68	1.23
Trade.....	-3.17	-6.49
Service.....	-.74	-7.50
Finance.....	1.48	-.083
Unclassified.....	-1.67	-4.45

the distortion. There can be little doubt, however, that the intensity of the decline in return on capital from 1931 to 1932 is somewhat understated.

The direction of change from 1931 to 1932 in general is, of course, the same for the rates shown in Table 13 as for the profit ratios of Tables 1 and 4. Furthermore, the relative intensity of change is about the same for the rate of return on net worth as for the profit ratio, for various divisions and groups. There is, however, no uniformity in this respect; and, partly because of differences in turnover of capital but especially because of different year-to-year changes in the turnover, no such uniformity should be expected. For either year, 1931 or 1932, these rates of Table 13 afford a roughly satisfactory comparison of the rates of return in various lines of industry. Such comparison, it will be recalled, was not appropriate with the profit ratios.

Lack of precision in the formula by which the rates of return shown in Table 13 are derived necessitates certain amendments. That formula is:

$$\frac{\text{compiled net profits with capital gains (or losses) excluded}}{\text{net worth}}$$

One amendment consists in adding to the above initial figure for the numerator the salaries of officers, as tabulated in *Statistics of Income*. Several writers have held that, chiefly because an important share of corporate profits, in the economic sense, is paid out to officer-

owners as salaries, an appropriate profit figure must include such payments. Another amendment consists in deducting from the initial figure the Federal income tax. I have heretofore, particularly in profit-ratio analyses, held that this should be done; Professor Epstein holds the contrary view.

A quite different amendment consists in extending the numerator to include interest paid, and the denominator to include total assets. This aims at a general measure of the return on all capital, borrowed and owned. In an earlier measurement of the return on capital,<sup>1</sup> I used an estimate of total assets as the denominator; and, although there has been much criticism of this procedure, there are certain theoretical advantages. A roughly comparable denominator, including funded debt and net worth, is used by Professor Epstein under the name "total capital".

All possible combinations of these amendments can be made, yielding eight different formulas. If we represent compiled net profits, excluding capital gains or losses, by P, interest paid by I, salaries paid to officers by S, income tax by T, net worth by W, and total assets by A, the various formulas become:

$$\frac{P}{W} \qquad \frac{P+I}{A}$$

$$\frac{P+S}{W} \qquad \frac{P+I+S}{A}$$

$$\frac{P-T}{W} \qquad \frac{P+I-T}{A}$$

$$\frac{P+S-T}{W} \qquad \frac{P+I+S-T}{A}$$

Table 13 was compiled by using the upper left-hand formula. Table 14 is based upon the upper right-hand formula and Table 15 gives a record of results for the six other formulas. It is not proposed at this point to pass judgment upon the relative merits of the several formulas. Obviously the results yielded by different formulas are widely at variance, and specific formulas clearly suit specific purposes.

Despite differences among the formulas, the main relationships are those which appear in Table 13. This table and the other tables of this set include data for the two divisions, public utilities and finance, which were excluded in the profit ratio study. The comparisons among rates of return are less inappropriate than comparisons of profit ratios for these two divisions. As has previously been noticed, the relative earning power at any given time, among divisions and among

<sup>1</sup> Crum, W. L., op. cit.

Table 14. Percentage Rates of Return on Total Assets: Compiled Profits, Excluding Capital Gains or Losses, Plus Interest Paid Divided by Total Assets

	1931	1932
All Corporations.....	1.73%	.64%
Agriculture.....	-1.93	-2.15
Mining.....	-.94	-.96
Manufacture.....	.76	-1.23
Foods.....	3.92	2.45
Tobacco.....	12.9	13.7
Textiles.....	-3.30	-4.78
Leather.....	-2.47	-3.72
Rubber.....	-.32	-.88
Lumber.....	-4.76	-5.74
Paper.....	1.55	-.78
Printing.....	3.46	.60
Chemicals.....	2.08	1.63
Stone.....	-.33	-3.39
Metals.....	-.24	-3.72
Miscellaneous.....	-.96	-4.21
Construction.....	2.02	-.89
Public Utilities.....	3.63	2.78
Trade.....	-.85	-3.16
Service.....	1.45	-1.03
Finance.....	1.79	1.18
Unclassified.....	-.55	-2.45

groups within the manufacture division, can be discussed in the light of the figures on rates of return. One important qualification is necessary: data for the mining division are somewhat untrustworthy because of the extent to which allowances for depletion affect the result.<sup>1</sup>

In 1931 the lowest rates among the divisions were in agriculture and trade, and the highest were in public utilities and finance. In 1932 the lowest were in service and trade, with construction and agriculture not greatly different from trade; and the highest were again in public utilities and finance. Among the manufacture groups, tobacco had in both years the highest return, a strikingly large return. In both years the other positive rates of return were in foods and in chemicals. The lowest rates of return in each year were in lumber and in textiles. These comparisons are based upon conditions in deep depression; and the relative rates of return among industries, which prevailed in the two years under examination, may not be characteristic of a period of great prosperity or even of years of normal economic conditions. Important evidence of the per-

<sup>1</sup> Professor Ralph C. Epstein has commented at length upon this point, op. cit., p. 213.

Table 15. Percentage Rates of Return on Net Worth and on Total Assets

	Net Worth						Total Assets					
	(1)		(2)		(3)		(4)		(5)		(6)	
	1931	1932	1931	1932	1931	1932	1931	1932	1931	1932	1931	1932
All Corporations	2.33%	-.033%	.27%	-1.79%	2.06%	-.24%	2.94%	1.38%	1.29%	.18%	2.50%	.92%
Agriculture.....	-3.55	-4.05	-5.00	-5.23	-3.63	-4.10	-1.06	-1.44	-1.98	-2.19	-1.11	-1.48
Mining.....	-1.84	-1.89	-2.51	-2.53	-1.93	-1.99	-.52	-.57	-1.01	-1.13	-.58	-.64
Manufacture.....	1.67	-1.23	-.68	-3.11	1.33	-1.46	2.18	-.008	.51	-1.40	1.93	-.18
Foods.....	6.10	3.92	3.17	1.40	5.37	3.41	5.49	3.90	3.42	2.08	4.97	3.53
Tobacco.....	16.4	16.5	13.5	13.5	14.6	14.4	13.8	14.4	11.5	11.9	12.4	12.6
Textiles.....	-1.41	-3.59	-5.69	-7.27	-1.60	-3.71	-.35	-2.02	-3.45	-4.88	-.50	-2.12
Leather.....	-.29	-1.39	-4.64	-4.15	-.76	-1.71	-.57	-.88	-2.84	-4.01	-.20	-1.17
Rubber.....	-.94	-3.14	-2.15	-4.07	-1.10	-3.18	-.97	-.35	.21	-.91	.86	-.37
Lumber.....	-5.85	-7.75	-8.88	-9.79	-6.42	-7.79	-2.99	-4.33	-5.17	-5.76	-3.40	-4.35
Paper.....	1.77	-1.43	-.31	-3.23	1.54	-1.56	2.91	.44	1.38	-.38	2.74	-.34
Printing.....	9.10	3.94	3.09	-1.04	8.45	3.54	6.94	3.57	3.03	-.34	6.51	3.31
Chemicals.....	2.11	1.37	1.15	.54	1.85	1.15	2.62	2.11	1.88	1.46	2.42	1.94
Stone.....	-.52	-3.75	-1.77	-5.62	.25	-3.87	1.21	-2.04	-.50	-3.49	1.04	-2.14
Metals.....	.22	-4.70	-1.73	-5.97	-.26	-4.76	.88	-2.83	-.44	-3.77	.68	-2.88
Miscellaneous.....	1.21	-4.02	-3.16	-7.63	.80	-4.26	1.86	-1.81	-1.26	-4.39	1.56	-1.99
Construction.....	11.0	1.04	.65	-6.78	10.4	.73	6.95	1.99	1.72	-1.07	6.65	1.83
Public Utilities.....	2.92	1.46	2.96	.95	2.64	1.18	3.76	2.90	3.49	2.64	3.62	2.76
Trade.....	3.26	-.63	-3.56	-6.79	-.85	-.93	3.26	.63	-1.10	-3.36	3.01	-.43
Service.....	4.30	-3.69	-1.06	-7.73	4.00	-3.92	4.13	.67	1.28	-1.14	3.96	.56
Finance.....	2.88	1.18	1.33	-.20	2.73	1.06	2.18	1.52	1.75	1.15	2.14	1.49
Unclassified.....	.21	-3.60	-1.72	-4.51	.16	-3.66	.72	-1.90	-.59	-2.49	.68	-1.94

Formulas: (1) =  $\frac{P+S}{W}$ , (2) =  $\frac{P-T}{W}$ , (3) =  $\frac{P+S-T}{W}$ , (4) =  $\frac{P+I+S}{A}$ , (5) =  $\frac{P+I-T}{A}$ , (6) =  $\frac{P+I+S-T}{A}$

sistence of these disparities in other years, at least for a selected list of corporations, is presented at various points in Professor Epstein's book.<sup>1</sup>

The rates of return shown in Table 14 are generally higher than those just discussed. These figures include interest paid in the numerator, and rest upon total assets in the denominator. The positions of particular divisions or groups, relative to one another, are naturally somewhat different in this table from those shown in the preceding one; but the main relationships are unchanged. With some reservations, the same divisions are high and the same divisions are low in Table 14 as in Table 13. The figures of Table 14 reflect the return earned by the entire capital of industry rather than the rate received by the owner. All inferences based upon such figures must be qualified by the observation that total assets is at best a poor estimate of the "capital used in the business", a concept which has become common in problems of rate making.

The six sets of data in Table 15 record the rates of return as calculated by the more complicated formulas given above. These results are presented here without comment, as a matter of record.

### Conclusion

The foregoing discussion of selected ratios derived from corporate income tax data has been directed chiefly to revealing differences among lines of industry, and particularly to discovering whether the different experiences during the current depression admit of a broad provisional interpretation on economic grounds. It has been necessary to base the principal comparisons upon a ratio, the profit ratio, which is not appropriate for direct comparisons among lines of industry. This ratio has actually been used in the present study, however, as a means of tracing the cyclical course of profits in particular lines of industry; and these sequences of change, rather than the profit ratios at any given time, yield significant comparisons for the present purpose. Such comparisons of the cyclical sequences of the profit ratio are possible among the major industrial divisions and among the manufacture groups for the entire period since the War. They are possible also among much more narrowly classified lists of corporations—each such list presumably reflecting conditions in a rather narrowly specific line of industry—for the years 1926-1932.

Study of the profit ratios from this point of view reveals similarities and differences, among lines of industry, which in general fit in with the hypothesis that corporations producing durable and producers' goods suffered much more severely in the depression

<sup>1</sup> Op. cit., especially Chap. 3.

than those producing nondurable and consumers' goods. Although this finding is not out of accord with views widely held on other grounds, the substantial confirmation of the hypothesis by reference to corporate profits data is a highly significant step in the statistical verification of theory.

A less prominent place is given in the discussion to ratios reflecting the rate of return on capital, defined statistically in several ways. These ratios are formally comparable only for 1931 and 1932, and do not pertain to so fine a classification of industry as the profit ratios. Furthermore, difficulties in the definition of the ratio—difficulties arising partly from accounting perplexities and partly from theoretical obstacles—render even the comparisons between 1931 and 1932 obscure. Broadly, however, the results for 1931 and 1932 are concordant with those disclosed by the cyclical changes in the profit ratio; and they therefore lend further support to the hypothesis that the principal burden of the depression fell upon the durable and producers' goods industries.

### Supplementary Notes

Two chief questions concerning the statistical coverage of the data used have been raised in the analyses reported above. The first of these relates to the adequacy, as a sample of all corporations, of the returns upon which the preliminary issues of *Statistics of Income* are based, and the second relates to the comparability of data for all income tax returns with those for the returns which include balance sheets. Materials for the examination of these questions appear in Tables 16 and 17.

Preliminary statistics have appeared for the years 1927-1933, and can be compared with final data for the years 1927-1932. Preliminary statistics are based upon returns filed by the end of August following the calendar year to which the bulk of the returns pertain; these statistics are published about four months later in a preliminary edition of *Statistics of Income*. The final statistics cover, with minor reservations, all returns filed either for the calendar year in question or for a fiscal year more than half of which falls in that calendar year; these statistics are published about one year later than the preliminary statistics in the regular edition of *Statistics of Income*.

Table 16 presents in parallel columns the gross income for each division and group as given in the final tabulations and in the preliminary tabulations for 1927-1930. Gross income is not the sole item which might be used for such a test comparison, but it is one of the best single items which can be selected from among those available. For the particular purposes now in

Table 16. Gross Income, for Each Division and Group, Compiled from Final and Preliminary Tax Tabulations

(Unit: one million dollars)

	1927		1928		1929		1930	
	Final	Preliminary	Final	Preliminary	Final	Preliminary	Final	Preliminary
Agriculture.....	\$ 822	\$ 750	\$ 825	\$ 740	\$ 883	\$ 833	\$ 671	\$ 618
Mining.....	3,837	3,791	3,589	3,215	4,048	3,547	2,999	2,444
Manufacture.....	63,723	52,258	67,273	59,376	72,132	60,960	60,900	51,856
Construction.....	3,056	2,851	2,978	2,833	3,082	3,551	3,042	2,872
Trade.....	40,944	37,504	43,204	40,003	43,495	40,814	37,209	34,446
Service.....	3,687	3,756	3,828	3,356	4,192	3,698	4,165	3,610
All Divisions.....	115,968	100,910	121,697	109,524	127,830	113,704	108,986	95,847
Foods.....	\$13,914	\$ 9,727	\$14,249	\$11,762	\$14,768	\$12,816	\$13,186	\$10,773
Textiles.....	7,807	7,221	7,837	7,204	8,233	8,688	6,417	6,055
Leather.....	1,731	1,544	1,722	1,570	1,741	1,682	1,389	1,325
Rubber.....	1,447	1,180	1,386	1,144	1,427	1,423	1,100	904
Lumber.....	2,804	2,663	2,842	2,658	2,795	2,681	1,988	1,892
Paper.....	1,669	1,500	1,728	1,388	1,796	1,755	1,579	1,458
Printing.....	2,566	2,249	2,680	2,319	2,871	2,535	2,603	2,283
Chemicals.....	8,768	6,501	9,551	6,809	10,288	7,907	11,977	9,405
Stone.....	1,600	1,547	1,655	1,575	1,655	1,588	1,410	1,356
Metals.....	19,185	16,234	21,174	20,704	23,093	17,606	17,198	14,497
Miscellaneous.....	2,229	1,995	2,449	2,182	2,466	2,218	1,994	1,847

Table 17. Gross Income, for Each Division and Group, Compiled from Final and Preliminary Tabulations, and from Returns Filing Balance Sheets

(Unit: one million dollars)

	1931			1932			1933
	Final	Preliminary	Filing Balance Sheets	Final	Preliminary	Filing Balance Sheets	Preliminary
Agriculture.....	\$ 492	\$ 437	\$ 466	\$ 368	\$ 335	\$ 353	\$ 352
Mining.....	2,229	1,826	2,183	1,665	1,313	1,645	1,514
Manufacture.....	44,033	37,939	43,459	31,976	23,846	31,771	26,957
Construction.....	2,236	2,158	2,127	1,438	1,291	1,379	1,004
Trade.....	30,593	28,280	29,528	23,133	20,796	22,596	21,082
Service.....	3,679	2,918	3,484	3,092	2,670	2,951	2,306
All Divisions.....	83,263	72,658	81,248	61,673	50,251	60,696	53,216
Foods.....	\$10,538	\$8,495	\$10,415	\$8,329	\$6,492	\$8,275	\$7,265
Textiles.....	5,301	4,968	5,187	3,884	3,448	3,844	4,096
Leather.....	1,110	1,030	1,079	841	774	835	889
Rubber.....	817	678	812	636	532	635	528
Lumber.....	1,348	1,257	1,318	854	793	847	883
Paper.....	1,272	1,184	1,255	1,009	827	1,000	969
Printing.....	2,285	1,962	2,230	1,789	1,493	1,759	1,349
Chemicals.....	7,324	6,257	7,265	6,458	3,522	6,432	3,947
Stone.....	1,041	999	1,023	670	640	663	640
Metals.....	11,514	8,827	11,438	6,507	4,443	6,488	5,476
Miscellaneous.....	1,482	1,382	1,439	1,000	882	993	915

hand, the profit ratio might be suggested as the basis of a test comparison; but, as this is a derived statistical figure, there is some danger that apparent similarities among the final and preliminary profit ratios might conceal basic differences in the constituents from which the ratios are derived. The fact is, however, that important differences between preliminary and final profit ratios have generally been found for those cases in which Tables 16 and 17 reveal important differences between preliminary and final gross income items. The 1931-1932 data appear in Table 17, which includes also certain additional columns and presents the preliminary data for 1933, with which no comparison of final data is yet possible.

The goodness of the preliminary sample varies from industry to industry and from year to year. Among the divisions, the sample is good in nearly all years for construction, trade, and agriculture; it is good in most years for manufacture; and it is poor in at least half the years for mining and service. Among the manufacture groups, the sample is good in nearly all years for textiles, leather, lumber, and stone; good in most years for paper and miscellaneous; and poor in about half the years for foods, rubber, printing, chemicals, and metals. These determinations of goodness are, of course, only rough; study of the data suggests that, unless the preliminary statistics cover about 90% of the final gross, the derived profit ratios are not very trustworthy forecasts of the final figures. One of the serious difficulties is that, for a particular group, the preliminary statistics may fail to include data for one large corporation which is subsequently covered in the final tabulation. If such a large corporation has a profit experience somewhat out of line with the mass of companies in the group, there is an inevitable difference between the profit ratios derived from preliminary and from final statistics. It may well be urged, on grounds of

statistical theory, that under such circumstances a more representative figure is obtained if that large corporation is excluded. The problem here is, however, somewhat different from that of statistical theory; here it is merely sought to determine whether the preliminary data afford a trustworthy forecast of the results to be disclosed later by the final data.

Table 17 furnishes materials for a somewhat similar test of the corporations filing balance sheets, as a sample of all corporations, for the years 1931-1932 only. Comparison of column 1 with 3, and 4 with 6, yields tentative determination of the adequacy of coverage of the balance sheet data. The situation is emphatically more favorable here; for every division and group, in both years, the list including corporations returning balance sheets covers almost the entire gross income reported by all corporations in that division or group. The conclusion is justified that statistical analyses based upon the limited list of corporations filing balance sheets are generally trustworthy indications of conditions for all corporations. Manifestly, also, it is probably inaccurate to "step up" the balance sheet items as reported by applying a correction to allow for the corporations which do not file balance sheets, for such corporations, judging by their gross income data, must on the average be small.

In summary, the preliminary tabulations afford a somewhat capricious basis for anticipating the characteristics of the final data, but may fairly be used for certain divisions and groups in most years. The income data tabulated from returns filing balance sheets constitute an excellent sample of data for all (final) returns, and characteristics of these data may be used interchangeably with those derived from the complete final list. This finding is of great practical moment when comparisons are made, as in the present report, involving both income account and balance sheet items.

# BUREAU OF BUSINESS RESEARCH: BULLETINS IN PRINT — *Continued*

## DRY GOODS—WHOLESALE (Southern)

No. 45. Operating Expenses in the Wholesale Dry Goods Business in the South in 1923..... 50 cents

## GROCERY—RETAIL (See also CHAIN STORES)

Operating Expenses in Retail Grocery Stores: 1924, No. 52; 1923, No. 41; 1919, No. 18..... 50 cents each  
 No. 13. Management Problems in Retail Grocery Stores (1918)..... 50 cents  
 No. 5. Expenses in Operating Retail Grocery Stores (1914)..... 50 cents  
 No. 3. Operating Accounts for Retail Grocery Stores (revised edition—1922)..... 50 cents

## GROCERY—WHOLESALE (See also CHAIN STORES)

No. 55. Cases on Merchandise Control in the Wholesale Grocery Business (1925)..... (In cloth) \$1.00  
 Operating Expenses in the Wholesale Grocery Business: 1923, No. 40; 1921, No. 30; 1919, No. 19..... 50 cents each  
 No. 14. Methods of Paying Salesmen, and Operating Expenses in the Wholesale Grocery Business in 1918. 50 cents  
 No. 9. Operating Expenses in the Wholesale Grocery Business (1916)..... 50 cents  
 No. 8. Operating Accounts for Wholesale Grocers (revised edition—1920)..... 50 cents

## GROCERY—MANUFACTURERS

No. 79. Marketing Expenses of Grocery Manufacturers for 1927 and 1928..... \$2.00  
 No. 77. Marketing Expenses of Grocery Manufacturers for 1927..... \$1.50  
 No. 69. Marketing Expense Classification for Grocery Manufacturers (1928)..... \$1.50

## HARDWARE—RETAIL

No. 21. Operating Expenses in Retail Hardware Stores in 1919..... 50 cents  
 No. 11. System of Operating Accounts for Hardware Retailers (1918)..... 50 cents

## JEWELRY—RETAIL

No. 76. Operating Results of Retail Jewelry Stores for 1927..... \$1.50  
 No. 65. Operating Expenses of Retail Jewelry Stores in 1926..... \$1.50  
 Corresponding Bulletins for earlier years: No. 58, 1925; No. 54, 1924; No. 47, 1923; No. 38, 1922; No. 32, 1921;  
 No. 27, 1920; No. 23, 1919..... 50 cents each  
 No. 15. Operating Accounts for Retail Jewelry Stores (1919)..... 50 cents

## LABOR

No. 25. Labor Terminology (1921)..... (In cloth) \$1.00

## PAINT AND VARNISH—WHOLESALE

No. 66. Operating Expenses in the Wholesale Paint and Varnish Business in 1926..... \$1.50  
 No. 60. Preliminary Report on Operating Expenses in the Wholesale Paint and Varnish Business in 1925..... 50 cents

## PLUMBING AND HEATING SUPPLY—WHOLESALE

No. 72. Methods of Departmentizing Merchandise and Expense Figures for Plumbing and Heating Supply  
 Wholesalers (1928)..... \$1.00  
 No. 71. Operating Expenses of Plumbing and Heating Supply Wholesalers in the Central States in 1927.... \$1.50

## PRIVATE SCHOOLS

No. 62. Operating Expenses of Private Schools for the Year 1925-26..... \$1.00

## PUBLIC UTILITIES

No. 68. Interstate Transmission of Power by Electric Light and Power Companies in 1926..... \$2.00

## SHOE—RETAIL (See also CHAIN STORES)

No. 59. Cases on Merchandise Control in Women's Shoe Departments of Department Stores (1926)..... \$2.00  
 Operating Expenses in Retail Shoe Stores: 1923, No. 43; 1922, No. 36; 1921, No. 31; 1919, No. 20..... 50 cents each  
 No. 10. Management Problems in Retail Shoe Stores (1913-1917)..... 50 cents  
 No. 7. System of Stock-keeping for Retail Shoe Stores (1922)..... 50 cents  
 No. 2. Operating Accounts for Retail Shoe Stores (revised edition—1917)..... 50 cents

## SHOE—WHOLESALE

No. 6. System of Accounts for Shoe Wholesalers (1916)..... 50 cents

## STATIONERY AND OFFICE OUTFITTING—RETAIL

No. 80. Operating Results of Retail Stationers and Office Outfitters in 1928..... \$2.00  
 No. 67. Operating Expenses of Retail Stationers and Office Outfitters in 1926..... \$1.50

## TEXTILES (See also COTTON)

No. 56. Distribution of Textiles (1926)..... (In cloth) \$3.50

## WALL PAPER—WHOLESALE

No. 73. Operating Expenses of Wall Paper Wholesalers in 1927..... \$1.50

## BUREAU OF BUSINESS RESEARCH: BULLETINS IN PRINT — *Continued*

### DRY GOODS—WHOLESALE (Southern)

No. 45. Operating Expenses in the Wholesale Dry Goods Business in the South in 1923 . . . . . 50 cents

### GROCERY—RETAIL (*See also* CHAIN STORES)

Operating Expenses in Retail Grocery Stores: 1924, No. 52; 1923, No. 41; 1919, No. 18 . . . . . 50 cents each

No. 13. Management Problems in Retail Grocery Stores (1918) . . . . . 50 cents

No. 5. Expenses in Operating Retail Grocery Stores (1914) . . . . . 50 cents

No. 3. Operating Accounts for Retail Grocery Stores (revised edition—1922) . . . . . 50 cents

### GROCERY—WHOLESALE (*See also* CHAIN STORES)

No. 55. Cases on Merchandise Control in the Wholesale Grocery Business (1925) . . . . . (In cloth) \$1.00

Operating Expenses in the Wholesale Grocery Business: 1923, No. 40; 1921, No. 30; 1919, No. 19 . . . . . 50 cents each

No. 14. Methods of Paying Salesmen, and Operating Expenses in the Wholesale Grocery Business in 1918. 50 cents

No. 9. Operating Expenses in the Wholesale Grocery Business (1916) . . . . . 50 cents

No. 8. Operating Accounts for Wholesale Grocers (revised edition—1920) . . . . . 50 cents

### GROCERY—MANUFACTURERS

No. 79. Marketing Expenses of Grocery Manufacturers for 1927 and 1928 . . . . . \$2.00

No. 77. Marketing Expenses of Grocery Manufacturers for 1927 . . . . . \$1.50

No. 69. Marketing Expense Classification for Grocery Manufacturers (1928) . . . . . \$1.50

### HARDWARE—RETAIL

No. 21. Operating Expenses in Retail Hardware Stores in 1919 . . . . . 50 cents

No. 11. System of Operating Accounts for Hardware Retailers (1918) . . . . . 50 cents

### JEWELRY—RETAIL

No. 76. Operating Results of Retail Jewelry Stores for 1927 . . . . . \$1.50

No. 65. Operating Expenses of Retail Jewelry Stores in 1926 . . . . . \$1.50

Corresponding Bulletins for earlier years: No. 58, 1925; No. 54, 1924; No. 47, 1923; No. 38, 1922; No. 32, 1921;

No. 27, 1920; No. 23, 1919 . . . . . 50 cents each

No. 15. Operating Accounts for Retail Jewelry Stores (1919) . . . . . 50 cents

### LABOR

No. 25. Labor Terminology (1921) . . . . . (In cloth) \$1.00

### PAINT AND VARNISH—WHOLESALE

No. 66. Operating Expenses in the Wholesale Paint and Varnish Business in 1926 . . . . . \$1.50

No. 60. Preliminary Report on Operating Expenses in the Wholesale Paint and Varnish Business in 1925 . . . . . 50 cents

### PLUMBING AND HEATING SUPPLY—WHOLESALE

No. 72. Methods of Departmentizing Merchandise and Expense Figures for Plumbing and Heating Supply Wholesalers (1928) . . . . . \$1.00

No. 71. Operating Expenses of Plumbing and Heating Supply Wholesalers in the Central States in 1927 . . . . . \$1.50

### PRIVATE SCHOOLS

No. 62. Operating Expenses of Private Schools for the Year 1925-26 . . . . . \$1.00

### PUBLIC UTILITIES

No. 68. Interstate Transmission of Power by Electric Light and Power Companies in 1926 . . . . . \$2.00

### SHOE—RETAIL (*See also* CHAIN STORES)

No. 59. Cases on Merchandise Control in Women's Shoe Departments of Department Stores (1926) . . . . . \$2.00

Operating Expenses in Retail Shoe Stores: 1923, No. 43; 1922, No. 36; 1921, No. 31; 1919, No. 20 . . . . . 50 cents each

No. 10. Management Problems in Retail Shoe Stores (1913-1917) . . . . . 50 cents

No. 7. System of Stock-keeping for Retail Shoe Stores (1922) . . . . . 50 cents

No. 2. Operating Accounts for Retail Shoe Stores (revised edition—1917) . . . . . 50 cents

### SHOE—WHOLESALE

No. 6. System of Accounts for Shoe Wholesalers (1916) . . . . . 50 cents

### STATIONERY AND OFFICE OUTFITTING—RETAIL

No. 80. Operating Results of Retail Stationers and Office Outfitters in 1928 . . . . . \$2.00

No. 67. Operating Expenses of Retail Stationers and Office Outfitters in 1926 . . . . . \$1.50

### TEXTILES (*See also* COTTON)

No. 56. Distribution of Textiles (1926) . . . . . (In cloth) \$3.50

### WALL PAPER—WHOLESALE

No. 73. Operating Expenses of Wall Paper Wholesalers in 1927 . . . . . \$1.50