Volume Title: Capital in Manufacturing and Mining: Its Formation and Financing

Volume Author/Editor: Daniel Creamer, Sergei Dobrovolsky, and Israel Borenstein, assisted by Martin Bernstein

Volume Publisher: UMI

Volume ISBN: 0-870-14104-X

Volume URL: http://www.nber.org/books/crea60-1

Publication Date: 1960

Chapter Title: Notes on Estimates of Capital, Output and Employment in Manufacturing, 1880â€”1953

Chapter Author: Daniel Creamer, Sergei P. Dobrovolsky, Israel Borenstein, Martin Bernstein

Chapter URL: http://www.nber.org/chapters/c1394

Chapter pages in book: (p. 195 - 273)

APPENDIX A

Notes on Estimates of Capital, Output and Employment in Manufacturing, 1880–1953

A. Sources and Adjustments of Reported Values

1. SOURCES

Censuses of Manufactures were the source of information on capital and output for the benchmark years between 1880 and 1919. For the benchmark years following 1919, the data were taken from the "Source Book" of *Statistics of Income*, Part II, the compilation of corporate income-tax returns prepared by the Internal Revenue Service (formerly Bureau of Internal Revenue) of the Treasury Department. The estimates of capital from these two sources can be considered as a continuous series only if the estimates from the two sources are comparable. The following paragraphs present the basis for our conviction that the two series are sufficiently comparable to be treated as continuous for our purposes. The comparability of concepts of capital used in the various censuses from 1880 to 1919 is discussed in Chapter I.

a. Value of Capital in Manufacturing and Mining: *Censuses of Manufactures* and *of Mines*, 1919[1] compared with *Statistics of Income for 1919*. After the census of 1870, Francis A. Walker, Superintendent of the Census, warned the public, in no uncertain terms, of the gross inadequacies of the census reports on the value of capital used in manufacturing industries. He asserted, "It is a pity, and may almost be said to be a shame, that statistical information, in many respects, of high authority and accuracy, should be discredited by association with statements [on capital] so flagrantly false, even to the least critical eye.... The aggregate amount of capital invested in manufactures in the United States is $2,118,208,769. It is doubtful whether this sum represents one-fourth of the capital actually contributing to the annual gross product of $4,232,325,442."[2]

At later canvasses by the Bureau of the Census, serious misgivings about the accuracy of the inquiry on capital continued to be expressed, although in somewhat more moderate terms. Even in 1919, the last census to include the query on capital, the authorities felt constrained to remark that "the data compiled in respect to capital ... [at this

[1] *Fourteenth Census of the United States, 1920*, Vol. VIII: *Manufactures, 1919* (hereafter, *Census of Manufactures, 1919*); Vol. IX: *Mines and Quarries, 1919*.

[2] *Ninth Census of the United Census, 1870*, Volume III, *The Statistics of Wealth and Industry of the United States, 1870*, p. 382.

census], as well as at all preceding censuses of manufactures, have been considered as being of limited value except as indicating very general conditions. While there are some establishments whose accounting systems are such that an accurate return for capital could be made, this is not true of the great majority. . . ."[3]

Should these disclaimers be taken at face value? Should we disregard the census statistics on value of capital in manufacturing industries? There are strong a priori reasons for believing that the margin of error attached to statements on value of capital is wider than that which attaches to statements on value of product or number employed. Is the margin as gross as the authorities want us to believe? Certainly, the authorities have never demonstrated the validity of their claims.

Moreover, in view of the absence, prior to 1919, of other data on capital, the temptation to utilize these data is great indeed. Little wonder, then, that investigators who succumb to the temptation attempt to disprove the claim of the census authorities.

The attempt can be made only for 1919. We compare the value of capital as reported in the *Census of Manufactures, 1919* with the value of investment as reported to *Statistics of Income for 1919*. If the figures on capital derived from both sources are approximately the same, we may have confidence that the figure from either source is reasonably "true." If similar approximations can be shown to exist in manufacturing groups, our confidence in the data will be further strengthened.

Figures from each source must be adjusted to achieve comparability with respect to the following characteristics: (1) industrial coverage; (2) legal organization; and (3) definition of capital.

Industrial coverage. Statistics of Income for 1919 classifies investment in manufacturing corporations into 11 industry groups; no further industry detail is given. Capital in *Census of Manufactures, 1919*, however, is reported for minor industries classified into 14 major industry groups. In view of the inflexibility of the industry classification in *Statistics of Income*, comparability can be achieved only by rearranging the industry groups in the *Census of Manufactures* to conform with those in *Statistics of Income*.

This involves more than combining the 14 census groups into 11. Certain industries canvassed by the census are not included in the *Statistics of Income* classification of manufacturing and, accordingly, had to be eliminated from the census figures.[4] Other changes involved

[3] *Census of Manufactures, 1919*, p. 11.

[4] The most important of the eliminated industries are manufactured gas, shipbuilding, and railroad repair shops.

shifting various minor industries from one major classification to another. Undoubtedly, if complete knowledge of the industrial classification was available, additional shifts would be required for strict comparability, but the presumption is strong that such cases are not quantitatively important.

Legal organization. The tabulations from *Statistics of Income* useful for our purposes are those which relate only to corporations. Accordingly, it is necessary to eliminate capital used by unincorporated establishments from the census totals. This is accomplished by assuming that the ratio of capital used by unincorporated establishments to capital of all establishments is identical with the ratio of value of product in unincorporated establishments to the value of product in all establishments. Value of product by unincorporated and incorporated establishments is reported by minor industries in the *Census of Manufactures 1919.* The required ratios could, therefore, be computed for major classifications by aggregating the figures for the minor industries in a given major industrial classification.

Definition of capital. The census inquiry on capital asked each establishment to report the book value of:

1. Land, buildings, machinery, and tools
2. Materials, stocks in process, finished products, fuel, and miscellaneous supplies
3. Cash, bills receivable, and sundries.

The sum of these three entries equals the total capital of each establishment, and this total is equivalent to total assets excluding investments in other establishments.

Statistics of Income for 1919 reported invested capital—the sum of the par value of preferred and common stock and surplus. In other words, we are confronted with the problem of determining the relation between net worth (invested capital) and total assets excluding securities. For such a determination, balance sheet data are indispensable.

In practice, then, we are obliged to rely on balance sheets for 1919. These are in *Moody's Analyses of Investments, Industrial Securities, 1920* (*Moody's Manual of Industrials*). From this source, we compiled a sample of 619 manufacturing companies operating in the United States. The companies in the sample are classified into the 11 major industry groups used by *Statistics of Income.* For each subsample of companies we computed total net worth, total assets excluding securities, and the ratio of total assets to net worth. In this manner we obtain a ratio, for each major industry group, to raise the group total of invested capital reported (with adjustments) in *Statistics of Income*

to the census level. Invested capital inflated by these raising ratios is considered equivalent in concept to capital as reported in the *Census of Manufactures.*

How representative are raising ratios based on the large corporations which comprise the *Moody's* sample? Using *Statistics of Income for 1937,* Sidney S. Alexander has investigated the variation in the ratio of net worth to total assets of manufacturing corporations classified by asset size.

Net Worth as Per Cent of Total Assets, 1937

Total Assets (*thousands of dollars*)	
All combined	74.0
Under $50	43.5
$50 and under $100	56.5
$100 and under $250	61.7
$250 and under $500	68.5
$500 and under $1,000	70.8
$1,000 and under $5,000	73.8
$5,000 and under $10,000	76.3
$10,000 and under $50,000	76.7
$50,000 and under $100,000	73.3
$100,000 and over	77.0

Source: Sidney S. Alexander, "Financial Structure of American Corporations since 1900," manuscript, National Bureau of Economic Research, 1945, p. 100A.

These computations suggest that the net worth ratios for large manufacturing corporations are very similar to the average for all manufacturing corporations. Moreover, these ratios for the large corporations are more representative of all manufacturing than would be the net worth ratios for either the small or medium-sized corporations. These findings relate to 1937 and not to 1919. However, they may well hold for 1919 also, since Alexander finds "striking the long-run stability of the net worth ratio as indicated by data available from the various samples and aggregated materials for the years 1903–1939" (*ibid.,* p. 99).

In Table A-1 we present information on our corporate sample and the sample ratios of assets minus securities to invested capital (capital stock plus surplus).

Before we present the results of our comparison, it is necessary to describe adjustments made to the figures on invested capital reported in *Statistics of Income for 1919.* The reported figures relate only to net income corporations filing information on invested capital. To reach a total for all manufacturing corporations, we require estimates of invested capital in net income corporations that failed to submit such information and in deficit corporations. The estimating procedure and the results are set out in Table A-2 (parallel treatment was accorded

TABLE A-1

Assets as Percentage of Invested Capital, Sample Drawn from *Moody's* of Manufacturing and Mining Corporations, 1919
(*dollars in thousands*)

	Sample from Moody's				
	Corporations (number) (*1*)	*Total Assets Minus Securities* (*2*)	*Total Invested Capital*[a] (*3*)	*Assets as Per cent of Invested Capital (Col. 2÷Col. 3)* (*4*)	*Invested Capital as (Col. 3) Per cent of Universe*[b] (*5*)
Mining	122	$3,127,206	$2,557,120	122.29%	50.06%
All manufacturing	619				
Food and kindred products	73	2,504,123	1,663,085	150.57	41.58
Textiles and their products	112	910,892	667,373	136.49	18.96
Leather and leather products	21	521,245	370,867	140.55	43.40
Rubber products	29	725,077	542,177	133.73	72.19
Forest products	13	177,673	140,126	126.80	7.44
Paper, pulp, and products	26	312,899	245,094	127.66	29.84
Printing, publishing, and allied products	8	48,065	43,062	111.62	5.73
Chemicals and allied products	52	1,729,612	1,480,012	116.86	46.29
Stone, clay, and glass products	15	145,810	132,140	110.35	15.32
Metals and metal products	256	8,058,931	6,020,088	133.87	52.47
Miscellaneous and unclassified	14	96,152	76,848	125.12	9.72

[a] Sum of par value of common and preferred stocks plus surplus.

[b] For manufacturing, the universe is from Table A-3, column 1, adjusted by distributing a part of unclassified invested capital in the "miscellaneous and unclassified" category among the other industries; for mining, from Table A-3, column 1.

Source: Sample drawn from *Moody's Manual of Industrials, 1920.*

TABLE A-2

Derivation of Total Invested Capital in All Manufacturing Corporations, by Major Industries, 1919

	Food and Kindred Products	*Textiles and Their Products*	*Leather and Leather Products*	*Rubber Products*	*Forest Products*	*Paper, Pulp, and Products*	*Printing and Publishing*	*Chemicals and Allied Products*	*Stone, Clay, and Glass Products*	*Metals and Metal Products*	*Miscellaneous*	*All Manufacturing*
A. Net income of net income corps.	$ 619,825	$ 912,379	$ 241,384	$ 126,832	$ 284,224	$ 129,235	$ 128,968	$ 451,771	$ 107,048	$1,789,213	$ 428,467	$5,219,345
B. Net inc. of corps. reporting invested capital	618,403	911,336	240,559	126,281	283,952	128,634	127,183	450,349	106,789	1,788,471	427,827	5,209,784
C. Net inc. of corps. *not* reporting invest. cap. (A less B)	1,422	1,043	825	551	272	601	1,785	1,422	259	742	640	9,561
D. Invest. cap. of reporting net inc. corps.	2,550,966	3,269,687	794,375	671,118	1,675,613	741,567	642,853	2,807,053	748,114	10,126,361	2,163,959	26,191,665
E. Net inc. as % of invest. cap. for reporting corps., [(B/D) × 100]	24.24%	27.87%	30.28%	18.82%	16.95%	17.35%	19.78%	16.04%	14.27%	17.66%	19.77%	
F. Est. invest. cap. of net inc. corps. not reporting invest. cap., (C/E)	$ 5,866	$ 3,742	$ 2,725	$ 2,928	$ 1,605	$ 3,464	$ 9,024	$ 8,865	$ 1,815	$ 4,202	$ 3,237	$ 47,473
G. Total invest. cap. of of net inc. corps., (D+F)	2,556,832	3,273,429	797,100	674,046	1,677,218	745,031	651,877	2,815,918	749,929	10,130,563	2,167,196	26,239,139
H. Gross income of all net inc. corps.	9,489,362	7,014,671	2,169,701	1,107,240	2,329,241	1,141,822	1,174,550	4,243,045	769,796	12,616,662	3,648,785	45,704,874
I. Gross inc. of net inc. corps as % of invest. cap. of net inc. corps. [(H/G) × 100]	371.14%	214.29%	272.20%	164.27%	138.88%	153.26%	180.18%	150.68%	102.65%	124.54%	168.36%	
J. Gross inc. of deficit corps.	$4,550,450	$ 120,989	$ 29,295	$ 59,619	$ 143,523	$ 49,234	$ 106,795	$ 314,106	$ 67,820	$ 897,479	$ 245,393	$6,584,703
K. Est. invest. cap. of deficit corps. (J/I)	1,226,074	56,460	10,762	36,293	103,343	32,124	59,271	208,459	66,069	720,635	145,755	2,665,245
L. Total invest. cap., all corps. (G+K)	3,782,906	3,329,889	807,862	710,339	1,780,561	777,155	711,148	3,024,377	815,998	10,851,198	2,312,951	28,904,384

Source: Lines A, B, D, H, and J from *Statistics of Income for 1919*, Bureau of Internal Revenue (now Internal Revenue Service), pp. 9, 18, 18, 9, 10, respectively.

the published tabulations for mining corporations). The two estimates of capital, one based on tabulations in the *Census of Manufactures, 1919* and the other based on *Statistics for Income for 1919*, and the final steps in the estimating procedure are presented in Table A-3.

One element of incomparability in the two sources could not be eliminated. The Bureau of the Census collects reports on an establishment basis. This means that the capital of a multiindustry firm is unlikely to be classified as devoted to but one industry. On the other hand, the Internal Revenue Service, in 1919, permitted corporations to file a consolidated return. That is, a corporation engaged in multiindustry activity would file only one return, and the consolidated figures would be classified under the one industry that represented its single most important industrial activity. Thus, the capital devoted to coal mines operated by a steel mill would be classified under metals and their products (the appropriate classification for a steel mill) by the Internal Revenue Service. The Bureau of the Census, however, would classify under metals and their products only the capital used by the steel mill; the capital devoted to coal mining would be reported in the *Census of Mines.*

In view of the differences in reporting units, perfect agreement of the two estimates for a given industry group would not signify accuracy of the respective estimates. For all manufacturing industries, one would expect estimated capital derived from *Statistics of Income* to exceed the comparable estimate derived from the *Census of Manufactures*; for mining, the relationship should be reversed. For manufacturing and mining combined, one would expect, also, that an estimate based on consolidated returns would exceed an estimate based on establishment returns, since a consolidated return, in some instances, would include (in addition to capital used in mining) capital used in distribution and transportation ancillary to manufacturing activity.

A comparison of our estimates from the two sources (Table A-3, column 8) supports the above expectations. Thus, for all manufacturing, capital derived from *Statistics of Income* exceeds capital based on the *Census of Manufactures* by 6.4 per cent. In mining, however, capital from *Statistics of Income* is 6 per cent less than capital from the *Census of Mines.* On a combined basis, capital from *Statistics of Income* is 4.4 per cent higher than the comparable estimates from census reports. That is, the differences are small and in directions that seem reasonable. The allegations of gross inaccuracy made against the reports of capital in the *Census of Manufactures* appear to be without foundation for the aggregate in 1919.

For major industrial divisions, the differences between the two

TABLE A-3

Derivation of Estimates of Capital in Major Manufacturing Industries and in Mining, 1919
(*dollars in thousands*)

Manufacturing	*Invested Capital (Stat. of Inc.)* (*1*)	*Assets as Per cent of Invested Capital (Sample from Moody's)* (*2*)	*Total Investment (col. 1 × col. 2)* (*3*)	*Capital of All Establishments (Census)* (*4*)	*Value of Output: Corporations as Per cent of All Establishments* (*5*)	*Capital of Corporations (col. 4 × col. 5)* (*6*)	*Total Investment after Allocation of Unclassified Investment*[a] (*7*)	*Investment (Stat. of Inc.) as Per cent of Capital (Census) (col. 7 ÷ col. 6)* (*8*)
Food and kindred products	$3,782,906	150.57%	$5,695,922	$6,272,291	83.39%	$5,230,463	$5,966,925	114.08%
Textiles and their products	3,329,889	136.49	4,544,965	6,180,888	74.93	4,631,339	4,783,674	103.29
Leather and leather products	807,862	140.55	1,135,450	1,522,501	84.60	1,288,036	1,193,744	92.68
Rubber products	710,339	133.73	949,936	960,071	99.54	955,655	1,000,802	104.72
Forest products	1,780,561	126.80	2,257,751	2,731,251	79.29	2,165,609	2,385,402	110.15
Paper, pulp, and their products	777,155	127.66	992,116	1,194,579	93.92	1,121,949	1,047,554	93.37
Printing, publishing, and allied products	711,148	111.62	793,783	1,189,426	79.99	951,422	844,659	88.78
Chemicals and allied products	3,024,377	116.86	3,534,287	4,132,593	96.28	3,978,861	3,750,897	94.27
Stone, clay, and glass products	815,998	110.35	900,454	1,282,920	87.69	1,124,993	958,750	85.22
Metals and metal products	10,851,198	133.87	14,526,499	14,037,321	96.10	13,489,865	15,303,925	113.45
Miscellaneous and unclassified	2,312,951	125.12	2,893,964	1,189,681	83.12	988,863	988,863[a]	100.00[a]
All manufacturing	28,904,384		38,225,127	40,693,522		35,927,055	38,225,195	106.40
Mining	5,108,109	122.29	6,246,706	7,108,623		6,652,695[b]		93.90[c]
Total, manufacturing and mining	34,012,493		44,471,833	47,802,145		42,579,750		104.44[c]

(*continued*)

estimates are larger. However, in no case is the difference so large as to imply that the census estimate of capital is grossly understated. Indeed, in half of the industry groups, the census estimate is higher than the estimate from *Statistics of Income*. However, it is necessary to remember that an important link in the estimating procedure for *Statistics of Income* data is the adjustment of net worth by raising ratios derived from the *Moody's* sample. For some industries, the sample of corporations is small (Table A-1, column 5), and the ratio may not, therefore, be representative. For any one industrial group, the largest difference between the two estimates did not exceed 15 per cent; in 6 of the 10 groups (we exclude "miscellaneous"), the differences were 10 per cent or less.

The *Statistics of Income* estimate for metals and their products is some 13 per cent higher than the one derived from the census. The direction of the difference is, we believe, correct, since fabricating mills, included in this group, frequently operate mining properties. For the same reason, we would have expected the same direction of difference in stone, clay, and glass products, but, in this instance, our expectation was not fulfilled. However, our sample from *Moody's* for this particular group is small.

This reconciliation of estimates of capital based on reports submitted to two different federal agencies is reasonably close not only for all manufacturing, but also for the major subdivisions. We accept a reasonably close reconciliation as evidence of the approximate accuracy of the respective estimates.

It may be argued, however, that our reconciliation relates to 1919, eleven years after the enactment of the federal corporation income tax law which obliged most corporations to maintain a systematic set of accounting records. The census reports on capital prior to 1909, this

---

NOTES TO TABLE A-3

[a] The "miscellaneous" category of *Statistics of Income* includes, also, the investment of corporations that cannot be classified because of insufficient information. We have arbitrarily assumed that capital for "miscellaneous" industries as derived from *Census of Manufactures* is the "true" figure for this classification and that the excess of capital for this classification as derived from *Statistics of Income* represents capital of unclassified industries. This excess after reduction to invested capital as reported in *Statistics of Income* is then redistributed among the various industries, using invested capital in column 1 as weights. These additions of invested capital are raised by the appropriate ratios in column 2, and the resulting products added to the figures in column 3.

[b] Sum of mining industry components, estimated as for manufacturing.

[c] Column 3 divided by column 6.

Source: For manufacturing, column 1 from Table A-2, line 1; for mining, estimated as in Table A-2, based on *Statistics of Income, 1919*; column 2 from Table A-1, column 4; columns 4 and 5 from 1919 *Census of Manufactures and Census of Mines*.

argument contends, must involve larger errors which increase with each backward extension of the time period covered. We are able to make only an indirect assessment of this type of argument, and on this we must rely.

Since we have an approximately accurate measure of capital for our terminal year, 1919, we can examine the changes in this magnitude from one census year to another for "reasonableness"—the absence of any serious discrepancy between the movement of capital and that of output. The large majority of the minor industries pass this test of reasonableness.

We conclude this effort of appraising the accuracy of the census reports on capital by commenting on the findings of several other investigators. John R. Arnold (in "Manufacturing Capital and Output, 1839–1931; Main Factors in Their Changes," *Annalist*, July 7, 1933) presents a reconciliation of the two estimates of capital that has served as a prototype for our own reconciliation. Mr. Arnold finds that "the figure for corporate manufacturing capital at which we just arrived ($36,680,000,000) [based on *Statistics of Income*] represents 86.8 per cent of the capitalization [for corporate and noncorporate establishments] reported by the census, less 5 per cent for undeducted depreciation ($42,244,000,000). Corporations accounted in 1919 for 87.7 per cent of all manufacturing enterprises covered by the census." He concludes, "This correspondence is as close as could be expected from the data with which we are dealing. It cannot leave much doubt that the census figure for manufacturing capital in 1919 represents approximately the same thing as the income tax total which we have taken as corresponding to it."

Mr. Arnold has not attempted similar reconciliations by industry groups; nor, judging by his published description, has he made any adjustments for differences in industry coverage and for failure of certain corporations to report information on invested capital on the income tax return. Moreover, he reports, "Successive samples of balance sheets from the investment manuals show stock and surplus [invested capital] in 1919 as representing, with little variation, 84 or 85 per cent of the manufacturing capital indicated by the census figures." Using all domestic manufacturing corporations operating in continental United States that were included in *Moody's Manual* for 1920, we found that stock and surplus represented 76 per cent of capital (Table A-3, total of column 1 divided by total for column 3).

One other effort at verification of census capital figures has come to our attention—that of Paul Douglas (in *The Theory of Wages* [Macmillan, 1934], pp. 116–118). There, he compares the Bureau of the Census estimate of manufacturing capital for 1922 (presented in its

monograph, *Wealth, Public Debt and Taxation*, 1922 [1924]) with S. H. Nerlove's estimate of corporate capital for the same year based on *Statistics of Income*. The Census used asset changes, 1919–1922, in 60 manufacturing corporations included in *Moody's* and *Poor's Manuals* to extrapolate capital as reported to the 1919 census (see *Wealth, Public Debt and Taxation*, p. 9). After reasonable adjustments for differences in coverage between the census and *Statistics of Income*, Douglas finds a discrepancy of 5 per cent: "Substantial agreement between the totals seems therefore to have been established. When two different estimates of such a large total agree within the range of 5 per cent, substantial verification can be claimed" (Douglas, *op. cit.*, p. 118). As with Arnold, the verification is restricted to aggregate manufacturing.

b. Reconciliation of Estimates of Fixed Capital Stock in Manufacturing Using Balance Sheet Data and Cumulative Annual Expenditures on Structures and Equipment. The next stage in gaining acceptance for our capital estimates is to demonstrate that the relative change between benchmark years in our estimates based on balance sheet data is reasonably close to the estimates based on cumulation of annual expenditures on plant and equipment. Because of differences in the scope and detail of the data over time, we must use one method of reconciliation for 1919–1929 and other methods for the subsequent benchmark comparisons.

The comparison of relative change between 1919 and 1929 was carried out in the following manner:

	1919	*1929*
	(*dollars in millions*)	
A. Total capital, from *Census of Manufactures*	41,433	
ESTIMATED FIXED CAPITAL:		
B. Including land (50% of A)	20,716	
C. Based on *Statistics of Income*		$27,410
D. 1929 as % of 1919 [(C÷B) × 100]		132.3%
E. Estimated Value of Buildings and Equipment	20,411	
1920–1929:		
F. Estimate of New Capital Expenditures		$21,327
G. Estimate of Depreciation		14,889
H. Net Capital Formation (F less G)		6,438
VALUE OF BUILDINGS AND EQUIPMENT:		
I. 1929 (E+H)		26,849
J. 1929 as % of 1919 [(I÷E) × 100]		131.5%

Line	Source
A.	National Bureau of Economic Research worksheets.
B.	Fixed capital as percentage of total capital excluding investment in securities equaled 49.1 per cent in 1904 and 49.8 per cent in 1930, both recession years; see Table 4.

Line	Source
C.	See Appendix Table A-9.
E.	Paul Douglas, *Theory of Wages* (Macmillan Co, 1934), p. 116.
F.	Lowell Chawner, "Capital Expenditures for Manufacturing, Plant and Equipment—1915 to 1940," *Survey of Current Business*, March 1941, p. 10.
G.	Solomon Fabricant, *Capital Consumption and Adjustment*, National Bureau of Economic Research, 1938, p. 32.

The relative changes on both bases are virtually identical. For 1929 and 1937, the comparison entailing the least number of adjustments is the one based on net fixed capital excluding land.

	Dollars in millions
A. Net Fixed Capital Excluding Land, 1929, *Statistics of Income*	$24,144
B. Expenditures for Structures and Equipment Minus Capital Outlays Charged to Current Expenses, 1930–1937	8,987
C. Cumulative Depreciation of Structures and Equipment	10,897
NET FIXED CAPITAL EXCLUDING LAND	
D. 1937 (A+B−C)	22,234
E. 1937, *Statistics of Income*	21,466
F. Based on Balance Sheet Data as % of Net Fixed Capital Based on Capital Expenditures [(E÷D) × 100]	96.5%

Line	Source
A. and E.	National Bureau of Economic Research worksheets.
B.	Donald G. Wooden and Robert C. Wasson, "Manufacturing Investment Since 1929," *Survey of Current Business* (November 1956), Table 1, p. 9. Estimate of capital outlays charged to current expenses supplied by letter by Mr. Wasson.
C.	Wooden and Wasson, *ibid.*, Table 2, p. 11, and letter.

	Dollars in millions
A. Gross Fixed Capital Including Intangible Assets but Excluding Land, 1937, *Statistics of Income*	$42,396
B. Expenditures for Structures and Equipment, 1938–1948	35,863
GROSS FIXED CAPITAL:	
C. Excluding Land, 1948 (A+B)	78,259
D. Including Intangible Assets but Excluding Land, 1948, *Statistics of Income*	77,094
E. Based on Balance Sheet Data as % of Gross Fixed Capital Based on Capital Expenditures [(D÷C) × 100]	98.5%
F. Expenditures for Structures and Equipment, 1949–1953	$35,271
GROSS FIXED CAPITAL:	
G. Excluding Land, 1953, Variant I (C+F)	113,530
H. Excluding Land, 1953, Variant II (D+F)	112,365
I. Including Intangible Assets but Excluding Land, 1953, *Statistics of Income*	113,794
BASED ON BALANCE SHEET DATA AS % OF GROSS FIXED CAPITAL BASED ON CAPITAL EXPENDITURES	
J. Variant I [(I÷G) × 100]	100.2%
K. Variant II [(I÷H) × 100]	101.3%

Line	Source
A., D. and I.	*Statistics of Income*, Part 2, raised to level of all firms.
B. and F.	Wooden and Wasson, *op. cit.*

The reconciliation is reasonably close and the difference is in the expected direction, since one would look for a downward revaluation of balance sheet assets in a period of slow recovery from a deep depression. Gross fixed capital excluding land is the concept used for 1948 and 1953. Its use avoids many arbitrary assumptions which would be needed in estimating depreciation and accelerated amortization. For these periods, also, the two methods yield virtually identical estimates.

2. ADJUSTMENTS

Another essential for long-term comparisons is comparability of industry classifications. It was necessary to establish comparability among the various censuses and among the annual compilations of *Statistics of Income*, as well as between the census classifications and those of *Statistics of Income*. Establishing comparable industry groupings for intercensal years extends beyond the obvious exclusion of artisans and crafts from the earlier censuses. The task was greatly lightened by the previous researches of the late Daniel Carson carried out under the auspices of the National Research Project of the Works Progress Administration. (His effort to work out comparable industry groupings from the census data has not been published. However, a typed copy is in the files of the National Bureau of Economic Research.) Our own efforts were required to establish comparable groupings between the *Census of Manufactures* and *Statistics of Income*.

a. Establishment of Comparability between the Industrial Classifications of the *Census of Manufactures* and *Statistics of Income*. In transcribing the data for 1880–1919 on capital and value of product from the *Censuses of Manufactures*, we combined minor industries to achieve maximum comparability over this period. As mentioned above, we used, with slight modifications, the groupings established by the late Daniel Carson. Since we used *Statistics of Income* data for our capital and value of product estimates after 1919, we had to rearrange our groupings of the census data to make them comparable to the minor industry groupings in the "Source Book" of *Statistics of Income*.

The years we were concerned with after 1919 were 1929, 1937, and 1948.[5] Data on assets of minor industries are available in the "Source Book" only from 1930 on. (However, sales data for minor industries are available for 1929.) We computed the 1930 ratio of the capital (fixed and total) of the minor industries to the capital of the major groups to which they belonged. We then multiplied capital of the

[5] The estimates for 1953 represent an extension of the original estimates prepared for 1880–1948. The 1953 estimates are based on *Statistics of Income for 1953*, Part 2, which shows data for major groupings only.

major groups by these ratios to secure capital estimates for minor industries for 1929.

For 1929, 1930 and 1937, the "Source Book" distinguishes 45 identical manufacturing industries; but for 1948, data for 122 industries are available. In setting up comparable classifications over the seventy-year period, we are compelled to use the smallest number of classifications available in any one benchmark year. For 1880–1948, we have established 41 industries classified into 15 major industry groups. The decrease in the number of industries used (from 45 to 41) is due to our consolidation of certain industry groups: (1) factory, household, and miscellaneous machinery were combined into one industry; (2) bone, celluloid, and ivory products were combined with musical instruments, optical goods, etc., to form the miscellaneous group; and (3) radios and electrical machinery and equipment were combined into one industry (see Appendix Table A-4). We also combined the 122 *Statistics of Income* industries for 1948 and the census industries for 1880–1919 into 66 comparable industries.

TABLE A-4

Comparable Industrial Classifications, *Census of Manufactures, 1919* and *Statistics of Income, 1929* and *1930*

"Census of Manufactures, 1919"[a]	*"Statistics of Income" Industrial Classification No.*[b]	*"Statistics of Income, 1929 and 1930"*
All industries	27	*Manufacturing, total*
from Chem. and allied prods.		
—Coke, not incl. gas-house coke		
—Gas, illuminating and heating		
from Misc.:		
—Fuel, mfrd.		
—Shipbldg., steel		
—Shipbldg., wooden, including boat bldg.		
—Motion-picture projection films		
—R. R. repair shops		
—Automobile repairing (from Vehicles for land transpn.)		
Food and kindred prods.	28	*Food prods., beverages, and tobacco*
+Liquors and bevs.		
+Tobacco mfrs.		
+Ice, mfrd. (from Misc.)		
Bread and other bakery prods.	31	Bakery and confectionery prods.
+Chewing gum		

(*continued*)

TABLE A-4 (*continued*)

"Census of Manufactures, 1919"[a]	*"Statistics of Income" Industrial Classification No.*[b]	*"Statistics of Income, 1929 and 1930"*
Food and kindred prods.	28	*Food prods., beverages, and tobacco*
+ Chocolate and cocoa prods.		
+ Confectionery and ice cream[c]		
Canning and preserving, fish	34	Canned prods.—Fish, fruit, veg., poultry, etc.
+ Canning and preserving, oysters		
+ Canning and preserving, fruits and veg.		
+ Pickles, preserves, and sauces		
Slaughtering and meat packing	37	Packing-house prods.—Fresh meats, ham, lard, bacon, meat canning, by-prods., etc.
Flour-mill and gristmill prods.	40	Mill prods.—Bran, flour, feed etc.
Sugar, beet	44	Sugar—Cane, beet, maple, and prods.
+ Sugar, cane		
+ Sugar, refining, not incl. beet sugar		
Liquors and bevs.	51	Beverages—Soft drinks, cereal bevs., mineral water; wines; distilling
Tobacco mfrs.	64	Tobacco, cigarettes, cigars, snuff, etc.
Census industries comparable with 28	46	Other food prods.—artificial ice, butter substitutes, cereals, coffee, spices, dairy prods., etc.; food prods., n.e.c.
− Census industries comparable with 31, 34, 37, 40, 44, 51, and 64		
Textiles and their prods.	67	*Textiles and their prods., incl. fur*
− Hammocks (to Forest prods.) from Misc.:		
+ Fur goods		
+ Furs, dressed		
+ Hats, straw		
Cotton goods	72	Cotton goods—Dress goods, plain cloth, etc.; napping, dyeing
+ Cotton small wares		
+ Cotton lace		
+ Dyeing and finishing textiles, exclusive of that done in textile mills		
Woolen and worsted goods	76	Woolen and worsted goods—Wool yarn, dress goods, wool pulling, etc.
+ Wool shoddy		
+ Wool pulling		
+ Wool scouring		

(*continued*)

TABLE A-4 (*continued*)

"Census of Manufactures, 1919"[a]	*"Statistics of Income" Industrial Classification No.*[b]	*"Statistics of Income, 1929 and 1930"*
Textiles and their prods.	67	*Textiles and their prods., inc. fur*
Silk goods	78	Silk and rayon goods—Silk fabrics, spinning, etc.
Knit goods	82	Knit goods—Sweaters, hosiery, etc.
Carpets and rugs, rag +Carpets and rugs, other than rag +Oil cloth and linoleum, floor +Mats and matting, from cocoa fiber, grass, and coir, etc.	85	Carpets, floor coverings, tapestries, etc.
Articles from textile fabrics for personal wear +Hats, wool-felt +Hats, fur-felt +Hat and cap materials +Hats, straw (from Misc.)	94	Clothing—Custom-made, factory-made, coats, underwear, millinery, and clothing, n.e.c.
Census industries comparable with 67 −Census industries comparable with 72, 76, 78, 82, 85, and 94	89	Textiles, n.e.c., cord, felt, fur, hospital and surgical supplies, linen, other textiles, etc.
Leather and its finished prods.	103	*Leather and its mfrs.*
Boots and shoes, not incl. rubber boots and shoes	104	Boots, shoes, slippers, etc.
Census group comparable with 103 −Census industry comparable with 104	107	Other leather prods.—Gloves, saddlery, harness, trunks; finishing and tanning leather, etc.
from Misc.		
+Belting and hose, rubber	112	or 113 *Rubber prods.*
+Boots and shoes, rubber	119	−Bone, celluloid, and ivory prods. (to Misc.)
+Rubber tires, tubes, and rubber goods, n.e.c.		
Rubber tires and tubes (in Rubber tires, tubes, and rubber goods, n.e.c. industry)[d]	114	Tires and tubes
Census industries comparable with 112 or 113 minus 119 −Census industry comparable with 114	116	Other rubber goods—Boots, shoes, hose and artificial rubber
Lumber and its manufactures −Charcoal, not incl. prod'n. in the lumber and wood distillation industries (to Chem. and allied prod.)	120 or 121	*Forest prods.*

(*continued*)

TABLE A-4 (*continued*)

"Census of Manufactures, 1919"[a]	*"Statistics of Income" Industrial Classification No.*[b]	*"Statistics of Income, 1929 and 1930"*
Lumber and its manufactures	120 or 121	*Forest prods.*
+ Hammocks (from Textiles and their prods.)		
+ Turpentine and rosin (from Chem. and allied prods.)		
from Vehicles for land transp. group:		
+ Carriages and wagons, incl. repairs		
+ Carriage and wagon materials		
+ Carriages and sleds, children's		
+ Wheelbarrows		
Lumber and timber prods.	123	Sawmill and planing-mill prods.
+ Lumber, planing-mill prods., not incl. planing mills connected with sawmills		
+ Window and door screens and weather strips		
Census industries comparable with 120 or 121	128	Other wood prods.—Carriages, wagons, furniture, baskets, etc.
− Census industries comparable with 123		
Paper and wood pulp (in Paper and printing)	136	*Paper, pulp, and prods.*
+ Mfrs. of paper (in Paper and printing)		
− Paper patterns (from Mfrs. of paper industry to Printing and publishing and allied inds.)		
+ Wall paper, not made in paper mills (in Paper and printing)		
+ Pulp, from fiber other than wood (from Misc.)		
Printing and publishing (in Paper and printing)	142 or 143	*Printing, publishing, and allied industries*
+ Industries relating to printing and publishing (in Paper and printing)		
+ Paper patterns		
+ Engravers' materials (from Misc.)		
Chemicals and allied prods.	151	*Chemicals and allied prods.*
− Coke, not incl. gas-house coke (elim. from All mfg.)	168	− Petroleum and other mineral refining
− Gas, illuminating and heating (elim. from All mfg.)		

(*continued*)

TABLE A-4 (*continued*)

"*Census of Manufactures, 1919*"[a]	"*Statistics of Income*" Industrial Classification No.[b]	"*Statistics of Income for 1929 and 1930*"
Chemicals and allied prods.	151	*Chemicals and allied prods.*
−Petroleum, refining		
−Turpentine and rosin (to Forest prods.)		
+Charcoal, not incl. prod'n. in the lumber and wood distilling inds. (from Lumber and its remanufactures)		
+Fireworks (from Misc.)		
+Mucilage, paste, and other adhesives, n.e.c. (from Misc.)		
Chemicals and acids	153	Chemicals proper, acids, compounds, etc.
+Explosives		
+Dyestuffs and extracts, natural		
+Bone, carbon, and lamp black		
+Salt		
Fertilizers	163	Fertilizers
Census industries comparable with 151 minus 168	155	Allied chemical substances—Drugs, oils, paints, soaps, and other chem. substances, n.e.c.
−Census industries comparable with 153, 163, and 155		
Petroleum, refining (from Chem. and allied prods.)	168	*Petroleum and other mineral oil refining*
Stone, clay, and glass prods.	174	*Stone, clay, glass, and related prods.*
+Graphite, ground and refined (from Misc.)		
Iron and steel and their prods. to Machinery:		*Iron and steel and their prods.* (186+188+192)
−Cast-iron pipe[e]		
−Steel barrels, drums, and tanks, portable[e]		
−Tempering and welding[e]		
−Cash registers and calculating machines		
−Engines, steam, gas, and water		
−Foundry and mach.-shop prods.		
−Gas machines and gas and water meters		
−Machine tools		
−Pens, steel		
−Pumps, steam and other power		
−Pumps, not incl. power pumps		
−Safes and vaults		
−Scales and balances		

(*continued*)

TABLE A-4 (*continued*)

"*Census of Manufactures, 1919*"[a]	"*Statistics of Income*" *Industrial Classification No.*[b]	"*Statistics of Income, 1929 and 1930*"
Iron and steel and their prods.		*Iron and steel and their prods.* (186 + 188 + 192)
to Machinery: (*cont.*):		
– Sewing machines and attachments		
– Textile machinery and parts		
– Typewriters and supplies		
– Vault lights and ventilators		
– Locomotives, not made by R.R. cos. (to Transp. equipment)		
from Metals and metal prods., other than iron and steel:		
+ Tinware, n.e.c.		
+ Galvanizing and other coating processes		
+ Stamped and enameled ware, n.e.c.		
from Misc.:		
+ Enameling		
+ Japanning		
+ Ammunition		
Crude iron and steel and rolled prods.	186	Iron and steel—Prods. of blast furnaces, rolling mills, foundries, etc.
+ Firearms		
+ Forgings		
+ Horsehoes		
+ Ordnance and accessories		
+ Springs, steel, car, and carriage		
+ Tin plate and terneplate		
+ Wire, not incl. wire depts. of rolling mills		
+ Wirework, n.e.c., not incl. wire-drawing mills		
from Metals and metal prods., other than iron and steel:		
+ Tinware, n.e.c.		
+ Galvanizing and other coating processes		
+ Stamped and enameled ware, n.e.c.		
from Misc.:		
+ Enameling		
+ Japanning		
+ Ammunition		
Doors and shutters	188	Metal bldg. material and supplies
+ Plumbers' supplies, n.e.c.		
+ Steam fittings and steam and hot-water heating apparatus		
+ Stoves and hot-air furnaces		

(*continued*)

TABLE A-4 (*continued*)

"*Census of Manufactures, 1919*"[a]	"*Statistics of Income*" *Industrial Classification No.*[b]	"*Statistics of Income, 1929 and 1930*"
Iron and steel and their prods.		*Iron and steel and their prods.* (186+188+192)
+Stoves, gas and oil		
+Structural ironwork		
+Wrought pipe		
Bolts, nuts, washers, and rivets	192	Hardware, tools, etc.
+Tools and cutlery		
+Hardware		
+Hardware, saddlery		
+Nails and spikes, cut and wrought, incl. wire nails		
+Screws, machine		
+Screws, wood		
Metals and metal prods., other than iron and steel		*Nonferrous metals and prods.* (203+207)
−Pens, gold (to Misc.)		
to Iron and steel prods.:		
−Tinware, n.e.c.		
−Galvanizing and other coating processes		
−Stamped and enameled ware, n.e.c.		
from Misc.:		
+Fire extinguishers, chem.		
+Lapidary work		
Gold and silver, reducing and refining, not from ore	203	Precious-metal prods. and processes; jewelry, etc.
+Gold and silver, leaf and foil		
+Clocks		
+Watches		
+Watch and watch materials		
+Watchcases		
+Electroplating		
+Jewelry		
from Iron and steel and their prods. group:		
+Cash registers and calculating machines	235	Office equip., etc.
+Plated ware		
+Silversmithing and silverware		
+Lapidary work (from Misc.)		
Census industries comparable with 203+207	207	Other metals, prods. and processes; combination of foundry and mach. shop
−Census industries comparable with 203		

(*continued*)

TABLE A-4 (*continued*)

"*Census of Manufactures, 1919*"[a]	"*Statistics of Income*" *Industrial Classification No.*[b]	"*Statistics of Income, 1929 and 1930*"
from Iron and steel and their prods.:		*Machinery, excl. transp. equip.* ([212+215]+233+235+[224+226+237])
+Cast-iron pipe[e]		
+Steel barrels, drums, and tanks, portable[e]		
+Tempering and welding[e]		
+Cash registers and calculating machines		
+Engines, steam, gas, and water		
+Foundry and mach.-shop prods.		
+Gas machines and gas and water meters		
+Machine tools		
+Pumps, not incl. power pumps		
+Pumps, steam and other power		
+Safes and vaults		
+Scales and balances		
+Sewing machines and attachments		
+Textile machinery and parts		
+Typewriters and supplies		
+Vault lights and ventilators		
from Misc.:		
+Agricul. implements		
+Electrical machy., apparatus, and supplies		
+Phonographs and graphophones		
+Washing machines and clothes wringers		
+Windmills		
from Misc.:		
+Electr. machy., apparatus, and supplies	212	Electr. machy. and equip.
+Phonographs and graphophones	215	+Radios, complete or parts (from Mfg. n.e.c.)
Agric. implements (from Misc.)	233	Agric. machy. and equip.
+Safes and vaults		
+Scales and balances		
+Typewriters and supplies		
Census industries comparable with (212+215), 233, 235, and (224+226+237)	224	Factory machy. — Food-prod'n. machy; leather, metal, paper, printing, textile, and woodworking machy.
−Census industries comparable with (212+215), 233, and 235	226	+Misc. machy.—Bldg. construction, gas, and mining machy. and equip.
	237	+Household machy. and equip., etc.

(*continued*)

TABLE A-4 (*continued*)

"Census of Manufactures, 1919"[a]	*"Statistics of Income" Industrial Classification No.*[b]	*"Statistics of Income, 1929 and 1930"*
Vehicles for land transp.		*Transp. equip.* (241+251+254)
−Automobile repairing (elim. from All mfg.)		
to Forest prods. group:		
−Carriages and wagons, incl. repairs		
−Carriage and wagon materials		
−Carriages and sleds, children's		
−Wheelbarrows		
Automobiles	241	Motor vehicles, complete or parts
+Automobile bodies and parts		
+Motorcycles, bicycles and parts		
Cars, steam—R.R., not incl. operations of R.R. cos.	251	Locomotives and R.R. equip.
+Cars, electric—R.R., not incl. operations of R.R. cos.		
+Locomotives, not made by R.R. cos. (from Iron and steel and their prods.)		
Aeroplanes, seaplanes, airships, and parts (from Misc.)	254	Airplanes, airships, seaplanes, etc. (from Mfg., n.e.c.)
Misc. industries	264	*Musical instruments, optical goods, canoes, etc.* (in Mfg., n.e.c. group)
elim. from All mfg.:		
−Fuel, mfrd.		
−Shipbldg., steel	119	+*Bone, celluloid, and ivory prods.* (from Rubber prods. group)
−Shipbldg., wooden, incl. boat bldg.		
−Motion-picture projection films		
−Ice, mfrd. (to Food and kindred prods.)		
to Textiles and their prods.:		
−Fur goods		
−Furs, dressed		
−Hats, straw		
to Rubber prods.:		
−Belting and hose, rubber		
−Belting and hose, rubber		
−Boots and shoes, rubber		
−Rubber tires, tubes, and rubber goods, n.e.c.		
−Pulp, from fiber other than wood (to Paper, pulp, and prods.)		
−Engravers' materials (to Printing, publ., and allied inds.)		
to Chem. and allied prods.:		
−Fireworks		

(*continued*)

TABLE A-4 (*concluded*)

"*Census of Manufactures, 1919*"[a]	"*Statistics of Income*" *Industrial Classification No.*[b]	"*Statistics of Income, 1929 and 1930*"
Misc. industries		
–Mucilage, paste, and other adhesives, n.e.c.		
–Graphite, ground and refined (to Stone, clay, and glass prods.)		
to Iron and steel and their prods.:		
–Enameling		
–Japanning		
–Ammunition		
to Nonferrous metals and prods.:		
–Fire extinguishers, chem.		
–Lapidary work		
to Machinery:		
–Agric. implements		
–Electrical machy., apparatus, and supplies		
–Phonographs and graphophones		
–Washing machines and clothes wringers		
–Windmills		
–Aeroplanes, seaplanes, airships, and parts (to Transpn. equip.)		
+Pens, steel (from Iron and steel and their prods.)		
+Pens, gold (from Metals and metal prods. other than iron and steel)		

n.e.c. = not elsewhere classified.

[a] Classifications used are from *Fourteenth Census of the United States, 1920*, Vol. VIII, *Manufactures, 1919* (hereafter, *Census of Manufactures, 1919*), pp. 146–58, Tables 32–46.

[b] Industrial classification numbers are from *Statistics of Income for 1947* [Bureau of Internal Revenue (now Internal Revenue Service)], Part 2, pp. 64–68.

[c] Ice cream retained in confectionery products because the former was combined with confectionery in earlier censuses and could not be isolated.

[d] Only value of output data for tires and tubes are available for 1914 and 1919 in *Census of Manufactures, 1919* (Vol. X), p. 1001, Table 11. Capital for 1914 and 1919 was estimated by multiplying the ratio of the value of output for tires and tubes to that of the rubber products group by capital, 1914 and 1919, in the rubber products group. No census data are available for rubber tires and tubes before 1914.

[e] Transferred to machinery group because the industry was combined with foundry and machine-shop products in earlier censuses and could not be isolated.

Appendix Table A-4 lists the minor industries in the 1919 *Census of Manufactures* that are included in the 41 slightly modified 1929 or 1930 *Statistics of Income* minor industry classifications.

b. Other Adjustments. The data transcribed from *Statistics of Income* required five adjustments: (i) for the shift from consolidated to deconsolidated returns in 1934, which affects not only the totals for industry groups, but also the total for all manufacturing; (ii) for unincorporated firms; (iii) for accelerated depreciation in 1948 and 1953; (iv) for changes in inventory, to convert sales and receipts to output; and (v) for the exclusion of intangible assets from fixed capital in 1948 and 1953.

(i) *Adjustment for deconsolidation.* The Internal Revenue Service, in *Statistics of Income for 1934,* published tabulations of items from profit and loss statements on both a consolidated and deconsolidated basis. The ratio of gross sales on a deconsolidated basis to gross sales on a consolidated basis in 1934 was used to adjust both capital and output reported on a consolidated basis in 1929. Admittedly, this is a rough adjustment, particularly for capital. However, the adjustment for all manufacturing is slight, as it is for most industry groups except metals and metal products.

(ii) *Adjustment for unincorporated firms.* The data transcribed from *Statistics of Income* relate to corporations submitting balance sheets. Usually, only 1 to 2 per cent of all corporations in manufacturing do not submit balance sheets. Gross sales of all corporations and of corporations submitting balance sheets, classified by industry groups, are published annually in *Statistics of Income.* This relationship was used to raise totals for corporations submitting balance sheets to the level for all corporations.

There remains, then, the problem of estimating capital and output for unincorporated firms which, according to the tabulations in the *Censuses of Manufactures* for 1929 and 1947, accounted for about 8.5 per cent of value added in 1929–1947. The relationship of value of product of all establishments to that of corporate establishments was used to raise the corporate totals from *Statistics of Income* to the level of all firms. This relationship, derived from the 1929 *Census of Manufactures,* was applied to the data adapted from the 1929 *Statistics of Income*; the ratio from the 1937 *Census of Manufactures* was applied to the totals from the 1937 *Statistics of Income*; and the ratio from the 1947 *Census of Manufactures* was applied to the totals from the 1948 and 1953 *Statistics of Income.*

(iii) *Adjustment for accelerated depreciation.* In 1940–1945, corporations were permitted, for federal income tax purposes, to amortize capital assets acquired for national defense over an abnormally low period of 5 years. Since the data on net capital assets in the "Source Book" of *Statistics of Income for 1948* do not reflect the net value of this type of investment as it would be determined by the customary

TABLE A-5

Investment in Emergency Facilities; Amortization in Excess of Normal Depreciation, All Manufacturing, as of 1948

	Annual Amortization Charges, All Returns (1)	Year-to-Year Increase in Amortization Charges (col. 1: given year less prior year) (2)	Investment in Emergency Facilities: New (col. 2 × 5.0) (3)	Investment in Emergency Facilities: Cumulative (from col. 3) (4)	Gross Capital Assets excluding Land: Amount (5)	Gross Capital Assets excluding Land: Less Cumulative Investment in Emergency Facilities (col. 5 less col. 4) (6)	Gross Capital Assets excluding Land: Annual Depreciation (7)	Annual Depreciation: As Percentage of Adjusted Gross Capital Assets (col. 7 ÷ col. 6) (8)	Annual Depreciation: Charge on Cumulative Investment in Emergency Facilities (col. 4 × col. 8) (9)
		(thousands of dollars)				(millions of dollars)			(thousands of dollars)
1940	$ 5,980	$ 5,980	$ 29,900	$ 29,900	$40,772	$40,742	$1,511	3.71%	$ 1,109
1941	88,599	82,619	413,095	442,995	42,901	42,458	1,588	3.74	16,568
1942	309,480	220,881	1,104,405	1,547,400	47,236	45,689	1,722	3.77	58,337
1943	533,663	224,183	1,120,915	2,668,315	49,850	47,182	1,807	3.83	102,196
1944	740,721	207,058	1,035,290	3,703,605	50,243	46,539	1,802	3.87	143,330
1945	[a]							3.87[b]	143,330
1946								3.87[b]	143,330
1947								3.87[b]	143,330
1948								3.87[b]	143,330
Total, 1940–1948			3,703,605						894,860
Amortization in excess of normal depreciation (sum of col. 3 less sum of col. 9)				$2,808,745					

[a] Amortization data for 1945 were not used because, with the ending of the emergency in 1945, corporations holding unexpired certificates were allowed to recompute their amortization deductions for each year involved on the basis of the shortened period instead of the five-year period originally stipulated.

[b] Depreciation rate for 1944 also used for 1945–1948.

Source: The data in columns 1, 5, and 7 are from *Statistics of Income*, Bureau of Internal Revenue (now Internal Revenue Service), *Part 2*, various issues.

depreciation-accounting procedure, we have attempted to add to the reported data estimates of undepreciated investment in emergency facilities. (A similar law was enacted after the start of the Korean War. This necessitated an adjustment of the reported book values of capital for 1953 and later years.)

The adjustment of the book values equals the difference between the amount charged off as accelerated amortization on the emergency facilities and the amount of depreciation that would have accrued had these facilities been subject to normal straightline depreciation. The estimating procedure is illustrated by showing how the adjustment was made for all manufacturing for 1948 (see Table A-5). The same procedure was used for the 21 major manufacturing industries in 1948, and for the derivation of a similar adjustment for the 1953 estimates. The data relate to corporations only. It is assumed that the amortization privilege affected a negligible number of business organizations other than corporations. Hence, no attempt was made to raise the adjustment to an all-establishment level.

(iv) *Adjustment of sales and of gross receipts from other operations for changes in inventory.* Sales in a given year may equal, exceed, or fall short of output over the same period. Only when sales equal output can sales without adjustment be used to represent the level of output. Since an excess of sales over output means that previously accumulated inventories have been drawn down, sales minus the amount of the decline in inventories equal output. Similarly, inventories rise when sales fall short of output, and sales plus the increase in inventories are a measure of output. The inventory change that is relevant is the change in physical inventories valued in current prices. The latter are estimated by the National Income Division of the Department of Commerce on the basis of data derived from *Statistics of Income*. This item can be estimated only for total manufacturing and for major industry groups. In none of the three years—1929, 1937, and 1948—did this item amount to as much as 3 per cent of output.

(v) *Adjustment of fixed capital for intangible assets.* Intangible assets (patents, copyrights, good will, etc.) were included with fixed capital in the 1948 and 1953 compilations of *Statistics of Income*. In other benchmark years, intangible assets were classified in other assets which were included with working capital. *Statistics of Income* reported intangible assets separately in 1954 after not listing them separately since 1939. Therefore, for each industry group, we interpolated along a straight line between the values in 1939 and 1954 to arrive at the value of intangibles in 1948 and 1953. These estimates of intangible assets were deducted from fixed capital as reported in 1948 and 1953.

These data from *Statistics of Income*, after the adjustments described,

provide our estimates of capital and output in reported values with a workable degree of comparability in concept and in industry classification.

B. Capital and Output in 1929 Prices

1. DERIVATION OF THE BOOK VALUE OF NET FIXED AND TOTAL CAPITAL IN 1929 PRICES, MAJOR MANUFACTURING INDUSTRIES, SELECTED YEARS, 1879–1953

The method consists of deriving a series of composite indexes, one for each of fifteen major industry groups, from (1) an index of prices of machinery and equipment differently weighted in each major group according to the length of life typical of the industry; (2) an index of building costs based on a fifty-year life, which is identical for all industries; and (3) as a deflator of working capital, an index of wholesale prices of output of each major industry group. The composite index for a given major industry is applied to all minor industries classified under the given major industry.

a. Machinery and Equipment. In a given year, the book value of machinery and equipment with a specified average length of life equals the original cost of all machinery and equipment acquired during the immediately preceding period—the period measured by the specified average length of life—less the amount of the original cost depreciated over that period. To express the depreciated book values of a given year in constant prices, it is necessary to know (1) the average length of life of all machinery and equipment in each major industry group; (2) the value of machinery and equipment output in constant prices in each year of the period defined by the average length of life of the machinery and equipment; and (3) the price index of machinery and equipment. By reference to the average length of life, we estimate how much of the machinery and equipment represented in the depreciated book values of a given year was acquired in each year of the span composing the average length of life of machinery. These yearly values, which are in constant prices, are used to weight the price index of machinery covering the same span of years. The weighted average of these price indexes is the index used to convert depreciated book values in original cost prices to book values in constant prices.

The estimating procedure is illustrated by the computations, set out in Table A-6, by which we derive the 1937 index of the book value in 1929 prices of machinery and equipment in the food and kindred products group. We estimate the average length of life of machinery and equipment in this group to be fifteen years. The value of output in 1929 prices of machinery and equipment in all manufacturing, for

each year of the fifteen-year period, 1923–1937, is multiplied by the percentage of the output still in use in 1937. This product was then used to weight the price index (1929 = 100) of each year's machinery output. The sum of the fifteen final products was then divided by the sum of the weights to arrive at the index of book values for 1937. This

TABLE A-6

Derivation of 1937 Index for Expressing Book Values of Machinery and Equipment for Food and Kindred Products Group in 1929 Prices
(*average life: 15 years; depreciation rate: 6.67 per cent*)

	Output of Machy. and Equip., all Mfg. (millions of dollars in 1929 prices) (*1*)	*Per Cent in Use in 1937* (*2*)	*Weight* (*col. 1 × col. 2*) (*3*)	*Price Index of Machy. and Equip. all Mfg., (1929 = 100)* (*4*)	*Weighted Price Index* (*col. 3 × col. 4*) (*5*)
1923	$1,498	6.7%	100	95.9	9,590
1924	1,299	13.3	173	97.0	16,781
1925	1,428	20.0	286	96.9	27,713
1926	1,586	26.7	423	96.8	40,946
1927	1,435	33.3	478	98.0	46,844
1928	1,470	40.0	588	99.0	58,212
1929	1,777	46.7	830	100.0	83,000
1930	1,407	53.4	751	91.8	68,942
1931	902	60.0	541	86.6	46,851
1932	560	66.7	374	81.4	30,444
1933	606	73.4	445	81.4	36,223
1934	768	80.0	614	92.8	56,979
1935	1,013	86.7	878	91.8	80,600
1936	1,277	93.3	1,191	91.8	109,334
1937	1,519	100.0	1,519	101.0	153,419
			9,191		865,878

1937 Index for Expressing Book Value in 1929 Prices $= \frac{\sum \text{col. } 5}{\sum \text{col. } 3} = 94.2.$

Source: See accompanying text.

procedure was repeated for each major group for each benchmark year.

The average length of life for a given major industry group is based on unweighted averages of depreciation rates, as published by the Internal Revenue Service,[6] for various types of machinery and equip-

[6] *Depreciation Studies-Preliminary Report* of the Bureau of Internal Revenue (now Internal Revenue Service), January 1932, and *Income Tax, Depreciation and Obsolescence, Estimated Useful Lives and Depreciation Rates* (Bulletin F, revised January 1942), Treasury Department, Internal Revenue Service.

ment used in the industry. This computation yields the following averages:

Average Length of Life of Machinery and Equipment, Selected Manufacturing Industries

	Average Length of Life (years)
Food and kindred products	15
Textiles and products	22
Leather and products	15
Rubber products	12
Forest products	20
Paper, pulp, and products	18
Printing, publishing, and allied industries	14
Chemicals and products	19
Petroleum refining	15
Stone, clay, and glass products	15
Iron and steel and products	17
Nonferrous metals and products	22
Machinery excluding transportation equipment	18
Transporation equipment	15
Miscellaneous	18

The output of machinery and equipment for 1889–1919 is first expressed in 1913 prices by dividing the value of output data estimated by William Howard Shaw in *Value of Commodity Output since 1869* (National Bureau of Economic Research, 1947) by the appropriate price indexes (1913 = 100) in the same study. Before 1899, the value of output data in Shaw's study, which are available only for 1869 and 1879, were used for interpolation purposes, and the price index data were taken from an unpublished worksheet of Simon Kuznets. Kuznets' index on an 1889 base was extrapolated back to 1859 and converted to the 1913 base.

For indexes of book value in 1929 prices for 1919, 1929, 1937, 1948, and 1953, we linked Shaw's data on output of industrial machinery and equipment in 1913 prices, 1898–1915, to Lowell J. Chawner's estimates, 1915–1939, of expenditures by manufacturing companies for capital equipment in 1939 prices converted to 1929 prices (Lowell J. Chawner, *op. cit.*, p. 11). Department of Commerce estimates, 1939–1953, of investment in producers' durable equipment in 1939 prices converted to 1929 prices were then linked to Chawner's data (see National Income Supplements to *Survey of Current Business*).

The price index on the 1929 base was calculated by linking Shaw's price index, 1898–1915, and the Department of Commerce implicit price index, 1939–1953, to Chawner's implicit price index on a 1929 base.

b. Buildings and Land. A method similar to that in (a) was used to estimate the index of book value of buildings and land. The computation of indexes of book value in 1913 prices for censal years, 1879–1919, was based on a fifty-year life of improvements in all major manufacturing industries. The data for the computations are from an unpublished worksheet of Simon Kuznets. The indexes of book value in 1929 prices used for 1919, 1929, and 1937 are those for nonresidential, nonfarm structures (available in an unpublished table prepared by Raymond W. Goldsmith for his "A Perpetual Inventory of National Wealth," in *Studies in Income and Wealth,* Volume 14, National Bureau of Economic Research, 1951). Goldsmith's computations were based on a useful life of forty to fifty years. For 1948 and 1953, we developed our own indexes using the price index of the Turner Construction Company weighted by the volume of construction in manufacturing based on a fifty-year life. Both the price index and the volume of construction are published in *Construction Volume and Costs, 1915–1954,* Statistical Supplement to *Construction Review,* issued jointly by the Departments of Commerce and Labor, Table 15, p. 36 (the initial estimate for volume of construction in manufacturing is for 1915). To cover a fifty-year period, this series was extended back by the relative changes in Goldsmith's series on nonresidential, nonfarm construction in his *A Study of Saving in the United States,* Volume I (Princeton University Press, 1955), Tables R-27 and R-28, pp. 619–620. Goldsmith's series was expressed in 1929 prices by applying to it his construction cost indexes, Table R-20, p. 609.

c. Cash, Accounts Receivable, and Inventories. The index of book value used in deflating cash, accounts receivable, and inventories was the wholesale price index (1929 = 100) for the output of each of the fifteen major industries. For the derivation of these indexes, see Appendix A, section 4.

d. Total Capital. To secure indexes of book value of total capital in 1929 prices for each major manufacturing group, we first linked the indexes in 1913 prices for each of the three components of total capital to those in 1929 prices. We then calculated a weighted harmonic mean of the three indexes. For benchmark years 1880–1937, the indexes were weighted by the average relative importance of the components in 1889, 1899, and 1904 as shown by census data. Limited evidence indicates that the relative importance of these three asset components changed little from 1880 to 1937. However, by 1948, their relative importance had changed significantly, and new weights were used, based on balance-sheet data reported in *Statistics of Income,* Part 2, 1948 and 1953. The index for the major group was also applied to the total capital of minor industries within the group.

e. Fixed Capital. Indexes of book value of fixed capital in 1929 prices were computed by taking a weighted arithmetic mean of the indexes of book value, for each major group, of (1) machinery and equipment and of (2) buildings and land and then linking the means in 1913 prices to those in 1929 prices. The index for the major group was also used to deflate fixed capital of minor industries in the group.

2. DERIVATION OF THE BOOK VALUE OF GROSS FIXED AND TOTAL CAPITAL IN 1929 PRICES, ALL MANUFACTURING, 1929–1948

In order to test whether the decline in the total and fixed capital-output ratios from 1929 to 1948 might be due to excessive depreciation, we recomputed total and fixed capital without making any allowance for depreciation of capital assets.

TABLE A-7

Computation of the Ratio of Net to Gross Fixed Capital, Corporations with Balance Sheets, All Manufacturing, 1937–1948
(*dollars in millions*)

	Fixed Capital		*Estimated Cumulative Emergency Facilities after Normal Depreciation*	*Adjusted Net Fixed Capital*	
	Net (*1*)	*Gross* (*2*)	(*3*)	*Amount* (*col. 1 + col. 3*) (*4*)	*Ratio to Gross Fixed Capital* (*col. 4 ÷ col. 2*) (*per cent*) (*5*)
1937	$23,303[a]	$40,590[a]		$23,303[a]	57.4%
1938	23,311[a]	41,188[a]		23,311[a]	56.6
1939	23,060	41,573		23,060	55.5
1940	23,605	42,750	$ 29	23,634	55.2
1941	24,726	44,898	426	25,152	56.0
1942	26,607	49,066	1,489	28,096	57.3
1943	27,038	51,614	2,566	29,604	57.4
1944	25,920	52,023	3,560	29,480	56.7
1945	25,143	53,868	3,417	28,560	53.0
1946	29,413	59,163	3,274	32,687	55.2
1947	35,380	66,761	3,130	38,510	57.7
1948	41,227	74,016	2,987	44,214	59.7

[a] Prior to 1939, *Statistics of Income* included intangible capital assets in "other assets." Estimates of intangible gross and net capital assets were made by assuming that the ratios of net and gross intangible capital assets to tangible net and gross capital assets, respectively, were the same in 1937 and 1938 as in 1939. These estimates were then added to the given net and gross tangible capital assets data for 1937 and 1938. The 1939 breakdown of fixed capital into intangible and tangible capital assets is available in *Statistics of Income for 1939*, Bureau of Internal Revenue (now Internal Revenue Serice), Part 2, p. 22.

Source: Columns 1 and 2: 1937–1947: *Statistics of income*: 1948 Treasury Department Release No. S-2808, Sept. 20, 1951, p. 13; column 3: see Appendix Table A-5, col. 4 less col. 9.

From 1937 on, data on gross fixed capital and its reserve for depreciation for corporations with balance sheets are available in *Statistics of Income*. Before 1937, data on net fixed capital only are available. We assumed that the relative importance of net fixed capital to gross fixed capital was roughly the same in 1929 as in the late thirties, namely, 56 to 58 per cent (Table A-7). To secure gross fixed capital under varying assumptions of the relationship of net to gross capital, our 1929 estimate of net fixed capital in 1929 prices for all manufacturing establishments was divided by 58, 57, and 56 per cent; for 1937 and 1948, net fixed capital (in 1929 prices) was divided by 57.4 and 59.7 per cent, respectively. Gross total capital in 1929 prices was computed for 1929, 1937, and 1948 by substituting gross fixed capital for net fixed capital in our (net) total capital data.

Data on net total and fixed capital in 1929 prices are from Appendix Tables A-8 and A-9, below.

3. ESTIMATE OF CURRENT VALUE OF TOTAL CAPITAL, ALL MANUFACTURING, 1880–1948

The current value (i.e., replacement cost) of total capital for all manufacturing was estimated by adding (1) working capital (cash, inventories, accounts and notes receivable, and miscellaneous assets) in current prices to (2) the book value of fixed capital (machinery and equipment, buildings, and land) deflated by an index of replacement cost. Indexes of replacement cost were computed for machinery and equipment and for land and buildings, and a weighted average of these two indexes was used to deflate fixed capital. Estimates of current value were not made for 1904 and 1914.

a. Working Capital. Working capital in current prices was derived by subtracting the book value of fixed capital from that of total capital. Since fixed capital was not available for 1880, 1909, and 1919, we made estimates for these years by applying the ratio of fixed to total capital in 1890, 1904, and 1929 to total capital in 1880, 1909, and 1919, respectively. Data on total and fixed capital are in Appendix I, Tables A-8 and A-9, respectively.

b. Machinery and Equipment. The method of computing an index of replacement cost was the same as that used in constructing the index for expressing book values in 1929 prices (see Appendix A, section B-1), with one exception—the price indexes of machinery and equipment were converted to a given year base. For example, to construct a replacement cost index for 1909, the price indexes were converted to a 1909 base. We estimated the average length of life of machinery and equipment for all manufacturing by weighting the average length of life of machinery and equipment of the fifteen major

industrial groups by fixed capital in current prices for each group. Data on fixed capital are in Appendix Table A-9. For 1880–1919, the average life was 18 years; for 1929–1948, 17 years.

c. Buildings and Land. We used the method of section b, above, to compute an index of replacement cost for buildings and land. The length of life used was fifty years. In constructing the index of replacement cost for 1880, our first benchmark year, we should have used price and new construction data going back to 1831. However, since construction cost data are available from 1840 only, the index for 1880 was estimated for 1840–1880.

For 1840–1915, construction cost indexes are from unpublished tables of Simon Kuznets. For 1915–1948, price indexes were derived by dividing the value of nonresidential industrial construction in current prices by that in 1947–1949 prices [from "Construction Volume and Costs, 1915–1951," Statistical Supplement to *Construction and Building Materials*, May 1952 (Department of Commerce), pp. 6 and 48]. For 1840–1868, value of new construction in 1929 prices is from an unpublished table of Simon Kuznets; for 1869–1915, it is from Simon Kuznets, *National Product since 1869* (National Bureau of Economic Research, 1946), Table II-5, p. 99. For 1915–1948, the Department of Commerce series on nonresidential industrial construction in 1947–1949 prices in "Construction Volume and Costs, 1915–1951," *op. cit.*, p. 48 was used. The series were spliced in 1915.

We have computed the index of replacement cost for 1880, 1890, 1900, 1909, 1919, and 1937. Our indexes are about the same as Raymond W. Goldsmith's. Therefore, for 1929 and 1948, we used the implicit index derived by dividing his depreciated original cost by the current value of nonfarm, nonresidential structures [both are in his "A Perpetual Inventory of National Wealth," *op. cit.*, Table 1, pp. 18–19].

d. Fixed Capital. The index of replacement cost for fixed capital is a weighted average of the indexes constructed in sections b and c above. Weights used were the relative importance of the reported values of machinery and equipment and of buildings and land. Weights for the 1880 and 1890 indexes were the 1890 values taken from the *Census of Manufactures, 1890*; those for the 1900 index, 1900 values from the *Census, 1900*; and those for the 1909 index, 1904 values from the *Census, 1905*. For 1919–1948, the weights used were data on the reported value of improvements (i.e., buildings, additions, and alterations) and machinery and equipment, as of January 1, 1919 (in Simon Kuznets, *National Product since 1869, op. cit.*, Table IV-7, p. 220) and a rough estimate—5 per cent—of our total capital figure for land for 1919.

4. DERIVATION OF VALUE OF OUTPUT IN 1929 PRICES, MAJOR AND MINOR MANUFACTURING INDUSTRIES, SELECTED YEARS, 1879–1953

To deflate value of output data for minor industry groups for all censal years, 1879–1919, and for 1929, 1937, and 1948, we constructed indexes of wholesale prices on a 1929 base. The deflated components of a major group were added to obtain the deflated output of the major group. Weights used in constructing indexes of wholesale prices, unless it is otherwise indicated, were the relative importance of the value of output in the late twenties of commodities included in the indexes (see *Wholesale Price Bulletins* 493 and 572, Bureau of Labor Statistics). Arithmetic averages were used unless it is otherwise specified. The composition of the price indexes for minor groups are described below.

a. Food and Kindred Products

(*i*) *Bakery and confectionery products.* The following indexes were linked: 1926–1948: a weighted index combining the BLS wholesale price indexes for bread, N.Y.C.; bread, Chicago; soda crackers; sweet crackers; pretzels; and powdered cocoa; 1914–1926: a weighted index for bread, New York; bread, Cincinnati; and soda crackers (BLS); 1890–1914: a weighted index of bread, New York; bread, Washington, D.C.; and soda crackers (BLS); 1879–1890: unweighted average of all the bread and cracker series in *Wholesale Prices, Wages, and Transportation* (Senate Report 1934, Finance Committee, 52nd Congress, 2nd Sess., Part I, Washington, D.C., 1893), also known as the Aldrich Report.

(*ii*) *Canned products.* 1926–1948: BLS subgroup index for fruits and vegetables; 1914–1926: a weighted index of the BLS series for canned peaches, pineapples, corn, peas, tomatoes, and red salmon; 1908–1914: a weighted index of dried apples, prunes, and raisins, canned corn, peas, and tomatoes, and red salmon (BLS); 1890–1908: a weighted index of dried apples, prunes, and raisins and canned salmon (BLS); 1879–1890: a weighted index of dried apples and raisins (Aldrich Report).

(*iii*) *Packing-house products.* 1914–1948: BLS subgroup index for meats, poultry, and fish (fish was introduced into the index by the BLS in 1948); 1890–1914: a weighted index of the following BLS series: beef, fresh, native sides, New York; beef, salt, extra mess; hams, smoked; mutton, dressed; cured pork, (a) salt, mess, (b) rough sides, and (c) short, clear sides; and lard, prime contract; 1879–1890: an unweighted average of the eight meat and two lard series in the Aldrich Report.

(*iv*) *Grain-mill products.* 1914–1948: a weighted index consisting of BLS series for white and yellow corn meal; Blue Rose (begins in 1915)

and Honduras-Rexora rice; cattle feed (subgroup index); wheat flour: hard winter, Buffalo, (a) standard patents and (b) first clears; winter, Kansas City, (a) patents and (b) straights; Minneapolis, (a) standard patents and (b) second-short patents; Portland, patents; soft winter, (a) St. Louis, patents and (b) Toledo, patents (ends in 1942); and rye flour; 1890–1914: a weighted index of white and yellow corn meal; domestic-Honduras rice; cattle feed; prime cottonseed meal; wheat flour: (a) winter, straights, New York-Kansas City and (b) spring, New York-Minneapolis, patents; and rye flour (BLS); 1879–1890: a weighted average of wheat and rye flour, yellow corn meal, and Carolina rice (Aldrich Report).

(*v*) *Sugar refining.* 1890–1948: BLS index for granulated sugar; 1879–1890: index for refined, crushed and granulated sugar (Aldrich Report).

(*vi*) *Beverages and liquors.* Index for "other food products" used. See a. viii, below. For deflation of components, see Addenda, section A, below.

(*vii*) *Tobacco manufactures.* 1929–1948: a weighted index of the following BLS series: cigarettes, cigars, plug and smoking tobacco, and snuff; 1879–1929: index of cigars, cigarettes and tobacco, in William Howard Shaw, *Value of Commodity Output since 1869, op. cit.*

(*viii*) *Other food products.* 1926–1948: a weighted index of BLS series for other food products (subgroup) after removing granulated sugar; dairy products (subgroup); corn and wheat cereal breakfast food; and oatmeal; 1914–1926: a weighted average of all series mentioned above except corn and wheat cereal breakfast food; 1890–1914: a weighted index of Rio coffee; black pepper; corn starch; Formosa tea; cottonseed oil; cider vinegar; butter, (a) creamery, extra, New York, (b) dairy, New York, and (c) creamery, Elgin; and cheese, whole milk, colored (BLS); 1879–1890: weighted index of butter, cheese, Rio coffee, corn starch, and spices (Aldrich Report).

b. Textiles and Textile Products

(*i*) *Cotton goods.* 1914–1948: BLS subgroup index for cotton goods; 1890–1914: a weighted index of the following BLS series: denims; brown drillings (two series); unbleached and colored flannel; ginghams (two series); muslin (four series); print cloths; brown sheetings (three series); thread; and white, mule-spun, Northern carded yarns (two series); 1879–1890: group index (unweighted) for cotton textiles (Aldrich Report).

(*ii*) *Woolen and worsted goods.* 1914–1948: BLS subgroup index for woolen and worsted goods; 1890–1914: a weighted index of white

flannel; Middlesex and serge suiting; trousering; all wool (three series) and cotton warp (two series) women's dress goods; and worsted yarns (two series); 1879–1890: suitings group index (unweighted) (Aldrich Report).

(*iii*) *Silk and rayon goods.* 1926–1948: a weighted average of BLS indexes for silk and rayon subgroups; 1914–1926: BLS index for silk and rayon subgroup; 1890–1914: a weighted index of raw silk: (a) Japanese, filiatures, Kansai, No. 1-Sinshiu, No. 1, and (b) Italian, classical; 1879–1890: silks group index (unweighted) in Aldrich Report.

(*iv*) *Hosiery and knit goods.* 1926–1948: BLS subgroup index for hosiery and underwear; 1914–1926: a weighted index of the following BLS series: women's cotton, full-fashioned-mercerized hosiery; women's silk full-fashioned hosiery; women's cotton union suits; men's woolen (a) shirts and drawers and (b) union suits; 1890–1914: men's cotton hosiery; women's cotton (a) full-fashioned and (b) single thread, combed yarn hosiery; men's woolen (a) shirts and drawers and (b) union suits; 1879–1890: underwear group index (unweighted) in Aldrich Report.

(*v*) *Carpets, floor coverings, etc.* 1926–1948: a weighted index of the following BLS series: Axminster, Brussels velvet broadloom, and Wilton carpets; floor coverings: felt base, printed and rugs; linoleum, inlaid and plain; 1919–1926: a weighted index of Axminster, Brussels, and Wilton carpets; 1879–1919: Shaw's index for floor coverings.

(*vi*) *Clothing.* 1919–1948: BLS subgroup index for clothing; 1879–1919: Shaw's index for clothing and personal furnishings. For deflation of components, see Addenda, section B.

(*vii*) *Other textile products.* 1914–1948: BLS subgroup index for other textile products; 1879–1914: Shaw's index for housefurnishings (semidurable).

(*viii*) *Cotton + silk and rayon + woolen and worsted goods + textiles, n.e.c.* For 1948, the "Source Book" of *Statistics of Income* gives a combined figure for cotton, silk and woolen yarn, thread, and narrow fabric mills and includes rayon and silk broad-woven fabric mills in textiles, n.e.c. The available 1948 combined output data for cotton, silk and rayon, and woolen and worsted goods were, therefore, deflated by a weighted price index of these three commodities. Textiles, n.e.c., including rayon and silk broad-woven fabric mills, was deflated by the 1948 price index for textiles, n.e.c. To achieve comparability with 1948, a separate industry—cotton + silk and rayon + woolen and worsted goods + textiles, n.e.c.—for earlier years was set up. The implicit index in Table A-12 for this group of industries was derived by

dividing the sum of the output in current prices of its components by their output in 1929 prices.

c. Leather and Leather Products

(*i*) *Boots, shoes, slippers, etc. (leather).* 1914–1948: BLS subgroup index for boots and shoes; 1879–1914: Shaw's index for shoes and other footwear.

(*ii*) *Other leather products.* 1914–1948: a weighted average of the BLS subgroup indexes for leather and for other leather products; 1890–1914: a weighted index of the following BLS series: leather: (a) calf, (b) harness, oak, (c) sole, hemlock and scoured backs; 1879–1890: unweighted average of: 13 tanned calfskin series; harness and sole leather. For deflation of components, see Addenda, section C.

d. Rubber Products

Since a breakdown of the rubber products major group into (a) tires and tubes and (b) other rubber products is not available before 1914, the following indexes were used in constructing an index for this group for 1879–1914: 1900–1914: Shaw's index for tires and tubes; 1890–1900: BLS index for Para rubber; 1879–1890: index for Para rubber (Aldrich Report). The group index for 1879–1914 was linked to the implicit group index (1929 = 100) derived by dividing the sum of the output in current prices of the two components by the output in 1929 prices.

(*i*) *Tires and tubes.* 1914–1948: BLS subgroup index for tires and tubes; 1900–1914: Shaw's index for tires and tubes.

(*ii*) *Other rubber products.* 1927–1948: a weighted index of the following BLS series: men's and women's rubber heels; garden hose; and men's rubbers; 1919–1927: composite index for biennial censal years 1919–1927 (using value of output in each censal year as weights) derived from *Census of Manufactures* data on value and output (in pairs) of rubber shoes, boots, soles, and heels; 1900–1914: Shaw's index for tires and tubes.

e. Forest Products

(*i*) *Sawmill and planing mill products.* 1914–1948: BLS subgroup index for lumber; 1890–1914: unweighted average of hemlock, Northern, No. 1; maple, hard and soft; oak, white, plain, New York; oak, white, quartered, New York; white pine boards; yellow pine siding; poplar; spruce; cypress shingles; shingles, white pine—Michigan white pine—red cedar and white pine doors; 1879–1890: an unweighted average of pine doors; pine (six series), hemlock, maple, oak and spruce boards; pine flooring; and four pine shingles series (Aldrich Report).

(*ii*) *Other wood products.* 1914–1948: BLS subgroup index for furniture; 1879–1914: Shaw's index for household furniture. For deflation of components, see Addenda, section D.

f. Paper, Pulp, and Products

1914–1948: BLS subgroup index for paper and pulp; 1890–1914: Shaw's index for magazines, newspapers, stationery and supplies, and miscellaneous paper products; 1879–1890: unweighted average of pine and hemlock lumber, in the log, not sawed (Aldrich Report). For deflation of components, see Addenda, section E.

g. Printing, Publishing, and Allied Industries

1919–1948: a weighted average of BLS price indexes for book paper (begins in 1921) and newsprint, combined with the BLS index of union hourly wage rates in the printing trades (*Handbook of Labor Statistics, 1950 Edition*, BLS, p. 89); 1890–1919: an average of the following (equally weighted): (a) an index of wage rates derived from average hourly earnings data in Paul Douglas, *Real Wages in the United States, 1890–1926* (Houghton Mifflin, 1930), p. 96 for book and job and newspaper printing and (b) Shaw's price index for magazines, newspapers, stationery and supplies, and miscellaneous paper products; 1879–1890: an average of: (a) an unweighted average of wage rate indexes for various printing skills (Aldrich Report) and (b) an unweighted average of the price indexes for pine and hemlock lumber, in the log, not sawed (Aldrich Report). For deflation of components, see Addenda, section F.

h. Chemicals and Allied Products

(*i*) *Chemicals proper, acids, compounds, etc.* 1914–1948: BLS subgroup index for chemicals; 1890–1914: an unweighted index of muriatic acid; sulphuric acid; alcohol, wood, refined; bicarbonate of soda; sulphur; and alum, lumps (BLS); 1879–1890: an unweighted index of bichromate of potash; blue vitriol; crude brimstone; copperas; muriatic acid; soda ash; brown and white sugar of lead; sulphuric acid; rifle powder (two series); and alum, lump, crystal (Aldrich Report).

(*ii*) *Allied chemical substances.* 1914–1948: a weighted index of following BLS subgroups: (a) soap (subgroup index begins in 1926; for 1914–1926, a weighted index of two laundry soap series was computed): (b) drugs and pharmaceuticals; (c) oils and fats (subgroup index begins in 1926; for 1914–1926 a weighted index was computed using tallow, inedible, packer's prime; copra, South Sea; and crude cocoanut and palm, niger vegetable oils); and paint and paint materials; 1890–1914: a weighted average of Shaw's index for drug,

toilet and household preparations; and paint materials (unweighted average of linseed oil, spirits of turpentine, white lead, and white zinc [BLS]); 1879–1890: an unweighted average of alcohol; calomel; refined glycerine; linseed oil, and castile soap (Aldrich Report). For deflation of components, see Addenda, section G.

(*iii*) *Fertilizers.* 1914–1948: a weighted average of the BLS subgroup indexes for fertilizer materials and mixed fertilizers; 1879–1914: index for chemicals proper, acids, compounds, etc. used (see h. *i*, above).

i. Petroleum Refining

1914–1948: BLS subgroup index for petroleum products; 1879–1914: Shaw's index for fuel and lighting products, manufactured.

j. Stone, Clay, and Glass Products

1914–1948: a weighted index of the following BLS series: plate glass, (a) 3 to 5 square feet and (b) 5 to 10 square feet; window glass, (a) single A and (b) single B; brick and tile (subgroup); Portland cement (subgroup); common and hydrated building lime; dinner sets, semivitreous (begins in 1924); pitchers—bowls, glass; plates; teacups and saucers; and tumblers; 1891–1914: F. C. Mills' unpublished index for stone, clay and glass products (unweighted geometric mean of appropriate BLS series); 1879–1891: a weighted index of: brick, common, domestic building; cement, Rosendale; lime, Rockland; window glass, American, 10 x 14, firsts, single; plate glass, polished, unsilvered (six series); glassware (five series) available in the Aldrich Report, using value of product weights in the 1914 *Census of Manufactures.* For deflation of components, see Addenda, section H.

k. Iron and Steel Products

(*i*) *Iron and steel.* 1914–1948: BLS subgroup index for iron and steel; 1890–1914: a weighted index of: bar iron, best refined, from store, Philadelphia; steel rails, Bessemer; fence wire, barbed, galvanized; pig iron, foundry, No. 1-basic; woodscrews; saws (two series); steel billets, Bessemer; and steel sheets (BLS); 1879–1890: a weighted index of: bar iron, best refined, rolled; iron rails (ends in 1882); standard; iron wire; nails, cut; pig iron, No. 1, anthracite, foundry; woodscrews; saws (three series); and iron rods (Aldrich Report). The value of product in the 1914 *Census of Manufactures* was used as the weight for 1879–1914. For deflation of components, see Addenda, section I.

(*ii*) *Metal building materials and supplies.* 1914–1948: a weighted index of the following BLS series: cast iron, black steel, and galvanized steel pipe; butts; concrete reinforced bars; structural steel (subgroup);

plumbing and heating; and stoves [1939–1948: a weighted average of coal, electric, gas and oil stoves (BLS); 1914–1939: Shaw's index for heating and cooking apparatus and household appliances, except electrical]; 1879–1914: index for iron and steel (see k. *i*, above).

(*iii*) *Hardware, tools, etc.* 1939–1948: a weighted index of machine, plow, stove, and track bolts; files; hammers; hatchets; axes; nails; woodscrews; cross-cut and hand saws; and planes (BLS); 1879–1939: Shaw's index for carpenters' and mechanics' tools.

l. Nonferrous Metals and Products

(*i*) *Precious metals products and processes; jewelry, etc.* 1879–1948: an unweighted index of (a) the price of silver [1879–1890: silver bullion, ounce fine, London (equivalent value in dollars, based on average price of exchange); 1890–1948: silver, bar, ounce fine, New York (BLS)]; and (b) the legal coinage value of gold per fine ounce. Data for the price of silver, 1879–1890, are from the *Report of the Director of the Mint upon the Production of Precious Metals in the United States, 1898*, pp. 252–255. Data for the price of gold are from *Minerals Yearbook Review* of 1940, Department of the Interior, p. 63.

(*ii*) *Other metals, products and processes.* 1914–1948: BLS subgroup index for nonferrous metals; 1890–1914: a weighted index of copper, ingot; copper, sheet, hot rolled (base sizes); bare copper wire; lead, pig; lead pipe; and zinc, sheet (BLS); 1879–1890: a weighted index of copper, ingot; copper, sheet; lead, pig; lead pipe; and zinc, imported, sheet. *Census of Manufactures, 1914* value of product data were used as weights.

In the Addenda to this Appendix the nonferrous metals and products group is broken down into four components. For deflation of these components, see Addenda, section J.

m. Machinery, Excluding Transportation Equipment

(*i*) *Electrical machinery and equipment.* 1938–1948: a weighted average of maintenance account indexes for: telephone and telegraph lines; signals and interlockers; power transmission systems; and power plant machinery (*Railroad Construction Indices, 1914–1950*, Engineering Section, Bureau of Valuation, Interstate Commerce Commission offset release, August 1, 1951); 1889–1938: Shaw's index for electrical equipment, industrial and commercial; 1879–1889: index for iron and steel (see k. *i*, above). Weights used for 1938–1948 were the relative values of the accounts in 1914–1921 (ICC).

(*ii*) *Agricultural machinery and equipment.* 1914–1948: BLS subgroup index for farm machinery; 1889–1914: Shaw's index for farm

machinery and equipment; 1879–1889: index for iron and steel (see k. *i*, above).

(*iii*) *Office and store machinery and equipment.* Index for factory, household, and miscellaneous machinery used (see m. *iv*, below).

(*iv*) *Factory, household, and miscellaneous machinery.* 1939–1948: Department of Commerce implicit price index for investment in producers' durable equipment; 1915–1939: Lowell J. Chawner's implicit price index for new manufacturing capital expenditures for equipment (Lowell J. Chawner, "Capital Expenditures for Manufacturing Plant and Equipment—1915 to 1940," *Survey of Current Business*, March 1941); 1889–1915: Shaw's index for industrial machinery and equipment; 1879–1889: index for iron and steel (see k. *i*, above).

n. Transportation Equipment

(*i*) *Motor vehicles, complete or parts.* 1919–1948: BLS subgroup index for motor vehicles; 1899–1919: a weighted average of Shaw's indexes for (a) passenger vehicles, motorized, and (b) business vehicles, motorized (begins in 1904); 1879–1899: index for iron and steel (see k. *i*, above).

(*ii*) *Locomotives and railroad equipment.* 1938–1948: a weighted average of ICC indexes (*Railroad Construction Indices, 1914–1950, op. cit.*) for steam locomotives; other locomotives; freight-train cars; and passenger-train cars, using relative values of the accounts (ICC) as weights; 1889–1938: Shaw's index for locomotives and railroad cars; 1879–1889: index for iron and steel (see k. *i*, above).

(*iii*) *Aircraft.* 1914–1918: index for miscellaneous manufactures used (see o. below).

o. Miscellaneous Manufactures

1914–1948: BLS group index for manufactured products; censal years 1879–1909: implicit price index derived by dividing sum of value of product of fourteen major groups in current prices by value of product in 1929 prices. For deflation of components, see Addenda, section K.

ADDENDA

From the 1948 unpublished data furnished by the Internal Revenue Service, we were able to secure additional breakdowns of value of output for several of the major and minor industrial groups listed above. A comparable breakdown was made for the censal years 1879–1919, but it was not possible to make any for 1929 and 1937. Price indexes

used in deflating value of output for these additional breakdowns are described below.

A. Beverages and liquors (minor group)

1. Nonalcoholic beverages.

1926–1948: a weighted index of ginger ale; grape juice; and plain soda (BLS); 1879–1926: index for beverages and liquors used (see a. *vi*, above).

2. Malt liquors and malt.

3. Wines.

4. Distilled liquors.

1879–1948: index for beverages and liquors used (see a. *vi*, above)

B. Clothing (minor group)

1. Hats, except cloth and millinery.

2. Men's and boy's clothing, except fur and rubber.

3. Women's clothing, children's and infants' wear, except fur and rubber.

4. Millinery.

1879–1948: index for clothing used (see b. *vi*, above).

C. Other leather products (minor group)

1. Leather, tanned, curried, and finished.

1914–1948: BLS subgroup index for leather; 1879–1914: index for other leather products used (see c. *ii*, above).

2. Leather products, n.e.c.

1914–1948: BLS subgroup index for other leather products; 1879–1914: index for other leather products used (see c. ii, above).

D. Other wood products (minor group)

1. Wooden containers.

1926–1948: a weighted index of the following BLS series: barrels, wooden, 50-gallon tierce; caskets, adult size, wood, covered; cigar boxes, cedar veneer; and shipping cases, casket pine, adult size; 1879–1926: index for other wood products used (see e. *ii*, above).

2. Wood products, n.e.c.

1879–1948: index for other wood products used (see e. *ii*, above).

E. Paper, pulp, and products (major group)

1. Paper, pulp, and paperboard mills.

2. Paper bags, containers and boxes.

3. Other paper products.

1879–1948: index for paper, pulp and products used (see f., above).

F. Printing, publishing, and allied industries (major group)

1. Book and job, including lithographing.
2. Newspapers and periodicals.
3. Allied industries.

1879–1948: index for printing, publishing, and allied industries used (see g., above).

G. Allied chemical substances (minor group)

1. Drugs, medicines, and cosmetics.

1914–1948: BLS subgroup index for drugs and pharmaceuticals; 1889–1914: Shaw's index for drug, toilet, and household preparations; 1879–1889: an unweighted average of alcohol; calomel; and refined glycerine (Aldrich Report).

2. Soaps, cleaning, and polishing preparations.

1926–1948: BLS subgroup index for soap; 1914–1926: a weighted index of 2 BLS laundry soap series; 1879–1914: index for allied chemical substances used (see h. *ii*, above).

3. Paints and varnishes.

1914–1948: BLS subgroup index for paint and paint materials; 1890–1914: an unweighted average of four BLS paint materials series: linseed oil, spirits of turpentine, white lead, and white zinc; 1879–1890: index for allied chemical substances used (see h. *ii*, above).

4. Other chemical substances.

1879–1948: index for allied chemical substances used (see h. *ii*, above).

H. Stone, clay, and glass products (major group)

1. Cement, lime, and concrete products.

1914–1948: a weighted index of Portland cement (subgroup) and common and hydrated building lime (BLS); 1890–1914: a weighted index of Portland cement, New York, Chicago; common lime, Rockport, lump; 1879–1890: a weighted index of cement, Rosendale; lime, Rockland (Aldrich Report), using value of output weights in the 1914 *Census of Manufactures.*

2. Clay and pottery products.

1914–1948: a weighted index of brick and tile (subgroup): dinner sets, semivitreous (begins in 1924); teacups and saucers, white granite (BLS); 1890–1914: a weighted index of brick, common, red, domestic; plates, white granite; and teacups and saucers, white granite (BLS); 1879–1890: index for brick, common, domestic, building (Aldrich Report).

3. Glass and glass products.

1890–1948: a weighted index of plate glass, (a) 3 to 5 square feet and

(b) 5 to 10 square feet; window glass, (a) single A and (b) single B; pitchers and bowls, glass; and tumblers, glass (BLS); 1879–1890: a weighted index of window glass, American 10 x 14, firsts, single; plate glass, polished, unsilvered (six series); and glassware (five series). (Aldrich Report), using value of output weights in the 1914 *Census of Manufactures.*

4. Cut stone and products.

5. Stone, clay, and glass products, n.e.c.

1879–1948: index for stone, clay, and glass products used (see j., above).

I. Iron and steel (minor group)

1. Tin cans and other tinware.

1914–1948: a weighted index of cans, sanitary No. 3 or No. 2 (begins 1926); terneplate; and tinplate (BLS); 1899–1914: BLS index for tinplate.

2. Blast furnaces, steel works, and rolling mills.

3. Ordnance and accessories.

4. Iron and steel, n.e.c.

1899–1948: the index for iron and steel (see k. *i*, above) after removing cans, terneplate and tinplate was used; 1879–1899: index for iron and steel (k. *i*) used.

J. Nonferrous metals and products (major group)

1. Clocks, watches, and parts.

1879–1948: implicit price index derived by dividing value of output of nonferrous metals and products group by output deflated by price indexes described in l. *i* and *ii* above.

2. Jewelry, silverware, and plating.

1879–1948: index for precious metal products and processes; jewelry, etc., used (see l. *i*, above).

3. Smelting, refining, and alloying.

4. Nonferrous metal products, n.e.c.

1879–1948: index for other metals, products and processes used (see l. *ii*, above). Gold, silver, and platinum reducing and refining make up a very small part of the smelting, refining, and alloying group; thus, the index in l. *ii* was used rather than the major group index.

K. Miscellaneous manufactures

1. Professional, scientific, photographic and optical instruments.

2. Miscellaneous manufactures, n.e.c.

1879–1948: index for miscellaneous manufactures used (see o., above).

C. Total Number of Persons Employed in Selected Manufacturing Industries, 1900–1953

For 1900–1919, the total number of persons employed is the sum of (1) proprietors and firm members, (2) salaried officers and personnel, and (3) the monthly average number of wage earners, as reported in the *Censuses of Manufactures*. For 1929–1948, Department of Commerce estimates of (1) the number of active proprietors of unincorporated enterprises and (2) the average number of full- and part-time employees were added to secure total persons employed. These data are from the *Survey of Current Business*, National Income Supplement, 1954, pp. 202–203, Table 28. The totals obtained from data in the census and the National Income Supplement are considered to be conceptually comparable.

In computing the number of persons employed in selected industries, we rearranged the census industries in a manner identical to that used in securing data for output and capital for 1880–1919. This rearrangement was made to bring about the same industrial coverage as that of the industries listed in *Statistics of Income*. For 1900, data are presented in Appendix Table A-16 both including and excluding custom and neighborhood shops. Custom and neighborhood shops are excluded after 1900. In the *Census of Manufactures, 1905*, Part 1, Table 1, pp. 3–20, data for 1900 for wage earners and salaried officers and personnel employed in establishments are presented excluding custom and neighborhood shops, but no data are presented for firm members and proprietors. To estimate the latter we first subtracted the number of establishments excluding custom and neighborhood shops (in the census of 1905) from those including these shops (in the census of 1900). We then subtracted this difference from the number of firm members and proprietors in 1900 in establishments including custom and neighborhood shops. In making this computation, we assumed that there was only one firm member or proprietor per custom or neighborhood shop.

Since we have excluded ship and boat building and repairing from manufacturing, the data for transportation equipment excluding motor vehicles in the National Income Supplement had to be adjusted to exclude the former industry. For 1929 and 1937, we multiplied the ratio of the total number employed in ship and boat building and repairing to the total number employed in transportation equipment excluding motor vehicles (in the 1929 and 1937 *Censuses of Manufactures*) by the total number employed in transportation equipment excluding motor vehicles (from the National Income Supplement). The product was then subtracted from total personnel in transportation

equipment excluding motor vehicles (in the National Income Supplement) to give us an estimate of total personnel excluding those in ship building. For 1948, we applied the ratio of the number of wage earners and salaried personnel in 1948 to the number in 1947 in ship and boat building and repairing [from *Handbook of Labor Statistics, 1950 Edition* (BLS), p. 18, Table A-4] to wage earners and salaried personnel in that industry in 1947 (1947 census); we added the product to the number of proprietors and firm members in 1947 (1947 census) to obtain an estimate of total personnel in ship building. The same method was used to obtain an estimate of total personnel in transportation excluding motor vehicles which, for 1948, includes ship building. Since no census or BLS data are available for firm members and proprietors for 1948, we used 1947 census data and assumed that the change in their number from 1947 to 1948 was negligible. The ratio of estimated total personnel in ship building to total personnel in transportation equipment excluding motor vehicles (census data) was then applied to total personnel in transportation equipment excluding motor vehicles in 1948 (National Income Supplement). The estimate of total personnel in ship building, thus derived, was subtracted from total personnel in transportation equipment excluding motor vehicles in 1948 (National Income Supplement) to give us an estimate of total personnel in transportation equipment excluding those in ship building.

Although we have excluded coke-oven products from capital and output in manufacturing in all years except 1948 and from employment in all years before 1929, we did not exclude the number employed in coal products from the petroleum and coal products group in the National Income Supplement. We believe that this does not affect the trend in the ratios for petroleum refining in which total persons employed was used.

D. Supporting Tables

TABLE A-8

Total Capital in Book Values and in 1929 Prices, by Major and Minor Manufacturing Industries, Selected Years, 1880–1948
(*millions of dollars*)

	1880[a]	1890[a]	1900[a]	1900[b]	1904[b]	1909[b]	1914[b]	1919[b]	1929[c]	1937[c]	1948[c, d]
All manufacturing											
Book values	2,718	5,697	8,663	8,168	11,588	16,937	20,784	40,289	59,072	50,166	113,394
1929 prices (sum of components)	4,821	11,157	18,626	17,452	23,295	31,563	36,737	46,094	63,022	55,319	77,982
Food and kindred products											
Book values	498	925	1,647	1,576	2,230	2,935	3,668	6,272	8,881	8,069	16,071
1929 prices	897	1,839	3,760	3,598	4,656	5,517	6,515	7,593	9,591	9,180	10,488
Bakery and confectionery products											
Book values	28	72	123	114	173	295	426	911	1,568	1,131	1,757
1929 prices	50	143	281	256	361	555	757	1,103	1,693	1,287	1,146
Canned products											
Book values	9	25	59	59	90	119	172	378	853	820	1,681
1929 prices	16	50	135	135	188	224	306	458	921	933	1,097
Mill products											
Book values	177	208	219	189	265	349	380	802	471	496	1,060
1929 prices	319	414	500	432	553	656	675	971	509	564	691
Packing house products											
Book values	49	117	189	189	238	378	537	1,185	1,385	1,114	1,975
1929 prices	88	233	432	432	497	711	954	1,435	1,496	1,267	1,288
Sugar refining											
Book values	28	24	204	204	221	283	316	473	1,053	599	780
1929 prices	50	48	466	466	461	532	561	573	1,137	681	509
Liquors and beverages											
Book values	135	310	534	516	660	873	1,016	782	692	1,371	3,158
1929 prices	243	616	1,219	1,178	1,378	1,641	1,805	947	747	1,560	2,061

(*continued*)

TABLE A-8 (*continued*)

	1880[a]	1890[a]	1900[a]	1900[b]	1904[b]	1909[b]	1914[b]	1919[b]	1929[c]	1937[c]	1948[c, d]
Other food products											
Book values	32	73	195	193	259	392	517	1,136	1,709	1,577	3,302
1929 prices	58	145	445	441	541	737	918	1,375	1,846	1,794	2,154
Tobacco products											
Book values	40	96	124	112	324	246	304	605	1,150	961	2,330
1929 prices	72	191	283	256	676	462	540	732	1,242	1,093	1,520
Textile products											
Book values	602	1,119	1,494	1,366	1,783	2,550	2,881	6,205	7,687	4,770	10,397
1929 prices	998	2,024	3,145	2,876	3,482	4,636	5,163	6,752	8,195	5,638	6,892
Cotton goods											
Book values	246	392	528	528	702	936	1,039	2,145	1,603	866	
1929 prices	408	709	1,112	1,112	1,371	1,702	1,862	2,334	1,709	1,024	
Silk and rayon goods											
Book values	19	51	81	81	110	152	210	533	869	441	3,693
1929 prices	32	92	171	171	215	276	376	580	926	521	2,447
Woolen and worsted goods											
Book values	117	203	264	264	313	429	403	868	601	415	
1929 prices	194	367	556	556	611	780	722	945	641	491	
Carpets, floor coverings, etc.											
Book values	25	43	53	53	69	97	112	179	262	199	483
1929 prices	41	78	112	112	135	176	201	195	279	235	320
Knit goods											
Book values	16	51	82	82	107	164	216	516	709	433	929
1929 prices	27	92	173	173	209	298	387	561	756	512	616
Clothing											
Book values	114	292	350	257	345	568	633	1,447	1,758	1,036	3,018
1929 prices	189	528	737	541	674	1,033	1,134	1,575	1,874	1,225	2,001

(*continued*)

TABLE A-8 (*continued*)

	1880[a]	1890[a]	1900[a]	1900[b]	1904[b]	1909[b]	1914[b]	1919[b]	1929[c]	1937[c]	1948[c, d]
Textiles, n.e.c.											
Book values	65	87	136	101	137	204	268	517	1,887	1,380	2,253
1929 prices	108	157	286	213	268	371	480	563	2,012	1,631	1,493
Cotton + woolen and worsted + silk and rayon goods + textiles, n.e.c.											
Book values	447	733	1,009	974	1,262	1,721	1,920	4,063	4,960	3,102	5,946
1929 prices	741	1,325	2,124	2,051	2,465	3,129	3,441	4,421	5,288	3,667	3,940
Leather and products											
Book values	157	274	369	335	452	659	743	1,523	1,167	751	1,303
1929 prices	328	640	891	809	1,066	1,359	1,351	1,411	1,213	808	817
Boots and shoes											
Book values	43	95	102	100	123	197	255	581	625	410	710
1929 prices	90	222	246	242	290	406	464	538	650	441	445
Other leather products											
Book values	114	179	267	235	329	462	488	942	542	341	592
1929 prices	238	418	645	568	776	953	887	873	563	367	371
Rubber products											
Book values	9	37	78	78	99	162	268	960	1,088	795	1,791
1929 prices	10	36	74	74	93	139	265	704	1,131	816	1,422
Tires and tubes											
Book values	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	130	635	918	586	1,383
1929 prices	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	129	466	954	602	1,098
Other rubber products											
Book values	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	138	325	170	209	361
1929 prices	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	136	238	177	215	287
Forest products											
Book values	361	825	1,110	872	1,174	1,767	1,932	2,726	3,842	2,405	4,816
1929 prices	847	1,950	2,868	2,253	2,662	3,591	3,475	3,155	4,083	2,548	2,934

(*continued*)

TABLE A-8 (*continued*)

	1880[a]	1890[a]	1900[a]	1900[b]	1904[b]	1909[b]	1914[b]	1919[b]	1929[c]	1937[c]	1948[c,d]
Sawmill and planing mill products											
Book values	219	518	731	520	694	1,122	1,193	1,730	2,660	1,562	3,000
1929 prices	514	1,225	1,889	1,344	1,574	2,280	2,146	2,002	2,827	1,655	1,826
Other wood products											
Book values	142	307	379	352	480	645	739	996	1,182	843	1,805
1929 prices	333	726	979	910	1,088	1,311	1,329	1,153	1,256	893	1,099
Paper, pulp and products											
Book values	58	115	219	218	354	523	689	1,195	2,060	1,942	3,692
1929 prices	90	200	455	453	670	1,002	1,246	1,524	2,239	2,062	2,476
Printing, publishing, and allied industries											
Book values	80	234	342	342	450	611	745	1,189	2,622	2,320	3,984
1929 prices	144	466	801	801	939	1,265	1,444	1,556	2,737	2,505	2,571
Chemicals and allied products											
Book values	137	288	458	457	634	911	1,280	2,594	3,942	3,537	9,109
1929 prices	206	478	871	869	1,134	1,531	2,078	2,777	4,221	3,965	6,487
Fertilizers											
Book values	18	41	61	61	69	122	217	312	335	198	334
1929 prices	27	68	116	116	123	205	352	334	359	222	237
Chemicals proper, acids,etc.											
Book values	49	96	145	144	194	273	390	941	973	1,125	2,580
1929 prices	74	159	276	274	347	459	633	1,007	1,042	1,261	1,830
Allied chemical substances—drugs, oils, etc.											
Book values	70	151	252	252	371	516	673	1,341	2,634	2,214	5,917
1929 prices	105	251	479	479	664	867	1,093	1,436	2,820	2,482	4,196

(*continued*)

TABLE A-8 (*continued*)

	1880[a]	*1890*[a]	*1900*[a]	*1900*[b]	*1904*[b]	*1909*[b]	*1914*[b]	*1919*[b]	*1929*[c]	*1937*[c]	*1948*[c, d]
Petroleum refining											
Book values	27	77	95	95	136	182	326	1,170	5,745	5,814	15,363
1929 prices	37	151	195	195	254	327	552	1,380	6,092	6,503	11,188
Stone, clay, and glass products											
Book values	83	217	351	336	554	860	990	1,267	2,351	1,825	2,934
1929 prices	156	408	741	709	1,138	1,755	1,937	1,676	2,592	1,975	2,128
Metal and its products											
Book values	655	1,463	2,332	2,327	3,477	5,366	6,679	14,181	17,517	16,746	40,253
1929 prices (sum of deflated components)	1,019	2,735	4,481	4,475	6,733	9,729	11,815	16,618	18,672	18,015	28,159
Iron and steel and products											
Book values	318	646	860	870	1,544	2,411	2,836	5,671	6,226	6,383	13,796
1929 prices	472	1,143	1,581	1,599	2,886	4,305	5,166	6,735	6,666	6,719	9,645
Iron and steel											
Book values	258	469	657	657	1,185	1,845	2,147	4,456	4,155	4,394	9,521
1929 prices	383	830	1,208	1,208	2,215	3,295	3,911	5,292	4,449	4,625	6,598
Metal building materials and supplies											
Book values	10	73	87	97	202	340	417	665	756	805	2,309
1929 prices	15	129	160	178	378	607	760	790	809	847	1,600
Hardware, tools, etc.											
Book values	49	104	117	116	156	225	273	549	1,315	1,184	1,177
1929 prices	73	184	215	213	292	402	497	652	1,408	1,246	816
Nonferrous metals and products											
Book values	86	187	381	360	455	705	827	1,484	2,194	2,090	3,401
1929 prices	116	276	646	610	804	1,203	1,365	1,808	2,364	2,338	2,520

(*continued*)

TABLE A-8 (*continued*)

	1880[a]	*1890*[a]	*1900*[a]	*1900*[b]	*1904*[b]	*1909*[b]	*1914*[b]	*1919*[b]	*1929*[c]	*1937*[c]	*1948*[c, d]
Precious metal products and processes											
Book values	29	70	97	97	126	181	196	315	352	247	515
1929 prices	39	103	164	164	223	309	323	384	379	276	379
Other metals, products, and processes											
Book values	57	117	284	263	329	524	631	1,169	1,842	1,843	2,663
1929 prices	77	173	481	446	581	894	1,041	1,424	1,985	2,062	1,960
Machinery excluding transportation equipment											
Book values	242	557	924	924	1,309	1,860	2,331	4,700	5,833	4,979	14,674
1929 prices	414	1,160	1,917	1,917	2,710	3,654	4,293	5,595	6,166	5,286	10,352
Electrical machinery and equipment; radios											
Book values	2	19	86	87	183	282	390	963	1,514	1,120	4,874
1929 prices	3	40	178	180	379	554	718	1,146	1,600	1,189	3,438
Agricultural machinery											
Book values	62	145	158	158	197	256	339	367	730	749	1,745
1929 prices	106	302	328	328	408	503	624	437	772	795	1,226
Office equipment, etc.											
Book values	6	8	24	24	41	72	95	167	430	413	815
1929 prices	10	17	50	50	85	141	175	199	455	438	573
Factory, household, and miscellaneous machinery											
Book values	172	385	656	655	888	1,250	1,507	3,203	3,159	2,697	6,962
1929 prices	295	802	1,361	1,359	1,839	2,456	2,775	3,813	3,339	2,863	4,892

(*continued*)

TABLE A–8 (*concluded*)

	1880[a]	*1890*[a]	*1900*[a]	*1900*[b]	*1904*[b]	*1909*[b]	*1914*[b]	*1919*[b]	*1929*[c]	*1937*[c]	*1948*[c, d]
Transportation equipment											
Book values	9	73	167	173	169	390	685	2,326	3,264	3,294	8,382
1929 prices	17	156	337	349	333	567	991	2,480	3,746	3,672	5,642
Motor vehicles											
Book values	n.a.	2	30	36	29	184	426	1,816	2,575	2,504	6,006
1929 prices	n.a.	4	60	73	57	267	616	1,936	2,742	2,792	4,016
Locomotives and railroad equipment											
Book values	9	71	137	137	139	206	259	491	578	610	927
1929 prices	17	152	276	276	274	299	375	523	616	680	618
Aircraft and parts											
Book values	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	18	80	80	1,114
1929 prices	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	19	118	201	743
Miscellaneous manufacturing											
Book values	51	123	168	166	245	411	583	1,007	2,168	1,192	3,681
1929 prices	89	230	344	468	468	712	896	948	2,256	1,304	2,420

n.a. = not available.
n.e.c. = not elsewhere classified.
[a] Includes custom and neighborhood shops.
[b] Factories producing annual value of $500 or more.
[c] Factories producing annual value of $5,000 or more.
[d] Some minor groups are not adjusted for accelerated depreciation of investment in emergency facilities or for intangible assets. Therefore, sum of parts does not always equal total.
Source: For derivation see Appendix A, section B, part 1.

TABLE A-9

Fixed Capital in Book Values and in 1929 Prices, by Major and Minor Manufacturing Industries, Selected Years, 1890–1948
(*millions of dollars*)

	1890[a]	*1900*[a]	*1904*[b]	*1929*[c]	*1937*[c]	*1948*[c, d]
All manufacturing						
Book value	2,646	4,223	5,596	27,410	23,282	45,727
1929 prices (sum of components)	5,553	9,651	12,316	30,853	25,851	36,526
Food and kindred products						
Book value	498	896	1,039	4,001	3,367	5,526
1929 prices	1,062	2,074	2,289	4,531	3,775	4,376
Bakery and confectionery products						
Book value	42	78	107	878	639	835
1929 prices	90	181	236	994	716	661
Canned products						
Book value	10	27	41	317	278	582
1929 prices	21	62	90	359	312	461
Mill products						
Book value	136	143	140	198	196	366
1929 prices	290	331	309	224	220	290
Packing house products						
Book value	45	67	87	568	447	632
1929 prices	96	155	192	643	501	500
Sugar refining						
Book value	14	100	97	612	311	356
1929 prices	30	231	214	693	349	282
Liquors and beverages						
Book value	190	316	378	315	639	1,222
1929 prices	405	731	833	357	716	968
Other food products						
Book value	41	136	152	993	762	1,435
1929 prices	87	315	335	1,125	854	1,136
Tobacco products						
Book value	19	30	36	120	95	188
1929 prices	41	69	79	136	107	149
Textiles and products						
Book value	491	667	825	2,932	1,928	2,923
1929 prices	1,004	1,533	1,825	3,339	2,126	2,390
Cotton goods						
Book value	251	334	440	864	500	
1929 prices	513	768	973	984	551	
Silk and rayon goods						
Book value	21	33	47	382	251	1,380
1929 prices	43	76	104	435	277	1,128
Woolen and worsted goods						
Book value	87	105	144	239	165	
1929 prices	178	241	319	272	182	

(*continued*)

TABLE A-9 (*continued*)

	1890[a]	*1900*[a]	*1904*[b]	*1929*[c]	*1937*[c]	*1948*[c, d]
Carpets, floor coverings, etc.						
Book value	20	25	33	122	84	187
1929 prices	41	57	73	139	93	153
Knit goods						
Book value	24	37	50	290	189	329
1929 prices	49	85	111	330	208	269
Clothing						
Book value	48	68	58	301	171	369
1929 prices	98	156	128	343	189	302
Textiles, n.e.c.						
Book value	41	65	53	734	568	655
1929 prices	84	149	117	836	626	336
Cotton + silk and rayon + woolen and worsted goods + textiles, n.e.c.						
Book value	400	537	684	2,219	1,484	2,035
1929 prices	818	1,234	1,513	2,527	1,636	1,464
Leather and products						
Book value	75	104	127	269	159	235
1929 prices	160	240	280	308	179	186
Boots and shoes						
Book value	22	26	30	141	84	114
1929 prices	47	60	66	162	95	90
Other leather products						
Book value	53	78	97	128	75	126
1929 prices	113	180	214	147	85	100
Rubber products						
Book value	10	23	30	434	240	618
1929 prices	22	54	66	485	268	480
Tires and tubes						
Book value	n.a.	n.a.	n.a.	363	145	422
1929 prices	n.a.	n.a.	n.a.	406	162	328
Other rubber products						
Book value	n.a.	n.a.	n.a.	71	95	154
1929 prices	n.a.	n.a.	n.a.	79	106	120
Forest products						
Book value	346	584	504	2,001	1,336	2,021
1929 prices	716	1,224	1,115	2,261	1,473	1,638
Sawmill and planing mill products						
Book value	224	426	308	1,504	983	1,449
1929 prices	464	893	681	1,700	1,084	1,174
Other wood products						
Book value	121	158	196	497	353	554
1929 prices	251	331	434	562	389	449
Paper, pulp, and products						
Book value	73	143	240	1,196	1,099	1,900
1929 prices	153	331	527	1,345	1,218	1,526

(*continued*)

TABLE A-9 (*continued*)

	1890[a]	*1900*[a]	*1904*[b]	*1929*[c]	*1937*[c]	*1948*[c, d]
Printing, publishing, and allied industries						
Book value	139	191	246	974	792	1,442
1929 prices	295	449	538	1,043	865	1,135
Chemicals and allied products						
Book value	128	209	299	1,497	1,547	4,100
1929 prices	269	480	660	1,719	1,728	3,309
Fertilizers						
Book value	13	20	25	134	91	145
1929 prices	27	46	55	154	102	117
Chemicals proper, acids, etc.						
Book value	53	83	113	507	637	1,471
1929 prices	111	191	249	582	712	1,187
Allied chemical substances—drugs, oils, etc.						
Book value	61	106	161	856	819	2,360
1929 prices	128	244	355	983	915	1,905
Petroleum refining						
Book value	35	54	73	3,729	3,821	9,115
1929 prices	74	127	160	4,018	4,171	7,217
Stone, clay, and glass products						
Book value	129	222	368	1,451	1,091	1,462
1919 prices	275	509	811	1,685	1,238	1,158
Metal and its products						
Book value	680	1,072	1,756	8,294	7,505	15,281
1929 prices (sum of components)	1,435	2,495	3,854	9,389	8,363	12,236
Iron and steel and products						
Book values	346	462	920	3,786	3,507	6,438
1929 prices	738	1,087	2,013	4,235	3,892	5,146
Iron and steel						
Book value	264	364	750	2,914	2,699	4,618
1929 prices	563	856	1,641	3,260	2,996	3,691
Metal building materials and supplies						
Book value	30	41	88	297	331	638
1929 prices	64	96	193	332	367	510
Hardware, tools, etc.						
Book value	53	56	82	575	477	443
1929 prices	113	132	179	643	529	354
Nonferrous metals and products						
Book value	75	183	204	1,002	941	1,490
1929 prices	154	420	451	1,150	1,043	1,217
Precious metal products, and processes						
Book value	22	34	41	86	65	107
1929 prices	45	78	91	99	72	87

(*continued*)

TABLE A-9 (*concluded*)

	1890[a]	*1900*[a]	*1904*[b]	*1929*[c]	*1937*[c]	*1948*[c, d]
Other metals, products, and processes						
Book values	53	149	163	916	876	1,176
1929 prices	109	342	361	1,052	971	962
Machinery excluding transportation equipment						
Book value	223	364	570	1,907	1,601	4,387
1929 prices	468	841	1,256	2,162	1,783	3,524
Electrical machinery and equipment; radios						
Book value	6	28	59	463	349	1,363
1929 prices	13	65	130	525	389	1,095
Agricultural machinery						
Book value	32	34	65	215	204	547
1929 prices	67	79	143	244	227	439
Office equipment, etc.						
Book value	3	9	15	106	129	310
1929 prices	6	21	33	120	144	249
Factory, household, and miscellaneous machinery						
Book value	182	292	431	1,123	919	1,959
1929 prices	382	674	949	1,273	1,023	1,573
Transportation equipment						
Book value	35	64	61	1,599	1,456	2,966
1929 prices	75	147	134	1,842	1,645	2,337
Motor vehicles						
Book value	1	15	13	1,232	1,040	2,153
1929 prices	2	35	29	1,419	1,175	1,705
Locomotives and railroad equipment						
Book value	34	49	48	307	351	303
1929 prices	72	113	106	354	397	240
Aircraft and parts						
Book value	n.a.	n.a.	n.a.	60	65	192
1929 prices	n.a.	n.a.	n.a.	69	73	152
Miscellaneous						
Book value	42	59	87	632	397	1,104
1929 prices	88	135	191	730	447	887

n.a. = not available.

n.e.c. = not elsewhere classified.

[a] Includes custom and neighborhood shops.

[b] Factories producing annual value of $500 or more.

[c] Factories producing annual value of $5,000 or more.

[d] Some minor groups not adjusted for accelerated depreciation of investment in emergency facilities or for intangible assets. Therefore, sum of the parts does not always equal totals.

Source: For derivation see Appendix A, section B, part 1.

TABLE A-10

Value of Output in Current and in 1929 Prices, by Major and Minor Manufacturing Industries, Selected Years, 1880–1948
(*millions of dollars*)

	1880[a]	*1890*[a]	*1900*[a]	*1900*[b]	*1904*[b]	*1909*[b]	*1914*[b]	*1919*[b]	*1929*[c, d]	*1937*[c, d]	*1948*[c, d]
All manufacturing											
Current prices	5,147	8,393	11,590	10,997	14,218	19,894	23,253	58,533	71,220	67,436	213,340
1929 prices (sum of deflated components)	8,820	15,274	23,182	21,984	26,136	32,648	36,434	45,090	71,220	74,687	128,124
Food products, total											
Current prices	1,442	2,188	3,001	2,857	3,709	5,072	6,139	14,193	15,014	15,881	45,273
1929 prices (sum of deflated components)	2,452	4,014	6,794	6,513	7,326	8,388	9,546	11,240	15,014	18,346	26,196
Bakery and confectionery products											
Current prices	93	188	267	246	371	554	755	1,979	2,171	2,023	5,090
1929 prices	174	349	529	487	695	949	1,206	1,730	2,171	2,083	3,111
Canned products											
Current prices	20	50	104	103	138	157	243	628	952	1,048	2,802
1929 prices	36	66	194	192	262	289	354	443	952	1,381	1,911
Mill products											
Current prices	505	514	561	501	713	884	878	2,052	1,555	1,313	4,643
1929 prices	499	582	1,055	898	969	1,055	1,183	1,185	1,555	1,379	2,364
Packing house products											
Current prices	304	562	786	784	914	1,356	1,665	4,288	5,403	4,677	13,181
1929 prices	1,034	1,719	2,646	2,604	2,589	2,819	2,901	3,978	5,403	5,151	6,080
Sugar refining											
Current prices	156	123	248	247	302	327	374	938	783	622	1,157
1929 prices	94	90	255	254	320	347	401	530	783	663	768

(*continued*)

TABLE A-10 (*continued*)

	1880[a]	1890[a]	1900[a]	1900[b]	1904[b]	1909[b]	1914[b]	1919[b]	1929[c, d]	1937[c, d]	1948[c, d]
Liquors and beverages											
Current prices	167	341	425	383	500	675	772	603	505	2,035	5,902
1929 prices	283	508	940	847	1,033	1,108	1,216	452	505	2,599	3,610
Other food products											
Current prices	78	198	327	327	440	702	962	2,692	2,364	2,598	9,066
1929 prices	132	295	723	723	909	1,153	1,515	2,016	2,364	3,318	5,545
Tobacco products											
Current prices	119	212	283	266	331	417	490	1,013	1,284	1,309	3,183
1929 prices	200	405	502	472	549	668	770	906	1,284	1,484	2,670
Textiles and their products											
Current prices	989	1,530	1,955	1,673	2,218	3,165	3,519	9,442	10,528	8,249	24,636
1929 prices (sum of deflated components)	1,553	2,476	3,822	3,279	3,879	5,050	5,789	6,530	10,528	10,286	14,735
Cotton goods											
Current prices	243	298	384	384	501	712	810	2,520	1,420	1,026	
1929 prices	435	543	891	891	904	1,254	1,429	1,688	1,420	1,203	
Silk and rayon goods											
Current prices	41	87	107	107	133	197	254	688	1,016	533	7,060
1929 prices	23	65	103	103	156	215	286	380	1,016	1,306	4,083
Woolen and worsted goods											
Current prices	199	221	247	247	318	435	400	1,119	690	616	
1929 prices	295	349	454	454	534	632	699	795	690	597	
Carpets, floor coverings, tapestries											
Current prices	38	55	59	59	75	92	92	187	231	200	860
1929 prices	77	141	163	163	186	216	199	171	231	196	524
Knit goods											
Current prices	30	67	96	96	137	200	259	713	885	742	1,868
1929 prices	28	77	152	152	206	278	353	509	885	1,008	1,579
Clothing											
Current prices	322	679	889	628	839	1,256	1,369	3,348	3,866	2,985	9,715
1929 prices	486	1,079	1,703	1,203	1,506	1,972	2,289	2,376	3,866	3,055	5,927

(*continued*)

TABLE A-10 (*continued*)

	1880[a]	*1890*[a]	*1900*[a]	*1900*[b]	*1904*[b]	*1909*[b]	*1914*[b]	*1919*[b]	*1929*[c, d]	*1937*[c, d]	*1948*[c, d]
Textiles, n.e.c.											
Current prices	116	123	173	152	215	273	335	867	2,355	1,961	4,995
1929 prices	209	222	356	313	387	483	534	611	2,355	2,668	2,542
Cotton + silk and rayon + woolen and worsted goods + textiles, n.e.c.											
Current prices	599	729	911	890	1,167	1,617	1,799	5,194	5,481	4,136	12,055
1929 prices	962	1,179	1,804	1,761	1,981	2,584	2,948	3,474	5,481	5,774	6,625
Leather and its mfrs.											
Current prices	471	543	640	582	724	993	1,105	2,610	1,747	1,425	3,405
1929 prices (sum of deflated components)	1,013	1,310	1,569	1,435	1,747	2,043	1,959	1,854	1,747	1,510	2,008
Boots and shoes											
Current prices	166	221	261	259	320	443	502	1,155	1,049	838	1,920
1929 prices	350	552	694	689	816	943	947	912	1,049	848	1,076
Other leather products											
Current prices	305	322	379	323	404	550	603	1,455	689	572	1,439
1929 prices	663	758	875	746	931	1,100	1,012	942	689	646	904
Rubber products											
Current prices	25	43	100	100	148	197	301	1,138	1,102	1,103	3,415
1929 prices (sum of deflated components)	17	21	37	37	62	68	174	459	1,102	1,089	2,743
Tires and tubes											
Current prices	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	146	753	868	767	2,657
1929 prices	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	46	196	868	749	2,235
Other rubber products											
Current prices	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	155	385	200	280	688
1929 prices	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	128	263	200	285	451
Forest products											
Current prices	575	1,049	1,227	1,170	1,406	1,784	1,764	3,268	2,975	2,349	9,029
1929 prices (sum of deflated components)	1,615	2,749	3,476	3,314	3,267	3,554	2,925	2,710	2,975	2,398	4,161

(*continued*)

TABLE A-10 (*continued*)

	1880[a]	1890[a]	1900[a]	1900[b]	1904[b]	1909[b]	1914[b]	1919[b]	1929[c, d]	1937[c, d]	1948[c, d]
Sawmill and planing mill products											
Current prices	307	622	735	723	827	1,080	1,032	1,898	1,583	1,214	5,149
1929 prices	948	1,723	2,070	2,037	1,892	2,093	1,940	1,575	1,583	1,142	1,543
Other wood products											
Current prices	268	427	492	447	579	704	732	1,370	1,392	1,135	3,880
1929 prices	667	1,026	1,406	1,277	1,375	1,461	985	1,135	1,392	1,256	2,618
Paper, pulp, and products											
Current prices	82	122	199	198	286	413	520	1,251	1,761	1,891	6,143
1929 prices (sum of deflated components)	90	134	334	332	388	666	794	966	1,761	1,834	3,242
Printing, publishing, and allied industries											
Current prices	119	328	410	410	574	767	937	1,764	3,122	2,699	6,974
1929 prices (sum of deflated components)	225	606	965	965	1,141	1,598	1,805	2,054	3,122	2,871	3,725
Chemicals and allied products											
Current prices	238	370	521	520	706	1,010	1,273	3,295	4,254	4,381	14,541
1929 prices (sum of deflated components)	286	485	829	829	1,032	1,365	1,713	2,128	4,254	4,911	9,054
Fertilizers											
Current prices	24	39	45	45	57	104	153	281	262	198	538
1929 prices	15	32	46	46	57	120	177	129	262	265	464
Chemicals proper, acids, compounds, etc.											
Current prices	57	88	97	95	135	196	250	796	788	994	3,327
1929 prices	35	69	93	91	128	215	275	547	788	1,123	2,618
Allied chemical products, paints, varnishes, etc.											
Current prices	157	243	379	380	514	710	870	2,218	3,061	3,030	10,567
1929 prices	236	384	690	692	847	1,030	1,261	1,452	3,061	3,344	5,903

(*continued*)

TABLE A-10 (*continued*)

	1880[a]	*1890*[a]	*1900*[a]	*1900*[b]	*1904*[b]	*1909*[b]	*1914*[b]	*1919*[b]	*1929*[c, d]	*1937*[c, d]	*1948*[c, d]
Petroleum refining											
Current prices	44	85	124	124	175	237	396	1,633	4,737	5,221	20,038
1929 prices (sum of deflated components)	28	138	173	173	200	277	429	910	4,737	6,150	12,532
Stone, clay, and glass products											
Current prices	108	230	294	271	392	533	616	1,088	1,655	1,624	4,391
1929 prices (sum of deflated components)	188	351	547	505	730	1,068	1,203	982	1,655	1,622	2,885
Metal and its products											
Current prices	954	1,715	2,900	2,878	3,569	5,226	6,079	17,504	21,991	21,057	68,789
1929 prices (sum of deflated components)	1,183	2,648	4,202	4,179	5,799	7,765	9,255	14,282	21,991	21,983	42,868
Iron and steel and products											
Current prices	430	782	1,158	1,171	1,496	2,264	2,269	6,225	7,627	6,769	23,184
1929 prices (sum of deflated components)	459	1,058	1,434	1,452	2,246	3,165	3,681	4,747	7,627	6,630	13,833
Iron and steel											
Current prices	342	558	929	929	1,146	1,736	1,671	4,822	5,269	4,199	16,382
1929 prices	341	679	1,050	1,050	1,626	2,293	2,583	3,520	5,269	4,057	10,026
Metal bldg. materials and supplies											
Current prices	21	113	117	130	218	344	398	810	918	1,039	4,588
1929 prices	24	161	154	172	362	531	718	670	918	1,037	2,525
Hardware, tools, etc.											
Current prices	66	112	111	111	133	182	199	592	1,319	1,464	1,976
1929 prices	94	218	230	230	258	341	380	557	1,319	1,473	1,144
Nonferrous metals and products											
Current prices	182	305	718	679	834	1,131	1,267	2,402	3,014	2,903	5,494
1929 prices (sum of deflated components)	160	274	801	757	1,116	1,499	1,681	2,030	3,014	3,265	3,677
Precious metal products and processing; jewelry, etc.											
Current prices	61	111	120	119	149	199	194	450	463	430	1,031
1929 prices	39	80	112	112	143	201	189	289	463	339	668

(*continued*)

TABLE A-10 (*continued*)

	1880[a]	1890[a]	1900[a]	1900[b]	1904[b]	1909[b]	1914[b]	1919[b]	1929[c, d]	1937[c, d]	1948[c, d]
Other metal products and processing											
Current prices	121	194	598	560	685	932	1,073	1,952	2,503	2,399	4,591
1929 prices	121	194	689	645	973	1,298	1,492	1,741	2,503	2,842	3,094
Machinery excluding transportation equipment											
Current prices	314	527	859	859	1,022	1,408	1,639	5,017	5,985	6,043	23,747
1929 prices (sum of deflated components)	513	1,098	1,658	1,658	2,041	2,660	2,893	4,732	5,985	6,194	15,615
Electrical machinery and equipment; radios, etc.											
Current prices	3	19	93	94	151	233	362	1,157	1,735	1,632	8,381
1929 prices	6	43	188	190	316	459	627	1,102	1,735	1,801	5,902
Agricultural machinery and equipment											
Current prices	69	81	101	101	112	146	164	305	570	730	2,717
1929 prices	51	74	110	110	117	151	174	254	570	748	1,945
Office equipment, etc.											
Current prices	6	14	22	22	35	61	72	173	389	406	1,050
1929 prices	11	32	45	45	74	122	135	164	389	402	645
Miscellaneous; household; factory machinery											
Current prices	236	413	643	642	724	968	1,041	3,382	3,224	3,163	11,660
1929 prices	445	949	1,315	1,313	1,534	1,928	1,957	3,212	3,224	3,132	7,162
Transportation equipment											
Current prices	28	101	165	169	217	423	904	3,860	5,365	5,342	16,364
1929 prices (Sum of deflated components)	51	218	309	312	396	441	1,000	2,773	5,365	5,894	9,743
Motor vehicles, complete or parts											
Current prices	n.a.	3	32	37	35	260	655	3,133	4,765	4,696	13,699
1929 prices	n.a.	2	17	20	21	132	507	2,211	4,765	5,259	8,154

(*continued*)

TABLE A-10 (*concluded*)

	1880[a]	*1890*[a]	*1900*[a]	*1900*[b]	*1904*[b]	*1909*[b]	*1914*[b]	*1919*[b]	*1929*[c, d]	*1937*[c, d]	*1948*[c, d]
Locomotives and railroad equipment											
Current prices	28	98	133	133	182	164	248	713	458	473	1,312
1929 prices	51	216	292	292	375	309	492	552	458	450	788
Airplanes, airships, seaplanes, etc.											
Current prices	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	1	14	132	142	1,534
1929 prices	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	1	10	132	154	909
Miscellaneous											
Current prices	100	190	219	214	311	497	604	1,347	2,334	1,557	6,706
1929 prices (sum of deflated components)	170	342	434	423	565	806	842	975	2,334	1,687	3,975
Addenda:											
Index of physical output (1929=100) (Frickey-Fabricant-Federal Reserve Board)[e]	10	n.a.	28	28	n.a.	43	n.a.	61	n.a.	103	181
Value added[f] for total manufacturing											
Current prices	1,850	3,688	4,920	4,609	5,977	8,116	9,343	22,904	31,196	27,615	83,792
1929 prices	3,201	6,756	9,916	9,275	11,132	13,674	14,931	18,042	31,196	30,581	50,326

n.a. = not available.

[a] Includes custom and neighborhood shops.

[b] Factories producing annual value of $500 or more.

[c] Factories producing annual value of $5,000 or more.

[d] Some minor groups not adjusted for net physical change in inventories. Therefore, sum of the parts does not always equal total.

[e] Edwin Frickey, *Production in the United States, 1860–1914*, Harvard Economic Studies, 1947, Table 6, p. 54; Solomon Fabricant, *The Output of Manufacturing Industries, 1899–1937*, National Bureau of Economic Research, 1940, p. 44; Federal Reserve Board index is from Department of Commerce, *Business Statistics 1953, Biennial Edition*, p. 10.

[f] For 1880–1937 value added (value of output minus cost of purchased materials, fuels, and containers) is based on data from *Census of Manufactures*. Value added in 1948 was derived by extrapolating value added from the 1947 *Census of Manufactures* by the percentage change from 1947 to 1948 in income originating in manufacturing. The latter is from *National Income, 1954 Edition, A Supplement to the Survey of Current Business*, Table 13, pp. 176 and 177.

TABLE A-11

Price Indexes for Deflating Book Values of Fixed and Total Capital, by Major Manufacturing Industries, Selected Years, 1880–1948
(*values in 1929 = 100*)

Capital as Specified	*1880*	*1890*	*1900*	*1904*	*1909*	*1914*	*1919*	*1929*	*1937*	*1948*
All manufacturing[a]										
Fixed	n.a.	47.6	43.8	45.4	n.a.	n.a.	n.a.	88.8	90.1	124.8
Total	56.4	51.1	46.5[b] / 46.8[c]	49.7	53.4	56.6	87.4	93.7	90.7	146.1
Food and kindred products										
Fixed	n.a.	46.9	43.2	45.4	n.a.	n.a.	n.a.	88.3	89.2	126.3
Total	55.5	50.3	43.8	47.9	53.2	56.3	82.6	92.6	87.9	153.3
Textiles and products										
Fixed	n.a.	48.9	43.5	45.2	n.a.	n.a.	n.a.	87.8	90.7	122.3
Total	60.3	55.3	47.5	51.2	55.0	55.8	91.9	93.8	84.6	150.9
Leather and products										
Fixed	n.a.	46.9	43.3	45.4	n.a.	n.a.	n.a.	87.3	88.7	126.3
Total	47.8	42.8	41.4	42.4	48.5	55.0	107.9	96.2	92.9	159.5
Rubber products										
Fixed	n.a.	46.4	42.9	45.6	n.a.	n.a.	n.a.	89.4	89.4	128.7
Total	94.4	102.5	105.0	106.0	116.4	101.1	136.4	96.2	97.4	125.9
Forest products										
Fixed	n.a.	48.3	47.7	45.2	n.a.	n.a.	n.a.	88.5	90.7	123.4
Total	42.6	42.3	38.7	44.1	49.2	55.6	86.4	94.1	94.4	164.3
Paper, pulp, and products										
Fixed	n.a.	47.8	43.2	45.5	n.a.	n.a.	n.a.	88.9	90.2	124.5
Total	64.2	57.6	48.1	52.8	52.2	55.3	78.4	92.0	94.2	149.4
Printing, publishing, and allied industries										
Fixed	n.a.	47.1	42.5	45.7	n.a.	n.a.	n.a.	93.4	91.6	127.1
Total	55.7	50.2	42.7	47.9	48.3	51.6	76.4	95.8	92.6	155.0

(*continued*)

TABLE A-11 (*concluded*)

Capital as Specified	*1880*	*1890*	*1900*	*1904*	*1909*	*1914*	*1919*	*1929*	*1937*	*1948*
Chemicals and allied products										
Fixed	n.a.	47.6	43.5	45.3	n.a.	n.a.	n.a.	87.1	89.5	123.9
Total	66.5	60.2	52.6	55.9	59.5	61.6	93.4	93.4	89.2	141.0
Petroleum refining										
Fixed	n.a.	47.3	42.6	45.6	n.a.	n.a.	n.a.	92.8	91.6	126.3
Total	72.7	51.1	48.8	53.5	55.6	59.1	84.8	94.3	89.4	137.8
Stone, clay, and glass products										
Fixed	n.a.	46.9	43.6	45.4	n.a.	n.a.	n.a.	86.1	88.1	126.3
Total	53.2	53.2	47.4	48.7	49.0	51.1	75.6	90.7	92.4	138.0
Iron and steel and their products										
Fixed	n.a.	46.9	42.5	45.7	n.a.	n.a.	n.a.	89.4	90.1	125.1
Total	67.4	56.5	54.4	53.5	56.0	54.9	84.2	93.4	95.0	144.3
Nonferrous metals and their products										
Fixed	n.a.	48.6	43.6	45.2	n.a.	n.a.	n.a.	87.1	90.2	122.3
Total	74.4	67.8	59.0	56.6	58.6	60.6	82.1	92.8	89.4	135.9
Machinery excluding transportation equipment										
Fixed	n.a.	47.7	43.3	45.4	n.a.	n.a.	n.a.	88.2	89.8	124.5
Total	58.4	48.0	48.2	48.3	50.9	54.3	84.0	94.6	94.2	142.3
Transportation equipment										
Fixed	n.a.	46.9	43.4	45.4	n.a.	n.a.	n.a.	86.8	88.5	126.3
Total	53.7	46.7	49.6	50.8	68.8	69.1	93.8	93.9	89.7	149.9
Miscellaneous										
Fixed	n.a.	47.5	43.6	45.5	n.a.	n.a.	n.a.	86.6	88.9	124.5
Total	57.0	53.4	48.8	52.4	57.7	65.1	106.2	96.1	91.4	152.6

n.a. = not available.

[a] Implicit index derived by dividing the sum, for the fifteen major groups, of total or fixed capital in book values by total or fixed capital in 1929 prices.

[b] Deflator for total capital of all establishments including custom and neighborhood shops.

[c] Deflator for total capital of all establishments excluding custom and neighborhood shops.

Source: For derivation, see Appendix A, section B, part 1.

TABLE A-12

Indexes of Wholesale Prices of Output, by Major and Minor Manufacturing Industries, Selected Years, 1880–1948
(*values in 1929 = 100*)

	1880	*1890*	*1900*[a]	*1900*[b]	*1904*	*1909*	*1914*	*1919*	*1929*	*1937*	*1948*
All manufacturing[c]	58.4	54.9	50.0	50.0	54.4	60.9	63.8	129.9	100.0	90.3	166.5
Food and kindred products[c]	58.8	54.5	44.2	43.9	50.6	60.5	64.3	126.3	100.0	86.6	172.8
Bakery and confectionery products	53.3	53.9	50.5	50.5	53.4	58.4	62 6	114.4	100.0	97.1	163.6
Canned products	54.8	75.9	53.6	53.6	52.6	54.4	68.6	141.9	100.0	75.9	146.6
Mill products	101.3	88.3	55.8	55.8	73.6	83.8	74.2	173.1	100.0	95.2	196.4
Packing house products	29.4	32.7	29.7	29.7	35.3	48.1	57.4	107.8	100.0	90.8	216.8
Sugar refining	166.8	136.2	97.3	97.3	94.4	94.2	93.2	176.9	100.0	93.8	150.7
Liquor and beverages	59.0	67.1	45.2	45.2	48.4	60.9	63.5	133.5	100.0	78.3	163.5
Nonalcoholic beverages	59.0	67.1	45.2	45.2	48.4	60.9	63.5	133.5	100.0	78.3	163.5
Malt liquors and malt	59.0	67.1	45.2	45.2	48.4	60.9	63.5	133.5	100.0	78.3	163.5
Wines	59.0	67.1	45.2	45.2	48.4	60.9	63.5	133.5	100.0	78.3	163.5
Distilled liquors	59.0	67.1	45.2	45.2	48.4	60.9	63.5	133.5	100.0	78.3	163.5
Other food products	59.0	67.1	45.2	45.2	48.4	60.9	63.5	133.5	100.0	78.3	163.5
Tobacco products	59.4	52.3	56.4	56.4	60.3	62.4	63.6	111.8	100.0	88.2	119.2
Textiles and their products[c]	63.7	61.8	51.2	51.0	57.2	62.7	60.8	144.6	100.0	80.2	167.2
Cotton goods	55.9	54.9	43.1	43.1	55.4	56.8	56.7	149.3	100.0	85.3	209.6[d]
Silk and rayon goods	178.0	134.8	103.9	103.9	85.5	91.6	88.8	181.2	100.0	40.8	56.8[d]
Woolen and worsted goods	67.5	63.3	54.4	54.4	59.5	68.8	57.2	140.8	100.0	103.2	176.2[d]
Carpets, floor coverings, etc.	49.4	39.0	36.1	36.1	40.4	42.5	46.3	109.5	100.0	101.9	164.0
Knit goods	106.0	86.6	63.3	63.3	66.4	71.9	73.4	140.0	100.0	73.6	118.3
Clothing	66.2	62.9	52.2	52.2	55.7	63.7	59.8	140.9	100.0	97.7	163.9
Hats, except cloth and millinery	66.2	62.9	52.2	52.2	55.7	63.7	59.8	140.9	100.0	n.a.	163.9
Men's and boys' clothing, except fur and rubber	66.2	62.9	52.2	52.2	55.7	63.7	59.8	140.9	100.0	n.a.	163.9
Women's clothing, children's and infant's wear except fur and rubber	66.2	62.9	52.2	52.2	55.7	63.7	59.8	140.9	100.0	n.a.	163.9
Millinery	66.2	62.9	52.2	52.2	55.7	63.7	59.8	140.9	100.0	n.a.	163.9

(*continued*)

TABLE A-12 (*continued*)

	1880	*1890*	*1900*[a]	*1900*[b]	*1904*	*1909*	*1914*	*1919*	*1929*	*1937*	*1948*
Textiles, n.e.c.	55.5	55.5	48.6	48.6	55.5	56.5	62.7	141.8	100.0	73.5	196.5[f]
Cotton+silk and rayon+woolen and worsted goods+textiles, n.e.c.[c]	62.3	61.8	50.5	50.5	58.9	62.6	61.0	149.5	100.0	71.6	182.0
Leather and leather products[c]	46.5	41.5	40.8	40.6	41.4	48.6	56.4	140.8	100.0	94.4	169.6
Boots and shoes	47.4	40.0	37.6	37.6	39.2	47.0	53.0	126.7	100.0	98.8	178.5
Other leather products	46.0	42.5	43.3	43.3	43.4	50.0	59.6	154.4	100.0	88.6	159.1
Leather, tanned, curried, and finished	49.4	45.6	46.5	46.5	46.6	53.7	64.0	165.6	100.0	n.a.	166.3
Leather products, n.e.c.	37.3	34.4	35.1	35.1	35.2	40.5	48.3	125.1	100.0	n.a.	140.5
Rubber products[c]	143.2	207.8	267.1	267.1	237.8	290.3	173.0	247.9	100.0	101.3	124.5
Tires and tubes	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	317.4	383.9	100.0	102.4	118.9
Other rubber products	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	120.9	146.3	100.0	98.1	152.5
Forest products[c]	35.6	38.2	35.3	35.3	43.0	50.2	60.3	120.6	100.0	97.9	215.1
Sawmill and planing mill products	32.4	36.1	35.5	35.5	43.7	51.6	53.2	120.5	100.0	106.3	333.7
Other wood products	40.2	41.6	35.0	35.0	42.1	48.2	74.3	120.7	100.0	90.4	148.2
Wooden containers	40.2	41.6	35.0	35.0	42.1	48.2	74.3	120.7	100.0	n.a.	148.2
Wood products, n.e.c.	40.2	41.6	35.0	35.0	42.1	48.2	74.3	120.7	100.0	n.a.	148.2
Paper, pulp, and products	90.8	90.8	59.6	59.6	73.7	62.0	65.5	129.5	100.0	103.1	189.5
Paper, pulp, and paperboard mills	90.8	90.8	59.6	59.6	73.7	62.0	65.5	129.5	100.0	n.a.	189.5
Paper bags, containers, and boxes	90.8	90.8	59.6	59.6	73.7	62.0	65.5	129.5	100.0	n.a.	189.5
Other paper products	90.8	90.8	59.6	59.6	73.7	62.0	65.5	129.5	100.0	n.a.	189.5
Printing, publishing, and allied industries	52.9	54.1	42.5	42.5	50.3	48.0	51.9	85.9	100.0	94.0	187.2
Printing and publishing, including lithographing	52.9	54.1	42.5	42.5	50.3	48.0	51.9	85.9	100.0	n.a.	187.2
Book and job, including lithographing	52.9	54.1	42.5	42.5	50.3	48.0	51.9	85.9	100.0	n.a.	187.2
Newspapers and periodicals	[f]	54.1	42.5	42.5	50.3	48.0	51.9	85.9	100.0	n.a.	187.2
Allied industries	52.9	54.1	42.5	42.5	50.3	48.0	51.9	85.9	100.0	n.a.	187.2
Chemicals and allied products[c]	83.2	76.3	62.8	62.7	68.4	74.0	74.3	154.8	100.0	89.2	160.6
Fertilizers	155.0	121.6	98.8	98.8	100.2	86.5	86.4	217.8	100.0	74.8	115.9
Chemicals proper, acids, compounds etc.	163.1	127.9	103.9	103.9	105.4	91.0	90.9	145.6	100.0	88.5	127.1

(*continued*)

TABLE A-12 (*continued*)

	1880	*1890*	*1900*[a]	*1900*[b]	*1904*	*1909*	*1914*	*1919*	*1929*	*1937*	*1948*
Allied chemical substances	66.5	63.2	54.9	54.9	60.7	68.9	69.0	152.8	100.0	90.6	179.0
Drugs, medicines, and cosmetics	63.3	70.0	63.9	63.9	71.6	86.2	88.8	166.0	100.0	n.a.	229.6
Soaps, cleaning and polishing preparations	68.1	64.8	56.3	56.3	62.2	70.6	70.7	142.2	100.0	n.a.	164.1
Paints and varnishes	54.2	51.5	46.5	46.5	50.8	54.8	53.4	147.8	100.0	n.a.	168.2
Other chemical substances	66.5	63.2	54.9	54.9	60.7	68.9	69.0	152.8	100.0	n.a.	179.0
Petroleum refining	158.2	61.6	71.8	71.8	87.4	85.7	92.3	179.5	100.0	84.9	159.9
Stone, clay, and glass products	57.4	65.6	53.7	53.7	53.7	49.9	51.2	110.8	100.0	100.1	152.2
Cement, lime, and concrete products	91.1	79.4	78.0	78.0	58.2	58.7	59.9	112.9	100.0	n.a.	144.7
Clay and pottery products	31.9	54.9	44.0	44.0	57.2	49.0	42.9	104.8	100.0	n.a.	167.4
Glass and glass products	88.3	78.3	64.2	64.2	63.3	56.0	56.5	132.2	100.0	n.a.	123.7
Cut stone and products	57.4	65.6	53.7	53.7	53.7	49.9	51.2	110.8	100.0	n.a.	152.2
Stone, clay, and glass products, n.e.c.	57.4	65.6	53.7	53.7	53.7	49.9	51.2	110.8	100.0	n.a.	152.2
Iron and steel and their products[c]	93.7	73.9	80.8	80.6	66.6	71.5	61.6	131.1	100.0	102.1	167.6
Iron and steel	102.5	84.1	88.5	88.5	70.5	75.7	64.7	137.0	100.0	103.5	163.4
Blast furnaces, steel works, and rolling mills	102.5	84.1	90.5	90.5	71.5	77.1	65.0	137.8	100.0	n.a.	169.0
Ordnance and accessories	102.5	84.1	90.5	90.5	71.5	77.1	65.0	137.8	100.0	n.a.	169.0
Tin cans and other tinware	n.a.	n.a.	73.5	73.5	63.1	65.5	62.5	131.2	100.0	n.a.	121.1
Iron and steel, n.e.c.	102.5	84.1	90.5	90.5	71.5	77.1	65.0	137.8	100.0	n.a.	169.0
Metal building materials and supplies	85.8	70.4	75.8	75.8	60.3	64.8	55.4	120.9	100.0	100.2	181.7
Hardware, tools, etc.	70.2	51.4	48.3	48.3	51.5	53.3	52.4	106.2	100.0	99.4	172.7
Nonferrous metals and their products[c]	113.8	111.3	89.6	89.7	74.7	75.5	75.4	118.3	100.0	88.9	149.4
Precious metal products and processes, jewelry, etc.	156.3	138.6	106.7	106.7	104.2	98.9	102.8	155.6	100.0	126.9	154.4
Other metals, products, and processes	100.4	99.8	86.8	86.8	70.4	71.8	71.9	112.1	100.0	84.4	148.4
Clocks, watches, and parts	113.8	111.3	89.7	89.7	74.7	75.5	75.4	118.3	100.0	n.a.	149.4
Jewelry, silverware, and plating	156.3	138.6	106.7	106.7	104.2	98.9	102.8	155.6	100.0	n.a.	154.4

(*continued*)

TABLE A-12 (*concluded*)

	1880	*1890*	*1900*[a]	*1900*[b]	*1904*	*1909*	*1914*	*1919*	*1929*	*1937*	*1948*
Smelting, refining, and alloying	100.4	99.8	86.8	86.8	70.4	71.8	71.9	112.1	100.0	n.a.	148.4
Nonferrous metal products, n.e.c.	100.4	99.8	86.8	86.8	70.4	71.8	71.9	112.1	100.0	n.a.	148.4
Machinery excluding transportation equipment[c]	61.2	48.0	51.8	51.8	50.1	52.9	56.7	106.0	100.0	97.6	152.0
Electrical machinery and equipment; radios, complete or parts	53.8	44.1	49.5	49.5	47.8	50.8	57.7	105.0	100.0	90.6	142.0
Agricultural machinery and equipment	134.0	109.9	91.7	91.7	96.1	96.7	94.4	120.2	100.0	97.6	139.7
Office and store machines and equipment	53.0	43.5	48.9	48.9	47.2	50.2	53.2	105.3	100.0	101.0	162.8
Factory, household, and miscellaneous machinery and equipment	53.0	43.5	48.9	48.9	47.2	50.2	53.2	105.3	100.0	101.0	162.8
Transportation equipment	55.3	46.3	53.4	54.2	54.8	95.9	90.4	139.2	100.0	90.6	168.0
Motor vehicles, complete or parts	n.a.	172.9	186.3	186.3	168.1	196.6	129.1	141.7	100.0	89.3	168.0
Locomotives and railroad equipment	55.3	45.4	45.5	48.5	48.5	53.1	50.4	129.2	100.0	105.1	166.4
Aircraft and parts	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	71.7	138.2	100.0	92.3	168.7
Shipbuilding	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	100.0	n.a.	168.0
Miscellaneous	58.7	55.5	50.5	50.6	55.0	61.7	71.7	138.2	100.0	92.3	168.7
Professional, scientific, photographic, and optical equipment	58.7	55.5	50.5	50.6	55.0	61.7	71.7	138.2	100.0	92.3	168.7
Miscellaneous, n.e.c.	58.7	55.5	50.5	50.6	55.0	61.7	71.7	138.2	100.0	92.3	168.7

n.a. = not available.

n.e.c = not elsewhere classified.

[a] Price index for 1900 output comparable with output of preceding years.

[b] Price index for 1900 output comparable with output of following years.

[c] Implicit price index derived by dividing the sum of output of the major components of the industry (except rubber products, 1880–1809) in current prices by output in 1929 prices.

[d] A weighted index (172.9) of the price indexes for cotton, silk and rayon, and woolen and worsted goods was used to deflate the combined output data available for these three industries in 1948 (see Appendix A, section B, part 4b, *viii*).

[e] This index was used to deflate the output data available for textiles, n.e.c. which, in 1948, included rayon and silk broad-woven fabrics (see Appendix A, section B, part 4b. *viii*).

[f] Newspapers and periodicals excluded from 1880 census.

Source: For derivation, see Appendix A, section B, part 4.

TABLE A-13

Ratios of Total Capital to Output by Major and Minor Manufacturing Industries, Selected Years, 1880–1948
(*per cent based on values in 1929 prices*)

			Comparable with—								
	1880	*1890*	*Preceding Years*[a]	*Following Years*	*1904*	*1909*	*1914*	*1919*	*1929*[b]	*1937*[b]	*1948*[b]
All manufacturing	54.7	73.0	80.3	79.4	89.1	96.7	100.8	102.2	88.5	74.1	60.9
Food and kindred products	36.6	45.8	55.3	55.2	63.6	65.8	68.2	67.6	63.9	50.0	40.0
Bakery and confectionery products	28.7	41.0	53.1	52.6	51.9	58.5	62.8	63.8	78.0	61.8	36.8
Canned products	44.4	75.8	69.6	70.3	71.8	77.5	86.4	103.4	96.7	67.6	57.4
Mill products	63.9	71.1	49.8	48.1	57.1	62.2	57.1	81.9	32.7	40.9	29.2
Packing house products	8.5	13.6	16.3	16.4	19.2	25.2	32.9	36.1	27.7	24.6	21.2
Sugar refining	53.2	53.3	182.7	183.5	144.1	153.3	139.9	108.1	145.2	102.7	66.3
Liquors and beverages	85.9	121.3	129.7	139.1	133.4	148.1	148.4	209.5	147.9	61.2	57.1
Other food products	43.9	49.2	61.5	61.0	59.5	63.9	60.6	68.2	78.1	54.1	38.8
Tobacco products	36.0	47.2	56.4	54.2	123.1	69.2	70.1	80.8	96.7	73.7	56.9
Textiles and products	64.3	81.7	82.3	87.7	89.8	91.8	89.2	103.4	77.8	54.8	46.8
Cotton goods	93.8	130.6	124.8	124.8	151.7	135.7	130.3	138.3	120.4	85.0	
Silk and rayon goods	139.1	141.5	166.0	166.0	137.8	128.4	131.5	152.6	91.1	39.9	59.9
Woolen and worsted goods	65.8	105.2	122.5	122.5	114.4	123.4	103.3	118.9	92.9	82.2	
Carpets, floor coverings, etc.	53.2	55.3	68.7	68.7	72.6	81.5	101.0	114.0	120.8	119.9	61.1
Knit goods	96.4	119.5	113.8	113.8	101.5	107.2	109.6	110.2	85.4	50.7	39.0
Clothing	38.9	48.9	43.3	45.0	44.8	52.4	49.5	66.3	48.5	40.1	33.8
Textiles, n.e.c.	51.7	70.7	80.3	68.1	69.3	76.8	89.9	92.1	85.4	61.1	58.7
Cotton + silk and rayon + woolen and worsted goods + textiles, n.e.c.	77.0	112.4	117.7	116.5	124.4	121.1	116.7	127.3	96.5	63.5	59.5
Leather and leather products	32.4	48.9	56.8	56.4	61.0	66.5	69.0	76.1	69.4	53.5	40.7
Boots and shoes	25.7	40.2	35.4	35.1	35.5	43.1	49.0	59.0	62.0	52.0	41.4
Other leather products	35.9	55.1	73.7	76.1	83.4	86.6	87.6	92.7	81.7	56.8	41.0

(*continued*)

TABLE A-13 (*continued*)

	1880	1890	Comparable with— Preceding Years[a]	Comparable with— Following Years	1904	1909	1914	1919	1929[b]	1937[b]	1948[b]
Rubber products	58.8	171.4	200.0	200.0	150.0	204.4	152.3	153.4	102.6	74.9	51.8
Tires and tubes	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	280.4	237.8	109.9	80.4	49.1
Other rubber products	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	106.2	90.5	88.5	75.4	63.6
Forest products	52.4	70.9	82.5	68.0	81.5	101.0	118.8	116.4	137.2	106.3	70.5
Sawmill and planing mill products	54.2	71.1	91.3	66.0	83.2	108.9	110.6	127.1	178.6	144.9	118.7
Other wood products	49.9	70.8	69.6	71.3	79.1	89.7	134.9	101.6	90.2	71.1	42.1
Paper, pulp, and products	100.0	149.3	136.2	136.4	172.7	150.5	156.9	157.8	127.1	112.4	76.4
Printing, publishing, and allied industries	64.0	76.9	83.0	83.0	82.3	79.2	80.0	75.8	87.7	87.3	69.0
Chemicals and allied products	72.0	98.6	105.1	104.8	109.9	112.2	121.3	130.5	99.2	80.7	71.6
Fertilizers	180.0	212.5	252.2	252.2	215.8	170.8	198.9	258.9	137.0	83.8	51.1
Chemicals proper, acids, compounds, etc.	211.4	230.4	296.8	301.1	271.1	213.5	230.2	184.1	132.2	112.3	69.9
Allied chemical substances	44.5	65.4	69.4	69.2	78.4	84.2	86.7	98.9	92.1	74.2	71.1
Petroleum refining	132.1	109.4	112.7	112.7	127.0	118.1	128.7	151.6	128.6	105.7	89.3
Stone, clay, and glass products	83.0	116.2	135.5	140.4	155.9	164.3	161.0	170.7	156.6	121.8	73.8
Metals and metal products	86.1	103.3	106.6	107.1	116.1	125.3	127.7	116.4	84.9	81.9	65.8
Iron and steel and products	102.8	108.0	110.3	110.1	128.5	136.0	140.3	141.9	87.4	101.3	69.7
Iron and steel	112.3	122.2	115.0	115.0	136.2	143.7	151.4	150.3	84.4	114.0	65.8
Metal building materials and supplies	62.5	80.1	103.9	103.5	104.4	114.3	105.8	117.9	88.1	81.7	63.4
Hardware, tools, etc.	77.7	84.4	93.5	92.6	113.2	117.9	130.8	117.1	106.7	84.6	71.3
Nonferrous metals and their products	72.5	100.7	80.6	80.6	72.0	80.3	81.2	89.1	78.4	71.6	68.5
Precious metal products and processes, jewelry, etc.	100.0	128.8	146.4	146.4	155.9	153.7	170.9	132.9	81.9	81.4	56.7
Other metals, products, and processes	63.6	89.2	69.8	69.1	59.7	68.9	69.8	81.8	79.3	72.6	63.3

(*continued*)

TABLE A-13 (*concluded*)

	1880	1890	Comparable with— Preceding Years[a]	Comparable with— Following Years	1904	1909	1914	1919	1929[b]	1937[b]	1948[b]
Machinery, not including transportation equipment	80.7	105.6	115.6	115.6	132.8	137.4	148.4	118.2	103.0	85.3	66.3
Electrical machinery and equipment; radios, complete or parts	50.0	93.0	94.7	94.7	119.9	120.7	114.5	104.0	92.2	66.0	58.3
Agricultural machinery and equipment	207.8	408.1	298.2	298.2	348.7	333.1	358.6	172.0	135.4	106.3	63.0
Office and store machines and equipment	90.9	53.1	111.1	111.1	114.9	115.6	129.6	121.3	117.0	109.0	88.8
Factory, household, and miscellaneous machinery and equipment	66.3	84.5	103.5	103.5	119.9	127.4	141.8	118.7	103.6	91.4	68.3
Transportation equipment	33.3	71.6	109.1	111.9	84.1	128.6	99.1	89.4	64.8	62.3	57.9
Motor vehicles, complete or parts	n.a.	200.0	352.9	365.0	271.4	202.3	121.5	87.6	57.5	53.1	49.3
Locomotives and railroad equipment	33.3	70.4	94.5	94.5	73.1	96.8	76.2	94.7	134.5	151.1	78.4
Aircraft and parts	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	(54.5)	190.0	89.4	130.5	81.7
Miscellaneous	52.4	67.3	79.3	80.4	82.8	88.3	106.4	97.2	96.7	77.3	60.9

n.a. = not available.

n.e.c. = not elsewhere classified.

[a] Includes custom and neighborhood establishments which were included in the preceding census enumerations but excluded in the following enumerations.

[b] The output figures in these years are adjusted to include net changes in inventories as estimated by the Department of Commerce, National Income Division. This adjustment can be made only for major industry groups and for six minor industries, beverages and liquors, tobacco products, sawmill and planing mill products, other wood products, electrical machinery and equipment, and motor vehicles.

In 1948, the capital figures include an estimate of the investment in emergency facilities after "normal" depreciation. This adjustment is made only for major groups and the six minor industries mentioned above.

Source: Based on data in Appendix Tables A-8 and A-10.

TABLE A-14

Ratios of Fixed Capital to Output by Major and Minor Manufacturing Industries, Selected Years, 1890–1948
(*based on values in 1929 prices*)

	1890[a]	*1900*[a]	*1904*[b]	*1929*[c]	*1937*[c]	*1948*[c]
All manufacturing	0.364	0.416	0.471	0.433	0.346	0.285
Food and kindred prod.	0.265	0.305	0.312	0.302	0.206	0.167
Bakery and confectionery prod.	0.258	0.342	0.340	0.458	0.344	0.212
Canned prod.	0.318	0.320	0.344	0.377	0.226	0.241
Mill prod.	0.498	0.329	0.319	0.144	0.160	0.123
Packing house prod.	0.056	0.059	0.074	0.119	0.097	0.082
Sugar refining	0.333	0.906	0.669	0.885	0.526	0.367
Liquors and beverages	0.797	0.778	0.806	0.707	0.275	0.268
Other food prod.	0.295	0.436	0.369	0.476	0.257	0.205
Tobacco prod.	0.101	0.137	0.144	0.106	0.072	0.056
Textiles and their prod.	0.405	0.401	0.470	0.317	0.207	0.162
Cotton goods	0.945	0.862	1.076	0.693	0.458	
Silk and rayon goods	0.662	0.738	0.667	0.428	0.212	0.276
Woolen and worsted goods	0.510	0.531	0.597	0.394	0.305	
Carpets, floor coverings, etc.	0.291	0.350	0.392	0.602	0.474	0.292
Knit goods	0.636	0.559	0.539	0.373	0.206	0.170
Clothing	0.091	0.092	0.085	0.090	0.062	0.051
Textiles, n.e.c.	0.378	0.419	0.302	0.355	0.235	0.132
Cotton+silk and rayon+woolen and worsted goods+textiles, n.e.c.	0.694	0.684	0.764	0.461	0.283	0.221
Leather and prod.	0.122	0.153	0.160	0.176	0.119	0.093
Boots and shoes	0.085	0.086	0.081	0.154	0.112	0.084
Other leather prod.	0.149	0.206	0.230	0.213	0.132	0.111
Rubber prod.	1.048	1.459	1.065	0.440	0.246	0.175
Tires and tubes	n.a.	n.a.	n.a.	0.468	0.216	0.147
Other rubber prod.	n.a.	n.a.	n.a.	0.395	0.372	0.266
Forest prod.	0.260	0.352	0.341	0.760	0.614	0.394
Sawmill and planing mill prod.	0.269	0.431	0.360	1.074	0.949	0.761
Other wood prod.	0.245	0.235	0.316	0.404	0.310	0.172
Paper, pulp, and prod.	1.142	0.991	1.358	0.764	0.664	0.471
Printing, publ., etc.	0.487	0.465	0.472	0.334	0.301	0.305
Chemicals and allied prod.	0.555	0.579	0.640	0.404	0.352	0.365
Fertilizers	0.844	1.000	0.965	0.588	0.385	0.252
Chemicals proper, acids, etc.	1.609	2.054	1.945	0.739	0.634	0.453
Allied chemical prod.	0.333	0.354	0.419	0.321	0.274	0.323
Petroleum refining	0.536	0.734	0.800	0.848	0.678	0.576

(*continued*)

TABLE A-14 (*concluded*)

	1890[a]	*1900*[a]	*1904*[b]	*1929*[c]	*1937*[c]	*1948*[c]
Stone, clay, and glass prod.	0.783	0.931	1.111	1.018	0.763	0.401
Metal and prod.	0.542	0.594	0.665	0.427	0.380	0.285
Iron and steel and prod.	0.698	0.758	0.896	0.555	0.587	0.372
Iron and steel	0.829	0.815	1.009	0.619	0.738	0.368
Metal building materials and supplies	0.398	0.623	0.533	0.362	0.354	0.202
Hardware, tools, etc.	0.518	0.574	0.694	0.487	0.359	0.309
Nonferrous metals and prod.	0.562	0.524	0.404	0.382	0.319	0.331
Precious metal prod.	0.562	0.696	0.636	0.214	0.212	0.130
Other metals, prod.	0.562	0.496	0.371	0.420	0.342	0.311
Machinery excl. transp.	0.426	0.507	0.615	0.361	0.288	0.226
Electrical machinery and equipment	0.302	0.346	0.411	0.303	0.216	0.186
Agricultural machinery	0.905	0.718	1.222	0.428	0.303	0.226
Office equipment	0.188	0.467	0.446	0.308	0.358	0.386
Factory, household, etc.	0.403	0.513	0.619	0.395	0.327	0.220
Transportation equipment	0.344	0.476	0.338	0.343	0.279	0.240
Motor vehicles	1.000	2.059	1.381	0.298	0.223	0.209
Locomotives and railroad equipment	0.333	0.387	0.283	0.773	0.882	0.305
Aircraft and parts	n.a.	n.a.	n.a.	0.523	0.474	0.167
Miscellaneous	0.257	0.311	0.338	0.313	0.265	0.223

n.a. = not available.
n.e.c. = not elsewhere classified.
[a] Includes custom and neighborhood shops.
[b] Factories producing annual value of $500 or more.
[c] Factories producing annual value of $5,000 or more.
Source: Based on data in Appendix Tables A-9 and A-10.

TABLE A-15

Basic Data for Capital-Output Ratios in 1929 Prices, by Major Manufacturing Industries, 1948 and 1953
(*dollars in millions*)

	Capital						
	Total		*Fixed*		*Indexes for Deflating Book Values in 1929 Prices*		
	Book Values	*1929 Prices*[a]	*Book Values*	*1929 Prices*[a]	*Total*	*Fixed*	*Output in 1929 Prices*
					(1929=100)		
All manufacturing							
1948	$113,956	$78,357	$45,913	$36,685	145.4	125.2	$128,604
excluding shipbuilding	113,394	77,982	45,727	36,526	n.c.	n.c.	128,124
1953	169,655	99,040	74,125	45,258	171.3	163.8	167,821
Food and kindred products							
1948	10,583	6,907	4,116	3,259	153.3	126.3	19,916
1953	13,195	7,703	5,080	3,146	171.3	161.5	23,458
Beverages							
1948	3,158	2,061	1,222	968	153.3	126.3	3,610
1953	3,900	3,222	1,551	960	121.0	161.6	7,802
Tobacco products							
1948	2,330	1,520	188	149	153.3	126.3	2,670
1953	2,826	1,906	184	114	148.3	161.4	2,893
Textile mill products							
1948	7,379	4,891	2,554	2,088	150.9	122.3	8,808
1953	8,153	5,205	3,196	2,055	156.6	155.5	8,251
Apparel							
1948	3,018	2,001	369	302	150.9	122.3	5,927
1953	3,924	2,638	516	332	148.7	155.4	7,717
Leather and products							
1948	1,303	817	235	186	159.5	126.3	2,008
1953	1,394	819	244	151	170.1	161.5	1,979
Rubber products							
1948	1,791	1,422	618	480	125.9	128.7	2,743
1953	2,614	1,652	767	466	158.3	164.6	3,241

(continued)

TABLE A-15 (*continued*)

	Capital						
	Total		Fixed		Indexes for Deflating Book Values in 1929 Prices		Output in 1929 Prices
	Book Values	1929 Prices[a]	Book Values	1929 Prices[a]	Total (1929=100)	Fixed (1929=100)	
Lumber and basic timber products							
1948	3,398	2,069	1,599	1,293	164.2	123.4	1,861
1953	4,430	2,265	2,089	1,331	195.7	156.9	1,996
Furniture and finished lumber products							
1948	1,422	865	426	345	164.2	123.4	2,300
1953	1,917	980	479	305	195.7	156.9	2,273
Paper, pulp, and products							
1948	3,692	2,476	1,900	1,526	149.4	124.5	3,242
1953	5,499	3,074	3,053	1,925	178.9	158.6	4,082
Printing, publishing, and allied industries							
1948	3,984	2,571	1,442	1,135	155.0	127.1	3,725
1953	5,202	2,606	1,918	1,180	199.4	162.5	3,898
Chemicals and allied products							
1948	9,109	6,487	4,100	3,309	141.0	123.9	9,054
1953	16,286	9,662[b]	9,665	5,614[b]	160.5	157.8	11,515
Petroleum and coal							
1948	15,363	11,188	9,115	7,217	137.8	126.3	12,532
1953	19,960	12,367	12,650	7,833	161.4	161.5	16,221
Stone, clay, and glass products							
1948	2,934	2,128	1,462	1,158	138.0	126.3	2,885
1953	4,482	2,615	2,181	1,350	171.0	161.5	3,814
Primary metals industries							
1948	11,217	7,922	6,052	4,838	141.6	125.1	11,154
1953	16,696	9,521[b]	9,483	5,977[b]	174.2	158.2	12,468
Fabricated metals							
1948	5,047	3,564	1,713	1,369	141.6	125.1	6,202
1953	7,821	4,449	2,674	1,686	174.2	158.2	8,265

(*continued*)

TABLE A-15 (*concluded*)

	Capital						
	Total		Fixed		Indexes for Deflating Book Values in 1929 Prices		Output in 1929 Prices
	Book Values	1929 Prices[a]	Book Values	1929 Prices[a]	Total	Fixed	
					(1929 = 100)		
Machinery except electrical							
1948	9,800	6,914	3,024	2,429	142.3	124.5	9,713
1953	15,170	8,239[b]	4,544	2,857[b]	183.9	158.6	12,549
Electrical machinery							
1948	4,874	3,438	1,363	1,095	142.3	124.5	5,902
1953	8,929	5,505	2,297	1,448	162.1	158.6	10,449
Transportation equipment except motor vehicles							
1948	2,938	2,001	999	791	149.9	126.3	2,069
Excluding shipbuilding	2,376	1,626	813	632	n.c.	n.c.	1,589
1953	7,994	3,987[a]	2,859	1,478[a]	195.1	161.5	5,992
Motor vehicles and equipment							
1948	6,006	4,016	2,153	1,705	149.9	126.3	8,154
1953	9,982	5,367	3,774	2,337	183.8	161.5	12,639
Professional, scientific, photographic, and optical equipment							
1958	1,221	800	337	271	152.6	124.5	1,125
1953	2,501	1,468[b]	705	444[b]	170.0	158.6	2,240
Miscellaneous manufacturing							
1948	3,050	2,009	904	726	152.6	124.5	3,004
1953	5,970	3,216[b]	3,317	1,695[b]	170.0	158.6	4,080

[a] Totals are not the sum of the components because the adjustments for the excess of accelerated amortization over normal depreciation, and for privately operated, government-owned facilities were made only for those industries in which the amounts involved were important.

[b] Privately operated, government-owned facilities were not necessarily deflated by the price indexes shown.

Source: See Appendix A, sections A and B.

TABLE A-16

Total Number of Persons Employed, by Major Manufacturing Industries, Selected Years, 1900–1953
(*thousands*)

	1900[a]	*1900*[b]	*1909*	*1919*	*1929*	*1937*	*1948*	*1953*
All manufacturing[c]	5,457	5,063	7,226	9,665	10,497	10,615	15,333 15,468[d]	17,414[d]
Food and kindred products	521	476	681	1,026	1,078	1,254	1,559	1,583
Tobacco products	168	157	198	184	147	112	100	104
Textile mill products	763	728	980	1,179	1,264	1,265	1,370	1,192
Apparel	596	380	610	643	793	855	1,203	1,264
Leather and leather products	329	296	344	399	372	377	406	388
Rubber products	39	39	56	206	176	154	254	279
Lumber and basic timber products	525	545	746	645	620	467	1,222	1,167
Furniture and finished lumber products	374	342	418	384	442	402		
Paper, pulp, and products	103	102	159	235	285	326	471	532
Printing, publishing, and allied industries	273	273	406	475	630	619	744	814
Chemicals and allied products	139	139	205	370	401	434	696	810
Petroleum refining[c]	13	13	17	74	128	132	243	256
Stone, clay, and glass products	276	258	387	346	402	359	533	555
Iron and steel and their products	416	421	692	1,051	1,219	1,319	2,525	3,057
Nonferrous metals and products	200	170	237	323	330	316		
Machinery, except electrical	456	456	586	962	769	795	1,554	1,741
Electrical machinery	48	49	112	306	519	461	877	1,222
Transportation equipment except motor vehicles	58	58	68	95	91	100	337[d] 472[d]	1,017[d]
Motor vehicles	20	22	90	408	541	580	767	922
Miscellaneous	140	138	233	353	290	288	472[e]	511

[a] Includes custom and neighborhood shops.
[b] Excludes custom and neighborhood shops.
[c] Coal products excluded for 1900–1919, included for 1929–1953.
[d] Includes shipbuilding.
[e] Not comparable with series before 1948.
Source: Appendix A, section C.