

# Inflation-adjusted sectoral saving and financial balances

*This note<sup>(1)</sup> presents revised and updated<sup>(2)</sup> estimates of sectoral saving and financial balances adjusted for the effects of actual price inflation on net monetary assets and liabilities.<sup>(3)</sup> As the fall in inflation from a peak in 1979 had a marked effect on inflation-adjusted saving and financial balances of the major sectors, so the rise of inflation in 1988 has increased the size of the adjustment to savings.*

## Methodology

In inflationary periods, holders of monetary assets suffer capital losses and holders of liabilities make capital gains. These losses and gains need to be considered when calculating comprehensive income—which may be defined as the amount an individual can consume in a period and still be as well off at the end of the period as at the beginning. The national accounts estimates of income include net nominal interest payments. When prices are rising, interest rates and thus payments tend to rise to compensate for the effect of inflation on the real value of the debt. Thus interest payments comprise two parts, a true interest payment and an element of compensation for inflation to maintain the real value of the investors' capital. The latter may be regarded as a partial repayment of capital and should be deducted from income in order to arrive at a better measure of real income.

This approach to accounting for the effects of inflation is partial in that only changes in the value of monetary assets are considered. Non-monetary assets are not considered on the grounds that their prices tend to rise in line with inflation in the long run. Although the gains and losses on such assets may have a significant impact on economic behaviour, it may be argued that an estimate of inflation gains and losses on monetary assets alone is

nevertheless worthwhile. Accrued gains on non-monetary assets may be less often realised, in particular, because of the sparse nature of the markets for some assets. The gains on some assets held by the household sector, for example houses, do not enter the national accounts and therefore there is no need on grounds of consistency to adjust the published income flows for inflation gains on such assets.

The estimates of inflation erosion are obtained by multiplying the stock of monetary assets/liabilities of each sector by the current rate of inflation as measured by the change in the consumers' expenditure deflator. This deflator was chosen because it is assumed that the ultimate objective of economic activity is consumption. An alternative deflator would be the retail price index. Sectoral monetary assets and liabilities are calculated by cumulating monetary flows from a stock level in 1978. These are measured at mid-year, as this gives an approximation to the average of the sectoral position over the year. For the component of net monetary assets denominated in foreign currencies, movements in the consumers' expenditure deflator are taken net of movements in the exchange rate, measured by the value of sterling against a basket of currencies weighted according to the composition of the SDR.<sup>(4)</sup>

**Table A**  
**Inflation losses/gains on real value of net monetary assets/liabilities by sector:1979-88**

£ billions; percentages in italics

	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988
<b>Sectoral net monetary assets (a)(b)</b> (mid-year estimates)										
Personal sector	91.8	100.4	112.6	121.6	136.2	137.6	150.8	166.2	190.9	169.7
Company sector	-12.8	-13.3	-9.4	-19.7	-24.3	-10.1	-5.8	-11.3	-36.3	-14.3
Public sector	-88.1	-97.2	-107.1	-110.4	-119.2	-130.6	-143.3	-151.1	-153.4	-145.6
<b>Total domestic sector</b>	-9.1	-10.1	-3.9	-8.5	-7.3	-3.1	1.7	3.8	1.2	9.8
Overseas sector	9.1	10.1	3.8	8.5	7.3	3.1	-1.7	-3.8	-1.3	-9.8
<i>Change over year of consumers' expenditure deflator (per cent)</i>	<i>16.2</i>	<i>12.8</i>	<i>10.3</i>	<i>7.1</i>	<i>4.2</i>	<i>5.1</i>	<i>4.9</i>	<i>4.2</i>	<i>3.7</i>	<i>5.4</i>
<i>Ex post gains (+) and losses (-) on net monetary liabilities</i>										
Personal sector	-15.1	-12.8	-11.7	-8.8	-5.9	-7.3	-7.6	-6.8	-6.8	-9.1
Company sector	2.2	1.7	1.6	1.6	1.2	1.8	-1.0	2.5	-0.5	0.5
Public sector	14.3	12.1	11.9	8.1	5.7	7.5	6.6	7.0	4.6	7.5
<b>Total domestic sector</b>	1.4	1.0	1.8	0.9	1.0	2.0	-2.0	2.7	-2.7	-1.1
Overseas sector (c)	-1.4	-1.0	-1.8	-0.9	-1.0	-1.9	2.0	-2.7	2.7	1.1
<i>Change over year of deflator for foreign currency assets (per cent)</i>	<i>23.8</i>	<i>23.9</i>	<i>-3.7</i>	<i>1.3</i>	<i>-5.5</i>	<i>-8.5</i>	<i>12.7</i>	<i>-7.0</i>	<i>12.5</i>	<i>7.0</i>

(a) At nominal or face value.

(b) Net monetary assets may not sum to zero because of rounding.

(c) Gains and losses may not sum to zero because of rounding.

(1) Written by K J Peters of the Bank's Economics Division.

(2) Figures were last published in the May 1989 *Bulletin*, pages 246-51, and are based on the methodology set out in the article "Real national saving and its sectoral composition" by C T Taylor and A R Threadgold, Bank of England *Discussion paper*, No 6.

(3) Monetary items are defined as assets and liabilities that are fixed in amount by contract or statute in terms of units of currency regardless of changes in the price level.

(4) This approach is based on an 'ex post' view of inflation. Other approaches are possible, based for example on 'ex ante' estimates of inflation, which produce somewhat different results.

**Table B**  
Inflation-adjusted saving and financial balances: 1979-88

£ billions

	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988
<b>Personal sector</b>										
Saving: (a)(b)										
Nominal	10.6	14.6	14.9	14.9	12.6	14.6	12.8	10.3	3.1	-3.7
Adjusted	-4.5	1.8	3.2	6.1	6.7	7.3	5.2	3.5	-3.7	-12.8
Financial balance:										
Nominal	7.1	11.6	12.3	10.3	6.9	8.8	7.5	3.0	-6.5	-15.4
Adjusted	-8.0	-1.2	0.6	1.5	1.0	1.5	-0.1	-3.8	-13.3	-24.4
<b>Company sector</b>										
Saving:										
Nominal	9.0	4.7	3.3	5.4	11.6	14.9	16.4	16.8	20.5	24.3
Adjusted	11.2	6.4	4.9	7.0	12.8	16.7	15.4	19.3	20.0	24.8
Financial balance:										
Nominal	-0.5	-0.1	0.2	1.4	6.8	5.4	5.3	5.3	4.3	-3.8
Adjusted	1.7	1.7	1.8	3.0	8.0	7.2	4.2	7.8	3.8	-3.3
<b>Public sector</b>										
Saving:										
Nominal	-5.3	-7.0	-6.6	-6.3	-6.9	-10.3	-6.9	-6.5	-2.8	5.3
Adjusted	9.0	5.1	5.3	1.8	-1.3	-2.9	-0.3	0.5	1.8	12.8
Financial balance										
Nominal	-8.6	-10.3	-7.8	-7.7	-10.3	-13.0	-9.6	-7.7	-3.6	6.5
Adjusted	5.7	1.8	4.1	0.4	-4.6	-5.5	-3.0	-0.7	1.0	14.0
<b>Total domestic sector</b>										
Saving: (c)										
Nominal	14.3	12.3	11.6	14.0	17.3	19.2	22.3	20.6	20.8	25.9
Adjusted	15.7	13.3	13.4	14.9	18.2	21.1	20.3	23.3	18.1	24.8
Financial balance (d)										
Nominal	-2.0	1.2	4.7	4.0	3.4	1.2	3.2	0.6	-5.8	-12.7
Adjusted	-0.6	2.3	6.5	4.9	4.4	3.2	1.1	3.3	-8.5	13.7

(a) After providing for stock appreciation and capital consumption at replacement cost and net capital transfers.

(b) For the household sector.

£ billions

Saving:

Nominal

Adjusted

(c) Equals dis-saving of overseas sector plus errors and omissions.

(d) Equals financial deficit of overseas sector plus errors and omissions.

Table A sets out the net monetary position of the main sectors of the economy (persons, companies, public and overseas sectors), and the inflation erosion of the value of their monetary assets and liabilities. The company sector consists of industrial and commercial companies, banks, building societies and other financial institutions. Some account is also taken in calculating the personal sector's monetary assets of those monetary assets which are held in life assurance and pension funds (LAPFs). This is done by multiplying the personal sector's holdings of equity in LAPFs by the ratio of their, that is LAPFs', monetary to total assets. Assets are valued at nominal (or face) values not market values. These are often identical, but for certain assets, such as British government securities and debentures, market and face value will only necessarily be the same when they are redeemed.

Table B shows the conventional saving and financial balances for each of the domestic sectors taken from the national accounts, together with the inflation-adjusted figures. Adjusted saving is defined as inflation-adjusted income less consumption. The inflation-adjusted financial balance is defined as the difference between

inflation-adjusted saving and net capital spending (including stockbuilding).

Table C shows the net monetary assets and liabilities of each sector from Table A deflated by the consumers' expenditure deflator (1985 is the base year).

### Recent developments

As can be seen from Table A, the total domestic economy has increasingly become a net creditor in terms of monetary assets in recent years. The UK economy became a net monetary creditor in 1985. The size of the net position rose to £9.8 billion in 1988, when the fall in the personal sector's monetary assets was more than offset by decreases in the net liabilities of the company and public sectors. The personal sector's assets grew between 1979 and 1987, but declined substantially in 1988, although they remained above the level recorded in 1986. This was mainly owing to the movement of debenture and preference shares. In real terms, that is deflated by 1985 consumer prices, the increase in the personal sector's net monetary assets has been less clear cut (see Table C).

**Table C**  
Sectoral 'real' net monetary assets/liabilities

£ billions at 1985 consumer prices

	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988
Personal sector	155.0	141.9	143.7	142.1	151.7	145.5	151.6	160.2	177.4	150.0
Company sector	-21.6	-18.8	-12.0	-23.1	-27.1	-10.7	-5.8	-10.9	-33.7	-12.6
Public sector	-148.7	-137.5	-136.6	-129.0	-132.7	-138.0	-144.1	-145.7	-142.5	-128.6
Total domestic sector (a)	-15.3	-14.4	-4.9	-10.0	-8.1	-3.2	1.7	3.6	1.2	8.8
Overseas sector	15.3	14.3	4.9	10.0	8.1	3.2	-1.7	-3.6	-1.2	-8.7

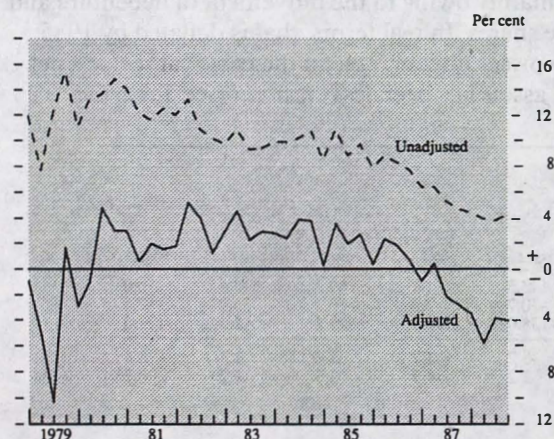
(a) Notional losses and gains between the sectors may not sum to zero because of rounding.

It is noticeable that net assets rose strongly between 1985 and 1987 then fell in 1988 to below the 1979 position.

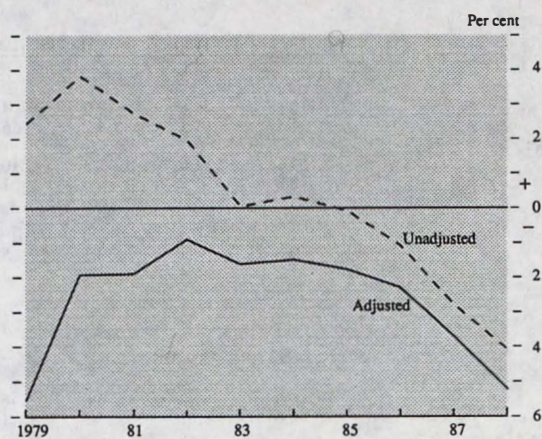
The annual rate of growth of the consumers' expenditure deflator fell from 16.2% in 1979 to 3.7% in 1987 but rose to 5.4% in 1988. The deflator for foreign currency assets has varied far more than the domestic currency deflator, as exchange rates have been far more volatile. Unlike the growth rate of the consumers' expenditure deflator, which tends to be positive (as prices very rarely fall), the growth of the foreign currency asset deflator can be positive or negative as an exchange rate depreciation can more than offset the rise in prices. The net monetary position of the total domestic economy is close to balance so the inflation gains or losses are small. The monetary assets and liabilities of the different sectors are considerably greater and so the inflationary gains or losses are more substantial.

As a large holder of monetary assets, the personal sector has suffered substantial erosion of their real value throughout the period. The decline in the growth of the consumers' expenditure deflator in the early and mid-1980s produced a reduction in the inflation losses. The increase in the growth of the consumers' expenditure deflator in 1988 more than offset the decline in the personal sector's monetary assets and so the personal sector suffered a greater inflation loss, £9.1 billion, than in the previous year. Inflation-adjusted disposable income grew more rapidly than conventionally measured disposable income before 1983. Unadjusted disposable income at 1985 prices was broadly flat in that period but inflation-adjusted real disposable income grew by an average of 1%. Both measures grew at similar rates after 1983. Conventional saving fell substantially in both 1987 and 1988, having declined slightly in the previous two years. Inflation-adjusted saving also declined rapidly in 1987 and 1988, falling to £12.8 billion in the latter year. This reflected the pick-up of inflation. Chart 1 shows that between 1981 and 1985 the inflation-adjusted saving ratio of the personal sector was broadly constant. Between 1980 and 1984 it rose as a proportion of the conventional saving ratio, as savers were rebuilding wealth that had been lost in earlier periods. The fall in the rate of inflation after 1979 did, of course, mean that individuals could

**Chart 1**  
Unadjusted and adjusted personal saving ratio



**Chart 2**  
Unadjusted and adjusted household saving ratio



save less while still maintaining the value of their monetary assets. The inflation-adjusted saving ratio declined substantially after 1986, falling to -4.3% in 1988, while the conventional saving ratio was 4.1%. Chart 2 shows the saving ratio for the household sector, defined as the personal sector excluding LAPFs. There have been similar declines to those of the personal sector as a whole but the household sector ratios have been consistently below those of the personal sector and in inflation-adjusted terms have been negative throughout the period.

The company sector has remained a net monetary debtor throughout the period considered, but its net monetary liabilities fluctuated rather widely. The company sector has considerable monetary assets in foreign currency so the deflator on foreign currency assets can have a significant impact on the inflationary adjustments. Indeed in 1985 and 1987 the effect of the foreign currency deflator dominated and the company sector made inflationary losses. Unadjusted company saving increased throughout the period, rising by £3.8 billion in 1988 to reach £24.3 billion; however, the rise in adjusted savings between 1987 and 1988 was even greater, £4.8 billion. In 1988 the financial balance of companies in unadjusted terms became negative for the first time since 1980. The gains from inflation were insufficient to offset this, unlike the situation in 1979 and 1980, with the result that the company sector's financial balance was negative for the first time in at least ten years.

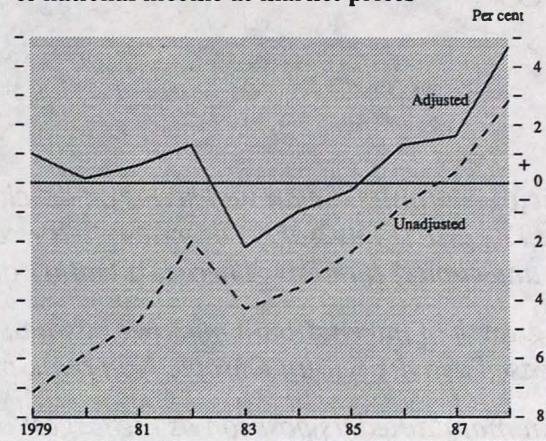
The combined private sector has been a net holder of monetary assets throughout the period as the personal sector's assets have outweighed the company sector's liabilities. Inflationary losses declined from £12.9 billion in 1979 to £4.3 billion in 1986, but subsequently increased to £8.6 billion in 1988 reflecting the increase in inflation. Nominal saving for the entire private sector rose between 1979 and 1984, from £19.6 billion to £29.5 billion. Thereafter, saving decreased to £20.6 billion in 1988 and adjusted saving fell to £12.0 billion.

The monetary liabilities of the public sector decreased in 1988 by £7.8 billion in nominal terms and by £13.9 billion at 1985 prices. However, the inflationary gain was greater

in 1988 than in 1987 as the growth of the consumers' expenditure deflator dominated the fall in net monetary assets.

While unadjusted public sector saving became positive only as recently as 1988 (for the first time in the period), adjusted public sector saving was positive between 1979 and 1982 and has been so since 1986. However, in the earlier period the positive balance reflected the high rate of inflation; in the latter period it was due to the greater amounts of nominal saving. From 1983 to 1986 the 'inflation tax', which has its counterpart in the capital losses experienced by the other sectors on their holdings of public sector debt, was lower than the public sector financial deficit, leaving an adjusted financial deficit. The nominal PSDR moved into surplus in 1987 and reached £11.6 billion in 1988, 2.8% of GDP (Table D and Chart 3). With the rise of inflation in 1988 there was a substantial divergence between the adjusted and the unadjusted PSDR. The inflation gains in 1988 combined with the large increase in nominal PSDR to produce an

**Chart 3**  
Unadjusted and adjusted PSDR as a percentage of national income at market prices



inflation-adjusted PSDR of 4.7% of national income, compared with 1.6% in 1987.

**Table D**  
Public sector debt repayment: 1979-88

£ billions; percentages in italics

	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988
Nominal PSDR (borrowing -)	-12.6	-11.8	-10.5	-4.9	-11.6	-10.3	-7.5	-2.5	1.4	11.6
As a percentage of national income at market prices (a)	<i>-7.1</i>	<i>-5.8</i>	<i>-4.7</i>	<i>-2.0</i>	<i>-4.3</i>	<i>-3.6</i>	<i>-2.4</i>	<i>-0.7</i>	<i>0.4</i>	<i>2.8</i>
Public sector notional gains on net monetary liabilities (b)	14.3	12.1	11.9	8.1	5.7	7.5	6.6	7.0	4.6	7.5
Adjusted PSDR (borrowing -)	1.7	0.3	1.4	3.2	-5.9	-2.8	-0.9	4.5	6.0	19.1
As a percentage of adjusted national income at market prices (a)	<i>1.0</i>	<i>0.2</i>	<i>0.6</i>	<i>1.3</i>	<i>-2.2</i>	<i>-1.0</i>	<i>-0.3</i>	<i>1.3</i>	<i>1.6</i>	<i>4.7</i>

(a) National income plus general government income from net indirect taxes.

(b) From Table A.