

# *Symposium on Forecasting the State of the Public Finances*

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## I. INTRODUCTION

The level of public borrowing plays a central role in UK government policymaking, especially in the run-up to each Budget. Accurate forecasts of the overall fiscal stance are crucial in assessing the general health of the economy, the direction of tax policy and the volume of public services that can be supplied. But these forecasts have a relatively poor record in the UK in recent years. The government's last Financial Statement and Budget Report noted that 'The budget deficit is the difference between two large aggregates of spending and receipts and forecasts of it are inevitably subject to a wide margin of error. Over the past five years the average absolute errors have been around 1 per cent of GDP, or plus or minus £8 billion in today's prices'.<sup>1</sup>

A better understanding of how the forecasts are constructed and the likely sources of error in their component parts is important both for government decision-making and for appraisal of the policy stance by outside analysts. The three papers in this symposium<sup>2</sup> demonstrate how quite different approaches to the problem can be motivated by differing objectives and access to data. This introductory note gives some background information on how the public financial position is defined and what some of the trends have been over the recent past.

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The opinions expressed in this paper, and any errors, are the sole responsibility of the author.

<sup>1</sup>HM Treasury, 1997b, paragraph 4.42.

<sup>2</sup>Held at the Bank of England on 19 February 1998.

## II. DEFINING THE PSBR

The main concept considered in UK policymaking is the public sector borrowing requirement (PSBR) — that is, how much the public sector has to borrow each financial year to finance the difference between expenditure and its receipts. The PSBR is largely a cash concept. It can be disaggregated into component borrowing requirements in different ways. One useful starting-point is a split between the general government borrowing requirement (GGBR) — the difference between general government expenditure and receipts on a cash basis — and the very much smaller amount of market and overseas borrowing by public corporations (PCMOB). The GGBR is the sum of government borrowing on its own account and public corporations' borrowing from central government — which is excluded from PCMOB.

Alternatively, the PSBR can be split between central government borrowing on its own account (CGBR(O)) and borrowing by local authorities and by public corporations.

Table 1 shows what the PSBR was in fiscal year 1996–97 and what the Treasury forecasts are for 1997–98 and 1998–99. It shows that in 1996–97 the government spent £22.7 billion more than it collected in revenue. Public corporations' market and overseas borrowing was very small and so the PSBR — the amount the public sector needed to borrow overall — was equal to this difference.

To forecast the PSBR, we need to come up with a prediction of what both expenditure and receipts will be in the future. The three articles below present different approaches to doing this and discuss some of the strengths and weaknesses of these approaches. All the papers find that forecasting

TABLE 1  
Public Sector Borrowing Requirement Forecasts, July 1997

	Out-turn 1996–97	Forecast	
		1997–98	1998–99
General government expenditure (GGE)	309.0	319.4	331.3
General government receipts (cash basis) (GGR)	286.3	308.3	327.2
General government borrowing requirement (GGBR)	22.7	11.1	4.1
Public corporations' market and overseas borrowing (PCMOB)	0.1	–0.2	–0.2
<b>PSBR</b>	<b>22.7</b>	<b>10.9</b>	<b>4.0</b>
Central government own account borrowing (CGBR(O))	24.9	11.2	n/a
Local authorities' borrowing	–0.9	–0.3	n/a
Public corporations' borrowing	–1.3	0.0	n/a

receipts and expenditure is prone to significant errors because both variables depend on a wide range of economic variables and budgetary choices made by politicians. A small error in forecasting receipts can lead to a very large error in the forecasted level of the PSBR. For example, an error of 1 per cent in the forecasted level of total cash receipts in 1996–97 (i.e. an error of £2.9 billion) would have been reflected in a forecast error of more than 12 per cent in the PSBR (i.e. the forecast for the PSBR would have been £2.9 billion higher or lower) for a given level of expenditure.

The PSBR is not the only measure of the budget deficit that could be considered. Alternative concepts include:

- the *current balance*, which is the difference between current account expenditure and revenue;
- the *public sector financial deficit* (PSFD), which is expenditure less revenues in the National Accounts, consolidating current and capital items; and
- the *general government financial deficit* (GGFD), excluding public corporations, which is the most widely internationally comparable measure and as such has been used for the ‘excessive deficits’ criterion in the Maastricht Treaty.

Table 2 shows the out-turn for fiscal year 1996–97 and the Treasury forecasts for 1997–98 and 1998–99 for the current balance and GGFD. Unfortunately, the

TABLE 2  
Financial Deficit Forecasts, July 1997

	Out-turn 1996–97	Forecast £ billion	
		1997–98	1998–99
Receipts on National Accounts accruals basis (including capital taxes)	285.4	310.9	329.6
Current expenditure (including depreciation of fixed capital)	306.6	316.4	325.2
<b>Current balance</b>	<b>-21.2</b>	<b>-5.5</b>	<b>4.4</b>
Capital spending net of depreciation (excluding capital transfer receipts, including capital grants)	8.1	7.5	7.9
<b>General government financial deficit (GGFD, National Accounts basis)</b>	<b>29.2</b>	<b>13.0</b>	<b>3.5</b>
Adjustment for accruing capital uplift on index- linked gilts	1.2	-1.8	-1.9
<b>General government financial deficit (GGFD, Maastricht basis)</b>	<b>30.4</b>	<b>11.2</b>	<b>1.6</b>

Source: HM Treasury, 1997b, Table 4.1

GGFD figure derived from UK National Accounts is calculated on a slightly different basis from the Maastricht definition.<sup>3</sup> Both often differ substantially from the PSBR because they are accruals, not cash, measures and, in particular, exclude privatisation proceeds.

### III. FINANCING THE PSBR

The PSBR, being a cash concept, is arguably more important than other measures of the budget deficit. It is more transparent than accruals measures,<sup>4</sup> and it also has operational implications. In March of every year, the government publishes a Debt Management Report which sets out its financing requirement. It then hands over a remit to the Bank of England and National Savings.<sup>5</sup> The forecast financing requirement for the year ahead is derived from the forecast borrowing requirement, as shown in Table 3. The objective for the Bank of England is 'full funding' — that is, to make gilt sales exactly sufficient to meet the financing requirement net of National Savings and other public debt issued.

The out-turn for CGBR for fiscal year 1996–97 was £25.1 billion, as shown in the fourth column of Table 3. A small improvement in the official reserves plus £12.4 billion in gilt redemptions and the carry-over of £2.2 billion in underfunding from the previous year meant that the financing requirement was £39.4 billion. Of this, £4.8 billion was funded by National Savings contributions while net redemption of other public debt added a further £0.4 billion. This meant that a total of £34.9 billion of financing needed to come from gilt sales. As the bottom part of the table shows, £38.7 billion was raised in gilt sales, leaving an overfund of £3.9 billion which was carried over into the next year (shown in the July 1997 forecast).

Table 3 also demonstrates that the forecasting error does not necessarily diminish over time. The first column shows the March 1996 remit to the Bank of England and National Savings. The November forecast was not, in this case, a better guide than the earlier July one for the out-turn over the year to 31 March. This led to the overfunding by gilt issue of £3.9 billion, which, together with a further marked reduction in the forecast borrowing requirement just four months later, required a corresponding reduction in the planned supply of gilts in fiscal year 1997–98.

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<sup>3</sup>The only difference is that, like the PSBR cash measure, the Maastricht criterion only requires capital uplift on index-linked gilts to be counted as expenditure at redemption; the UK National Accounts measure accrues the uplift annually. Most EU countries are unaffected since they do not issue index-linked government securities.

<sup>4</sup>Although there has been extensive discussion of the merits of accruals measures of tax receipts, the OECD still publishes its annual *Revenue Statistics of OECD Member Countries* on a cash basis, because of the difficulty of agreeing what should appropriately be regarded as accrued, uncollected taxes.

<sup>5</sup>These arrangements will change in future years with the establishment of the Debt Management Agency within the Treasury.

TABLE 3  
The Central Government Financing Requirement

	1996-97				1997-98	
	March 1996	July 1996	Nov. 1996	Out-turn	March 1997	July 1997
	<i>remit</i>	<i>forecast</i>	<i>forecast</i>		<i>remit</i>	<i>forecast</i>
Central government borrowing requirement (CGBR)	24.1	28.1	27.9	25.1	20.0	12.4
Expected net change in official reserves	0.0	0.0	0.0	-0.3	0.0	0.0
Expected gilt redemptions	11.5	11.5	12.5	12.4	19.6	19.6
Underfund out-turn from previous year	n/k	2.2	2.2	2.2	n/k	-3.9
<b>Financing requirement</b>	<b>35.6</b>	<b>41.8</b>	<b>42.6</b>	<b>39.4</b>	<b>39.5</b>	<b>28.1</b>
National Savings contribution	3.0	3.0	4.5	4.8	3.0	3.0
Expected sales of other public debt	0.0	-0.1	-0.3	-0.4	0.0	0.0
<b>Gilt sales required for full funding</b>	<b>32.6</b>	<b>38.9</b>	<b>38.4</b>	<b>34.9</b>	<b>36.5</b>	<b>25.1</b>
<b>Gilt sales planned for year (and out-turn):</b>						
Short conventionals (3-7 years)	9.2	11.0	11.0	11.2	10.2	7.0
Medium conventionals (7-15 years)	9.2	11.0	11.0	10.4	8.8	6.0
Long conventionals (more than 15 years)	9.2	11.0	11.0	11.3	10.2	7.0
Index-linked	4.9	5.8	5.8	5.8	7.3	5.0
<b>Total gilt sales</b>	<b>32.5</b>	<b>38.8</b>	<b>38.8</b>	<b>38.7</b>	<b>36.5</b>	<b>25.0</b>

Sources: HM Treasury, 1997a, Tables 3 and 7; Bank of England, 1996 and 1997.

#### IV. TARGETING THE PSBR

The UK government generally sets objectives for the PSBR. How these objectives have been set and how they have been achieved has changed over time. A decade ago, the government's Medium-Term Financial Strategy included specific targets for the PSBR. In the 1987 Financial Statement and Budget Report, a target of 1

per cent of GDP over the medium term was described as ‘the modern equivalent of a balanced budget’.

When the out-turns deviated from this figure, the policy was to make a ‘fiscal adjustment’ to bring the forecast and the out-turn in line. This was published as part of the Budget process. But the practice relied on accurate forecasting and the Chancellor was quoted in March 1987 as having said that the preceding November’s forecast of the PSBR, of £7.1 billion (1¾ per cent of GDP) was ‘totally ridiculous and up the pole’.<sup>6</sup> Four months later, the estimate had fallen to only £4.1 billion (1 per cent of GDP). This highlighted the difficulty of basing policy on PSBR forecasts.

Why were forecasts so wrong in the late 1980s? One possible ‘culprit’ for the dramatic but fortuitous shortfall was mainstream corporation tax in the wake of the Chancellor’s major 1984 reforms. Corporation tax receipts in 1986–87 exceeded the 1986 Budget forecast by more than 20 per cent. In recent years, the principal culprit for error on the receipts side has been VAT, which had fallen so far short of forecast that a special working group was set up to report on likely explanations.<sup>7</sup>

The only circumstance in which the PSBR could be perfectly targeted would be if the government could operate a theoretical ‘full feedback’ rule. Under this system, an overshoot for the year would be corrected by an immediate increase in taxes attributable to the same year rather than being financed by additional issue of debt securities, and an undershoot by a similar decrease. Since the PSBR is a cash measure, to change expenditure for the preceding year would hardly be feasible since it would involve clawing back monies already disbursed.

The more general difficulty in targeting the PSBR is judging the position of the economy over the cycle. A paper issued by the Treasury<sup>8</sup> immediately before the Pre-Budget Report last year illustrated dramatically what can go wrong if a cyclical improvement in the financial position is mistaken for a structural change attributable to supply-side reforms.

Figure 1 shows that each Budget Report from 1989 to 1992 failed to predict the seriousness of rapidly increasing deficits. With the benefit of hindsight — for most independent forecasters as well as for the Treasury — it seems clear that the output gap had closed much sooner than expected (indeed, probably by the end of 1986) and this was a precursor to a correspondingly dramatic fall in GDP in the early 1990s (Figure 2).

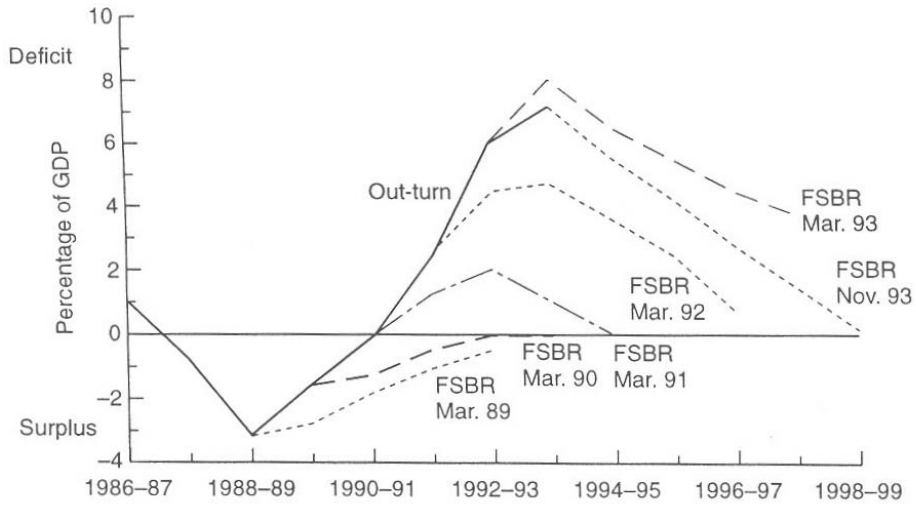
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<sup>6</sup>House of Commons, 1987.

<sup>7</sup>HM Treasury, 1997c.

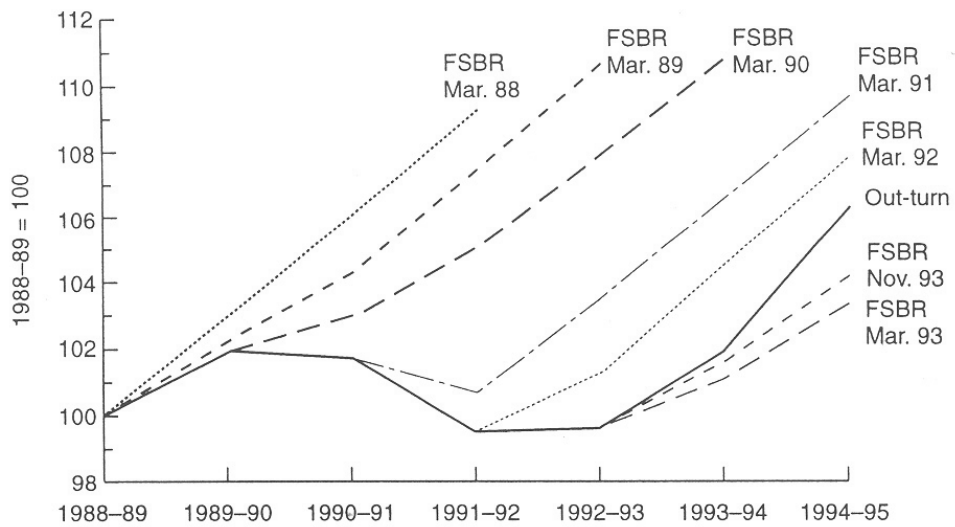
<sup>8</sup>HM Treasury, 1997d.

**FIGURE 1**  
**Treasury's Published PSBR Medium-Term Illustrative Projections and Out-Turn**



Source: HM Treasury, 1997d, Chart 3.

**FIGURE 2**  
**Treasury's Successive Illustrative Projections of Real GDP**



Source: HM Treasury, 1997d, Chart 6.

In the new fiscal framework set out in July<sup>9</sup> and November<sup>10</sup> — clearly foreshadowed in a speech given by the Chancellor just before the election campaign<sup>11</sup> which noted that he had committed to the policy in 1995 — the government has adopted two main principles:

- the ‘golden rule’ that, over the cycle, borrowing should be for investment only and not for current expenditure;
- the level of public debt as a proportion of GDP will be held stable over the cycle.

To avoid the mistakes of the past, the fiscal projections will be deliberately prudent and cautious. For example, in the July Financial Statement and Budget Report, the assumed trend rate of output growth was 2¼ per cent and alternative fiscal projections were presented in which output was 1½ per cent above trend in the first half of 1997, compared with the central estimate of a zero output gap. Cyclically adjusted deficit forecasts were published for both the central and cautious cases of the output gap. In addition, a Code for Fiscal Stability, founded on Australian and New Zealand models and mirroring the independence given to the Bank of England in implementing monetary policy, will commit to transparency and stability in fiscal policy.

IFS has consistently argued in recent Green Budgets for such principles, as ‘rules of thumb’ for stable public finances. The first does, however, require knowledge of net public capital investment, which needs to incorporate an estimate of total depreciation and other asset revaluations from historic cost. So, in December, the Treasury issued a further paper<sup>12</sup> setting out first thoughts on how a public sector balance sheet might be compiled. There are particularly problems with, for example, unfunded pension liabilities for public sector workers.

In fact, the Maastricht criteria are arguably already as tight as the new rules, because the annual general government financial deficit is capped at 3 per cent of GDP over the whole of the economic cycle. This has been graphically described by Governor Trichet of the Banque de France as ‘an automatically reloading gun’. Governments will generally need to maintain much lower deficits than 3 per cent over the cycle, or they will not be able to borrow during a downturn (if you don’t reload your gun, you can’t fire it again). It follows that reliably accurate forecasts of each government’s budget deficit or surplus will become of even more pressing importance.

Forecasting can be attempted on a ‘top-down’ or a ‘bottom-up’ basis. As Pike and Savage explain in their article below, the Treasury’s approach

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<sup>9</sup>HM Treasury, 1997b.

<sup>10</sup>HM Treasury, 1997e.

<sup>11</sup>Brown, 1997.

<sup>12</sup>HM Treasury, 1997f.



is bottom up because its model has two distinct functions. In addition to forecasting the public finances, the detailed structure of the model reflects the Treasury's budgetary role and the need to assess the consequences of proposed policy changes. Iteration is therefore required, since the macroeconomic model provides the key input variables for the models forecasting particular tax and spending components, which once aggregated have to be checked for consistency against the macro assumptions.

The model in the article by Sentance, Hall and O'Sullivan is, in contrast, unipurpose by design. Perhaps surprisingly, it treats the main components of spending which are conventionally regarded as non-cyclical as endogenous — in other words, not just social security transfers but also current spending on goods and services is determined within the model. Although such spending is directly under official control, the argument is made that, at the political level, voters demand that public expenditure rises in line with GDP over time, although this tendency may be checked by concern about a rising tax burden. A striking consequence of this feature of the model is that the results of consumer-led growth and of export-led growth are very different.

The Giles and Hall paper shows that the IFS model fulfils many of the same criteria as that of the Treasury. In particular, forecasts are made of revenues from individual taxes. But evidently, like all independent forecasting teams, IFS does not have access to the raw data that can be analysed by the government's two revenue departments. However, there are some disadvantages as well as benefits to disaggregating in this way: notably, forecasts of components of GDP are required, the errors in which may be larger than direct forecasts of GDP in aggregate. The Sentance et al. approach is less prone to this problem because, although components of GDP are used in its tax equations, these are much broader aggregates.

Apart from comparing the results of these models against out-turn over time, as Giles and Hall do so as to judge them against each other, it would be interesting to compare the performance of government and independent modellers in some other G7 countries. According to the OECD secretariat, this appears never to have been done, although the exercise could be closely related to the copious literature on whether fiscal adjustments are credible and the effect they have on expectations.<sup>13</sup>

Of course, statistics on out-turn of countries' budget deficits are readily available and scrutinised with interest, although, as explained above, apart from the general government financial deficit, strict comparability is rarely possible. But one principal difficulty in attempting to compare different

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<sup>13</sup>For a good discussion of recent experiences of OECD countries and a review of the literature, see Alesina and Perotti (1997).

countries' records in forecasts is that they are made at different times and intervals. In the UK, official PSBR forecasts are usually made twice yearly, as required under the Industry Act 1975, although occasionally a third forecast will be produced (to accompany a Budget immediately following a general election, for example). But certain taxes and, to a lesser degree, components of spending are highly 'lumpy' across the year; and so, as illustrated in Table 3 above for 1996–97, it by no means follows that a forecast for the year made after eight months will be twice as accurate as one made after only four months.

For as long as countries' budgetary conventions and practices differ so markedly, it is not possible to hold a 'fiscal forecasting Olympiad'; but it would be very encouraging if the papers presented in this symposium led to analysis and reporting of the corresponding problems arising for other countries in this most difficult area of applied economics.

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