Construction

TABLES C1–C4

Whenever two entries are made for 1934 the first is comparable with those for preceding years in that the *Statistics of Income* data used are based on the old industrial classification; the second is comparable with those for succeeding years in that the *Statistics of Income* data used are based on the new industrial classification.

Net savings and net income, adjusted, exclude gains and losses from sales of capital assets, 1929–38, and from changes in inventory valuation, 1919–38. Net savings and net income without any specific designation are unadjusted, i.e., include these two types of gain and loss.

C 1 Gross Income (millions of dollars)

	PUBLIC UTILITY	PUBLIC	PRIVATE	TOTAL
	(1)	(2)	(3)	(4)
1919	368	1,533	3,335	5,237
1920	422	1,042	4,297	5,762
1921	327	1,210	3,786	5,325
1922	419	1,294	4,827	6,540
1923	644	1,248	6,030	7,922
1924	723	1,454	6,597	8,775
1925	700	1,646	7,336	9,683
1926	761	1,650	7,893	10,305
1927	781	1,849	7,625	10,256
1928	741	1,923	7,276	9,940
1929	870	1,883	6,880	9,634
1930	983	1,949	4,919	7,852
1931	489	1,666	3,061	5,217
1932	123	895	1,645	2,664
1933	144	760	1,070	1,975
1934	158	1,017	1,277	2,452
1935	144	1,072	1,559	2,777
1936	267	1,328	2,511	4,107
1937	361	1,083	3,282	4,728
1938	374	1,576	2,766	4,717

C 2 Total Payments by Type (millions of dollars)

	WAGES	SALARIES	WAGES & SALARIES	ENTREP. WITHDR.	DIVIDENDS	INTEREST	PROP. INCOME	PAY. TO INDIVIDUALS
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1919	1,364	244	1,608	240	15.3	4.0	19.3	1,868
1920	1,954	299	2,253	242	20.9	4.9	25.8	2,522
1921	1,357	293	1,651	223	32.4	7.8	40.2	1,915
1922	1,645	317	1,963	307	30.3	4.4	34.8	2,306
1923	2,560	368	2,929	306	37.5	6.0	43.4	3,279
1924	2,599	431	3,030	397	32.4	7.8	40.2	3,468
1925	2,653	416	3,070	567	58.4	10.4	68.7	3,706
1926	3,042	514	3,556	418	41.3	11.0	52.4	4,027
1927	2,901	496	3,398	419	47.4	11.3	58.7	3,875
1928	2,896	541	3,438	380	51.4	10.0	61.4	3,880
1929	2,923	517	3,441	436	60.0	13.2	73.2	3,950
1930	2,403	541	2,945	397	85.0	15.3	100	3,443
1931	1,577	399	1,976	266	40.1	13.5	53.6	2,296
1932	877	279	1,157	216	19.2	10.3	29.5	1,403
1933	564	200	764	175	18.7	8.6	27.3	967
1934	642	159	801	205	13.0	8.2	21.2	1,028
1934	642	159	801	197	15.2	1.7	16.9	1,016
1935	725	172	897	244	20.7	1.2	22.0	1,163
1936	1,036	225	1,261	347	36.6	1.9	38.4	1,647
1937	1,238	249	1,487	352	42.1	2.0	44.1	1,883
1938	1,057	232	1,290	371	29.4	2.0	31.4	1,693

C 3 Net Income Originating (millions of dollars)

	PAY. TO INDI-VIDUALS	ENTREPRENEURIAL Net savings	Net income	NET SAVINGS Corp.	Total	NET INCOME	NET SAVINGS, ADJUSTED Entrep.	Corp.	Total	NET INCOME, ADJ.
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1919	1,868	181	421	21.7	202	2,070	141	—6.3	134	2,002
1920	2,522	77.0	319	11.7	88.7	2,610	94.0	26.7	120	2,642
1921	1,915	—26.8	197	—28.5	—55.3	1,859	52.2	17.5	69.7	1,984
1922	2,306	44.4	352	7.8	52.3	2,358	22.4	—1.2	21.3	2,327
1923	3,279	79.7	386	22.7	102	3,382	47.7	9.7	57.4	3,337
1924	3,468	194	592	49.8	244	3,712	209	54.8	264	3,732
1925	3,706	204	771	42.3	246	3,952	208	43.3	251	3,957
1926	4,027	158	576	54.7	212	4,240	175	61.7	236	4,264
1927	3,875	109	528	51.3	160	4,036	159	76.3	235	4,111
1928	3,880	98.1	478	36.4	134	4,014	82.1	28.4	110	3,990
1929	3,950	98.6	534	36.5	135	4,085	89.2	31.6	120	4,071
1930	3,443	—36.9	360	—28.9	—65.7	3,377	24.2	19.5	43.6	3,486
1931	2,296	—101	165	—70.6	—172	2,124	—42.0	—25.6	—67.6	2,228
1932	1,403	—234	—18.1	—126	—361	1,042	—195	—105	—301	1,102
1933	967	—155	19.8	—84.1	—240	727	—167	—89.1	—256	711
1934	1,028	—91.0	114	—43.5	—134	894	—127	—55.9	—183	844
1934	1,016	—110	86.9	—49.2	—160	856	—146	—62.1	—208	808
1935	1,163	—70.2	174	—30.8	—101	1,062	—80.3	—34.7	—115	1,048
1936	1,647	—41.7	305	—21.8	—63.6	1,584	—60.5	—29.6	—90.1	1,557
1937	1,883	—23.0	329	—18.8	—41.8	1,842	—59.3	—32.5	—91.8	1,792
1938	1,693	—1.3	370	—0.7	—2.1	1,691	8.4	1.6	9.9	1,703

C 4 Persons Engaged (thousands)

	EMPLOYEES				
	Wage earners	Wage earners *	Salaried	Total	ENTREPRENEURS
	(1)	(2)	(3)	(4)	(5)
1919	923	1,105	107	1,031	96.7
1920	1,057	1,264	114	1,171	90.3
1921	953	1,119	111	1,064	74.4
1922	1,217	1,403	127	1,345	108
1923	1,475	1,668	138	1,614	126
1924	1,507	1,671	156	1,663	159
1925	1,502	1,633	147	1,649	193
1926	1,723	1,836	176	1,900	174
1927	1,603	1,674	166	1,769	166
1928	1,596	1,631	181	1,778	163
1929	1,650	1,650	176	1,827	167
1930	1,429		181	1,610	167
1931	1,022		157	1,179	149
1932	650		133	784	121
1933	542		114	656	108
1934	613		109	723	120
1935	676		103	780	134
1936	867		118	985	151
1937	927		119	1,047	151
1938	821		119	941	151

* Second estimate.

TABLE C 1

Gross Income

Col. 1 Public utility: the estimate for 1929 is derived from the *Census of the Construction Industry* by approximating total public and public utility construction and subtracting estimated public construction (see the notes to col. 2).

In estimating total public and public utility construction in 1929 it is assumed that, in addition to work directly specified as such, all construction, other than building, is either public or public utility. Total public and public utility contract work is estimated for companies with annual volumes of $25,000 and over by applying to their reported total the ratio of public and public utility contracts, distributed by class, to the total so distributed. The procedure by which public and public utility contracts for firms with volumes under $25,000 were estimated was as follows:

A Total volume, under $25,000 (Census)
B Volume by class, under $25,000 (Census)
C Building volume by class, under $25,000 (Census)
D Ratio of C to B
E Estimated total building volume, under $25,000 (A × D)
F Estimated public and public utility building, under $25,000 (E × ratio for firms with volumes over $25,000)
G Other public and public utility construction, under $25,000 (A — E)
H Total public and public utility construction, under $25,000 (F + G)

Total public and public utility construction in 1929 is then a sum of the business of companies with volumes of over and under $25,000. As already indicated, from this total we subtract estimated public construction to derive public utility construction in 1929. The resulting estimate of public utility contract construction in 1929 is extrapolated to 1919 by the estimate of total new public utility construction as reported in *Construction Activity in the United States, 1915–37* (Bureau of Foreign and Domestic Commerce, 1938). The extrapolation from 1929 forward is by the F. W. Dodge Corporation series of public utility contracts for 37 states as collected by the National Bureau of Economic Research (Business Cycle Study).

Col. 2 Public: the 1929 estimate is computed from the *Census of the Construction Industry,* which shows a breakdown, by class of

ownership, of total construction including subcontracts let. It is assumed that the ratio of public to the total as derived from this breakdown applies to the total done by general contractors or directly for owners and that all public contract construction is covered in the Census. The extrapolation to 1919 is by the estimates of total new public construction as reported in *Construction Activity in the United States, 1915–37.* The extrapolation forward is by the F. W. Dodge Corporation series of public contracts for 37 states as collected by the National Bureau of Economic Research (Business Cycle Study).

Col. 3 Private: includes, in addition to all construction other than public and public utility, contract work for oil and gas wells which is, primarily, the drilling of wells.

From *Construction Activity in the United States, 1915–37,* and from articles in the *Survey of Current Business,* August 1939 and February 1940, new non-farm residential construction, new non-residential construction, public residential construction, and farm construction are taken. Additions, alterations, and repairs done under contract are estimated by applying, to the volume of new construction, the ratio of additions, etc. to new construction reported in *Commodity Flow and Capital Formation,* Vol. One. It is assumed that all new non-farm and one-half of farm construction is done under contract.

From *Mineral Resources* and the *Minerals Yearbook* the number of wells drilled in each state and year is taken. The average cost in each state in 1935 is given in *Petroleum and Natural Gas Production* (National Research Project on Reemployment Opportunities and Recent Changes in Industrial Techniques). The average for gas wells is assumed to be two-thirds of that for oil wells (see *Federal Reserve Bulletin,* Sept. 1939, p. 734). The 1935 prices are used for each year in the period. Multiplying the number of wells drilled by the average cost in 1935 yields an estimate of total cost. The resulting series is used to interpolate between the 1919 figure for total contract work as reported for oil and gas wells in the *Census of Mines and Quarries* and the 1935 figure, computed as the product of the average cost and the number of wells drilled on contract, the latter obtained by letter from the Bureau of Mines. Extrapolation from 1935 forward is also by this index.

Col. 4 Total: sum of col. 1–3.

TABLE C 2

Total Payments by Type

Col. 1 Wages: wages, 1919–29, are computed separately for public, public utility, and private construction by applying to the estimated value of construction (see the notes to Table C 1) the ratio of wages to the value of construction. The ratio for each group for 1929 is derived from the *Census of the Construction Industry,* Table 8, the classification of the establishments into the three groups being that used in *Commodity Flow and Capital Formation,* Vol. One.

Each of the three 1929 ratios is extrapolated from 1929 to 1919 by an index derived as follows. First, the ratio of total wages to total construction is calculated for 1929 from the Census, and estimated for 1921 by applying to the 1929 ratio the percentage change from 1921 to 1929 in the corresponding ratio for Ohio and Pennsylvania. Second, the ratios for 1919 and 1920 are extrapolated from 1921 by the ratio from Ohio and Pennsylvania data. Third, the ratio is interpolated for 1922–28 by the weighted average of the ratio of wages to the value of construction in Ohio and the ratio of compensation for maintenance of way and structures to total expense excluding depreciation on the maintenance of way and structures of Class I railroads, the Ohio ratio being given a weight of 2 and the railroad ratio, 1. The Ohio wage figures are from the *Monthly Labor Review,* February 1934. The Ohio construction figure for 1929 is based on wages reported in the *Monthly Labor Review* and the ratio of wages to the value of construction, derived from the *Census of the Construction Industry.* It is estimated for the years before 1929 by applying to the estimated total for the country the ratio of Ohio to the total, computed for 1929 and extrapolated to 1925 by the ratio of the Ohio value to the value for 37 states, and to 1919 by the ratio to the value for 27 states, as reported by the F. W. Dodge Corporation. The railroad data are from *Statistics of Railways.* The compensation for the first 6 months of 1921 for maintenance of way and structures is estimated on the basis of the ratio to total compensation in the second 6 months. It is adjusted to exclude switching and terminal companies by applying the 1922 ratio of the compensation for

maintenance excluding switching and terminal companies to that including switching and terminal companies. Pennsylvania data on wages and construction are from the *Report on Productive Industries, Public Utilities and Miscellaneous Statistics.*

For the years after 1929 wages are the product of the estimated number of wage earners (see the notes to Table C 4) and the average wage. The average wage is computed from data in the *Census of the Construction Industry* for 1929 and 1935 and interpolated by a five-state average wage index compiled by the Bureau of Foreign and Domestic Commerce, National Income Division. The 1936–38 figures are extrapolated from 1935 by the BLS average wage index. The 1929 average wage is obtained by dividing wages by the number of wage earners as reported in the Census for companies with annual volumes of business of $25,000 or over. The 1935 average wage is based on various data in the *Census of the Construction Industry.* The steps are as follows:

a) From the partial data in the 1935 Census on the annual payroll and average number of wage earners at the construction site the average annual wage is computed.

b) For these same establishments the average annual wage based on the October figures is also computed because establishments giving occupational data report for one week in October. The ratios of the average annual wage and the number of wage earners, estimated on the basis of the annual figures, to those estimated on the basis of the October figures, are derived.

c) From Census occupational data the average wage of wage earners at the construction site is derived and adjusted by the ratio described above, as is the number of wage earners. The product of the two gives the estimated wages of wage earners at the construction site for establishments that report occupational data.

d) The latter item is subtracted from the total payroll of establishments that report occupational data to leave wages of other wage earners and salaries.

e) This total is divided into other wages and salaries on the basis of the relation between such wages and salaries as were reported for one week in October.

f) From estimated wages and salaries for establishments that report occupational data the ratio of each to the value of con-

struction is computed. For these same establishments the ratio of total payrolls to value of construction also is computed, as is the corresponding ratio for all establishments.

g) The proportion of the latter to the former is applied to the ratios of wages to value and of salaries to value for establishments that report occupational data, thus yielding the final ratios of wages to value and salaries to value.

h) These ratios, applied to estimated construction in 1935, give total wages and total salaries paid.

i) The establishments that report occupational data indicate also their average number of employees during the year, from which is deducted the average number of wage earners at the construction site, estimated by the procedure outlined in step c.

j) The balance is divided into the number of other wage earners and of salaried employees on the basis of the number of each reported for one week.

k) Total wage earners in establishments that report occupational data are then derived and the ratio to total employees, for these same establishments, computed.

l) This ratio is applied to the total of employees reported by all establishments in the Census to give the number of wage earners covered by the Census.

m) Salaried employees are obtained by subtraction.

n) Average wage and salary figures are then computed.

Col. 2 Salaries: salaries, 1919–29, are estimated by applying to wages the ratio of salaries to wages, computed from the *Census of the Construction Industry* for 1929, and extrapolated to 1922 by Ohio and Wisconsin data. Ohio data on wages and salaries (from the *Monthly Labor Review,* Feb. 1934), and Wisconsin data on the percentage change from month to month (from the *Wisconsin Labor Market*) are converted into indexes and weighted indexes of wages and of salaries in Ohio and Wisconsin are derived with the 1929 salary figures reported in the *Census of the Construction Industry* as weights. The ratio of the index of salaries to the index of wages is used to extrapolate to 1922 the 1929 ratio of salaries to wages. To 1921 the extrapolation is by Ohio data; from 1921 to 1919, by the ratio of salaries to wages in Pennsylvania and Ohio. The sources are cited in the notes to col. 1.

For the years after 1929 salaries are the product of the estimated number of salaried employees (see the notes to Table C 4) and the average salary. The average salary is derived from the *Census of the Construction Industry* for 1929 and 1935 (see the notes to col. 1) and interpolated by the average salary in Ohio. This index is used also to extrapolate the 1935 figure through 1936–38.

Col. 3 Wages and salaries: sum of col. 1 and 2.

Col. 4 Entrepreneurial withdrawals: withdrawals in 1929 are based on data reported in the *Census of the Construction Industry* and are the sum of the withdrawals of proprietors of establishments with volumes of $25,000 or over and of smaller concerns.

The estimate of proprietors of establishments doing business of $25,000 or over covered by the Census is based on the number of proprietors reported, raised by the ratio of the total number of establishments to the number reporting proprietorship. The ratio of this number to the number of all proprietors covered by the Census is applied to our estimate of the number of all proprietors (see the notes to Table C 4) to yield the final estimate of proprietors of establishments with volumes of $25,000 or over. The number of proprietors of establishments with volumes of less than $25,000 covered by the Census is estimated by subtracting from the total number of such establishments the difference between the number of corporations covered in *Statistics of Income* and those reported in the Census as having volumes of $25,000 or over.

Proprietors' withdrawals are estimated by multiplying the average withdrawal by the estimated number. From data in the 1929 *Census of the Construction Industry* for establishments reporting proprietors' withdrawals, the per capita withdrawal of proprietors of establishments with annual volumes of $25,000 or over is computed. The average withdrawal for proprietors of smaller concerns is estimated as the average of the per capita wage and salary.

Estimates of total withdrawals for other years are extrapolated from 1929 by a preliminary estimate, obtained by applying to estimated non-corporate business the withdrawal ratio as derived from *Statistics of Income* corporate data.

Non-corporate business in 1929 is estimated by applying to estimated total contract construction the ratio of non-corporate to the

total as derived from the Census. The non-corporate volume covered by the Census is the difference between the total reported and the estimated corporate. Corporate business is the sum of that for corporations with volumes of $25,000 or over (reported in the Census) and that for smaller corporations, estimated by multiplying their number by the average volume. The number of corporations with volumes under $25,000 is estimated by subtracting from the total (excluding shipbuilding) reported in *Statistics of Income* the number with volumes of $25,000 or over reported in the Census. Average value of construction for the smaller corporations is assumed to be the same as that derived from the Census for all establishments with volumes under $25,000. The ratio of the corporate to the total value reported in the Census is computed and the ratio for the non-corporate derived.

Non-corporate business for the years before 1929 is the difference between the total and the estimated corporate. The 1929 figure for the latter is extrapolated through 1922 by corporate gross sales, and through 1919 by corporate gross income as recorded in *Statistics of Income* (excluding shipbuilding). For the years after 1929 non-corporate is estimated on the basis of the ratio of non-corporate to total. For 1935 this ratio is computed from Census data for all establishments reporting on proprietors. Interpolated along a straight line between 1929 and 1935, it is kept constant thereafter.

The withdrawal ratio is the ratio of officers' compensation and total dividends paid to corporate gross sales. These items are reported in *Statistics of Income* 1919–37 except for (a) officers' compensation in 1925–27, which is estimated on the basis of the ratio to gross sales in 1924 and 1928, interpolated along a straight line and applied to gross sales in the respective years; (b) gross sales in 1919–21, extrapolated from 1922 by gross income as reported; (c) dividends paid in 1919–21, for the derivation of which, see the notes to col. 5. Shipbuilding is excluded throughout (see the notes to Table M 15). The estimate for 1938 is extrapolated from 1937 by corporate data for the industry.

Col. 5 Dividends: net dividends paid are the difference between total dividends paid and dividends received by corporations. Dividends paid, 1922–37, are from *Statistics of Income,* adjusted to exclude shipbuilding (see the notes to Table M 11, col. 6). The

estimates of total dividends in 1919–21 are based on the ratio of dividends to corporate business in 1922, extrapolated to 1919 by the ratio of dividends to gross sales for lumber, stone, clay, and glass, and metal manufacturing corporations. The estimate for 1938 is extrapolated from 1937 by the corporate sample for the industry.

Dividends received, 1922–37, also are from *Statistics of Income* (excluding shipbuilding). Dividends received, 1919–21, are assumed to be the same percentage of total dividends received by all corporations (reported in *Statistics of Income*) as in 1922. Dividends received in 1938 are assumed to be the same percentage of dividends paid as in 1937.

Col. 6 Interest: net long term interest is the difference between total interest paid on long term debt and interest received on tax-exempt obligations. Total interest, 1922–35, is estimated by applying to the par value of long term debt the average interest rate for the industry, a rate based on sample corporate data for the industry.

Long term debt outstanding on December 31, 1921, 1923, 1924, and 1926–36 is from *Statistics of Income* (see the notes to Table M 13, col. 6). The 1921 figure, as reported in capital stock tax returns, is assumed to be complete. The 1923 and 1924 figures are raised by the ratio of the fair value of the stock of all corporations to the fair value of the stock of corporations reporting assets and liabilities. Long term debt reported for 1926–31 is raised by the 1931 ratio of compiled receipts of all corporations to compiled receipts of corporations reporting assets and liabilities. The compiled receipts ratios for 1932–35 are used to raise reported long term debt for the respective years. Estimates of long term debt outstanding on December 31, 1922 and 1925 are interpolated along a straight line. The December 31, 1934 figure, comparable with that reported for 1933, is estimated by applying to the 1933 figure the percentage change from 1933 to 1934 in the debt of sample corporations in the industry. The same percentage change is used to estimate the December 31, 1933 figure comparable with that reported for December 31, 1934.

The year-end figures are averaged to give the amount outstanding during the year; multiplying these averages by the estimated interest rate yields total long term interest, 1922–36. Estimates for

1919–21 are based on the ratio to total interest paid, computed for 1922, and extrapolated by the ratio for the lumber and stone, clay, and glass manufacturing groups. Total interest paid is reported in *Statistics of Income*. The 1936–38 estimates of total long term interest paid are extrapolated from 1935 by the corporate sample for the industry.

Interest received, 1922–37, is that received on tax-exempt obligations as reported in *Statistics of Income* (excluding shipbuilding). Receipts, 1919–21, are assumed to be the same percentage of interest received on tax-exempt obligations by all corporations (reported in *Statistics of Income*) as in 1922. Receipts in 1938 are assumed to bear the same relation to interest payments as in 1937.

Col. 7 Property income: sum of col. 5 and 6.

Col. 8 Total payments to individuals: sum of col. 3, 4, and 7.

TABLE C 3

Net Income Originating

Col. 1 Total payments to individuals: see Table C 2, col. 8.

Col. 2 Entrepreneurial net savings: estimates for 1919–37 are obtained by applying to non-corporate business (see the notes to Table C 2, col. 4) an estimated savings ratio—the corporate ratio to gross sales of statutory net income before taxes (from *Statistics of Income*) plus long term interest paid minus dividends paid. For total dividends and interest see the notes to Table C 2, col. 5 and 6. The 1934 ratio, comparable with the 1933, is based on the 1933 figure and the percentage change from 1933 to 1934 in the ratio for corporations filing unconsolidated returns (including shipbuilding). Interest is for all corporations, since the debt of those filing unconsolidated returns comprises over 90 per cent of the total. The 1938 estimate is extrapolated from 1937 by corporate savings (see the notes to col. 4).

Col. 3 Entrepreneurial net income: sum of col. 4, Table C 2, and col. 2, above.

Col. 4 Corporate net savings: difference between compiled net profits after taxes and total dividends paid. Compiled net profits (excluding shipbuilding) are from *Statistics of Income* for 1922–37 (see the notes to Table M 19, col. 6); for 1919–21 they are the sum of statutory net income after taxes (reported in *Statistics of Income*)

and dividends and tax-exempt interest received. For the latter items and for total dividends paid see the notes to Table C 2, col. 5 and 6. The 1938 estimate is extrapolated from 1937 by the corporate sample for the industry.

Col. 5 Total net savings: sum of col. 2 and 4.

Col. 6 Net income originating: sum of col. 1 and 5.

TABLE C 4

Persons Engaged

Col. 1 Wage earners: for 1919–29 the number of wage earners is obtained by dividing the estimated total wage bill by the average wage paid (see the notes to Table C 2, col. 1, for the derivation of total wages for the period and the average wage in 1929).

Two estimates of the average wage are used, yielding two estimates of wage earners, which are averaged to obtain the final estimate. The first estimate of the average wage is extrapolated from 1929 by a weighted index of Ohio, Wisconsin, and Illinois data for 1923–29. This is extrapolated through 1922 by Ohio and Wisconsin data, through 1921 by Ohio data, and beyond 1921 by Ohio and Pennsylvania data. The sources of the Ohio and Pennsylvania data are cited in the notes to Table C 2, col. 1. Indexes of the average wage in Wisconsin and Illinois are derived from month to month changes in employment and payrolls as recorded in the *Wisconsin Labor Market* and the *Illinois Labor Bulletin.* The data are combined on the basis of the average number of wage earners in each state in 1929 as reported in the Census. The second estimate of the average wage also is extrapolated from 1929 but by the average wage of the construction materials manufacturing group.

The number of wage earners in 1929 and 1935 is described in the notes to Table C 2, col. 1. The 1930–34 and 1936–38 figures are averages of two estimates: one is interpolated and extrapolated by the six-state employment index compiled by the Bureau of Foreign and Domestic Commerce, National Income Division; the other by the ratio of the number of wage earners to value of construction in constant prices. The index of construction costs by which the value of construction is converted to constant prices is given in *Commodity Flow and Capital Formation,* Vol. One.

Col. 2 Wage earners, second estimate: the estimate of wage earners gainfully occupied in 1920 is based on the percentage change from 1920 to 1930 in the number in representative occupations reported for those years in the 1930 *Census of Population,* Vol. V. The percentage change is estimated for brick and stone masons and tile layers; carpenters; building painters, glaziers and varnishers; paper hangers; cement finishers; plasterers; plumbers and gas and steam fitters; roofers and slaters; building structural iron workers; carpenters' apprentices; plumbers' apprentices; building operatives; and building, general, and not specified laborers. The number attached in 1929 is by straight line interpolation between the Census dates. The percentage change from 1920 to 1929 is derived and applied to the number engaged in 1929 to yield the number engaged in 1920. The estimates for 1919 and 1921–28 are extrapolated and interpolated by the number of wage earners, derived as explained in the notes to col. 1.

Col. 3 Salaried employees: the method is similar to that used for wage earners, 1919–29. Only one estimate, however, that based on state data, is made. The 1929 average salary is extrapolated for 1922–28 by the weighted index of Ohio and Wisconsin data; for 1921, of Ohio data; and for 1920 and 1919, of Ohio and Pennsylvania data. Sources of these state materials are cited in the notes to col. 1.

For 1929 and 1935 estimates are derived as outlined in the notes to Table C 2, col. 1. For 1930–34 and 1936–38 the estimates are the product of the number of wage earners and the ratio of salaried employees to wage earners. This ratio, computed from Census data for 1929 and 1935, is interpolated by the ratio for Ohio. The Ohio figure is used also to extrapolate the ratio from 1935 through 1936–1938.

Col. 4 Total employees: sum of col. 1 and 3.

Col. 5 Entrepreneurs: the number of entrepreneurs in 1930 is from the 1930 *Census of Population,* Vol. V, Ch. 7, and comprises builders and building contractors, building owners, operators and proprietors, and contractors, builders, and proprietors in road, street, and bridge construction. The number of entrepreneurs is assumed to be the same in 1929 as in 1930. The 1920 figure is based on the percentage change from 1920 to 1930 as derived from data

in the 1930 *Census of Population,* Vol. V, for builders and building contractors. Extrapolation for 1919 and interpolation between 1920 and 1929 are by non-corporate business (see the notes to Table C 2, col. 4); the average value per entrepreneur is computed for 1920 and 1929 and interpolated along a straight line. The average value per entrepreneur in 1919 is assumed to be the same as in 1920.

The 1935 estimate of entrepreneurs is based on non-corporate business (see the notes to Table C 2, col. 4) and the average value per entrepreneur derived from the *Census of the Construction Industry* for all establishments reporting information on proprietors and the value of construction of these establishments. Interpolation between 1930 and 1935 is by the number of construction establishments in Ohio. The number of entrepreneurs is assumed to be the same in 1936–38 as in 1935. The Ohio data for 1930–34 are from various issues of the *Monthly Labor Review* and for later years were received by letter from the Ohio Department of Industrial Relations, Division of Labor Statistics.