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Volume Title: National Income and Its Composition, 1919-1938, Volume II

Volume Author/Editor: Simon Kuznets, assisted by Lillian Epstein and Elizabeth Jenks

Volume Publisher: NBER

Volume URL: <http://www.nber.org/books/kuzn41-3>

Publication Date: 1946

Chapter Title: Basic Data, Sources and Methods: Service

Chapter Author: Simon Kuznets, Lillian Epstein, Elizabeth Jenks

Chapter URL: <http://www.nber.org/chapters/c5558>

Chapter pages in book: (p. 759 - 808)

Service

TABLES S 1—S 1 2

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.

Entrepreneurs and their net income for automobile repair shops and garages are included with employees and their compensation.

Salaried engineers and employees in hand trades and their compensation are included with entrepreneurs and their income.



S 1 Total Payments by Type (millions of dollars)

	WAGES & SALARIES	ENTREP. WITHDR.	DIVIDENDS	INTEREST	PROP. INCOME	PAY. TO INDIVIDUALS
	(1)	(2)	(3)	(4)	(5)	(6)
1919	3,256	1,699	29.0	15.9	44.9	5,000
1920	4,072	1,853	80.4	14.9	95.2	6,020
1921	4,203	1,681	65.7	18.1	83.8	5,968
1922	4,498	2,404	48.8	22.8	71.6	6,973
1923	4,925	2,397	68.0	28.0	96.0	7,419
1924	5,238	2,691	71.2	33.2	104	8,033
1925	5,520	3,012	92.1	41.0	133	8,666
1926	5,905	3,000	105	47.7	153	9,059
1927	6,351	3,199	106	62.7	169	9,720
1928	6,433	3,430	99.1	73.0	172	10,036
1929	6,893	3,658	116	87.0	203	10,755
1930	6,390	3,505	112	99.0	211	10,108
1931	5,574	3,295	73.7	93.7	167	9,036
1932	4,415	3,230	54.5	110	164	7,810
1933	3,919	3,093	33.9	95.3	129	7,142
1934	4,395	2,780	41.8	86.9	128	7,304
1934	4,395	2,799	50.6	88.7	139	7,334
1935	4,792	2,818	54.3	104	159	7,770
1936	5,304	2,872	113	101	215	8,392
1937	5,914	3,218	120	95.6	215	9,348
1938	5,610	3,052	69.0	92.9	161	8,824

S 2 Net Income Originating (millions of dollars)

	PAY. TO INDIVIDUALS				NET SAVINGS, ADJ.			NET INCOME, ADJ.
	Entrep.	Corp.	Total	NET INCOME	Corp.	Total		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1919	5,000	1,079	49.1	1,128	6,129	35.1	1,114	6,115
1920	6,020	826	5.6	831	6,852	0.6	826	6,847
1921	5,968	708	-25.0	683	6,652	-4.0	704	6,673
1922	6,973	383	25.9	408	7,382	24.9	407	7,381
1923	7,419	798	42.9	841	8,260	40.9	839	8,258
1924	8,033	566	44.2	610	8,644	47.2	613	8,647
1925	8,666	584	55.5	639	9,306	60.5	644	9,311
1926	9,059	1,031	23.1	1,054	10,114	29.1	1,060	10,120
1927	9,720	604	-6.4	597	10,318	-4.4	599	10,320
1928	10,036	637	7.0	644	10,680	13.0	650	10,686
1929	10,755	518	15.1	533	11,289	-7.9	510	11,266
1930	10,108	383	-79.7	303	10,411	-67.2	316	10,424
1931	9,036	-103	-206	-309	8,727	-135	-238	8,798
1932	7,810	-935	-476	-1,412	6,398	-372	-1,308	6,502
1933	7,142	-1,013	-357	-1,370	5,771	-317	-1,330	5,811
1934	7,304	-318	-240	-558	6,746	-239	-557	6,746
1934	7,334	-337	-239	-576	6,758	-238	-575	6,759
1935	7,770	-195	-211	-406	7,363	-206	-401	7,369
1936	8,392	105	-199	-94.0	8,298	-213	-108	8,284
1937	9,348	-49.4	-169	-218	9,130	-194	-243	9,105
1938	8,824	217	-169	48.0	8,872	-172	45.2	8,869

S 3 Wages and Salaries by Major Industrial Divisions
(millions of dollars)

	PROFESSIONAL (1)	PERSONAL (2)	DOMESTIC (3)	MISC. (4)	TOTAL (5)
1919	533	1,046	1,151	526	3,256
1920	624	1,322	1,305	819	4,072
1921	696	1,251	1,433	822	4,203
1922	748	1,384	1,553	811	4,498
1923	812	1,425	1,698	989	4,925
1924	879	1,476	1,801	1,080	5,238
1925	932	1,559	1,892	1,136	5,520
1926	993	1,642	1,971	1,298	5,905
1927	1,068	1,820	2,037	1,424	6,351
1928	1,148	1,746	2,039	1,499	6,433
1929	1,212	1,964	2,145	1,572	6,893
1930	1,245	1,858	1,843	1,443	6,390
1931	1,225	1,633	1,440	1,274	5,574
1932	1,148	1,302	1,055	909	4,415
1933	1,066	1,096	920	837	3,919
1934	1,074	1,322	1,050	947	4,395
1935	1,122	1,451	1,118	1,100	4,792
1936	1,196	1,574	1,260	1,274	5,304
1937	1,277	1,711	1,493	1,433	5,914
1938	1,316	1,666	1,303	1,325	5,610

S 4 Wages and Salaries by Minor Industrial Divisions
(millions of dollars)

	PROFESSIONAL				PERSONAL			
	Private educa- tion (1)	Reli- gious (2)	Cura- tive (3)	Other * (4)	Hotels (5)	Restau- rants (6)	Power & clean. & dye. (7)	Other (8)
1919	101	174	82.9	174	309	336	139	260
1920	124	201	100	198	345	467	177	332
1921	152	216	127	200	388	371	172	319
1922	176	228	142	201	412	436	182	353
1923	187	240	165	219	391	429	211	394
1924	198	258	184	238	376	487	228	385
1925	207	274	196	253	383	541	242	391
1926	224	283	212	273	415	540	259	426
1927	242	292	236	296	412	646	303	458
1928	255	301	264	325	408	585	320	431
1929	264	312	290	345	442	660	375	486
1930	272	311	300	360	416	669	374	398
1931	280	294	286	363	343	636	322	331
1932	276	266	261	345	253	555	257	235
1933	257	245	236	326	217	445	229	204
1934	252	246	243	331	266	532	247	226
1935	265	245	262	348	288	658	255	248
1936	276	250	295	373	310	705	279	279
1937	284	258	335	399	340	775	305	289
1938	286	265	358	405	333	761	297	274

* Including salaries of employees in legal and miscellaneous professions.

S 5 Wages and Salaries by Minor Industrial Subdivisions (millions of dollars)

	ASSISTANTS TO Physicians & surgeons		HOSPI- TALS (3)	LEGAL (4)	MISC. PROFES- SIONAL (5)	ADV. (6)	RECREA- TION & AMUSE- MENT (7)	AUTO REPAIR SHOPS & GARAGES (8)
	(1)	(2)						
1929	20.8	14.0	255	140	205	204	606	671
1930	20.4	13.5	267	147	213	176	622	644
1931	19.5	12.5	254	150	213	147	554	572
1932	17.5	10.7	233	147	197	101	362	445
1933	16.6	8.8	211	141	184	87.9	332	416
1934	17.0	9.1	217	143	188	115	360	472
1935	18.9	9.2	234	150	198	140	412	547
1936	21.2	10.4	263	160	213	161	493	620
1937	23.3	11.5	301	170	228	175	538	719
1938	23.7	11.6	323	174	231	150	495	679

S 6 Entrepreneurial Net Income by Major Industrial Divisions (millions of dollars)

	CURATIVE (1)	OTHER PROFES- SIONAL * (2)	TOTAL PROFES- SIONAL (3)	PERSONAL (4)	MISC. (5)	TOTAL (6)
1920	611	727	1,339	891	448	2,679
1921	526	636	1,163	829	396	2,390
1922	781	959	1,740	676	369	2,787
1923	850	1,075	1,926	855	413	3,195
1924	895	1,160	2,055	801	400	3,257
1925	1,033	1,356	2,389	807	400	3,597
1926	1,118	1,491	2,610	999	423	4,032
1927	1,042	1,410	2,453	953	397	3,803
1928	1,150	1,586	2,737	934	396	4,067
1929	1,184	1,666	2,851	938	386	4,177
1930	1,096	1,533	2,629	887	371	3,889
1931	961	1,182	2,144	726	321	3,192
1932	731	839	1,570	485	238	2,294
1933	676	764	1,440	425	214	2,080
1934	779	841	1,620	591	250	2,462
1935	840	901	1,742	621	259	2,623
1936	962	1,012	1,974	718	284	2,977
1937	1,038	1,109	2,147	714	306	3,168
1938	1,059	1,137	2,196	786	287	3,269

* Comprising private education, lawyers, engineers, and miscellaneous profes-
sions.

S 7 Entrepreneurial Net Income by Minor Industrial Divisions (millions of dollars)

	PHYSI- CIANS & SUR- GEONS	DENTISTS	TRAINED NURSES, PRIVATE DUTY	OTHER CURA- TIVE	LAWYERS	ENGI- NEERS	OTHER PROFES- SIONAL *	ADV.	RECREA- TION & AMUSE- MENT	HAND TRADES
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1929	665	245	143	130	614	492	559	39.7	121	225
1930	602	234	141	117	586	418	528	36.7	128	206
1931	530	202	125	102	519	237	425	27.2	113	180
1932	405	151	97.3	77.0	412	121	305	17.8	78.2	142
1933	379	135	92.3	69.4	380	105	277	10.4	65.6	138
1934	442	149	110	77.2	411	119	310	14.2	79.7	156
1935	475	156	127	81.4	444	125	331	11.3	79.8	168
1936	548	173	148	91.8	498	140	373	14.1	85.8	184
1937	590	186	163	97.7	558	148	402	14.9	90.7	201
1938	601	188	169	100	576	148	412	14.9	93.4	179

* Comprising private education and miscellaneous professions.

S 8 Employees by Major Industrial Divisions (thousands)

	PROFESSIONAL	PERSONAL	DOMESTIC	MISC.	TOTAL
	(1)	(2)	(3)	(4)	(5)
1919	594	915	1,692	426	3,629
1920	599	949	1,693	524	3,767
1921	610	926	1,733	541	3,810
1922	656	1,029	1,840	528	4,055
1923	722	1,056	1,967	605	4,351
1924	773	1,076	2,022	641	4,513
1925	784	1,161	2,084	661	4,692
1926	841	1,216	2,161	736	4,956
1927	870	1,265	2,214	796	5,147
1928	923	1,254	2,222	834	5,234
1929	971	1,401	2,303	860	5,536
1930	995	1,386	2,151	805	5,338
1931	991	1,308	1,926	752	4,979
1932	978	1,206	1,654	639	4,479
1933	975	1,116	1,571	616	4,279
1934	997	1,320	1,775	690	4,783
1935	1,033	1,423	1,860	776	5,094
1936	1,089	1,480	1,994	883	5,447
1937	1,138	1,550	2,118	917	5,724
1938	1,157	1,511	1,950	918	5,538

S 9 Employees by Minor Industrial Divisions (thousands)

	P R O F E S S I O N A L				P E R S O N A L			
	Private educa- tion	Reli- gious	Cura- tive	Other *	Hotels	Restau- rants	Power laund. & clean. & dye.	Other
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1919	130	128	139	196	268	260	169	216
1920	140	127	135	197	255	300	176	216
1921	150	126	131	201	279	254	169	222
1922	160	128	158	209	302	305	183	238
1923	167	134	198	222	290	303	204	257
1924	174	139	221	237	271	325	213	265
1925	178	141	217	247	298	369	219	274
1926	186	143	251	260	305	384	241	285
1927	195	144	257	273	300	403	268	293
1928	200	146	288	287	295	391	272	294
1929	203	148	318	301	331	439	323	306
1930	203	148	326	316	317	452	320	295
1931	202	150	313	325	283	463	297	263
1932	200	150	300	327	243	464	273	225
1933	199	149	292	334	229	391	272	223
1934	202	149	304	341	266	522	289	242
1935	209	149	319	355	278	586	297	261
1936	215	149	352	371	289	603	315	271
1937	220	148	387	382	302	633	329	284
1938	221	148	396	391	295	629	316	270

* Including employees in legal and miscellaneous professions.

S 10 Employees by Minor Industrial Subdivisions (thousands)

	ASSISTANTS TO		HOSPITALS	LEGAL	MISC. PROFES- SIONAL	ADV.	RECREATION & AMUSE- MENT	AUTO REPAIR SHOPS & GARAGES
	Physicians & surgeons	Dentists						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1929	25.1	14.3	279	96.1	205	67.7	390	402
1930	24.8	13.7	288	100	215	58.4	336	410
1931	24.3	13.0	276	106	219	51.2	298	402
1932	23.0	12.4	265	110	217	40.0	219	380
1933	23.1	11.7	257	114	220	36.2	216	362
1934	23.4	12.2	268	116	225	41.6	246	403
1935	24.9	12.7	282	121	233	44.2	274	458
1936	27.2	13.9	311	125	245	49.6	346	487
1937	28.5	14.6	344	129	252	52.4	346	518
1938	29.1	14.8	352	133	257	45.3	343	530

S 11 Entrepreneurs by Major Industrial Divisions (thousands)

	CURATIVE	OTHER PROFES- SIONAL *	TOTAL PROFES- SIONAL	PERSONAL	MISC.	TOTAL
	(1)	(2)	(3)	(4)	(5)	(6)
1919	248	201	450	402	370	1,222
1920	250	202	452	406	370	1,229
1921	256	205	461	396	361	1,220
1922	262	210	473	424	352	1,250
1923	269	219	488	452	344	1,284
1924	277	228	506	482	335	1,324
1925	287	235	522	512	326	1,361
1926	298	243	542	535	318	1,396
1927	310	252	562	561	309	1,433
1928	322	261	584	556	300	1,441
1929	335	270	605	588	292	1,486
1930	346	280	626	583	289	1,499
1931	354	288	643	582	284	1,509
1932	362	288	651	580	277	1,509
1933	370	293	664	616	276	1,557
1934	378	298	676	637	280	1,594
1935	387	304	691	654	277	1,623
1936	396	310	706	655	285	1,646
1937	406	316	722	656	285	1,664
1938	416	322	738	655	278	1,672

* Comprising private education, lawyers, engineers, and miscellaneous professions.

S 12 Entrepreneurs by Minor Industrial Divisions (thousands)

	PHYSI- CIANS & SUR- GEONS	DENTISTS	TRAINED NURSES, PRIVATE DUTY	OTHER CURA- TIVE	LAWYERS	ENGI- NEERS	OTHER PROFES- SIONAL * ADV.	RECREA- TION & AMUSE- MENT	HAND TRADES	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1929	119	58.8	109	47.1	105	53.5	111	3.6	60.0	228
1930	121	59.9	118	46.7	100	53.6	117	3.7	61.5	224
1931	123	60.6	123	47.2	116	51.9	120	3.6	61.2	219
1932	125	61.4	128	47.7	117	50.1	121	3.3	61.1	213
1933	127	62.2	134	47.4	122	48.3	122	2.1	60.8	213
1934	128	62.8	139	46.8	126	48.3	123	2.6	58.8	219
1935	130	63.4	145	47.1	130	48.3	125	2.0	56.8	219
1936	132	64.0	151	47.5	134	48.3	127	2.2	58.4	224
1937	135	64.9	158	47.7	139	48.3	128	2.2	59.3	224
1938	137	65.7	164	48.1	143	48.3	130	2.2	59.5	216

* Comprising private education and miscellaneous professions.

TABLE S 1

Total Payments by Type

Col. 1 Wages and salaries: see Table S 3, col. 5.

Col. 2 Entrepreneurial withdrawals: estimated for entrepreneurs in (1) professional service, (2) personal service, (3) miscellaneous service.

1) *Professional service:* sum of estimates for:

a) *Private education:* commercial and correspondence schools are estimated separately. Total withdrawals are obtained by multiplying the number of entrepreneurs by their average withdrawal, which is assumed to be the same as the average pay of administrative and teaching employees (see the notes to Table S 4, col. 1). For the number of entrepreneurs see the notes to Table S 11, col. 2.

b) *Trained nurses, private duty:* estimated by multiplying the number (see Table S 11, col. 1) by the average income. Per capita cash income in 1926 is from *Nurses, Patients, and Pocketbooks* (Committee on the Grading of Nursing Schools, 1928); for 1929 it was obtained from the Committee on the Costs of Medical Care; and for 1934 and 1935 from *Facts about Nursing, 1938*. Interpolation and extrapolation of the figures for these four years are by the average of the per capita net income of physicians and surgeons and of dentists (see the notes to Table S 6, col. 1). The estimate of per capita payment in kind is the product of the estimated weeks of work per year and the weekly board allowance. Weeks of work are estimated by dividing the average annual pay by the daily rate of pay and by 7. The daily rate of pay in 1916 and 1926 is from *Nurses, Patients, and Pocketbooks*, and in 1936, from *Facts about Nursing*. For 1927-30 the 1926 figure is used; the 1935 figure is assumed to be the same as the 1936. Interpolation for 1919-25 and 1931-34 is along a straight line. The number of weeks of work is kept constant from 1936 to 1938. The weekly board allowance is that derived for domestic service (see the notes to Table S 3, col. 3).

c) *Other professional service:* lawyers, engineers including salaried engineers (since the latter cannot be segregated), and all entrepreneurs in the curative and other professional service fields not covered above. Withdrawals are obtained by applying to their

estimated total net income the ratio of withdrawals to net income as derived from the data for entrepreneurs in manufacturing, mining, construction, and trade (for the net income series see the notes to Table S 6).

2) *Personal service*: total withdrawals are obtained by multiplying the number of entrepreneurs (see Table S 11, col. 4) by the average withdrawal, which is assumed to be the same as the average annual pay of employees in this field (see the notes to Table S 4, col. 5-8).

3) *Miscellaneous service*: sum of estimates for advertising, recreation and amusement, and hand trades.

a) *Advertising*: estimated by the procedure outlined for 'other' professional service.

b) *Recreation and amusement*: estimated by the procedure outlined for personal service.

c) *Hand trades*: the total engaged cannot be separated into entrepreneurs and employees, and since entrepreneurs predominate, the compensation item is entered here rather than under wages and salaries. Total withdrawals are estimated by multiplying the number engaged (see the notes to Table S 11, col. 5) by the average income. The 1935 full-time pay for repair services and customs industries excluding automobiles, derived from the *Census of Business* (see notes to the advertising estimates in Table S 3, col. 4 for method), is extrapolated by the average wage in manufacturing to yield the series on average income.

Col. 3 Dividends: difference between total dividends paid and dividends received, both reported, 1922-37, in *Statistics of Income*. Dividends paid in 1922 are extrapolated through 1919 by the dividend payments of the corporate sample for the industry. Dividends received, 1919-21, are estimated by applying to total dividends received (reported in *Statistics of Income*) the industrial breakdown in 1922. The 1938 figure is extrapolated from 1937 by the corporate sample for the industry.

Col. 4 Interest: difference between total interest paid on long term debt and interest received on tax-exempt obligations.

Total long term interest is estimated by multiplying long term debt outstanding by the average interest rate. Long term debt outstanding on December 31, 1921, 1923, 1924, and 1926-35 is from *Statistics of Income*. The 1921 figure is assumed to be the total for

the industry. Those for 1923 and 1924 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. The 1926-31 figures are raised by the 1931 ratio of compiled receipts of all corporations to the compiled receipts of corporations reporting assets and liabilities. Totals for 1932-35 also are obtained by applying to the figure reported the compiled receipts ratios for the respective years.

Long term debt in 1934 comparable with prior years is extrapolated from 1933 by the long term debt of corporations filing unconsolidated returns as reported in *Statistics of Income* and raised by the compiled receipts ratios for the respective years. The same index applied to 1934 long term debt comparable with 1935 yields a comparable figure for 1933. Long term debt as of December 31, 1918-20, 1922, and 1925 is extrapolated and interpolated by the debt of the corporate sample for the industry. Year-end figures are averaged to yield debt outstanding during the year. To the latter the average interest rate of the corporate sample for the industry is applied to yield total long term interest paid. The estimates of interest paid, 1936-38, are extrapolated from 1935 by the corporate sample for the industry.

Interest received, 1922-37, is from *Statistics of Income*. Interest received, 1919-21, is estimated on the assumption that the industrial distribution of the total reported in *Statistics of Income* is the same as in 1922. Interest received in 1938 is assumed to be the same percentage of interest paid as in 1937.

Col. 5 *Property income*: sum of col. 3 and 4.

Col. 6 *Total payments to individuals*: sum of col. 1, 2, and 5.

TABLE S 2

Net Income Originating

Col. 1 *Total payments to individuals*: see Table S 1, col. 6.

Col. 2 *Entrepreneurial net savings*: sum of estimates for entrepreneurs in (1) professional service, (2) personal service, (3) miscellaneous service.

1) *Professional service*: sum of estimates for:

a) *Private education*: entrepreneurial savings are estimated by applying to total withdrawals (see the notes to Table S 1, col. 2)

the ratio of savings to withdrawals as derived from data for entrepreneurs in trade.

b) *Trained nurses, private duty*: it is assumed that the entire net income is withdrawn.

c) *Other professional service*: lawyers, engineers including salaried engineers (since they cannot be segregated), and all entrepreneurs in the curative and other professional service fields not covered above. Their savings are the difference between their total net income (for the net income series see the notes to Table S 6) and their total withdrawals (see the notes to Table S 1, col. 2).

2) *Personal service*: estimated by the procedure outlined for private education.

3) *Miscellaneous service*: sum of estimates for:

a) *Advertising*: estimated by the procedure outlined for 'other' professional service.

b) *Recreation and amusement*: estimated by the procedure outlined for private education.

c) *Hand trades*: the same assumption is made as under (1) b. See the notes to Table S 1, col. 2, concerning the inclusion of data on employees.

Col. 3 *Corporate net savings*: difference between compiled net profits after taxes (reported for 1922-37 in *Statistics of Income*) and total dividends paid. For the years before 1922 net profits are estimated as the sum of statutory net income after taxes (*Statistics of Income*), dividends received, and interest received on tax-exempt obligations (see the notes to Table S 1, col. 3 and 4). Corporate savings are assumed to be the same in 1938 as in 1937.

Col. 4 *Total net savings*: sum of col. 2 and 3.

Col. 5 *Net income originating*: sum of col. 1 and 4.

TABLE S 3

Wages and Salaries by Major Industrial Divisions

Col. 1 *Professional*: see Table S 4, col. 1-4.

Col. 2 *Personal*: see Table S 4, col. 5-8.

Col. 3 *Domestic*: product of the number of employees (see Table S 8, col. 3) and the average pay. For 1929-36 average cash pay is estimated separately for nine groups of domestic servants: chauffeurs; cooks, male; cooks, female; housekeepers; laundresses;

nurses; waiters; waitresses; other servants. Average pay in 1937 and 1938 for domestic service is extrapolated from 1936 by an index prepared by the Bureau of Foreign and Domestic Commerce, National Income Division. For 1924-29 average pay estimates for each of the above groups are combined to yield an average pay figure for all domestic service; the weights used are the average of the number attached to 'domestic and personal service' in 1920 and 1930 as reported in the 1930 *Census of Population*, Vol. V, Ch. 1. The weighted average is extrapolated to 1919 by the annual pay of persons in the corresponding occupations in city and state employ. Data for laundry workers, housekeepers, chauffeurs, stewards, etc. are available for these early years from various state and city reports.

For each occupation wage rates for 1924-29 are based on the wage per week as of January 1 and July 1 of each year as reported by employment agencies throughout the country. The data are combined into an average for the year by weighting the figure for January 1, 1, that for July 1, 2, and that for January 1 of the following year, 1. The basic material for these years is from questionnaires sent out by the National Bureau. For 1929-36 the wage rate data are available only for January 1 of each year; for 1929-34 they are from questionnaires of the National Bureau and the Bureau of Foreign and Domestic Commerce, National Income Division, and for 1935 and 1936, from those of the Bureau of Foreign and Domestic Commerce. From the returns the most common type of wage is determined for each occupation, that is, whether without room and board, with room, with board, or with room and board, and data for the most prevalent type of payment are used throughout the period. The average wage for each occupation is computed for each geographic region and a weighted average derived for the United States; the weights used are the number in each geographic region attached to the specific occupational group as reported in the 1930 *Census of Population*, Vol. V, Ch. 1.

To the cash wage figures for each occupation we add an allowance for payments in kind, estimated for the week of January 1, 1929 (the date for which the largest number of questionnaires was returned) from the data reported, by determining the absolute difference between the rates with room and board, with room, with board, and without room and board. The estimate for the value of

board as of January 1, 1929 is extrapolated by the BLS index of the cost of food, one of the components of its cost of living index; that for the value of room, by the weighted average of the BLS indexes of rent, fuel and light, and housefurnishings, the weights being those of the Bureau of Labor Statistics.

For the years before 1929 pairs of January 1 estimates of payments in kind are averaged and added to the respective annual average estimates of cash wages. For the years after 1929 the January 1 estimates of payments in kind are added directly to the January 1 estimates of cash wages and pairs of the resulting January 1 total wage figures are then averaged.

The weekly wage rates for all years since 1924 are multiplied by 52 to yield the estimated average annual wage. Since no sample wage data are available for 'other servants', the average annual wage for housekeepers is used.

Col. 4 Miscellaneous: sum of estimates for (1) advertising, (2) recreation and amusement, (3) automobile repair shops and garages.

1) *Advertising:* estimated by multiplying the number of employees (see the notes to Table S 8, col. 4) by the average pay. Average pay for 1933 and 1935 is computed from partial data on full- and part-time payroll and employment as reported in the *Census of American Business* and the *Census of Business*. On the basis of data for one week, also reported in the Census, average full-time pay is computed. Its ratio to the full- and part-time average is derived for the week reported and is used to adjust the full- and part-time average for the year to the full-time average. The average pay is extrapolated for all other years by the average salary in manufacturing, mining, steam railroads, Pullman, and railway express.

2) *Recreation and amusement:* sum of estimates for (a) motion picture production, (b) theatres, (c) all other recreation and amusement. For the description of the employee series referred to below see the notes to Table S 8, col. 4.

a) *Motion picture production:* for the odd years 1921-29 and for 1935 and 1937, reported in the *Biennial Census of Manufactures*. Partial data are reported for 1931 and 1933. The data reported for 1933 exclude principal officers' salaries, which are estimated by assuming the same ratio to other salaries as in 1929. For 1931 the figure reported is for 'productive employees' only. The

1931 total is estimated by applying to the total cost of production, given in the Census, the average of the 1929 and 1933 ratios of total payroll to total cost of production. The intercensal year estimates for 1922-28 are interpolated along a straight line. For years after 1929 interpolation and extrapolation are by an index derived from the percentage change in wages and salaries in identical establishments as reported by the California Division of Labor Statistics. Total salaries and wages for 1919 and 1920 are extrapolated from 1921 by salaries and wages in theatres (see (b) below).

b) *Theatres*: obtained by multiplying the number of employees (see the notes to Table S 8, col. 4) by the average pay. Average pay for 1933 and 1935 is from data for motion picture and vaudeville theatres and legitimate theatres reported in the *Census of American Business* and in the *Census of Business*. The adjustment of the average full- and part-time salary to full-time is similar to that described for advertising, (1) above. Average pay is extrapolated for all other years by the average wage paid in Ohio theatres. Ohio data for the early years are reported in BLS Bulletin 613; for the later years, obtained directly from the Ohio Division of Labor Statistics.

c) *Other recreation and amusement*: obtained by multiplying the number of employees (see the notes to Table S 8, col. 4) by the average pay. Average pay for 1933 is computed from data for recreation other than radio broadcasting in the *Census of American Business* and from estimates of employment and payrolls in the radio broadcasting field prepared by Herman S. Hettinger for the *Economics of American Broadcasting* (unpublished). Average pay for 1935 is derived from *Census of Business* data. The method used is similar to that described for advertising. Extrapolation and interpolation for other years are by the average pay in theatres and motion picture production.

3) *Automobile repair shops and garages*: the persons covered are those in small units not reporting to the *Census of Retail Distribution*. Since there are no data available that would make it possible to estimate wages and salaries separately from entrepreneurial income, the two are estimated as a single item. And inasmuch as wages and salaries form the major part of the item it is regarded as a labor rather than an entrepreneurial payment.

Total income is estimated by multiplying the number of persons

engaged (see the notes to Table S 8, col. 4) by the average income. Average income in 1933 is estimated by subtracting operating expenses from gross receipts, adding the full-time payroll, and dividing the result by the sum of the number of proprietors and full-time employees (all items from the *Census of American Business*). The fields covered are auto brake shops, auto paint shops, auto radiator repair shops, auto top and body repair shops, auto laundries, garages, and parking lots.

Average income in 1935 is extrapolated from 1933 by the full-time average pay. The 1935 data are from the *Census of Business*; for the method by which full-time figures were estimated see (1) above. Extrapolation and interpolation for other years are by the average wage in manufacturing.

Col. 5 Total: sum of col. 1-4.

TABLE S 4

Wages and Salaries by Minor Industrial Divisions

Col. 1 Private education: sum of estimates for (1) elementary schools, (2) secondary schools, (3) commercial schools, (4) correspondence schools, (5) higher education, (6) special schools. Figures for school year periods are adjusted to a calendar year basis by weighting the current year figure, 2, and that for the following year, 1. The series on number of employees referred to below are described in the notes to Table S 9, col. 1.

1) *Elementary schools:* sum of estimates for school year periods for (a) Catholic, (b) non-Catholic.

a) *Catholic schools:* for 1929 and later years are from the Bureau of Foreign and Domestic Commerce, National Income Division. Total pay, 1919-28, estimated for teachers and principals separately from other employees, are the product of the number and the average pay. The per capita pay figures of principals and teachers and of other employees, as derived from 1929 data, are extrapolated for 1919-28 by the average pay of teachers, supervisors, and principals in public day schools.

b) *Non-Catholic schools:* the pay of teachers and principals and of other employees is the product of the number and the average pay. The average salary used for teachers and principals in 1930 is that in public elementary schools, derived by applying, to the

salary figures for all public day schools, the ratio of pay in elementary schools to that in all public schools as computed from sample data from the Office of Education. Since the total and the sample for other years do not agree as closely as in 1930, the sample data for the other years are not used. Average pay in 1930 is extrapolated for other years by the average pay of teachers, supervisors, and principals in public day schools. The average salary of other employees is estimated by applying to the average salary of similar employees in public elementary and high schools the 1930 ratio of the average salary of teachers in non-Catholic elementary schools to the average salary of teachers in public elementary and high schools.

2) *Secondary schools*: estimated by the procedure outlined in (1).

3) *Commercial schools*: total salaries are estimated by multiplying the number of employees by the average pay. The average pay of teachers and administrative employees for 1929 and later years is derived from the Bureau of Foreign and Domestic Commerce questionnaire survey of commercial schools, as is the average pay of other employees. The former is extrapolated for the earlier years by the average pay of teachers and administrative employees in public elementary and secondary schools. To extrapolate the average pay of other employees, the average pay of similar employees in public elementary and secondary schools is used.

4) *Correspondence schools*: from the preliminary series on the number of employees and total salaries for 1929 and later years, obtained from questionnaires sent to correspondence schools by the Bureau of Foreign and Domestic Commerce, National Income Division, per capita pay is derived. The 1929 figure is extrapolated to 1919 by the average pay of employees in commercial schools. Total salaries are the product of the number of employees and the average salary.

5) *Higher education*: for the methods for school years see those outlined in the notes on wages and salaries in *public* higher education (Table G 2, col. 9). Basic materials, for even years, are from the *Biennial Survey of Education*. Interpolations are along a straight line. The ratios used to separate expenditures into salaries and other expenses are those for land-grant colleges. The index by which the average salary of the teaching staff is extrapolated from 1930 to other years is that for public universities. For 1934 the

salaries of 'other' employees and of those in libraries are obtained by multiplying the number by the average pay. The average pay of 'other' employees is assumed to be the same as in public elementary and secondary schools. For library employees the average pay is the 1932 figure extrapolated by the average pay of the faculty. Total salaries in higher education are extrapolated from 1936 through 1938 by the totals prepared by the Bureau of Foreign and Domestic Commerce, National Income Division.

6) *Special schools*: estimates for school years are made similarly to those for public special schools, the average pay figures being identical (see the notes to Table G 2, col. 9).

Col. 2 Religious service: total salaries of Catholic clergymen, including payments in kind, for 1929 and later years, from the Bureau of Foreign and Domestic Commerce, National Income Division. For other clergymen for the same period and for all clergymen before 1929, they are estimated by multiplying the number (see Table S 9, col. 2) by the estimated average salary. The average salary of non-Catholic clergymen in 1929 is derived from data on salaries and number of clergymen in the Protestant Episcopal Church, obtained from the Church Pension Fund; in the Methodist Episcopal Church, South, from their Publishing House; in the Congregational and Christian Churches, from the Bureau of Foreign and Domestic Commerce, National Income Division; and in the Methodist Episcopal Church, from the Editor of the *General Minutes*. The data for the Protestant Episcopal, the Methodist Episcopal, South, and the Methodist Episcopal Churches are available for the entire period; those for the Congregational Church, for 1929-38, and those for the Christian Churches, for 1929-31. An index of the average salary, computed on the basis of this material, is used to extrapolate the 1929 average salary of non-Catholic clergymen for later years and the average salary of all clergymen for the years before 1929.

Col. 3 Curative service: sum of estimates for (1) physicians' and surgeons' assistants, (2) dentists' assistants, (3) employees in private hospitals. For the employee series referred to below see the notes to Table S 9, col. 3.

1) *Physicians' and surgeons' assistants*: total salaries are estimated by multiplying the number of employees by the average pay. Average pay for 1929 and later years is derived from the questionnaire

survey by the Bureau of Foreign and Domestic Commerce, National Income Division. The 1929 average is extrapolated for 1919-28 by the average salary in manufacturing, mining, steam railroads, Pullman, and railway express.

2) *Dentists' assistants*: estimates prepared by the method outlined in (1) above.

3) *Hospitals*: from the figures for 1935 on the annual expense and the percentage that the annual payroll is of total expense for various groups of hospitals, obtained from the files of the Bureau of Public Health Service by the Bureau of Foreign and Domestic Commerce, National Income Division, total cash salaries were derived. From data from the same source for one month on the number and average pay of full- and of part-time employees, the average maintenance cost per full- and per part-time paid employee, and the number and average maintenance cost per employee receiving only maintenance we estimated the total payroll including an allowance for maintenance for the given month. The ratio of the annual payroll to the payroll for the one month is derived and applied to the payroll, including the allowance for maintenance for the month, to yield the total payroll, including maintenance, for hospitals in 1935. This 1935 figure is extrapolated forward to 1938 and back to 1934 by total salaries as estimated by the Bureau of Foreign and Domestic Commerce, National Income Division.

For 1919-33, the 1934 figure is extrapolated by a preliminary series obtained by adding, to estimated wages and salaries, the estimated cost of maintenance. The wage and salary item is estimated by multiplying the number of beds by wages and salaries per bed. The number of beds in 1927 and later years is a total of the number in non-government hospitals and those in non-registered hospitals as reported in the annual Hospital Number of the *Journal of the American Medical Association*. From the Journal for the earlier years total beds in 1918, 1920, and 1923 are available, as is the number in non-government hospitals in 1923 and 1924. The bed capacity of non-registered hospitals is assumed to be negligible in these years. On the basis of the 1923 ratio of non-government to total hospital beds non-government beds in 1918 and 1920 are estimated. For 1919, 1921, 1922, 1925, and 1926 interpolation is along a straight line. Salaries and maintenance cost per bed,

1929-34, are from the questionnaire survey of the Bureau of Foreign and Domestic Commerce, National Income Division. The 1929 figure for salaries per bed is extrapolated to 1919 by the index of the salaries per bed in New York hospitals. The New York data are derived from figures on the number of beds and total wages and salaries in the *Annual Report of the New York State Board of Social Welfare*. Total maintenance cost, estimated for 1929 and later years by multiplying the number of beds by the maintenance cost per bed, is extrapolated to 1919 by the 1929 ratio to wages and salaries.

Col. 4 Other professional service: sum of estimates for (1) lawyers' employees and (2) employees in miscellaneous professional service. Total salaries are estimated by multiplying the number of employees (see the notes to Table S 9, col. 4) by the average salary.

1) *Lawyers' employees:* professional salaries are estimated separately from non-professional. For 1929-38 average salaries are those derived by the Bureau of Foreign and Domestic Commerce, National Income Division, from questionnaire returns. Both series are extrapolated to 1919 by the average salary in manufacturing, mining, steam railroads, Pullman, and railway express.

2) *Miscellaneous professional employees:* the average salary for 1929 and later years is the average of the per capita salaries of physicians' and surgeons' assistants, dentists' assistants, and lawyers' non-professional employees. The 1929 average is extrapolated for the earlier years by the average salary in manufacturing, mining, steam railroads, Pullman, and railway express.

Col. 5 Hotels: sum of estimates of (1) cash wages and salaries, (2) gratuities, (3) payments in kind. For the employee series referred to below see the notes to Table S 9, col. 5.

1) *Cash wages and salaries:* salaries and wages for all year-round hotels and for a sample of seasonal hotels, for 1933 from the *Census of American Business* and for 1935 from the *Census of Business*. The 1929 *Census of Hotels* covers year-round and seasonal hotels of 25 rooms or more. The payroll of year-round hotels of 25 rooms or more, interpolated between 1929 and 1933 by the BLS payrolls index, is raised to the total for year-round hotels for those years by the 1933 ratio of the payroll of all year-round to that of hotels with 25 rooms or more. The 1929 ratio of the payroll for seasonal hotels of 25 rooms or more to the payroll for year-round hotels of

25 rooms or more is applied to the payroll for the latter to obtain the estimated payroll for seasonal hotels of 25 rooms or more, 1929-33. On the basis of the sample data in the 1933 Census the ratio of the payroll of seasonal hotels of less than 25 rooms to that of seasonal hotels of 25 rooms or more is derived and applied to the estimate of the payroll for seasonal hotels of 25 rooms or more, 1929-33, to obtain the payroll of seasonal hotels of less than 25 rooms, 1929-33. The total for all hotels, 1929-33, is the sum of the parts. The payroll figure for all hotels is interpolated between 1933 and 1935 by the BLS payrolls index, which is used also to extrapolate the 1935 figure through 1938.

For the years before 1929 total payrolls are the product of the number of employees and the average pay. Average pay, as computed for 1929, is extrapolated to 1919 by the average pay of Ohio hotels (from BLS Bulletin 613). For 1922, when no Ohio data are available, the estimate is interpolated along a straight line between 1921 and 1923.

2) *Gratuities*: estimated for 1928 and later years at 10 per cent of the total receipts of hotels (based on the data reported in the 1933 *Census of American Business* and in the 1935 *Census of Business*). Receipts as reported are raised by the ratio of total payroll to the payroll of those reporting receipts. For 1929 receipts for both year-round and seasonal hotels of 25 rooms or more are reported in the *Census of Hotels*. Total receipts for all year-round hotels are estimated on the assumption that the percentage change from 1929 to 1933 in the ratio of receipts to payrolls in all year-round hotels is the same as for year-round hotels of 25 rooms or more. The same procedure is followed for all seasonal hotels with the further assumption that the 1933 data for those seasonal hotels reporting payrolls and receipts are representative of all seasonal hotels. Estimates for 1928, 1930-32, 1934, and 1936-38 are interpolated between and extrapolated from the resulting totals for 1929, 1933, and 1935 by the index of total sales given in *Hotel Operations in 1938* (Horwath and Horwath). For the years before 1928 gratuities are extrapolated by wages and salaries.

3) *Payments in kind*: sum of estimates for (a) board and (b) lodging.
a) *Board*: the 1935 *Census of Business* reports the number of meals served to employees in year-round hotels of 25 rooms or more and the number of employees receiving 1, 2, or 3 meals a day.

The total of meals served to employees is derived and divided by the estimated number of full-time employees to yield the number of meals per day per full-time employee. This figure divided by 3 (the number of meals in a full board allowance) is the proportion of employees receiving full board. This ratio applied to the estimate of full-time employees in 1929 and later years yields the total receiving full board. Multiplying the result by the estimated annual value of board per person (see the notes to Table S 3, col. 3) gives the total value of board received in 1929 and later years.

The 1929 figure is divided by total employees to yield the per capita board figure, which is extrapolated to 1919 by the BLS index of the cost of food. Total value of board received, 1919-28, is the product of the number of employees and the computed per capita board allowance.

b) Lodging: the 1935 *Census of Business* reports also the number of employees in year-round hotels of 25 rooms or more who receive lodging. The ratio of the number receiving lodging to the total in the group is applied to the estimated number of employees in all hotels to obtain the total receiving lodging. Multiplying the value of lodging per person (see the notes to Table S 3, col. 3) by the estimated number receiving lodging yields the estimated total value of lodging received by hotel employees in 1929 and later years.

The 1929 value per employee is derived and extrapolated to 1919 by a weighted average of BLS indexes of rent, fuel and light, and house furnishings. The weights are those used by the Bureau of Labor Statistics in obtaining their composite cost of living index. Total value of lodging, 1919-28, is the product of the number of employees and the derived per capita value.

Col. 6 Restaurants: sum of estimates of (1) cash wages and salaries, (2) gratuities, (3) payments in kind. For the employee series referred to below see the notes to Table S 9, col. 6.

1) Cash wages and salaries: for 1929, 1933, and 1935, from the *Census of Retail Distribution*. The 1929 figure is adjusted to include salaries paid to employees in central administrative offices by a method similar to that used for the trade estimates (see the notes to Table T 4, col. 2). Estimates for intercensal years and for 1936-38 are based on the sales figures prepared by the Bureau of Foreign and Domestic Commerce, Marketing Research Division;

and the ratio of payrolls to sales, computed for Census years and interpolated and extrapolated by the corresponding ratio for retail trade.

For the years before 1929 compensation is estimated by multiplying the number of employees by the average annual pay. Average pay is computed for 1929 and extrapolated by the average pay in Ohio restaurants (from BLS Bulletin 613). Since no Ohio data are available for 1922 the estimate for that year is by straight line interpolation between 1921 and 1923.

2) *Gratuities*: for 1929 and later years, estimated to be 10 per cent of receipts from the sale of meals in restaurants and eating places reported for 1929 in the *Census of Retail Distribution* and estimated for later years by applying, to the estimated total sales for the respective years, the 1929 ratio to total sales (*Domestic Commerce*, Feb. 20, 1940). For the years before 1929 gratuities are assumed to move similarly to cash wages and salaries.

3) *Payments in kind*: the 1929 per capita food allowance is estimated to be 2 meals a day costing 30 cents each. This per capita figure is extrapolated for the other years by the BLS index of the cost of food. The total food allowance is the product of the number of employees and the estimated per capita allowance.

Col. 7 Power laundries, and cleaning and dyeing establishments: sum of estimates of (1) wages and (2) salaries. For the employee series referred to below see the notes to Table S 9, col. 7.

1) *Wages*: for the odd years 1919-35, from the *Census of Power Laundries, Cleaning and Dyeing Establishments, and Rug Cleaning Establishments*. The 1933 Census figure is raised to allow for incomplete coverage on the basis of the estimated percentage of wage earners not reported in that year (see the *Census of Power Laundries*, 1933). Interpolation for 1932 and 1934 and extrapolation for 1936-38 are by the BLS payrolls index. For interpolation between 1919 and 1925, 1927 and 1931, weighted averages of the indexes of payrolls for Pennsylvania, Ohio, New York, and Massachusetts are used; for 1926, data for Pennsylvania, Ohio, and New York. The Pennsylvania data are actual wage figures given annually in the *Pennsylvania Report on Productive Industries, Public Utilities and Miscellaneous Statistics*. The Ohio data are actual wage figures from BLS Bulletin 613 except for 1922, which is estimated by multiplying the reported number of wage earners by the

average wage (the latter a straight line interpolation between 1921 and 1923). The New York data are indexes published by the New York State Department of Labor in Special Bulletin 171. Wages in Massachusetts laundries are from a special tabulation supplied by R. F. Phelps, Director of Statistics. The weights used in combining the state data are the Census figures on wages in 1925.

2) *Salaries*: for 1919, 1925, 1927, 1929, 1933, and 1935, from the Census. The 1933 salaries, as reported in the Census, exclude those of principal salaried officers, which are estimated on the basis of the 1935 ratio of salaries of principal officers to other salaries. Other salaries in 1933 are first adjusted by the procedure followed in raising wages in that year. Estimates for intercensal years and 1936-38 are the product of the number of salaried workers and the estimated average salary. The average salary is computed for Census years and interpolated for other years by the average salary in Pennsylvania and Ohio. The state data are from the sources mentioned above.

Col. 8 Other personal service: all groups covered under the personal service category in the 1933 *Census of American Business* and the 1935 *Census of Business*. The entries are sums of estimates of (1) cash wages and salaries, (2) gratuities. For the employee series referred to below see the notes to Table S 9, col. 8.

1) *Cash wages and salaries*: the *Census of Business* reports total figures for 1935. The *Census of American Business* reports partial figures for 1933. The 1933 data for barber shops, beauty shops, cleaning and dyeing establishments, shoe repair and shoe shine shops are assumed comparable with those for 1935. The percentage change in their totals from 1933 to 1935 is applied to the 1935 figure for photographic studios to yield a 1933 figure, since the 1933 figure as reported for that field is definitely an understatement. The same procedure is followed in estimating payrolls of rug cleaning shops in 1933 since no information is given for that industry in that year. For all other personal service groups the total payroll as reported for 1933 is used.

For all other years total pay is estimated by multiplying the number of employees by the average pay. Average pay, computed for 1933 and 1935 from Census data, is extrapolated for the other years by the average wage of Ohio barbers and hairdressers. The

Ohio data for the years before 1932 are from BLS Bulletin 613; for later years they are obtained directly from the Ohio Division of Labor Statistics.

2) *Gratuities*: for 1933 and 1935 estimated to be 5 per cent of the total receipts of barber shops, beauty shops, and shoe shine parlors. Receipts are from the 1933 *Census of American Business* and the 1935 *Census of Business*. The 1935 Census, however, combines data for shoe shine and shoe repair shops. We assume that the distribution of total receipts in these two fields is the same in 1935 as in 1933. Gratuities for other years are estimated by applying to total payrolls the ratio of gratuities to payrolls. This ratio, computed from Census data in 1933 and 1935, is interpolated along a straight line for 1934. For the years before 1933 the 1933 ratio is used; for 1936-38, the 1935 ratio.

TABLE S 5

Wages and Salaries by Minor Industrial Subdivisions

Col. 1-3 Physicians' and surgeons' assistants, dentists' assistants, employees in private hospitals: see the notes to Table S 4, col. 3.

Col. 4 Lawyers' employees: see the notes to Table S 4, col. 4.

Col. 5 Miscellaneous professional service: see the notes to Table S 4, col. 4.

Col. 6-8 Advertising, recreation and amusement, and automobile repair shops and garages: see the notes to Table S 3, col. 4.

TABLE S 6

Entrepreneurial Net Income by Major Industrial Divisions

Col. 1 Curative: sum of estimates for (1) physicians and surgeons, (2) dentists, (3) trained nurses, private duty, (4) osteopaths, (5) veterinarians, (6) other curative service. The net income for each subgroup is estimated by multiplying the number of entrepreneurs (see the notes to Table S 11, col. 1) by the average net income.

1) *Physicians and surgeons*: average net income, 1929-36, is that prepared for the National Bureau of Economic Research study of professional incomes. The 1937 figure is extrapolated from 1936 by the index of dentists' income prepared by the Bureau of Foreign and Domestic Commerce, National Income Division. The

1938 average is assumed to be the same as the 1937. For 1919 it is that given in 'Financial Considerations of the Average Doctor' (*Canadian Medical Association Journal*, Feb. 1922). Interpolation between 1919 and 1929 is by the average of the indexes of per capita net income of entrepreneurs in the chemical manufacturing group and of per capita salary in universities.

2) *Dentists*: average net income, 1929-34, is that prepared for the National Bureau of Economic Research study of professional incomes. It is extrapolated to 1937 by the average income of non-salaried dentists as derived from the survey conducted by the Bureau of Foreign and Domestic Commerce, National Income Division, summarized in the *Survey of Current Business*, April 1939. The 1938 average is assumed to be the same as the 1937. The 1929 figure is extrapolated to 1919 by the per capita net income of physicians and surgeons. Net income from private practice of part-salaried dentists also is based on the National Income Division study.

3) *Trained nurses, private duty*: it is assumed that the entire net income is withdrawn. The withdrawal series is described in the notes to Table S 1, col. 2.

4) *Osteopaths*: average net income for 1929, 1933, 1935-38 is that for non-salaried osteopathic physicians as derived from the survey conducted by the Bureau of Foreign and Domestic Commerce, National Income Division, summarized in the *Survey of Current Business*, April 1939. Interpolation and extrapolation for other years are by the average of per capita net income of physicians and surgeons and of dentists.

5) *Veterinarians*: average net income for 1930, from the *Report of the Committee on Education* (American Veterinary Medical Association, 68th meeting). It is extrapolated for all other years by the average of per capita net income of physicians and surgeons and of dentists.

6) *Other curative service*: chiropractors and other healers. Their 1929 average income is the average for masseurs, religious healers, and chiropractors as given by the Committee on the Costs of Medical Care. Extrapolation for other years is by the average of per capita net income of physicians and surgeons and of dentists.

Col. 2 Other professional service: sum of estimates for (1) private education, (2) lawyers, (3) engineers, (4) entrepreneurs in miscel-

laneous professional fields. Except when indicated, the net income for each subgroup is estimated by multiplying the number of entrepreneurs (see the notes to Table S 11, col. 2) by the average net income.

1) *Private education*: net income is estimated by the procedure outlined below for personal service (col. 4).

2) *Lawyers*: average net income, 1929-36, is that prepared for the National Bureau of Economic Research study of professional incomes. The 1937 estimate is based on the assumption that the percentage change from 1936 to 1937 is the same as from 1935 to 1936. Average net income for 1938 is assumed to be the same as for 1937. It is extrapolated for 1919-28 by the average of per capita income of physicians and surgeons and of dentists.

3) *Engineers*: includes engineers who are employees in the professional service field, but since employers cannot be separated from employees and since independent practitioners predominate, the incomes of both are covered here. The average net income of independent engineers, 1929-32, is from the National Bureau of Economic Research study of professional incomes. The 1919 average is that given in the *Report of the Committee on Classification and Compensation of Engineers* (Engineering Council, Dec. 15, 1919). The median incomes of owners and of owners and employees are given in '1930 Earnings of Mechanical Engineers', *Mechanical Engineering*, September, November, and December 1931. The ratio of the latter to the former is applied to the net income of independent engineers, yielding the average net income of all engineers for 1919 and 1929-32. Estimates for all other years are interpolated and extrapolated by the average of per capita net income of physicians and surgeons and of dentists.

4) *Miscellaneous professions*: average net income for 1929 and later years is the average of per capita income of physicians and surgeons, dentists, osteopaths, veterinarians, other curative professionals (excluding trained nurses), lawyers, and engineers. The 1929 figure is extrapolated to 1919 by the average of per capita net income of physicians and surgeons and of dentists.

Col. 3 Total professional: sum of col. 1 and 2.

Col. 4 Personal: sum of withdrawals (see the notes to Table S 1, col. 2) and savings (see the notes to Table S 2, col. 2).

Col. 5 Miscellaneous: sum of estimates for (1) advertising, (2) recre-

ation and amusement, (3) hand trades. For the series on entrepreneurs referred to below see the notes to Table S 11, col. 5.

1) *Advertising*: net income is estimated by multiplying the number of entrepreneurs by the average net income. Average net income for 1930-32, obtained by letter from the American Association of Advertising Agencies, is extrapolated for other years by the average of per capita income of physicians and surgeons and of dentists.

2) *Recreation and amusement*: estimated by the procedure described above for personal service.

3) *Hand trades*: it is assumed that the entire net income is withdrawn. The withdrawal series is described in the notes to Table S 1, col. 2.

Col. 6 Total: sum of col. 3-5.

TABLE S 7

Entrepreneurial Net Income by Minor Industrial Divisions

Col. 1-4 Physicians and surgeons, dentists, trained nurses, and other curative service: see the notes to Table S 6, col. 1.

Col. 5-7 Lawyers, engineers, and other professionals: see the notes to Table S 6, col. 2.

Col. 8-10 Advertising, recreation and amusement, and hand trades: see the notes to Table S 6, col. 5.

TABLE S 8

Employees by Major Industrial Divisions

Col. 1 Professional: see the notes to Table S 9, col. 1-4.

Col. 2 Personal: see the notes to Table S 9, col. 5-8.

Col. 3 Domestic: for 1929 and later years, sum of estimates for chauffeurs; cooks, male; cooks, female; housekeepers and stewards; laundresses; nurses (not trained); waiters; waitresses; and other servants. The number gainfully occupied in 1930 for each occupation is from the industrial classification of 'domestic and personal service' in the 1930 *Census of Population*, Vol. V, Ch. 7. To the number gainfully occupied is applied the ratio of the number employed to it. The ratio used is that prepared by Robert R. Nathan, formerly of the Bureau of Foreign and Domestic Commerce, National Income Division. The resulting number employed

is extrapolated to 1929 and later years by the index of employment in domestic service, also prepared by Mr. Nathan.

The number gainfully occupied in 1930 is extrapolated to 1920 by representative occupations reported for 1920 and 1930 in the 1930 Census, Vol. V, Ch. 1. For example, the number of chauffeurs attached to domestic service in 1930 is from the Census, as is the total of chauffeurs, draymen and teamsters in 1920 and 1930. The percentage change in the latter from 1920 to 1930 is applied to the 1930 figure for chauffeurs gainfully occupied in domestic service to yield the estimated number gainfully occupied in 1920. The same procedure is followed for each occupation. The sum of the estimates for the various occupations yields the total gainfully occupied in domestic service in 1920, which the number actually employed in 1920 is assumed to equal.

The estimates of the total employed in 1919 and 1921-28 are extrapolated from 1920 and interpolated between 1920 and 1929 by a preliminary series, derived as follows: Extrapolating the 1929 payroll by consumer goods in 1929 prices (*Commodity Flow and Capital Formation*, Vol. One) yields an estimate of domestic pay in 1929 prices. This series is converted to pay in current prices by applying the index of the average pay in domestic service. Total pay, in current prices (see the notes to Table S 3, col. 3), divided by the estimated average pay yields the preliminary estimate of domestic employees.

Col. 4 Miscellaneous: sum of estimates for (1) advertising, (2) recreation and amusement, (3) automobile repair shops and garages.

1) *Advertising*: the total of employees attached to advertising in 1930 is reported in the 1930 *Census of Population*, Vol. V, Ch. 7. The number actually employed is computed by applying the ratio of employment to attachment in banking, brokerage, insurance and real estate, derived from Mr. Nathan's figures on employment and unemployment (*International Labour Review*, Jan. 1936). The number actually employed in 1930 is extrapolated to 1919 by the series on magazine and newspaper advertising lineage (*Survey of Current Business*). It is extrapolated for the years after 1930 by the *Printers' Ink* index of advertising (*Survey of Current Business*).

2) *Recreation and amusement*: sum of estimates for (a) motion picture production, (b) theatres, (c) other recreation and amusement.

a) *Motion picture production*: sources and methods are those indicated for the wage and salary estimates described in the notes to Table S 3, col. 4. The 1931 figure is estimated by dividing the estimated payroll by the average compensation of 'productive employees' covered in the Census for that year.

b) *Theatres*: number of full-time employees in 1933 and 1935, derived from *Census of American Business* and *Census of Business* data. For 1933 data are recorded separately for full- and part-time employees. Part-time employment is equated to full-time by dividing the total part-time payroll by the average full-time pay. For 1935 the figures, as reported, are combined totals for full- and part-time. From Census data for one week, showing full-time and part-time separately, the ratio of the average full-time pay to the average full- and part-time pay is derived and applied to the average full- and part-time pay for the year to yield the estimated average full-time pay. The number of employees in theatres covered by the Census is derived by dividing the total payroll reported by the estimated full-time pay.

For all other years employees are estimated by multiplying the number of theatres by the number of employees per theatre. The number of moving picture and vaudeville theatres open in 1922, 1925, and 1928 is from the Bureau of Foreign and Domestic Commerce, Motion Picture Division; for 1929, from WPA files; and for later years, from the Film Boards of Trade. The number of motion picture and vaudeville theatres in 1919-21 is extrapolated from 1922 by the number of theatres in Ohio. The number in 1923, 1924, 1926, and 1927 is by straight line interpolation. The number of legitimate theatres reported in the Census is assumed to be the total. The 1933 figure is extrapolated to 1928 by the number of moving picture and vaudeville theatres. For 1919-27 the 1928 figure is used. The 1934 figure is by straight line interpolation between the Census dates; those for 1936-38 are assumed to remain at the 1935 level. The number of employees per theatre is computed for 1933 and 1935 on the basis of the number of theatres covered in the Census and is extrapolated for other years by the corresponding figure for Ohio theatres. The Ohio data for the years through 1932 are from BLS Bulletin 613; those for later years, from the Ohio Division of Labor Statistics.

c) *Other recreation and amusement*: difference between the total

for all recreation and amusement and the estimated total for motion picture production and theatres combined. The total number attached to the industry in 1930 is the sum of those classified under recreation and amusement and under radio broadcasting in the 1930 *Census of Population*, Vol. V, Ch. 7. The number attached to the industry in 1920 is estimated by applying to the 1930 figure the percentage change from 1920 to 1930 in representative occupations reported in the Census. The number of entrepreneurs is deducted and the balance is adjusted for unemployment to yield the number of employees actually engaged in the field. The 1930 unemployment ratio is that derived by Mr. Nathan for recreation and amusement, data for which appear in the *International Labour Review*, January 1936. The number engaged in 1930 is extrapolated to 1929 and later years by the number of employees in moving picture production and in theatres. The number engaged in 1920 is derived from the number attached and the 1929 ratio of employment to attachment as computed from Mr. Nathan's figures on employment and unemployment in the field. Interpolation for 1921-28 and extrapolation to 1919 are by the number of employees in moving picture production and in theatres.

3) *Automobile repair shops and garages*: entrepreneurs in the field are included. The number gainfully occupied in auto repair shops in 1930 is that recorded in the 1930 *Census of Population*, Vol. V, Ch. 7. The number engaged is computed by applying, to the number gainfully occupied, the ratio of employment to attachment in the field, derived from Mr. Nathan's estimates of unemployment (*International Labour Review*, Jan. 1936). The number engaged in 1919 is from the *Biennial Census of Manufactures*. In addition to the number gainfully occupied in auto repair shops, the number gainfully occupied in garages, greasing stations, and auto laundries is reported for 1930. It is estimated for 1920 by applying to the 1930 figure the percentage change from 1920 to 1930 in representative occupations reported for both years in the 1930 *Census of Population*, Vol. V, Ch. 1. The number attached in 1920 is assumed to be actually engaged.

Both series, that for auto repair shops and that for garages, etc., are extrapolated and interpolated for all other years by the annual figures on total automobile registrations reported in *Automobile*

Facts and Figures. The sum of the two items gives the total engaged in the field. The larger firms, however, are covered in retail trade, data for which are reported for 1929, 1933, and 1935 in the *Census of Retail Distribution*. The ratio of those covered in retail trade to the total is computed for Census years and interpolated along a straight line for the intervening years. For 1919-28 the 1929 ratio is used; for 1936-38, the 1935 ratio. The application of the ratio to the total engaged yields the estimated number covered in trade. The balance is assumed to be the number in the service industry.

Col. 5 Total: sum of col. 1-4.

TABLE S 9

Employees by Minor Industrial Divisions

Col. 1 Private education: sum of estimates for (1) elementary schools, (2) secondary schools, (3) commercial schools, (4) correspondence schools, (5) higher education, (6) special schools. Figures for school years are adjusted to a calendar year basis by weighting the current year figure, 2, and that for the following year, 1.

1) *Elementary schools:* sum of estimates for school years for (a) Catholic, (b) non-Catholic.

a) *Catholic schools:* the number of principals and teachers for the even years since 1920 is from the National Catholic Welfare Conference of Directors of Catholic Colleges and Schools. The 1920 figure is extrapolated to 1918 by the number in all private elementary schools (*Biennial Survey of Education*). Estimates for all other years are by straight line interpolation. The number of other employees in 1929-35 is estimated on the basis of their ratio to the number of principals and teachers, derived from a special survey of Catholic dioceses by the Bureau of Foreign and Domestic Commerce, National Income Division. For 1919-28 the 1929 ratio is used; for 1936-38, the 1935 ratio.

b) *Non-Catholic:* the number of principals and teachers in 1932 and 1936 is from the United States Office of Education. The figures reported for other years are incomplete and therefore not used. Interpolation between and extrapolation of the 1932 and 1936 figures are by the corresponding estimates of principals and teachers in Catholic schools. The number of other employees is obtained

by applying to the number of principals and teachers the ratio for Catholic schools of other employees to principals and teachers.

2) *Secondary schools*

a) *Catholic*: the National Catholic Welfare Conference of Directors of Catholic Colleges and Schools provided figures for 1915 and for the even years since 1920. Estimates for the other years are by straight line interpolation. The number of other employees is estimated by the method indicated above for other employees in Catholic elementary schools.

b) *Non-Catholic*: the figures for principals and teachers in 1926, 1928, 1932, and 1936 are from the United States Office of Education. The estimates of teachers and principals for other years and those of other employees in all years are derived by the method indicated above for employees in non-Catholic elementary schools.

3) *Commercial schools*: partial data on the number of instructors are available for various years from Statistics of Private Commercial and Business Schools in the *Biennial Survey of Education*. For 1918, 1920, and 1933 we have the total number of schools canvassed, the number replying to the questionnaire, and the number not replying. For 1918 and 1920 the number of schools canvassed is assumed to be the total in existence. For 1933 we have also the number of those replying that have been discontinued since the previous canvass (in 1929) and the number that have been organized. The ratio of the number discontinued to total replies, applied to the total canvassed, yields the estimated total discontinued. The number in existence is assumed to equal the difference between the total canvassed and the estimated number discontinued. The ratio of the number organized since 1929 to total replies, applied to the number canvassed, yields the estimated total organized. The number of schools in existence in 1929 is the difference between the total canvassed in 1933 and the estimated number organized since 1929. Estimates of total schools in existence in other years are by straight line interpolation.

For 1918, 1920, 1925, 1929, and 1933 from the source cited above we have the number of schools reporting instructors. For 1925, 1929, and 1933 we have also the number of schools with 100 or more students and the number of their instructors. It is assumed that the schools not reporting are smaller; therefore instructors in schools not reporting are estimated by applying to the number

of schools the estimated number of instructors per school with fewer than 100 students. The latter figure, computed for 1925, 1929, and 1933 from the source cited above, is extrapolated to 1918 and 1920 by the number of instructors per school for all reporting schools. The total of instructors is the sum of the number reported and the estimate for schools not reporting. For 1922 we have the number of instructors reported but no comparable figure for the number of schools. The number of instructors reported is raised to the total by the ratio of the estimated total of instructors to the number reported in 1920 and 1925, interpolated along a straight line.

We now have estimates of the number of instructors for 1918, 1920, 1922, 1925, 1929, and 1933. Interpolation for 1919, 1921, 1923, 1924, 1926-28 is along a straight line. Interpolation between 1929 and 1933 and extrapolation through 1937 are by the number of administrative and teaching employees derived from a questionnaire survey by the Bureau of Foreign and Domestic Commerce, National Income Division. From the same survey the ratio of the number of other employees to the number of instructors is derived for 1929 and later years. This ratio applied to the estimated number of instructors yields an estimate of other employees. For 1919-28 the 1929 ratio is used. The total of employees is assumed to be the same in 1938 as in 1937.

4) *Correspondence schools*: the estimates for 1929 and later years are those prepared by the Bureau of Foreign and Domestic Commerce, National Income Division. The 1929 figure is extrapolated to 1919 by the number of employees in commercial schools.

5) *Higher education*: the number on the faculty for school years in even years through 1934 is from the *Biennial Survey of Education*. Estimates for other years before 1934 are interpolated along a straight line. The number engaged in library and research work is estimated for 1919-32 by dividing their estimated salaries by an average salary assumed to equal the average for the faculty. For 1934 the number is extrapolated from 1932 by the number of faculty employees; for 1933, along a straight line. The number of other employees is estimated for the years through 1932 by dividing their salary bill by the average salary paid similar employees in public elementary and secondary schools. The 1934 figure is obtained by the procedure used in estimating library workers; the

1933, by interpolating along a straight line. The total of employees for the years after 1934 is extrapolated by the number derived by the Bureau of Foreign and Domestic Commerce, National Income Division.

6) *Special schools*: the estimates of employees in private special schools are made similarly to those for public special schools, the index used to extrapolate the data for 1932 and later years being identical.

Col. 2 Religious service: the total of clergymen in 1920 and 1930 is from the 1930 *Census of Population*, Vol. V, Ch. 1.

Annual figures on Catholic clergymen are from the *Official Catholic Directory* and its editor. The number of non-Catholic clergymen is estimated for 1920 and 1930 by subtracting Catholic clergymen from the total. Extrapolation and interpolation for other years are by the number in the various denominations. For 1919-30 the number of clergymen in the Protestant Episcopal, Methodist Episcopal, South, Methodist Episcopal, Presbyterian, and American Baptist Churches is used as index. The figures for the Protestant Episcopal Church are from the Church Pension Fund. Those for the Methodist Episcopal Church, South, are from the editor of their *Yearbook*. Those for the Methodist Episcopal Church are from the editor of the *General Minutes* of the Methodist Episcopal Church. Those for the Presbyterian Church are from the office of the General Council of the Presbyterian Church in the United States. Those for the Baptist Church are from the *American Baptist Yearbook*. From 1930 to 1931 the index is composed of the number of clergymen in the churches mentioned excluding the Baptist Church; and, in addition, those in the Congregational and Christian Churches (obtained by the Bureau of Foreign and Domestic Commerce, National Income Division). For 1931-34 the index is derived from data for the same denominations as for 1930-31, except the Christian Churches. For 1934 and later years, data for only the Protestant Episcopal, the Methodist Episcopal, South, the Congregational, and the Methodist Episcopal Churches are available.

Col. 3 Curative service: sum of estimates for (1) physicians' and surgeons' assistants, (2) dentists' assistants, (3) employees in private hospitals.

1) *Physicians' and surgeons' assistants*: the number in 1928 is the

estimate prepared by the Committee on the Costs of Medical Care. In all other years it is estimated by multiplying the number of physicians and surgeons (see the notes to Table S 11, col. 1) by the number of assistants per physician and surgeon. The ratio of assistants to private physicians and surgeons is computed for 1928. The ratio of physicians' and surgeons' attendants reported in the 1930 *Census of Population*, Vol. V, Ch. 1, to the estimated number of private practitioners is determined for 1920 and 1930. The intercensal year figures are interpolated along a straight line and the resulting series is used to extrapolate the 1928 ratio to 1920 and through 1929. The 1919 ratio is assumed to be the same as the 1920. The 1929 figure is extrapolated to 1936 by the number of assistants per physician and surgeon derived from the survey by the Bureau of Foreign and Domestic Commerce, National Income Division; to 1937 by the percentage change in the corresponding ratio for dentists. It is assumed to be the same in 1938 as in 1937.

2) *Dentists' assistants*: the number in 1920 and 1930, from the 1930 Census, Vol. V, Ch. 1. For 1919, 1921-29, and 1931-38 it is estimated by multiplying the number of dentists (see the notes to Table S 11, col. 1) by the number of assistants per dentist. The number of assistants per dentist is computed for 1920 and 1930. The 1930 figure is extrapolated through 1937 by the series derived from the survey by the Bureau of Foreign and Domestic Commerce, National Income Division. The number of assistants per dentist in 1938 is assumed to be the same as in 1937, and in 1929, as in 1930. Straight-line interpolation between 1920 and 1929 yields estimates for 1921-28. The 1919 figure is assumed to be the same as the 1920.

3) *Employees in hospitals*: from the files of the Bureau of Public Health Service the Bureau of Foreign and Domestic Commerce, National Income Division, obtained figures on employment for various groups of hospitals. Data for one month in 1935 are available for full-time employees, part-time employees, and the number receiving maintenance only. The number of part-time employees is equated to full-time on the assumption that full-time pay applies to both groups. Average full-time pay is obtained by dividing total full-time pay by the number of full-time employees. It is divided into total part-time pay to yield the estimated full-time equivalent of the number of part-time employees. Adding full-time, part-time, and maintenance employees yields the average number employed

during the month. The ratio of the annual payroll to the payroll for the month covered is divided by 12; the result applied to the average number of employees for the month yields the average number of employees for the year.

The resulting 1935 figure is extrapolated to 1929 by a preliminary estimate of the number of employees, which for 1929-34 is the product of the estimated number of beds (see the notes to Table S 4, col. 3) and the number of employees per bed (derived from the hospital survey by the Bureau of Foreign and Domestic Commerce, National Income Division, for 1929-34). The preliminary series is extrapolated to 1935 by an employment index derived by the Bureau of Foreign and Domestic Commerce, National Income Division, from data from the Ohio Hospital Association, the American Hospital Association, and the United Hospital Fund of New York. The final estimates for 1936-38 are derived by the method used by the Bureau of Foreign and Domestic Commerce, National Income Division.

Estimates for the years before 1929 are obtained by dividing total wages and salaries (see the notes to Table S 4, col. 3) by the annual pay. The latter is computed for 1929 and extrapolated to 1919 by the average pay in Ohio hospitals (BLS Bulletin 613). Annual pay in 1922, when no Ohio data are available, is an average of the 1921 and 1923 figures.

Col. 4 Other professional service: sum of estimates for (1) lawyers' employees and (2) employees in miscellaneous professional service.

1) Lawyers' employees: sum of estimates for (a) professional and (b) non-professional.

a) Professional: the number of lawyers in professional service in 1930, recorded in the 1930 *Census of Population*, Vol. V, Ch. 7, is extrapolated for later years by the index of the number of lawyers prepared by the Bureau of Foreign and Domestic Commerce, National Income Division, from data reported in the *Martindale-Hubbell Law Directory* and in various city directories. The 1930 figure is extrapolated to 1919 by an estimate of total lawyers, for which the number of lawyers in 1920 and 1930 as reported in the 1930 Census, Vol. V, Ch. 1, is used. Extrapolation of the 1920 figure to 1919 and interpolation between 1920 and 1930 are by the totals as estimated from data in *Martindale's American Law Directory*.

For 1932 and later years lawyers in professional service are sepa-

rated into those in independent practice and employees by the ratio of professional employees to entrepreneurs as derived from survey data collected by the Bureau of Foreign and Domestic Commerce, National Income Division. For the years before 1932 the average of the ratios for 1932-34 is applied. The resulting estimate of the number of lawyers who are employees is equated to the full-time number on the basis of the survey data. The ratio of full-time to full- and part-time employment is available, however, only for 1929-34. For 1935-38 the 1934 figure is used; for the years before 1929, an arbitrary ratio, slightly lower than that for 1929.

b) *Non-professional*: applying, to the number of independent lawyers (as described above), the ratio of non-professional employees to entrepreneurs yields the number of non-professional employees. The ratio for 1929 and later years is derived from the survey data. For the years before 1929 an arbitrary ratio, slightly lower than that for 1929, is used.

2) *Employees in miscellaneous professional fields*: difference between the total attached to professional service industries in 1930 (1930 *Census of Population*, Vol. V, Ch. 7) and the number covered in other service fields and in other industries. The comparable 1920 figure is extrapolated from 1930 by the number in occupations representative of the group as selected from the 1930 Census, Vol. V, Ch. 1. Of the total gainfully occupied in 1930 it is assumed that the following are self-employed or employers: architects, artists, authors, chemists, inventors, and teachers not in schools. The 1930 ratio of self-employed to all attached to miscellaneous professional service is computed and applied to the 1920 total of gainfully occupied to give the number of self-employed or employers. Extrapolation of and interpolation between the 1920 and 1930 figures for entrepreneurs are by an index of the number of physicians and surgeons, dentists, lawyers, engineers, and clergymen.

The number of employees attached to miscellaneous service in 1920 and 1930 is estimated by subtracting the estimated number of entrepreneurs from the total attached. The number of employees engaged in 1930 is estimated by applying to the number attached the ratio of employment to attachment as estimated for the professional group by Mr. Nathan. The number of employees engaged in 1929 and 1931 and later years is the product of the

number of entrepreneurs and of employees per entrepreneur, computed for 1930 and extrapolated for other years by the ratio of employees to entrepreneurs for physicians and surgeons, dentists, and lawyers combined. Employees engaged in 1920 are estimated on the assumption that unemployment was the same as in 1929. The total gainfully occupied in 1929 was estimated by the procedure outlined for domestic service employees. The number of employees per entrepreneur is computed for 1920, interpolated between 1920 and 1929, and extrapolated to 1919 by the index used in extrapolating the 1930 figure. The total employed is estimated by multiplying the number of entrepreneurs by the ratio of employees to entrepreneurs.

Col. 5 Hotels: sum of employees in year-round and seasonal hotels. For year-round hotels the number in 1933 is from the *Census of American Business*; in 1935, from the *Census of Business*. For 1933 and 1929 the number of employees in year-round hotels of 25 rooms or more is also reported. The 1929 figure is from the *Census of Hotels*. For hotels of 25 rooms or more, interpolation between 1929 and 1933, and for all year-round hotels, between 1933 and 1935, and extrapolation for 1936-38 are by the BLS employment index. The ratio of total employees to the number in hotels of 25 rooms or more is computed for 1933 and applied to the estimates for year-round hotels of 25 rooms or more, 1929-32, to yield total employment in all year-round hotels.

Employees in seasonal hotels in 1929 and later years are estimated by dividing the total payroll by the average pay for year-round hotels. The sum of employees in year-round and seasonal hotels is adjusted for part-time employment on the basis of data in the 1933 *Census of American Business*. For that year the full-time average pay in year-round hotels is derived; when divided into the total payroll it yields the estimated full-time employment. The ratio of full-time to full- and part-time employment is computed and extrapolated to 1929 and to 1935 by the corresponding ratio for restaurants. The 1936-38 ratio is assumed to be the same as the 1935. Its application to the estimated number of employees yields an estimate of full-time employment in 1929 and later years.

Total employees for the years before 1929 are estimated by multiplying the number of hotels by the estimated number of full-time employees per hotel. The number of hotels in 1920-29 is reported

in *Communication Agencies and Social Life* (Recent Social Trends Monograph, McGraw-Hill, 1933). The 1919 figure is assumed to be the same as the 1920. The number of employees per hotel is computed from Census data for 1929 and extrapolated to 1919 by the number of employees per hotel in Ohio (BLS Bulletin 613).

Col. 6 Restaurants: for 1929, 1933, and 1935, from the *Census of Retail Distribution*. For 1929 and 1933 full- and part-time employees are shown separately. The full-time equivalent of part-time employees is estimated by dividing the total part-time payroll by the average full-time pay. For 1935, when the combined figures for full- and part-time employment and payrolls alone are shown, average full-time pay is obtained by applying to average full- and part-time pay for the year the ratio of average full-time pay to average full- and part-time pay as derived from data for one week. Total full-time employment in 1935 is estimated by dividing the reported total payroll by this estimated full-time pay. The figure reported for 1929 is adjusted to include employees at central administrative offices by the method described in the notes to Table T 5. Estimates for intercensal years and for 1936-38 are obtained by dividing total employee compensation (see the notes to Table S 4, col. 6) by the estimated average pay. Average pay, computed for Census years, is extrapolated for other years by the average pay in hotels.

Employees in 1920 are estimated by applying, to the number of cooks and waiters gainfully occupied, the 1929 ratio of employees to the number of cooks and waiters gainfully occupied. The number of cooks and waiters in 1920 and 1930 is recorded in the 1930 *Census of Population*, Vol. V, Ch. 1. The 1929 figure is interpolated along a straight line. Interpolation of the number of employees between 1920 and 1929 is by total employees in Ohio restaurants as recorded in BLS Bulletin 613. The same index is used to estimate the 1919 figure.

Col. 7 Power laundries, and cleaning and dyeing establishments: sum of estimates of (1) wage earners and (2) salaried employees.

r) Wage earners: for 1919, 1925, 1927, 1929, 1931, 1933, and 1935, from the *Census of Power Laundries, Cleaning and Dyeing Establishments, and Rug Cleaning Establishments*. The 1933 Census figure is raised to allow for incomplete coverage by the estimated percentage of wage earners not reported in 1933 (see the 1933

Census). The BLS employment index is used to interpolate and extrapolate figures for 1932, 1934, and 1936-38. Interpolation between 1919 and 1925 is by weighted averages of the indexes of employment in Pennsylvania, Ohio, New York, and Massachusetts; between 1925 and 1927, by Pennsylvania, Ohio, New York, and Illinois data; between 1927 and 1931, by data for all five states. The Pennsylvania data are actual employment figures reported in the *Pennsylvania Report on Productive Industries, Public Utilities and Miscellaneous Statistics*. The Ohio data are actual employment figures reported in BLS Bulletin 613. The New York data are indexes recorded for 1919-21 in the *Labor Market Bulletin*, for 1921-30, in the New York Department of Labor Special Bulletin 171, and for 1931, in the *Industrial Bulletin*. The Massachusetts data are actual employment figures from a special tabulation by the Director of Statistics. The Illinois data are indexes recorded in the *Annual Report of the Department of Labor* of that state. The weights used in combining the state data are the Census figures on wage earners in 1925.

2) *Salaried employees*: total salaried employees also are reported for all Census years except 1931 and 1933. In 1933 the Census excludes principal salaried officers of corporations. The figure for other salaried employees is adjusted, in the manner in which wage earners are adjusted, to correct for incompleteness of coverage. Principal salaried officers are then obtained by applying to the estimate of other salaried employees the 1935 ratio of principal to other. For 1931 no data on salaried employees are available. Estimates for the intervening years are the product of the number of wage earners and the ratio of salaried employees to wage earners. The ratio is computed for Census years and interpolated and extrapolated for other years by the ratio for Pennsylvania and Ohio, derived from the sources cited above.

Col. 8 Other personal service: the basic figures are those reported in the 1933 *Census of American Business* and the 1935 *Census of Business*. The 1933 figures are raised by the procedure followed in raising wages and salaries (see the notes to Table S 4, col. 8). The 1933 total full- and part-time employment is adjusted to the full-time equivalent by adding to the number of full-time employees the estimate of the full-time equivalent of part-time employment, obtained by dividing the total part-time payroll by the average

full-time pay. The adjustment to full-time employment in 1935 involves applying to the total full- and part-time employment reported for the year the ratio of the full-time equivalent of employment to full- and part-time employment as derived from data for one week. The ratio for the week is obtained by adding to the number of full-time employees reported the full-time equivalent of part-time employees (obtained by dividing the part-time payroll by the average full-time pay) and dividing the result by the sum of full- and part-time employees. The final estimates of full-time employee equivalents in 1933 and 1935 are extrapolated from 1933 to 1929 and from 1935 to 1938 by employment in retail trade, and interpolated for 1934 along a straight line. The number of employees in 1920 is obtained by applying to the number employed in 1929 the percentage change from 1920 to 1929 in the number gainfully occupied in representative occupations. For 1920 and 1930 this number is obtained by adding the data for barbers, hairdressers and manicurists, undertakers, photographers, shoemakers, cobblers and bootblacks recorded in the 1930 *Census of Population*, Vol. V, Ch. 1. The 1929 number gainfully occupied is interpolated along a straight line between 1920 and 1930. The number of employees in 1919 and 1921-28 is extrapolated from and interpolated between 1920 and 1929 by the number of employees in domestic service.

TABLE S 10

Employees by Minor Industrial Subdivisions

Col. 1-3 Physicians' and surgeons' assistants, dentists' assistants, and employees in private hospitals: see the notes to Table S 9, col. 3.

Col. 4 and 5 Lawyers' employees and miscellaneous professional service employees: see the notes to Table S 9, col. 4.

Col. 6-8 Advertising, recreation and amusement, and automobile repair shops and garages: see the notes to Table S 8, col. 4.

TABLE S 11

Entrepreneurs by Major Industrial Divisions

Col. 1 Curative service: sum of estimates for (1) physicians and surgeons, (2) dentists, (3) trained nurses, private duty, (4) osteopaths, (5) veterinarians, (6) other curative service.

1) *Physicians and surgeons*: number in 1918, 1921, 1923, 1925, 1927, and 1929, from the *Distribution of Physicians in the United States*, American Medical Association, Bureau of Medical Economics; in 1931, 1934, 1936, and 1938, from the American Medical Association. Estimates for the intervening years are interpolated along a straight line. Retired practitioners are estimated for 1918–29 on the assumption that their relation to the total is the same as in 1930, for which year we have the number of retired physicians and surgeons from the *Incomes of Physicians*, by Maurice Leven (Committee on the Costs of Medical Care, 1932). The number of active practitioners in these years is further reduced to allow for those not in private practice. For 1929 and later years the number in private practice is estimated by applying to total physicians and surgeons the ratio of the number in private practice to the total. The 1929 ratio is from the *Incomes of Physicians*; the 1938 from *Number of Physicians in the United States by County* (American Medical Association). The 1928 ratio of private to active physicians and surgeons is from 'Income from Medical Practice', *Journal of the American Medical Association*, May 16, 1931. Its application to the estimated number of active physicians and surgeons yields the number in private practice, 1919–28.

2) *Dentists*: number in private practice in 1930, by letter from the American Dental Association (also given in the 1930 *Census of Population*, Vol. V, Ch. 7); for 1936 we used the estimate of the National Bureau of Economic Research study of professional incomes. It is assumed that the ratio of dentists in private practice to the total is the same in 1936 as in 1930. Estimates of the number in private practice in 1929, 1931–35, and 1937–38 are extrapolated from and interpolated between 1930 and 1936 by the number in independent practice, also obtained by letter from the American Dental Association.

To the number in private practice is added the full-time equivalent of those dentists who work part-time on a salary basis. The materials essential to this computation are from the questionnaire survey by the Bureau of Foreign and Domestic Commerce, National Income Division. Figures for 1919–28 are extrapolated from 1929 by the number of dentists estimated from data for 1920 and 1930 reported in the 1930 Census, Vol. V, Ch. 1, and for the other years interpolated and extrapolated by the number of licenses issued

annually in nine states (Oklahoma, North Carolina, California, Nebraska, New Hampshire, Iowa, Florida, Connecticut, and Pennsylvania).

3) *Trained nurses, private duty*: the number in 1920 and 1930 reported in the 1930 *Census of Population*, Vol. V, Ch. 7, includes student nurses. The 1920 figure is adjusted to exclude them on the basis of total graduates reported in *Nurses, Patients, and Pocket-books*. For 1920 we assume three times as many students as there were graduates. The number of students in 1930 is from *Facts about Nursing, 1938*. Interpolation between the resulting figures for 1920 and 1930 and extrapolation for other years are by the series 'nurses in the profession' in *Nurses, Patients, and Pocket-books*. The ratio of nurses on private duty to total trained nurses, given by the Committee on the Costs of Medical Care, is used for all years in the period. The number of nurses on private duty is the product of the estimated number of trained nurses and this ratio. It is assumed that nurses numbered the same in 1919 as in 1920.

4) *Osteopaths*: number in 1927, 1929, 1934-38, from the American Osteopathic Association. Estimates for the intervening years are interpolated along a straight line. The 1927 figure is extrapolated to 1923 by Association membership figures. The 1923 figure is extrapolated through 1920 by a second series on the number of osteopaths. Basic data for this series are from the 1930 *Census of Population*, Vol. V, Ch. 1, which reports the number in practice in 1920 and 1930. Intercensal year estimates are by straight line interpolation. It is assumed that osteopaths numbered the same in 1919 as 1920.

5) *Veterinarians*: number in 1920 and 1930, from the 1930 *Census of Population*, Vol. V, Ch. 1. Intercensal year estimates are interpolated along a straight line and the 1919 figure is assumed to be the same as the 1920. The number of practicing veterinarians in 1930 is from the *Report of the Committee on Education* (American Veterinary Medical Association, 68th meeting). Its ratio to the total is applied to the totals for 1919-30 to yield the number of practicing veterinarians in those years. The 1930 number is kept constant for all later years.

6) *Other curative professionals*: covers chiropractors and other healers. For 1920 and 1930 the totals are from the 1930 *Census of Population*, Vol. V, Ch. 1. Estimates for 1919 and 1921-29 are

extrapolated and interpolated by the number of Christian Science practitioners; for 1931-38, extrapolated by the number of Christian Science practitioners and chiropractors. The number of Christian Science practitioners in 1916, 1923, 1926, 1928, 1930, 1932, 1934, and 1936-38 is from the Christian Science Committee on Publication for the State of New York; for intervening years, interpolated along a straight line. The number of chiropractors for 1929, 1934, and 1938 is from the Chiropractic Health Bureau; for intervening years, interpolated along a straight line.

Col. 2 Other professional service: sum of estimates for (1) private education, (2) lawyers, (3) engineers, (4) entrepreneurs in miscellaneous professional fields.

1) *Private education:* sum of estimates for (a) commercial schools and (b) correspondence schools.

a) *Commercial schools:* entrepreneurs are estimated by applying to the number of teachers (see the notes to Table S 9, col. 1) the ratio of proprietors to teachers. For 1929 and later years this ratio is derived from survey data collected by the Bureau of Foreign and Domestic Commerce, National Income Division. For the years before 1929 the 1929 ratio is used.

b) *Correspondence schools:* entrepreneurs in 1929 and later years were estimated by the Bureau of Foreign and Domestic Commerce, National Income Division. The 1929 figure is extrapolated through 1919 by the number of entrepreneurs in commercial schools.

2) *Lawyers:* the sources and methods are indicated in the notes to Table S 9, col. 4.

3) *Engineers:* engineers that are employees of others in the professional service field are included. The 1930 total is from the 1930 *Census of Population*, Vol. V, Ch. 7. The 1920 total is interpolated between 1910 and 1930 by the totals in the occupational grouping (1930 Census, Vol. V, Ch. 1). Estimates for 1919 and 1921-28 are by straight line interpolation between the 1910, 1920, and 1930 figures. The 1933 estimate is from the American Association of Engineers. Those for 1931 and 1932 are by straight line interpolation. For the later years the 1933 figure is used.

4) *Miscellaneous professionals:* the derivation of the number of entrepreneurs in 1920 and 1930 is given in the notes to Table S 9, col. 4. Estimates for other years are interpolated between 1920 and

1930 and extrapolated for 1919 and 1931-38 by an index of physicians and surgeons, dentists, lawyers, engineers, and clergymen in practice.

Col. 3 Total professional: sum of col. 1 and 2.

Col. 4 Personal: sum of estimates for (1) hotels, (2) restaurants, (3) power laundries, and cleaning and dyeing establishments, (4) other personal service.

1) *Hotels:* number of entrepreneurs in 1929, 1933, and 1935, derived from the 1929 *Census of Hotels*, the 1933 *Census of American Business*, and the 1935 *Census of Business*. The data reported in the Censuses are indicated by asterisks in the accompanying tabulation.

	1929	1933	1935
A No. of proprietors, year-round hotels with 25 rooms or more	*	*	
B No. of proprietors, year-round hotels, total		*	*
C No. of proprietors, seasonal hotels with 25 rooms or more	*		
D No. of proprietors, seasonal hotels, all reporting		*	
E No. of proprietors, seasonal hotels with 25 rooms or more, all reporting			*

Total proprietors of year-round hotels (B) in 1929 are estimated by applying to the 1929 A the 1933 ratio of B to A. Total proprietors of seasonal hotels in 1929 are estimated by applying to the 1929 C the 1933 ratio of D to E. Proprietors of seasonal hotels with 25 rooms or more (C) in 1933 are estimated by applying to the 1933 A the 1929 ratio of C to A; the result is then raised to the total by applying the ratio of D to E for that year. Total proprietors of seasonal hotels in 1935 are estimated by applying, to the 1935 B, the 1929 ratio of the estimated total of proprietors in seasonal hotels to the total of proprietors in year-round hotels (B). Total entrepreneurs in 1929, 1933, and 1935 are the sum of the number in year-round and seasonal hotels.

Interpolation between the resulting totals for 1929, 1933, and 1935 is by full-time employment. The 1929 estimate is extrapolated for the years before 1929 by the number of hotel keepers and managers. This item, reported for 1920 and 1930 in the 1930 *Census of Population*, Vol. V, Ch. 1, is interpolated for intercensal years by the number of hotels. The source for the latter is indicated in the

notes to Table S 9, col. 5. The 1919 figure is assumed to be the same as the 1920.

2) *Restaurants*: number of entrepreneurs in 1929, 1933, and 1935, from the *Census of Retail Distribution*. Estimates for 1919-28 and 1930 are extrapolated from 1929 by a series on restaurant, café, and lunch room keepers. Their number in 1920 and 1930 is given by states in the 1930 *Census of Population*, Vol. V, Ch. 1. A series for Ohio is obtained by using the 1920 and 1930 Census figures and interpolating for intercensal years by the number of restaurants. The latter, used also in extrapolating the 1920 figure to 1919, is from BLS Bulletin 613. The resulting figures constitute the index by which the totals of restaurant, café, and lunch room keepers in 1919 and intercensal years are estimated. The 1931 and 1932 estimates of entrepreneurs are based on the 1929 and 1933 figures, and the increase in restaurants in 1933 over 1929 is distributed equally over the period. The 1934 figure is interpolated between 1933 and 1935 along a straight line. The figures for 1936-38 are assumed to be the same as that for 1935.

3) *Power laundries, and cleaning and dyeing establishments*: number of entrepreneurs in 1919, 1925, 1927, 1929, 1933, and 1935, from the *Census of Power Laundries, Cleaning and Dyeing Establishments, and Rug Cleaning Establishments*. The adjustment of the 1933 Census figure is similar to that for employees (see the notes to Table S 9, col. 7). The estimate for 1931 is interpolated by the number of establishments reported in the Census for 1929, 1931, and 1933 (the last adjusted to allow for incomplete coverage). Estimates for the other non-Census years are interpolated along a straight line except those for 1932 and 1936-38 when the number of establishments in Pennsylvania, Ohio, and Massachusetts is used as index. The sources of the state data are cited in the notes to Table S 9, col. 7.

4) *Other personal service*: number of entrepreneurs in 1933 and 1935, based on 1933 *Census of American Business* and 1935 *Census of Business*. The adjustments of the Census data are similar to those for employees (see the notes to Table S 9, col. 8). The 1929 estimate is based on the assumption that the percentage change in employees is an index of the percentage change in entrepreneurs. The ratio of the percentage change from 1933 to 1935 in entrepreneurs to that in employees is applied to the 1929-33 percentage

change in employees. The derived percentage change in entrepreneurs from 1929 to 1933 is applied to the 1933 estimate of entrepreneurs to yield the 1929 figure. Interpolation for 1930–32 and 1934 is along a straight line. The 1920 estimate is derived by the method used to obtain the number of employees in that year. The estimates for 1919 and 1921–28 are extrapolated from 1920 and interpolated between 1920 and 1929 by the value of consumer goods in 1929 prices (*Commodity Flow and Capital Formation*, Vol. One). The number for 1936–38 is assumed to be the same as that for 1935.

Col. 5 Miscellaneous: sum of estimates for (1) advertising, (2) recreation and amusement, (3) hand trades.

1) *Advertising*: number of entrepreneurs in 1930, from the 1930 *Census of Population*, Vol. V, Ch. 7. It is estimated for 1920 by applying to the 1930 figure the percentage change from 1920 to 1930 in the occupational group 'agents, not classified' in the 1930 Census, Vol. V, Ch. 1. The number in 1919 is assumed to be the same as the 1920. Estimates for 1921–29 are interpolated along a straight line; for 1931–36 they are extrapolated from 1930 by the number of proprietors reported by the American Association of Advertising Agencies. The number is assumed to remain constant from 1936 through 1938.

2) *Recreation and amusement*: number of entrepreneurs in 1920 and 1930, from the 1930 *Census of Population*, Vol. V, Ch. 1 (including keepers of billiard rooms, dance halls, skating rinks, etc.; directors, managers and officials of motion picture production; keepers of pleasure resorts, race tracks, etc.; and theatrical owners, managers and officials). The number in 1919 is assumed to be the same as in 1920. Estimates for 1921–29 are interpolated along a straight line; for 1931 and later years they are extrapolated from 1930 by the number of entrepreneurs in retail trade.

3) *Hand trades*: employees in the field are included. From the number attached to independent hand trades in 1930, reported in the 1930 *Census of Population*, Vol. V, Ch. 7, shoemakers and milliners were deducted, since they are covered by us in personal service and trade. The number attached to hand trades in 1920 is estimated by applying to the 1930 figure the percentage change from 1920 to 1930 in the number in representative occupations selected from the 1930 Census, Vol. V, Ch. 1. The number attached in 1919 is

assumed to be the same as in 1920. Estimates for 1921-29 are interpolated along a straight line. The number engaged in 1930 is estimated by applying, to the number attached, the ratio of employment to attachment as derived from Mr. Nathan's data on employment and unemployment in hand trades (*International Labour Review*, Jan. 1936). The resulting figure is extrapolated for 1929 and later years by Mr. Nathan's series on employment in the field. The number engaged in 1920 is estimated on the assumption that unemployment in 1920 was the same as in 1929. Estimates for 1919 and 1921-28 are made similarly to those for the number attached to the industry.

Col. 6 Total: sum of col. 3-5.

TABLE S 12

Entrepreneurs by Minor Industrial Divisions

Col. 1-4 Physicians and surgeons, dentists, trained nurses in private duty, and other curative service: see the notes to Table S 11, col. 1.

Col. 5-7 Lawyers, engineers, and other professionals: see the notes to Table S 11, col. 2.

Col. 8-10 Advertising, recreation and amusement, and hand trades: see the notes to Table S 11, col. 5.

