

APPENDIX TABLES

Indexes of Production, Employment,
and Employment per Unit of Product

I Agriculture (1900:100)

	OUTPUT	EMPLOYMENT		EMPLOYMENT PER UNIT OF PRODUCT	
		Gainfully occupied	Farmers & adult male laborers	Gainfully occupied per unit	Farmers & adult male laborers per unit
1870	42	63		150	
1880	63	79		125	
1890	79	91		115	
1900	100	100	100	100	100
1909	112	107	112	95	100
1910	115	106	112	93	97
1911	116	106	112	92	97
1912	120	107	113	89	94
1913	123	107	113	87	93
1914	123	107	114	87	93
1915	123	108	115	88	93
1916	125	107	114	85	91
1917	125	106	113	85	91
1918	125	105	113	85	91
1919	124	104	113	84	91
1920	126	104	112	83	89
1921	126	104	113	82	89
1922	128	104	113	81	88
1923	130	103	113	79	87
1924	136	103	113	76	83
1925	138	102	113	74	82
1926	141	101	112	71	80
1927	142	100	112	70	79
1928	144	99	111	68	78
1929	144	97	110	67	76
1930	145	96	109	66	75
1931	144	95	108	66	75
1932	139	93	105	67	76
1933	136	92	104	67	76
1934	133	91	102	68	76
1935	135	89	100	66	74
1936	137	88	98	64	71
1937	145	87	96	60	66
1938	155	85	94	55	61
1939	160	84	93	52	58
1940	159	82	91	51	57

SOURCE: Barger and Landsberg, Tables 38 and 39, and sources cited by them. Figures for 1930-40 are revisions or extrapolations based on Department of Agriculture and Bureau of the Census data.

Output figures are 5-year averages except for 1870 and 1940, which are 3-year averages. Employment figures are 5-year averages except for 1870-1909, which are for these years only; and 1910 and 1940, which are 3-year averages.

Data on hours of labor per year are inadequate. Barger and Landsberg make alternative assumptions: (1) that hours were 5 percent higher in 1909-13 than in 1932-36; (2) that hours were the same in both periods (*op. cit.*, p. 271). On these assumptions we have:

	1909-13	1932-36
Gainfully occupied per unit	100	74
Hours per unit		
Assumption (1)	100	70
Assumption (2)	100	74

II Mining (1929:100)*

	TOTAL INCLUDING PETROLEUM AND NATURAL GAS				TOTAL EXCLUDING PETROLEUM AND NATURAL GAS					
	OUTPUT	EMPLOYMENT		EMPLOYMENT PER UNIT		OUTPUT	EMPLOYMENT		EMPLOYMENT PER UNIT	
		Mandays	Manhours	Mandays	Manhours		Mandays	Manhours	Mandays	Manhours
1880	8.8		33		375					
1890	19		58		305					
1899	26				43					
1900	28				46					
1901	30				49					
1902	31	100	73	100	233	50	78	84	156	169
1903	35				57					
1904	36				57					
1905	40				64					
1906	42				66					
1907	45				72					
1908	42				65					
1909	48				74					
1910	51				79					
1911	50				77		116		152	
1912	53				82		120		145	
1913	57				87		131		149	
1914	53				79		112		143	
1915	58				87		111		128	
1916	67				101		127		127	
1917	70				105		138		132	
1918	61				104		137		132	
1919	61				84		113	114	135	135

1920	71			
1921	88			
1922	62			
1923	86			
1924	80			
1925	83			
1926	90			
1927	92			
1928	92			
1929	100	100		100
1930	88			
1931	74			
1932	60			
1933	65			
1934	71			
1935	76	59		77
1936	89	69		78
1937	100	72		72
1938	86	58		68
1939	95	101	61	36 64

96	124			128
70	91			130
72	86			119
100	116			116
91	107			118
92	103			112
102	114			112
96	104			108
95	97			103
100	100	100		100 100
86	85			99
67	65	65		97 97
49	49	49		100 99
52	54	53		104 102
59	64	58		109 99
63	66	59		105 94
77	76	68		99 89
84	79	70		94 84
64	61	54		95 83
76	67	59		88 78

SOURCE: Barger and Schurr, pp. 343, 77, for 1899-1939; extrapolated to 1880 by data in V. E. Spencer, *Production, Employment, and Productivity in the Mineral Extractive Industries, 1880-1938* (National Research Project, *Report S-2*, June 1940), pp. 8-9 (arithmetic mean of the two output indexes given). As the data on employment are only for persons "subject to accidents," they exclude

most salaried employees and some proprietors. Including all salaried persons and proprietors, the employment indexes for 1939 relative to 1902 would be about 5 percent greater than the above indexes (cf. Barger and Schurr, pp. 69-71).

*Base for mandays and mandays per unit, mining including petroleum and gas, is 1902.

III Manufacturing (1899:100)

	OUTPUT	EMPLOYMENT		EMPLOYMENT PER UNIT		WAGE EARNERS	
		Wage earners	Total*	Wage earners	Total*	Man-hours	Manhours per unit
1899	100	100	100	100	100	100	100
1900	102	104	..	101	..	..	..
1901	115	109	..	94	..	..	..
1902	129	118	..	91	..	..	..
1903	132	122	..	93	..	120	91
1904	124	115	116	92	94	..	..
1905	148	128	..	87	..	..	..
1906	159	134	..	85	..	..	..
1907	161	140	..	87	..	136	84
1908	133	124	..	94	..	..	..
1909	158	139	143	88	90	134	85
1910	168	145	..	87	..	..	..
1911	161	145	..	90	..	..	..
1912	185	151	..	81	..	..	..
1913	198	152	..	77	..	..	..
1914	186	146	152	79	82	136	73
1915	218	153	..	70	..	..	..
1916	259	179	..	69	..	..	..
1917	257	191	..	74	..	..	..
1918	254	195	..	77	..	..	..
1919	222	188	197	84	89	164	74
1920	242	188	..	78	..	161	67
1921	194	144	152	74	78	119	61
1922	249	160	..	64	..	137	55
1923	280	183	190	65	68	158	56
1924	266	170	..	64	..	141	53
1925	298	175	183	59	61	148	50
1926	316	179	..	57	..	152	48
1927	317	175	184	55	58	148	47
1928	332	175	..	53	..	147	44
1929	364	187	197	51	54	156	42
1930	311	162	..	52	..	129	41
1931	262	137	..	52	..	104	40
1932	197	117	..	59	..	82	41
1933	228	129	136	57	59	89	39
1934	252	151	..	60	..	95	38
1935	301	160	167	53	56	107	35
1936	353	174	..	49	..	124	35
1937	376	191	198	51	53	134	36
1938	295	160	..	54	..	104	35
1939	374	176	181	47	48	121	32

SOURCE: *Employment in Manufacturing*, p. 331.

*Excludes nonfactory personnel, 1935-39. The following indexes (1899:100) cover all personnel:

	1935	1937	1939
Employment	174	201	195
Employment per unit	58	54	52

IV Electric Light and Power (1929:100)

	OUTPUT		EMPLOYMENT		EMPLOYMENT PER UNIT	
	Total	Comparable with employment	Workers	Manhours	Workers	Manhours
1902	3.6	3.3	10	..	320	..
1907	7.5	6.8	16	..	240	..
1912	13	11.8	27	..	230	..
1913	14	..	..	..	..	..
1914	15	..	..	..	..	..
1915	17	..	..	..	..	..
1916	21	..	..	..	..	..
1917	24	22	36	36	162	161
1918	31	29	39	38	136	134
1919	36	33	41	40	125	121
1920	39	36	45	43	125	120
1921	36	34	47	46	139	136
1922	41	38	52	51	135	132
1923	50	47	67	65	141	138
1924	55	53	72	71	135	134
1925	64	62	74	73	119	118
1926	74	73	83	80	114	110
1927	82	82	86	84	105	103
1928	90	90	92	90	103	100
1929	100	100	100	100	100	100
1930	104	104	103	104	100	101
1931	102	102	96	97	94	95
1932	93	93	84	79	90	85
1933	93	93	78	71	85	76
1934	99	99	82	68	82	68
1935	108	108	84	71	78	65
1936	123	123	90	77	72	63
1937	136	136	96	83	70	61
1938	137	137	93	80	68	58
1939	152	152	93	79	61	52
1940	168	168	95	81	56	48

SOURCE: J. M. Gould, report prepared for the National Bureau of Economic Research. The index of total output covers electric light and power departments of electric railways, as well as central power stations operating primarily as public utilities. The measures of labor input, and the index of output comparable with labor input, cover only the latter. Workers and manhours relate to salaried as well as nonsalaried persons.

V Manufactured and Natural Gas (1929:100)

	OUTPUT	WORKERS	WORKERS PER UNIT
1899	16	34	216
1904	26	45	174
1909	38	59	157
1919	67	70	104
1929	100	100	100
1930	101	94	93
1931	99	88	89
1932	92	82	89
1933	88	85	97
1934	92	90	98
1935	96	91	96
1936	100	97	97
1937	104	98	94
1938	101	94	93
1939	106	95	90
1940	115	100	86

SOURCE: J. M. Gould, report prepared for the National Bureau of Economic Research. Workers include salaried as well as nonsalaried persons.

VI Telephone Communication (1929:100)

	EMPLOY- MENT				EMPLOY- MENT		
	OUTPUT	MENT	PER UNIT		OUTPUT	MENT	PER UNIT
1880	0.3	0.8	267	1910	44	40	92
1881	0.4	0.9	225	1911	46	44	95
1882	0.5	1.1	220	1912	49	46	94
1883	0.7	1.2	172	1913	50	50	100
1884	0.7	1.3	186	1914	50	50	101
1885	0.8	1.4	175	1915	54	50	93
1886	0.9	1.4	156	1916	60	55	92
1887	1.0	1.6	160	1917	63	61	97
1888	1.1	1.7	155	1918	61	63	103
1889	1.3	1.8	138	1919	59	65	109
1890	1.5	2.0	133	1920	63	71	113
1891	1.7	2.2	129	1921	65	73	112
1892	2.0	2.6	130	1922	69	74	107
1893	1.9	2.8	147	1923	75	79	106
1894	2.2	3.0	136	1924	78	84	107
1895	2.7	3.5	130	1925	81	86	105
1896	3.1	4.2	136	1926	86	88	102
1897	3.9	5.3	135	1927	89	90	101
1898	5.3	6.8	128	1928	93	93	99
1899	8.0	9.2	115	1929	100	100	100
1900	9.5	12	131	1930	97	98	101
1901	13	15	113	1931	100	89	89
1902	17	18	102	1932	93	83	89
1903	19	20	106	1933	87	76	87
1904	21	22	105	1934	88	72	81
1905	26	27	103	1935	91	71	78
1906	31	32	102	1936	97	73	75
1907	36	34	96	1937	103	77	74
1908	39	35	90	1938	105	77	74
1909	41	36	89	1939	110	76	69

SOURCE: Basic data from the American Telephone and Telegraph Co.

VII Steam Railroads (1929:100)

YEAR ENDING JUNE	OUTPUT	EMPLOYMENT	EMPLOYMENT PER UNIT
1899	31	55	175
1900	35	60	169
1901	37	63	172
1902	40	70	175
1903	44	78	179
1904	45	77	172
1905	48	82	170
1906	54	90	166
1907	60	99	166
1908	56	85	151
1909	56	89	158
1910	65	100	155
1911	65	99	152
1912	67	102	152
1913	75	109	146
1914	72	101	140
1915	69	92	133
1916	82	98	119
YEAR ENDING DECEMBER			
1916	87	101	116
1917	96	106	111
1918	99	112	113
1919	93	116	124
1920	102	123	120
1921	78	101	130
1922	83	98	119
1923	98	112	114
1924	92	106	114
1925	97	105	108
1926	102	107	105
1927	98	105	106
1928	98	100	102
1929	100	100	100
1930	86	90	104
1931	69	76	110
1932	52	62	119
1933	55	59	107
1934	60	61	102
1935	63	60	96
1936	76	65	85
1937	81	68	84
1938	66	58	87
1939	75	60	81

SOURCE: Harold Barger and J. M. Gould, unpublished figures prepared for the National Bureau of Economic Research. For the years after 1921 the data are for Class I, II, and III line-haul companies, switching and terminal companies, and Pullman and Railway Express companies. For 1899-1921 the data are for line-haul and Pullman companies.

VIII Water Transportation (1929:100)

	OUTPUT	EMPLOYMENT (excl. longshoremen)	EMPLOYMENT PER UNIT
1906	31	67	214
1916	50	74	148
1920	74	125	168
1921	60	105	175
1922	73	110	151
1923	84	108	129
1924	81	108	133
1925	84	103	123
1926	90	106	118
1927	93	102	110
1928	96	102	106
1929	100	100	100
1930	91	95	105
1931	73	86	118
1932	62	78	124
1933	70	81	116
1934	74	87	118
1935	77	89	116
1936	87	85	98
1937	98	90	92
1938	86	80	93
1939	95	84	88
1940	104	84	81

SOURCE: The output figures are those of Harold Barger and J. M. Gould; they are tentative estimates prepared for the National Bureau of Economic Research. The employment indexes for 1906-20 on the 1929 base are Barger's and Gould's estimates; they were interpolated between 1920 and 1929 by Kuznets' series (*National Income and Its Composition*, p. 676), and extended through 1940 by unpublished estimates of the Department of Commerce.

NATIONAL BUREAU reports on its studies of employment, production, and productivity:

BOOKS

- The Output of Manufacturing Industries, 1899-1937*
(1940), Solomon Fabricant 700 pp., \$4.50
- Employment in Manufacturing, 1899-1939: An Analysis of its Relation to the Volume of Production*
(1942), Solomon Fabricant 360 pp., 3.00
- American Agriculture, 1899-1939: A Study of Output, Employment and Productivity* (1942), Harold Barger and Hans H. Landsberg 435 pp., 3.00
- The Mining Industries, 1899-1939: A Study of Output, Employment and Productivity* (1944), Harold Barger and Sam H. Schurr 452 pp., 3.00

OCCASIONAL PAPERS

- 1 Manufacturing Output, 1929-1937 (Dec. 1940)
Solomon Fabricant .25
- 4 The Relation between Factory Employment and Output since 1899 (Dec. 1941)
Solomon Fabricant .25
- 7 Productivity of Labor in Peace and War (Sept. 1942), Solomon Fabricant (out of print)
- 23 Labor Savings in American Industry, 1899-1939 (Nov. 1945), Solomon Fabricant .50