

INDUSTRIAL FLUCTUATIONS



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PREFACE

IN the first edition of my *Economics of Welfare* (1920) Part VI., containing 112 pages, was entitled "The Variability of the National Dividend". In the second edition (1924) this part was omitted because I was anxious to undertake a more comprehensive study of industrial fluctuations. The present volume is the result of this study. It is written throughout with a constructive purpose, and the (not very numerous) criticisms of the work of others contained in it are strictly subordinate to that purpose. The conditions prevailing in the great post-war boom and subsequent depression have been so abnormal that I have not examined them here. Perhaps at a later date I may be able to devote to them a separate monograph. My thanks are due to Mr. F. Lavington of Emmanuel College, Cambridge, who kindly read an early draft of this volume in manuscript and made a number of suggestions, and to Mr. D. H. Robertson of Trinity College, who read the work at a later stage and helped me greatly, particularly in connection with the monetary aspects of the subject.

The charts embodied in the text are worked to a slightly rougher approximation than the tables in the Appendix, on which they are based, and there are, therefore, occasional small discrepancies. Owing, however, to the kind assistance of Miss Elkin, I trust that all serious inaccuracies have been eliminated from both charts and tables. The bulk of Chapter XIV. of Part I. was published in the *Economic Journal* for June 1926.

A. C. P.

KING'S COLLEGE, CAMBRIDGE,
September 1926.

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INDUSTRIAL FLUCTUATIONS

BY

A. C. PIGOU, M.A.

PROFESSOR OF POLITICAL ECONOMY IN THE UNIVERSITY OF CAMBRIDGE.

AUTHOR OF

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§§ 1-4. The purpose and scope of the book are described. Secular and seasonal movements are not to be studied.

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- § 1. Part I. deals with the causation of industrial fluctuations.
- § 2. Several kinds of impulses likely to initiate industrial movements are distinguished;
- § 3. And several conditions by which the reactions to these impulses are affected.
- § 4. The significance of the rhythmic recurrence of industrial movements is to be examined in the final chapter of Part I.

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- § 1. The industrial fluctuations to be studied here are those associated with fluctuations in the proportion of the community's income-getting power that is engaged in work.
- § 2. They can be measured roughly either by an index of production corrected for trend, or by annual percentages of employment.
- § 3. The comparative advantages of these two measures are discussed, and the latter is preferred.
- § 4. The first general characteristic of industrial fluctuations is their wide international range.
- § 5. The second, the rough similarity among successive cycles.
- § 6. The third, the general concordance in timing and direction between the wave movements of different occupations.
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§ 4. But unused savings of purchasing power do not imply unused savings of mobile resources.

§§ 5-7. And such evidence as there is suggests that stocks of mobile resources are in fact piled up, not in depressions, but in booms.

§ 8. The synchronous piling up of these stocks *might* be a main cause of booms.

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§ 5. The principal real causes, the subject-matter of this chapter, are (1) harvest variations; (2) inventions; (3) industrial disputes; (4) changes in taste; and (5) changes in foreign demands.

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- §§ 7-13. The nature of these repercussions is subjected to a detailed analysis.
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- § 5. Upon the comparative influence exercised by the more and the less competent among these persons;
- § 6. Upon the extent to which relevant information is made public;
- §§ 7-11. And upon the division of industry into a number of separate units acting independently of one another—a factor which operates along several different lines.
- § 12. Errors are likely to be largest in respect of things that take a long time to make,
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MEAN ANNUAL PERCENTAGES OF WORKPEOPLE UNEMPLOYED

Columns I.-V. are taken from *British and Foreign Trade and Industry* (Second Series) [Cd. 2337], pp. 89-92, and from the "17th Abstract of Labour Statistics", p. 2.—Persons on strike or locked out, sick or superannuated are excluded.

Year.	I. General Percentage of Un- employment.	II. Engineering, Shipbuilding, and Metal.	III. Building (i.e. Carpenters and Joiners only).	IV. Wood- working and Furnishing.	V. Printing and Book- binding.	VI. Moving 3-Year Averages of General Percentages. The Figure is placed against the Middle Year in each case.
1851	3.9	3.9	..	..	..	..
1852	6.0	6.0	..	..	..	3.9
1853	1.7	1.7	..	..	..	3.5
1854	2.9	2.9	..	..	..	3.3
1855	5.4	5.4	..	..	..	4.3
1856	4.7	4.9	..	..	1.6	5.4
1857	6.0	6.1	..	..	2.3	7.5
1858	11.9	12.2	..	..	2.5	7.2
1859	3.8	3.9	..	..	1.4	5.9
1860	1.9	1.9	0.2	..	2.1	3.6
1861	5.2	5.5	1.8	..	3.1	5.2
1862	8.4	9.0	1.8	..	3.5	6.5
1863	6.0	6.7	1.2	..	3.2	5.7
1864	2.7	3.0	0.4	..	1.3	3.6
1865	2.1	2.4	0.3	..	2.0	2.7
1866	3.3	3.9	1.1	..	1.8	4.3
1867	7.4	9.1	3.0	4.8	2.7	6.2
1868	7.9	10.0	2.9	5.0	2.5	7.3
1869	6.7	8.9	3.6	4.5	2.8	6.2
1870	3.9	4.4	3.7	4.8	3.5	4.0
1871	1.6	1.3	2.5	3.5	2.0	2.1
1872	0.9	0.9	1.2	2.4	1.5	1.2
1873	1.2	1.4	0.9	1.8	1.3	1.3
1874	1.7	2.3	0.8	2.1	1.6	1.8
1875	2.4	3.5	0.6	2.0	1.6	2.6

TABLE I (continued)

Year.	I. General Percentage of Un- employment.	II. Engineering, Shipbuilding, and Metal.	III. Building (i.e. Carpenters and Joiners only).	IV. Wood- working and Furnishing.	V. Printing and Book- binding.	VI. Moving 3-Year Averages of General Percentages. The Figure is placed against the Middle Year in each case.
1876	3.7	5.2	0.7	2.4	2.4	3.6
1877	4.7	6.3	1.2	3.5	2.6	5.1
1878	6.8	9.0	3.5	4.4	3.2	7.6
1879	11.4	15.3	8.2	8.3	4.0	7.9
1880	5.5	6.7	6.1	3.2	3.2	6.8
1881	3.5	3.8	5.2	2.7	2.8	3.8
1882	2.3	2.3	3.5	2.5	2.4	2.8
1883	2.6	2.7	3.6	2.5	2.2	4.3
1884	8.1	10.8	4.7	3.0	2.1	6.7
1885	9.3	12.9	7.1	4.1	2.5	9.2
1886	10.2	13.5	8.2	4.7	2.6	9.0
1887	7.6	10.4	6.5	3.6	2.2	7.6
1888	4.9	6.0	5.7	3.1	2.4	4.9
1889	2.1	2.3	3.0	2.4	2.5	3.0
1890	2.1	2.2	2.2	2.5	2.2	2.6
1891	3.5	4.1	1.9	2.1	4.0	4.0
1892	6.3	7.7	3.1	3.8	4.3	5.8
1893	7.5	11.4	3.1	4.1	4.1	6.9
1894	6.9	11.2	4.3	4.4	5.7	6.7
1895	5.8	8.2	4.4	3.6	4.9	5.3
1896	3.3	4.2	1.3	2.0	4.3	4.1
1897	3.3	4.8	1.2	2.2	3.9	3.1
1898	2.8	4.0	0.9	2.3	3.7	2.7
1899	2.0	2.4	1.2	2.1	3.9	2.4
1900	2.5	2.6	2.6	2.8	4.2	2.6
1901	3.3	3.8	3.9	3.7	4.5	3.3
1902	4.0	5.5	4.0	4.1	4.6	4.0
1903	4.7	6.6	4.4	4.7	4.4	4.9
1904	6.0	8.4	7.3	6.8	4.7	5.2
1905	5.0	6.6	8.0	5.8	5.1	4.9
1906	3.6	4.1	6.9	4.8	4.5	4.1
1907	3.7	4.9	7.3	4.6	4.3	5.0
1908	7.8	12.5	11.6	8.3	5.5	6.4
1909	7.7	13.0	11.7	7.6	5.6	6.7
1910	4.7	6.8	8.3	5.4	4.9	5.1
1911	3.0	3.4	4.2	3.3	5.1	3.6
1912	3.2	3.6	3.7	3.1	5.2	2.8
1913	2.1	2.2	3.3	2.4	4.0	2.9
1914	3.3	3.3	3.3	4.1	4.5	..

TABLE II

AGGREGATE DURATION IN WORKING DAYS OF INDUSTRIAL DISPUTES
From the "17th Abstract of Labour Statistics," p. 189.

Year.	Millions.	Year.	Millions.
1899	2-51	1907	2-16
1900	3-15	1908	10-83
1901	4-14	1909	2-77
1902	3-47	1910	9-89
1903	2-33	1911	10-31
1904	1-48	1912	40-91
1905	2-47	1913	11-63
1906	3-02		

TABLE III

AGGREGATE MONEY WAGES BILL IN THE UNITED KINGDOM.

Column I. down to the year 1901 is taken from Dr. Bowley's article, "Tests of National Progress", in the *Economic Journal*, Sept. 1904, p. 459. From 1901 onwards I have made estimates based on Dr. Bowley's figures for rates of wages and on estimates of variations in the numbers of the wage-earning population.

Year.	Column I. Aggregate Money Wages.	Column II. Excess over Preceding Year.	Moving 3-Year Averages of Pre- ceding Column.
	Million £.	Million £.	
1860	300	..	..
1861	300	0	..
1862	300	0	3
1863	310	10	7
1864	320	10	13
1865	340	20	13
1866	350	10	10
1867	350	0	0
1868	340	-10	0
1869	350	10	5
1870	365	15	17
1871	390	25	30
1872	440	50	40
1873	485	45	27
1874	470	-15	8
1875	465	-5	-8

INDUSTRIAL FLUCTUATIONS

TABLE III (continued)

Year.	Column I. Aggregate Money Wages.	Column II. Excess over Preceding Year.	Moving 8-Year Averages of Pre- ceding Column.
	Million £.	Million £	
1876	460	- 5	- 3
1877	460	0	- 8
1878	440	- 20	- 10
1879	430	- 10	- 7
1880	440	10	5
1881	455	15	13
1882	470	15	10
1883	470	0	- 2
1884	450	- 20	- 10
1885	440	- 10	- 10
1886	440	0	2
1887	455	15	20
1888	500	45	30
1889	530	30	32
1890	550	20	18
1891	555	5	5
1892	545	- 10	- 2
1893	545	0	2
1894	560	15	12
1895	580	20	17
1896	595	15	15
1897	605	10	23
1898	650	45	27
1899	675	25	35
1900	710	35	18
1901	705	- 5	8
1902	700	- 5	- 3
1903	700	0	- 3
1904	695	- 5	2
1905	705	10	8
1906	725	20	27
1907	775	50	20
1908	765	- 10	13
1909	765	0	2
1910	780	15	10
1911	795	15	20
1912	825	30	17
1913	830	5	..

TABLE IV
ESTIMATED RATE OF REAL WAGES OF PERSONS IN FULL WORK
IN THE UNITED KINGDOM¹
1850=100

1850	100	1882	135
1851	102	1883	139
1852	102	1884	144
1853	105	1885	148
1854	96	1886	151
1855	95	1887	155
1856	96	1888	157
1857	96	1889	159
1858	102	1890	166
1859	104	1891	164
1860	103	1892	163
1861	100	1893	167
1862	105	1894	170
1863	109	1895	174
1864	117	1896	176
1865	117	1897	176
1866	116	1898	174
1867	109	1899	180
1868	110	1900	183
1869	115	1901	181
1870	118	1902	177
1871	121	1903	172
1872	122	1904	170
1873	128	1905	172
1874	133	1906	174
1875	135	1907	176
1876	137	1908	172
1877	133	1909	170
1878	132	1910	169
1879	137	1911	..
1880	134	1912	..
1881	136	1913	..

¹ From W. T. Layton, *An Introduction to the Study of Prices*, p. 184.

TABLE V

FIG-IRON CONSUMPTION IN THE UNITED KINGDOM IN MILLIONS OF TONS

1850	. . . . .	..	1882	. . . . .	6.9
1851	. . . . .	..	1883	. . . . .	7.0
1852	. . . . .	..	1884	. . . . .	6.6
1853	. . . . .	..	1885	. . . . .	6.5
1854	. . . . .	2.8	1886	. . . . .	6.0
1855	. . . . .	2.9	1887	. . . . .	6.5
1856	. . . . .	3.2	1888	. . . . .	7.0
1857	. . . . .	3.3	1889	. . . . .	7.2
1858	. . . . .	3.1	1890	. . . . .	6.8
1859	. . . . .	3.4	1891	. . . . .	6.6
1860	. . . . .	3.5	1892	. . . . .	6.0
1861	. . . . .	3.3	1893	. . . . .	6.2
1862	. . . . .	3.5	1894	. . . . .	6.6
1863	. . . . .	4.0	1895	. . . . .	6.9
1864	. . . . .	4.4	1896	. . . . .	7.7
1865	. . . . .	4.3	1897	. . . . .	7.7
1866	. . . . .	4.0	1898	. . . . .	7.7
1867	. . . . .	4.3	1899	. . . . .	8.2
1868	. . . . .	4.5	1900	. . . . .	7.7
1869	. . . . .	4.7	1901	. . . . .	7.3
1870	. . . . .	5.3	1902	. . . . .	7.8
1871	. . . . .	5.6	1903	. . . . .	8.0
1872	. . . . .	5.5	1904	. . . . .	8.0
1873	. . . . .	5.6	1905	. . . . .	8.7
1874	. . . . .	5.3	1906	. . . . .	8.6
1875	. . . . .	5.5	1907	. . . . .	8.3
1876	. . . . .	5.7	1908	. . . . .	7.8
1877	. . . . .	5.8	1909	. . . . .	8.5
1878	. . . . .	5.5	1910	. . . . .	9.0
1879	. . . . .	4.8	1911	. . . . .	8.5
1880	. . . . .	6.2	1912	. . . . .	7.7
1881	. . . . .	6.7	1913	. . . . .	9.3

From [Cd. 2145], pp. 24-5, and the "17th Abstract of Labour Statistics," p. 44.

TABLE VI

CONSUMPTION OF CERTAIN COMMODITIES IN THE UNITED KINGDOM

Column I. is taken for 1856-80 from Beveridge's *Unemployment*, p. 42; subsequently from [Cd. 2145], p. 15, and from the "17th Abstract of Labour Statistics", p. 15.

Column II., Table A, is taken from the "13th Abstract of Labour Statistics", p. 42; Table B from the 17th Abstract, p. 46.

Column III. is taken from Mr. H. G. Wood's paper, entitled "Some Statistics relating to Working-class Progress since 1860", in the *Journal of the Royal Statistical Society* for Dec. 1899, pp. 655-6. The commodities included in his index are wheat, cocoa, coffee, cotton, currants and raisins, meat, rice, sugar, tea, tobacco, wool, wine, spirits and beer.

Year.	I. Beer per Head.	II. Meat per Head.		III. Index of General Consumption.
	Gallons.	Lbs.	Lbs.	Aggregate.
1850 . . .	..	..	..	..
1851 . . .	..	..	..	..
1852 . . .	..	..	..	..
1853 . . .	..	..	..	..
1854 . . .	..	..	..	..
1855 . . .	..	..	..	..
1856 . . .	22.6	..	..	..
1857 . . .	22.6	..	..	..
1858 . . .	23.6	..	..	..
1859 . . .	24.8	..	..	..
1860 . . .	23.8	..	..	..
1861 . . .	24.3	..	..	..
1862 . . .	24.1	..	..	..
1863 . . .	25.4	..	..	..
1864 . . .	26.7	..	..	80.2
1865 . . .	29.8	..	..	78.2
1866 . . .	29.4	..	..	81.7
1867 . . .	28.1	..	..	81.7
1868 . . .	28.2	..	..	87.8
1869 . . .	29.1	..	..	90.0
1870 . . .	30.2	..	..	91.4
1871 . . .	29.3	..	..	93.0
1872 . . .	32.2	..	..	96.4
1873 . . .	33.5	..	..	102.4
1874 . . .	34.0	..	..	102.0
1875 . . .	33.3	..	..	104.0
1876 . . .	33.7	..	..	105.0
1877 . . .	32.3	..	..	103.3
1878 . . .	32.2	..	..	101.6
1879 . . .	28.0	..	..	98.8
1880 . . .	27.0	..	..	101.8
1881 . . .	27.8	..	..	103.8

INDUSTRIAL FLUCTUATIONS

TABLE VI (continued)

Year.	I. Beer per Head.	II. Meat per Head.		III. Index of General Consumption.
	Gallons.	Lbs.	Lbs.	Aggregate.
1882 . . .	27.6	..	..	105.3
1883 . . .	27.2	..	..	105.0
1884 . . .	27.8	..	..	104.5
1885 . . .	27.1	..	..	101.5
1886 . . .	26.9	..	..	101.5
1887 . . .	27.3	..	..	104.0
1888 . . .	27.2	..	..	104.5
1889 . . .	28.9	A.	..	108.7
1890 . . .	30.0	106.1	..	110.8
1891 . . .	30.2	117.2	..	114.9
1892 . . .	29.8	114.3	..	111.4
1893 . . .	29.6	111.4	..	108.3
1894 . . .	29.5	109.6	..	111.5
1895 . . .	29.6	113.1	..	114.9
1896 . . .	30.8	121.1	..	115.5
1897 . . .	31.3	120.5	..	..
1898 . . .	31.8	119.0	..	..
1899 . . .	32.5	126.7	..	..
1900 . . .	31.6	125.0	B.	..
1901 . . .	30.8	122.5	136.2	..
1902 . . .	30.3	114.7	135.1	..
1903 . . .	29.8	119.6	129.4	..
1904 . . .	28.9	121.4	131.9	..
1905 . . .	27.8	120.5	132.6	..
1906 . . .	28.2	117.9	132.6	..
1907 . . .	27.8	118.4	130.6	..
1908 . . .	26.9	..	131.4	..
1909 . . .	26.1	..	130.1	..
1910 . . .	26.3	..	125.5	..
1911 . . .	27.2	..	127.2	..
1912 . . .	26.7	..	131.2	..
1913 . . .	27.3	..	127.6	..

TABLE VII
INDEX OF VOLUME OF MANUFACTURED IMPORTS GIVEN FOR A UNIFORM
QUANTITY OF FOOD IMPORTS INTO THE UNITED KINGDOM¹
(1910 = 100)

1881	132	1898	111
1882	130	1899	105
1883	128	1900	93
1884	120	1901	95
1885	114	1902	100
1886	117	1903	100
1887	116	1904	96
1888	114	1905	99
1889	116	1906	92
1890	107	1907	92
1891	106	1908	98
1892	112	1909	104
1893	112	1910	100
1894	107	1911	98
1895	104	1912	102
1896	106	1913	97
1897	110	1914	105

¹ Reproduced from a table printed by Mr. J. M. Keynes in the *Economic Journal*, Dec. 1923, pp. 477-80, which was based on earlier calculations made by Dr. Bowley.

TABLE VIII
ADJUSTED INDEX OF PHYSICAL PRODUCTION OF (1) AGRICULTURE (TWELVE
CROPS) IN THE U.S.A., (2) PIG-IRON IN THE U.S.A., WITH SECULAR
TRENDS ELIMINATED¹

Ordinates of the secular trend = 100

Year.	Agriculture.	Pig-iron.	Year.	Agriculture.	Pig-iron.
1879	106.2	85.0	1900	100.3	96.0
1880	110.8	107.0	1901	88.5	102.2
1881	86.8	105.1	1902	108.0	106.6
1882	107.1	107.6	1903	97.5	100.6
1883	102.0	98.7	1904	105.6	86.5
1884	106.7	81.7	1905	104.8	113.4
1885	104.5	75.3	1906	109.1	118.0
1886	96.8	99.3	1907	96.5	113.9
1887	91.6	105.4	1908	100.2	66.9
1888	101.5	100.7	1909	97.8	103.2
1889	103.5	111.8	1910	100.1	104.3
1890	89.0	128.6	1911	94.0	86.4
1891	108.4	110.2	1912	108.3	104.1
1892	90.5	116.3	1913	94.2	104.1
1893	90.0	86.6	1914	102.6	75.5
1894	87.9	77.6	1915	106.3	93.2
1895	99.1	105.7	1916	92.3	118.6
1896	103.4	92.7	1917	98.6	112.1
1897	102.7	89.4	1918	96.1	109.6
1898	109.0	98.2	1919	98.2	84.2
1899	102.2	103.5	1920	100.3	..

¹ From "An Index of the Physical Volume of Production," by Prof. E. E. Day, *Review of Economic Statistics*, 1920, pp. 259 and 297.

TABLE IX
 PRODUCTION OF AGRICULTURE AND MINING IN THE UNITED STATES

Year.	Index of Yield per Acre of Nine Principal Crops in the U.S.A. ¹ Moving 3-Year Averages.	Adjusted Index of Physical Production for Mining in the U.S.A. with Secular Trend eliminated. ² Ordinate to Secular Trend = 100. Moving 3-Year Averages.
1880	99.7	103.7
1881	96.0	104.8
1882	93.0	105.2
1883	99.3	103.1
1884	98.7	96.2
1885	97.3	92.6
1886	93.3	92.8
1887	94.0	97.1
1888	97.7	99.5
1889	97.7	103.6
1890	100.3	105.8
1891	99.3	109.0
1892	99.3	104.7
1893	93.3	98.7
1894	94.7	96.0
1895	98.0	96.4
1896	102.0	101.4
1897	105.0	100.7
1898	106.0	101.6
1899	106.7	99.5
1900	99.3	98.7
1901	102.3	97.5
1902	103.3	98.2
1903	111.7	97.2
1904	112.3	99.8
1905	116.3	101.1
1906	113.7	106.0
1907	111.3	100.0
1908	107.7	99.1
1909	108.7	96.9
1910	105.3	99.6

¹ Compiled from an annual table printed by Prof. H. L. Moore in *Economic Cycles*, p. 130.

² Compiled from an annual table printed by Prof. E. E. Day in *The Review of Economic Statistics*, 1920, p. 298.

TABLE X

PRICES IN THE UNITED KINGDOM

Column I. Jevons' index number from 1850-60 and Sauerbeck's index number, to base 1867-77, from 1860 onwards; the number for each year being reduced in the proportion required to make that for 1900 = 100; reproduced from Layton, *Introduction to the Study of Prices*, p. 150.

Column II. The figures of Column I. are corrected for trend by subtracting 1 from that for 1895, 2 from that for 1894, and so on till 1872; prior to which date 24 is subtracted from the figure for each year; and by subtracting 1 from the figure for 1897, 2 from that for 1898, and so on to 1914.

Column III. gives moving 3-year averages of the figures in the preceding column, the moving average being written against the middle year throughout.

Column IV. is obtained by dividing for each year the index number for that year, as given in Column I. by the index number of the preceding year and multiplying by 100.

Column V. gives moving 3-year averages of the figures in Column IV.

Year.	I. Index of General Prices in the United Kingdom.	II. Index of Prices with Trend eliminated.	III. Moving 3-Year Averages of Column II.	IV. Index of Rates of Price Change.	V. Moving 3-Year Average of Column IV.
1845	..	..	..	..	..
1846	..	..	..	..	..
1847	..	..	..	..	..
1848	..	..	..	..	..
1849	..	..	..	..	..
1850	107	83	..	..	..
1851	110	86	..	103	..
1852	108	84	..	102	..
1853	123	99	..	114	..
1854	138	114	..	112	..
1855	133	109	..	96	..
1856	137	113	..	103	..
1857	142	118	..	104	..
1858	127	103	..	90	..
1859	128	104	..	101	..
1860	132	108	..	100	..
1861	131	107	..	101	..
1862	135	111	..	103	..
1863	137	113	..	101	..
1864	140	116	..	102	..
1865	135	111	..	97	..
1866	136	112	..	101	..
1867	133	109	..	98	..
1868	132	108	..	99	..
1869	131	107	..	99	..
1870	128	104	..	98	..
1871	133	109	..	104	..

INDUSTRIAL FLUCTUATIONS

TABLE X (continued)

Year.	I. Index of General Prices in the United Kingdom.	II. Index of Prices with Trend eliminated.	III. Moving 3-Year Averages of Column II.	IV. Index of Rates of Price Change.	V. Moving 3-Year Averages of Column IV.
1872	145	121	..	109	..
1873	147	124	..	101	..
1874	136	114	..	93	..
1875	128	107	..	94	..
1876	127	107	..	99	..
1877	125	106	..	98	..
1878	116	98	..	93	..
1879	111	94	97	96	..
1880	117	101	97	105	99
1881	113	98	99	97	100
1882	112	98	97	99	98
1883	109	96	94	97	96
1884	101	89	90	93	95
1885	96	85	85	95	95
1886	92	82	83	96	97
1887	91	82	83	99	99
1888	93	85	85	102	101
1889	96	89	88	103	102
1890	96	90	90	100	101
1891	96	91	89	100	98
1892	91	87	89	95	98
1893	91	88	86	100	96
1894	84	82	84	92	97
1895	83	82	82	99	96
1896	81	81	82	98	100
1897	83	82	82	102	101
1898	85	83	84	102	104
1899	91	88	89	107	106
1900	100	96	91	110	103
1901	93	88	90	93	101
1902	92	86	86	99	97
1903	92	85	85	100	100
1904	93	85	86	101	101
1905	96	87	88	103	104
1906	103	93	92	108	105
1907	107	96	91	104	101
1908	97	85	89	91	99
1909	99	86	87	102	99
1910	104	90	89	105	103
1911	107	92	93	103	105
1912	113	97	95	105	103
1913	113	96	96	100	102
1914	113	95	..	100	..

TABLE XI

INDEX OF PRICES OF MINERALS DIVIDED INTO INDEX OF PRICES
OF VEGETABLE FOODS IN THE UNITED KINGDOM
(Sauerbeck)

1850	. . . . .	96	1883	. . . . .	108
1851	. . . . .	97	1884	. . . . .	104
1852	. . . . .	100	1885	. . . . .	103
1853	. . . . .	95	1886	. . . . .	97
1854	. . . . .	104	1887	. . . . .	93
1855	. . . . .	110	1888	. . . . .	86
1856	. . . . .	99	1889	. . . . .	86
1857	. . . . .	97	1890	. . . . .	81
1858	. . . . .	91	1891	. . . . .	99
1859	. . . . .	87	1892	. . . . .	92
1860	. . . . .	102	1893	. . . . .	87
1861	. . . . .	112	1894	. . . . .	86
1862	. . . . .	108	1895	. . . . .	87
1863	. . . . .	93	1896	. . . . .	84
1864	. . . . .	82	1897	. . . . .	91
1865	. . . . .	92	1898	. . . . .	96
1866	. . . . .	104	1899	. . . . .	65
1867	. . . . .	132	1900	. . . . .	51
1868	. . . . .	133	1901	. . . . .	70
1869	. . . . .	102	1902	. . . . .	77
1870	. . . . .	99	1903	. . . . .	76
1871	. . . . .	101	1904	. . . . .	78
1872	. . . . .	80	1905	. . . . .	72
1873	. . . . .	75	1906	. . . . .	61
1874	. . . . .	90	1907	. . . . .	64
1875	. . . . .	92	1908	. . . . .	79
1876	. . . . .	119	1909	. . . . .	82
1877	. . . . .	107	1910	. . . . .	73
1878	. . . . .	128	1911	. . . . .	75
1879	. . . . .	119	1912	. . . . .	71
1880	. . . . .	113	1913	. . . . .	62
1881	. . . . .	109	1914	. . . . .	76
1882	. . . . .	106			

TABLE XII
PRICES IN THE UNITED STATES AND GERMANY ¹

Year.	I. United States. Aldrich Report and Bureau of Labour. Recalculated to Base 1900=100.	II. Germany. (Herr Schmitz). Recalculated to Base 1900=100.
1860	111	112½
1861	111½	111
1862	127	114
1863	113½	116
1864	136	119
1865	111	111
1866	151	113½
1867	142	114½
1868	129	114
1869	125½	114
1870	130	111
1871	136½	117
1872	141	130
1873	135½	135
1874	132½	124
1875	126	116
1876	116	113
1877	116	113½
1878	111	104
1879	107	94½
1880	118½	105½
1881	117½	103
1882	120½	100
1883	118	98
1884	110	93½
1885	103	86½
1886	102	82
1887	103	84½
1888	104½	90
1889	104½	94½
1890	103	101
1891	102	98½
1892	96½	89
1893	96	86
1894	87	77½
1895	85	77
1896	82	77½
1897	81½	79½
1898	85	84½
1899	92½	92
1900	100	100
1901	99	94
1902	103	93
1903	103½	94
1904	103	94
1905	105	97
1906	111	106
1907	118	113
1908	111½	106½
1909	115	105

¹ From W. T. Layton, *Introduction to the Study of Prices*, p. 151.

TABLE XIII
BANK CREDITS IN THE UNITED KINGDOM
(In Millions)

Year.	I. Deposits of Bank of England and Joint-stock Banks of the United Kingdom.	II. Deposits of Private Banks in the United Kingdom.	III. Sum of Columns I. and II.	IV. Gold Holdings of the Bank of England.	V. Excess of Column III. on Column IV.	VI. Increase in Each Year of Aggregate Deposits minus Increase in Gold Holdings.	VII. Moving 3-Year Average of Pre- ceding Column.
1877	159	20	179	25.4	154	..	..
1878	332	41	373	23.9	349	195	..
1879	322	40	362	32.4	330	-19	..
1880	335	42	377	27.6	349	19	10
1881	359	45	404	24.6	379	30	26
1882	382	48	430	22.0	408	29	26
1883	399	50	449	22.2	427	19	25
1884	423	53	476	22.9	453	26	20
1885	439	54	493	24.2	469	16	17
1886	444	56	500	21.0	479	10	15
1887	454	57	511	21.8	489	10	13
1888	470	59	529	20.8	508	19	22
1889	503	63	566	21.4	545	38	25
1890	519	65	584	21.8	563	18	33
1891	554	69	623	24.4	599	36	23
1892	568	70.9	638	25.5	613	14	15
1893	565	66.4	631	26.4	607	-6	3
1894	579	63.9	643	34.3	609	2	13
1895	622	69.2	691	38.9	652	43	33
1896	704	47.3	751	44.3	707	55	37
1897	706	48.8	755	35.6	719	12	31
1898	739	39.9	779	33.6	745	26	24
1899	771	41.4	812	32.3	780	35	20
1900	771	42.1	813	33.3	780	0	16
1901	790	39.5	829	35.8	793	13	5
1902	797	34.5	831	35.6	795	2	6
1903	802	31.0	833	34.4	799	4	0
1904	798	28.3	826	34.4	792	-7	8
1905	827	26.6	854	35.7	818	26	11
1906	839	27.4	866	33.9	832	14	25
1907	874	27.4	898	34.9	866	34	18
1908	879	26.8	906	32.7	873	7	19
1909	900	25.7	926	37.4	889	16	24
1910	942	26.8	969	31.3	938	49	32
1911	975	27.1	1002	32.4	970	32	41
1912	1015	26.7	1042	31.3	1011	41	37
1913	1058	27.1	1085	34.9	1050	39	50
1914	1157	32.8	1190	69.5	1120	70	..

These tables are based in the main on data collected in Appendix D of Mr. Layton's *Introduction to the Study of Prices*. I have been obliged to estimate the deposits of private banks for the years before 1891. The estimates are based on the assumption that, before that date, the deposits of these banks were increasing at the same rate as the deposits set out in Column I.

INDUSTRIAL FLUCTUATIONS

TABLE XIV

INDEX NUMBERS OF CREDITS OUTSTANDING IN THE UNITED KINGDOM

Column I. is derived from Column V. of Table XIII.

Column II. is obtained from Column I. by adding 3 to the figure for 1899, 6 to that for 1898, and so on; and by subtracting 1 from the figure for 1901, 2 from that for 1902, and so on.

Column IV. is obtained by dividing, for each year, the index number for that year as given in Column I. by the index number for the preceding year, multiplying by 100, and subtracting 3.

Year.	I. Index Number of Credits Outstanding. Base 1900=100	II. Index Number with Trend eliminated.	III. Moving 3-Year Average of Column II.	IV. Rate of In- crease of Credits Outstanding (Trend removed).	V. Moving 3-Year Average of Column II.
1877	20	89	..	..	..
1878	45	111	102	..	..
1879	42	105	107	90	..
1880	45	105	105	104	100
1881	48	105	105	104	104
1882	52	106	105	105	103
1883	54	105	106	101	103
1884	58	106	105	104	102
1885	60	105	105	101	101
1886	61	103	103	99	100
1887	63	102	102	100	100
1888	65	101	102	100	102
1889	70	103	102	105	102
1890	72	102	103	100	103
1891	77	104	103	104	101
1892	78	102	102	98	100
1893	78	99	99	97	97
1894	78	96	98	97	99
1895	83	98	99	103	102
1896	91	103	101	106	102
1897	92	101	102	98	101
1898	95	101	102	100	100
1899	100	103	101	102	100
1900	100	100	101	97	99
1901	102	101	100	99	98
1902	102	100	100	97	98
1903	102	99	98	97	96
1904	100	96	98	95	98
1905	105	100	99	102	98
1906	106	100	101	98	101
1907	111	104	103	102	99
1908	112	104	104	98	100
1909	114	105	106	99	100
1910	120	110	109	102	100
1911	124	113	113	100	101
1912	129	117	117	101	101
1913	134	121	122	101	102
1914	143	129	..	104	..

TABLE XV

PROPORTION OF RESERVE TO LIABILITIES OF THE BANK OF ENGLAND

1850	.	.	.	.	.	59	1882	.	.	.	.	.	39
1851	.	.	.	.	.	52	1883	.	.	.	.	.	42
1852	.	.	.	.	.	63	1884	.	.	.	.	.	42
1853	.	.	.	.	.	46	1885	.	.	.	.	.	45
1854	.	.	.	.	.	46	1886	.	.	.	.	.	41
1855	.	.	.	.	.	47	1887	.	.	.	.	.	45
1856	.	.	.	.	.	34	1888	.	.	.	.	.	41
1857	.	.	.	.	.	30	1889	.	.	.	.	.	40
1858	.	.	.	.	.	58	1890	.	.	.	.	.	41
1859	.	.	.	.	.	49	1891	.	.	.	.	.	41
1860	.	.	.	.	.	40	1892	.	.	.	.	.	43
1861	.	.	.	.	.	41	1893	.	.	.	.	.	47
1862	.	.	.	.	.	45	1894	.	.	.	.	.	63
1863	.	.	.	.	.	39	1895	.	.	.	.	.	62
1864	.	.	.	.	.	36	1896	.	.	.	.	.	58
1865	.	.	.	.	.	38	1897	.	.	.	.	.	50
1866	.	.	.	.	.	30	1898	.	.	.	.	.	46
1867	.	.	.	.	.	49	1899	.	.	.	.	.	43
1868	.	.	.	.	.	46	1900	.	.	.	.	.	43
1869	.	.	.	.	.	43	1901	.	.	.	.	.	48
1870	.	.	.	.	.	47	1902	.	.	.	.	.	46
1871	.	.	.	.	.	48	1903	.	.	.	.	.	48
1872	.	.	.	.	.	41	1904	.	.	.	.	.	49
1873	.	.	.	.	.	41	1905	.	.	.	.	.	47
1874	.	.	.	.	.	43	1906	.	.	.	.	.	43
1875	.	.	.	.	.	43	1907	.	.	.	.	.	45
1876	.	.	.	.	.	52	1908	.	.	.	.	.	50
1877	.	.	.	.	.	43	1909	.	.	.	.	.	49
1878	.	.	.	.	.	37	1910	.	.	.	.	.	49
1879	.	.	.	.	.	49	1911	.	.	.	.	.	51
1880	.	.	.	.	.	48	1912	.	.	.	.	.	..
1881	.	.	.	.	.	43	1913	.	.	.	.	.	..

TABLE XVI

ANNUAL CLEARINGS OF THE LONDON BANKERS' CLEARING-HOUSE
(In Millions ¹)

1870	3,914	1892	6,482
1871	4,826	1893	6,478
1872	5,916	1894	6,337
1873	6,071	1895	7,593
1874	5,937	1896	7,575
1875	5,666	1897	7,491
1876	4,963	1898	8,097
1877	5,042	1899	9,150
1878	4,992	1900	8,960
1879	4,886	1901	9,561
1880	5,794	1902	10,029
1881	6,357	1903	10,120
1882	6,221	1904	10,564
1883	5,929	1905	12,288
1884	5,799	1906	12,711
1885	5,511	1907	12,730
1886	5,902	1908	12,120
1887	6,077	1909	13,525
1888	6,942	1910	14,659
1889	7,619	1911	14,614
1890	7,801	1912	15,962
1891	6,848	1913	16,436

¹ From the "Statistical Abstract of the U.K."

TABLE XVII

AVERAGE ANNUAL RATES OF DISCOUNT OF GOOD 3-MONTHS
BANKERS' BILLS IN LONDON¹

1845	. . . . .	3-00	1879	. . . . .	2-14
1846	. . . . .	3-75	1880	. . . . .	2-53
1847	. . . . .	5-87	1881	. . . . .	3-05
1848	. . . . .	3-25	1882	. . . . .	3-55
1849	. . . . .	2-25	1883	. . . . .	3-22
1850	. . . . .	2-25	1884	. . . . .	2-57
1851	. . . . .	3-00	1885	. . . . .	2-40
1852	. . . . .	1-87	1886	. . . . .	2-33
1853	. . . . .	3-50	1887	. . . . .	2-65
1854	. . . . .	4-87	1888	. . . . .	2-53
1855	. . . . .	4-55	1889	. . . . .	2-85
1856	. . . . .	5-50	1890	. . . . .	3-88
1857	. . . . .	6-65	1891	. . . . .	2-77
1858	. . . . .	2-75	1892	. . . . .	1-76
1859	. . . . .	2-50	1893	. . . . .	2-32
1860	. . . . .	4-00	1894	. . . . .	1-18
1861	. . . . .	5-00	1895	. . . . .	0-96
1862	. . . . .	2-25	1896	. . . . .	1-56
1863	. . . . .	4-25	1897	. . . . .	1-92
1864	. . . . .	7-00	1898	. . . . .	2-62
1865	. . . . .	5-32	1899	. . . . .	3-35
1866	. . . . .	6-41	1900	. . . . .	3-70
1867	. . . . .	2-66	1901	. . . . .	3-17
1868	. . . . .	2-46	1902	. . . . .	2-97
1869	. . . . .	3-37	1903	. . . . .	3-38
1870	. . . . .	3-28	1904	. . . . .	2-68
1871	. . . . .	2-89	1905	. . . . .	2-62
1872	. . . . .	4-08	1906	. . . . .	3-97
1873	. . . . .	4-70	1907	. . . . .	4-49
1874	. . . . .	3-56	1908	. . . . .	2-29
1875	. . . . .	3-14	1909	. . . . .	2-28
1876	. . . . .	2-26	1910	. . . . .	3-16
1877	. . . . .	2-62	1911	. . . . .	2-90
1878	. . . . .	3-59			

¹ From "The Rate of Discount and the Price of Consols," by T. T. Williams, *Journal of the Royal Statistical Society*, 1912, pp. 382-4.

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