

Inflation-adjusted saving and sectoral balances

This note presents revised and updated estimates of sectoral saving and financial balances adjusted for the effects of price inflation on monetary assets and liabilities.⁽¹⁾ The decline in the rate of inflation since 1980 has had a marked effect on inflation-adjusted saving and financial balances of the major sectors, as did its earlier rise. In particular, the less rapid erosion by inflation of the real value of personal sector monetary assets is thought to be a significant factor underlying the strong recovery in consumption in a period when conventionally measured real personal disposable income was little better than flat.

In earlier Bank work published in the *Bulletin* and elsewhere, it has been argued that estimates of 'true' or 'real' income should be obtained by adjusting conventional measures of income in the national accounts for the effects of inflation in two respects: first, to provide for the maintenance of physical capital (depreciation at replacement cost and stock appreciation); and second, to allow for changes in the real value of monetary assets or liabilities fixed in nominal terms.⁽²⁾ In inflationary periods, nominal interest rates tend to move—albeit incompletely—to compensate creditors for the decline in the real value of their assets; actual interest payments as conventionally recorded in the national accounts thus comprise both an inflation compensation element, which can be thought of as partial redemption

of the debt, and a 'true' or 'real' interest component (that is, the amount that an individual could consume without changing the real value of his net monetary assets).

For the economy as a whole, national accounts measurements of income and saving are little affected by the misrepresentation of true income and payments flows, because the combined net external monetary position of the UK domestic sectors is typically close to balance. At the sectoral level, however, the allocation of income and saving is severely distorted by the effect of inflation on nominal flows between creditors and debtors. The net monetary positions of the various sectors are set out in the top half of Table A. In this table, the company sector comprises industrial and commercial companies, banks

Table A

Inflation losses/gains on real value of net monetary assets/liabilities by sector: 1970–1983

£ billions; percentages in italics

	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983(a)
Sectoral net monetary assets (+)/liabilities (-) (mid-year estimates)														
Personal sector	39.4	43.3	45.7	47.8	52.9	58.7	65.8	73.9	81.3	91.2	99.6	112.3	115.9	135.4
Company sector	- 5.5	- 8.0	- 8.8	-10.7	-14.8	-15.6	-14.4	-13.8	-11.8	-12.3	- 12.4	- 8.3	- 14.1	- 27.4
Public sector(b)	-38.0	-39.1	-40.8	-42.5	-45.7	-52.9	-63.8	-72.5	-78.3	-88.6	- 98.5	-109.0	-110.3	-116.7
Total domestic sector	- 4.1	- 3.8	- 3.9	- 5.4	- 7.6	- 9.8	-12.4	-12.3	- 8.8	- 9.7	-11.3	- 5.0	- 8.4	- 8.7
Overseas sector	4.1	3.8	3.9	5.4	7.6	9.8	12.4	12.3	8.8	9.7	11.3	5.0	8.4	8.7
Change in consumers' expenditure deflator (Q4-Q4) (per cent)	7.0	7.8	7.5	10.1	19.9	23.6	14.1	12.2	9.2	16.9	13.6	10.8	6.6	4.9
Erosion of net monetary liabilities (+)/net monetary assets (-) (c)														
Personal sector	- 2.8	- 3.5	- 3.5	- 4.6	-10.7	-13.7	- 9.3	- 9.2	- 7.0	-15.4	-13.6	- 12.0	- 7.6	- 6.4
Company sector	0.4	0.6	0.6	0.8	3.0	3.3	1.5	1.9	0.9	1.9	0.8	2.6	1.0	2.7
Public sector	2.7	3.2	3.1	4.0	9.3	11.9	7.5	9.4	6.7	14.9	13.1	12.3	7.3	5.9
Total domestic sector	0.3	0.3	0.3	0.3	1.5	1.5	- 0.3	2.0	0.6	1.4	0.3	2.9	0.7	2.2
Overseas sector	- 0.3	- 0.3	- 0.3	- 0.3	- 1.5	- 1.5	0.3	- 2.0	- 0.6	- 1.3	- 0.3	- 2.8	- 0.7	- 2.2
Memo item: deflator for foreign currency assets (Q4-Q4) (per cent)	6.7	8.6	- 2.0	1.3	19.4	11.2	- 7.7	17.7	6.7	25.8	25.3	- 0.9	5.9	- 2.2

(a) Estimate based on partial information.

(b) Since December 1978, gold in the official reserves has been valued taking account of market prices, and is treated as a non-monetary asset from that date.

(c) The notional loss or gain is not precisely equal to the product (sign reversed) of sectoral net monetary assets/liabilities and the change in the consumers' expenditure deflator, because of the different deflator used for foreign currency denominated monetary assets and liabilities (shown above). For such assets and liabilities, the rate of change of the consumers' expenditure deflator is taken net of the percentage change in the effective exchange rate (expressed in terms of foreign currency per unit of sterling). This differential effect is especially important in the case of the overseas sector, the net asset position of which is the difference between large gross figures for assets and liabilities in sterling and foreign currencies. Because of rounding, notional losses and gains between the sectors may not sum to zero.

(1) This note is one of an annual series based on the methodology described in the Bank's Discussion Paper No 6 'Real' national saving and its sectoral composition, by C T Taylor and A R Threadgold (summarised in the June 1980 *Bulletin*, page 196). In this note, as in earlier ones, inflation-adjusted magnitudes at current prices are denoted 'real' (in quotes) to distinguish them from magnitudes measured at constant prices, conventionally described as real (without quotes). Preliminary estimates of these data were included in the Fourth Report from the Select Committee on the Treasury and Civil Service: *The 1984 Budget*, House of Commons Paper 341.

(2) Monetary items are defined as assets or liabilities, the amounts of which are fixed by contract or statute in terms of units of currency regardless of changes in the general price level.

Table B
'Real' saving and financial balances: 1970-1983

£ billions

	Annual averages			1979	1980	1981	1982	1983(a)
	1970-1972	1973-1975	1976-1978					
Personal sector								
Saving:(b)								
Nominal	2.0	4.7	7.8	12.3	17.3	14.6	13.4	10.7
'Real'	-1.3	-4.9	-0.7	-3.1	3.7	2.6	6.0	4.3
Financial balance:								
Nominal	1.1	4.1	6.3	10.1	16.0	13.4	10.0	6.0
'Real'	-2.2	-5.5	-2.2	-5.3	2.3	1.4	2.4	-0.4
Company sector								
Saving:(b)								
Nominal	2.5	2.4	6.0	7.5	3.9	5.1	6.6	11.2
'Real'	3.1	4.8	7.5	9.3	4.7	7.7	7.7	13.9
Financial balance:								
Nominal	0.3	-1.3	0.2	-1.2	0.2	2.6	3.7	7.0
'Real'	0.8	1.1	1.6	0.6	1.0	5.2	4.7	9.7
Public sector								
Saving:(b)								
Nominal	2.0	-0.9	-3.4	-5.3	-7.4	-7.4	-5.7	-7.4
'Real'	5.0	7.5	4.5	9.6	5.7	4.8	1.6	-1.5
Financial balance:								
Nominal	-0.4	-5.0	-7.4	-8.4	-10.7	-8.6	-7.3	-10.8
'Real'	2.6	3.4	0.4	6.5	2.5	3.7	—	-4.9
Total domestic sector								
Saving:(b)(c)								
Nominal	6.5	6.2	10.5	14.5	13.8	12.3	14.5	14.6
'Real'	6.7	7.3	11.3	15.8	14.1	15.1	15.2	16.7
Financial balance:(d)								
Nominal	0.9	-2.2	-1.0	0.5	5.5	7.5	6.4	2.2
'Real'	1.2	-1.1	-1.1	1.8	5.8	10.3	7.1	4.4

(a) Estimate based on partial information.

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

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

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

and other financial institutions, apart from life assurance and pension funds, the relevant assets of which are included in the personal sector.

The approach adopted here and in earlier work is to treat the inflation compensation element of interest⁽¹⁾ as partial repayment of real capital, not as part of 'real' income. The size of this element is calculated by applying the actual rate of inflation to the value of the outstanding stocks of net monetary assets or liabilities (see Table A); the conventional measures of income and saving can then be adjusted accordingly. The price index used is the consumers' expenditure deflator (adjusted for changes in sterling's effective exchange rate in the case of assets and liabilities denominated in foreign currencies). This provides only a rough adjustment for the effects of general inflation: no allowance is made for changes in the relative prices of different assets (non-monetary as well as monetary) or for changes in the market value of assets reflecting movements in real interest rates. A further problem is that the real interest rates implicit in these calculations are *ex post* figures, which change abruptly with the rate of inflation. An ideal measurement of income and capital would incorporate subjective expectations about the course of real interest rates, which probably evolve more smoothly over time. Moreover, the effective exchange rate will only measure the change in the real value of foreign currency assets and liabilities imperfectly, because the weights in the effective index are unlikely to correspond with the currency composition of

these assets or liabilities. For these and other reasons, the figures for individual years should be treated with caution; the averages for periods of years are probably a more reliable guide. Table B sets out 'real' or inflation-adjusted saving—the difference between income at current prices (but after adjustment for losses/gains on net monetary assets/liabilities) and consumption at current prices—for the main economic sectors. 'Real' sector financial balances are calculated by deducting actual net capital spending (including stockbuilding) from inflation-adjusted saving.

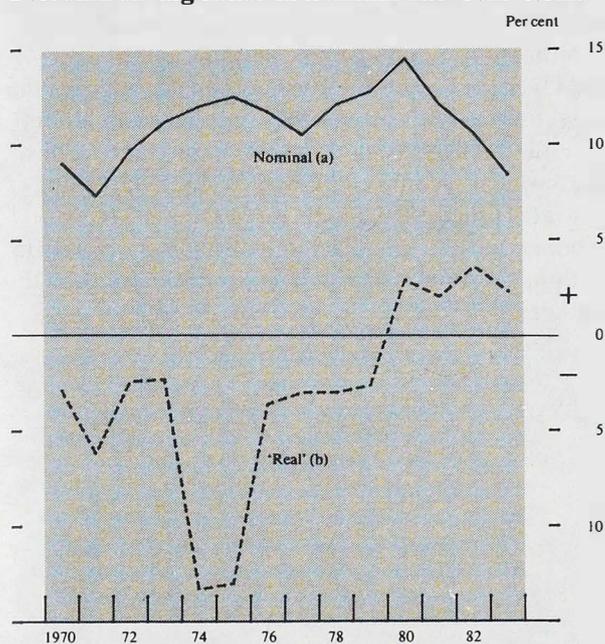
Recent developments

In 1982 and 1983, the consumers' expenditure deflator rose by 6.6% and 4.9% respectively, as inflation continued to slow from its earlier peak. With Treasury bill rates averaging 11.8% and 9.8% in these two years, *ex post* real short-term interest rates have now remained significantly positive—in pre-tax terms, at least—for four successive years. The deflator for foreign currency assets expressed in sterling terms moved roughly in line with UK domestic inflation in 1982, reflecting the stability of the effective exchange rate; in 1983, however, sterling depreciated. For the UK domestic sectors as a whole, inflation adjustment of net external monetary liabilities expressed in both sterling and foreign currency terms produced further small notional gains in both 1982 and 1983.

The personal sector, as a large holder of net financial assets, has suffered a substantial erosion of their real value,

(1) This is defined to include the uprating of principal of index-linked instruments (eg certain gilts and national savings); this item is discussed in the June 1982 Bulletin, page 239.

Chart 1
Personal saving ratios in nominal and 'real' terms



(a) Saving ratio as conventionally defined in the national income accounts.
(b) 'Real' personal saving, as set out in Table B, as a percentage of personal disposable income similarly adjusted.

particularly during the bouts of rapid inflation in the past decade. Even though nominal saving rose steadily as a proportion of nominal personal disposable incomes, the sector dis-saved in 'real' terms throughout the 1970s (Chart 1). This process was halted in 1980 when the nominal saving ratio reached a peak of 14½% and inflation began to fall, thereby reducing the notional loss. After allowing for stock appreciation and depreciation, and for inflation losses, 'real' saving amounted to nearly £4 billion in that year, or 2.6% of personal disposable income adjusted in a similar manner. Since then, inflation losses have diminished further, and although the nominal saving ratio has also fallen—to about 8½% in 1983—the personal sector has continued to save in 'real' terms. The decline in inflation losses since 1980 in particular has meant that individuals have needed to devote a smaller proportion of their income to maintaining the real value

Table C
Public sector borrowing requirement: 1970–1983

£billions; percentages in italics

	Annual averages				1982	1983(a)
	1970–72	1973–75	1976–78	1979–81		
Nominal PSBR (borrowing –)	-1.1	-7.0	-7.8	-11.8	-5.4	-11.7
<i>As a percentage of national income at market prices (b)</i>	-2.2	-8.8	-6.0	-6.0	-2.2	-4.4
Public sector notional gain on net monetary liabilities	3.0	8.4	7.9	13.4	7.3	5.9
'Real' PSBR (borrowing –)	1.9	1.4	—	1.6	1.8	-5.8
<i>As a percentage of 'real' national income at market prices (b)</i>	3.5	1.7	—	0.8	0.8	-2.1

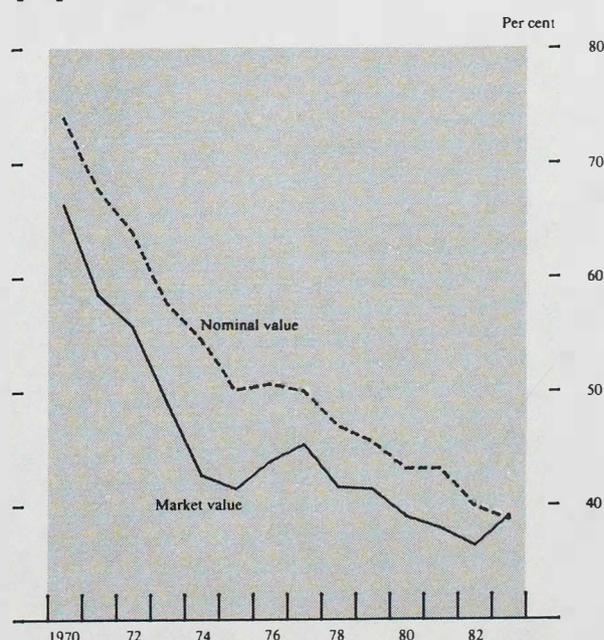
(a) Provisional; some components are partly estimated.

(b) National income plus general government income from net indirect taxes. The 'real' estimate also includes the notional gain on net external liabilities.

of their monetary assets. Correspondingly, there has been a revival in inflation-adjusted personal disposable income over a period when conventionally measured real personal disposable income has been little better than flat. This development has been associated with the strong recovery in consumer demand seen in the past two years and is consistent with Bank research linking the behaviour of consumers' expenditure with inflation-adjusted personal incomes and desired ratios of net liquid assets to income.

The company sector as a whole is a net debtor, and has tended to benefit from the effects of inflation, the notional gains on the large net monetary liabilities of industrial and commercial companies outweighing the losses on the net monetary assets of financial institutions. Since 1980, the inflation gains on the net monetary liabilities of the sector as a whole have enhanced the improvement in companies' net financial balance that was already evident from the nominal figures in Table B. For industrial and commercial companies in particular, the substantial revival in profitability of recent years has been accompanied by cutbacks in both fixed investment and stocks, a process which has permitted them to strengthen their financial positions.

Chart 2
Public sector net monetary liabilities as a proportion of GDP^(a)



(a) Expenditure estimate of GDP at market prices.

The rate at which inflation eroded the net monetary liabilities of the public sector was sharply lower in 1982 and 1983 than in the previous three years, and well below the public sector's net interest payments, a notable contrast with the 1970s. And unlike the whole of the past decade or so, in 1983 this 'inflation tax'—the counterpart of which is to be found in the sectors holding public sector debt, especially persons—did not exceed the public sector's financial deficit (Table B). In particular, the 'real' financial

position of the public sector moved to a deficit of nearly £5 billion last year. To a large extent this shift reflected a sharp rise in the nominal public sector deficit in 1983, itself a product of the surge in public expenditure at the end of the financial year 1982/83. Because of problems of timing between financial and calendar years it is perhaps advisable not to view estimates for a single year in isolation. Comparing the average position in 1982 and 1983 with the 1979-81 period, the nominal public sector financial deficit fell marginally (and was down substantially relative to national income), but the movement in the 'real' deficit was dominated by the effect

of falling inflation. Likewise, while the nominal PSBR has contracted sharply relative to national income (Table C), inflation adjustments have offset this movement; again the qualification about figures for individual years applies. Over the longer run, the net monetary debt of the public sector has been substantially eroded by inflation. This is reflected in the steady decline in the ratio of this debt to national income (see Chart 2). In 1983, falling interest rates produced a small rise in the market value of the public sector's monetary debt, bringing it closely in line with its nominal value; and as a percentage of GDP the market value rose for the first time since 1977.