

# On the Dangers of Targeting the Budget Deficit

J.O.N. Perkins\*

## Abstract

*This paper examines a number of the deficiencies of the use of the budget balance, or changes in it, as an intermediate target for macroeconomic policy. It draws attention to a number of defensible alternative definitions of 'the budget deficit' – which may give conflicting indications of the direction in which the budget balance is moving. It then outlines some of the ways in which alternative measures for effecting a given change in the budget balance may have different effects on the principal objectives of macroeconomic policy. It is pointed out that even if a reduction in the rate of increase in government debt is in itself desirable, it is only after consideration of the costs and benefits of alternative ways of achieving that aim that one can logically decide what policy measures – and what consequent change in the deficit – are appropriate. An appendix draws on some simulations for the UK economy and for the OECD to illustrate how different measures having the same effect on the PSBR may have different relative effects on the various macroeconomic objectives.*

## Introduction

The intermediate target most widely used in discussions of macroeconomic policy in many countries (not least, Australia) in recent years been the budget deficit, or in Britain the Public Sector Borrowing Requirement (the PSBR): what its level should be, and whether it should be reduced or

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increased, and if so by how much. This paper considers a number of the dangers involved in this approach, looking first at some widely known objections (which are, nevertheless, almost completely ignored in most of the public discussion), and then discussing in more detail a particular set of problems that arises out of the fact that different ways of bringing about a given level, or a given change, in the budget deficit (on some definition) can have varying effects on any of the various possible fundamental objectives of macroeconomic policy.

One should first call to mind the unhappy experiences of many countries with a number of intermediate policy targets – especially those relating to monetary aggregates and exchange rates and the current account deficit – over recent decades. The attempt to base policies on hitting any of these targets – *a fortiori* several of them at once – not surprisingly prejudices efforts to hit the fundamental macro targets of (i) a high rate of growth of real output or employment, (ii) low and steady inflation, and (iii) an adequate, though not excessive, emphasis on investment rather than consumption. For none of the intermediate targets has proved to have a reliable and reasonably constant relationship to particular fundamental objectives – still less to the complex combination of fundamental objectives that is the real aim of policy. The most likely explanation one can suggest for the popularity of intermediate objectives in public discussion is their superficial simplicity – which makes them easy to write or talk about, while avoiding the complexities of discussing the relative merits of alternative combinations of policy measures as means of achieving the real objectives of macroeconomic policy. Moreover, for any endogenous target it will be true that other factors besides government (or central bank) action affect the actual outcome, so that changes in the intermediate target magnitude are not good indicators of changes in the settings of policy.

The extensive experience we have had of the follies of focusing attention on intermediate, endogenous, targets ought to have warned us against trying to base policy on yet another such target – ‘the’ budget deficit. Indeed, this concept is open to particular objections arising in part out of the fact that there are many alternative defensible definitions of ‘the’ budget deficit. One eminent British financial journalist has said (Brittan, 1993), ‘There is an almost unlimited number of respectable ways of defining the budget deficit.’ This means, of course, that ‘the’ budget deficit can rise on one definition in a period in which it may fall on another (perhaps equally or more defensible) definition.

One can, for example, define it to include, or to exclude, payments for capital outlays (on some definition – before or after allowing for depreciation on government owned assets); to include, or to exclude, investment by

government business undertakings; to consider only the central government, or the general government sector; or to include, or to exclude, unfunded liabilities for pensions and for similar official transfer payments; or one can concentrate on the 'primary' surplus or deficit – that is, netting out from outlays interest on the national debt (on the ground that there needs to be a net surplus on other items if the level of national debt is to be reduced; and as a very approximate way of discounting for the effect on spending of changes in real interest rates and inflation) (Blanchard, 1990).

There is also the matter of adjustment of the budget balance (and so the national debt), for the effects of inflation. When the price level rises the real level of government liabilities, and so the wealth of the owners of the government securities, is reduced as surely as if a tax had been levied upon them. Obviously, this consideration is less important now that inflation is at much lower levels; but, on the other hand, the total nominal level of the national debt is almost everywhere now higher, and thus the base on which this adjustment has to be calculated. This adjustment ought to be calculated each year and subtracted from the budget deficit (or added to the budget surplus) if we are interested in seeing how the real level of the government's liabilities has changed during the year. (Definitions of the budget balance that include the proceeds of the sale of public assets as revenue are so clearly indefensible that it does not seem justifiable to include them in this list of reasonable definitions: for they are clearly a *means of financing* deficits – analogous to the sale of bonds by the government.)

Perhaps most important of all, there are various ways of adjusting the budget balance for cyclical factors, so as to obtain what is often known as the 'structural' deficit or surplus (an unfortunate term in view of the fact that at least one other meaning is already attached to the term 'structural' in economics). Certainly, changes in the budget balance are no sort of indication of discretionary changes in government fiscal policy unless some appropriate form of cyclical adjustment is made to the figures to allow for the effect of cyclical changes in the economy upon the budget balance. It is true that there is a large element of discretion in deciding how to make such an adjustment; but it will always be true that any reasonably justifiable adjustment must be preferable to using the unadjusted figures as a guide to the discretionary changes that have been made to fiscal policy. On the other hand, one may take the view that governments may refrain from making a discretionary change because they know, and are allowing for, the effects of the so-called 'built-in stabilisers'; and one may wish to assess the effects of *all* changes in government outlays and revenue items, whether discretionary or automatic (so that some more general measure than the cyclically adjusted ones would be appropriate for that purpose).

## Reasons why alternative ways of changing the deficit by a given amount may have different effects on macroeconomic objectives

It might make some sense to discuss changing the budget deficit (on some agreed definition) by a given amount if all the possible ways of bringing about that change had the same effect on the macroeconomic objective, or objectives, that one wanted to achieve. But if that is not so it is not merely unhelpful but dangerously misleading to talk in terms of what should be done to the budget deficit. For alternative ways of having a given effect on the budget deficit may have different effects on any given objective; and, by the same token, this means that to bring about a given effect on the objective in question some combinations of fiscal measures that might be used would raise, whereas others would reduce, the budget deficit, and others leave it unchanged. This means that anyone who advocates a change in the budget deficit of a given order, or in a given direction, with the aim of working towards some macroeconomic objective, is implicitly asserting that every possible way of changing the budget deficit in the way they are suggesting will affect the macro objective they have in mind in the same way – or, at the very least, in the same direction – over the period they have in mind.<sup>1</sup>

Yet this is, at the very least, such an extraordinarily extreme assumption that anyone who discusses policy in terms of changes in the budget deficit (on some expressly stated definition) should feel it incumbent on them to state the evidence they have that *any* change of outlays or revenue that affects the net balance in the way they are advocating will have the same effect on the policy objective(s) that they have in mind as any other combination of measures that changes the budget deficit by that amount.

Let us recall the principal reasons why different sorts of budgetary measures having the same effect on the budget balance might be expected to have different effects on the basic macro objectives of real output and employment. In the first place, outlays on goods and services by a government directly and immediately create employment and output (at least in nominal terms, and normally also in real terms); whereas transfer payments (or their obverse, tax increases) affect at the first instance only the disposable incomes of those affected by them; so that they affect actual employment and output only when those who are directly affected change their expenditures as a result of the change in taxes or transfers. Clearly, the extent to which this occurs will depend on many factors, especially the income level of those directly affected and their expectations about the future (including whether the taxes or transfers in question are thought of as being likely to be once for all or continuing), as well as the level of activity relative

to full employment. If different outlays or items of expenditure have different effects on real output or employment for a given change in the budget balance, a move in the direction of a greater budget deficit will not necessarily be 'expansionary'; nor is it necessary to move the budget towards deficit in order to have an expansionary effect. This can be readily illustrated by taking any assumption to the effect that one fiscal measure raises the level of output or employment by more than some other measure (for a given change in the budget deficit); and then using the two measures in various combinations. It will be seen that a move towards deficit can be either expansionary or contractionary, and an expansionary policy may or may not involve a move towards deficit.

Secondly, for a given change in the disposable income of the first-round recipients, the effect on the country's output and employment will be affected by the proportion of the rise in income that is spent on imported goods and services. This is also true of any increase in government outlays – some forms of which may be expected to have a higher import content than others. Indeed, some of the outlays may themselves take place overseas (on diplomatic missions, foreign aid and so on). The effects of alternative budgetary measures on inflation (for any given rise in real output) may also be expected to vary considerably, as some types of tax (especially on business inputs) will be more likely to raise wages and other costs than are others. Tax increases may even have such unfavourable effects on output from the supply side as to reduce output by more than it is stimulated by an equivalent rise in government outlays (see Knoester, 1993).

Some forms of government outlays (subsidies on labour costs, for example) are more likely to reduce the upward pressure on costs or prices (at a given level of activity) than are others – many of which may, indeed, increase the upward pressure on prices. The more inflationary ways of increasing the budget deficit by a given amount may indirectly be expected to reduce the upward effect on real output or employment (for any given setting of monetary policy and of budget measures in nominal terms).

Thirdly, the varying distributional effects of different government outlays and revenue changes will mean that the marginal propensity to consume/save of the country will vary for different combinations of fiscal instruments having the same effect on the budget balance. Attempts to reduce the budget deficit by imposing more taxes on high income groups may have little effect on demand.

The points made in the preceding paragraphs ought to be self-evident and familiar. The reason for mentioning them is to point out that they are implicitly being ignored whenever anyone advocates an increase or reduction of 'the budget deficit' (or the public sector borrowing requirement) –

in general terms or by a specific amount, or to a particular level. Discussions of fiscal policy should always be in terms of what changes should be made in particular forms of outlay or revenue, and with explicit attention to the real policy objective that they are intended to affect (rather than the effect on the budget balance).

It is true that one particular objective – which is not, strictly speaking, a macroeconomic one – is probably in the minds of those who talk in terms of budget deficits as an intermediate policy objective. This is the level of public debt and thus the level of interest on it. Implicitly or explicitly, the aim of those who say that the budget deficit should be cut is to reduce the national debt (or its rate of increase) or the interest payments to which it gives rise. But it is indefensible to advocate measures to achieve that objective without paying due attention to the possible macroeconomic costs and benefits that will follow from the particular combination of measures that is adopted with the aim of reducing the level of public debt by the amount in question; and alternative ways of having a given effect on the public debt will clearly have different macroeconomic effects. It is obviously true that any individual, or household, or business, or government, will always prefer to incur less debt, rather than more – *other things equal*. But this is a trivial statement of no use for economic analysis. For the purpose of borrowing is, or should be, to make it possible to invest in forms that will increase the output – of the firm, country or government, or at least its economic welfare in some sense, sufficiently to leave the borrower with a net gain after servicing the additional debt. The only qualification to this is that a household (and also a government) may borrow with an eye to bringing forward its level of consumption (or that of the country as a whole in the case of a government) at the cost of a reduction in its consumption at some future time. For a family (in particular) this may be a rational decision – as the claims on its income may be high in the present and near future, and its ability to meet them low by comparison with what it is likely to be in some future period. But for a government, it may be the imminence of an election that leads it to adopt policies that in effect borrow from the more distant future – by maintaining consumption in the immediate future at an unsustainably high level, or at the cost of a fall in the available level of consumption after the election, and with a net social cost to the country over time.

But the ‘burden’ of any rise in the debt of an individual, family, business, government, or country ought to be set against any increase in its potential future output that the borrowing makes possible. (Irrespective of the prevailing level of the national debt, it is only if potential output – or economic welfare more generally – can be increased by the borrowing sufficiently to

service the debt that the extra debt should be incurred.) This will clearly vary greatly according to the direction of any outlays involved in the process of changing the budget deficit, or any effects on output or employment that result from the tax changes that reduce the deficit. The 'burden' of servicing any additional public debt should be considered only in relation to any change it makes possible in the output of the country – or its economic welfare in general. It makes no sense to discuss the effects of changes in the public debt apart from the effects on the country's output (and so its ability to service that debt) that result from the measures directed towards reducing the public debt.

The same principles apply to policies directed towards reducing the level or rate of increase in a country's external debt. Whatever the prevailing level of external debt, the only criterion as to whether it should be increased or reduced should be whether, at the margin, an increase in external liabilities (or fall in external assets) of a given size will add more to the country's welfare (in the shape of additional output or in other ways) than the costs of raising that additional overseas capital (or the benefits of reducing external assets) over (appropriately discounted) future years.

If the aim is to increase the country's net wealth (that is, its stock of useful productive capital *less* any rise in external liabilities, or fall in net external assets), the direction and size of any change in the budget balance that will work towards that end clearly depend on the particular combination of fiscal measures that is chosen to effect that change.

In the first place, different combinations of fiscal measures will have different effects on the level of private saving (at a given level of employment or real output), so that the net addition to saving by the government represented by any given fall in the budget deficit will not be a good indication of its effects on net saving by the country as a whole. Some ways of reducing the budget deficit by a given amount will tend to reduce the level of net saving by the non-government sector by more than will others (and some may even reduce private net saving by more than the addition to government net saving). If the addition to public sector saving is not offset by other measures to ensure that output is not consequently reduced, there will of course be important welfare losses to set against whatever benefits may result from the increase in the proportion of the national income (at a given level of income) that is saved. (Discussion of these issues should, in any case, be in cyclically adjusted terms.)

Secondly, the level and form of the government's own capital outlays are an important constituent of total additions to net wealth. If, therefore, one is discussing a definition of the budget balance that includes government capital outlays among the debits, a reduction in the budget deficit that is

brought about by a fall in useful government capital outlays will tend to reduce the level of additions to net wealth in the year in question, and will often reduce the productivity of private capital. (See Otto and Voss, 1994) This is an important practical matter in view of the extent to which governments have, in pursuit of lower budget deficits, reduced their capital outlays, and those of the rest of the public sector (at least as a proportion of GDP) in recent years. Especially in view of this fact, it would be best always to differentiate between capital budgets and current budgets when talking about fiscal policy. At the same time, not all potential forms of government capital outlay will be likely to lead to additions to net wealth – but nor will all forms of private capital outlay.

The matter is complicated by the fact that some items of government outlay classified as ‘current’ are in fact investments in human capital – most obviously, a good deal of government spending on health and education, the social return on some of which may equal or exceed that available on many public and private capital outlays. A recent study by economists at the Australian Treasury (Depta, P. *et al.*, 1994) has attempted to make a rough adjustment to the figures to include part of government spending on health and education as ‘capital’ outlays.

A further complication is that some forms of government capital outlays are more likely than others to ‘crowd out’ useful forms of private outlay, and some forms of government outlay may tend to complement, and to that extent to encourage (‘crowd in’) private capital outlays. (For a survey of studies on this matter, see Dowrick, 1994) For this reason also, the net addition to government capital outlays is not a good indicator of the size of the net change in national wealth to which those outlays may give rise.

Those who advocate a reduction in the budget deficit often argue that this will bring about a fall in interest rates, or that it will make possible a discretionary reduction in interest rates, and that this will tend to increase net national wealth – by stimulating investment and reducing the level of net capital inflow, and so the current account deficit. Assuming that the overall setting of macroeconomic policy is such as to ensure that total real output or employment is unchanged, it is probable that a shift of fiscal policy in the direction of a lower deficit or greater surplus, and monetary policy in the expansionary direction, will often have these effects. But it is by no means certain to do so. In particular, if the tightening of fiscal policy took the form of a reduction in worthwhile government capital outlays (including those in human capital), or a rise in taxation in forms that predominantly reduced investment or the private propensity to save, it is quite possible that the net effect of the shift would be to reduce net national wealth. In any event, the size, or even the direction, of the net effect cannot be simply



assumed to follow from a 'tightening' of fiscal policy (however that may be defined) and an easing of monetary policy; for the existence and possible extent of any such effect depends on the particular combination of fiscal measures used to move the budget towards a lower deficit or greater surplus and the extent of any accompanying monetary easing.

### **The budget deficit as a 'constraint' on governments**

The strongest argument that may be raised by those advocating the use of the level of the budget deficit as an intermediate target of policy is that it may impose a desirable constraint on governments that are inclined to make irresponsible fiscal decisions. Governments have often imposed such targets on themselves, in the hope of convincing the electorate or the financial markets of their fiscal rectitude: the IMF frequently includes such targets in the programmes that it agrees with the governments of countries that are making large drawings on the Fund: and the OECD often asserts that most member countries should reduce their budget deficits.

Such targets *may* have the desired effect, and this may often tend to increase economic welfare. But they may also lead governments to take unwise decisions. Certainly, the net fiscal balance is a simpler intermediate target than ones incorporating suggestions about what combination of changes in outlays and revenue would be in the country's best interests, and as such may be thought more likely to be understood and implemented by politicians. There may be cases where any form of reduction in the fiscal deficit – almost irrespective of the measures whereby this is achieved – may be advantageous. But the cases where that is true are most likely to be where the country in question starts from a very high rate of inflation, and where increases in the fiscal deficit are likely to be financed by the creation of central bank credit. Even in those cases, however, there will always be better and worse ways of effecting a given reduction in the fiscal deficit (and some ways that will bring a net social cost). But in the typical OECD country, where inflation is now low and where resort to the central bank to finance a deficit is much less likely to occur, it is always appropriate to consider what combinations of measures to reduce the deficit (or, indeed, to increase it) will tend, on balance, to increase economic welfare, and which will not. For some combinations of measures will always be available to cut the deficit that will have worse effects on welfare (by reducing employment and output, or by bringing about an inferior allocation of resources) than whatever favourable effects are expected to follow from the reduction of the national debt and the interest upon it resulting from the cut in the fiscal deficit. This means that the imposition of such a budget deficit constraint in

such countries must be assumed to be potentially welfare-reducing if implemented in some ways, even if it can be expected to be welfare-increasing if it is carried out in others. The 'constraint' on governments imposed by this intermediate target *may* therefore turn out to be a constraint against the implementation of *good* policies, and not necessarily a constraint against the adoption of *bad* ones.

It is said that the imposition of more detailed targets for spending or taxation may be unacceptable politically to governments that are making drawings on the IMF – though sometimes targets for some types of spending are now often included in the conditions imposed by the IMF. On the other hand, some governments welcome such more detailed targets, as making it politically easier for them to implement policies that they know to be necessary. If the IMF specifies a target purely in terms of the budget balance, this may also lead the government concerned to push certain outlays 'off-budget'; though, provided that they remain within the public sector, the imposition of a public sector borrowing requirement, rather than a budget deficit target, should make this less likely.<sup>2</sup>

## Conclusions

The purpose of this paper has *not* been to argue that (in some sense or other) 'the budget deficit doesn't matter'. For each of the items of revenue and expenditure that make the deficit or surplus what it is matter a great deal. But the deficit matters in itself only so far as one is concerned about the level and servicing of the national debt; and one should always consider those matters in the light of the effect on the country's real output (and economic welfare generally) that results from a particular combination of changes in outlays and items of revenue.<sup>3, 4</sup>

It is true that we need to know a great deal more about the relative effects on the main macro objectives of changing the deficit by a given amount through one combination of measures rather than another. Simulations with macroeconomic models may help (as is illustrated in the Appendix through some results of simulations for the U.K. and the OECD as a whole), and perhaps time series analysis. But if we fail to consider those relative effects, and concentrate instead upon changing the budget balance by a given amount, or in a particular direction, this is likely to lead governments to adopt combinations of measures that will have adverse effects on the basic macro objectives, especially if they find it politically difficult to effect the same change in the budget balance by a more appropriate combination of measures.

## APPENDIX

This appendix brings together some simulations of the effects of alternative fiscal measures having the same effect on the budget balance, to illustrate their varying effects on the main macroeconomic objectives. It would be useful to have similar projections for Australia – especially if they made use of a number of alternative models, as do the University of Warwick simulations for the U.K.

### OECD Simulations

The OECD simulation is for the whole OECD area (and therefore of direct relevance to Australia, as to the other OECD countries). It does not, however (in contrast to the Warwick simulations), differentiate between alternative forms of tax cut; nor does it do so for different forms of government outlays (or draw on several different models).

**Table A1** Percentage point differences from baseline reference scenario for effects of alternative fiscal policies in the OECD (with given real interest rates)\*

	1994	1995	1996	1997	1998	1999	2000	7-year total
Effects on								
Real GDP <i>growth</i> (% p.a.) of								
Cut in government spending	0	0	-0.2	-0.2	-0.4	-0.7	-1.0	-2.5
Increase in taxes	0	0	-0.2	-0.5	-0.7	-1.2	-1.8	-4.4
Level of real GDP (%) of								
Cut in government spending	0	0	-0.2	-0.4	-0.8	-1.5	-2.5	-5.4
Increase in taxes	0	0	-0.2	-0.7	-1.4	-2.6	-4.4	-9.3
Inflation (% per annum) of								
Cut in government spending	0	0	0	-0.3	-0.6	-1.1	-2.0	-4.0
Increase in taxes	0	0	0.1	0.1	-0.1	-0.5	-1.2	-1.7
Unemployment rate (%) of								
Cut in government spending	0	0	0	0.2	0.4	0.7	1.2	2.5
Increase in taxes	0	0	0.1	0.3	0.6	1.1	1.9	3.9
Government net								
lending (as % of GDP) of								
Cut in government spending	0	0	0.1	0.3	0.7	1.3	2.1	4.4
Increase in taxes	0	0	0.1	0.3	0.7	1.3	2.1	4.4

Source: Leibfritz et al, 1994.

\* The Table gives the simulations (for the OECD as a whole) for each of the two forms of fiscal tightening (for the same effect on government net lending – in effect, the budget balance) under the assumption of *unchanged* real interest rates – meaning that monetary policy is used to prevent the tightening of fiscal policy causing a fall in real interest rates. The cut in spending is in an (unspecified) range of taxes. The results may be sensitive to these assumptions.

**Table A2** Percentage point differences from baseline reference scenario for effects of alternative fiscal policies in the OECD (with lower real interest rates)\*

	1994	1995	1996	1997	1998	1999	2000	7-year total
Effects on								
Real GDP growth (%) of								
Cut in government spending	0	0	0.2	0.4	0	-0.5	-0.9	0.1
Increase in taxes	0	0	0.3	0.3	-0.2	-1.0	-1.4	-2.0
Level of real GDP (%) of								
Cut in government spending	0	0	0.2	0.6	0.6	0.2	-0.6	1.0
Increase in taxes	0	0	0.3	0.6	0.4	-0.6	-2.0	-1.3
Inflation(% per annum) of								
Cut in government spending	0	0	0	0.2	0.4	0.2	-0.4	0.2
Increase in taxes	0	0	0.1	0.4	0.7	0.7	0.3	2.2
Unemployment rate (%) of								
Cut in government spending	0	0	0	-0.1	-0.2	-0.1	0.3	-0.1
Increase in taxes	0	0	-0.1	-0.2	-0.2	0.2	0.8	0.5
Government net								
lending (as % of GDP) of -								
Cut in government spending	0	0	0.1	0.3	0.7	1.3	2.1	4.5
Increase in taxes	0	0	0.1	0.3	0.7	1.3	2.1	4.5

Source: Leibfritz *et al*, 1994.

\* See note to Table A1.

The conclusion drawn from these and related simulations by OECD economists (Richardson, Pete *et al*, 1994, p.12) is as follows:

Comparing the two cases without monetary easing, adjustment through higher taxes was found to be more costly in terms of real GDP and unemployment... In effect, the scale of real adjustment and their longer-term real-side effects appear to be greater for the case of tax adjustment... The same broad conclusions apply with respect to the cases of fiscal changes with a simultaneous monetary easing

That is to say, for a given change in the budget balance, rises in taxation have a greater downward effect on real output and employment, and a smaller effect in reducing inflation, than do cuts in government outlays, taking the OECD as a whole (thought not necessarily, of course, for every individual country taken alone). The OECD gives simulations also for the major seven OECD countries and for OECD Europe, and this comparison of the relative effects of the two forms of fiscal tightening holds good for those aggregates also.

The obverse of these propositions is that if a government tries to use fiscal expansion as a stimulus, a rise in government spending will raise

inflation by more and have a more adverse (or less favourable) effect on real growth and the level of real output over the seven years as a whole than will a cut in taxation (as may be seen by reversing the signs of the figures in the table).

## **Conclusions from Simulations for the U.K. Economy**

- (1) Different forms of fiscal stimulus have different effects (in all models) from one another (in degree, and in some cases, even in direction) upon each of the main macro objectives, for a given effect on the Public Sector Borrowing Requirement; except that in the NIESR model the effect on inflation of a cut in income tax is virtually the same as that of a cut in national insurance contributions.
- (2) The two bottom lines of the results for each model show that the change in the rate of inflation, or in the current account deficit, for a given stimulus to real GDP, differs as between one form of fiscal stimulus and another; and, again, this is true with the simulations for each model. In certain cases the effect on the rate of inflation from one or two of the fiscal measures is downwards, even though the rate of growth of real GDP is increased. (This is true of the Treasury model for a cut in V.A.T. or in employers' national insurance contributions, and for a cut in V.A.T. in both the Bank of England model and the LBS model. In the Bank of England model the upward effect on inflation of a stimulus by way of an income tax cut is negligible.)
- (3) Government spending on goods and services is in all cases but one (the model with the smallest number of equations – that of Strathclyde) the measure having the greatest upward effect on the rate of inflation (for a given effect on the PSBR). But in two models a cut in income tax has a greater upward effect on inflation than government spending *relative to their respective effects on real GDP*. Government spending also has the greatest upward effect on real GDP (for a given change in the PSBR), except in the Strathclyde model and that of Oxford Economic Forecasting.

**Table A3** Effects of Alternative Fiscal Measures, in Simulations with Various Models of the UK Economy, Interest Rates held fixed by Monetary Policy. (Change per billion pounds sterling rise in PSBR, at 1990 prices, five-year annual averages)

Fiscal measure	Rise in government spending on goods & services	Income tax cut	Cut in V.A.T.	Cut in employers' national insurance contributions
<i>Model</i>				
<b>L.B.S. - Effect on</b>				
(1) Real GDP(%)	0.70	0.12	0.07	0.17
(2) Rate of inflation (%)	0.43	0.08	-0.19	0.12
(3) Real current account	-1.26	-0.32	-0.05	-0.44
(Billion pounds sterling at 1990 prices)				
(2)/(1)	0.61	0.67	-2.71	0.71
(3)/(1)	-1.80	-2.67	-0.76	-2.59
<b>N.I.E.S.R. - Effect on</b>				
(1) Real GDP(%)	0.59	0.52	0.42	0.26
(2) Rate of inflation (%)	0.41	0.26	0.19	0.26
(3) Real current account	-2.00	-1.50	-1.52	-1.25
(Billion pounds sterling at 1990 prices)				
(2)/(1)	0.68	0.50	0.45	1.00
(3)/(1)	-3.33	-2.88	-3.61	-4.82
<b>H.M.T. - Effect on</b>				
(1) Real GDP(%)	0.32	0.14	0.24	0.28
(2) Rate of inflation (%)	0.17	0.01	-0.23	-0.26
(3) Real current account	-0.62	-0.54	-0.76	-0.67
(Billion pounds sterling at 1990 prices)				
(2)/(1)	0.53	0.07	-0.96	-0.93
(3)/(1)	-1.94	-3.88	-3.17	-2.39
<b>B.E.* - Effect on</b>				
(1) Real GDP (%)	1.47	0.28	0.79	0.93
(2) Rate of inflation (%)	2.06	0.02	-0.29	0.23
(3) Real current account	-2.20	-0.72	-1.55	-1.92
(Billion pounds sterling at 1990 prices)				
(2)/(1)	1.40	0.07	-0.37	0.25
(3)/(1)	-1.50	-2.57	-1.98	-2.06
<b>O.E.F.* - Effect on</b>				
(1) Real GDP(%)	0.78	0.33	0.93	0.38
(2) Rate of inflation(%)	0.53	0.03	-0.08	-0.05
(3) Real current account	-1.12	-0.71	-2.00	-0.92
(Billion pounds sterling at 1990 prices)				
(2)/(1)	0.68	0.09	-0.09	-0.13
(3)/(1)	-1.44	-2.15	-2.15	-2.42

**Table A3** continued

Fiscal measure	Rise in government spending on goods & services	Income tax cut	Cut in V.A.T.	Cut in employers' national insurance contributions
<b>STR - Effect on</b>				
(1) Real GDP(%)	0.30	0.92	0.48	0.41
(2) Rate of inflation (%)	0.19	0.54	0.14	0.12
(3) Real current account (Billion pounds sterling at 1990 prices)	-0.76	-1.08	-1.14	-1.04
(2)/(1)	0.58	0.59	-0.29	0.29
(3)/(1)	-2.30	-1.17	-2.37	-2.54

Source: Derived from Church *et al*, 1993.

\* Indicates that these averages are for four years only, as those simulations are for only the first four years after the change in policy. L.B.S.=London Business School; N.I.E.S.R.=National Institute of Economic and Social Research; H.M.T.=Her Majesty's Treasury; B.E.=Bank of England; O.E.F.=Oxford Economic Forecasting; STR=Strathclyde University.

## Notes

1. As different lags characterise different items of outlay and revenue, the net effect will also depend on the period under consideration.
2. In drafting this section I have benefited greatly from discussions with Max Corden, Graeme Dorrance and Jocelyn Horne.
3. The present witer has discussed the use of several macroeconomic instruments in appropriate combinations to work towards desired ends of macroeconomic policy in Perkins (1990).
4. Even if the budget balance is regarded as in some sense an objective in itself, it will still be best to effect the change in the budget balance with the minimal adverse effects on other objectives.

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