

Why is Britain in a recession?

A discussion paper by C. T. Taylor of the Bank's Economic Intelligence Department. [1] An earlier version of this paper was produced for a meeting of the Bank's Panel of Academic Consultants in January 1978. The views expressed are those of the author and should not be attributed to the Bank.

Summary

The paper attempts to identify the immediate causes of the recession by examining changes in the principal components of aggregate demand over the last fifteen years. Part 1 discusses the main results and for the most part avoids technicalities. Part 2 shows in detail how they were obtained, and gives the figures that underlie them.

The results seem to be of considerable interest but they are capable of interpretation in a number of ways. Some conclusions are:

- the rise in net financial saving has been a strong depressing influence in the recession. The weakness appears to lie more with saving than with private investment, which seems to have held up relatively well, allowing for the depth of the recession;
- the shortfall of overseas output below trend has been the most important single factor tending to depress UK activity, via its effect on UK exports. Other influences on exports have been quite expansionary;
- higher relative import prices and higher penetration in volume terms were important contractionary influences;
- the fiscal deficit has increased quite sharply as a percentage of trend GDP, but this has been to a significant extent the result of the recession. Discretionary fiscal changes have tended to give relatively modest support to activity;

Part 1. Summary and review of the main results

The object of this paper is to shed light on the causes of the present recession in this country with the aid of an analysis of the demand side of the economy very much in the Keynesian tradition. Despite its title—a reminiscence of a somewhat similar exercise undertaken by Mr R. C. O. Matthews nearly ten years ago [2]—the paper does not purport to give a fully rounded explanation of the recession but rather to show what can be learned by employing analysis of a fairly limited kind. The results seem of considerable interest but they are subject to qualifications of various kinds and are capable of interpretation in a number of ways.

The method of approach

The general approach is to identify the principal components of aggregate demand in real terms and to assess their separate contributions to demand during the recent recession in terms of changes from an earlier period in which output and unemployment were nearer full employment levels. In concentrating here on aggregate demand, it is not meant to imply that other possible causes of high unemployment in recent years—such as increases in real wages affecting the demand for labour—are not worth exploring. But to the extent that weak demand is thought of as a major cause of the recession, it is important to examine in some detail where the deficiencies have occurred. Moreover, the shortfall in output, which is the counterpart of weak aggregate demand, is more than capable on its own of explaining the shortfall in *employment* in recent years, given the previously observed relation between output and employment. (The high levels of recorded *unemployment*, given recent levels of employment, admittedly require additional explanation, but that is a matter for separate study.)

At the risk of some over-simplification, the theory

underlying the approach is briefly as follows. The potential size and rate of growth of the economy—i.e. the labour force, the stock of physical capital, underlying productivity per employee etc. together with the response of productivity to variations in capacity utilisation, are taken as given. Employment (and thence the rate of unemployment) is determined by real aggregate demand, i.e. spending. The latter is in turn determined by the interaction of various kinds of 'autonomous' expenditures (such as public consumption or exports—which are held to be largely independent of real income) with various 'income propensities'—the propensities to save, pay tax, or import out of income. These propensities, which, if not wholly independent of income are held to vary with it in a regular and predictable way, determine the extent to which changes in autonomous expenditures generate consequential changes in other expenditures through the multiplier process, and thence the course of total spending. Spending is also affected when the propensities change—as for example when the import propensity responds to an increase in the availability of foreign goods at competitive prices or when the Government changes tax rates. Incorporation of the multiplier process allows meaningful (albeit still fairly immediate) causality to be accorded to expenditure components. Thus, for example, an increase in imports that merely reflects an increase in income is attributed using this approach to increased autonomous expenditure or to reduced savings or tax propensities; only increases in imports that result from a changed import propensity are allocated to import behaviour. Similarly, an increase in tax receipts is attributed to fiscal policy only if it results from changed tax rates; increases in taxes that merely reflect higher income are attributed to other causes. (A more rigorous statement of these relationships, together with various qualifications and refinements relating to measurement, is presented in Part 2.)

[1] Calculations were by C. B. Wright and N. H. Jenkinson. The author is indebted to them and to other colleagues, as well as to several commentators outside the Bank, for numerous helpful suggestions and comments. But responsibility for interpretation of the results is his alone.

[2] *Economic Journal*, September 1968, pages 555–69. See also the 'Comment' by G. B. Stafford and Matthews' reply in *Economic Journal*, March 1970, pages 165–76.

The main results

The practical part of the exercise consisted in calculating the values of the main expenditure components and propensities over successive four-year cycles from 1963, and then estimating contributions to the present recession in terms of comparisons between annual averages before and after 1974. Actual output and autonomous expenditure items were expressed as ratios of 'full employment output' estimated with reference to the trend of potential output in the period 1960-74,[1] while the various propensities were obtained as ratios of actual income. The influence of the separate expenditure components was then expressed as their several contributions to the difference between average actual GDP in the period 1975-77 and 'high employment' GDP. 'High employment' GDP was taken as 98.5% of full employment GDP, 1.5% being the average shortfall below the full employment trend in the period 1963-74.

The main results, taking the whole of 1963-74 as a base period, are summarised in Table A, which divides the influences on demand into three broad categories: private net 'financial' saving, i.e. the net acquisition of financial assets by the private sector, as the outcome of savings and investment decisions by persons and companies; the balance of payments, i.e. the net effect of overseas demand for UK exports, demand generated by net income received from overseas, and UK import behaviour (including the effect of higher import prices as well as the import propensity in volume terms); and the fiscal deficit, i.e. essentially the effect of policy decisions about tax rates and public expenditure. Only the salient points can be made here; the derivation of the figures is described in detail in Part 2, where more detailed results and explanations can also be found.

Table A
Factors contributing to the shortfall of GDP in 1975-1977 from the 'high employment' trend of 1963-1974

Percentage contributions to the difference between actual and 'high employment' GDP in 1975-77

From net private 'financial' saving (i.e. private saving net of investment)		-5½
of which:		
Saving	-4	
Investment	-1½	
From balance of payments		-3½
of which:		
Higher relative import prices	-4½	-12
Higher volume import penetration	-7½	
Lower export volume due to shortfall of world output below trend	-8	+8½
Difference between trend output growth overseas and trend growth in UK	+8½	
Other factors affecting exports (residual)	+8	
From fiscal deficit		+2½
of which:		
Effect of GDP shortfall on unemployment benefits	+½	
Remainder (policy changes)	+2	
	Implied total shortfall	-6½
Actual shortfall of GDP below high employment trend		-7

Notes A minus sign indicates that the relevant factor was tending to depress output. Percentages are heavily rounded. The difference between the implied total and the actual shortfall of GDP is due to short cuts in the calculation of effects.

Net financial saving

It can be seen that the rise in the net financial saving ratio

(i.e. the ratio of net acquisition of financial assets to disposable income in the private sector) has been a strong depressing influence in the recession. Although both higher saving in the usual sense and lower private investment have played a part, the former has represented considerably the larger component of increased financial saving. It is of interest to see that the weakness appears to lie more with saving than with private investment, which seems to have held up quite well on the whole, bearing in mind the depth of the recession.

The exercise does not attempt to explain what has caused saving to be unusually high and investment to be depressed in the last few years, but it is not difficult to find plausible explanations; among them, the impact of rapid inflation on real asset values in the personal sector and on company profitability, given the widespread use of historic cost pricing, have received attention in the *Bulletin*[2] and elsewhere. More difficult would be an assessment of the causes of high inflation in the last few years, a subject which is not addressed in the present paper.

The balance of trade

Table A shows that the shortfall of overseas output below trend has been the most important single factor tending to depress UK activity, via its effect on UK exports. However, other influences on exports have, rather unexpectedly, more than compensated for the effect of this shortfall. On the highly-simplified *ceteris paribus* approach adopted here, the faster *trend* growth of output overseas was just sufficient to offset the shortfall, and the residual item 'other factors' was strongly expansionary; since the latter was calculated as the balance of unexplained factors affecting exports, it is difficult to say in detail what it contains, but recent improvements in UK trade competitiveness and a long-established trend of improved access to overseas markets are probably the main influences. These issues are further discussed in Part 2.

The net expansionary effect of exports was more than counterbalanced by deflationary factors arising on the import side. Both higher relative import prices and higher penetration in volume terms were important contractionary influences. Even allowing for the crudeness of the estimates, which may mean that some part of what appears as a long-term trend may in fact reflect import responses of a cyclical or short-term nature, the rise in import penetration emerges as an important depressing feature of the United Kingdom's economic development over a lengthy period. Figures given in Part 2 (see Table F) confirm that it is not solely a recent development—and indeed it may to some extent be the counterpart to some of the favourable influences affecting exports (greater trade specialisation and access to foreign markets). The combination of rising import propensities and export ratios has been a fairly common experience among industrialised countries, in the last two decades during which world trade has grown rapidly. In contrast, the rise in relative import prices (import prices divided by the GDP deflator) is a feature peculiar to the last few years and is therefore more clearly identifiable

[1] The trend growth rate of output over 1960-74 was calculated as 2.8% per annum. Estimates of potential (or full employment) GDP were obtained by applying this trend to output in 1973, when the economy is believed to have been operating near capacity. The full employment trend of output thereby derived is associated with an increase in the rate of registered unemployment in the 1960s, and is therefore not strictly a constant unemployment trend.

[2] March 1976 *Bulletin*, pages 43-4 and 53-9.

as a cause of the present recession. Being a relative measure, its origin must lie mainly in the massive rise which occurred between 1972 and 1974 in the ratio of world commodity prices to those of manufactured goods.

The fiscal deficit

In the face of these major contractionary influences, fiscal policy has been only moderately counteractive to the recession. The fiscal deficit has increased quite sharply as a percentage of trend GDP, but this has been to a substantial extent the result of the recession, which has reduced tax revenues and, less importantly, increased some classes of public spending (principally unemployment and other social security benefits). Accordingly, the movement in the fiscal deficit *per se* is not a good guide to the thrust of fiscal policy.

It is estimated that discretionary fiscal changes have tended to give relatively modest support to activity, and that the automatic effects of the recession in raising unemployment benefits have further helped to a small extent.[1] Of the discretionary components of the fiscal balance, public expenditure on goods and services has given moderate support to activity (tending to add about 2% to GDP in terms of Table A), with the expansionary effect from public consumption more than outweighing the contraction from public investment. Whereas increases in net direct tax rates (broadly, income and corporation taxes less pensions and other social security benefits as a proportion of private income) have had a small but distinct contractionary effect, this has been more than offset by the effect of lower indirect taxes and public sector trading surpluses. (See Tables B and C in Part 2 for details.)

Qualification of the results

It must be emphasised that the estimates in Table A, together with the more elaborate results given later, are subject to drawbacks of various kinds. Even as measures of proximate causes they need qualification, not solely because they depend to some extent on the measurement of trend output (see below), but also because they are calculated with reference to a particular period—the average experience of 1963–74: had a different basis been chosen for comparison, the relative contributions of the expenditure components could well have been somewhat different. A further drawback is that the estimation of multiplier effects in this exercise is in practice very crude, depending as it does on a working assumption that the various income propensities referred to can be measured by ratios that are invariant to total income, whereas both theory and experience suggest for example that the average propensity to save increases when income rises, at least in the short run. This deficiency is admitted (although a

partial adjustment is introduced to allow for it in the case of the net tax burden) but it is not felt to detract seriously from the results in an exercise that is concerned with medium or long-term comparisons—a context in which savings should respond fully to income variations. For a similar reason, the absence of lags in the calculation of multiplier effects in this exercise is not felt to be too serious.[2]

Given the dependence of the results on the measurement of the trend of full employment GDP at home and overseas, and the considerable uncertainty that surrounds these trends since the oil crisis, it seemed advisable to assess the sensitivity of the estimates in this respect. Some alternative calculations were therefore done, based on the assumption that trend rates of growth of GDP in the United Kingdom and abroad were halved after the oil crisis; more precisely, the trend growth of GDP from 1974 was reduced to 1.4% per annum in the United Kingdom and 2.8% overseas. These assumptions are purely for the sake of illustration; they are not meant to imply any precise view about the changes in trend. The consequent modifications to the results are not serious. For example, the shortfall in GDP is put at $-4\frac{1}{2}\%$, not -7% as in Table A; the contribution from the financial saving ratio is unchanged at $-5\frac{1}{2}\%$, but that from the balance of payments becomes $-3\frac{3}{4}\%$ instead of $-3\frac{1}{4}\%$, and that from the fiscal deficit, $+4\%$ instead of $+2\frac{1}{2}\%$. Most affected is the estimate of the contribution from lower export volume due to the shortfall of world output below trend, which becomes $-5\frac{1}{2}\%$ instead of -8% , but part of this relative improvement is offset by the smaller effect attributable to the excess of foreign over UK trend output growth. Although this degree of uncertainty in the results cannot be ignored, the general picture survives.

Interpretation of the analysis

While the estimates discussed in this paper are felt to be reasonably indicative of the immediate influence of the various expenditure components on aggregate demand, despite the imperfections mentioned above (and described in further detail in Part 2), it must be emphasised that they portray no more than the proximate causes of the recession. More specifically they provide no direct evidence about possible interdependencies between the alleged determinants of activity, although links of several kinds could well exist. Accordingly the analysis could be accused of producing a taxonomy of causes which stops some way short of conveying the whole story. An example of this kind of reservation would be as follows. The exercise appears to indicate that the net effect of demand for UK exports has been expansionary in the last three years, but also suggests that this may be attributable

[1] Ideally, the contribution from the fiscal deficit in Table A should include only the effect of fiscal policy changes, but the crudeness of the method of estimation meant that certain of the automatic effects of the recession on the fiscal deficit (but not the main ones) could not be easily allocated elsewhere in the table. However, as a partial recognition of this shortcoming, a rough estimate of the effect of the recession in raising expenditure on unemployment benefits was made, and the consequential effect on GDP is shown as a distinct part of the 'fiscal contribution'. Unfortunately, it was not possible to adjust for other likely influences of the recession in reducing the net burden of tax on income, and for that reason the contribution of fiscal policy changes to activity since 1974 is probably somewhat overstated in this exercise. See Part 2 for further explanations.

[2] Problems of this kind can of course be dealt with by utilising a fully-fledged econometric model of the economy to simulate the effect of different paths for the key determinants of expenditure—e.g. assuming that world trade had been on trend and that relative import prices and the saving ratio had been at 'normal' (or pre-oil crisis) levels in the last few years. In fact an exercise of this kind was carried out using the Bank model, and its results were in most respects fairly close to those reported here; that is, the shortfall in world output has been a particularly important depressing influence on UK activity, with relative import prices and the saving ratio important additional depressing factors. In the model simulations, these factors were in combination much more than enough to explain the shortfall in GDP below its high employment trend, so that other factors—implicitly the budget balance but also perhaps UK export performance—were on their own tending to raise activity.

in part to improved competitiveness associated with sterling depreciation. Most commentators would now agree that exchange depreciation is sooner or later likely to boost the rate of domestic inflation and many would argue that for one reason or another there is a connection between the rate of inflation and the saving ratio (whether as expressed in this exercise or in the more usual way). There may thus be a common factor linking export performance and the saving ratio which does not appear in this analysis.

Moreover, export performance and import behaviour are doubtless to some extent intertwined: since the deficit on current account in the balance of payments cannot long exceed the amount which the rest of the world is willing to lend to the United Kingdom, 'deflationary' developments on the import side, unless matched by growing income or propensities to import abroad, will tend to bring about exchange depreciation and thereby eventually set off a 'stimulatory' growth in exports. It is not difficult to think of other interdependencies which are similarly ignored—e.g. links between the pressure of demand on resources overseas, the real price of commodities and the world propensity to import, which must all be to a degree interrelated.

The present analysis on its own cannot solve such complex questions. It does, however, provide the basic orders of magnitude from which further analysis can proceed, and it offers some useful pointers on the considerations that are likely to be important. For instance, the evidence that the weakness of aggregate private investment—when set alongside other factors—does not seem to have been a major cause of recession, even when multiplier effects are allowed for, is not without interest, and the strength of demand generated on the export side, despite the recession overseas, comes as a surprise, although it is easier to understand when seen in the context of rising import penetration as a world-wide phenomenon.

In the policy field, at least one conclusion of major interest does seem to emerge fairly clearly—namely, that fiscal policy, over and above automatic fiscal effects, has not played a major supporting rôle to output and employment since the oil crisis. But despite the need to avoid risking stimulating inflation or perpetuating large external current account deficits, these constraints have not weighed so heavily as to force fiscal policy to make recession worse; the net contribution has been expansionary overall compared with earlier years—although not so much so in the last twelve months.

Part 2. The exercise in more detail

The analytical framework[1]

The starting point is the basic national accounting identity:

[1] The basic framework is broadly as in Matthews' 1968 article, but a number of modifications are introduced. The main ones are that public expenditure on goods and services is shown as a separate autonomous influence on demand, with a split between consumption and investment; (net) private saving and (net) taxation are shown as separate leakages in the multiplier process, while private investment is treated together with consumers' expenditure as being largely dependent on private income (reasons for this treatment are given below); and output is measured at factor cost rather than market prices, in recognition of the fact that net indirect taxes have not moved in line with expenditure in the last ten years.

[2] In the calculations that follow, the denominator of the financial saving ratio is taken to be private disposable income plus net capital transfers (i.e. total private resources currently becoming available), on the ground that investment grants, for example, help to determine investment. Private disposable income is taken net of stock appreciation but before provision for depreciation.

$$Y = C + I + G + S + X - M - FCA \quad (1)$$

where Y is GDP at current factor cost; C is consumers' expenditure, I is gross private fixed investment (including private sector housebuilding), S is private stockbuilding (excluding stock appreciation), G is total public expenditure on goods and services, including public sector investment, housebuilding and stockbuilding, and X is exports of goods and services, all at market prices; M is imports of goods and services; and FCA is the factor cost adjustment (taxes on expenditure less subsidies), all at current prices.

Private expenditure is supposed to be determined by national income as follows:

$$P = C + I + S = (1 - s)(1 - t)p(Y + A) \quad (2)$$

where, in addition to the above, P is private domestic expenditure, A is net property income from abroad, p is the share of GNP (i.e. $Y + A$) accruing to the private sector as factor income, s is the 'net financial saving ratio' and t is the 'net direct tax ratio'. (These latter concepts are defined in later sections.)

It should be stressed that equation 2 operates as a genuine, if crude, behavioural relationship, not merely an identity. It is supposed as an approximation that the ratios s , t , and p do not vary with the level of income; this implies that the marginal propensity to save out of income is taken to be equal to the (constant) average propensity, and similarly for t and p . By virtue of this, s , t and p are deemed to help determine the level of activity and unemployment *while themselves being independent of it*. This hypothesis seems not too unrealistic in the case of p and t (assuming an indexed tax and social security system, and subject to a refinement for unemployment benefits described later), but it is admittedly not a realistic portrayal of savings behaviour in the short run; in most empirical models, the short-run marginal propensity to save is estimated to exceed the average propensity quite substantially, because it takes time for people to adjust their spending to changes in their income. However, it is thought to be a more reasonable approximation to reality where longer-run responses are considered and therefore seems acceptable in an exercise that makes comparisons between, rather than within, cycles, provided that the results are treated only as broad orders of magnitude. This is likely to be more true where the savings propensity is measured net of physical investment, as here (see below), rather than in the more usual way.

The financial saving ratio

The financial saving ratio, s , is the ratio of the private sector's net acquisition of financial assets to its disposable income (net of stock appreciation); it differs from the conventional saving ratio essentially in that it relates to saving *minus* capital formation and stockbuilding.[2] It is preferred to the more familiar personal saving ratio for a number of reasons. First it focuses conveniently on the main problem with which demand management has to

deal: the variation in the proportion of disposable income spent on goods and services by individuals and firms taken together. Secondly, it implies a view about investment behaviour which appears more realistic for analysis of the kind attempted in this paper than that implied by the conventional approach; that is, a fairly constant private financial saving ratio implies that in normal circumstances private investment and consumption together move quite closely in line with actual income in the medium term, whereas the conventional multiplier approach treats investment as independent of income. While private investment manifestly does not bear a rigidly proportional relation to income—indeed it fluctuates quite widely in relation to income from year to year—industrialists' expectations of real income levels (both their own, and those of consumers) clearly influence their rate of investment, and such expectations are likely to be heavily coloured by the prevailing level of incomes and movements in them; if so, the conventional multiplier approach will underestimate the leverage which autonomous kinds of demand (such as government spending) ultimately have on domestic activity. Accordingly, the use here of the net financial saving ratio in place of the more conventional ratio is not a trivial matter. It is likely to maximise the rôle of autonomous influences on demand and minimise the instability attributed to the private sector.

Not everyone may favour this emphasis on net financial saving. For those who prefer them, the ratio of private investment to full employment income and the conventional saving ratio (for the private sector as a whole) are shown as memoranda in the calculations which follow.

The tax ratio

The 'net direct tax ratio', t , is the ratio to private income of direct taxes (including national insurance contributions) minus net transfer payments from the public sector to the private sector. Transfer payments here include not only pensions and other social security benefits etc. but also (net) payments of interest and dividends.[1] [2]

The particular definition of t adopted here helps greatly to simplify the analysis, but it obviously calls into question the realism of an assumption that the net tax ratio is invariant to income, even if (as here) the tax and social security systems are taken to be indexed. The problem is likely to be most serious in the case of unemployment benefits, which vary inversely with activity, and a special adjustment to allow for this is made in the calculations that follow. Public sector interest payments are also unlikely to vary closely with Y , but the range of possibilities there seemed too large to make a simple adjustment feasible.

The multiplier relation

It is now straightforward to express Y (i.e. GDP at current factor cost) in terms of the usual kind of multiplier relationship. Writing m for $\frac{M}{(Y+A)}$ and f for $\frac{FCA}{Y}$, equations 1 and 2 together give:

$$Y = (1-s)(1-t)p(Y+A) + G + X - m(Y+A) - fy \quad (3)$$

$$= \frac{G + X + A[(1-s)(1-t)p - m]}{1 - (1-s)(1-t)p + m + f} \quad (4)$$

In other words, GDP is 'determined' by public expenditure, exports and spending out of net property income from abroad—all deemed to be independent of it—in conjunction with the various leakages into private saving, taxation, imports, etc. Like s , t and p , m and f are supposed as a rough approximation to be independent of Y in the medium-term context of this exercise. There is, of course, no suggestion that any of these propensities are likely to be constant through time; the point being made is that changes in them are likely to affect GDP broadly in the way shown, other things being equal.

The final step in the argument, following Matthews, is to put equation 4 into a form in which it explains (in a proximate sense) differences between actual and 'full employment' GDP (i.e. \bar{Y}):

$$\frac{Y}{\bar{Y}} = \frac{G/\bar{Y} + X/\bar{Y} + A/\bar{Y}[(1-s)(1-t)p - m]}{1 - (1-s)(1-t)p + m + f} \quad (5)$$

In this way, changes in Y/\bar{Y} , and by implication in unemployment, are explained in terms of changes in the ratios of public expenditure, exports and income from overseas to full employment GDP, and by changes in the savings, tax and import propensities and in the share of private factor incomes.[3]

Some numerical results

Table B presents summary measures of Y/\bar{Y} and its various components since the mid-1960s. [4] Annual observations are averaged for sub-periods which coincide as nearly as possible with the three complete cycles of activity which occurred up to 1974, followed by the depressed period since 1974. The latter is not of course a full cycle but may be reasonably representative of the post-oil crisis recession.

By this reckoning (with trend GDP estimated over 1960–74), the average pressure of demand on potential output fell slightly between succeeding cycles up to 1974, but has since been some 7% below the average of those levels.

[1] Preferably net interest etc. from the public sector should have been included with private pre-tax income rather than with transfers, but this could not easily be done from the published national accounts data on which this exercise is based.

[2] For consistency with the measurement of the financial saving ratio (see second footnote on page 41), net capital transfers from the public to the private sector are taken, like current transfers, to reduce the tax burden.

[3] Certain other complications are ignored in this approach, which implicitly assumes that full employment GDP at any time is unaffected by the composition of demand at that time, and that the relative prices of different categories of demand are unaffected by the overall pressure of demand on resources. While neither of these assumptions may strictly hold, they are unlikely to invalidate the broad conclusions reached.

[4] The precise measure of \bar{Y} affects the results somewhat, but not enough to invalidate the main conclusions. In this exercise, \bar{Y} was obtained as the product of real 'full employment' GDP and the actual GDP deflator. 'Full employment' GDP was obtained by taking 1973 as a year of peak output and assuming that peak output grows at a constant 2.8% per annum, this being the trend rate of growth of GDP at 1970 factor cost, estimated using annual data for 1960–74.

Table B
Components of expenditure in recent cycles in the United Kingdom

Annual averages: percentages

	$\frac{Y}{\bar{Y}}$	$\frac{G_c}{\bar{Y}}$	$\frac{G_{(1+s)}}{\bar{Y}}$	$\frac{X}{\bar{Y}}$	$\frac{A[(1-s)(1-t)p-m]}{\bar{Y}}$	Total of columns 2,3,4,5	s	t	m	p	f	Denominator of equation 4	$\frac{PSD}{\bar{Y}}$	$\frac{X-M}{\bar{Y}}$	$\frac{P_{(1+s)}}{\bar{Y}}$	Conventional private saving ratio
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1963-1966	99.1	19.0	9.0	21.3	0.8	50.1	2.8	6.8	22.1	94.1	13.8	50.5	2.9	-0.9	12.6	17.5
1967-1970	98.7	20.2	9.8	23.9	0.7	54.7	1.8	8.4	24.2	94.8	16.4	55.4	1.0	-0.3	12.7	16.1
1971-1974	97.7	20.8	8.9	26.6	0.8	57.1	2.7	8.4	28.7	94.5	14.0	58.4	3.5	-1.9	13.6	18.3
1975-1977	91.4	22.1	8.5	29.2	0.3	60.1	6.7	9.4	32.6	93.3	12.1	65.8	6.7	-0.9	10.9	20.5

Notes

- G_c denotes public consumption.
- $G_{(1+s)}$ denotes public investment. British Steel is treated as though it had been in the public sector throughout.
- $P_{(1+s)}$ denotes private investment. It excludes stock appreciation.
- PSD denotes the public sector's financial deficit.

Other symbols are explained in the text.

The conventional private saving ratio is defined as the ratio of all private saving to private disposable income, both income and saving being before provision for depreciation but net of stock appreciation.

Sources

CSO: *National Income and Expenditure 1966-76*

Values for 1977 are Bank estimates.

Y and \bar{Y} are derived from expenditure measures of GDP; p expresses the ratio of private factor incomes, net of stock appreciation and before adding the residual error, to the expenditure measure of GNP; s and t are ratios derived wholly from the income side of the national accounts.

Annual data are available from the Economic Intelligence Department, on request, at the address given on the reverse of the contents page.

Deviation of actual from full employment GDP

Annual averages, percentages

1963-1966	-0.9
1967-1970	-1.3
1971-1974	-2.3
Average, 1963-1974	-1.5
1975-1977	-8.6

It appears that, among the autonomous components of expenditure, the growth of exports has been particularly strong and consistent. Public expenditure has also tended to rise in relation to potential output, although more hesitantly; the increase has been due entirely to public consumption. Taken together, autonomous expenditures have consistently outpaced potential GDP, even since 1974, to a surprising extent, particularly in the case of exports. And this is true even if private investment, which has been rather weak, is included with autonomous spending—that is, if saving is treated in the usual way.

By contrast, the import, saving and direct tax propensities have together been pulling strongly in the other direction (Table B, column 12). Imports have risen even faster in relation to actual income than exports have in relation to full employment income. Part of the rise in m represents a long-established upward trend in volume import penetration, to be discussed later; and part represents the sharp increase that occurred in the early 1970s in the relative prices of goods with high UK import penetration—of which oil is the conspicuous example. The net burden of direct taxation has risen but not dramatically, from some 7% to over 9% of private pre-tax factor incomes, apparently remaining stable on average as between the cycles of 1967-70 and 1971-74. The share of private factor incomes in GNP has not changed much. Most important, the net financial saving ratio, which remained at around 2%-3% of disposable income on average in the cycles up to 1974, has since been much higher—of the order of 6½%. Although the rise in private financial saving, when compared with the average of 1963-74, has some counterpart in the weakness of private investment since

1974, it mainly reflects a decrease in the ratio of consumption to disposable income, as can be deduced from the behaviour of the conventional private saving ratio, shown in the final column of Table B.

In contrast with direct taxes, the ratio of net indirect taxes to GDP has fallen quite appreciably, at least since the cycle of 1967-70. Total net tax receipts and the trading income of public enterprises have on the whole not kept pace with public expenditure in the last two cycles, with the result that the public sector's financial deficit has risen appreciably, reaching nearly 7% of potential GDP on average since 1974.[1]

Contributions to the change in GDP

While the movements shown in Table B are interesting in themselves, they do not bring out very clearly what the dominant influences on activity have been. An alternative presentation is given in Table C, which identifies the contribution of each variable to the extra slack in the economy in 1975-77, as compared with the earlier periods. Taking the comparison with 1963-66 (column 1) as an example, actual GDP in 1975-77 was some 7½% lower in relation to full employment GDP than it was in 1963-66. Had the net financial saving ratio since 1974 been as it was in 1963-66, with all other variables keeping their actual values, GDP would have been nearly 5% higher in 1975-77. The assumption that the other variables would have kept their actual values is of course merely a device for assigning causality: if GDP had been substantially higher than it was, other variables might have had to change to compensate for the extra demand on domestic resources.

In interpreting the estimates in Table C, it seems helpful to concentrate attention on three features—the net contribution to demand from private saving and investment, represented by s ; the contribution from the balance of payments, represented by the combination of those from X/Y , A/Y , and m ; and the contribution from the fiscal balance, approximated by the combination of

[1] As an approximation the public sector finance deficit is given by,

$$G - [(Y + A)(1 - p^* + tp) + fY]$$

where p^* differs from p by including the residual error in the national accounts. However, the figure obtained in this way differs slightly from the published deficit (from which PSD/Y is calculated in Table A) because the latter is arrived at after deducting transfers paid abroad by the public sector. Estimates for p^* are as follows: 1963-66, 94.5%; 1967-70, 94.7%; 1971-4, 94.8%; 1975-7, 94.2%.

Table C
Factors contributing to the change in pressure of demand
between alternative base periods and 1975-1977

	Percentages[a]; base period		
	1963-1966	1967-1970	1971-1974
	1	2	3
G_c/\bar{Y}	+ 4.8	+ 2.9	+ 2.0
$G_{d,s}/\bar{Y}$	- 0.7	- 2.0	- 0.6
X/\bar{Y}	+11.8	+ 7.9	+ 3.8
A/\bar{Y}	- 0.4	- 0.3	- 0.5
s	- 4.9	- 6.3	- 5.1
t	- 3.4	- 1.3	- 1.3
m	-17.6	-13.4	- 6.0
p	- 1.0	- 1.7	- 1.4
f	+ 2.3	+ 5.7	+ 2.5
Total of above[b]	- 9.1	- 8.5	- 6.6
Actual change in Y/\bar{Y}	- 7.7	- 7.3	- 6.3

[a] Percentages refer to the difference between Y/\bar{Y} in 1975-77 and what it would have been had the variable in question been at its base period level, all other variables being as they were in 1975-77. A positive sign indicates that the relevant variable tended to raise Y/\bar{Y} in 1975-77 as compared with the base period. For other explanations, see text.

[b] The sum of the individual contributions in this table does not add precisely to the actual change in Y/\bar{Y} between periods, partly because the relative importance of the variables in determining Y changes appreciably through time, whereas the calculations assume current period values for all variables except one. Hence the approximation here is not strictly valid. The discrepancy is naturally likely to be smaller when adjacent cycles are compared (as in column 3).

contributions from public expenditure G/\bar{Y} , from taxes t and f , and from p which mirrors the share of public sector trading surpluses in GNP. It should be borne in mind that all these contributions are differences from base periods; they are rough orders of magnitude only, and in themselves they provide only the proximate contributions to the change in Y/\bar{Y} .

Table D
Summary contributions to the change in Y/\bar{Y} between
alternative base periods and 1975-1977

Base period	Percentages[a]			Actual change in Y/\bar{Y}
	From private financial saving	From balance of payments	From fiscal deficit	
1963-1966	-4.9	-4.0	+2.3	-7.7
1967-1970	-6.3	-4.6	+3.8	-7.3
1971-1974	-5.1	-2.5	+1.4	-6.3
1963-1974 (average of above)	-5.4	-3.7	+2.5	-7.1

[a] See the notes to Table C.

In at least one respect, the message from Table D seems fairly clear. On the basis of comparisons with each of the three preceding cycles, net financial saving has been a powerful depressing influence on domestic activity in the last three years. It is moreover by implication a feature peculiar to the recent period, for it makes little difference which of the preceding cycles is used for comparison.

The figures in the second column are more difficult to interpret, implying as they do that the current balance has on its own been an important factor tending to depress domestic activity in the recent recession. Furthermore, the implication is that the development is not new; implicitly the trade balance was more of a contractionary influence in 1971-74 than in the two previous cycles. In so far as the figures reflect relatively recent developments, such as the deterioration in the terms of trade between manufactures and primary commodities which began to emerge after 1971, and culminated in the massive oil price rise of 1973-74, the suggestion of a deflationary impact makes

reasonable sense. The relative rise in oil prices in conjunction with low elasticity of demand in importing countries and the limited absorptive capacity of oil exporters, is likely to have been a strong depressing influence, both in this country and overseas. And the recession overseas will in turn have had a contractionary effect on demand in this country through its impact on UK exports (and possibly on imports, if these have risen as a result of tougher competition from overseas producers faced by weak demand in their home markets). These issues will be examined further in the next two sections.

The third column of Table D suggests that fiscal policy considered on its own has been somewhat more expansionary since 1974 than previously, but not enough to counteract the contractionary effect of higher private saving and barely enough to offset that from net external influences; the latter two factors in combination have been more than enough to explain the recent recession. Without the partially offsetting contribution to demand from deficit spending, the recession would, other things being equal, have been even worse. This does not necessarily mean that fiscal policy should have been more expansionary; any judgment on that score must depend on how far the other main variables are held to be influenced, more or less indirectly, by fiscal policy.

Some further discussion of the contribution from the fiscal deficit, with particular reference to the 'constant employment fiscal balance', can be found in the concluding section below.

The contribution from exports

The impression from Table C is that exports have continued to contribute strongly to UK demand. Can this be reconciled with the view that recession in the United Kingdom has been due in part to the cutback in international activity after the oil crisis? It may help to examine the behaviour of X/\bar{Y} a little further. One way of doing this is to split exports into volume and price components, and to analyse the behaviour of export volume in terms of the growth of world trade and the behaviour of the UK share:

$$X^* = \lambda W^* \quad (6)$$

$$= \lambda m_w Y_w^* \quad (7)$$

where λ is the (volume) share of UK exports of goods and services, X^* , in world trade W^* , and m_w is the world propensity to import out of real income or output Y_w^* , the asterisks denoting real magnitudes. Writing PX for the UK export deflator for goods and services and $PGDP$ for the GDP deflator, exports can then be expressed in terms of deviations from \bar{Y} :

$$\frac{X}{\bar{Y}} = \left(\frac{PX}{PGDP} \right) \lambda m_w \frac{Y_w^*}{\bar{Y}^*} \left(\frac{\bar{Y}^*}{\bar{Y}} \right) \quad (8)$$

Here, Y_w^*/\bar{Y}^* represents the state of the world business cycle and Y_w^*/\bar{Y}^* , the relative levels of full employment output overseas and at home. Because productivity and the labour supply have tended to rise somewhat faster overseas than in the United Kingdom, Y_w^*/\bar{Y}^* increases steadily through time and, *ceteris paribus*, X/\bar{Y} also.

Values for the relevant variables are shown in Table E:

Table E
Components of UK export performance in recent cycles

	Annual averages, 1970 = 100						
	$\frac{PX}{PGDP}$	λ	m_w	λm_w	$\frac{Y_w^*}{\bar{Y}_w^*}$	$\frac{\bar{Y}_w^*}{\bar{Y}^*}$	$\frac{X}{\bar{Y}}$
	1	2	3	4	5	6	7
1963-1966	98.7	123.0	78.9	97.0	100.9	85.5	82.3
1967-1970	99.1	103.9	92.5	96.0	101.4	95.9	92.6
1971-1974	94.5	93.4	111.3	103.9	97.7	107.5	102.9
1975-1977	99.4	86.6	130.8	113.3	84.4	118.7	112.9

Note

Y_w^* is proxied by total industrial production of OECD countries. \bar{Y}_w^* is measured as an exponential time trend using annual data, 1960-74 (5.7% per annum). m_w is derived as the ratio of the volume of world manufactured imports to Y_w^* . The world import measure is weighted by UK export market shares. The components in this table do not multiply to equal column 7 exactly because of rounding errors. For other explanations, see text.

The relative export price, $PX/PGDP$, may be taken as a crude measure of export profit margins relative to those on home sales, and therefore of competitiveness on the supply side. [1] By this measure, competitiveness stayed roughly constant through the first two cycles, worsened appreciably in 1971-74 and has since improved on the whole (although annual figures have naturally shown marked variation since the floating of sterling in 1972). The share of UK exports in world imports has fallen heavily but more slowly in recent years. This must be the outcome of a variety of factors, probably including increasing competition from countries with newer and faster-growing export industries—and also trade competitiveness, which depends on relative international cost inflation and the exchange rate. It seems reasonable to think that the relative stabilisation of the UK share through the last three years owes something to the improvement in competitiveness that, on the above measure, has taken place compared with the early 1970s.

What may seem more surprising is that the decline in the UK share has been more than counterbalanced by the rise in what might be called the world import propensity (columns 3 and 4). [2] (The measures of world trade and output are not closely consistent, but probably sufficient for present purposes.) [3] It has been usual to attribute the rise in this propensity largely to output growth, but Table E shows that the rise has continued despite the decline in world activity. Much of it is therefore likely to be the outcome of increasing international specialisation, removal of trade restrictions, and faster output growth in areas where the United Kingdom has a strong trade interest. Of course, these may not remain unaffected if the world recession continues.

Some part of the growth of m_w may alternatively be an indirect consequence of the commodity price rise, for primary producers are usually more prone than others to run trade deficits and to spend a high proportion of their enhanced export earnings on manufactured imports. The fact that the largest oil exporters happen to have a high propensity to save out of export income accounts for the special deflationary nature of the oil price increase.

- [1] If productivity in exports has grown faster than in industry as a whole, which seems fairly likely in the long run, this measure will understate the improvement in the relative profitability of exports to home sales.
- [2] Had m_w been constant, and had both UK and overseas output been on their respective full employment trends, UK exports would have risen more slowly than GDP (for the fall in λ marginally exceeds the rise in \bar{Y}_w^*/\bar{Y}^*).
- [3] The use of a measure of world trade confined to manufactures is not ideal, but the general trend of λ is probably not too distorted. Furthermore, a small part (approximately $\frac{1}{2}$ % per annum) of the growth of m_w reflects the fact that growth of OECD output weighted by UK market shares has slightly exceeded that of OECD output using natural weights.

On its own, the sharp drop in the utilisation of capacity overseas (column 5) would have been enough to reduce UK exports, *ceteris paribus*, by some 15½% per annum, 1975-77 over 1963-74. This would (using equation 4 above) have reduced UK GDP per annum in the recent period by around 8%, including multiplier effects. But this large depressing factor has apparently been more than offset by other influences on exports, for X/\bar{Y} has been higher in the recession than previously.

It would clearly be unwise to read too much into the statistics in Table E. The main objection here, as elsewhere in this exercise, is that the variables are unlikely to be independent of one another. For example, the UK share of world trade has tended to hold up relatively well in a recession, perhaps because the United Kingdom exports the kinds of goods for which world demand is relatively stable. Nevertheless, it is hard to shrug off the impression from these figures that recession overseas has been more than offset by other developments, among which improvements in competitiveness and greater international specialisation could perhaps have been important.

The contribution from imports

It is widely believed that the rise in import prices in the early 1970s is likely to have been an important factor behind the recession both in this country and overseas. It seems worth investigating whether the kind of simple figuring done in this exercise can shed light on the question, at least for the United Kingdom.

Table F
Components of UK import behaviour in recent cycles

	Annual averages, 1970 = 100		
	$\frac{PM}{PGDP}$	$\frac{M^*}{(Y+A)^*}$	m
	1	2	3
1963-1966	99.6	87.6	87.2
1967-1970	99.4	96.4	95.8
1971-1974	100.7	112.2	113.0
1975-1977	110.4	116.9	129.0

Column 1 in Table F shows the 'relative price' of UK imports of goods and services, column 2 the volume share of imports in GNP, and column 3 the share at current prices (i.e. m). The overall stability of relative import prices before 1974 emerges clearly, but this grouping of the figures conceals the exceptionally sharp increase in 1972-74. The sustained increase in volume import penetration, at its fastest between 1967-70 and 1971-74, is also apparent. The slowdown since 1974 is probably due to a combination of weak pressure of domestic demand and the relative rise in prices.

The rise in relative import prices must have affected total demand mainly through its impact on real incomes. Ignoring any effect of import prices on export prices, which, unless wholly offset by volume reductions, would add to UK income if profit margins are set at a roughly fixed mark-up on total costs, and assuming price elasticity

of demand for UK imports is quite small, the rise in import prices on its own will have reduced real disposable income 1975-77 by the order of 3%, i.e. 30% (the average propensity to import out of UK income) of 10% (the rise in relative import prices compared with 1963-74). On this reckoning, the rise in import prices must indeed account for a substantial part of the negative balance of payments contribution to Y/\bar{Y} in Table D. On its own, the price rise would have reduced GDP by approximately 4½%, including multiplier effects.

In addition, part of the increase in the measured import ratio, at least until around 1974, clearly reflects a rise in volume import penetration which looks to have been a well-established trend rather than a response to cyclical factors. This is one of the least understood features of economic development in this country. In some economists' minds, it is associated with supply constraints—industrial rigidities of various kinds, which create bottlenecks when demand grows beyond a certain rather slow pace—but this does not fit easily with evidence that the pressure of demand on resources in 1971-74 was at least no higher than in the two preceding cycles. However, the exceptional speed of the upturn of the UK economy in 1972 and 1973 appears to have led to a surge of imports; accordingly import behaviour in 1971-74 should perhaps be interpreted as to some extent the result of the growth of output rather than as a factor tending to diminish domestic activity. Nevertheless because the pressure of domestic demand has manifestly been much lower since 1974 than in earlier cycles, the increased import propensity during the recent period can perhaps be regarded as less ambiguously a factor tending to depress activity, the ultimate origin of which may lie in such factors as the evolution of consumer preferences and increasing international specialisation in the supply of manufactured goods.

The contribution from the fiscal deficit

The contribution from the fiscal deficit to Y/\bar{Y} shown earlier in Table D, deriving as it does from changes in G/\bar{Y} , t , f and p , is basically a measure of the effect of policy changes, since these items are taken to be essentially policy variables. This interpretation should not be taken too literally. Thus, although p must depend to a large extent on pricing policy in the nationalised industries, quite different factors may also affect it, including some which are clearly not directly influenced by policy. Secondly, as admitted earlier, t , which is defined as direct taxes less transfers to the private sector (and less debt interest), is clearly not invariant to the level of activity. This problem can hardly be ignored when attempting to differentiate with any precision between cause and effect in this field. Accordingly, a rough adjustment was made to t to convert it from its actual level in 1975-77 to what it would have been had the economy been at 'high' employment, and the contribution from the fiscal deficit recalculated using the adjusted value of t . [1] The difference of a little over 0.6% of GDP from the original figure (in Table C) is then the part of that contribution which represents the automatic effect of

the recession in lowering the net direct tax ratio via greater expenditure on unemployment benefits. Hence, of the total positive contribution from the fiscal deficit to Y/\bar{Y} of some 2½% in 1975-77 compared with 1963-74, some ½% can be attributed to these particular automatic effects of the recession and the remaining 2% or so to policy changes.

The above measure of the impact of fiscal policy has some affinity with what is becoming known as the 'constant employment' or 'standardised' budget balance (SBB). [2] This can be defined roughly as the public sector balance that would occur at a constant level of activity with given real tax rates and expenditure. As an indicator of the thrust of fiscal policy on activity, a measure of the kind put forward in the present exercise is felt to be superior in principle, in that it shows changes in output resulting from fiscal changes, with allowance for the (different) multiplier effects of changes in tax rates and public expenditure, whereas most versions of the SBB do not.

It is nevertheless of some interest to use the methods and data described in this paper to calculate the standardised budget balance which is the counterpart to the measure of fiscal policy put forward above. It is possible by rearranging the equations given above to show that PSD/\bar{Y} is determined essentially by Y/\bar{Y} , t , p , f and G :

$$PSD = G - [(Y + A)(1 - p^* + tp) + fY] + NTA \quad (9)$$

where NTA represents net transfers abroad by the public sector—see the footnote on page 43). Dividing by \bar{Y} :

$$\frac{PSD}{\bar{Y}} = \frac{G}{\bar{Y}} - \left[\left(\frac{Y}{\bar{Y}} + \frac{A}{\bar{Y}} \right) (1 - p^* + tp) + f \frac{Y}{\bar{Y}} \right] + \frac{NTA}{\bar{Y}} \quad (10)$$

Setting Y/\bar{Y} to 0.985 (the average of the period 1963-74), a crude measure of the budget deficit at high employment emerges as follows:

Table G
The UK public sector deficit as a percentage of \bar{Y} , 1963-77

	Annual averages or calendar years	
	At high employment	Actual deficit
	1	2
1963-1966	3.1	2.9
1967-1970	1.1	1.0
1971-1974	3.2	3.5
1975-1977	4.4	6.7
1975	5.8	7.8
1976	5.0	7.0
1977	2.5	5.4

Note

The figures in column (1) here incorporate the adjustment to convert t to a high employment basis that was described earlier.

As would be expected (because the actual pressure of demand did not differ much on average from the standard chosen), the high employment budget balance in the three cycles to 1974 was little different from the actual (allowing for minor inconsistencies in the figures). But the recession has had the effect of inflating the actual deficit on an increasing scale in the past three years.

The high employment fiscal balance does not of course give any guide as to what *ought* to be aimed for—it is

[1] The adjustment was on the following lines. An increase of one percentage point in Y/\bar{Y} in 1977 is estimated to imply a reduction of one third of a percentage point (80,000 persons) in registered unemployment and thence a decrease in the PSD of £80 million (0.06% of \bar{Y}) in that year. This would be equivalent to raising the tax ratio by just over .06% of private pre-tax income. Adjustments for earlier years allow for changes in rates of employment benefit, etc.

[2] See, for example, Hartley and Bean, *The Standardised Budget Balance* (Treasury Working Paper No. 1, February 1978).

merely an indicator of changes in fiscal policy over time. The target balance can only be decided with reference to what is happening elsewhere in the economy. A reduction in the high employment balance could be justified on grounds for example that the private saving propensity is falling or the current account of the balance of payments is tending to improve. Both these things were happening last year (in relation to GNP), but not to the extent of the fall in the high employment budget balance. In this sense fiscal policy has become tighter.

The figures in Table G suggest that of the increase in the actual budget deficit between the period 1963–74 (annual average) and the average of the last three years (some $4\frac{1}{4}\%$ of \bar{Y}), just under one-half has been due to policy changes—for the high employment PSD was 1.9% of \bar{Y} higher on average in the recent period than previously—leaving a little over half to be attributed to the automatic effects of the recession. Since earlier calculations suggested that the relaxation of fiscal policy has contributed some 2% to GDP in the recent period, it appears that the multiplier effects of the increase in the high employment deficit have probably been rather small (even allowing for the margins of error in the figures).