Forecasting the PSBR Outside Government: The IFS Perspective

CHRISTOPHER GILES and JOHN HALL[*]

Abstract

Expectations regarding the future state of the public finances are vital for public policy formation. The UK experience has been that forecasts of the PSBR have been beset with problems since the mid-1980s. Independent assessments of the accuracy and plausibility of public finance forecasts are an important check on government forecasts and serve to increase public debate over government finance issues. We examine the success of various possible methods available to those outside government.

JEL classification: E6, H1, H6.

I. INTRODUCTION

In the short run, fiscal policy matters because of its impact on the macroeconomy and, through this, the stance of monetary policy. More importantly for microeconomists, discussion of reforms to the structure of taxation or public spending occurs within the context of the state of the public finances overall. If politics is the art of the possible, the Chancellor's possible policy choices are determined to a large degree by the public finances. It is for this reason that the Treasury devotes so much time and effort to monitoring the public sector borrowing requirement (PSBR) and other indicators of the health of the public finances. In this article, we evaluate issues surrounding forecasting the PSBR from the perspective of people outside government.

We begin, in Section II, by considering why outside individuals and bodies should forecast the PSBR and how their forecasts help shed light on debates concerning the overall stance of fiscal policy. In Sections III and IV, we assess the forecasting of revenues and public expenditure respectively. A PSBR forecast is essentially the difference between tax revenues and spending, and very different procedures need to be used to forecast each. In both sections, we consider how the forecasts produced by IFS have compared to those of the Treasury and to the actual out-turn; what techniques we use in forecasting; and what general options forecasters outside government face in producing their figures. In Section V, we difference the tax and expenditure forecasts to produce the PSBR forecast and consider the success of the IFS and Treasury PSBR forecasts since the early 1980s. Section VI concludes.

II. THE ROLE OF PSBR FORECASTS FROM OUTSIDE GOVERNMENT

Whilst a great deal of public discussion tends to concentrate on the current level of the PSBR, it is the structural level of borrowing that is most important. Both public expenditure and tax revenues vary with the economic cycle, and large fiscal deficits are consequently of less concern in a recession than in a boom. This cyclical noise in the public finances means it is not sensible to judge the government's fiscal stance in terms of the PSBR in any one year. Rather, the appropriate measure is the structural deficit: the level of public borrowing that would occur when the economy is next operating at trend output (the normal working capacity of the economy).

The obvious difficulty with focusing on the structural deficit is that, unlike the PSBR which is a concrete and observable magnitude, it is very difficult for commentators to calculate or agree on what the structural level of borrowing actually is — this requires an assessment of where the economy is relative to trend. Cyclical adjustments to the actual PSBR, which are necessary to determine the structural PSBR, are complicated if the trend rate of growth varies within cycles, if it varies from cycle to cycle or if the upswing or downswing phases of subsequent cycles are of varying lengths. Such uncertainties were compounded in the upswing of the mid-1980s by initial underestimates of GDP as growth accelerated. In addition, tax receipts tend to lag the cycle by about a year.

Over the medium term, the government's targets for sustainable fiscal policy in terms of ensuring debt sustainability and meeting the 'golden rule of the public finances' are identical to the sensible rules of thumb we have long advocated. Nevertheless, in the short run, governments are likely to come under pressure to vary the fiscal stance in order to accommodate political considerations. Such temptations, whether to reduce tax rates or to increase expenditure, are likely to be

particularly acute when cyclical conditions generate rapidly diminishing deficits, or even surpluses, for the exchequer.[1]

Even though the Treasury devotes a great deal of time and effort to forecasting the PSBR over the medium term, there is a key role for outside analysis of the public finances.

If cyclical surpluses are interpreted as structural surpluses, one role for outside commentators is to monitor whether government is succumbing to pressures to relax the fiscal stance when the economy is operating above trend. This helps to avoid the consequences of fiscal squeezes that would become necessary if the economy experiences a downturn and the true state of the public finances becomes apparent.

Independent assessments of the accuracy and plausibility of Treasury forecasts are an important check on any incentives for governments to present an inaccurate view of fiscal conditions. For example, underestimating the rate of inflation can give a misleading impression of the real increase in departmental spending that is likely to be compatible with a given set of cash plans.

The Treasury has had a poor record in publishing full details of the assumptions and macro-forecasts on which PSBR projections are based. Outside commentators have a role in making such assumptions more transparent. In particular, the Treasury provides little detailed long-run information on the components of GDP growth, which can be critical in determining the path of the public finances. An example of this is long-run forecasts for average earnings growth. These have a direct impact on revenues from income tax and National Insurance, and, via public sector pay settlements, a critical role in determining whether the government is likely to meet its spending plans.

The Treasury has, until recently, been reticent in explaining the sources of error in previous forecasts. Understanding the sources of previous errors can be critical, not only in understanding whether these errors are likely to be consolidated into future forecasts, but also in revealing structural changes in the responsiveness of the public finances to macroeconomic conditions. The changing nature of the relationship between growth in consumer spending and revenues from VAT over the last decade is a welcome case in point where the Treasury has recently published an analysis of past errors (see HM Treasury (1997)).

Finally, as a simple matter of timing, pre-Budget discussion is enhanced by using more up-to-date information than that used to produce biannual Treasury forecasts of the PSBR. The annual IFS Green Budget contributes to the public debate over policies on taxation and spending by publishing a forecast of the public finances for the current year and the following year. Since 1992, we have

---

[1]One arguably legitimate reason for governments to allow the fiscal stance to deviate from the position determined by longer-term considerations is to supplement the effects of monetary policy in managing macroeconomic conditions. Such temporary interventions are most likely to be counter-cyclical rather than pro-cyclical — for example, tax rises to take pressure off interest rates during times when inflation is rising.

also published medium-term projections of the public finances to evaluate fiscal policy in terms of the rules of thumb mentioned above. The Green Budget is published typically six to eight weeks before Budget Day. The forecasts in it have a role to play in informing public debate in the run-up to the Budget because they often indicate the likelihood of changes in tax and expenditure policy and can demonstrate whether the fiscal stance is sustainable into the medium term. The publication last November of the Treasury's first Pre-Budget Report, which included revised forecasts for the public finances, is a very welcome innovation in this respect.

We would not expect the Green Budget forecasts to be more accurate than those in the Financial Statement and Budget Report (FSBR) six weeks later. This is partly because we do not attempt to predict discretionary changes to tax or expenditure policy in the Budget and partly because, as outsiders, we have access to significantly less data than are at the disposal of the Treasury. The Treasury has access to a far richer set of information on the detailed pattern of tax receipts and departmental spending than is available to other commentators. It also has a fuller set of information on precise definitions of the categories used to present taxation and public spending information, particularly those such as 'accounting adjustments' and 'other adjustments'. Outsiders face considerable problems in matching the accuracy of government public finance forecasts but they retain an important role in monitoring and elucidating the assumptions underlying these Treasury forecasts. It goes without saying, however, that detailed public discussion of the options facing the Chancellor is neither possible nor sensible if the record of outside public revenue, public expenditure and ultimately PSBR forecasts is poor. We therefore turn to examine the IFS record in forecasting the public finances.

III. ISSUES IN FORECASTING TAX REVENUES

1. Forecast Performance

Table 1 highlights the performance of the IFS and Treasury forecasts of government revenues. It shows individual forecast errors, the actual out-turns and the average absolute errors for general government revenue since 1987–88. In the main body of the table, each figure represents an error in billions of pounds from the eventual out-turn. Negative values indicate that forecasts of revenues were too low and positive values indicate over-optimism in future revenues.

Each column represents the revenue forecast error at a specific time before the start of the forecasting period. Taking the first row of the table, the last column shows that the government raised £173.8 billion of revenues in 1987–88. The –£9.8 billion figure in the first column indicates the error that the Treasury made in its revenue forecast 13 months before the start of 1987–88, in the 1986 Budget. It forecast that revenues would be £164 billion and was nearly £10 billion too

TABLE 1

Past General Government Revenue Forecasts and Out-Turns

	FSBR	IFS	FSBR	AS/SEF	IFS	FSBR	Out-turn
	(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*	
Months lag (March Budget)	*–13*	*–3*	*–1*	*AS: 6*	*9*	*11*	
Months lag (November Budget shaded)	*–16*	*–6*	*–4*	*SEF: 3*	*6*	*8*	
	Errors (£bn)						
1987–88	–9.8	–3.5	–5.0	–2.8	–0.9	–0.1	173.8
1988–89	–11.3	–2.1	–4.4	–0.7	2.0	1.6	189.3
1989–90	–11.0	3.7	0.4	0.9	–0.3	–2.6	206.0
1990–91	–2.5	4.9	2.0	2.2	1.3	0.1	216.5
1991–92	6.8	8.8	4.3	3.2	1.9	–0.1	222.2
1992–93	16.7	13.7	6.5	–0.2	–1.1	0.6	223.3
1993–94	16.2	–4.3	–1.6		–1.1	–1.1	230.8
1994–95	1.0	2.1	2.4	4.3	4.4	2.5	250.0
1995–96	10.8	10.6	9.5	7.2	3.1	2.7	269.2
1996–97	11.7	7.4	–1.5	–5.9	–5.4	–5.4	286.3
	Average absolute errors (£bn)						
March Budget	*9.4*	*5.9*	*3.5*	*1.7*	*1.3*	*0.8*	
November Budget	*11.3*	*6.7*	*4.5*	*5.8*	*3.5*	*2.9*	

Sources: Various FSBRs, SEFs and Green Budgets.

pessimistic. Moving along the first row, the number in the second column relates to the IFS forecast error made in January 1987, three months before the start of 1987–88. That IFS forecast of £170.3 billion was £3.5 billion too pessimistic. Each successive column represents a forecast made closer to the start of the forecasting period or, in the cases of the final three columns, they show revenue forecasts made within the relevant forecasting year. These forecasts were published in Autumn Statements, six months into the financial year (column 4), IFS Green Budgets, nine months into the financial year (column 5) and the Treasury FSBR forecasts, one month before the end of the financial year (column 6).

The move from March to November Budgets in 1993 makes Table 1 slightly more complicated because it changed the timing of forecasts relative to the forecasting period. In general, the unified Budget brought forward each forecast by three months. The shaded figures in Table 1 show the forecasts made on the basis of these new timings. So, reading the row for the 1995–96 financial year, the first column represents a £10.8 billion over-prediction of revenue made by the Treasury in the November 1993 Budget. In addition to the timing change, the

move to a unified Budget saw the introduction of a Summer Economic Forecast (SEF), published three months after the start of the financial year, to replace the Autumn Statement (AS).

The final two rows show the average absolute errors for each column in billions of pounds for March Budgets and November Budgets respectively. Taking these two rows first, Table 1 shows that, with the exception of the SEFs since 1994, the absolute error in revenue forecasts consistently diminishes the closer the forecast was made to the end of the forecast period. This applies to forecasts made under both the March and November Budget timings and for IFS and Treasury forecasts. It is hardly surprising that, as the end of the forecast period approaches, errors will become smaller because forecasters will have much more information on the strength of the economy, the pattern of economic growth and the pattern of revenue receipt within the forecast year. In addition, as information on out-turn revenues for the previous year emerges, we can correct for any previous errors that have been consolidated in predictions for the forecast year. The move to November Budgets, which come earlier in the financial year, has increased the lag between forecast and out-turn and led to increased average forecast errors, particularly in the within-year forecasts shown in columns 4 to 6.

Over time, there has been a marked cyclical pattern in errors in revenue forecasts. In the late 1980s, the strength of the economy tended to exceed expectations and hence revenue forecasts were consistently too low. This turned completely around in the first half of the 1990s, when revenue forecasts were consistently over-optimistic, particularly those made before the beginning of the financial year being forecast. A major reason for both the low revenue forecasts of the late 1980s and the high forecasts of the early 1990s was errors in the forecasts for GDP. But there is also evidence that the responsiveness of government revenues to GDP growth fell in the early 1990s. Hence in years when GDP growth exceeded expectations, such as 1994–95, revenue forecasts were still over-optimistic.

2. Approaches to Revenue Forecasting

Perhaps the key decision in forecasting tax revenues is choosing the most appropriate level of aggregation on which to base the forecasts. It is easy to imagine three aggregation levels for revenue forecasting, although they are by no means mutually exclusive:

1. *Forecast the ratio of overall revenues to GDP.* This approach is simplest and forecasts the relationship between aggregate tax revenues and GDP growth. In its extreme, this approach would attempt to find relationships between GDP and general government revenues. IFS uses this approach to forecast revenue from minor taxes after adjusting for tax changes announced in previous Budgets.

2. *Forecast individual tax revenues and components of GDP growth.* This approach involves using forecasts of the components of GDP to attempt to proxy the base of individual taxes and estimating a relationship between revenues of individual taxes and the proxies of their base. This forms the core of the IFS revenue forecasts.
3. *Forecast the exact tax base and the revenue for each tax.* This method would involve attempting to forecast the exact base of individual taxes and applying the rules of each tax to derive the revenue. It avoids the problems caused by trends or cyclical patterns in the relationship between tax revenues and proxy measures of the tax base, since revenue growth for all taxes with a single rate is simply proportional to growth in the tax base. But it relies on an ability to measure the exact tax base in the past and to forecast it into the future.

IFS has predominantly preferred the second method of forecasting to the third method. We have not been able to measure the exact tax bases, let alone derive accurate forecasts of them. It is difficult enough to generate accurate forecasts of simple macroeconomic variables such as consumer spending. If we wanted to forecast fuel duties, for example, we would have to produce a forecast of fuel expenditure consistent with our overall macroeconomic forecast. For accuracy, we would have had to disaggregate this forecast further and forecast expenditure individually on leaded, unleaded, diesel, low sulphur diesel, liquid petroleum gas etc. to take account of different rates of duty that exist in the tax system. For taxes with multiple rates, these problems only intensify.

Relative to an aggregate approach, we have been convinced by the forecasting performance and the advantages of the more disaggregated approach of the second method. First, the cyclicality of revenues varies considerably between different revenue sources. Income tax and corporation tax revenues, for example, tend to be far more responsive to the economic cycle than revenue from most other taxes. Second, the responsiveness of tax receipts to economic growth may depend on the composition of that growth (see Sentance, Hall and O'Sullivan (1998, this issue)), with consumption being taxed far more heavily than either investment or exports, for example. Third, the revenue growth for individual taxes may respond differently from growth in a given macroeconomic indicator. Thus VAT revenues tend to respond far more strongly than tobacco duties to increases in consumer spending.

This more disaggregated approach also has problems. Errors in forecasting individual components of nominal GDP growth may be considerably larger than those incurred in forecasting GDP itself, especially as we project further into the future. The relationship between these proxy tax bases and tax revenues is often highly noisy over time, generally resulting from divergences between the growth rates of the true tax base and the macroeconomic proxies. Whilst this may simply generate random forecasting errors, the use of poor proxies may also obscure trended or cyclical behaviour in the underlying relationships. The relationship

between the growth in consumer spending and the base of VAT, for example, appeared to break down somewhat in the early 1990s (see HM Treasury (1997) for a fuller discussion).

On balance, the advantages of using a disaggregated approach outweigh the disadvantages. Yet for minor taxes and in the very long term, we use a more aggregate approach. For minor taxes, we feel the absolute errors possible are too small to justify attempting to proxy their base, and it is always important to aggregate the forecasts to check their overall plausibility, particularly in medium-term forecasts.

3. Forecasting Tax Revenues: The Basic IFS Approach

Box 1 illustrates the principal method of forecasting revenues over the medium term used at IFS. For each tax, revenue growth is modelled as the product of the annual growth of a proxy for the tax base multiplied by an 'elasticity' — a measure of the responsiveness of tax revenues to growth in the tax base proxy.[2] This forecast is then adjusted for the revenue impact of any announced discretionary changes to fiscal policy using Treasury estimates of the budgetary impact. As a default, we assume full indexation of all tax rates and allowances as the base case for future revenue projections. Given some degree of fiscal drag, this generates a gradual increase in the ratio of government receipts to GDP over time.

Table 2 presents the proxies and estimated elasticities used to forecast growth in receipts for some of the major sources of tax revenue. As the table shows, we find that income tax receipts respond more than proportionally to any growth in nominal wages due to the progressive nature of income tax. By contrast, revenues from tobacco duties typically increase far less rapidly than the growth in consumer expenditure, as the majority of individuals do not smoke and cigarettes have a low income elasticity of demand for those who do.

BOX 1

Modelling Tax Revenues

$$1998-99 \ forecast = 1997-98 \ revenues \times \frac{1998-99 \ tax \ base}{1997-98 \ tax \ base} \times elasticity$$
$$+ \ discretionary \ tax \ changes$$

TABLE 2

Tax Bases and Elasticities for Model Forecasts[a]

---

[2]A slightly more complex model is used to forecast income tax revenues. Full details can be found in Institute for Fiscal Studies (1995).

BOX 2

Current Receipts Approach to Forecasting Tax Revenues

$$1997-98 \; forecast = \frac{April - August \; 1997 \; outturn}{April - August \; 1996 \; outturn} \times 1996-97 \; outturn$$

Petrol	Real consumer expenditure	1
Tobacco	Real consumer expenditure	0.25
Beer	Real consumer expenditure	0.85
Wines	Real consumer expenditure	1.5
Spirits	Real consumer expenditure	0.95

[a]The derivation of these tax base elasticities is discussed in more detail in Institute for Fiscal Studies (1996).

The elasticity estimates are based on time-series evidence on the relationship between tax receipts (adjusted for budgetary changes) and macroeconomic indicators. Given that the tax base proxies and measurement of the impact of budgetary changes are imperfect, there tends to be a significant variability in these relationships or 'tax elasticities' over time. The basic approach used at IFS is to take a point estimate of the average elasticity over a period of 20 or so years unless there has been a marked trend in the elasticity. As well as the inevitable inaccuracy caused by using such a noisy indicator, this approach is poor at coping with trends or cyclical variation in the relationship over time. The relationship between corporation tax receipts and company profits, for example, is highly cyclical. As the economy emerges from a recession and profits rise quickly, tax receipts typically respond more slowly as companies offset their corporation tax liability against losses in previous years. Then, as the recovery gathers momentum and tax reliefs are exhausted, revenues grow very swiftly, slowing down again as the recovery matures.

For within-year forecasts (for example, forecasting revenues for 1997–98 in October 1997), we can supplement this approach with information on revenues collected in the early part of the financial year compared with revenues from the corresponding months of the previous year. The forecast for the annual out-turn is simply based on an assumption of a uniform rate of growth of receipts over the year as a whole, as shown in Box 2.

This simple approach is often effective for in-year forecasts since it uses actual tax receipts data which reflect both underlying economic conditions and the actual impact of any discretionary changes to the tax system, many of which become operational from the start of the fiscal year. However, such forecasts are vulnerable to instability in the timing of tax receipts from year to year, and are less reliable for forecasting annual revenues for taxes where the bulk of receipts are collected in the latter half of the fiscal year.

Changes in the monthly pattern of receipts from year to year can be misinterpreted as changes to the rate of growth of tax receipts over the year as a whole. These may occur for many reasons, including administrative changes, 'blips' caused by changes to the tax system or accelerating or decelerating growth in the economy at large. Table 3 shows the proportion of tax receipts that had been collected by the time four annual IFS Green Budgets went to press prior to each of the four November Budgets. Some major taxes, such as income tax and National Insurance contributions, have a relatively stable pattern of receipts from year to year, whilst the timing of receipts for corporation tax, and most of the minor taxes, can be far more unstable.

Forecast errors caused by changes in the pattern of timing of receipts from year to year are magnified where only a small proportion of tax receipts are collected in the first few months of the year. Corporation tax receipts, for example, tend to be concentrated in October and January, so we would typically have information on only about a quarter of annual receipts by the time the Green Budget is published.

TABLE 3

Percentage of Annual Receipts Available by Time of October Green Budget

	By Oct. 1993	*By Oct. 1994*	*By Oct. 1995*	*By Oct. 1996*
Major taxes				
Income tax	40%	40%	40%	40%
Corporation tax	29%	24%	24%	24%
VAT	39%	41%	43%	43%
National Insurance contributions	41%	42%	42%	42%
Selected minor taxes				
Capital gains tax	13%	5%	9%	7%
Fuel duties	32%	33%	33%	33%
Tobacco duties	32%	30%	26%	26%
Vehicle excise duty	32%	31%	31%	31%

The process of combining the various sources of information available to us — previous Treasury forecasts, current receipts and the results of the simple IFS models — to determine a within-year forecast for tax receipts is inherently subjective. We have found graphing a 12-month moving average of tax receipts particularly helpful in forming a judgement. Whilst moving averages are typically poor at forecasting revenues since they tend to lag trends and deal with tax reforms (which typically occur in April) poorly, graphs of moving averages over time can be useful in drawing attention to monthly 'blips' in the pattern of tax receipts which could otherwise distort IFS forecasts.

IV. ISSUES IN FORECASTING PUBLIC SPENDING

Table 4 presents the forecasts for general government expenditure (after privatisation proceeds) made by IFS and the Treasury at intervals of up to 16 months before the start of the forecast year, using the same format as Table 1. Both the Treasury and IFS appear to be rather more successful at forecasting spending than revenues. Their absolute errors in expenditure forecasts are consistently below those in revenue forecasts. As with the revenue forecasts, absolute forecast errors diminish as the end of the forecasting period becomes closer. Table 4 also suggests a systematic pattern in the errors made by both IFS

TABLE 4

Past General Government Expenditure Forecasts and Out-Turns

	FSBR	*IFS*	*FSBR*	*AS/SEF*	*IFS*	*FSBR*	*Out-turn*
Months lag (March Budget)	*–13*	*–3*	*–1*	*AS: 6*	*9*	*11*	
Months lag (November Budget shaded)	*–16*	*–6*	*–4*	*SEF: 3*	*6*	*8*	
	Errors (£bn)						
1987–88	–1.9	3.4	1.6	0.9	0.7	–0.1	171.9
1988–89	1.8	4.8	4.7	2.7	2.7	0.9	178.2
1989–90	–6.4	–5.8	–5.1	–3.1	–2.1	–1.7	199.4
1990–91	–10.9	–3.9	–3.2	–0.2	0.9	0.1	215.9
1991–92	–11.1	–1.1	–1.3	0.0	0.0	0.4	236.1
1992–93	–9.1	–5.1	–2.6	–0.3	–0.4	–1.2	261.1
1993–94	2.5	3.8	2.8		2.8	3.0	277.5
1994–95	8.2	8.3	4.2	3.8	–0.3	1.1	287.8
1995–96	9.0	4.9	–1.0	–1.1	–3.2	–0.9	303.0
1996–97	4.0	2.3	–0.7	–0.9	–0.9	–0.5	309.0
	Average absolute errors (£bn)						
March Budget	*6.5*	*4.0*	*3.0*	*1.2*	*1.1*	*0.7*	
November Budget	*6.5*	*5.2*	*2.0*	*1.9*	*1.8*	*1.4*	

Sources: Various FSBRs, SEFs and Green Budgets.

and the Treasury in forecasting expenditure. Expenditure was significantly underestimated in the early 1990s but, since 1993–94, expenditure outcomes have been lower than the initial nominal forecasts. On average, the IFS forecast errors are lower than the errors in the previous Treasury forecasts — the key determinant of whether they have been useful in informing the public debate.

1. Shorter-Term Expenditure Forecasts

Before the move to a unified November Budget, the IFS approach to short-run expenditure forecasts was simply to accept the government's nominal expenditure plans from the previous Autumn Statement for both the current year and the following year. Only in the case of exceptional differences in macroeconomic forecasts between ourselves and the Treasury would we make some adjustment to expenditure totals. This approach performed tolerably well for short-term forecasting but was much less successful in the longer term, particularly during the period from 1989–90 to 1992–93. Nominal spending plans during this period failed to take account of the discretionary increases in spending and higher-than-forecast inflation that occurred in the late 1980s and a large increase in spending on cyclical social security during the early 1990s. These factors led to significant overshoots in nominal expenditure and a higher PSBR.

The control total, which excludes the most cyclical elements of public spending such as cyclical social security and payments of debt interest, was introduced as the basis of government spending plans from 1993–94 onwards. This reform has led to improvements in both the planning and control of government expenditure and increased the accuracy with which government expenditure can be forecast. As a result, the IFS approach to expenditure forecasting now applies different methods to forecasting expenditure within and outside the control total.

(a) Forecasting Control Total Spending

The control total covers roughly 85 per cent of general government expenditure and is used as the basis for the annual public expenditure round to allocate resources within government. It makes sense to use the published control total as the base for expenditure forecasts since government departments must plan on the basis of it. In practice, as Table 5 shows, the nominal control total for expenditure one year ahead is also a good predictor of expenditure out-turn.

An approach based on simply forecasting the control total using the nominal plans for the year ahead and subsequent years would, however, suffer from two central weaknesses:

TABLE 5

Control Total Year-Ahead Plans and Out-Turns

Control total	Set in:	Level after classification changes	Out-turn
1993–94	Nov. 1992	245.1	241.4
1994–95	Nov. 1993	250.8	248.2
1995–96	Nov. 1994	256.3	255.2
1996–97	Nov. 1995	260.1	260.4

- If the rate of inflation differs from the Treasury's original forecast, it can have a significant impact on the real rate of growth of spending. The government appears more capable of achieving its plans in real terms than in nominal terms. In the three years in which the control total undershot in Table 5, the inflation forecast at the time the control total was set was higher than the out-turn.
- Any underspend or overspend in one year might be consolidated in departmental spending plans for the following year. In other words, a planned rise in a departmental budget or the control total itself of, say, 5 per cent next year may be rebased on actual spending this year as opposed to planned spending. Here there has not been a consistent trend and we must make a judgement on whether underspends or overspends will be consolidated.

The basic approach to forecasting control total spending over the planning horizon at IFS needs to be modified slightly when considering in-year spending. Even if inflation turns out to be lower than forecast at the start of the fiscal year, it has proved very difficult for the Treasury to claw back money already allocated to departments. Unless we have information to the contrary,[3] our assumption is that money already allocated to departments will not be clawed back, nor extra money given.

(b) Forecasting Expenditure outside the Control Total

Spending outside the control total, such as on cyclical social security and debt interest, predominantly reflects items that have a strong cyclical component and can be thought to have relatively mechanistic relationships to economic variables.

Spending on cyclical social security depends on the number of claimants receiving benefit and the average level of benefit receipt. The two key factors driving future expenditure are cyclical variations in unemployment and a general upward trend in factors such as real increases in rent levels which increase associated expenditure on housing benefit. With the exception of the November 1996 Budget, Treasury forecasts for spending on cyclical social security have

---

[3]The information available on the monthly pattern of actual spending is far less detailed than that for the monthly pattern of tax receipts.

assumed a constant level of unemployment. We take these spending figures as indicating the implied trend increase in spending and modify the forecast according to whether the IFS forecast for future unemployment levels differs from that assumed by the Treasury. As a simple rule of thumb, we assume each 100,000 additional unemployed cost an extra £350 million per year.

The level of expenditure on debt interest is driven by changes in the stock of government debt which results from the time path of the PSBR and by the distribution of interest rates that the government pays on different debt issues. We simply forecast total spending on debt interest as the average interest burden on the total stock of government debt plus any additions or reductions resulting from the previous year's PSBR.

2. Longer-Term Spending Issues

Beyond the planning horizon, forecasting spending becomes far less straightforward than forecasting revenues because of the absence of an obvious default scenario for public spending. The government could choose to set its objectives in terms of cash or in terms of the quality of public service outputs. Cash-plan forecasts could be made on a number of plausible bases: assuming a constant real increase in the control total; assuming that the control total accounts for a constant share of GDP; or assuming that historic trends in spending would be extrapolated into the future. Future expenditure plans based on such targets would be easy to measure and forecast, whilst plans based on ensuring the maintenance or improvement of the existing quality of service provision would not.[4]

The results of the current Comprehensive Spending Review might enable forecasters to make more accurate long-term forecasts of expenditure given their macroeconomic forecasts, if they accept that the targets outlined in the review are reasonable. But forecasters are likely to continue to face a serious dilemma. Where long-term targets that imply a certain level of public spending exist alongside other government targets for the quality and level of public service provision, a forecaster will not know whether the financial target for expenditure or the quality target for public service provision will ultimately prove to be binding.

FIGURE 1

Share of Government Spending on the 'Big Three'

---

[4]In fact, until the government's Comprehensive Spending Review (CSR), set up after the 1997 general election, has reported, the Treasury itself lacks a default spending scenario. Since the July 1997 Budget, it has used three spending 'scenarios' based on a range of possible rates of real increase in the control total to provide a range of possible expenditure outcomes. The CSR is committed to making decisions regarding the long-term strategic rates of growth of control total expenditure.

Title: Giles/Hall fig 1
Creator: FreeHand 7.0
CreationDate: 27/1/98 1:33 pm

Sources: *Public Expenditure Statistical Analysis*, various editions; *United Kingdom National Accounts: The Blue Book*, 1972 edition, Table 40; *United Kingdom National Accounts: The Blue Book*, 1979 edition, Table 9.4.

This conflict has been particularly apparent over recent years. The consistent projected decline in the ratio of general government expenditure to GDP was inconsistent with the last government's aims of maintaining the standards and level of public service provision. It is also inconsistent with the current government's aim of meeting the public's demands for decent public services by improving the quality and level of provision. Forecasters can point out these inconsistencies but also need to take a view on which constraint is binding.

In the January IFS Green Budget (Institute for Fiscal Studies, 1998), we have assumed that the government cannot consistently reduce the ratio of spending in GDP, outside the three-year planning horizon. We therefore project a default scenario for spending in which the control total remains a constant proportion of GDP. Even so, we have pointed out that even this assumption is likely to be in conflict with stated policy aims of meeting increasing public demands on the major public services. In particular, we have noted that public expenditure has only remained at its broadly constant share of GDP since 1979 by a reallocation of resources within government to the 'Big Three' spending items — health, education and social security — from all other functions of government, as Figure 1 shows.

In the longer term, the government will have to make one of a number of tough decisions. First, it might decide to control the growth of expenditure on health, education and social security. This would require politically controversial decisions concerning the future quality or extent of state provision, similar to the reforms to state pension expenditure that occurred during the 1980s. Second, the government could continue to try to squeeze the remaining areas of spending, as has already occurred to the public sector capital programme. This is likely to become much more difficult over time. Third, the government could simply accept

that overall expenditure will rise as a share of GDP. Until these choices have been made — and the likelihood is that they will not be made explicitly — forecasting public expenditure in the long term will prove extremely difficult, with plans laid down in terms of service outputs and those laid down in cash terms becoming increasingly incompatible.

V. FORECASTING THE PSBR

Combining the IFS forecasts for revenues and for expenditure to generate a forecast for the PSBR is a straightforward process of subtracting revenues from expenditure and adjusting for the projected borrowing of the remaining public corporations. However, this yields a very different result from trying to forecast the PSBR directly, whether by modelling the PSBR as a function of GDP growth or, for within-year forecasts, by simply extrapolating monthly data on borrowing.

Extrapolating published monthly PSBR figures is prone to considerable errors due to revision of data and the uneven timing of expenditure and revenues from year to year. Forecasting the PSBR as an economic variable in its own right suffers from two major problems. First, the PSBR depends on policy decisions on expenditure which do not relate to macroeconomic variables. Second, the relationship of the PSBR to macroeconomic variables is extremely variable over time.

Table 6 shows the errors in PSBR forecasts by IFS and by the Treasury since 1982–83, on the same basis as Tables 1 and 4. On average, absolute errors of the PSBR tend to fall as the length of time before the end of the forecasting period is reduced. Again, this is explained by additional information becoming available on the underlying macroeconomic position of the economy. However, the absolute size of forecast errors has tended to rise over the period. This can be explained by the increasing absolute size of government expenditures and revenues, increased volatility in the macroeconomy and changes to government policy in the late 1980s. During this period, the government ceased to target the PSBR as a core economic variable in the Medium-Term Financial Strategy. Until then, 'fiscal adjustments' were made if the likely out-turn of the PSBR was different from its forecast, and hence forecasts were almost by definition more accurate. This policy became untenable in the cyclical upswing of the late 1980s when economic growth vastly exceeded expectations.

Although too little data exist to draw firm conclusions, the move to a November Budget has increased the errors in short-range PSBR forecasts significantly, since they are now made earlier in the fiscal year, but has not increased the errors in longer-range PSBR forecasts. The absolute errors in the first few October Green Budget PSBR forecasts have also been larger than those in previously published FSBRs, which, at first sight, appears a major source of concern, both for IFS and for other forecasters outside government. A closer examination of the IFS forecasting record, however, shows that the absolute errors

TABLE 6

Past PSBR Forecasts and Out-Turns

	FSBR	IFS	FSBR	AS/SEF	IFS	FSBR	Out-turn
Months lag (March Budget)	*–13*	*–3*	*–1*	*AS: 6*	*9*	*11*	
Months lag (November Budget shaded)	*–16*	*–6*	*–4*	*SEF: 3*	*6*	*8*	
			Errors (£bn)				
1982–83	1.1	0.2	0.6	0.1	–1.6	–1.4	8.9
1983–84	–1.3	–1.9	–1.6	0.2	–0.4	0.2	9.8
1984–85	–2.2	–2.2	–3.0	–1.7	–0.6	0.3	10.2
1985–86	1.2	2.5	1.2	2.2	2.2	1.2	5.8
1986–87	3.9	2.2	3.4	3.4	1.3	0.5	3.6
1987–88	10.4	7.4	7.3	4.4	2.4	0.3	–3.4
1988–89	18.5	9.3	11.3	4.5	2.1	0.6	–14.5
1989–90	7.9	–9.2	–5.9	–4.7	–2.4	0.8	–7.9
1990–91	–9.7	–10.1	–6.6	–2.7	–0.7	–0.5	–0.3
1991–92	–16.9	–9.9	–6.0	–3.4	–2.1	–0.1	13.9
1992–93	–24.7	–17.2	–8.6	0.3	1.1	–1.6	36.7
1993–94	–13.4	8.4	4.7		4.2	4.4	45.4
1994–95	8.0	7.0	1.9	0.1	–4.1	–1.6	36.0
1995–96	–1.7	–7.4	–10.2	–8.1	–5.1	–2.7	31.7
1996–97	–9.6	–6.5	–0.2	4.3	3.6	3.8	22.6
			Average absolute errors (£bn)				
March Budget	*9.2*	*6.7*	*5.0*	*2.5*	*1.5*	*0.7*	
November Budget	*5.7*	*7.0*	*4.1*	*4.2*	*4.3*	*3.1*	

Sources: Dilnot and Robson, 1993; various FSBRs, SEFs and Green Budgets.

in IFS revenue and expenditure forecasts were lower than those in the previous FSBRs, so the favourable Treasury record appears to have resulted from one or two fortunate FSBR forecasts, in which errors made in forecasting spending and revenues were of opposite signs.

VI. SUMMARY AND CONCLUSIONS

It is critical that the PSBR, as a key indicator of the government's competence in managing the nation's fiscal affairs, can be forecast accurately, both inside and outside government. Whilst those of us outside the Treasury are equipped with a far less rich set of information concerning the detailed pattern of spending and revenues, and the exact classifications that are used to present the public accounts,

we retain an important role in assessing the plausibility of government forecasts and informing the public debate over fiscal policy.

At IFS, we forecast revenues and spending separately since they are influenced by rather different forces. We use a disaggregated approach to forecasting tax revenues, relying on relatively simplistic models of the relationship between receipts from individual taxes and broad measures of the components of GDP. The IFS approach to forecasting public spending differs between the short and medium terms. In the short term, we largely assess the government's ability to attain its pre-announced spending targets. In the longer run, in the absence of an obvious default scenario for spending, we assume that spending will not fall as a share of GDP.

In the longer term, a key issue in public spending is whether the government's cash plans are consistent with either government promises or public expectations of the quality of public services. Given the trend increase in the share of total spending which is taken up by the health, education and social security budgets, and limited scope for cuts in other areas, PSBR forecasts that depend on very tight control of public spending beyond the very short run are likely to be incompatible with even the maintenance of current standards and levels of coverage in these areas.

REFERENCES

Dilnot, A and Robson, M. (1993), 'The UK moves from March to December Budgets', *Fiscal Studies*, vol. 14, no. 1, pp. 78–88.

HM Treasury (1997), *The VAT Shortfall: Report of the Working Group on VAT Receipts and Forecasts*, Treasury Occasional Paper no. 9, London: HM Treasury.

Institute for Fiscal Studies (1995), *Options for 1996: The Green Budget*, Commentary no. 50, London: IFS.

— (1996), *Options for 1997: The Green Budget*, Commentary no. 56, London: IFS.

— (1998), *The Green Budget: January 1998*, Commentary no. 67, London: IFS.

Sentance, A., Hall, S. and O'Sullivan, J. (1998), 'Modelling and forecasting UK public finances', *Fiscal Studies*, this issue, pp. 63–81.