



RESEARCH PAPER 99/20
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Inflation: the Value of the Pound 1750-1998

The Library is often asked about how the purchasing power of the pound has changed over various periods. This Research Paper attempts to provide a long-term perspective by presenting a price index for the period 1750 to 1998 based on a range of official and unofficial sources. The results suggest that, over this period, prices have risen by around 118 times with a rise in excess of 61 fold since 1914. This Paper replaces Research Paper 97/76.

Robert Twigger

ECONOMIC POLICY AND STATISTICS SECTION

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Summary of main points

- This paper presents a price index covering the period 1750 to 1998 to illustrate the way in which the purchasing power of the pound has changed over the long-term.
- Over the period as a whole, prices have risen by around 118 times. Thus one (decimal) penny in 1750 would have had greater purchasing power than a pound in 1998.
- Since 1945 prices have risen in every year with an aggregate rise of over 22 times. By contrast, prices were lower in 1939 than in 1919.

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I Introduction

Inflation - the increase in the general level of prices over a specified period - reduces the internal value of a currency. Thus, for example, if prices double, any given (nominal) amount of currency will buy half the goods and services it previously did. On the other hand, although unusual in the UK since the Second World War, a period of falling prices results in an increase in purchasing power. This paper presents a price index covering the period 1750 to 1998 to illustrate the way in which the purchasing power of the pound has changed over the long-term. No attempt is made to measure changes in the external value of the currency as a result of movements in exchange rates but changes in the prices of imported goods are reflected in the price index.

It must be stressed that, for a number of reasons, such an exercise is very approximate. Expenditure patterns have changed dramatically over the past 250 years. While many products now commonly purchased (cars, electrical appliances, processed foods, etc) simply did not exist in 1750, goods which consumed a large share of household budgets in the Eighteenth Century - candles for instance - are now an insignificant part of most families' expenditure. It is, however, possible to compare price levels over the long-term by linking price indices covering relatively short periods into a single series. Even so, indices covering only a few years can become unrepresentative if they are not adjusted to reflect changes in expenditure patterns. A further problem with long-term comparisons involves changes in the quality of goods. For example, while it is possible to compare the price of a Mini today with that in 1959, it is much more difficult to identify the degree to which the increase in price reflects the improved specification of the car.

In addition, the further one looks back into history, the more difficult it is to obtain reliable information. The first official consumer price index - the **Cost of Living Index** which reflected changes in the cost of providing a standard of living prevalent in working class households - started in 1914. There are also periods for which a number of alternative indices are available which can suggest different trends in price levels. Therefore, although the results in this Paper are presented in unrounded form to facilitate computation and presentation, they are not necessarily accurate to the degree suggested.

II Sources

Information on changes in the level of prices faced by consumers comes from two main types of source. The more familiar are consumer price indices such as the **Retail Prices Index** but alternative measures can be derived from national accounts statistics. In the national accounts, estimates of consumers' expenditure are produced at both cash and constant prices from which a **price deflator for consumers' expenditure** can be implied.

The price series presented in this Paper is derived from the following sources (listed in reverse chronological order). Further details of the source material is available from the Library:

1974 to 1998

- the all-items Retail Prices Index as published by the Office for National Statistics. Annual data are the average of monthly figures.¹

1948 to 1974

- the implied deflator for household final consumption derived from the official national accounts of the United Kingdom.² This component has been revised since the last version of this paper as a result of the UK's adoption of the 1995 European System of National Accounts (ESA95).

1870 to 1948

- the implied deflator for consumers' expenditure derived from the unofficial national accounts of the United Kingdom produced by the Department of Applied Economics at Cambridge University.³

1850 to 1870

- a retail price index constructed by Sir Walter Layton and Geoffrey Crowther covering the period 1850 to 1933.⁴

1750 to 1850

- an index of consumables' prices constructed by E H Phelps-Brown and Sheila Hopkins covering the period 1264 to 1954.⁵

An alternative long-term price index (covering the period 1914 to date excluding the years 1939 to 1945 inclusive) based solely on official sources is published by the Office for National Statistics in its monthly business monitor on the Retail Prices Index.⁶

¹ Source: ONS database series CHAW, CBAB

² Source: ONS database series ABJQ & ABJR

³ Source: C H Feinstein, *National Income, Expenditure and Output of the United Kingdom 1855 to 1965, 1972*, tables 3 and 5. For the period 1938 to 1948 two alternative estimates of prices changes are available, one based on the structure of expenditure in 1938 and the other on the structure of expenditure in 1948. The figures in table 1 for this period have been adjusted so that they represent the average of these two estimates.

⁴ W Layton and G Crowther, *An Introduction to the Study of Prices*, 1935, table 1

⁵ E H Phelps-Brown and S Hopkins, "Seven Centuries of the Prices of Consumables compared with Builders' Wage-rates", *Economica*, November 1956, pp296-314

⁶ *Retail Prices Index*, Business Monitor MM23, table 14

III Results

Table 1 (pages 11-16) shows for each year the level of the price index with 1974 equal to 100 and the value of the pound relative to a base of 100 pence in 1974. 1974 was chosen as the base year largely on the pragmatic grounds that, as well as being one of the link years in the series, its use prevents the data at the start and the end of the period being inconveniently large or small. The table also shows the change in prices (the **inflation rate**) each year. Over the period as a whole, prices have risen by around 118 times. Thus one (decimal) penny in 1750 would have had greater purchasing power than a pound in 1998.

Although there was considerable fluctuation in price levels prior to 1914 (reflecting the quality of the harvest, wars, etc) there was not the long-term steady increase in prices associated with the period since 1945. Prices in 1914 were roughly twice their level in 1750 but were below the level of the early Nineteenth Century. Prices doubled during the First World War but in most years between 1921 and 1938 prices fell or showed very small increases. Although prices began to rise during the Second World War the increase was less marked than during the First World War. Since 1945 prices have risen in every year with an aggregate rise of over 22 times. In the period 1974 to 1981 inflation was above 10% in each year except 1978 and prices more than tripled in these eight years. Despite lower inflation rates in the late 1980s and early 1990s, prices rose by some 52% between 1988 and 1998.

Chart 1 (page 18) plots the price index for the period 1750 to 1998. Although such a graph illustrates the extent to which the absolute increase in prices has been concentrated in recent years, it over-emphasises the proportional impact. For example, in chart 1 a doubling of the price index in the Eighteenth Century from, say, 5 to 10 appears to be much less significant than a doubling in the 1970s from 100 to 200. Such problems can be overcome by use of a logarithmic scale as in chart 2 (page 18). With a logarithmic scale, equal proportional increases have the same vertical displacement whatever the initial value. Charts 3 and 4 (page 19) plot the value of the pound on linear and logarithmic scales respectively. Chart 5 (page 20) plots the rate of inflation in each year.

Table 2 (page 21) shows the value of the pound at 20 year intervals between 1758 and 1998. In each column the value of the pound is equivalent to 100 pence in a different year. Table 3 (page 22) provides a similar analysis for each year since 1979.

IV Specimen calculations

The examples overleaf illustrate how the price index in table 1 can be used to answer frequently asked questions.

Example 1: How much would have been needed in 1998 to have the same purchasing power as £100 in 1850?

From table 1 the price index for 1850 was 8.2 and the index for 1998 was 592.3. In 1998 the average price level was some 72 times ($592.3 \div 8.2$) the 1850 level. Thus, to have the same purchasing power as £100 in 1850 one would have needed some £7,200 [$72 \times £100$].

Example 2: What was the purchasing power of a pound in 1998 compared to the pound in 1930?

From table 1 the price index for 1930 was 16.9 and the index for 1998 was 592.3. In 1998 the average price level was some 35 times ($592.3 \div 16.9$) the 1930 level. Thus, relative to 1930, a pound in 1998 was worth 3 (decimal) pence [$100 \text{p} \div 35$].

Example 3: Cheddar cheese cost 17 pence per kilogram⁷ in 1923 and 490 pence in 1998. How did the price change in real terms?

From table 1 the price index for 1923 was 18.2 and the index for 1998 was 592.3. In 1998 the average price level was 32.5 times ($592.3 \div 18.2$) the 1923 level. Over the same period the price of cheese rose by 28.8 times ($490 \div 17$). Thus, in real terms, the price has fallen by 11% [$((28.8 \div 32.5) - 1) \times 100$].

⁷ Converted from 1s 6d per pound (source: O Newman & A Foster, *The Value of a Pound*, 1995).

Table 1**Price Index 1750 to 1998**

Year	Price index 1974=100	Value of the pound 1974= 100 pence	Change in prices on year before
1750	5.0	1,997	-3.1%
1751	4.9	2,053	-2.7%
1752	5.1	1,961	4.7%
1753	5.0	2,014	-2.7%
1754	5.2	1,916	5.1%
1755	4.9	2,039	-6.0%
1756	5.1	1,957	4.2%
1757	6.2	1,607	21.8%
1758	6.2	1,612	-0.3%
1759	5.7	1,751	-7.9%
1760	5.5	1,832	-4.5%
1761	5.2	1,919	-4.5%
1762	5.4	1,847	3.9%
1763	5.6	1,799	2.7%
1764	6.1	1,653	8.9%
1765	6.3	1,597	3.5%
1766	6.3	1,577	1.2%
1767	6.7	1,492	5.8%
1768	6.6	1,509	-1.1%
1769	6.1	1,643	-8.2%
1770	6.1	1,650	-0.4%
1771	6.6	1,520	8.5%
1772	7.3	1,373	10.7%
1773	7.3	1,378	-0.3%
1774	7.3	1,365	0.9%
1775	6.9	1,446	-5.6%
1776	6.8	1,478	-2.2%
1777	6.7	1,484	-0.4%
1778	7.0	1,426	4.0%
1779	6.4	1,559	-8.5%
1780	6.2	1,614	-3.4%
1781	6.5	1,550	4.1%
1782	6.6	1,518	2.1%
1783	7.4	1,356	12.0%
1784	7.4	1,348	0.6%
1785	7.1	1,404	-4.0%
1786	7.1	1,404	0.0%
1787	7.1	1,413	-0.6%
1788	7.4	1,359	4.0%
1789	7.3	1,377	-1.3%

Table 1**Price Index 1750 to 1998**

Year	Price index 1974=100	Value of the pound 1974= 100 pence	Change in prices on year before
1790	7.4	1,353	1.8%
1791	7.4	1,354	-0.1%
1792	7.5	1,334	1.5%
1793	7.7	1,298	2.8%
1794	8.3	1,205	7.7%
1795	9.3	1,080	11.6%
1796	9.9	1,015	6.4%
1797	8.9	1,128	-10.0%
1798	8.7	1,153	-2.2%
1799	9.7	1,026	12.3%
1800	13.3	752	36.5%
1801	14.9	673	11.7%
1802	11.4	874	-23.0%
1803	10.8	929	-5.9%
1804	11.1	900	3.2%
1805	12.9	775	16.2%
1806	12.3	810	-4.4%
1807	12.1	826	-1.9%
1808	12.5	798	3.4%
1809	13.7	728	9.7%
1810	14.2	706	3.2%
1811	13.8	726	-2.9%
1812	15.6	642	13.2%
1813	16.0	626	2.5%
1814	13.9	718	-12.7%
1815	12.5	803	-10.7%
1816	11.4	877	-8.4%
1817	13.0	772	13.5%
1818	13.0	770	0.3%
1819	12.7	790	-2.5%
1820	11.5	871	-9.3%
1821	10.1	990	-12.0%
1822	8.7	1,145	-13.5%
1823	9.3	1,072	6.8%
1824	10.1	988	8.6%
1825	11.9	842	17.4%
1826	11.2	891	-5.5%
1827	10.5	953	-6.5%
1828	10.2	981	-2.9%
1829	10.1	991	-1.0%

Table 1**Price Index 1750 to 1998**

Year	Price index 1974=100	Value of the pound 1974= 100 pence	Change in prices on year before
1830	9.7	1,028	-3.6%
1831	10.7	935	9.9%
1832	9.9	1,010	-7.4%
1833	9.3	1,075	-6.1%
1834	8.6	1,165	-7.8%
1835	8.7	1,146	1.7%
1836	9.7	1,033	11.0%
1837	9.9	1,008	2.5%
1838	10.0	1,001	0.7%
1839	10.7	933	7.3%
1840	10.9	916	1.8%
1841	10.7	938	-2.3%
1842	9.9	1,015	-7.6%
1843	8.7	1,144	-11.3%
1844	8.7	1,145	-0.1%
1845	9.2	1,092	4.9%
1846	9.5	1,050	4.0%
1847	10.7	937	12.0%
1848	9.4	1,066	-12.1%
1849	8.8	1,138	-6.3%
1850	8.2	1,216	-6.4%
1851	8.0	1,254	-3.0%
1852	8.0	1,254	0.0%
1853	8.7	1,147	9.3%
1854	10.0	997	15.1%
1855	10.4	965	3.3%
1856	10.4	965	0.0%
1857	9.8	1,022	-5.6%
1858	9.0	1,116	-8.4%
1859	8.8	1,136	-1.8%
1860	9.1	1,095	3.7%
1861	9.4	1,067	2.7%
1862	9.1	1,095	-2.6%
1863	8.8	1,136	-3.6%
1864	8.7	1,147	-0.9%
1865	8.8	1,136	0.9%
1866	9.4	1,067	6.5%
1867	10.0	1,005	6.1%
1868	9.8	1,022	-1.7%
1869	9.3	1,076	-5.0%

Table 1**Price Index 1750 to 1998**

Year	Price index 1974=100	Value of the pound 1974= 100 pence	Change in prices on year before
1870	9.3	1,076	0.0%
1871	9.4	1,061	1.4%
1872	9.9	1,014	4.7%
1873	10.2	983	3.1%
1874	9.8	1,017	-3.3%
1875	9.7	1,036	-1.9%
1876	9.6	1,039	-0.3%
1877	9.6	1,047	-0.7%
1878	9.3	1,071	-2.2%
1879	8.9	1,120	-4.4%
1880	9.2	1,087	3.0%
1881	9.1	1,099	-1.1%
1882	9.2	1,088	1.0%
1883	9.1	1,093	-0.5%
1884	8.9	1,123	-2.7%
1885	8.6	1,158	-3.0%
1886	8.5	1,177	-1.6%
1887	8.5	1,183	-0.5%
1888	8.5	1,175	0.7%
1889	8.6	1,159	1.4%
1890	8.6	1,157	0.2%
1891	8.7	1,148	0.7%
1892	8.7	1,144	0.4%
1893	8.7	1,153	-0.7%
1894	8.5	1,176	-2.0%
1895	8.4	1,188	-1.0%
1896	8.4	1,192	-0.3%
1897	8.5	1,175	1.5%
1898	8.5	1,171	0.3%
1899	8.6	1,163	0.7%
1900	9.0	1,106	5.1%
1901	9.1	1,101	0.5%
1902	9.1	1,101	0.0%
1903	9.1	1,097	0.4%
1904	9.1	1,100	-0.2%
1905	9.1	1,095	0.4%
1906	9.1	1,096	0.0%
1907	9.2	1,082	1.2%
1908	9.3	1,078	0.5%
1909	9.3	1,072	0.5%

Table 1**Price Index 1750 to 1998**

Year	Price index 1974=100	Value of the pound 1974= 100 pence	Change in prices on year before
1910	9.4	1,063	0.9%
1911	9.4	1,061	0.1%
1912	9.7	1,031	3.0%
1913	9.7	1,035	-0.4%
1914	9.6	1,038	-0.3%
1915	10.8	922	12.5%
1916	12.8	781	18.1%
1917	16.0	624	25.2%
1918	19.6	511	22.0%
1919	21.5	465	10.1%
1920	24.8	403	15.4%
1921	22.7	440	-8.6%
1922	19.5	512	-14.0%
1923	18.4	545	-6.0%
1924	18.2	549	-0.7%
1925	18.3	547	0.3%
1926	18.1	551	-0.8%
1927	17.7	565	-2.4%
1928	17.7	566	-0.3%
1929	17.5	571	-0.9%
1930	17.0	588	-2.8%
1931	16.3	614	-4.3%
1932	15.9	630	-2.6%
1933	15.5	644	-2.1%
1934	15.5	644	0.0%
1935	15.6	640	0.7%
1936	15.8	635	0.7%
1937	16.3	614	3.4%
1938	16.5	605	1.6%
1939	17.1	586	3.1%
1940	20.0	500	17.2%
1941	22.2	450	11.2%
1942	23.9	418	7.5%
1943	24.8	403	3.7%
1944	25.5	391	3.1%
1945	26.4	379	3.2%
1946	27.3	367	3.5%
1947	29.3	341	7.4%
1948	31.2	320	6.6%
1949	32.0	312	2.6%

Table 1**Price Index 1750 to 1998**

Year	Price index 1974=100	Value of the pound 1974= 100 pence	Change in prices on year before
1950	32.9	304	2.8%
1951	36.1	277	9.5%
1952	38.0	263	5.3%
1953	38.8	258	2.2%
1954	39.5	253	1.9%
1955	40.9	244	3.5%
1956	42.9	233	4.7%
1957	44.3	226	3.3%
1958	45.5	220	2.7%
1959	45.9	218	0.9%
1960	46.4	216	1.1%
1961	47.7	210	2.9%
1962	49.4	202	3.6%
1963	50.3	199	1.8%
1964	52.1	192	3.5%
1965	54.7	183	5.0%
1966	56.7	176	3.8%
1967	58.3	172	2.7%
1968	61.0	164	4.7%
1969	64.4	155	5.6%
1970	68.2	147	5.9%
1971	74.0	135	8.6%
1972	78.7	127	6.4%
1973	85.4	117	8.4%
1974	100.0	100	17.2%
1975	124.2	80	24.2%
1976	144.8	69	16.5%
1977	167.7	60	15.8%
1978	181.7	55	8.3%
1979	206.0	49	13.4%
1980	243.0	41	18.0%
1981	271.9	37	11.9%
1982	295.3	34	8.6%
1983	308.8	32	4.6%
1984	324.2	31	5.0%
1985	344.0	29	6.1%
1986	355.7	28	3.4%
1987	370.5	27	4.2%
1988	388.7	26	4.9%
1989	418.9	24	7.8%

Table 1

Price Index 1750 to 1998

Year	Price index 1974=100	Value of the pound 1974= 100 pence	Change in prices on year before
1990	458.5	22	9.5%
1991	485.4	21	5.9%
1992	503.6	20	3.7%
1993	511.6	20	1.6%
1994	523.9	19	2.4%
1995	542.1	18	3.5%
1996	555.2	18	2.4%
1997	572.7	17	3.1%
1998	592.3	17	3.4%

Chart 1

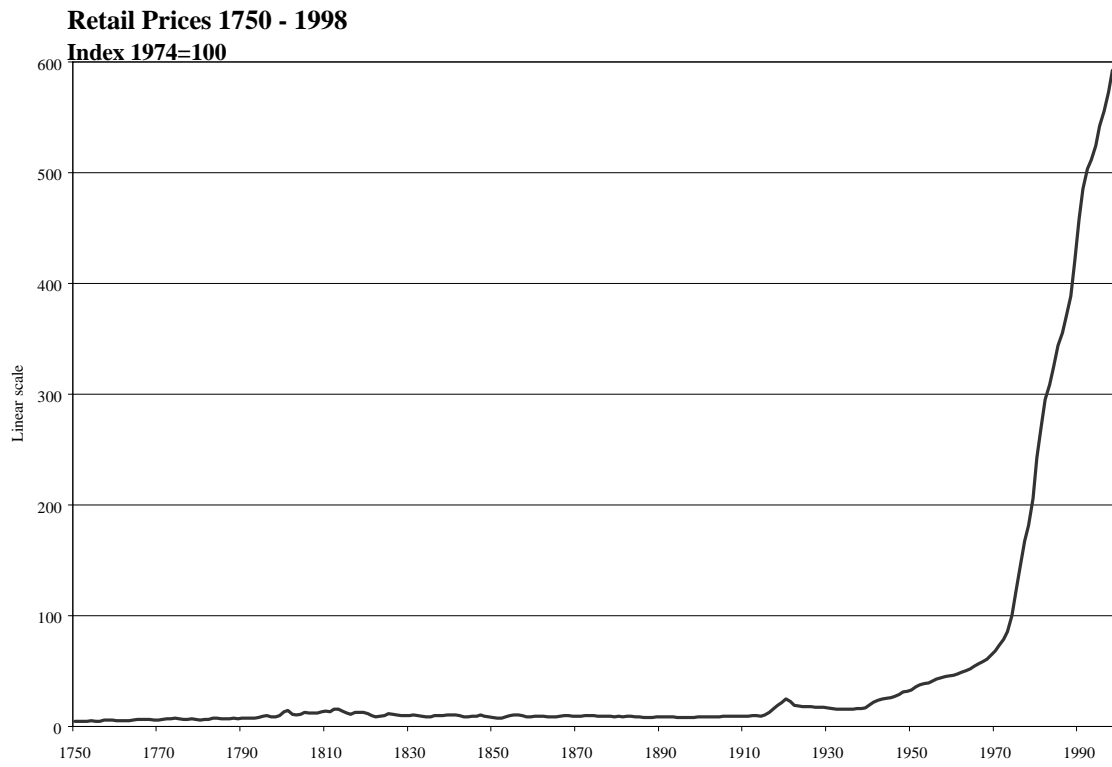


Chart 2

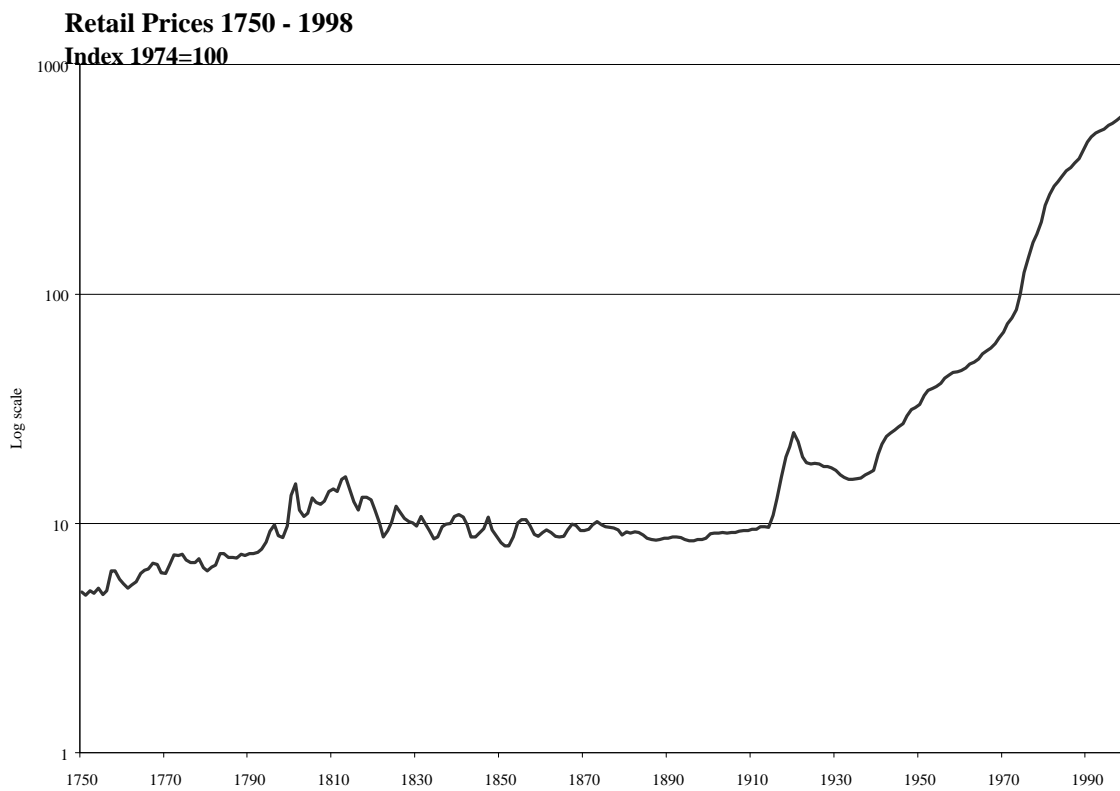


Chart 3

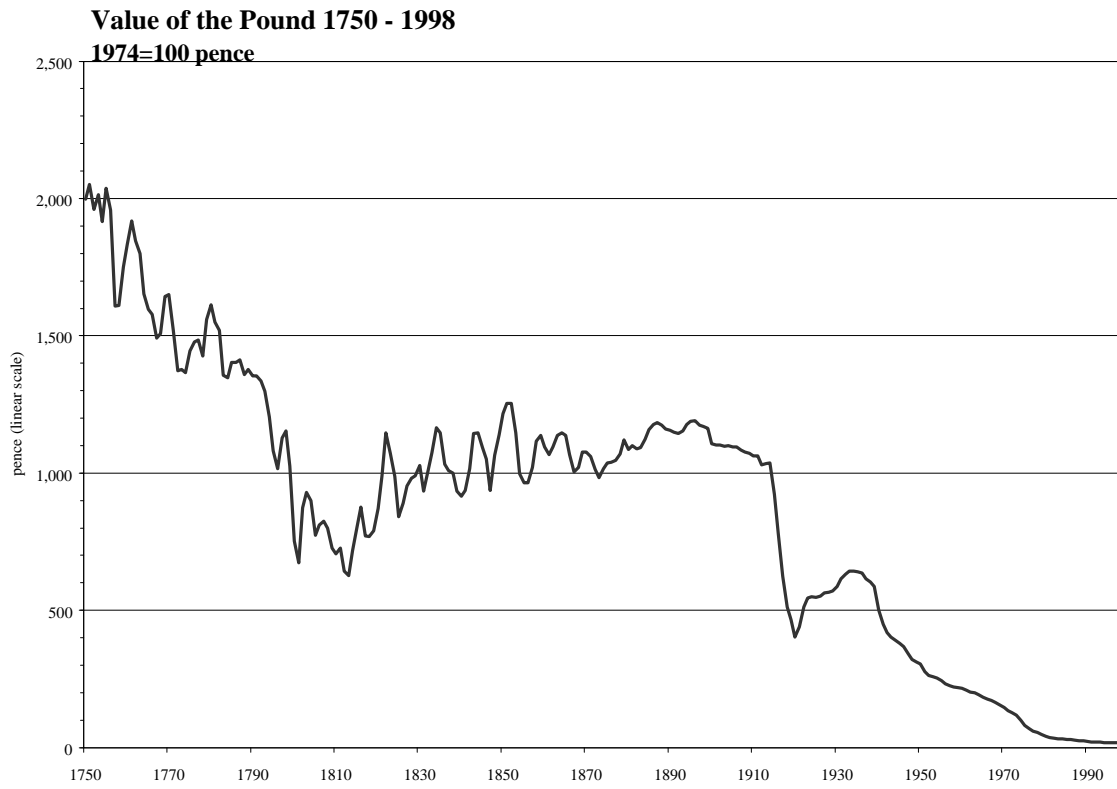


Chart 4

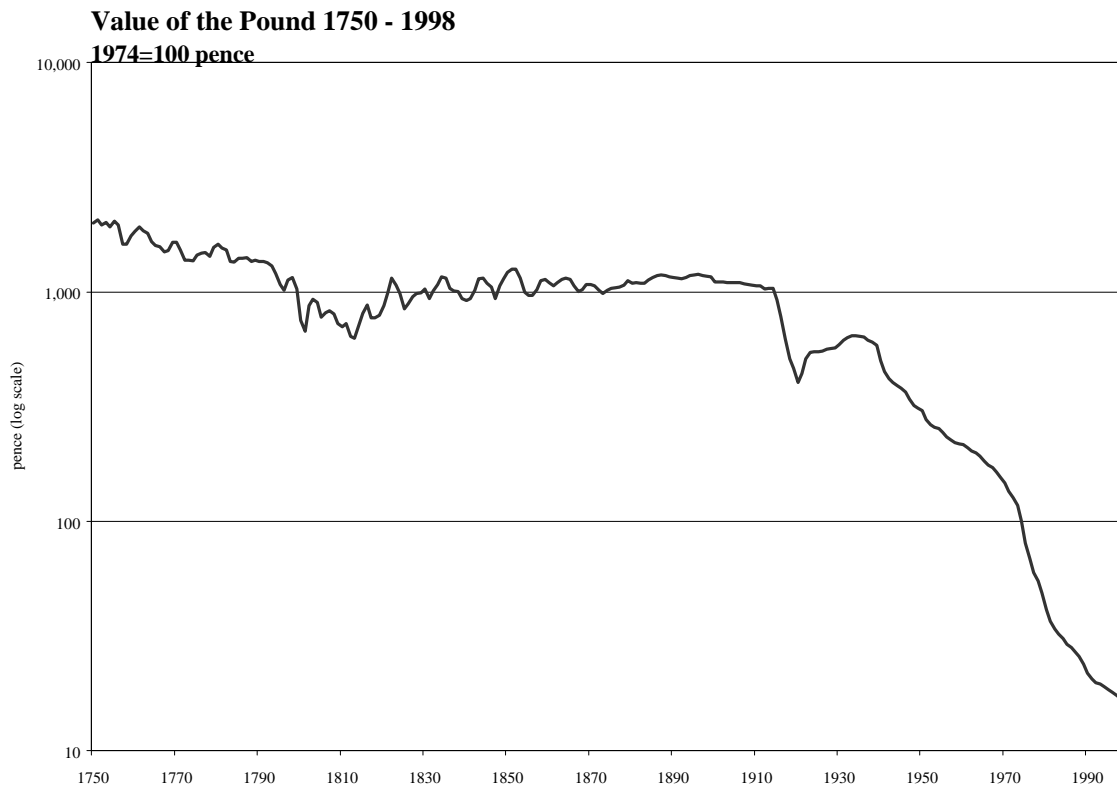


Chart 5

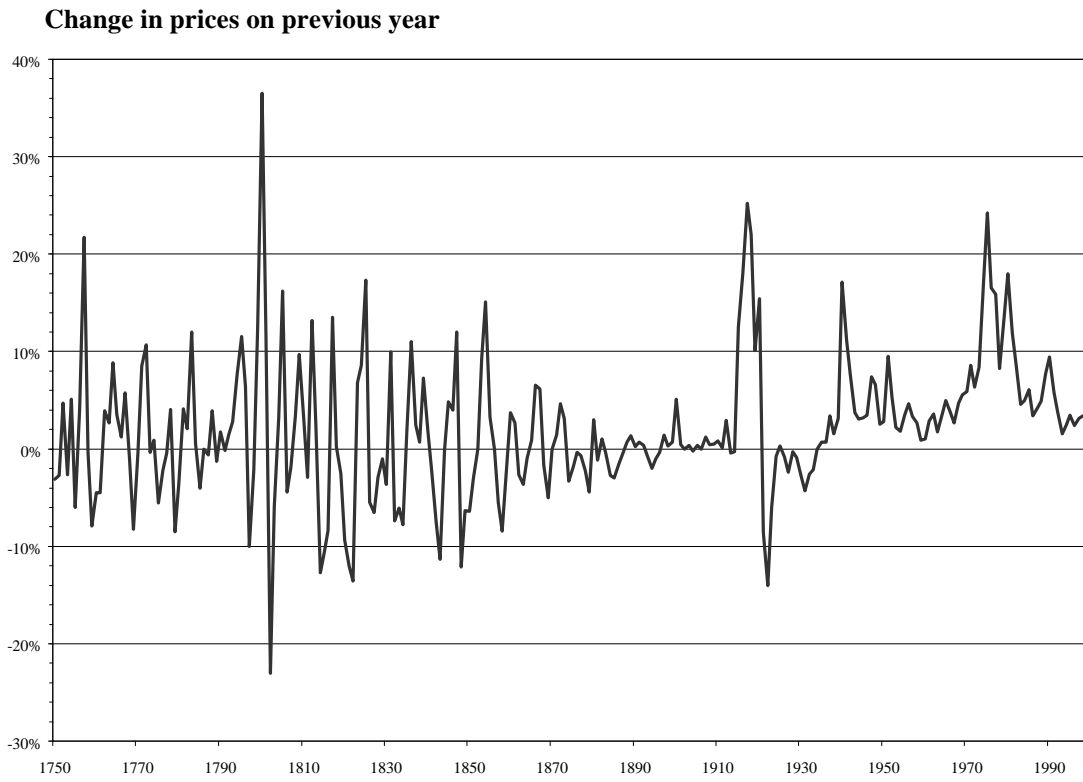


Table 2

Purchasing Power of the Pound 1758 to 1998 (pence)

	Year in which value equals 100 pence												
	1758	1778	1798	1818	1838	1858	1878	1898	1918	1938	1958	1978	1998
1758	100	113	140	209	161	144	151	138	315	267	733	2,928	9,547
1778	88	100	124	185	142	128	133	122	279	236	649	2,591	8,449
1798	72	81	100	150	115	103	108	98	225	191	524	2,094	6,829
1818	48	54	67	100	77	69	72	66	151	127	350	1,399	4,561
1838	62	70	87	130	100	90	94	85	196	166	455	1,819	5,929
1858	69	78	97	145	111	100	104	95	218	185	507	2,027	6,608
1878	66	75	93	139	107	96	100	91	209	177	487	1,945	6,342
1898	73	82	102	152	117	105	109	100	229	194	532	2,127	6,937
1918	32	36	44	66	51	46	48	44	100	85	233	929	3,029
1938	38	42	52	78	60	54	56	52	118	100	275	1,098	3,581
1958	14	15	19	29	22	20	21	19	43	36	100	400	1,303
1978	3	4	5	7	5	5	5	5	11	9	25	100	326
1998	1	1	1	2	2	2	2	1	3	3	8	31	100

Table 3

Purchasing Power of the Pound 1979 to 1998 (pence)

	Year in which value equals 100 pence																			
	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
1979	100	118	132	143	150	157	167	173	180	189	203	223	236	244	248	254	263	270	278	288
1980	85	100	112	122	127	133	142	146	152	160	172	189	200	207	210	216	223	228	236	244
1981	76	89	100	109	114	119	127	131	136	143	154	169	179	185	188	193	199	204	211	218
1982	70	82	92	100	105	110	116	120	125	132	142	155	164	171	173	177	184	188	194	201
1983	67	79	88	96	100	105	111	115	120	126	136	148	157	163	166	170	176	180	185	192
1984	64	75	84	91	95	100	106	110	114	120	129	141	150	155	158	162	167	171	177	183
1985	60	71	79	86	90	94	100	103	108	113	122	133	141	146	149	152	158	161	166	172
1986	58	68	76	83	87	91	97	100	104	109	118	129	136	142	144	147	152	156	161	167
1987	56	66	73	80	83	88	93	96	100	105	113	124	131	136	138	141	146	150	155	160
1988	53	63	70	76	79	83	88	92	95	100	108	118	125	130	132	135	139	143	147	152
1989	49	58	65	71	74	77	82	85	88	93	100	109	116	120	122	125	129	133	137	141
1990	45	53	59	64	67	71	75	78	81	85	91	100	106	110	112	114	118	121	125	129
1991	42	50	56	61	64	67	71	73	76	80	86	94	100	104	105	108	112	114	118	122
1992	41	48	54	59	61	64	68	71	74	77	83	91	96	100	102	104	108	110	114	118
1993	40	48	53	58	60	63	67	70	72	76	82	90	95	98	100	102	106	109	112	116
1994	39	46	52	56	59	62	66	68	71	74	80	88	93	96	98	100	103	106	109	113
1995	38	45	50	54	57	60	63	66	68	72	77	85	90	93	94	97	100	102	106	109
1996	37	44	49	53	56	58	62	64	67	70	75	83	87	91	92	94	98	100	103	107
1997	36	42	47	52	54	57	60	62	65	68	73	80	85	88	89	91	95	97	100	103
1998	35	41	46	50	52	55	58	60	63	66	71	77	82	85	86	88	92	94	97	100