

Office for  
**Budget  
Responsibility**

## **Forecast evaluation report**

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October 2012



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# **Office for Budget Responsibility**

## Forecast evaluation report

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# Foreword

The Office for Budget Responsibility (OBR) was created in 2010 to provide independent and authoritative analysis of the UK public finances. Twice a year – at the time of each Budget and Autumn Statement – the OBR publishes a set of five-year-ahead forecasts for the economy and the public finances in our *Economic and fiscal outlook (EFO)*. We use these to assess the Government’s progress against the fiscal objectives that it has set itself.

In each *EFO* we lay great stress on the uncertainty that lies around all such forecasts. We compare our central forecasts to those of other forecasters. We point out the confidence that should be placed in our central forecast given the accuracy of past official forecasts. We use sensitivity and scenario analysis to show how the public finances are likely to be affected by alternative economic outcomes. And we highlight uncertainties in how the public finances will evolve, even if one were to know with confidence how the economy was going to behave – for example because of the uncertain costing of particular policy measures.

Notwithstanding all these uncertainties – and that fact that no-one should expect any economic or fiscal forecast to be right in its entirety – we believe that it is important to spell out our central forecast in considerable quantitative detail and then to examine and explain after the event how it compares to subsequent outturn data. And that is what we endeavour to do in this report.

We believe that it is important to publish the detail of our forecasts for two main reasons. The first is transparency and accountability: the whole rationale for contracting out the official fiscal forecast to an independent body is to convince people that it reflects dispassionate professional judgement rather than politically motivated wishful thinking – even if people disagree with the conclusions we have reached. And the best way to do that is to ‘show our working’ as clearly as we can. The second is self-discipline: the knowledge that you are going to have to justify your forecast in detail forces you only to make judgements that you are willing to defend. You cannot take judgements for the sake of convenience in the knowledge that no-one will ever know.

Assessing the performance of our forecasts after the event is also important for transparency and accountability – and for helping the users of the forecasts to understand how they are made and revised. Identifying and explaining forecast errors also helps improve our understanding of the way in which the economy and public finances behave and hopefully allows us to improve our judgements and forecast techniques for the future.

It is worth noting that when we use the word ‘errors’ in this paper we are simply referring to the arithmetic difference between the forecast and the outturn. We are not implying that it would have been possible to avoid them given the information available at the time the forecast was made – differences with outturns may reflect unforeseeable developments after the forecast was made.

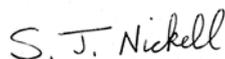
As we discuss in the report, our forecasts to date appear to have been unusually accurate for public sector borrowing and overoptimistic (from the autumn of 2010 onwards) for economic growth. But in judging our own performance – and in assessing the relative performance of different outside forecasters – it is important to remember that the current outturn data represent a relatively early draft of economic history (especially for growth). What appear to have been accurate or inaccurate forecasts today may look very different in the wake of inevitable and often large statistical revisions. This was certainly the experience of the recession and recovery of the 1990s and we have already seen significant revisions to the history of this recession and recovery.

Last year’s *Forecast evaluation report* (and the *End of Year Fiscal Reports* by the Treasury that preceded it) focused on a detailed decomposition of the errors in the year-ahead forecasts for the two most recent fiscal years. That material is still presented in this report, but we felt that it would be more informative to take a step back and look at the relationship between our key forecast vintages and current outturns for the whole period since the beginning of 2010. This decision in part reflects feedback from our survey of users earlier this year, for which we are very grateful. We would also be very grateful for feedback on this report and for suggestions to improve future ones.

The forecasts we publish represent the collective view of the three independent members of the OBR’s Budget Responsibility Committee (BRC). Our economic forecast is produced entirely by OBR staff working with the BRC. For the fiscal forecast (given its highly disaggregated nature) we also draw heavily on the help and expertise of officials from across Government, most notably in HM Revenue and Customs and the Department for Work and Pensions. We are very grateful for this work and for the work that officials in these departments have contributed to the production of this report. However, the BRC takes full responsibility for the judgements underpinning the forecasts and for the errors presented in this report.



Robert Chote



Steve Nickell



Graham Parker

The Budget Responsibility Committee

# Executive summary

Twice a year – at the time of each Budget and Autumn Statement – the OBR publishes five-year-ahead forecasts for the economy and the public finances. We use these to assess the Government's progress against its fiscal objectives.

We always emphasise the uncertainty that lies around such forecasts – and we quantify that uncertainty in several ways. But we also believe that it is important to set out our central forecasts in detail and to assess how they have performed against the outturn data. This promotes transparency and accountability, as well as suggesting ways in which we might improve our judgements and techniques in future.

In this year's *Forecast evaluation report (FER)*, the key question that we address is as follows: why have we over-estimated the pace of economic growth so significantly since the autumn of 2010, and yet public sector borrowing has fallen no more slowly than we expected it would?

## The economy

Latest data suggest that the UK economy shrank by 6.3 per cent from its peak in the first quarter of 2008 to its trough in the second quarter of 2009, since when it has recovered just a third of this decline. The recession was deeper than its three predecessors, but the slow pace of the recovery has been even more striking.

Following the Coalition's first Budget in June 2010 we forecast that the recovery would be slower than its predecessors, but nowhere near as slow as it has been. We forecast that GDP would rise by 5.7 per cent from the first quarter of 2010 to the second quarter of 2012, but the latest data suggest it has grown by only 0.9 per cent.

To begin with we raised our short-term growth forecasts in the autumn of 2010, in response to the unexpected strength of GDP that summer, only to revise them down again as the economy lost momentum going into 2011. We then forecast a broadly flat profile for GDP into and through 2012 in our November 2011 and March 2012 EFOs, only to see GDP fall steadily in the most recent three quarters.

Our forecasts for the level of GDP have been less over-optimistic than our forecasts for growth, as the Office for National Statistics has revised up the level of GDP throughout the recovery phase. Past experience suggests that the picture will continue to be revised for many years to come. The latest data suggest that the

recession of the 1990s was much shallower and the recovery stronger than earlier data suggested.

To understand why the economy has grown less strongly than we expected in June 2010, it is helpful to look at each category of spending in the economy separately. Consumer spending, investment and net trade have all contributed roughly equally to the unexpected weakness of growth since the beginning of 2010:

- consumer spending has contributed less to GDP than we expected primarily because higher prices for oil, energy and food have reduced the volume of goods people could buy for a given amount of cash. The cash value of consumer spending was broadly in line with our expectations;
- business investment growth has been much weaker than we expected, although the quarterly figures are volatile and heavily revised. Constrained credit conditions are likely to have hampered investment by smaller firms, but larger firms are more likely to have been deterred by pessimism and uncertainty over future domestic and foreign demand;
- an improvement in the net trade position contributed much as we expected to GDP growth between early 2010 and the end of 2011, helped by the outperformance of UK export markets. But there has been a sharp deterioration so far this year, reversing much of this contribution; and
- in contrast, cuts in government spending on goods and services have directly reduced GDP by less than half the amount that we expected in June 2010. This reflects the fact that the cuts have affected the direct measures of government output used in the National Accounts by less than we had assumed.

In November 2011 we predicted that GDP would be flat from the fourth quarter of 2011 to the second quarter of 2012, whereas it has fallen by 1 per cent. This error – missing the ‘double dip’ – primarily reflects the unexpected weakness of net trade and, to a much smaller degree, investment. Nominal consumer spending was broadly in line with forecast, while changes in government spending directly added to GDP rather than subtracting from it as we predicted.

Since June 2010 whole economy inflation has been higher than we expected, so the cash value of GDP was only 3 per cent below our June 2010 forecast in the second quarter of 2012 compared to a 4.7 per cent shortfall for real GDP. Investment made the biggest contribution to the nominal GDP shortfall, reflecting the fact that prices and volumes were both lower than we expected. In contrast, the weakness of real consumption and net trade volumes has been offset (and partly explained) by higher prices.

The labour market has fared much better in this recession and recovery than historical relationships would have suggested. General government employment has fallen by almost 250,000 more than we expected in June 2010, but market sector employment has risen by 600,000 more than we expected – despite the weakness of GDP. Total hours worked have generally been higher than we expected in June 2010.

The combination of more robust employment and much weaker GDP growth than we expected together create a significant ‘productivity puzzle’. Output per hour is much weaker than in previous cycles and than in our June 2010 forecast. Several explanations for the puzzle have been put forward and although we believe that some of the weakness of productivity relative to the pre-crisis trend is likely to be a temporary phenomenon, we also assume that a significant proportion of the hit is likely to be permanent or long-lasting.

Our judgement that there is likely to have been a long-lasting hit to the level of productivity is consistent with our view that the same is true for potential output – the level of activity consistent with sustaining stable inflation in the long term. In common with the IMF, the OECD and the European Commission, we forecast in March 2012 that potential output was around 8 per cent below its pre-crisis trend in 2011 and that the gap would widen to around 11 per cent (more in the case of the EC) by 2014. Potential GDP cannot be measured directly, so there are no outturn data to compare our forecasts to.

Differences between our forecasts and outturns could be explained in part by monetary and fiscal policies – either because they have been changed since the forecast was made or because a given policy stance has turned out to be more or less contractionary in its impact than we expected. Taking them in turn:

- monetary policy has been loosened significantly since our June 2010 forecast, with additional tranches of ‘quantitative easing’. Monetary policy is also expected to remain looser for longer than financial markets thought (and we therefore assumed). But the loosening of monetary policy has not until recently produced a meaningful decline in the effective interest rates paid by firms and households because of widening credit spreads; and
- the past two years have seen a significant discretionary fiscal tightening in the UK. Using the Institute for Fiscal Studies’ definition, the planned cumulative tightening in 2010-11 and 2011-12 rose from 2.8 per cent of GDP in Labour’s final Budget to 3.7 per cent of GDP in the Coalition’s first. We estimate that the eventual tightening was around 3.3 per cent of GDP. Taking the highly uncertain ‘fiscal multipliers’ used in our June 2010 forecast at face value, the total tightening introduced by Labour and the Coalition might have been expected to reduce the level of GDP in 2011-12 by 1.4 per cent relative to its

level with no consolidation. The multipliers would have needed to be more than twice as large to explain the growth shortfall we have seen. Estimates of multipliers vary widely, so it is clearly possible that the fiscal consolidation exerted more of a drag on growth than we assumed. But persistent inflation is likely to have weakened consumption in 2011 and deteriorating export markets are likely to have weakened net trade more recently. And it is difficult to distinguish the impact of the fiscal consolidation in other areas – such as business investment – from the impact of anxiety about the euro area’s future and the ongoing dislocation of the financial system.

## The public finances

Public sector net borrowing (PSNB) shrank from its post-war peak of 11.2 per cent of GDP in 2009-10 to 7.8 per cent of GDP in 2011-12. This decline of roughly a quarter is much as we forecast in June 2010, despite much weaker-than-expected economic growth that would normally depress revenues and push up social security spending.

The main contributors to the fall in the deficit were cuts in capital spending and current spending on public services and administration, plus a rise in VAT receipts as the temporary cut in 2009 was reversed and the standard rate was raised again in 2011. These more than offset an increase in debt interest bills of almost 1 per cent of GDP.

Although the total decline was in line with our June 2010 forecast, the fall in the deficit owed more to falling spending and less to rising revenues than we first expected.

In our June 2010 forecast we over-predicted PSNB in 2010-11 by £7.4 billion, a relatively small error even at that short time horizon. We under-predicted revenues by £1.2 billion and over-predicted spending by £6.2 billion:

- our revenue forecast was accurate in large part because the key elements of the economic forecast were accurate. GDP growth in 2010-11 was in line with the June 2010 forecast at 1.8 per cent, with the stronger-than-expected performance in the first half offsetting weaker-than-expected growth in the second. Our forecasts for nominal GDP, nominal consumer spending, and wages and salaries were also relatively accurate, which helped income tax, National Insurance and VAT receipts come in much as expected. Errors in other parts of the economic forecast meant that some receipts were overestimated, but this was offset by some fiscal determinants: people shifting more income than we had expected into 2009-10 ahead of the introduction of the 50 per cent income tax rate and by lower-than-expected payouts related to VAT litigation; and

- we over-predicted spending primarily because local authorities spent less than they had budgeted for and added the left-over cash to their reserves. Central government departments also under-spent their budgets by more than we expected, although to a smaller degree. In both cases they may have chosen to front-load their Spending Review cuts, which would also help explain why general government employment fell so quickly.

In the same June 2010 forecast we under-predicted PSNB in 2011-12 by £3.7 billion, an even smaller error than for the one-year ahead forecast. On this occasion the errors in our forecasts for receipts and spending were bigger, but largely offsetting. We over-predicted receipts by £14.9 billion and spending by £11.3 billion:

- we over-predicted receipts by a lot less than one might have expected, given that after the economy grew in line with our forecast in 2010-11 it then grew by just 0.5 per cent in 2011-12 compared to our June 2010 forecast of 2.4 per cent. The main reason is that nominal GDP and nominal consumption were much closer to forecast than real GDP, thanks to higher inflation. This helped buoy VAT receipts while the resilience of the labour market helped sustain PAYE income tax receipts. The over-prediction of receipts this year owed more to the impact of weak oil and gas production and losses carried forward in the financial sector on corporation tax, plus an overestimate of self-assessment income receipts from the 50p income tax rate (compounded by the unexpectedly large degree of forestalling); and
- our over-prediction of spending again reflected significant under-spending against budgets by local authorities and significantly greater under-spending by central government departments against their budgets than we had seen in the previous year. Social security spending was also only slightly lower than we had anticipated, reflecting the unexpected strength of the labour market.

We also over-predicted receipts and spending in 2011-12 in the year-ahead forecast we published in March 2011 – indeed the errors were bigger than in the previous year’s two-year ahead forecast described above. On receipts this reflected large fiscal forecasting errors for SA receipts and onshore corporation tax. On expenditure, local authority and central government underspends were compounded by errors in other areas including public corporation capital expenditure, expenditure transfers to EU institutions, and accounting adjustments.

Public sector net debt (PSND) is currently estimated to have been lower as a share of GDP in 2010-11 and 2011-12 than we forecast in June 2010 and March 2011 – and lower than one would have expected given our errors in forecasting PSNB. This partly reflects a downward revision to the stock of debt by the ONS, after it changed the treatment of some financial interventions. PSND also rises by the nominal value

of gilts issued, rather than by the amount the Government manages to sell them for, and gilts were on average issued at a premium to their nominal value in these two years – which we did not anticipate.

## Conclusion

Along with many other forecasters, we significantly overestimated economic growth over the past two years. This likely reflected several factors, including the impact of stubborn inflation on real consumer spending, deteriorating export markets on net trade, and impaired credit conditions, euro area anxiety and demand uncertainty on business investment. Fiscal consolidation may also have done more to slow growth than we assumed.

Nonetheless, public sector net borrowing fell much as expected. Nominal consumer spending and the labour market performed more strongly than the real economy, helping to sustain receipts from labour taxes and VAT while restraining social security bills. Central government departments and local government also spent less than they had budgeted for and less than we expected they would on public services and administration.

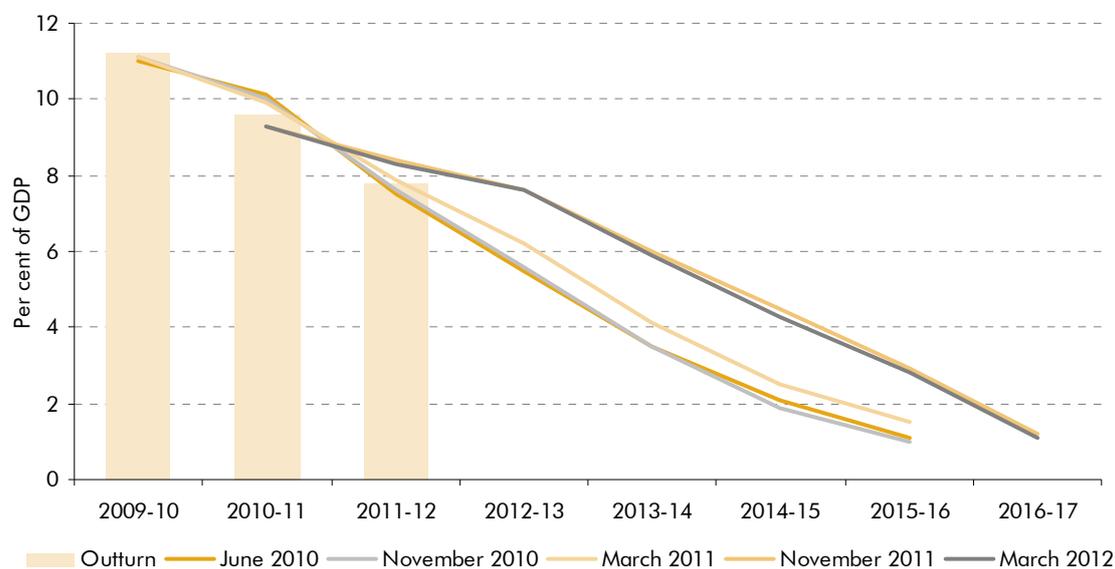
We continually review our forecasting techniques in the light of experience. In light of this year's report, some areas we will look at further are:

- on spending, the decisions central government departments and local authorities make with regards to spending relative to their budgets;
- on revenues, the impact of behavioural responses, such as forestalling, plus the implications of carried-forward corporate losses; and
- on the macroeconomy, the way changes in nominal government spending affect real GDP via direct measures of government output.

# 1 Introduction

- 1.1 This report sets out how the economy and the public finances have evolved since the beginning of 2010, and examines how this evolution compares to the forecasts published by the OBR at the time of the Coalition's first Budget in June 2010 and subsequently.
- 1.2 In June 2010 the OBR's central forecast was for a slow but relatively steady recovery from the recession. We forecast that real GDP would have grown by almost 6 per cent from the beginning of 2010 to mid 2012, whereas the latest data show an increase of less than 1 per cent. We had initially raised our short-term growth forecasts in our autumn 2010 *Economic and fiscal outlook (EFO)*, in response to the unexpected strength of GDP that summer, only to revise them down again as the economy lost momentum going into 2011. We then forecast a broadly flat profile for GDP into and through 2012 in our November 2011 and March 2012 forecasts, only for GDP to fall steadily in the most recent three quarters.
- 1.3 But meanwhile public sector net borrowing (PSNB) – the headline measure of the UK's budget deficit – has fallen very much as we expected it would in June 2010, and in subsequent forecasts. PSNB is currently estimated to have shrunk by 3.4 per cent of GDP from its post-war peak – roughly a quarter – in the two fiscal years 2010-11 and 2011-12. This is only slightly less than the 3.5 per cent of GDP decline that we forecast in June 2010. This is an unusually accurate prediction by historical standards.
- 1.4 It should be noted that our forecasts for PSNB in 2010-11 and 2011-12 have been relatively stable since June 2010, reflecting small revisions from forecast to forecast. We have made larger upward revisions to our forecasts from 2012-13 onwards, reflecting greater pessimism about the medium-term prospects for growth in actual and potential output, as shown in Chart 1.1. We will assess the performance of forecasts for these years against outturn in future *Forecast evaluation reports (FERs)*.

Chart 1.1: Public sector net borrowing forecasts since June 2010



March 2012 forecast for 2012-13 has been adjusted to take account of the transfer of the Royal Mail's historic pension fund. Source: OBR, ONS

1.5 The modest deterioration up to 2011-12 in the public finances, relative to our initial and subsequent forecasts, may appear surprising given the much weaker-than-expected performance of the real economy over the same period. To inform our future forecasts and analysis it is important to learn what we can from this. In particular, given the experience of the past two years, we need to try to understand:

- first, why the real economy has performed so weakly relative to our and most other people's expectations – both in terms of the economy's failure to gather momentum into 2011 and the 'double dip' into 2012. This is the focus of Chapter 2 of this report; and
- second, why public sector borrowing has not shrunk more slowly as a result, given that weaker economic activity would normally be expected to depress tax revenues and to push up social security spending. This is the subject of Chapter 3.

1.6 In Chapter 4 we summarise the conclusions from our analysis and the key lessons to learn for future forecasts. In Annex A we provide a detailed decomposition of our year-ahead fiscal forecast errors, using the same approach as in last year's *FER* (and the *End of Year Fiscal Reports* by the Treasury that preceded it). In Annex B we compare the accuracy of our headline forecasts for GDP growth and PSNB with the average accuracy of past official forecasts.

## 2 The economy

### Introduction

2.1 This chapter:

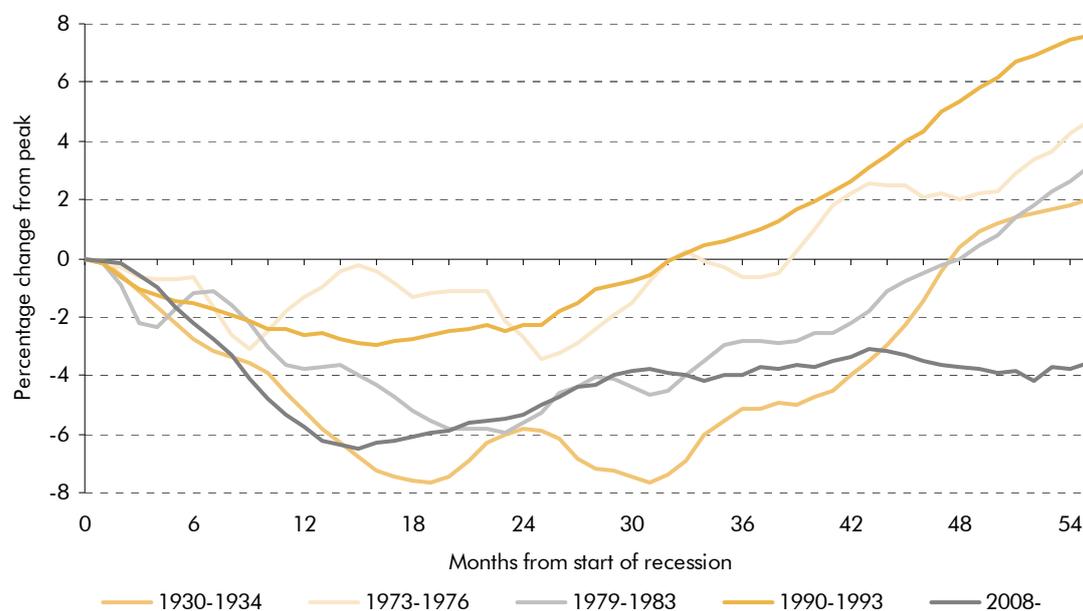
- sets out how real GDP (from paragraph 2.2) and its components (from paragraph 2.14) have evolved relative to our forecasts since June 2010;
- relates this to errors in forecasting inflation (from paragraph 2.56), the labour market (from paragraph 2.69) and potential output (from paragraph 2.80); and
- considers how the paths of monetary (from paragraph 2.97) and fiscal policy (from paragraph 2.105) have developed over recent years.

### The level and growth of GDP

2.2 The latest data from the ONS suggest that the UK economy shrank by 6.3 per cent from its peak in the first quarter of 2008 to its trough in the second quarter of 2009. Since then the economy has recovered just over 2 percentage points of that fall and GDP remains 4.1 per cent below its pre-recession peak.

2.3 As Chart 2.1 shows, on current estimates the recent recession was deeper than each of its three predecessors, although only marginally so in the case of the early 1980s. More striking is the relative weakness of the subsequent recovery. Even in the 1930s, when the peak to trough decline in GDP was noticeably bigger than in the recent downturn, the economy had more than recovered to its pre-recession peak by this stage in the cycle – four and a half years later.

Chart 2.1: Recessions and recoveries

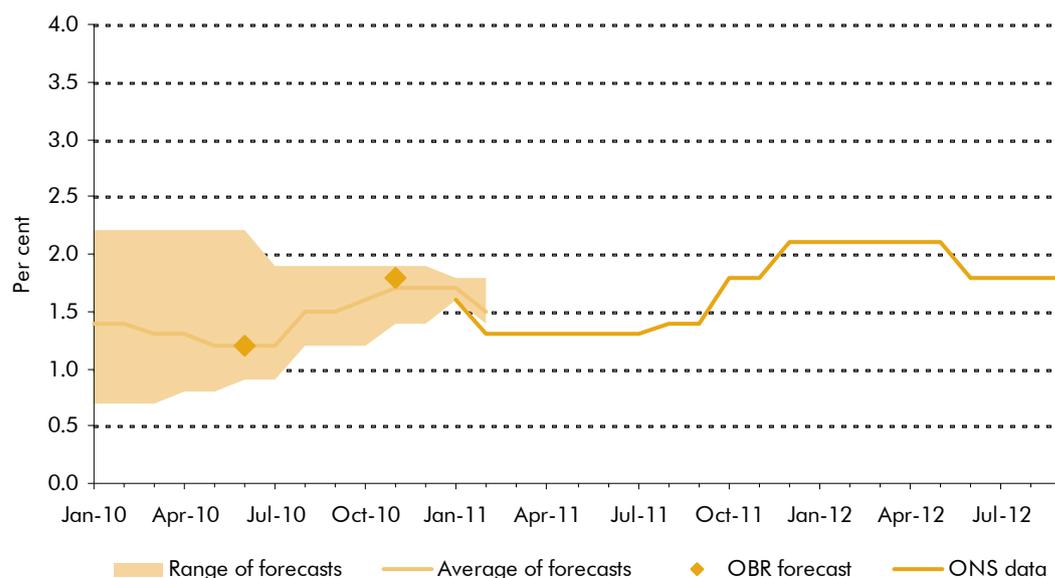


Source: NIESR

- 2.4 The recovery from the most recent recession began steadily enough, with GDP growth gathering pace until mid-2010, since when it has faltered.
- 2.5 The ONS’s current estimate of 1.8 per cent growth for 2010 as a whole is higher than our June 2010 forecast of 1.2 per cent and also higher than 31 of the 33 outside forecasts notified to the Treasury at the time (Chart 2.2). But, since then, the forecast errors have moved in the opposite direction, with the recovery failing to gather momentum as we and most other forecasters predicted it would (Chart 2.3).
- 2.6 GDP has now fallen in each of the last three quarters and in four of the last seven. On the commonly used definition of two successive quarterly falls in output, the UK entered a technical double-dip recession at the end of 2011. But the broader picture is one of output little more than stagnating over the last two years.
- 2.7 In every *EFO* we have been at pains to point out that there is enormous uncertainty around any economic forecast and that policymakers and others need to recognise this when taking decisions based on them. We use fan charts to illustrate the confidence that one might place on our central forecasts, given the size and distribution of past official forecasting errors. In June 2010 the interim OBR’s median forecast was for GDP growth rates of 1.2 per cent in 2010, 2.3 per cent in 2011 and 2.8 per cent in 2012. The current estimated outturns

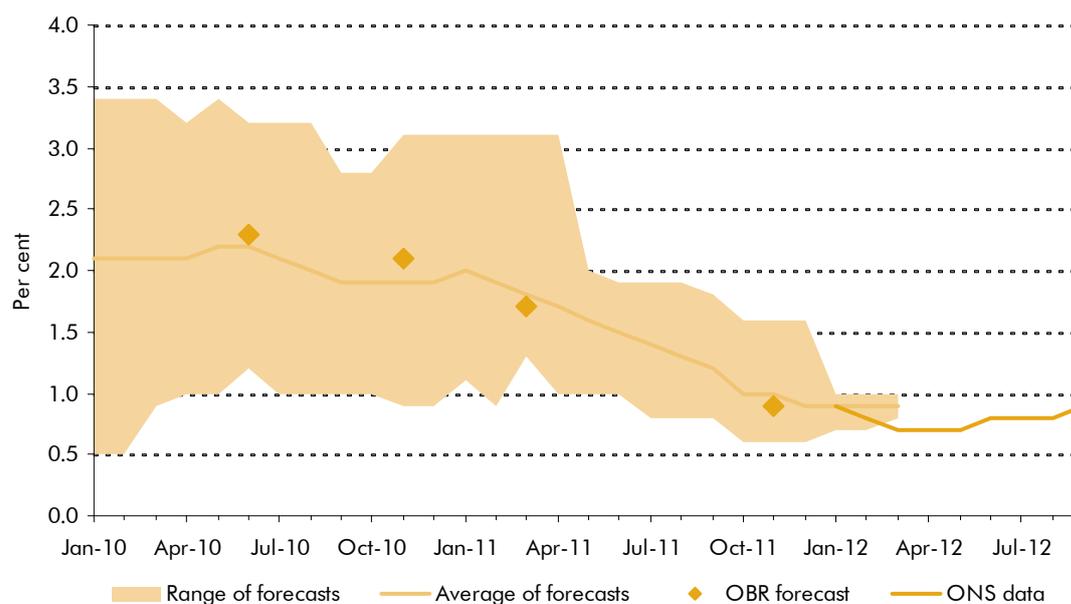
are 1.8 per cent for 2010 and 0.9 per cent for 2011, with the current average outside forecast for 2012 standing at minus 0.3 per cent.

Chart 2.2: Forecasts and outturns for GDP growth in 2010



Source: ONS, OBR, HM Treasury

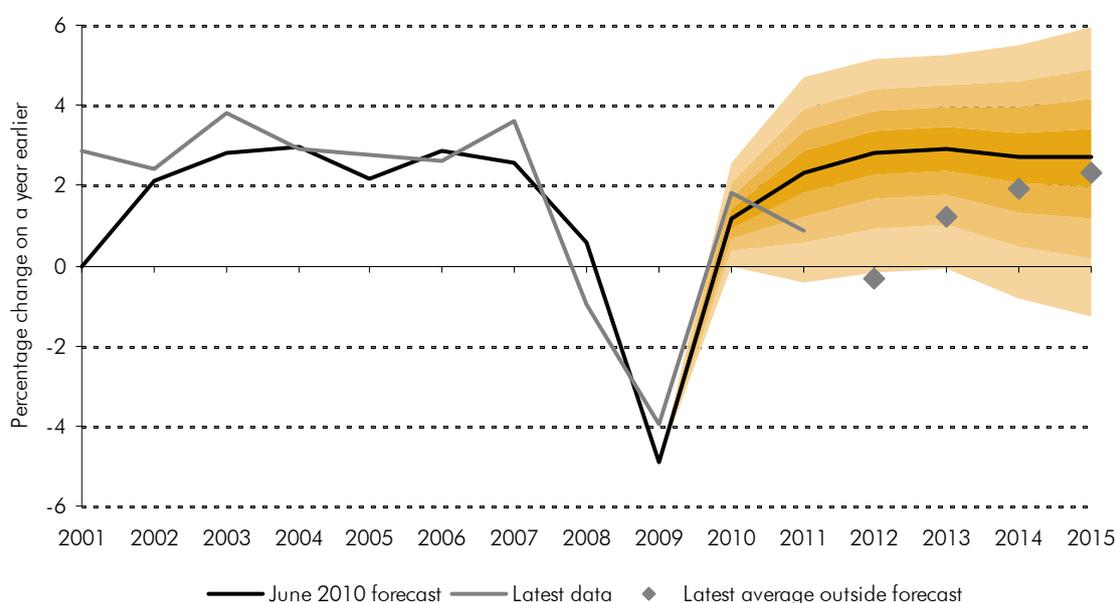
Chart 2.3: Forecasts and outturns for GDP growth in 2011



Source: ONS, OBR, HM Treasury

2.8 Chart 2.4 shows that, on the basis of our central forecasts and past forecasting errors, you would have said there was a roughly 30 per cent probability that growth would be as strong as 1.8 per cent in 2010 and a 25 per cent probability that it would be as weak as 0.9 per cent in 2011. The probability of GDP shrinking by 0.3 per cent in 2012 would have been about 10 per cent. This reinforces the fact that the current recovery is much weaker than its predecessors, but at the same time reminds us that no-one should have concluded two years ago that the sort of outcome we have seen was completely unthinkable given past history.

Chart 2.4: GDP growth forecast and latest data

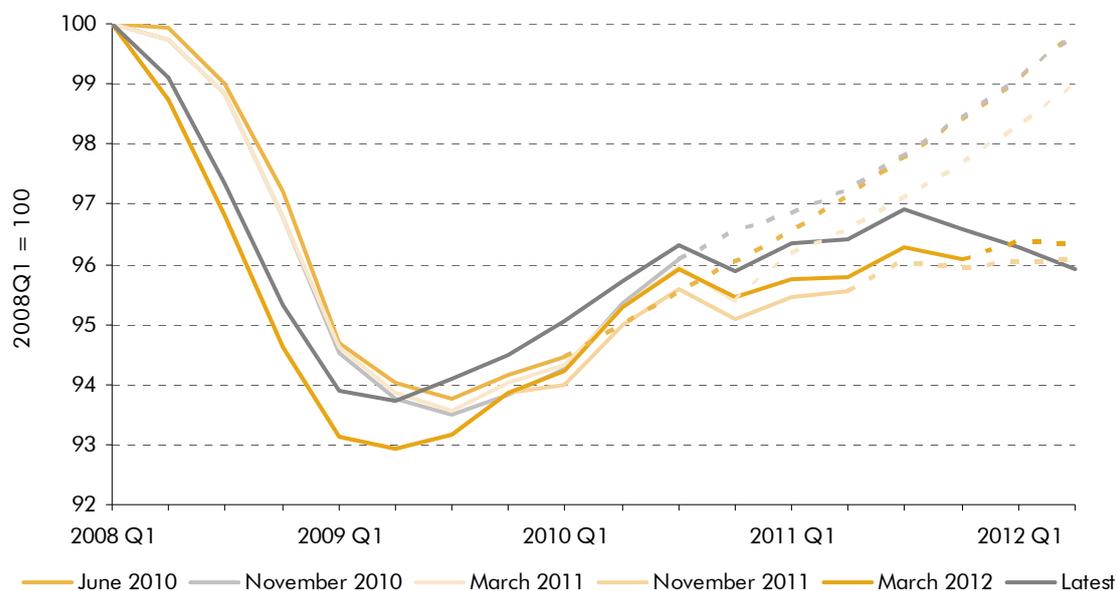


Source: ONS, HM Treasury, OBR

2.9 Any comparison of economic forecasts with outturns that looks back just a few years needs to recognise that the current GDP estimates for that period remain relatively early drafts of economic history. National Accounts data are continually subject to revision and it is not uncommon for our understanding of the economy’s behaviour to change significantly as new data are published. The recent period has been no exception and there have already been several significant revisions to the profile of the recession and the pace of the recovery.

2.10 Chart 2.5 shows how OBR forecasts and ONS estimates of GDP since the pre-recession peak have evolved since June 2010.

Chart 2.5: Successive forecasts and outturns for real GDP



Source: ONS, OBR

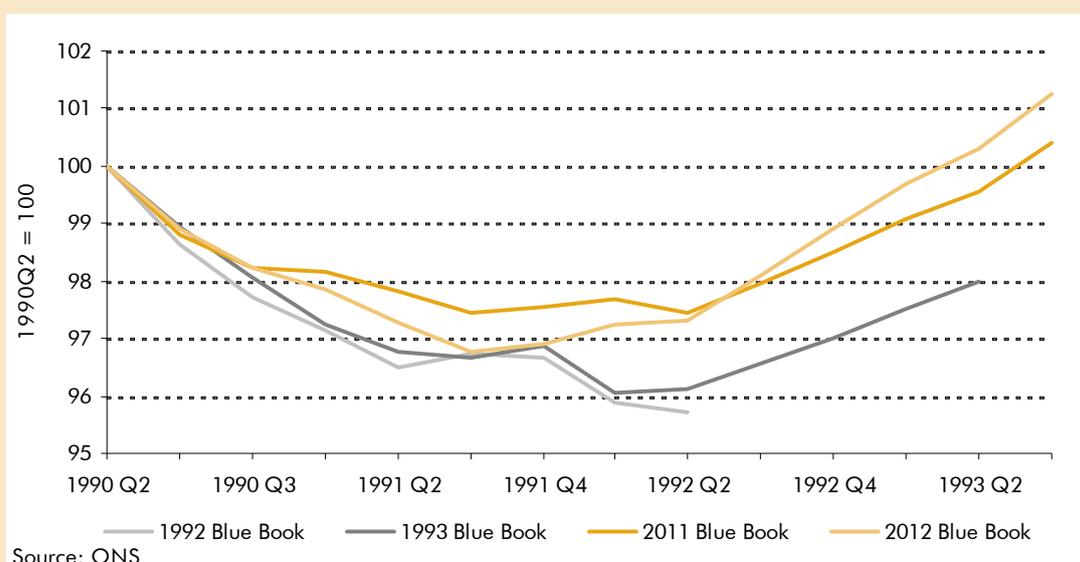
- 2.11** The Chart shows how we raised our short-term growth forecasts in autumn 2010, in response to the unexpected strength of GDP that summer, only to revise them down again as the economy lost momentum going into 2011. We then forecast a broadly flat profile for GDP into and through 2012 in our November 2011 and March 2012 EFOs, only to see GDP fall steadily.
- 2.12** But, at the same time as we have been revising our forecasts for GDP in the future, the ONS has been revising its estimates of GDP in the past. The revisions published up to this spring increased the speed and depth of the recession as well as the pace of the recovery in its first couple of years. Revisions in this year's Blue Book have reversed both those changes, while raising the estimated level of GDP throughout the recovery phase to date. This means that our forecasts for the level of GDP over the past two years look less overoptimistic than our forecasts for growth.
- 2.13** Box 2.1 illustrates that we can expect the rewriting of economic history to continue for many years to come, judging from the recession and recovery of the early 1990s. Bearing this in mind, judgements regarding the performance of any economic forecasts made over the recession and recovery will long remain provisional.

### Box 2.1: Rewriting history: the 1990s recession and recovery

Chart A shows the estimated path of GDP from the second quarter of 1990 as recorded shortly after the recession ended, in the 1992 and 1993 Blue Books, as well as in the two most recent Blue Books, in 2011 and 2012. The 1992 Blue Book suggested that the economy shrank by 4.3 per cent from peak to trough and that there was a double-dip recession after a brief recovery at the end of 1991.

The 2011 vintage of data showed a much smaller peak-to-trough decline of 2.5 per cent and no double dip. This year's Blue Book has revised the decline back up to 3.2 per cent, although it also shows a significantly stronger recovery. The latest data suggest that all the loss of GDP during the 1990s recession had been recouped by the second quarter of 1993, while the National Accounts published at the time suggested that only half had been.

Chart A: The changing profile of the 1990s recession and recovery



It is impossible to predict whether we will see a similar pattern of revisions to the most recent recession and recovery. As we discuss below, a shallower recession and a stronger recovery to date would certainly appear more consistent with the relatively strong performance of the labour market over the same period.

The ONS has published two studies<sup>a</sup> of its GDP revisions and concludes that “neither study identified significant bias”.<sup>b</sup> But these studies look at revisions between the preliminary estimate of GDP and the estimate published two Blue Books later. The largest revisions to the early 1990s came in the 1998 Blue Book – reflecting new business survey data, a new vintage of the European System of Accounts and rebasing of the data to 1995 – and subsequently. Such later revisions tend to be prompted by methodological changes more than by new or corrected information.

<sup>a</sup> Brown et al (2009), *Understanding the quality of early estimate of Gross Domestic Product* (ONS); and Walker et al (2012), *Why is GDP revised?* (ONS)

<sup>b</sup> Joe Grice (2012), *The productivity conundrum, interpreting the recent behaviour of the economy* (ONS)

## Decomposing GDP by sector

- 2.14 In order to understand why the economy has grown so much more slowly than we expected over the past two years – and how this may have affected the evolution of the public finances – we need to examine how the different components of GDP have evolved relative to our forecasts.
- 2.15 The latest ONS estimate shows that real GDP has grown by a cumulative 0.9 per cent since beginning of 2010, compared to our June 2010 forecast of 5.7 per cent. Table 2.1 breaks down the total shortfall of 4.7 percentage points between the various components of total spending in the economy.
- 2.16 All three components of private demand – consumer spending, investment and net trade – have been weaker than forecast and have contributed roughly equally to the overall growth shortfall. Back in June 2010, the direct impact of cuts in government spending was expected to be the only major drag on growth over this period, but they have in fact subtracted less than half as much from total GDP growth as we expected. Later in this chapter we look at the evidence on ‘fiscal multipliers’, which attempt to capture both the direct and the wider indirect impact of changes in tax and government spending on GDP.

Table 2.1: Contributions to real GDP growth from 2010Q1 to 2012Q2

	Percentage points						Statistical discrepancy
	Private consumption	Private investment	Total Government	Net trade	Stocks	GDP	
June 2010 forecast	2.0	2.5	-1.5	1.9	0.8	5.7	0.0
Latest data	0.0	0.7	-0.7	0.2	0.5	0.9	0.1
Difference <sup>1</sup>	-1.9	-1.8	0.8	-1.7	-0.3	-4.7	0.1

<sup>1</sup> Difference in unrounded numbers, rounded to one decimal place.

- 2.17 In addition to looking at the breakdown of errors in the June 2010 forecast, we also undertake the same exercise for the forecast of the most recent three quarters that we published in November 2011 – the missed ‘double dip’. Table 2.2 shows that over this period GDP fell by 1 per cent rather than remaining flat as we had expected. Over-optimism regarding net trade more than accounts for the error, with government spending contributing positively to growth rather than subtracting from it as we had forecast. Consumer spending had little impact on the level of GDP over the three quarters, much as we had expected. Private investment growth was also lower, although given the sharp fall in construction output, we may have expected it to be weaker still.

Table 2.2: Contributions to real GDP growth from 2011Q3 to 2012Q2

	Percentage points						
	Private consumption	Private investment	Total Government	Net trade	Stocks	GDP	Statistical discrepancy
Autumn 2011 forecast	0.1	0.4	-0.3	0.6	-0.8	0.0	0.0
Latest data	0.2	0.1	0.3	-0.8	-0.8	-1.0	0.0
Difference <sup>1</sup>	0.1	-0.3	0.5	-1.4	0.0	-1.1	0.0

<sup>1</sup> Difference in unrounded numbers, rounded to one decimal place.

2.18 We now look at incomes and spending in each sector of the economy in a little more detail.

### The household sector

2.19 Real private consumption (mostly by the household sector) has added nothing to growth over the past two years rather than increasing it by 2 per cent as we forecast in June 2010.

2.20 Table 2.3 compares the change in nominal (i.e. cash) consumption recorded by the ONS over the last two years with our forecast from June 2010, breaking this down into changes in real spending and consumer prices. It shows that real spending was broadly flat and therefore 3 per cent lower than we expected at the end of the period – and that this shortfall reflected unexpectedly high inflation rather than weaker cash spending. The increase in consumer prices over this period was over half as big again as we had anticipated. As we discuss in paragraphs 2.57 to 2.60, the unexpected strength of inflation primarily reflects unexpected price rises for oil, energy and imported agricultural commodities.

2.21 Later in the chapter we also discuss uncertainty over the impact of fiscal tightening on GDP. If the consolidation had a larger impact on private consumption than assumed in past forecasts, then we may have expected this to show up in weaker cash, rather than volume, spending.

Table 2.3: Growth in consumption and consumer prices from 2010Q1 to 2012Q2

	Per cent		
	Nominal consumption	Increase in price level	Real consumption
June 2010 forecast	9.3	6.0	3.0
Latest data	9.3	9.3	0.1
Difference <sup>1</sup>	0.1	3.3	-3.0

<sup>1</sup> Difference in unrounded numbers, rounded to one decimal place.

2.22 Although *nominal* consumer spending has been relatively close to expectations, this masks weaker growth in disposable incomes being offset by a slower rise in gross savings (Table 2.4).

Table 2.4: Increases in consumption, income and saving flows from 2010Q1 to 2012Q2

	£ billion, unless otherwise stated				
	Nominal consumption	Disposable income	Adjustment for pension equity	Gross saving	Saving ratio (per cent)
June 2010 forecast	21.7	27.4	0.2	5.8	1.6
Latest data	21.5	22.9	-0.4	1.0	-0.2
Difference <sup>1</sup>	-0.2	-4.5	-0.5	-4.8	-1.8

<sup>1</sup> Difference in unrounded numbers, rounded to one decimal place.

2.23 The income measure of GDP in the National Accounts is more prone to revision than the output and expenditure measures, as the lags in collecting the data are often far greater. As Table 2.5 shows, the current vintage of data suggests that most of the shortfall in household disposable incomes can be attributed to lower net property income i.e. interest and dividend income on financial assets. But such payments are generally not as closely monitored by households as labour income, so changes are less likely to influence spending and savings decisions.

2.24 Although labour income growth has slowed over recent quarters, it has been closer to expectations over the period as a whole. Changes in direct taxes and benefits have boosted disposable income by more than originally forecast, which can also be more than explained by developments over recent quarters.

Table 2.5: Increases in income flows from 2010Q1 to 2012Q2

	£ billion				
	Labour income	Benefits and taxes	Net property income	Other income	Disposable income
June 2010 forecast	10.9	3.6	7.7	5.2	27.4
Latest data	10.1	6.2	0.2	6.4	22.9
Difference <sup>1</sup>	-0.8	2.7	-7.5	1.2	-4.5

<sup>1</sup> Difference in unrounded numbers, rounded to one decimal place.

2.25 As well as income and saving flows, we can also assess how our forecasts for the accumulation of assets and liabilities fared. In the second quarter of 2012 the saving ratio, estimated at 6.8 per cent, was almost exactly where we forecast it would be back in June 2010. However, this was due to the ratio remaining flatter from an upwardly revised level, rather than initially rising (and then flattening) as we originally forecast.

## The economy

- 2.26 Households now have more financial and physical assets and fewer liabilities than we anticipated, both in absolute terms and as a proportion of their incomes (Table 2.6).

Table 2.6: The household balance sheet in 2012Q2

	Per cent of household disposable income				
	Physical assets	Financial assets	Total assets	Total liabilities	Net worth
June 2010 forecast	355	409	764	147	617
Latest data	398	411	809	146	663
Difference <sup>1</sup>	42	3	45	0	45

<sup>1</sup> Difference in unrounded numbers, rounded to the nearest £1 billion.

- 2.27 Household net worth stood at 663 per cent of household incomes in the second quarter of this year, compared to the 617 per cent we predicted in June 2010. This is primarily because the ONS have revised their estimates of households' physical assets significantly higher. This revision dates back to 2009, so it means that balance sheets were stronger back in June 2010 than the outturn data suggested when we made the forecast.
- 2.28 The ratio of household debt to incomes in the latest quarter was also very close to the forecast we made in June 2010. Debt has fallen by 15 per cent of income over the past two years, only a little more than originally forecast.
- 2.29 To summarise, real consumption has been weaker than expected, primarily because higher inflation has reduced the volume of goods people could buy for a given amount of cash. To maintain cash spending, households have increased savings by less than forecast given weaker income flows. But they have been in a better position to do so, given household balance sheets were in better shape than we thought at the time. Overall, the latest data does not suggest that we significantly underestimated the pace of household deleveraging.
- 2.30 We reduced our forecasts for consumer spending growth as the impact of higher inflation and weaker earnings growth became apparent through 2011, and consumption has moved broadly in line with those lower forecasts since late last year. Our failure to spot the recent 'double dip' in November 2011 and March 2012 reflects errors in our investment and net trade forecasts, not in our consumption forecast.

## The corporate sector

- 2.31 The weak recovery in private sector investment is currently estimated to have increased GDP by only 0.7 per cent over the past two years, rather than the 2.5 per cent we predicted in June 2010. Private investment also appears to have

added only modestly to GDP over recent quarters, and by less than we expected in our November 2011 forecast.

- 2.32 Table 2.7 shows that the shortfall in private investment relative to our June 2010 forecast is more than accounted for by a shortfall in business investment, while residential investment has been very marginally stronger than expected.

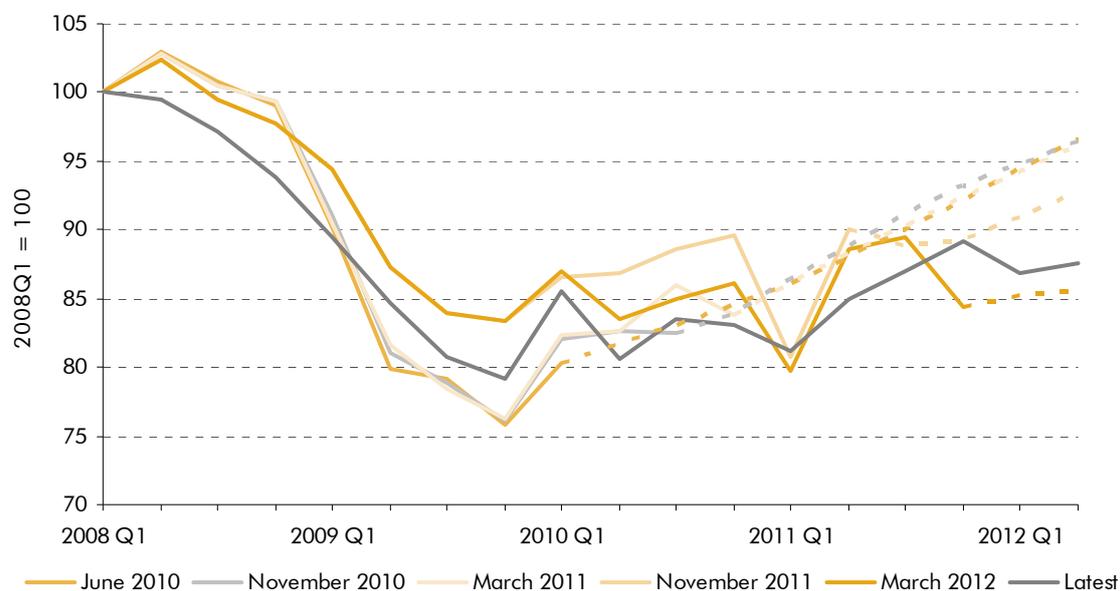
**Table 2.7: Growth in business and residential investment from 2010Q1 to 2012Q2**

	Per cent		
	Business	Residential	Total private sector investment
June 2010 forecast	20.3	12.7	19.7
Latest data	2.4	12.9	5.6
Difference <sup>1</sup>	-17.8	0.2	-14.1

<sup>1</sup> Difference in unrounded numbers, rounded to one decimal place.

- 2.33 Business investment has grown much less strongly than we expected in June 2010, increasing by just 2.4 per cent since the first quarter of 2010 rather than the 20 per cent we expected. But, as Chart 2.6 illustrates, it is important to remember that business investment data are highly volatile from quarter to quarter. So measuring the cumulative increase in investment from the previous or subsequent quarters would give figures of 10.7 per cent and 8.7 per cent respectively compared to our June 2010 forecasts of 27.5 per cent (from 2009Q4) or 18.3 per cent (from 2010Q2).
- 2.34 Chart 2.6 also illustrates that business investment data are prone to heavy revision. The ONS increased its estimate of business investment growth in the two years to the fourth quarter of 2009 by 7.5 percentage points between our June 2010 forecast and our March 2012 forecast, only for the latest Blue Book to revise it back down by almost 5 percentage points.

Chart 2.6: Successive forecasts and outturns for business investment



Source: ONS, OBR

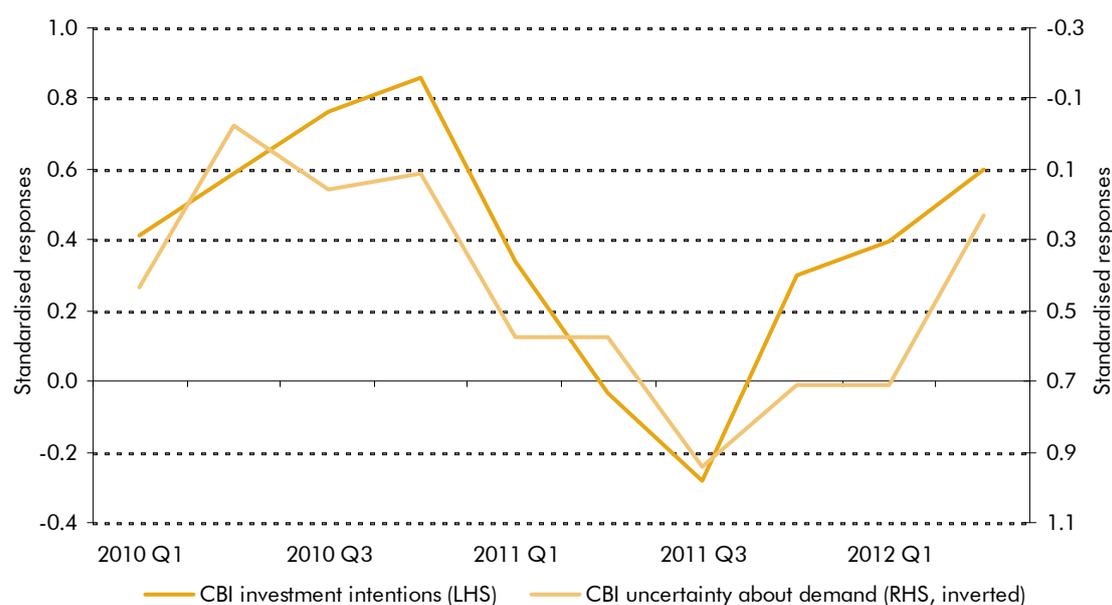
- 2.35 Doubtless part of the explanation for the unexpected weakness of business investment is that the price and availability of credit have not eased as we expected. This is partly because developments in the eurozone have kept banks' funding costs elevated. UK banks' average cost of funding in the wholesale market, proxied by credit default swap premia, almost doubled between the third quarter of 2010 and the fourth quarter of 2011.
- 2.36 But, while access to bank credit is an important constraint on investment by small and medium sized firms, larger firms rely more on internal finance. Here the news should have been more conducive to investment: corporate profits have grown a little above expectations over the past two years, while the corporate surplus remains large by historical standards, averaging 4 per cent of GDP since the beginning of 2010.<sup>1</sup>
- 2.37 As larger firms are responsible for the bulk of business investment,<sup>2</sup> this suggests that the weakness of business investment in aggregate reflects greater pessimism and uncertainty regarding future domestic and external demand more than a lack of available finance. Chart 2.7 shows that manufacturing firms reported

<sup>1</sup> Although as noted in Box 3.5 of our November 2011 *EFO*, the official data may have overstated the strength of corporate assets in the run-up to the financial crisis.

<sup>2</sup> Around 60 per cent of investment spending is by firms with 300+ employees.

greater uncertainty about future demand in parallel with weaker investment intentions from late 2010 to late 2011. That said, during the recent double dip (in which investment has been weaker than we expected), investment intentions have been picking up and uncertainty about demand easing.

Chart 2.7: Investment intentions and uncertainty about demand



Source: CBI

**2.38** Growth in residential investment over the past two years is broadly in line with the June 2010 forecast. However this masks a weaker performance over 2011 offset by very strong growth of more than 8 per cent in the first half of 2012. The latest data on residential investment are a little surprising as house prices and property transactions – with which residential investment is typically well correlated – have both been somewhat weaker than we expected. As with business investment, residential investment data are also prone to substantial revision, so this picture may well change.

**2.39** As expected, inventories were rebuilt through 2010. But stocks were again involuntarily built up through 2011. We captured this latter effect in our autumn 2011 forecast, but it has meant that, over the last two years as a whole, stocks have added less to growth than expected in the June 2010 forecast.

## The government sector

**2.40** In June 2010 we forecast that cuts in government spending would directly reduce GDP by 1.5 per cent by the second quarter of 2012, whereas current data suggest they have reduced it by less than half that amount. And over the latest

three quarters, government spending has increased GDP by 0.3 per cent rather than reducing it by 0.3 per cent, as we predicted in November 2011. So the direct contribution to GDP from government spending has ameliorated the recent double dip rather than exacerbating it.

- 2.41 When discussing the impact of the government on GDP in this sectoral context, it is important to emphasise that we are looking only at the direct contribution to GDP from government investment and its consumption of goods and services. Government spending on social security benefits and tax credits does not contribute directly to GDP, although it will affect it indirectly by helping to finance consumption by its recipients. Later in this chapter we look at the evidence on ‘fiscal multipliers’, which attempt to capture both the direct and indirect impact of different kinds of tax and government spending measures on GDP.
- 2.42 Aggregate movements in government spending mask different pictures for consumption and investment. Table 2.8 shows that real general government consumption and investment fell by 2.5 per cent in aggregate between the first quarters of 2010 and 2012, compared to our June 2010 forecast of a 5.7 per cent decline. The real fall in investment was larger than we anticipated, while government consumption has increased by 1.8 per cent rather than falling by 2.9 per cent.

Table 2.8: Growth in general government consumption and investment from 2010Q1 to 2012Q2

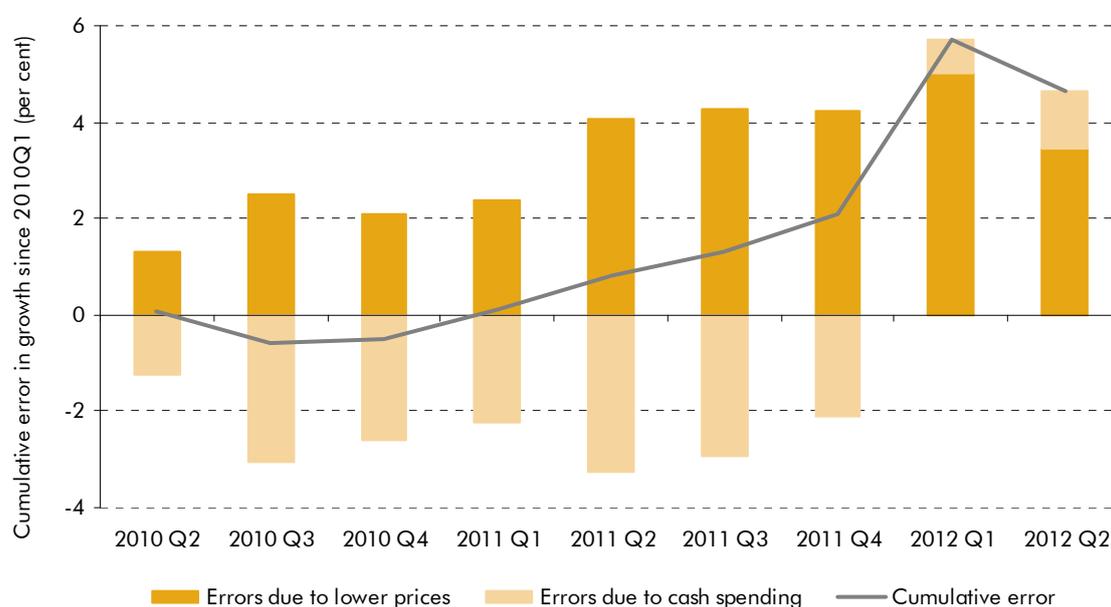
	Per cent		
	Consumption	Investment	Total
June 2010 forecast	-2.9	-29.0	-5.7
Latest data	1.8	-35.1	-2.5
Difference <sup>1</sup>	4.6	-6.2	3.2

<sup>1</sup> Difference in unrounded numbers, rounded to one decimal place.

- 2.43 As we discussed in our March 2012 *EFO*, real estimates for most categories of government consumption are based on direct output measures (e.g. the number of hospital operations, or school pupils) rather than calculated by deflating a nominal measure with a price index. These measures of output are not quality-adjusted. So if nominal spending growth falls, but the particular direct output measures used do not, then measured inflation will fall.
- 2.44 This effect appears to have been larger than we allowed for in earlier forecasts. As illustrated in Chart 2.8, by the second quarter of 2012 around three quarters of the underestimate of real government consumption reflected weaker price inflation. This explains the downward revision to our forecast of government consumption inflation in our March 2012 *EFO*.

2.45 The chart also shows that our error in underestimating nominal government spending is concentrated in the most recent two quarters, which also explains why we appear to have underestimated government consumption in our November 2011 forecast. This is a very early vintage of data, which contains relatively little hard information at this stage. Over the quarters up to the end of 2011, where firmer data is available, nominal spending has been lower than expected. We discuss these underspends in Chapter 3.

Chart 2.8: General government consumption outturn relative to June 2010 forecast

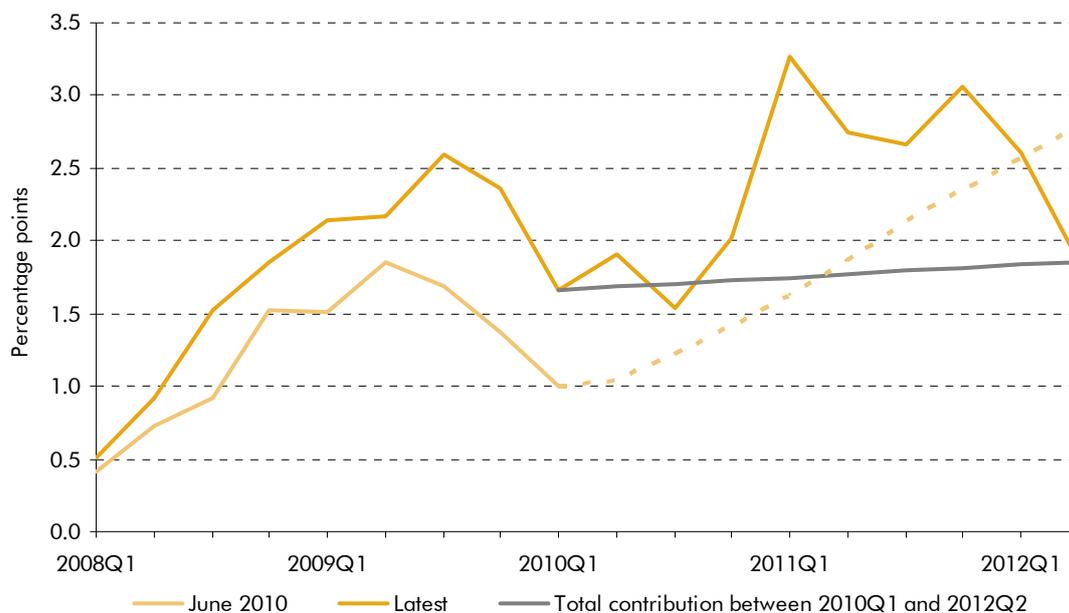


Source: OBR

## The external sector and net trade

2.46 The ONS's latest figures suggest that the UK's net trade position only improved sufficiently to increase GDP by 0.2 per cent between the first quarter of 2010 and the second quarter of 2012, compared to the 1.9 per cent that we expected in our June 2010 forecast. But this small cumulative contribution between these two particular quarters masks a more complicated picture, as shown in Chart 2.9.

Chart 2.9: Cumulative net trade contribution to GDP growth from 2008Q1 to 2012Q2



Source: ONS, OBR

- 2.47 The chart shows that in June 2010 we forecast a steadily increasing contribution to GDP from net trade, following three successive quarters in which it had pulled GDP down. We assumed that the trade position would improve as the UK's export markets strengthened and as the 20 per cent depreciation of sterling over 2007 and 2008 fed through to export volumes.
- 2.48 The trade figures are regularly and heavily revised, but the latest vintage suggests that the net trade contribution since the beginning of 2010 was still very close cumulatively to our June 2010 forecast up to the end of 2011, even though it was volatile from quarter to quarter. Net trade increased GDP by 1.5 per cent from the beginning of 2010 to the fourth quarter of 2011, fractionally greater than the 1.4 per cent we forecast in June 2010. But almost all this has been reversed in the first two quarters of this year – and particularly in the second. This has left the aggregate net trade contribution to GDP over the whole period well short of our June 2010 forecast.
- 2.49 The other striking feature of Chart 2.9 is the extent to which the estimated net trade contribution from early 2008 to mid 2009 has been revised significantly higher by the ONS since we made our June 2010 forecast. An improving net trade position is now thought to have increased GDP by 2.6 per cent between the first quarter of 2008 and the third quarter of 2009, compared to the 1.7 per cent implied by the data available when we made our June 2010 forecast. This has helped to resolve one of the puzzles implicit in our early forecasts: why the

depreciation of sterling had not done more already to improve the trade position as it had done in the 1990s. It also explains why the trade deficit in the second quarter of 2012 was not too far removed from our forecast in back in June 2010 despite the recent sharp deterioration.

- 2.50 The sharp weakening in net trade this year also helped contribute to our missing the double-dip recession in our November 2011 forecast. We predicted in that forecast that net trade would increase GDP by 0.6 per cent in the latest three quarters, rather than reduce it by 0.8 per cent as it has in the latest data.

Table 2.9: Growth in trade from 2010Q1 to 2012Q2

	Per cent, unless otherwise stated			
	Exports	Imports	Net trade contribution (ppts)	Trade deficit in 2012Q2 <sup>2</sup>
June 10 forecast	13.0	5.2	1.9	-2.2
Latest data	7.9	6.7	0.2	-2.6
Difference <sup>2</sup>	-5.1	1.5	-1.7	-0.4

<sup>1</sup> Trade in nominal terms, as a per cent of GDP.  
<sup>2</sup> Difference in unrounded numbers, rounded to one decimal place.

- 2.51 Table 2.9 shows that prior to the second quarter exports had grown about half as strongly as we expected in June 2010, while imports grew more quickly. Some weakness in export growth is not altogether surprising given that world GDP growth and trade since the beginning of 2010 have been around one percentage point weaker than originally forecast (Table 2.10).

- 2.52 Initially the downward surprise came from slower growth in exports to outside the euro area, but the weakness in the most recent quarters also reflects euro area developments. In March 2012 we forecast that euro area GDP would fall by 0.3 per cent this year, compared to the 1.7 per cent increase we forecast in June 2010.

Table 2.10: Growth in world GDP and trade from 2010Q1 to 2012Q1

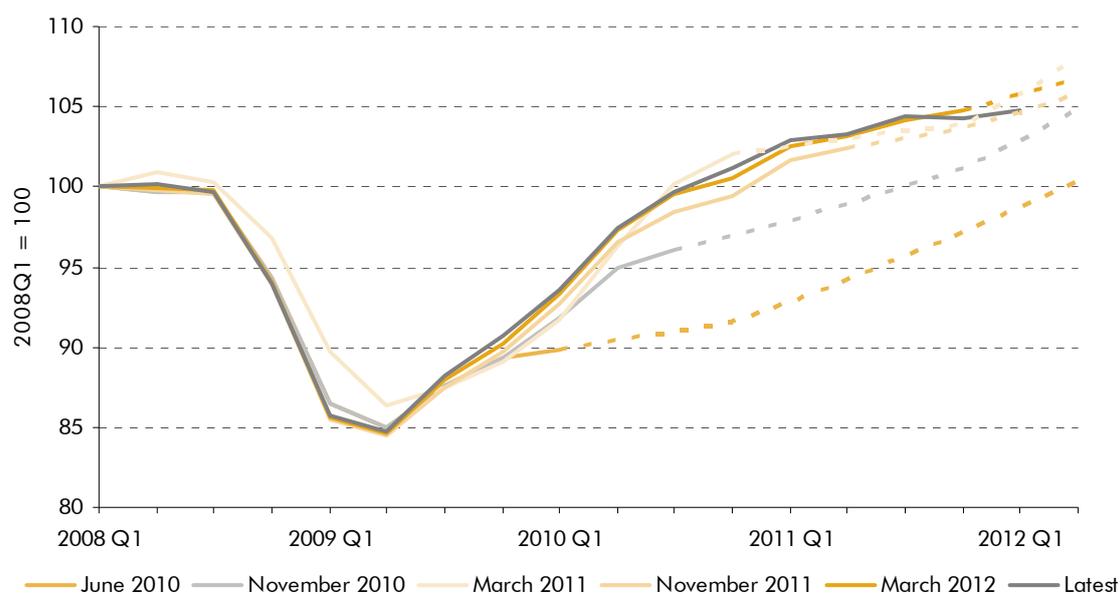
	Per cent		
	World GDP	World trade	UK export markets
June 2010 forecast	9.3	14.6	11.6
Latest data	8.3	13.8	13.2
Difference <sup>1</sup>	-1.0	-0.7	1.6

<sup>1</sup> Difference in unrounded numbers, rounded to one decimal place.

- 2.53 The UK's main export markets have performed more strongly than world imports as a whole and more strongly than we forecast in June 2010 (Chart 2.10). This does mean that UK exporters have lost more market share than we expected in June 2010. This may reflect a slightly higher real exchange rate than we forecast

and a decision by exporters to prioritise profit margins over market share when taking advantage of sterling's depreciation.

Chart 2.10: Successive forecasts of UK export markets



Source: OBR

- 2.54 Meanwhile, import growth has been a little stronger than we forecast over the past couple of years. Given the weakness of domestic demand, it seems likely that import substitution has been less powerful than we anticipated. We had expected households and firms to switch to domestically produced goods and services, following the fall in sterling. However, there is little sign of this in the data yet with only imports of travel services showing much of a decline in response to the fall in relative prices.
- 2.55 To summarise, an improvement in the net trade position contributed to GDP much as we had expected between early 2010 and the end of 2011, helped by the outperformance of the UK's export markets. But there has been a sharp deterioration this year, with problems in the eurozone helping to weaken export demand and contributing significantly to the recent double-dip recession.

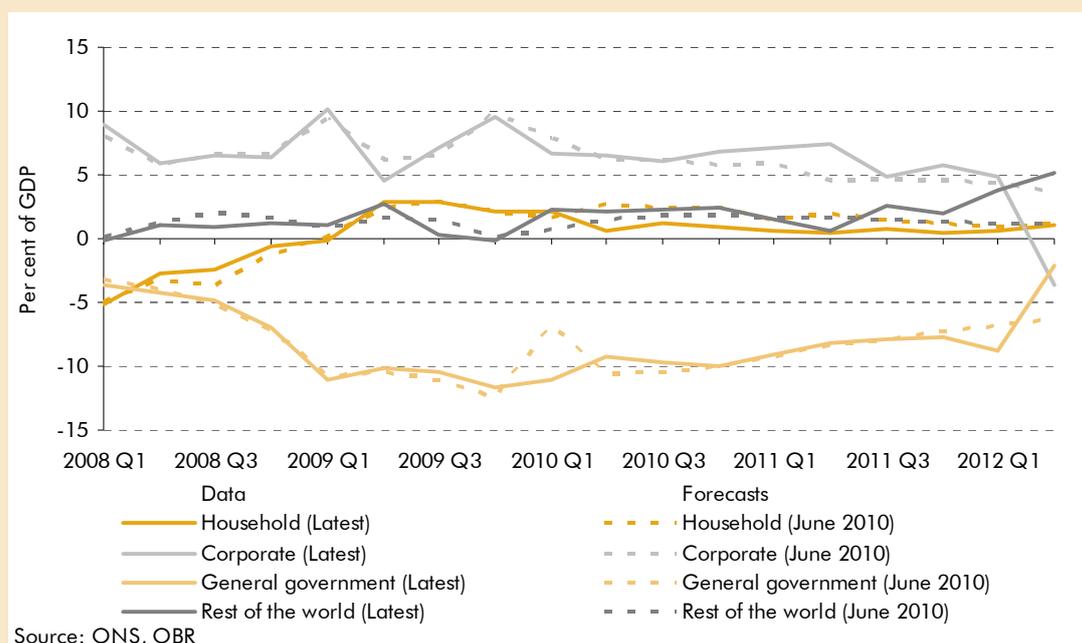
### Box 2.2: Flow of funds

An alternative way to view the sectoral decomposition of the economy is to look at the financial balances of households, firms, government and the rest of the world, which by definition sum to zero.

Chart B shows that, up until the recent double dip, the financial balances moved broadly in line with our June 2010 forecast. From the beginning of 2010 to the end of 2011 the corporate surplus and the government deficit both narrowed, while household net lending and the current account balance were little changed.

As the economy has shrunk unexpectedly over the most recent quarters, so the government's negative financial balance has widened (aside from the most recent quarter, see below) rather than narrowing as in the June 2010 forecast. This has had its counterpart in higher external and corporate sector balances than we forecast (reflecting weaker net trade, foreign investment income and domestic corporate investment) rather than additional household deleveraging (i.e. higher saving).

Chart B: Net lending by sector



This broad picture has been muddled in the most recent quarter, as the one-off transfer of assets from Royal Mail's historic pension fund to central government shows up as lower net lending by the corporate sector, and higher net lending (lower borrowing) by general government.

## Prices and nominal GDP

**2.56** In responding to developments in the economy, the public finances are not affected solely by the level and composition of real GDP. Tax receipts are driven more by changes in the nominal or cash value of GDP, which reflects both real changes and price changes. Price changes also affect receipts and spending directly where the parameters of the tax and social security system are linked to particular measures of inflation. They also affect the cost of interest payments on index-linked gilts, where the return is linked to inflation.

### CPI inflation

**2.57** In June 2010 the interim OBR had expected CPI inflation to decline steadily towards the Bank of England’s 2 per cent target over the following two years. Instead it began increasing almost immediately and peaked at a high of 5.2 per cent in September 2011 or 4.7 per cent for the third quarter of 2011 as a whole, as shown in Chart 2.11.

Chart 2.11: CPI



Source: ONS, OBR

**2.58** The unexpected increase in CPI inflation was largely due to higher import prices than we expected, caused by global commodity price shocks. In June 2010, the spot price for Brent crude oil averaged around \$75 a barrel. At the time futures markets implied that the price of oil would rise relatively slowly and finish the year at around \$78 a barrel. But in the following six months the spot oil price rose above \$90 a barrel, although some of the impact on the sterling cost of oil

was offset by currency movements. Over much of 2011 and 2012, oil prices have remained around \$110 a barrel. There have also been unexpectedly strong increases in global agricultural commodity prices in late 2010 and early 2011, as adverse weather conditions affected the global supply of agricultural commodities. The IMF food price index rose by around 30 per cent between the first quarter of 2010 and the second quarter of 2011.

- 2.59 Domestic electricity and gas prices rose more strongly than we forecast toward the end of 2010, rising by 1.2 and 4.6 per cent respectively in December 2010. The contribution of gas and electricity prices increases to CPI inflation rose sharply in the third quarter of 2011, with utility price increases larger than we had anticipated. In particular the September CPI was boosted by increases in gas prices of 13 per cent and electricity prices of 7.5 per cent, compared to a month earlier.
- 2.60 CPI inflation has since fallen relatively sharply, but the level of the CPI remains around 3 per cent higher than we forecast in June 2010.
- 2.61 These factors have also had an impact on RPI inflation since June 2010. However, RPI is also influenced by movements in components which are not included in the CPI. In particular, mortgage interest payments have been lower than expected in 2011 and 2012, so we made a larger error forecasting CPI than RPI.

## National Accounts deflators and Nominal GDP

- 2.62 The ONS calculates real GDP by estimating nominal GDP and then 'deflating' it to reflect price changes. Where components of the RPI were used as the price indices in the deflation process in the past, the ONS replaced these in Blue Book 2011 with components of the CPI. This increased real GDP growth rates in most years since 1997, while GDP deflator inflation is reduced in an offsetting way so that nominal GDP growth is unchanged. We may therefore have expected our June 2010 forecast for the GDP deflator to be a little high and our forecast for real GDP growth a little low.
- 2.63 Whole economy inflation has instead been somewhat higher than we expected, with the GDP deflator rising at an annualised rate of 2.7 per cent since 2010Q1, rather than the 1.8 per cent we forecast in June 2010. Consumer prices and the prices of imports and exports have increased more than we expected, but the impact on the GDP deflator has been partially offset by smaller-than-expected increases in the government and investment goods deflators (Table 2.11).

Table 2.11: Growth in National Accounts deflators from 2010Q1 to 2012Q2

	Annualised, per cent					
	Private consumption	Total investment	Government consumption	Exports	Imports	GDP
June 10 forecast	2.6	2.2	3.0	0.2	2.9	1.8
Latest data	4.0	1.4	1.4	2.4	3.5	2.7
Difference <sup>1</sup>	1.4	-0.8	-1.6	2.3	0.7	0.8

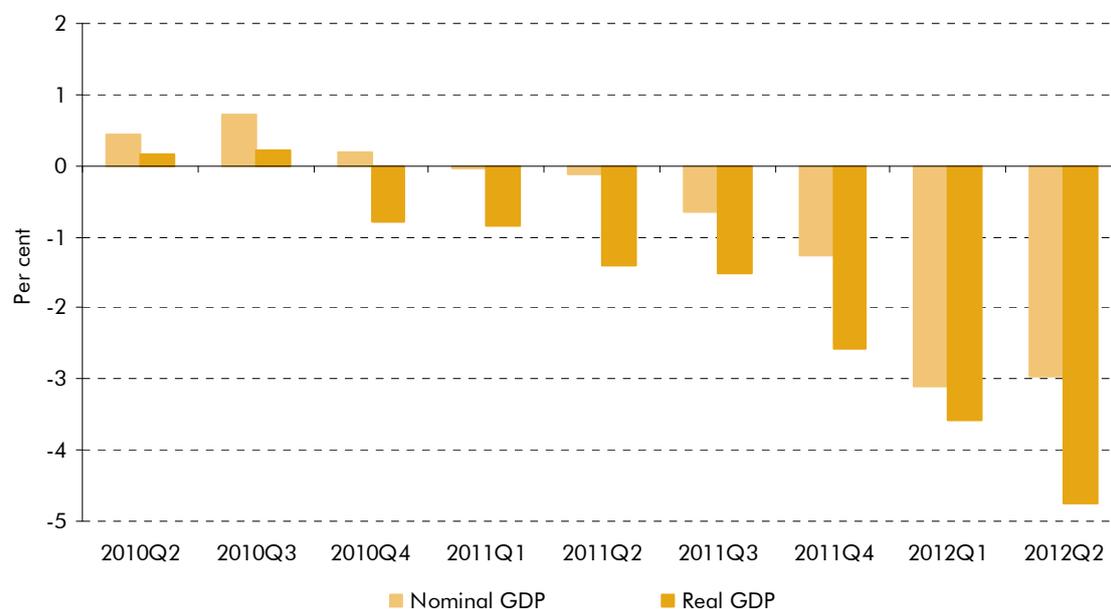
<sup>1</sup> Difference in unrounded numbers, rounded to one decimal place.

#### 2.64 Taking the deflators in turn:

- the consumption deflator has increased by more than we expected for the same reasons that CPI inflation has remained above forecast;
- import price inflation has been higher than expected, thanks in large part to higher commodity prices. Retailers, in the face of higher intermediate costs, have pushed up domestic consumer prices to lessen the blow to their margins;
- export prices have shown the largest upward surprise. We expected only subdued growth as firms looked to improve market share. But, as we noted above, exporters have lost more market share than forecast and have chosen to boost profit margins by maintaining higher sterling export prices than forecast;
- the price of government consumption has grown much more weakly than expected. As discussed above, this reflects that fact that downward pressure on cash spending has not been mirrored to the degree that we expected in weaker direct measures of government output; and
- the investment deflator has also run below the June 2010 forecast. This is often more difficult to judge, and like its real counterpart, is subject to substantial revisions.

2.65 With whole economy prices rising more quickly than we expected, nominal GDP has fallen less far below our June 2010 forecast than real GDP. As Chart 2.12 shows, by the second quarter of 2012 nominal GDP was running 3 per cent below forecast, while real GDP was running 4.7 per cent below. As we discuss in Chapter 3, this helps explain why tax receipts have held up better than one would have expected from the performance of real GDP alone.

Chart 2.12: Cumulative errors in June 2010 GDP forecasts



Source: ONS, OBR

- 2.66** We can decompose the error in our nominal GDP growth forecast by sector in the same way that did for real GDP in Table 2.1 – and we do this in Table 2.12.
- 2.67** The biggest contribution to the real GDP growth error came from our consumption forecast, closely followed by investment and net trade. In contrast, the biggest contributor to the nominal GDP forecast error was investment, followed by net trade and consumption. This reflects the fact that investment volumes and prices have both come in lower than we expected in June 2010, while the weakness of consumption and net trade volumes has been offset (and indeed partly explained) by higher inflation.

Table 2.12: Contributions to nominal GDP growth from 2010Q1 to 2012Q2

	Percentage points						
	Private consumption	Private investment	Total Government	Net trade	Stocks	GDP	Statistical discrepancy
June 10 forecast	6.0	3.3	0.0	0.1	0.7	10.0	0.0
Latest data	6.0	0.8	0.5	-0.7	0.5	7.1	0.1
Difference <sup>1</sup>	-0.1	-2.5	0.5	-0.8	-0.2	-3.0	0.2

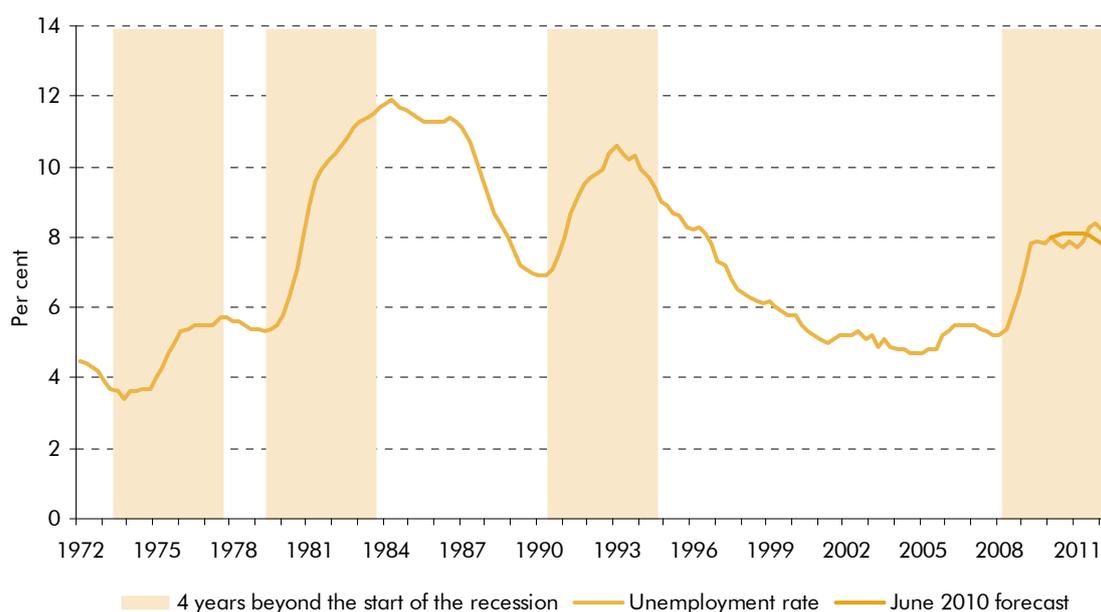
<sup>1</sup> Difference in unrounded numbers, rounded to one decimal place.

## The labour market and productivity

2.68 The public finances are affected by the performance of the labour market as well as by real GDP, nominal GDP and inflation, for example through its impact on tax receipts and social security spending. Developments in the labour market, alongside developments in real GDP, are also crucial to our judgements about the growth potential of the economy in the medium term.

2.69 The labour market has fared much better in this recession and recovery than might have been expected on the basis of historical relationships. GDP fell by a very similar amount in the recession of the 1980s and this recession, and both began with the unemployment rate at 5.4 per cent of the workforce. But, four years later, the unemployment rate had risen to 11.5 per cent in the 1980s, whereas today it stands at 8 per cent. And this is despite a much more anaemic recovery – GDP remains 4.1 per cent below its pre-recession peak today while it had climbed 1.2 per cent above it by this point in the 1980s.

Chart 2.13: Unemployment through recessions and recoveries



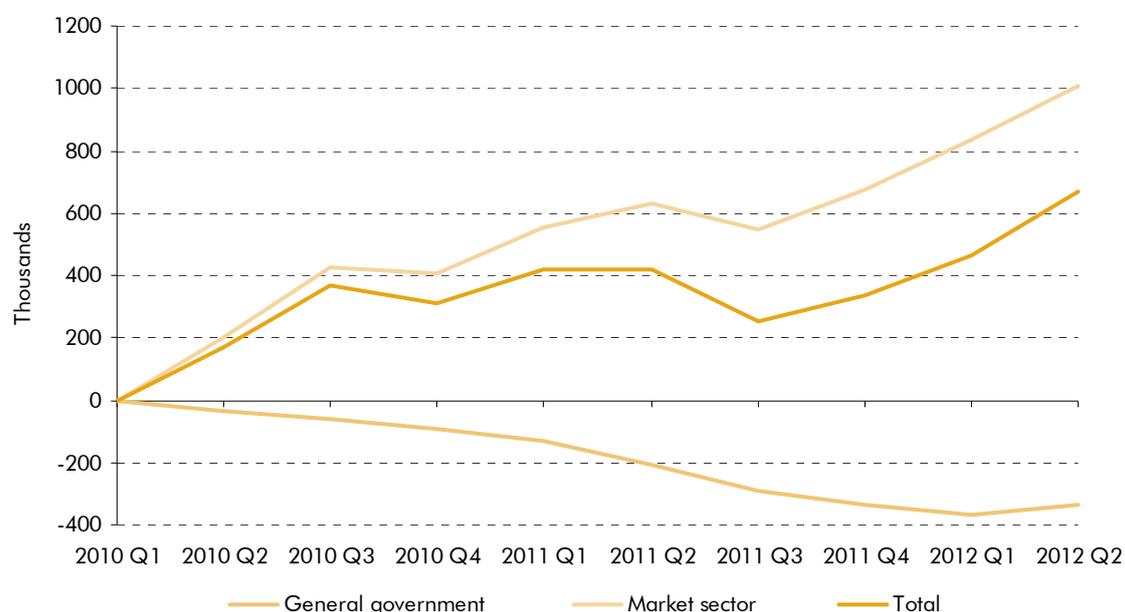
Source: ONS, OBR

2.70 Unemployment has still been higher than we forecast in June 2010: we expected it to peak at 8.1 per cent in the second half of 2010, whereas the peak (to date) was 8.4 per cent at the end of 2011. But this is a much smaller deterioration than previous historical relationships between GDP growth and unemployment would have suggested. If we had known how weak the recovery was likely to be in June 2010 then we would probably have forecast that unemployment today would be

5 per cent of the workforce or 1.6 million higher today than current data suggest.<sup>3</sup>

- 2.71 We see a similar story of unexpected labour market strength if we look at employment. Adjusting as best we can for reclassification of workers between the sectors, Chart 2.14 shows that general government employment has fallen by around 340 thousand since the beginning of 2010, but that this has easily been outweighed by a rise in market sector employment of just over 1 million.

Chart 2.14: Cumulative changes in employment levels since 2010Q1



Source: ONS, OBR

- 2.72 As Table 2.13 indicates, the fall in general government employment and the rise in market sector employment are both larger than we predicted in June 2010, despite the weak recovery in output.

<sup>3</sup> This would have been the case if productivity growth continued to evolve as we originally forecast, and all of the lower GDP reflected higher unemployment levels.

Table 2.13: Changes in levels of employment, unemployment and activity from 2010Q1 to 2012Q2

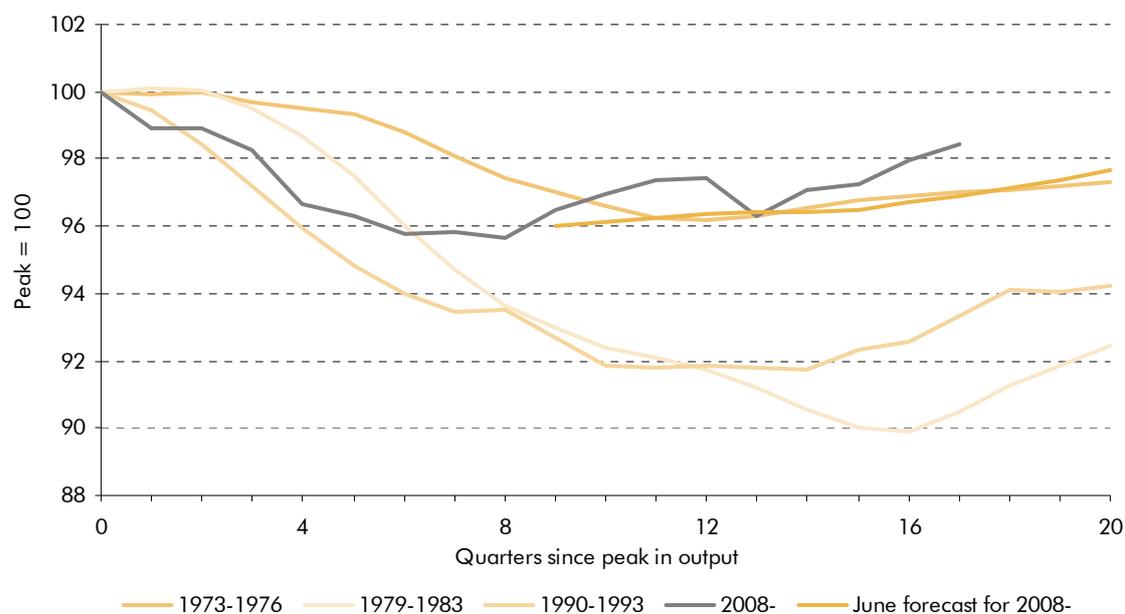
	Thousands					
	Market sector employment	General Government employment	Total employment	Unemployment (LFS)	Claimant count	Activity
June 10 forecast	399	-89	311	-89	-150	222
Latest data <sup>1</sup>	1,007	-338	669	52	17	721
Difference <sup>2</sup>	607	-249	358	141	166	499
Memo: 2012Q2 levels <sup>1</sup>	24,270	5,206	29,476	2,564	1,596	32,040

<sup>1</sup> Outturns for market sector and general government employment have been adjusted for reclassifications not included in the June 2010 forecast

<sup>2</sup> Difference in unrounded numbers, rounded to nearest thousand.

2.73 The strength of employment relative to the output data is partly explained by an increase in part-time and temporary working, but even if we correct for this by looking at total hours worked most of the puzzle remains. Output has increased by 0.9 per cent since the beginning of 2010 while total hours worked have increased by 2.9 per cent. As Chart 2.15 shows, total hours worked have generally been above our June 2010 forecast and are much more resilient than in the previous two recessions and recoveries despite the shortfall in GDP.

Chart 2.15: Total hours worked through recessions and recoveries



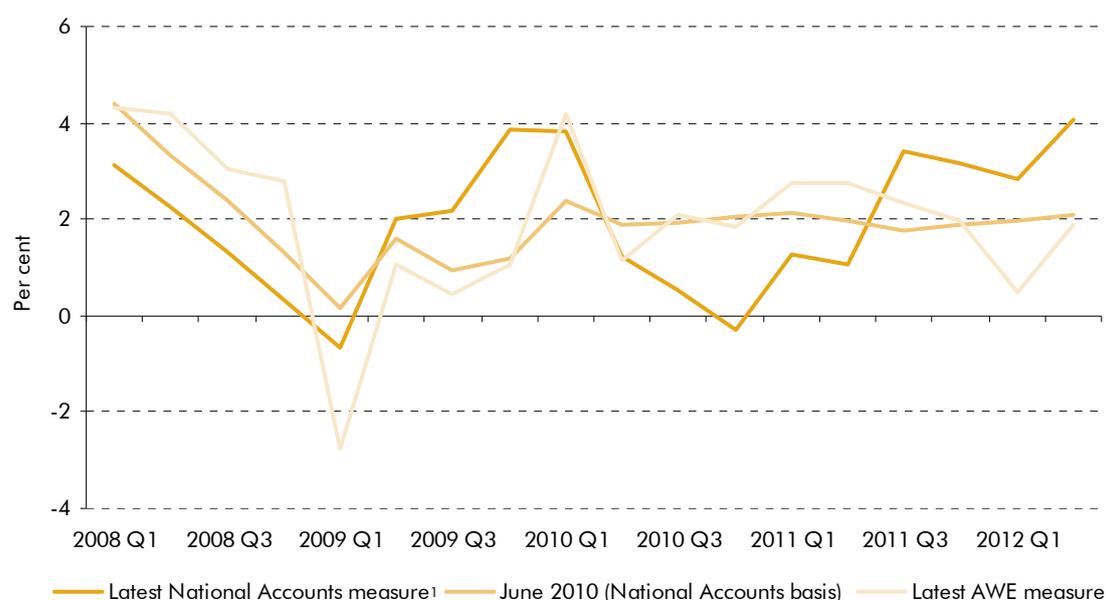
Source: ONS, OBR

2.74 Given that we have seen higher levels of employment and lower GDP, we may have expected average earnings to have been depressed relative to our June 2010 forecast. On the contrary, the latest vintage of National Accounts data

appears to suggest that earnings growth has been higher than forecast over the previous twelve months (Chart 2.16).<sup>4</sup> This may in part reflect lower than expected earnings in 2010, although the cumulative rise is still higher than forecast. It is worth bearing in mind that the wages and salaries data currently in the National Accounts for this period are liable to be revised when finalised tax data are incorporated (which occurs with a significant lag).

- 2.75 The AWE measure of average earnings growth has generally run closer to the original June forecast. Given higher inflation, this means that real earnings growth (on either a National Accounts or AWE basis) over the last two years has been much weaker than expected.

Chart 2.16: Average earnings growth

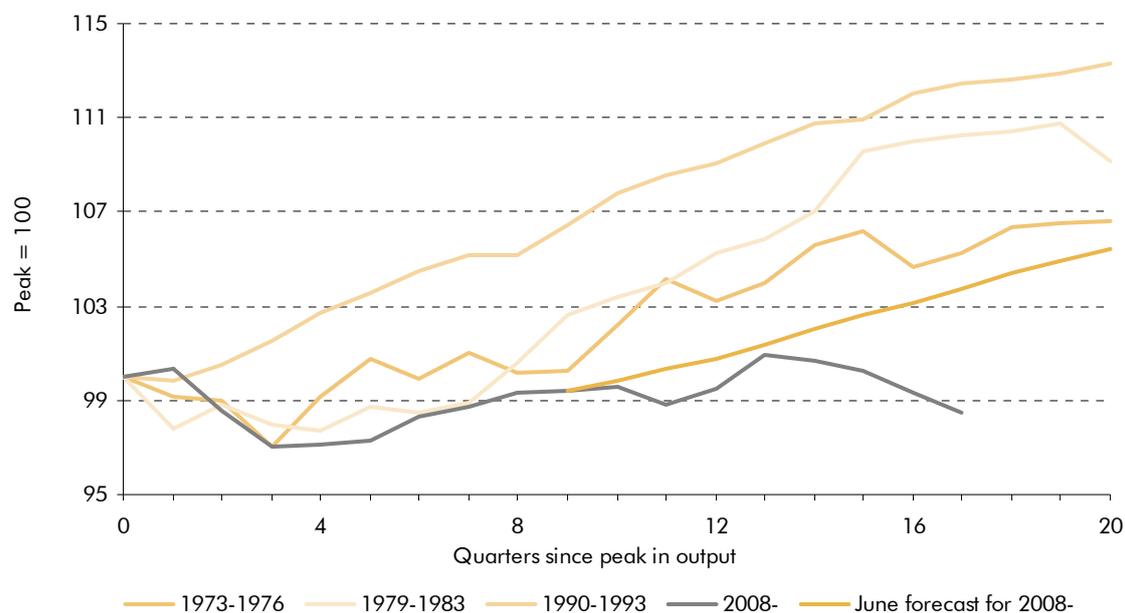


Source: ONS, OBR <sup>1</sup> Wages and salaries per employee

- 2.76 The combination of weak output and relatively resilient employment data also translates into much weaker productivity – output per hour – than in previous cycles and in our June 2010 forecast (Chart 2.17). Productivity has fallen by 2.2 per cent over the current ‘double dip’ and 0.8 per cent overall since the beginning of 2010.

<sup>4</sup> Measured as wages and salaries per employee.

Chart 2.17: Hourly productivity through recessions and recoveries



Source: ONS, OBR

2.77 Several potential explanations have been put forward for the recent weakness of productivity. Some imply that it is largely a temporary phenomenon and that productivity will bounce back as the recovery takes hold. Others suggest that even if growth in productivity rebounds to pre-crisis rates or above for a while, there is likely to have been a permanent (or at least a very long-lasting) downward shift to the level.

2.78 There is no consensus regarding the productivity puzzle. Most of the suggestions put forward would resolve only a small part of the puzzle, leading most analysts to conclude that it must reflect a combination of factors.<sup>5</sup> Among the contenders are:

- **undermeasurement of real GDP:** this would be consistent with the experience of the 1990s – the recession now looks shallower and the recovery stronger in the latest National Accounts than it did in earlier vintages. But the scale of revisions would need to be implausibly large for this to resolve the entire puzzle;

<sup>5</sup> See for example: Joe Grice (2012), *The productivity conundrum, interpreting the recent behaviour of the economy* (ONS); Broadbent (2012), *Productivity and the allocation of resources* (Bank of England); Martin and Rowthorn (2012), *Is the British economy supply constrained II?* (Centre for Business Research); Mehmood (2012), *Access to external finance and innovation: A macroeconomic perspective* (CPD).

- **a compositional shift between sectors:** there does not appear to have been a significant 'batting average' effect, whereby output has shifted from high to low productivity sectors. But productivity does seem to have weakened in sectors vulnerable to higher energy prices and the financial crisis, such as transport and finance;
- **labour hoarding:** firms may have decided to hang onto workers in anticipation of the upturn, reflecting the cost of shedding and rehiring them. But this does not explain why employment has risen so much and seems inconsistent with financially healthy firms' reluctance to invest. The strength of employment also seems to be due to stronger inflows into employment, rather than slower outflows;
- **disguised unemployment:** self employment has been rising as a share of total employment, but it is not clear how productive some of this employment is. The self-employed seem to have a much lower median wage than employees;
- **other demand related factors:** firms may need to work harder to produce the same level of output in a strong buyers market. They may also be investing in staff to reposition themselves for a changed market. These explanations receive some support from the Bank of England agents' reports;<sup>6</sup>
- **a higher cost of capital:** this may have encouraged firms to substitute labour for capital;
- **credit rationing:** rationing may also have restricted the growth in capital relative to labour. The capital to labour ratio looks to have risen since the crisis, although it has flattened in recent quarters and more generally grown at a slower rate than in the past;<sup>7</sup>
- **capital mismatch:** the impaired financial system may have failed to reallocate resources efficiently in response to uneven demand across sectors. Some firms with high rates of return are credit constrained while 'zombie firms' have kept operating thanks to low interest rates and weak real wage growth; and

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<sup>6</sup> For example in the June 2012 agents report there were frequent reports of "too many firms chasing the work, with large proportion of staff effort now dedicated to tenders and gold-plating the delivery of services".

<sup>7</sup> Data on the capital stock, published by the ONS, is only available up to 2009. We have derived the capital stock using investment data and assuming a constant depreciation rate from the latest data point.

- **research and development:** productivity may have been depressed in part because credit conditions have hampered investment in R&D. Patent applications in the UK have fallen since 2008.

**2.79** The productivity puzzle is likely to remain a puzzle for a long time to come. A number of factors are likely to be at play and we have assumed in our central forecasts that, while some of the puzzle will be temporary, there will also be a long-lasting hit to the level of productivity (and potential GDP) relative to the pre-crisis trend. This is discussed further in the next section.

### Box 2.3: International comparisons of productivity

The UK, the US and Germany all saw broadly similar falls in GDP over 2009. But their labour markets responded very differently. The US response was dominated by significantly reduced employment levels and working hours; Germany's by lower working hours; and the UK's by reduced employment, working hours and real wage growth. These varying labour market responses meant that the recession has had a different impact on labour productivity in each country.

Chart C: Changes in GDP, employment, hours worked and productivity since 2008



The swift labour market response in the US meant that productivity, as measured by GDP per hour worked, continued to grow steadily following the recession, compared with sharp falls in UK and Germany. German productivity growth has actually been weaker than the UK's, but the UK's weaker output recovery has drawn more attention to it.

## Potential output

- 2.80 One of the most important judgements that the OBR has to make in its forecasts is the current and future level of potential output – in other words, the level of economic activity consistent with maintaining stable inflation.
- 2.81 Most obviously we need to do this because the Government has asked us to judge its progress against a rolling five-year-ahead target for the current budget balance, adjusted for the state of the economic cycle (namely the expected ‘output gap’ between actual and potential output at the target horizon).
- 2.82 More fundamentally, it is hard to produce a forecast for the growth of GDP and its components over a five year horizon without some view of the current size of the output gap and the likely growth of potential output. If the Bank of England sets monetary policy to stabilise inflation at its target rate over the medium term, this implies keeping actual output broadly in line with potential output. The bigger the negative output gap today, and the faster potential output is expected to grow, the more rapidly the Bank is likely to be willing to allow actual output to grow.
- 2.83 Potential output is not a variable that we can observe directly in statistical data, so we do not have outturn estimates to compare it to when analysing our forecast performance. But it is still important to be transparent in describing the evolution of our estimates and to look at how they compare to those of other forecasters.
- 2.84 We estimate the current level of potential output primarily from business survey measures of ‘spare capacity’ and from the behaviour of average earnings.<sup>8</sup> These can be used to derive an estimate of the output gap, which can then be applied to the latest measure of actual output to give an estimate of potential output.
- 2.85 In forecasting how potential output will move in the future, we have assumed that in the long run productivity growth moves in line with historical trends and that the supply of labour evolves to reflect population projections. In the recent past potential output growth appears to have grown much more slowly than its likely long-run rate, so we have also had to reach a judgement about how quickly it is likely to return to the long-run rate based, for example, on the health of the financial system.<sup>9</sup>
- 2.86 Since our initial June 2010 forecast we have made one major change to our projection for the long-run level of potential output, revising it down by around

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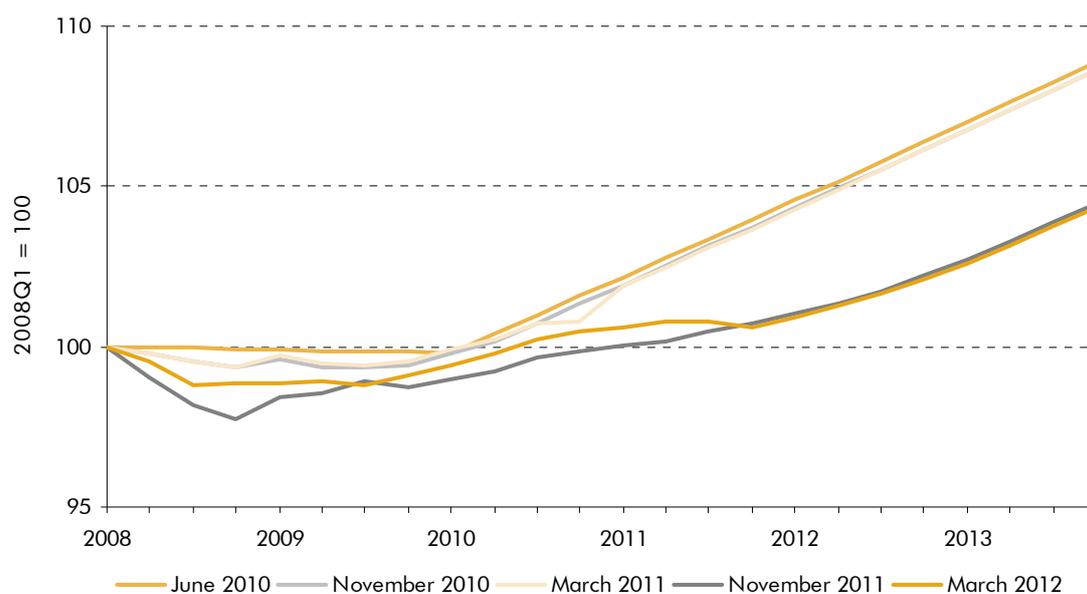
<sup>8</sup> See OBR Working paper No. 1: *Estimating the UK’s historical output gap* (2011).

<sup>9</sup> See Box 3.1 of our November 2011 *EFO*.

3.5 per cent in our November 2011 forecast (Chart 2.18). Weak GDP growth during 2011, combined with evidence from business surveys that the output gap was narrowing, suggested that potential output had been growing at much less than its long-run trend rate. We felt that it would be implausible to assume that potential output growth would snap straight back to its long-term rate, so we assumed a gradual recovery over two years.

- 2.87 The combination of the weaker starting point and this gradual recovery together produced the downward revision to the estimated long-run level. This had the effect of postponing the recovery in potential (and actual) output growth by about two years. We attributed the revision entirely to weaker potential productivity, reflecting the weakness of measured productivity and other evidence of a relatively strong labour market performance.

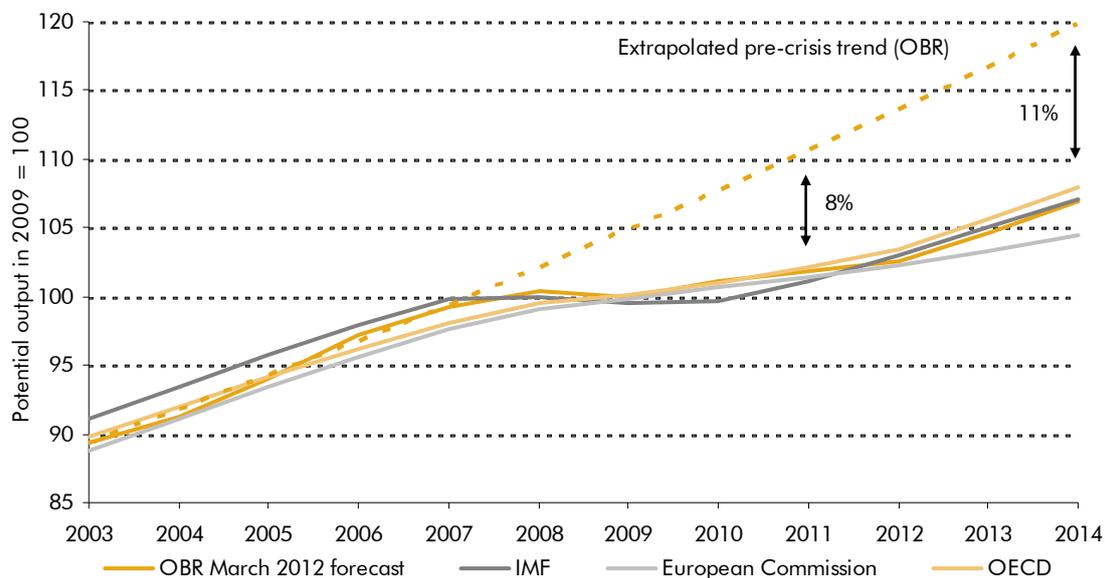
Chart 2.18: Successive forecasts of the level of potential output



Source: OBR

- 2.88 As we noted above, there are no outturn estimates of potential output to compare our forecasts to. But Chart 2.19 shows that our March 2012 estimate of potential output in 2011 was broadly in line with those of the IMF, the OECD and the European Commission at the time. They all imply that potential output in 2011 was around 8 per cent lower than an extrapolation of the pre-crisis trend in our estimate would have suggested. We, the IMF and the OECD all projected that the loss of potential would increase to about 11 per cent in 2014, with the European Commission somewhat more pessimistic. So all four projections imply a large permanent or very long-lasting loss of potential relative to the pre-crisis trend.

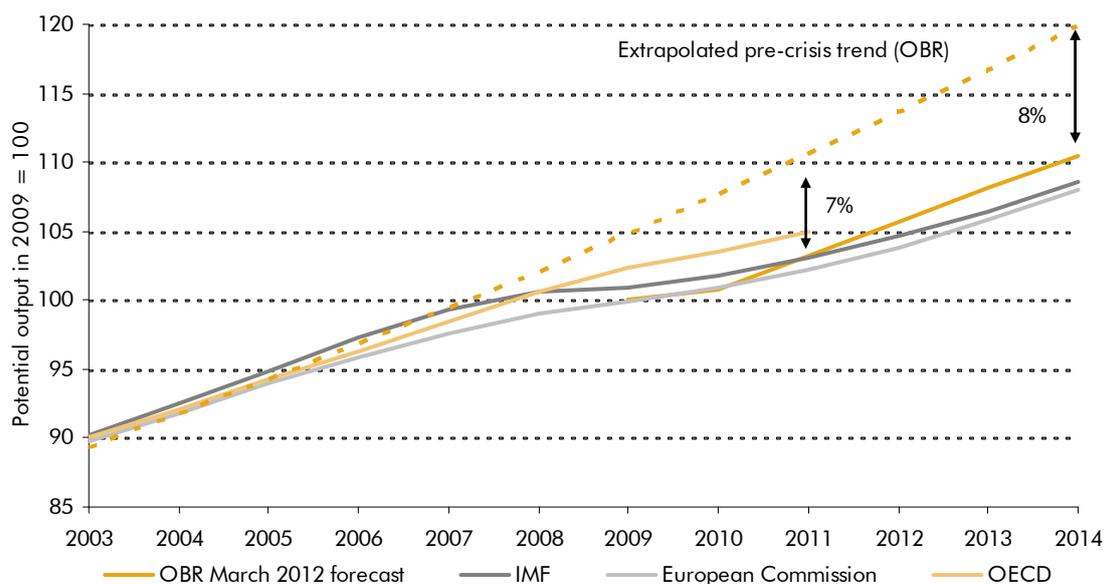
Chart 2.19: Forecasts of potential output as of March 2012



Source: OBR; IMF *World Economic Outlook*, September 2011; European Commission *European Economic Forecast*, Autumn 2011; OECD *Economic Outlook No.90*, November 2011.

2.89 As Chart 2.20 shows, the international organisations – like the OBR – have all increased their estimates of the loss of potential relative to the pre-crisis trend significantly since the time of our June 2010 forecast.

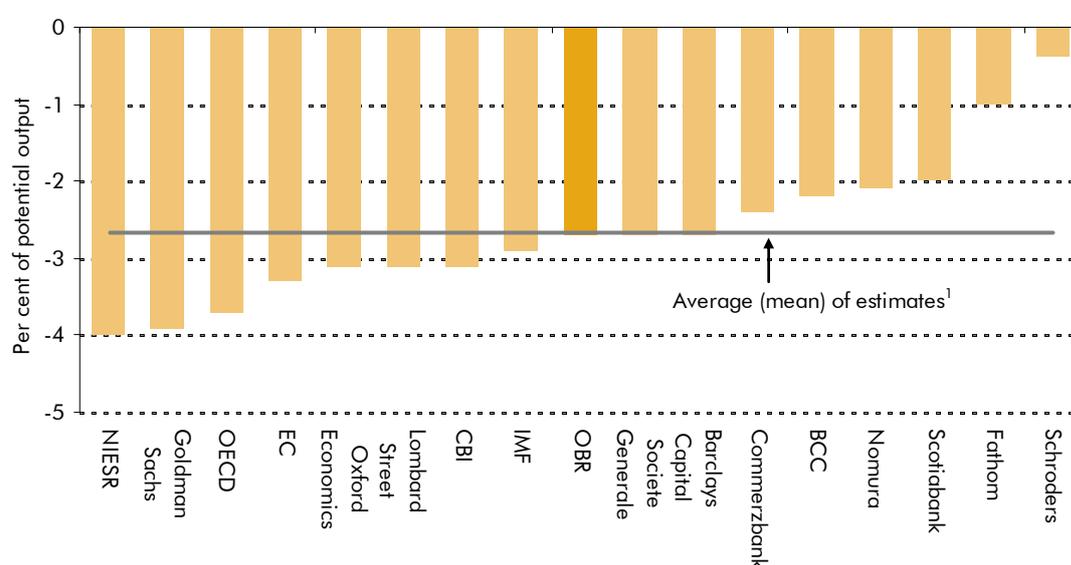
Chart 2.20: Forecasts of potential output as of June 2010



Source: OBR; IMF *World Economic Outlook*, September 2011; European Commission *European Economic Forecast*, Autumn 2011; OECD *Economic Outlook No.90*, November 2011.

2.90 Most other outside forecasters do not publish medium-term forecasts for potential output or the output gap, although many estimate their current levels. Chart 2.21 shows that our March 2012 estimate for the output gap (and potential GDP) in 2011 was in line with the then average of outside forecasters. Even the largest output gap estimate at the time – 4 per cent by the National Institute of Economic and Social Research – implied a 6 per cent loss of potential output relative to our estimate of the pre-crisis trend. Forecasters appeared to differ on their view of the balance of demand and supply factors, rather than falling on one side or the other.

Chart 2.21: Estimates of the output gap for 2011, as of March 2012



<sup>1</sup>Excludes OBR estimate.

Source: HM Treasury, 2012, *Forecasts for the UK economy: a comparison of independent forecasts*, March, plus additions or updates where known. Goldman Sachs estimate refers to the fiscal year 2011-12.

2.91 Explaining why potential output has fallen so far and apparently so persistently below its pre-crisis trend is very difficult. As we attribute the fall primarily to weak potential productivity, the possible explanations are the same as those for the weak productivity performance discussed in paragraphs 2.77 to 2.79. Some forecasters would argue that more of the deterioration reflects a worsening in structural unemployment.

## Monetary and fiscal policy

2.92 To make our five-year forecasts in each *EFO*, we need to make some assumption about how the key parameters of economic policy will evolve over that horizon.

## The economy

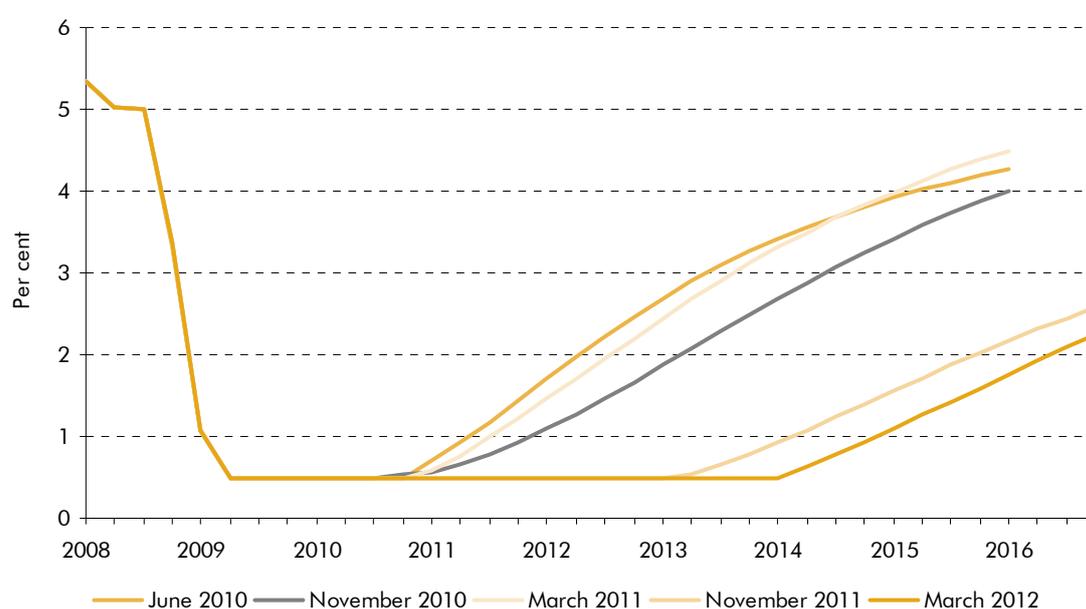
- 2.93 As regards monetary policy, we assume that interest rates follow the path expected by financial market participants, as derived from money market and bond instrument prices.
- 2.94 As regards fiscal policy, we assume that tax and spending policy evolves in line with the Government's stated plans or with the Treasury's conventional assumptions (such as for tax allowance and benefit uprating) where no clear plans are stated. This approach is laid down for us by the Charter for Budget Responsibility.
- 2.95 When looking back to see if and why the economy has evolved differently from the way in which we forecast it would, two obvious questions are: first, whether monetary policy or fiscal policy have been changed since the forecast was made, and; second, whether a given monetary or fiscal policy appears to have been more or less expansionary or contractionary in its impact than we initially assumed.
- 2.96 In this section we address these issues for monetary and fiscal policy in turn.

## Monetary policy

- 2.97 Our forecasts for growth have tended to be more pessimistic than those produced by the Bank of England (although not pessimistic enough) and for what appear to be broadly similar reasons. But explaining the differences between the two forecasts is made more difficult by the limited amount of quantitative detail which the Bank publishes about its forecast.
- 2.98 Monetary policy has been loosened significantly since our June 2010 forecast was published, through three tranches of additional 'quantitative easing' (QE) – the purchase of assets, mostly gilts, financed by the creation of central bank reserves. Monetary policy is also expected to remain looser for longer than financial market participants (and therefore we) assumed at the time.
- 2.99 The Bank Rate has remained constant at 0.5 per cent since March 2009. Between March and November 2009 the Monetary Policy Committee authorized the purchase of £200 billion worth of assets. It voted to purchase a further £75 billion in October 2011, £50 billion in February 2012 and £50 billion in July 2012, bringing the total purchases up to £375 billion.
- 2.100 As the QE programme was extended, so financial market participants have pushed back the date at which they expect official interest rates to start rising again (Chart 2.22). At the time of our June 2010 forecast the market expected Bank Rate to start rising in the first quarter of 2011, reaching 4.3 per cent in the first quarter of 2016. Market expectations were broadly similar at the time of our

November 2010 and March 2011 forecasts. Following a deterioration in the economic outlook, and the resumption of QE, by the time of our November 2011 forecast, markets were expecting Bank Rate to start rising only in mid-2013 and to still be below 3 per cent in early 2017. By the time of our March 2012 forecast, market expectations had shifted further with Bank Rate not expected to start increasing until mid-2014.

Chart 2.22: Market expectations for Bank Rate

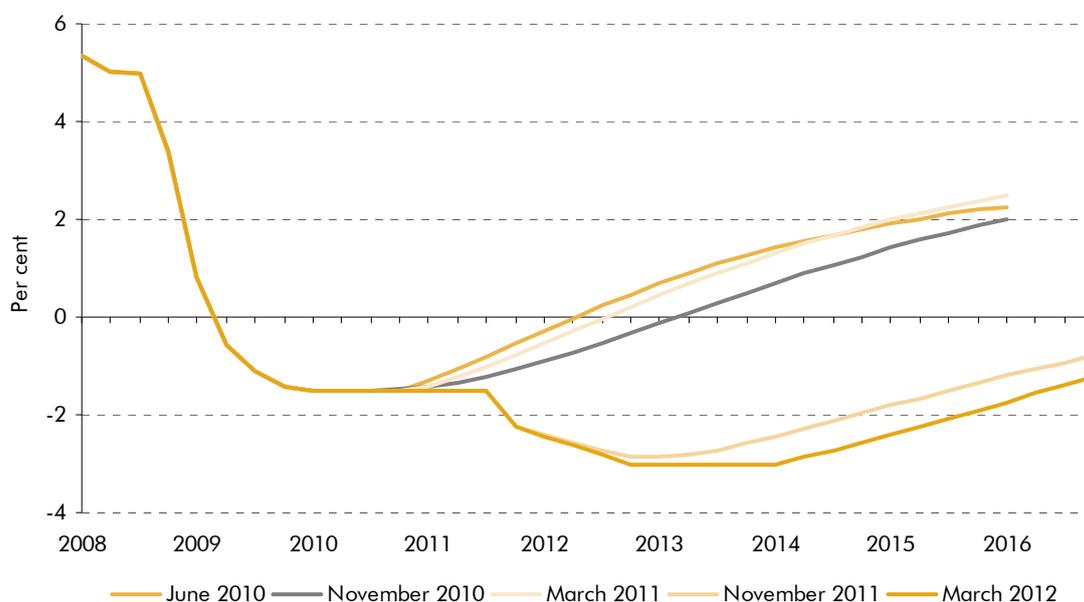


Source: OBR

**2.101** The shift is even starker when expectations of QE are taken into account alongside expectations for Bank Rate. In Chart 2.23 we adjust the Bank Rate expectations above down by 100 basis points for each additional £100 billion of QE that market participants expect (according to the median of the forecasts notified to the Treasury each month).<sup>10</sup> The expected total volume of QE rose from £200 billion by the end of 2012 in March 2011 to £337.5 billion by November 2011 and £350 billion by March 2012.

<sup>10</sup> Joyce et al, Bank of England (2012), estimated that the initial £200 billion of QE may roughly have been on a par with a 150 to 300 basis point cut in Bank Rate.

Chart 2.23: Market expectations for Bank Rate adjusted for QE



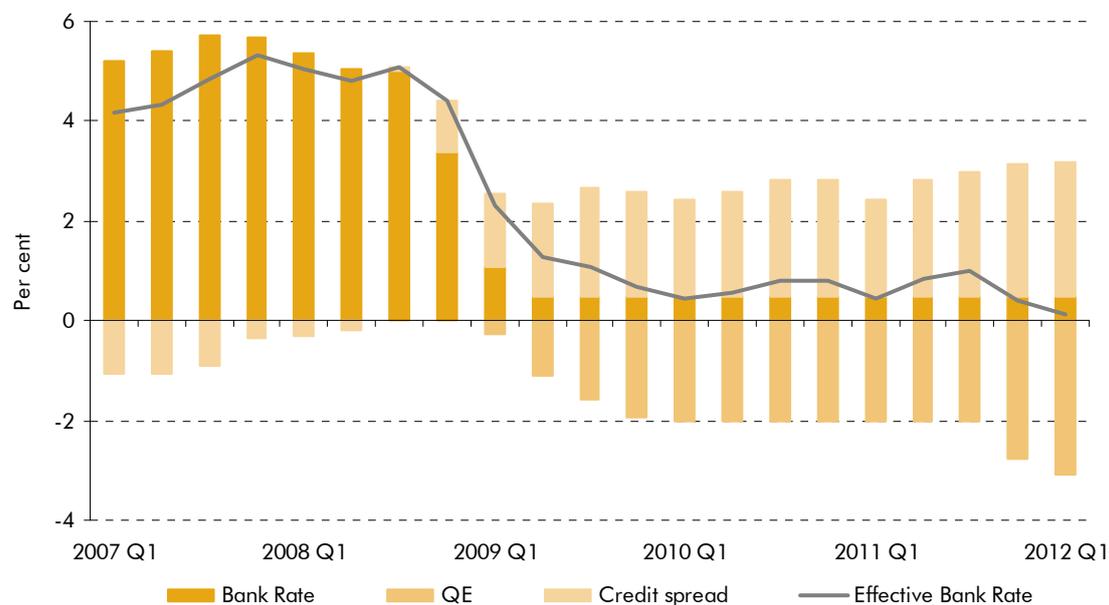
Source: OBR

**2.102** Other things being equal, the loosening of monetary policy since June 2010 might have been expected to push demand and economic activity above our forecasts. But, of course, things were not equal.

**2.103** Monetary policy was being loosened precisely because demand and economic activity were weaker than expected, exerting downward pressure on future expected inflation. But the loosening of policy has not until recently produced a meaningful decline in the effective interest rates paid by firms and households because of widening credit spreads (Chart 2.24).<sup>11</sup>

<sup>11</sup> See OBR Working paper No. 4: *A small model of the UK economy* (2012) for details of the credit spread used here.

Chart 2.24: Effective interest rates



Source: OBR

**2.104** A conventional Bank Rate cut may be expected to have its peak effect on output after a year. The lags with which QE operates are less clear, but in that context the impact to date of the additional QE announced since June 2010 might still be relatively modest.

## Fiscal policy

**2.105** The past two financial years have seen a significant discretionary fiscal tightening implemented in the UK. This primarily reflects the tightening put in place by the previous Labour government, which the current Coalition government then augmented with additional measures.

**2.106** In trying to explain the unexpected weakness of GDP growth over this period, it is natural to ask whether it was caused in part by this tightening – either because it turned out to be larger than we had originally assumed or because a given tightening did more to depress GDP than we had originally assumed.

**2.107** In answering the latter question, we are concerned with the aggregate impact of different types of fiscal tightening on GDP (measured using so-called ‘fiscal multipliers’) and not simply the direct contribution that government investment and consumption of goods and services makes to the expenditure measure of GDP. As we explained earlier in this chapter, this direct government contribution has been more positive for growth than we expected, rather than more negative.

- 2.108 To investigate the impact of the discretionary tightening, we first need to identify its size and composition. There are many different ways to do this, depending on the counterfactual baseline that you choose to define it against.
- 2.109 For simplicity we adopt the definition of the discretionary tightening used by the Institute for Fiscal Studies. Broadly speaking, this involves adding up all the tax and welfare measures in Budget and Pre-Budget Report scorecards, as well as the impact of announced changes in departmental current and capital spending plans, since the autumn of 2008. The calculations assume that the revenue raised from or the cost of the tax and welfare measures would have been constant as a share of GDP beyond the end of the relevant scorecard horizon and that current and capital spending would have been constant as shares of GDP once the explicit plans in place at Budget 2008 had run their course.<sup>12</sup>
- 2.110 Chart 2.25 shows the discretionary fiscal tightening or loosening in each fiscal year, relative to this Budget 2008 baseline. For each year it shows the tightening or loosening planned at the time of Labour's last Budget in March 2010 and by the Coalition after their first Budget in June 2010. We also show the latest estimated outturn, which is consistent with the estimate made by the IFS after the March 2012 Budget, adjusted for recent departmental and local authority outturn spending data.

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<sup>12</sup> See for example *The IFS Green Budget* (2012).

Chart 2.25: Fiscal consolidation relative to Budget 2008 baseline



Source: IFS, OBR

**2.111** In helping to explain the path of GDP growth over the past two years, the most relevant metric would seem to be the cumulative discretionary fiscal tightening in the two fiscal years 2010-11 and 2011-12, relative to 2009-10:

- the discretionary tightening between 2009-10 and 2010-11 was dominated by the withdrawal of the temporary stimulus measures that Labour put in place for 2009-10, the most significant being the temporary VAT cut and some additional capital spending. The Coalition chose to augment this tightening in June 2010, primarily by announcing some additional in-year spending cuts and the increase in the standard rate of VAT towards the end of the fiscal year; and
- the subsequent additional discretionary tightening into 2011-12 reflected a more equal division between measures already planned by Labour and additional measures announced by the Coalition. These were dominated by Labour's planned capital spending cuts, additional current spending cuts by the Coalition, some previously planned Labour tax measures and the full-year effect of the Coalition's VAT increase.

**2.112** The chart shows that discretionary consolidation between 2009-10 and 2011-12 was planned to be 2.8 per cent of GDP at the time of Labour's last Budget. The Coalition increased this to 3.7 per cent of GDP in June 2010.

**2.113** The latest outturn data suggest that the tightening has in fact been somewhat smaller than this at 3.3 per cent of GDP. In part this reflects the baseline for the

increase: the fact that the stimulus in 2009-10 now looks smaller than it did as a share of national income because GDP for that year has been revised higher.

- 2.114 In the subsequent two years, central government and local authority spending has been lower than originally budgeted, which on its own would have made the tightening bigger. But this has been offset by a number of factors, including the increase in capital spending in the 2010 Spending Review and the fact that the 50p rate of income tax appears to have raised less revenue than expected. The unexpectedly weak growth of nominal GDP also means that a given set of cash plans for departmental current and capital spending translate into a smaller cut in that spending when measured as a share of national income.
- 2.115 So what impact might one expect a fiscal tightening of this size to have on economic growth? In June 2010 the interim OBR estimated the impact that the additional fiscal tightening announced in the Coalition’s first Budget would have on growth through the use of ‘fiscal multipliers’ (although it did not identify separately an assessment of the offset to this that would result from the likelihood that monetary policy would be looser than it otherwise would have been).
- 2.116 The multipliers used in the June 2010 forecast are shown in Table 2.14. These so-called ‘impact multipliers’ imply that a discretionary tightening of 1 per cent of GDP would reduce GDP by between 1 per cent (in the case of capital spending cuts) and 0.3 per cent (for income tax and NICs increases) in the first year, with a steadily shrinking lagged effect in subsequent years. The multipliers chosen lay in the middle of a widely dispersed range of external empirical estimates.

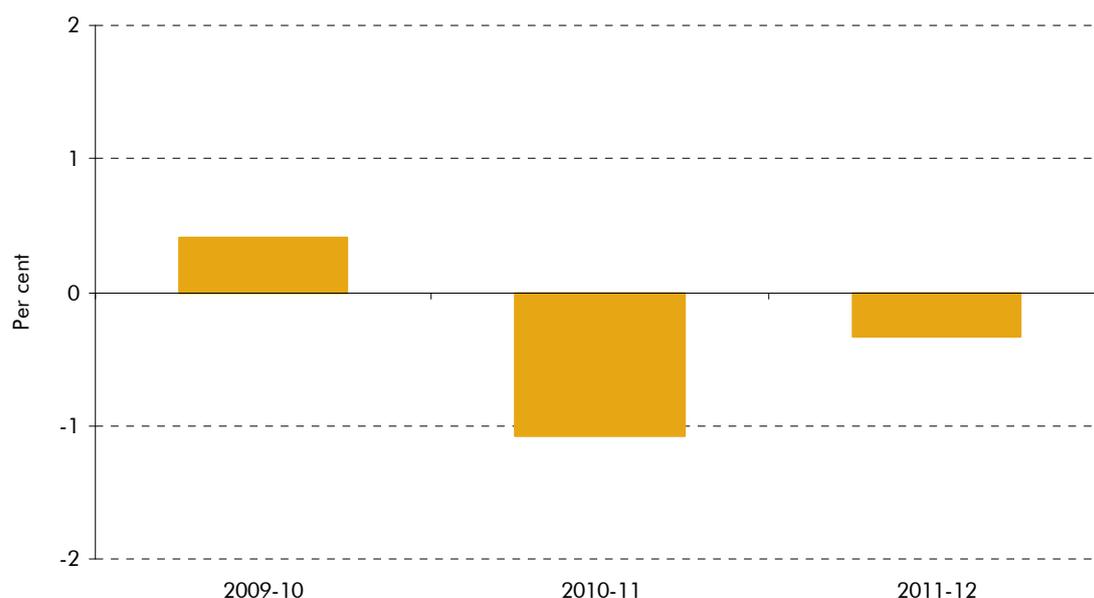
Table 2.14: Fiscal impact multipliers used in June 2010

Change in VAT rate	0.35
Change in the personal tax allowance and National Insurance Contributions (NICs)	0.3
AME welfare measures	0.6
Implied RDEL	0.6
Implied CDEL	1

- 2.117 The interim OBR only used these multipliers to assess the likely impact of the additional measures announced in June 2010. But if the true multipliers are in fact larger than this, then we would also expect the impact on GDP of the discretionary tightening that the Coalition inherited to be bigger as well. If we assume that the interim OBR’s pre-measures forecast in June 2010 had implicitly used the same multipliers then that would already have been too optimistic.
- 2.118 The composition of the fiscal tightening shown in Chart 2.25 implies average impact multipliers of 0.8 for the new measures implemented in 2010-11, 0.5 in 2011-12 and 0.6 for the two years in aggregate. The resulting effect on GDP of

both the Labour and Coalition fiscal tightening, taking into account both the impact multiplier and the smaller lagged effects, is shown in Chart 2.26.

**Chart 2.26: Implied impacts of discretionary fiscal tightening on GDP growth**



Source: IFS, OBR

- 2.119** In June 2010 we forecast that real GDP would be 4.3 per cent higher in 2011-12 than in 2009-10 (comprising 1.8 per cent growth in 2010-11 followed by 2.4 per cent growth in 2011-12). Taking the multipliers at face value would suggest that in the absence of the fiscal tightening introduced by both the Labour and Coalition governments, growth would have been forecast to be 2.9 per cent in 2010-11, 2.8 per cent in 2011-12 and 5.7 per cent over the two years taken together. However such estimates have a large degree of uncertainty, as they are conditional on the monetary environment being otherwise unaffected, and as we discuss below the fiscal multipliers are highly uncertain in themselves.
- 2.120** The latest outturn data suggest that growth was in line with the June 2010 forecast in 2010-11 at 1.8 per cent, but much lower than forecast in 2011-12 at 0.5 per cent, giving an increase of 2.4 per cent over the two years. The average multiplier over the two years would have needed to be 1.3 – more than double our estimate – to fully explain the weak level of GDP in 2011-12, although one might have expected this to result in weaker-than-forecast growth in 2010-11 as well as in 2011-12.
- 2.121** Needless to say there is huge uncertainty around the size of the multipliers, reflected in recent studies as well as the longer standing literature (see Box 2.3).

In its 2012 Article IV report for the UK the International Monetary Fund said that its “staff assumes an average multiplier during the consolidation of about 0.5 after incorporating the boost to demand from automatic stabilizers and the monetary policy reaction. This estimate is roughly in line with the OBR’s estimates.” But estimates differ widely – and not least within the IMF. The organisation’s October 2012 World Economic Outlook suggested that the multipliers of around 0.5 used in its own and other forecasts for a number of countries were significantly too low, judging from the differences in forecast errors made for countries with fiscal consolidations of different sizes. The IMF defines fiscal consolidations in terms of changes in cyclically adjusted budget balances, which does create an additional difficulty in identifying those correctly.

2.122 We clearly cannot rule out the possibility that the unexpected weakness of economic growth over the past two years can be explained in part by the fiscal consolidation acting as a greater drag than we had assumed. But unexpectedly stubborn inflation looks a better proximate explanation for weak real consumption in 2011 (especially as nominal consumption has been broadly in line with our forecast) and deteriorating export markets seem to offer a better explanation for the more recent weakness of net trade. Beyond that it would be hard to distinguish between the fiscal consolidation having a greater impact than expected (for example on business investment) and other factors, such as anxiety regarding the stability of the eurozone and the ongoing disruption of the financial sector. The latter might also help to explain why the weakness of actual GDP growth appears to have been mirrored so quickly in the weakness of potential output growth, if that has been correctly estimated.

### Box 2.4: Some recent analysis of multipliers<sup>a</sup>

One strand of research has focused on the possibility that multipliers vary at different stages of the economic cycle. Summers and De Long (2012) look at the effect of fiscal policy in the depressed US economy, and assume a multiplier of one in their analysis – although as a small open economy we might expect the multiplier for the UK to be less than for the US.

Auerbach (2012), Parker (2011) and the IMF (2012) have all produced analysis where the size of the multiplier varies depending on whether the economy is expanding or contracting, or on whether there is a positive or negative output gap. These studies tend to conclude that multipliers are larger in recessions than at other times. But the same IMF analysis suggested that for the UK the multipliers were smaller than the OBR assumptions, and only significant for spending.

Barrell et al (2012) published new multiplier estimates for OECD countries using the same National Institute Global Econometric Model it has used in previous studies. The results also suggested generally lower multipliers than those we have used. In contrast, Cloyne (2011) estimates significantly bigger revenue multipliers for the UK, around twice the size of those assumed by the OBR. This work is the first application of a ‘narrative’ approach for UK data, where changes in tax rates (the fiscal impulse) are determined from budget announcements.

Meta-analysis by Gechert and Will (2012), which brings together the results of a host of studies, highlights the impact that the identification of fiscal impulse, model choice and control variables can have on the result. Given many of these uncertainties, the interim OBR’s chosen multipliers continue to be broadly in the middle of a very wide range of views.

<sup>a</sup> Auerbach and Gorodnichenko (2012), *Measuring the output response to fiscal policy* (American Economic Journal of Economic Policy, forthcoming); Barrell et al (2012), *Fiscal consolidation part 2: Fiscal multipliers and fiscal consolidations* (OECD Economics Department working paper); Cloyne (2011), *What are the effects of tax changes in the United Kingdom? New evidence from a narrative evaluation* (CESifo working paper); Gechert and Will (2012), *Fiscal multipliers: a meta regression analysis* (IMK Macroeconomic Policy Institute); IMF (2012) *Fiscal Monitor* April; Parker (2011), *On measuring the effects of fiscal policy in recessions* (NBER); Summers and DeLong (2012), *Fiscal policy in a depressed economy* (Brookings Institute)

# 3 The public finances

## Introduction

3.1 This chapter:

- looks at the evolution of our public sector net borrowing (PSNB) forecasts and subsequent outturns over the past two years (from paragraph 3.2);
- discusses the contributions from errors in the receipts (from paragraph 3.14) and spending (paragraph 3.30) sides of the fiscal forecast which underlie the PSNB forecast;
- assesses the errors in our forecasts of some of the other main fiscal aggregates (from paragraph 3.37); and
- summarises the public finances data so far for the current financial year (from paragraph 3.42).

## PSNB over the past two years

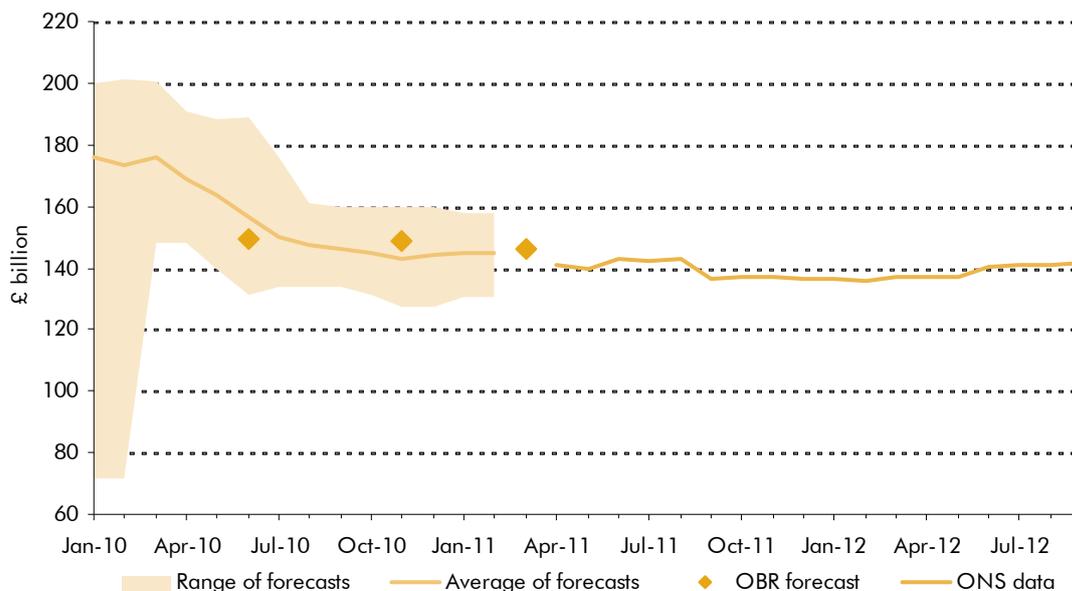
3.2 PSNB has shrunk by roughly a quarter from its post-war peak over the past two fiscal years, much as we expected it would in our June 2010 forecast and in subsequent *Economic and fiscal outlook (EFO)* forecasts. But this masks some offsetting errors in our public spending and receipts forecasts: public spending has fallen by more than we expected and receipts have risen by less.

3.3 In June 2010 we forecast that PSNB would fall from £154.7 billion in 2009-10 to £149 billion in 2010-11 and £116 billion in 2011-12. The latest outturn estimates are £159.0 billion, £141.7 billion and £119.3 billion respectively. So on current data we over-predicted borrowing by £7.4 billion in 2010-11 and under-predicted it by £3.3 billion in 2011-12. These are small errors by historical standards. In March 2011 we forecast PSNB at £121.8 billion in 2011-12 which on the basis of the latest data was an over-forecast of £2.5 billion, again a relatively small error.

3.4 Charts 3.1 and 3.2 show that our central predictions for both years have been relatively stable from forecast to forecast since June 2010, with outside forecasts dispersed to either side. As we noted in the Introduction to this report, our forecasts for later years have been less stable, with our March 2011 and

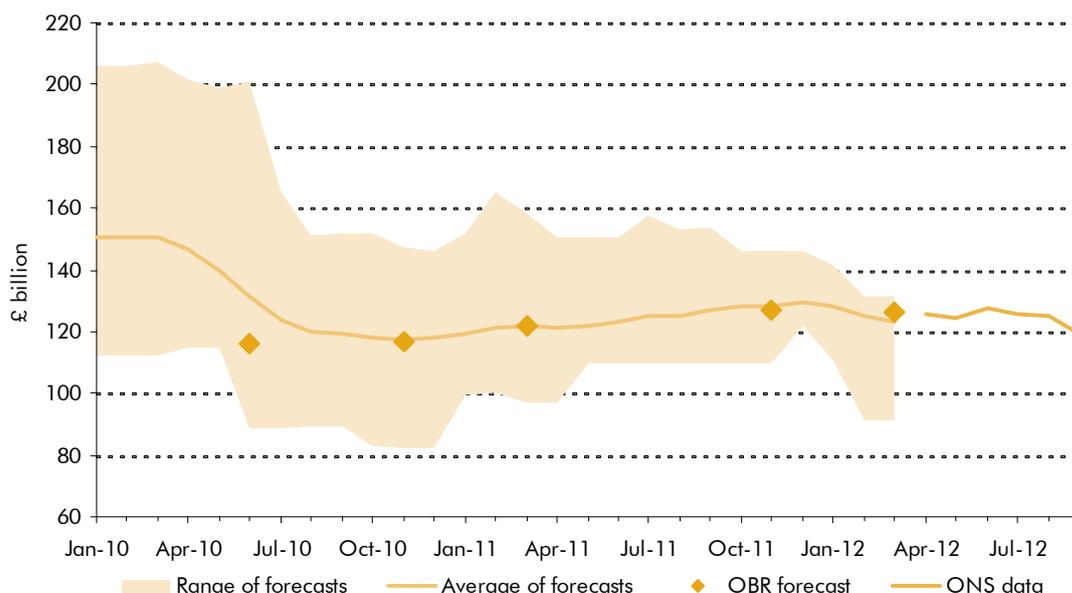
November 2011 *EFOs* making significant upward revisions to our forecasts for PSNB from 2012-13 onwards.

Chart 3.1: Forecasts and outturns for PSNB in 2010-11



Source: ONS, OBR, HM Treasury

Chart 3.2: Forecasts and outturns for PSNB in 2011-12

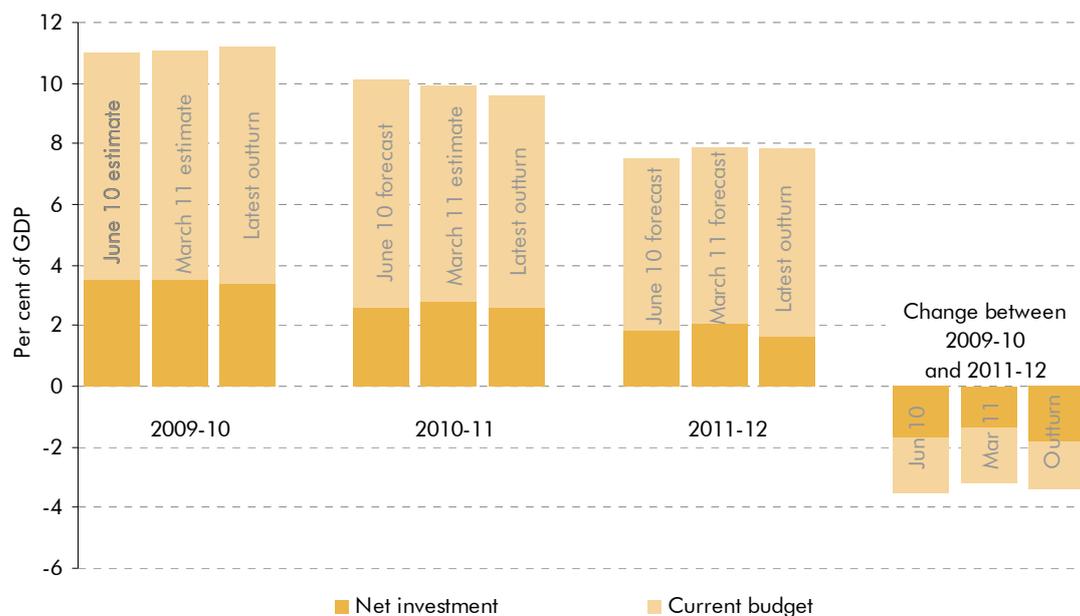


Source: ONS, OBR, HM Treasury

3.5 The charts also show how outturn estimates of PSNB continue to be revised well after the fiscal year is over. Firm data on departmental spending and borrowing by local authorities and public corporations is only available some months after the initial outturn estimates have to be made. In both years the latest outturn data now show a smaller deficit than the initial outturn data did.

3.6 Viewed as a share of national income, the latest outturn data suggest that the deficit has fallen from 11.2 per cent of GDP in 2009-10 to 9.6 per cent in 2010-11 and 7.8 per cent in 2011-12 (Chart 3.3). The total decline of 3.4 per cent of GDP over the two years taken together is only fractionally smaller than the 3.5 per cent of GDP decline that we forecast in June 2010.

Chart 3.3: Public sector net borrowing: OBR forecasts and latest outturns



Source: ONS, OBR

3.7 Roughly two thirds of the fall in the deficit over the last two years reflects lower public spending while one third reflects higher receipts. More specifically:

- capital spending has fallen by 1.8 per cent of GDP and current spending by 0.6 per cent of GDP. Within current spending, debt interest has risen by 0.9 per cent of GDP but this has been more than offset by a 1.4 per cent of GDP fall in other current spending (mostly on public services and administration); and
- total receipts have risen by 1.1 per cent of GDP. All of this increase can be explained by VAT receipts. These rose by 1.2 per cent of GDP, primarily due to the reversal of the temporary reduction in VAT in January 2010 and the

subsequent rise in the standard rate of VAT to 20 per cent from January 2011. This was partly offset by a drop in the income tax to GDP ratio, reflecting weak self assessment receipts and the substantial rises in the personal allowance.

**3.8** Table 3.1 shows how this breakdown compares to our forecasts in June 2010 and March 2011. It shows that the fall in the deficit to date owes a little more to falling public spending and a little less to increasing revenues than we thought it would in June 2010. There have been relatively minor changes to this path as a direct result of Government policy decisions in subsequent fiscal events. Instead these changes reflect:

- as a share of GDP, cuts in capital spending have proceeded broadly in line with the plans that the Coalition inherited from the previous Labour government and chose largely to adhere to. At the 2010 Spending Review departments' capital spending plans for 2011-12 were increased by £2 billion. But in practice departments underspent against these increased plans – the latest provisional outturns show that capital spending in Departmental Expenditure Limits (DEL) was £½ billion below the June 2010 Budget plans;
- as a share of GDP, falls in current spending have been larger than expected in June 2010. This is primarily because government departments and local authorities underspent against their current expenditure budget plans in 2011-12, which was only partially offset by higher than forecast spending on public service net pension payments and social security; and
- an increase in public sector receipts as a share of GDP has contributed slightly less to the fall in PSNB than we expected in 2011-12. This was mainly due to lower than expected corporation tax, self assessment receipts, gross operating surplus and interest and dividend receipts.

Table 3.1: Contributions to the change in PSNB from 2009-10 to 2011-12

	Per cent of GDP		
	June 2010 forecast	March 2011 forecast	Outturn
<b>Spending</b>	-2.1	-1.7	-2.4
of which:			
Capital	-1.7	-1.4	-1.8
Current	-0.3	-0.2	-0.6
of which:			
Debt interest	0.8	0.9	0.9
Social security	-0.3	-0.3	-0.1
Other public spending	-0.9	-0.9	-1.4
<b>Receipts</b>	1.4	1.6	1.1
of which:			
VAT	1.1	1.3	1.2
Income tax	-0.4	-0.3	-0.4
Other	0.7	0.6	0.2
<b>Total change in PSNB</b>	<b>-3.5</b>	<b>-3.2</b>	<b>-3.4</b>

3.9 In comparing the latest outturn data with the Budget forecasts that we published in June 2010 and March 2011, an obvious question is: why has the decline in borrowing not been smaller given that real GDP has grown much less quickly than we expected it would over this two year period?

3.10 The answer to this question differs somewhat if you focus on 2010-11 or 2011-12. As Table 3.2 shows, our June 2010 forecast overestimated spending in 2010-11, but had a very small error for receipts:

- the economic forecast for 2010-11 was relatively accurate overall (growth was stronger than expected in the first half of the year and then weaker in the second). As a result most of the large receipts streams came in relatively close to forecast. Some specific economic factors led to lower revenues in areas such as self-assessment (SA), stamp duties and interest receipts, but these were more than offset by positive errors in our fiscal forecast judgements in other areas; and
- on the expenditure side, central government departments and local authorities under-spent against their originally planned budgets.

Table 3.2: June 2010 one- and two-year ahead PSNB forecast errors

	£ billion		Error
	Forecast	Outturn	
<b>One-year ahead forecast (2010-11)</b>			
Public sector current receipts	547.7	548.9	1.2
Total managed expenditure	696.8	690.6	-6.2
Public sector net borrowing	149.1	141.7	-7.4
<b>Two-year ahead forecast (2011-12)</b>			
Public sector current receipts	584.2	569.3	-14.9
Total managed expenditure	699.8	688.6	-11.3
Public sector net borrowing	115.6	119.3	3.7

3.11 The June 2010 forecast for 2011-12 overestimated both spending and receipts by a somewhat larger amount, with offsetting effects on our PSNB forecast error:

- public sector receipts were weaker than we expected, but not as weak as the performance of real GDP alone would have suggested. Some key economic drivers of tax receipts performed less poorly than real GDP, in particular the labour market (which drives income tax receipts) and nominal consumption (which drives VAT receipts); and
- government expenditure has been lower than expected, especially when you consider the weakness of real GDP. The relatively benign labour market performance has prevented large increases in social security expenditure, while central government departments and local authorities again under spent against their originally planned budgets.

3.12 We now examine the behaviour of receipts and spending in more detail.

## Receipts

3.13 Table 3.3 sets out the one- and two-year ahead forecasts for receipts that we made in June 2010. It also shows the forecasts and outturns for the key receipts streams of income tax and NICs, VAT and corporation tax, and some of the important economic determinants that drive these receipts.

Table 3.3: June 2010 one- and two-year ahead forecasts for major taxes and associated economic indicators

	£ billion			
	2010-11		2011-12	
	Forecast	Outturn	Forecast	Outturn
Public sector current receipts (PSCR)	547.7	548.9	584.2	569.3
<b>Headline components of PSCR</b>				
Income tax and NICs	249.1	250.1	258.9	252.5
VAT	80.7	83.5	96.3	98.3
Corporation tax	43.3	43.1	46.7	43.1
	Percentage change on a year earlier			
<b>Economic indicators</b>				
Real GDP	1.8	1.8	2.4	0.5
Nominal GDP <sup>1</sup>	4.7	4.5	4.4	3.3
Nominal consumer spending <sup>2</sup>	4.3	5.0	4.3	3.7
Real consumer spending	0.2	1.3	1.3	-0.9
Wages and salaries	1.7	1.3	2.4	2.4
Non oil PNFC profits <sup>2,3</sup>	1.5	5.8	9.0	7.7

<sup>1</sup> Not seasonally adjusted  
<sup>2</sup> Calendar year  
<sup>3</sup> Nominal

### June 2010 receipts forecast for 2010-11

3.14 Table 3.3 shows that the June 2010 economy forecast for the fiscal year of 2010-11 was relatively accurate, not just for real GDP, but crucially also for nominal GDP and for nominal consumption and wages and salaries, which are the key drivers of VAT receipts and income tax and NICs receipts. Table 3.3 also shows that these key receipts streams came in broadly on forecast in 2010-11.

3.15 Annex A has a more detailed breakdown of our year-ahead receipts forecasting errors split into those caused by errors in the economic forecast, those caused by errors in our fiscal forecasting judgements, and those caused by policy or classification changes. This confirms that for 2010-11 there were only very small errors in our forecasts of the major receipts streams of PAYE income tax and NICs, VAT and corporation tax that were caused by economic errors. A summary of the decomposition of errors for total receipts is shown in Table 3.4.

Table 3.4: June 2010 forecast errors for year-ahead (2010-11) public sector current receipts

	£ billion
	2010-11
Forecast	547.7
Outturn	548.9
Difference	1.2
of which:	
Economic factors	-7.1
Policy and classification changes	-1.9
Fiscal forecasting errors	10.2

3.16 Errors caused by economic factors elsewhere in the forecast led us to overestimate receipts by £7.1 billion. However, Annex A shows that the largest of these was a £3.3 billion error in SA receipts. As self-assessment is paid with a lag of around one year, this reflects errors in our estimate of SA-related income in 2009-10 rather than 2010-11. The next largest 2010-11 economic error is for interest and dividend receipts which were £1.5 billion lower than we forecast due to interest rates remaining lower than we expected.

3.17 Overall, the errors in our receipts forecast for 2010-11 due to economic factors were relatively small (especially taking into account that the self-assessment error actually relates to the economy in 2009-10). This is unsurprising given that the overall economic forecast was relatively accurate for 2010-11.

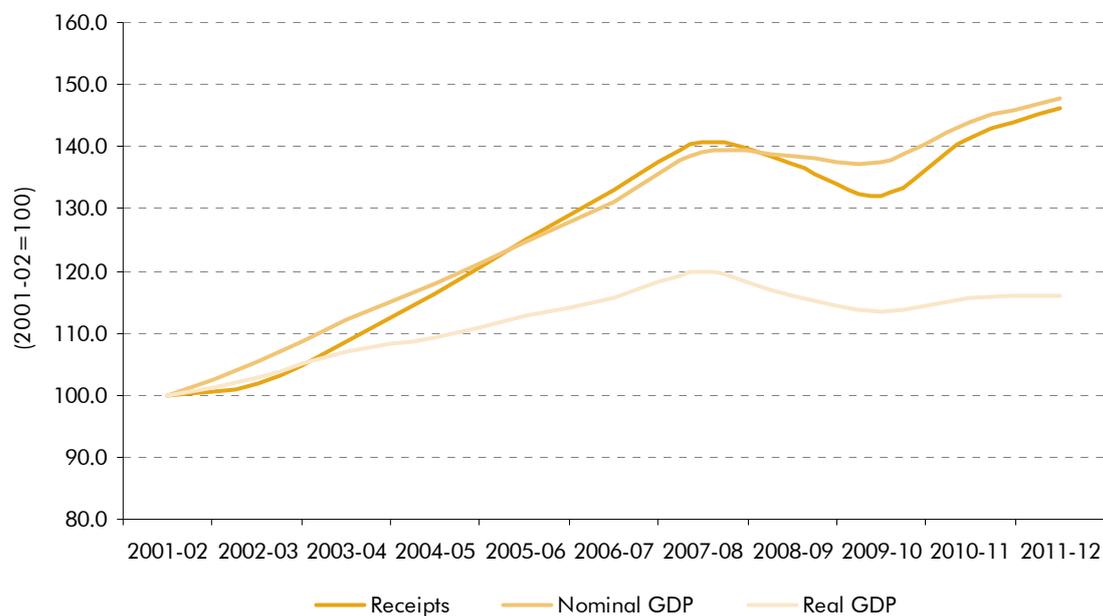
3.18 The errors due to economic factors were offset by a positive error of £10.2 billion caused by fiscal forecasting judgements. Much of this can be explained by a £7.1 billion fiscal forecasting error for income tax receipts. Of this £2.4 billion relates to PAYE receipts and is mainly related to a reallocation of receipts between PAYE and NICs. Around £3.8 billion relates to SA receipts. We had originally anticipated a much smaller effect from forestalling ahead of the introduction of the additional rate of income tax, than we now assume occurred. The shifting of income into 2009-10 resulted in a large positive error in 2010-11 when SA was paid on 2009-10 liabilities. There is also a large positive fiscal forecasting error for VAT. This in part reflects litigation repayments related to judicial rulings in the Fleming and Condé Nast case and in the Rank case coming in around £1.9 billion lower than expected.

### June 2010 receipts forecast for 2011-12

3.19 Public sector current receipts in 2011-12 were £14.9 billion less than we forecast in June 2010. However, this error is much less than we might have expected to see given that in June 2010 we forecast real GDP growth in 2011-12 of 2.4 per cent and the latest estimated outturn was only 0.5 per cent growth.

**3.20** One reason why we have not seen greater errors due to economic factors over this period is again that nominal income and consumption in the economy has not stagnated by as much as real activity. Tax receipts are levied on nominal rather than real (i.e. inflation-adjusted) activity in the economy. Chart 3.4 shows that growth in total public sector receipts growth is strongly linked to the growth of nominal rather than real GDP.<sup>1</sup>

**Chart 3.4: Public sector receipts, real and nominal GDP**



Source: ONS

**3.21** Table 3.3 shows that our cumulative June 2010 forecasts for nominal consumption in 2010-11 and 2011-12 were much more accurate than our forecast of real consumption. As discussed in Chapter 1 this is largely due to higher-than-expected inflation over this period. Nominal consumption is the key driver of the VAT receipts forecast, since household spending is around 70 per cent of the VAT tax base, and the 2011-12 VAT outturn is actually above our June 2010 forecast. We have not produced a breakdown of our two-year ahead forecast errors into economic and fiscal forecasting errors. However, it seems very likely that the relative accuracy of the forecasts of nominal consumption contributed to the small error on the VAT forecast.

<sup>1</sup> The measure of receipts presented here has not been adjusted for policy announcements which might affect the overall amount of tax receipts, such as the changes in the standard rate of VAT in recent years. This is partly reflected in the relative divergence in these series around 2009-10.

## The public finances

- 3.22 Table 3.3 also shows that the June 2010 forecasts for wages and salaries, the key determinant for income tax and NICs, in 2010-11 and 2011-12 were also relatively accurate. Again this is likely to explain why PAYE income tax and NICs in 2011-12 came in just £2 billion below our June 2010 forecast – a small percentage of total income tax and NICs receipts.
- 3.23 Our June 2010 forecast for non-oil, non-financial profits over these two years was too weak in 2010 and too strong in 2011. While onshore corporation tax was very close to forecast in 2010-11, the over-estimate of profit growth in 2011 contributes to onshore corporation tax receipts being £3.6 billion less than expected in 2011-12. However, the main factor contributing to the 2011-12 error is likely to have been an underestimate of the extent of trading losses carried forward by financial companies. Corporations which have had losses at some point in the past are allowed to use these losses to offset current or past tax liabilities.
- 3.24 Other factors that depressed receipts in 2011-12 relative to the June 2010 forecast include much lower oil and gas production in 2011 and the effect on self assessment receipts from the unwinding of the forestalling ahead of the introduction of the additional rate of income tax.

### March 2011 receipts forecast for 2011-12

- 3.25 Table 3.5 shows the breakdown of errors in the March 2011 receipts forecast for 2011-12, which are attributed to updated economic factors, policy and classification errors, and fiscal forecasting errors. More detailed analysis of the errors is provided in Annex A.

Table 3.5: March 2011 forecast errors for year-ahead (2011-12) public sector current receipts

	£ billion
	2011-12
Forecast	588.6
Outturn	569.3
Difference	-19.3
of which:	
Economic factors	-5.2
Policy and classification changes	-3.1
Fiscal forecasting errors	-11.0

- 3.26 The errors attributed to economic determinants are relatively small. The largest were in the VAT and corporation tax forecasts. On corporation tax this is due largely to much lower than expected oil and gas production in 2011, which reduced receipts from oil and gas producers. On VAT this is likely to be due to

lower than expected growth in nominal consumer spending and in other elements of the VAT tax base such as the government and exempt sectors.

- 3.27 There are larger errors from our fiscal forecasting judgements. The largest of these were for SA receipts and onshore corporation tax. For SA this can largely be explained by the effects of forestalling and the over-estimation of the yield from the introduction of the 50 per cent additional rate. As set out in our most recent *EFO* we now assume that forestalling had the effect of reducing SA receipts in 2011-12 by over £2 billion and that the original estimate of the yield from the additional rate – which was included in the March 2011 forecast – led us to over-estimate SA revenues by a further £2.2 billion.
- 3.28 The fiscal forecasting error for onshore corporation tax receipts in 2011-12 is largely due to underestimating the extent of trading losses carried forward by financial companies, as discussed above.

## Expenditure

3.29 Government spending has been lower than we forecast in the past two years and particularly in 2011-12. As we explained in the first section of this chapter this contributed to PSNB being lower than expected in 2010-11 and only slightly higher than expected in 2011-12, compared to our June 2010 forecast. Table 3.6 shows that the main factors driving this are:

- in both years central government departments have underspent against their DEL budgets;
- also in both years there has been lower than expected local authority (LA) spending, compared to our forecasts; and
- in 2011-12 there was also lower overall spending in other areas of Annually Managed Expenditure (AME).

Table 3.6: Errors in forecasts for total managed expenditure

	£ billion		
	June 2010 forecast		March 2011 forecast
	2010-11	2011-12 <sup>1</sup>	2011-12
Forecast	696.8	699.8	710.4
Outturn	690.6	688.6	688.6
Difference	-6.2	-11.3	-21.8
of which:			
DEL	-1.8	-5.1	-7.8
LA self-financed spending	-4.6	-2.2	-2.7
Other AME	0.2	-4.0	-11.3

<sup>1</sup> £8.1 billion net capital transfer (from local authorities to central government) arising from the 2010 Spending Review Housing Revenue Account (HRA) reforms excluded so forecast and outturn are consistently presented.

- 3.30** Central government departments underspent against current expenditure in their resource DELs by £0.9 billion in 2010-11 and £4.8 billion in 2011-12, compared with the plans included in the Budget forecast at the beginning of the year. And they underspent against capital expenditure in their DEL by £0.9 billion in 2010-11 and £3 billion in 2011-12.<sup>2</sup> Therefore, over the two years, central government departments underspent by nearly £10 billion.
- 3.31** In aggregate, departments underspend against budgets in most years as there are strong incentives in the budgeting system to avoid overspends. In the past couple of years some of the underspending may reflect departments frontloading their Spending Review budget cuts. This would be consistent with the larger-than-expected cuts in general government employment that we have seen since June 2010. In our March 2012 forecast we did not assume that underspends would be repeated in future years, given the mounting pressures on most departmental budgets under the 2010 Spending Review plans. We will keep this judgement under review in coming forecasts.
- 3.32** Local authorities underspent against their budgets<sup>3</sup> in both 2010-11 and 2011-12, and these underspends fed through to reduce the measure of locally financed spending which is recorded in AME. Compared with our own forecasts at the beginning of each year, locally financed current expenditure was £4.6 billion below forecast in 2010-11 and £5.6 billion below forecast in 2011-12. This includes some switches between current and capital spending, and in 2011-12 the underspend against our forecast of locally financed spending is offset by £2.9 billion higher locally financed capital spending.
- 3.33** Taking current and capital spending together, overall local authority self-financed spending was £4.6 billion below our forecast in 2010-11 and £2.7 billion below our forecast in 2011-12.
- 3.34** Local authorities added £1.6 billion and £2.7 billion to their reserves in 2010-11 and 2011-12 respectively. This compares with our forecast of local authorities drawing down from their reserves by £0.6 billion in both 2010-11 and 2011-12. These additions to reserves therefore reduced local authority spending by about £2 billion in 2010-11 and £3 billion in 2011-12, compared with our forecasts. Forecasting these movements in local authorities' reserves is particularly difficult during a period of fiscal tightening, and local authority finances are also subject

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<sup>2</sup> £1.4 billion of this underspend happened because the classification of expenditure was corrected to record it as outside capital spending as measured in the National Accounts.

<sup>3</sup> As measured by the Department of Communities and Local Government and the devolved administrations according to returns sent in by local authorities at a particular point in time. These returns may not necessarily match local authorities' own final budgets.

to additional uncertainties from various changes and reforms. The difficulties of forecasting local authority spending were also highlighted in last year's *Forecast evaluation report*.

- 3.35** Spending in other areas of AME in 2010-11 was very close to the June 2010 forecast and in 2011-12 was lower than forecast. The relatively strong performance of the labour market has been significant in keeping other AME spending close to forecast. Social security and tax credits together currently account for just over £200 billion of expenditure which is almost two-thirds of total AME. Annex A shows that there was a very small error (less than £1 billion) in the one-year ahead social security and tax credits forecasts in 2010-11 and 2011-12. It is also the case that there was a relatively small error (around £3 billion) on the June 2010 two-year ahead forecast for social security and tax credits combined.
- 3.36** In 2011-12 there was £11.3 billion lower overall spending in other areas of AME than we forecast in March 2011. The 2011-12 spending section of Annex A explains in more detail that most of this error was attributable to errors in public corporation capital expenditure, expenditure transfers to EU institutions, and accounting adjustments.

### The cyclically-adjusted current budget

- 3.37** In this chapter we have focused our analysis on PSNB which is the widest accrued measure of borrowing. But the Government's fiscal mandate is measured on the basis of the cyclically-adjusted current budget so it is useful to consider the errors in our forecasts for this aggregate.
- 3.38** Table 3.3 shows that the June 2010 forecast for 2010-11 overestimated the current budget by 0.5 per cent of GDP while the two-year ahead forecast for 2011-12 underestimated it by 0.4 per cent of GDP. These errors are very similar to those made for PSNB as our errors on net investment (which is included in PSNB but not the current budget) were relatively small.
- 3.39** There is a larger error for the cyclically-adjusted current budget in 2011-12 of 1.1 per cent of GDP. This can be explained by a change in our judgement of the size of the output gap in this year (which cannot be measured directly). In June 2010 we forecast that the output gap would be -3.5 per cent of GDP in 2011-12. Our latest judgement is that the output gap was smaller than we had anticipated at -2.6 per cent of GDP. This means that more of the headline deficit on the current budget is assumed to be structural rather than cyclical.

Table 3.7: June 2010 forecasts for the cyclically-adjusted current budget

	per cent of GDP		Error
	Forecast	Outturn	
2010-11			
Surplus on current budget	-7.5	-7.0	0.5
Cyclically adjusted surplus on current budget	-4.8	-4.8	0.0
Output gap	-3.7	-2.9	0.8
2011-12			
Surplus on current budget	-5.7	-6.2	-0.4
Cyclically adjusted surplus on current budget	-3.2	-4.3	1.1
Output gap	-3.5	-2.6	-0.9

### Net debt

3.40 The errors in forecasting public sector net debt have been larger than would otherwise have been implied by the errors in PSNB. As a stock measure of the public sector's net liability position, this partly reflects revisions to earlier periods, which lower the level of debt in all subsequent years. PSND also rises by the nominal value of gilts issued, rather than by their market value, and gilts were on average issued at a premium to their nominal value in these two years. In 2011 in particular, £179.5 billion was raised in the gilts market over the year, but the nominal value of these gilts was only £166.5 billion, triggering a £13 billion forecasting error. This is discussed further in Annex A.

### The public finances so far in 2012-13

3.41 We conclude this chapter by briefly summarising the evolution of the public finances so far this year compared to our latest forecast in March 2012. Each month the ONS and HM Treasury jointly publish a statistical release on the public finances in the previous month and the year-to-date position. It is important to note that the monthly path of the public finances is typically very volatile from year-to-year and can be heavily revised. This means it is difficult to draw strong conclusions from these data releases, particularly in the earlier parts of the year.

3.42 In March 2012 we forecast PSNB of £119.9 billion for the current financial year, after adjusting for the effect of the transfer of assets from the Royal Mail's historic pension fund. Based on the most recently available estimates, this would represent a £0.6 billion increase in net borrowing between this year and last. After the first five months of the financial year however, the ONS/HM Treasury statistics suggest PSNB is already £10.6 billion higher than it was at the same stage last year.

3.43 Central government current expenditure grew by 3.0 per cent in the first five months of the financial year, exactly in line with the full-year forecast assumed in the March *EFO* forecast. Growth in debt interest, net social benefits and other

current spending are all fairly close to their full-year forecasts at this stage. However the underlying position has been volatile from month to month, because of differences in the profile of the monthly RPI inflation and the timing of particular payments, and this volatility may continue to affect the overall position.

- 3.44 Central government receipts growth of 0.4 per cent for the first five months of the financial year was well below the 3.7 per cent required to meet the March *EFO* forecast for 2012-13 as a whole. Corporation tax receipts are likely to fall short of our March *EFO* forecast reflecting lower-than-expected instalment payments made by onshore and offshore firms in July 2012. Corporation tax instalments are based on views of full-year profits and so we now expect that October and January instalments will also be weaker than we assumed at the time of the forecast.
- 3.45 Growth in other key receipts streams is closer to our full-year forecasts from the March *EFO*. National insurance contributions are growing more strongly than their full-year forecast, while growth in accrued VAT receipts is around 1.5 percentage points below the full-year forecast of 4.5 per cent growth. It is too soon to be certain that this undershoot will persist, but it may reflect weaker cash spending than we forecast in March. In addition, the PAYE element of income tax is also recording growth close to its full-year forecast. Other elements of income tax are weaker relative to the full-year *EFO* forecast, but this in part reflects the change in the timing of income tax repayments compared with last year.
- 3.46 Overall, at this stage there continues to be significant uncertainty around the prospects for full-year borrowing. While it looks likely that corporation tax receipts will fall well short of our March *EFO* forecast, the other main receipts streams remain closer to forecast. Much will depend on the performance of the real economy and inflation over the remainder of the fiscal year. Central government expenditure growth is currently close to the *EFO* forecast but these figures are volatile from month to month and are prone to revision. Much will also depend on the extent to which central government departments and local authorities underspend their budgets.

## 4 Conclusions: lessons to learn

- 4.1 Along with many other forecasters, we significantly overestimated the strength of economic growth over the past two years. This is likely to have reflected a number of factors, including: the impact of stubbornly high inflation on real consumer spending in 2011; the impact of deteriorating export markets on net trade since the end of last year, and; the impact of impaired credit conditions, anxiety surrounding the eurozone and uncertainty regarding future demand on business investment. Monetary policy has been loosened significantly, but in the face of credit market headwinds. And, while the discretionary tightening in fiscal policy has arguably been a little smaller than planned in the Coalition's first Budget, it could have acted as a bigger drag on growth than we expected.
- 4.2 Despite the unexpected weakness of the real economy, public sector net borrowing fell by roughly a quarter from 2009-10 to 2011-12 and much as expected. Nominal consumer spending and the labour market performed more strongly than the real economy, helping to sustain receipts from labour taxes and VAT while restraining social security bills. Central government departments and local government also spent less than they had budgeted for and less than we expected they would on public services and administration. Public sector net debt is also lower than we would have anticipated from the path of borrowing.
- 4.3 We hope that this analysis of the way in which the economy and public finances have behaved relative to our forecasts will be of use and interest to our users in helping them to interpret our work. We hope that transparency will also give them confidence that it is based on (inevitably fallible) professional judgement rather than politically motivated wishful thinking. A third important goal has been to learn lessons to improve our future forecasts.
- 4.4 We continually review our forecasting techniques in the light of experience. And even where forecasts appear to perform reasonably well, there is often scope for further development. In light of this year's report, there are a number of areas that we will be considering further. To take a few examples:
- the most significant error identified in this report in our public sector expenditure forecast is that we have underestimated the degree to which central government departments and local authorities would underspend against their budgets. Forecasting movements in such budgets is particularly difficult during a period of fiscal tightening, with new budget control mechanisms, and with local authority finances also subject to additional

## Conclusions: lessons to learn

uncertainties from policy reforms. We are gathering more information to help us predict behaviour in this area;

- on the public sector receipts side, forecast errors have arisen from our underestimating the effects of forestalling and overestimating the yield from the introduction of the 50 per cent additional rate. The impact of policy changes such as this is often highly uncertain and we will continue to examine them carefully and be transparent as to the assumptions and judgements that we make. Significant forecasting errors also arose from our underestimating the amount of losses corporations would carry-forward to offset against tax. We adjusted our judgment on this in recent forecasts to allow for greater carry-forward in future years, and will monitor this in future forecasts, although relevant data is limited; and
- on the macroeconomic forecast, the inevitable uncertainties surrounding domestic and external demand, the behaviour of the labour market and productivity, and the impact of monetary and fiscal policies will continue to require detailed scrutiny. We will also want to look more closely at the way in which changes in nominal government spending feed through to real GDP via the direct measures of government output used in the National Accounts. We could probably have made more allowance for this in our early forecasts, and although we have updated our judgments in the area more recently there is doubtless more work to be done.

# A Decomposition of fiscal forecast errors

A.1 This annex provides a detailed breakdown of the forecasting errors for year-ahead forecasts of receipts and spending. We compare the 2010-11 outturn data with the June 2010 Budget forecast, and 2011-12 outturn data with the March 2011 Budget forecast.<sup>1</sup> We have drawn out the key conclusions from these detailed tables in the analysis provided in the main section of this report.

A.2 In the tables presented in this annex the cause of differences between our forecasts and receipts are split into three main categories:

- **economic determinants** - explained by errors in forecasting the underlying economic determinants provided by the OBR, which directly impact the forecasts of tax receipts and spending. For example, income tax receipts are strongly determined by levels of wages and salaries, and VAT receipts by consumers' expenditure. Any difference between the forecasts of these economic determinants used in the original forecasts and their eventual values will partly explain differences between forecasts and outturns;
- **policy measures and classification changes** - reflect the impact of new policy measures announced after the relevant forecast and changes in the definitions or statistical treatment of components of the public finances; and
- **fiscal forecasting errors** - any difference between outturn and forecast that cannot be explained by economic determinants, policy measures or classification changes is attributed to fiscal forecasting error. Fiscal forecasting errors can result from a number of factors, broadly due to:
  - a reliance on a proxy economic variable. For example, the OBR does not explicitly forecast consumer expenditure on beer, which would be ideal for forecasting beer duty receipts. Therefore, the fiscal forecasting models instead use the most relevant macroeconomic variable available (in this case total consumer expenditure), which can introduce error to the forecast;

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<sup>1</sup> Outturn data consistent with the ONS release *Public Sector Finances August 2012*, released 21 September 2012.

## Decomposition of fiscal forecast errors

- inaccurate conditioning assumptions and judgements. We often impose further judgements, for example where past trends are not expected to persist. For some areas, rather than explicit models, we make a series of assumptions and judgements. For example, in the June 2010 Budget we assumed that departments would fully spend their DEL allocations; and
- unexpected changes in the relationship between forecasts and specific economic determinants. These types of errors may result from trying to forecast non-linear and complex relationships with simpler and more tractable linear models. There may also be unanticipated behavioural responses by taxpayers or benefit claimants to changes in economic conditions and fiscal policy.

A.3 The remainder of this annex presents the forecast errors for public sector receipts, public sector expenditure, and then for the main fiscal aggregates. We also provide detailed tables showing the difference between forecast and outturn for the main economic determinants which drive the fiscal forecasts.

A.4 In each section we summarise the main factors driving any large differences between forecast and outturn. We focus our explanations on the 2011-12 forecasts as this is the first report in which we have presented the errors for this year. We described the errors for 2010-11 in detail in last year's *FER*, so in this report we focus our explanations on any significant changes in the decomposition or size of errors for 2010-11 compared to those reported in last year report, caused by subsequent revisions to the outturn data.

A.5 It is important to remember that all of the fiscal and economic outturns presented in this report are subject to further revision in the future. This is particularly the case for the 2011-12 outturns, which is why we will report on these again in next year's *FER*.

## Public sector receipts

A.6 The presentation of the main receipts tables presented in our *Economic and fiscal outlooks (EFO)* changed between the June 2010 and March 2011 forecasts. The November 2010 forecast was the first to present tax receipts in line with the way in which they score in the National Accounts – i.e. on an accrued basis. Accrued receipts are attributed to the period in which the associated activity which the tax relates to actually took place. Previously these taxes were presented as cash receipts and then separate accruals adjustments were incorporated to adjust these taxes to a National Accounts basis. This change explains the difference in presentation between the two main tax receipts tables below.

## 2010-11 receipts

- A.7 Last year's *FER* assessed the performance of our June 2010 forecast for 2010-11, compared with outturns for September 2011. We have re-assessed the year-ahead forecast made in June 2010, using the latest available data.
- A.8 The overall errors in individual tax receipts forecasts have not changed significantly from the errors presented in last years *FER*. The overall error in the current receipts forecast has reduced to £1.2 billion, from £4.1 billion, on a total of £548.9 billion of revenue. This amounts to an overall error of just 0.2 per cent. Economic factors lead to receipts being around £7.1 billion below forecast but this was offset by fiscal forecasting and policy/other errors which lead to the forecast being £10.2 billion and £1.9 billion over forecast, respectively.
- A.9 One notable difference underlying this year's analysis is that the latest economic data explain a larger error than was previously assumed – i.e. the economic forecasting errors are larger than in last year's report. In other words, if we ran the forecast again, with the most recent outturn data as economic assumptions, we would have forecast total current receipts £7.1 billion lower than we did.
- A.10 Changes to determinant outturns between 2011 and 2012 have particularly affected the breakdown of errors in 2010-11 self-assessment (SA) income tax receipts. Revised determinants have contributed around a £3.3 billion negative error in the SA forecast, compared to around a £0.9 billion negative error last year. This difference contributes nearly half of the overall determinant errors across the receipts forecast. As discussed in Chapter 3, self-assessment is paid with a lag of around one year; so much of this difference reflects errors in our estimate of SA-related income in 2009-10 rather than 2010-11. The key economic determinant used for the SA forecast – self-employment income – is a particularly difficult determinant to measure and forecast and outturn data is often heavily revised.
- A.11 As the error on SA receipts due to economic determinants has increased, and the overall error of £0.6 billion above forecast has remained the same, we now have a higher positive fiscal forecasting error offsetting the negative economic factors. The large fiscal forecasting error can be explained by higher than expected forestalling ahead of the introduction of the additional rate of income tax.

## Decomposition of fiscal forecast errors

Table A.1: Breakdown of June 2010 receipts forecast errors for 2010-11

	£ billion						
	Forecast	Outturn	Error	of which:			Total error (%)
				Economic factors	Policy and classification changes	Fiscal forecasting errors	
<b>HM Revenue &amp; Customs</b>							
Income tax (gross of tax credits)	150.2	153.5	3.3	-3.7	0.0	7.1	2.2
of which							
Pay as you earn (PAYE)	130.1	132.3	2.2	-0.2	0.0	2.4	1.7
Self assessment (SA)	21.5	22.1	0.6	-3.3	0.0	3.8	2.6
Income tax credits	-5.8	-5.6	0.3	0.0	0.0	0.3	-4.7
National insurance contributions	98.9	96.5	-2.4	0.1	0.0	-2.5	-2.4
Value added tax	80.7	83.5	2.8	-0.4	0.0	3.2	3.4
Corporation tax	43.3	43.1	-0.2	0.5	0.0	-0.7	-0.5
of which							
Non-North Sea	35.7	35.8	0.1	0.3	0.0	-0.2	0.2
North Sea	7.6	7.3	-0.3	0.2	0.0	-0.5	-3.8
Corporation tax credits	-0.8	-1.0	-0.2	0.0	0.0	-0.2	29.7
Petroleum revenue tax	1.7	1.5	-0.3	-0.5	0.0	0.3	-15.7
Fuel duties	27.3	27.3	0.0	0.2	0.0	-0.2	-0.1
Capital gains tax	2.6	3.6	1.0	0.0	0.0	1.0	36.9
Inheritance tax	2.2	2.7	0.5	0.0	0.0	0.5	23.5
Stamp duties	8.9	8.9	0.0	-1.0	0.0	1.0	0.0
of which							
Stamp duty land tax	5.8	6.0	0.2	-0.3	0.0	0.4	2.8
Stamp duty on shares	3.1	3.0	-0.2	-0.7	0.0	0.6	-5.1
Tobacco duties	9.4	9.1	-0.3	0.0	0.0	-0.3	-3.1
Alcohol duties	9.5	9.4	-0.1	0.4	0.0	-0.4	-0.6
Bank payroll tax	2.5	3.5	1.0	0.0	0.0	1.0	38.2
Environmental taxes	2.1	2.0	0.0	0.0	0.0	0.0	-1.9
of which							
Aggregates levy	0.3	0.3	0.0	0.0	0.0	0.0	7.4
Climate change levy	0.7	0.7	0.0	0.0	0.0	0.0	-0.5
Landfill tax	1.1	1.1	-0.1	0.0	0.0	-0.1	-4.9
Other HMRC	8.9	9.1	0.2	0.0	0.0	0.2	2.1
of which							
Insurance premium tax	2.3	2.4	0.1	-0.1	0.0	0.2	4.3
Air passenger duty	2.3	2.2	-0.1	0.0	0.0	-0.1	-4.8
Agricultural levies and customs duties	2.9	3.0	0.1	0.1	0.0	0.0	4.0
Betting and gaming duty	1.4	1.5	0.1	0.0	0.0	0.1	5.9
<b>Total HMRC</b>	<b>441.7</b>	<b>447.2</b>	<b>5.5</b>	<b>-4.5</b>	<b>0.0</b>	<b>10.0</b>	<b>1.3</b>
Vehicle excise duties	5.9	5.8	-0.1	0.0	0.0	-0.1	-1.4
Business rates	24.9	23.8	-1.1	0.0	0.0	-1.1	-4.5
Council tax	25.3	25.4	0.1	0.0	0.0	0.1	0.3
VAT refunds	13.5	13.3	-0.2	-1.0	0.0	0.8	-1.6
Other taxes and royalties	4.3	4.2	-0.1	-0.1	0.0	0.0	-3.1
<b>Net taxes and NI contributions</b>	<b>515.5</b>	<b>519.5</b>	<b>4.1</b>	<b>-5.6</b>	<b>0.0</b>	<b>9.6</b>	<b>0.8</b>
Accruals adjustment on taxes	2.7	4.6	1.9	0.0	0.0	2.0	72.5
less VAT and own resources EU contributions	-4.8	-5.3	-0.5	0.0	0.0	-0.5	10.5
less PC onshore CT payments	-0.3	-0.1	0.2	0.0	0.0	0.2	-61.4
Tax credits adjustment	0.8	1.0	0.2	0.0	0.0	0.2	28.8
Interest & dividends	4.5	2.6	-1.9	-1.5	0.0	-0.4	-41.4
Gross operating surplus	24.7	23.4	-1.3	0.0	-0.9	-0.4	-5.4
Other receipts	4.6	3.1	-1.5	0.0	-1.0	-0.5	-32.7
<b>Current receipts</b>	<b>547.7</b>	<b>548.9</b>	<b>1.2</b>	<b>-7.1</b>	<b>-1.9</b>	<b>10.2</b>	<b>0.2</b>

## 2011-12 receipts

- A.12** Table A.2 shows the forecast and outturns for 2011-12 against our March 2011 forecast. Public sector current receipts in 2011-12 were £19.3 billion (3.3 per cent) less than we forecast in March 2011. The majority of the difference between our current receipts forecast and the most recent outturn is due to errors attributable to our fiscal forecasting models, rather than errors in the economic determinants which individual revenue streams are conditioned upon. Fiscal forecasting errors account for £11.0 billion of the shortfall in the current receipts forecast, whilst economic forecasting errors account for £5.2 billion of the errors. The remainder is made up of policy measures and classification changes.
- A.13** Apart from the offsetting errors due to re-allocations between PAYE income tax and national insurance contributions, the largest errors (in £ billion terms) were in self-assessment income tax (£5.1 billion), corporation tax (£6.0 billion) and VAT (£2.3 billion). However, some of the smaller tax forecasts have larger forecast errors as a percentage of total revenue – for example capital gains tax, environmental levies and interest and dividend receipts. Below we highlight the factors driving the most significant differences from forecast.

### Self-assessment income tax

- A.14** Self-assessment income tax receipts came in 19.9 per cent below forecast. The underlying changes in economic determinants have had little effect on the SA forecast, with a negative effect of around £0.2 billion. The negative fiscal forecasting error of £4.8 billion can largely be explained by the effects of forestalling and over estimation of the yield from the introduction of the 50 per cent additional rate. As set out in our most recent *EFO* we now assume that forestalling had the effect of reducing SA receipts in 2011-12 by more than £2 billion and that the original estimate of the yield from the additional rate, which was included in the March 2011 forecast, led us to over-estimate SA revenues by a further £2.2 billion.

### Corporation tax

- A.15** Corporation tax receipts are £6.0 billion lower than forecast in March 2011. Offshore corporation tax receipts were down £2.2 billion, whilst onshore receipts were £3.8 billion lower than expected. The large majority of the shortfall in onshore corporation tax receipts is from the financial sector. The most likely reason for this is that losses from previous years were larger than we expected and companies were hence able to carry more losses forward to offset against their 2011 tax liabilities.
- A.16** Whilst oil and gas revenues came in close to forecast in 2010-11, outturns for offshore corporation tax receipts came in 19.1 per cent below forecast in 2011-

## Decomposition of fiscal forecast errors

12. This can be attributed to the much lower than expected oil and gas production in 2011. Oil production was 14 per cent lower than forecast in March 2011 for 2011 and gas production was down 15 per cent, relative to DECC estimates of production which are based on a survey of operators in the industry. This is mainly due to unforeseen circumstances such as the temporary shut-down of oil fields and higher-than-expected maintenance activity. Oil prices were a little above forecast (with a \$2 a barrel error in 2011-12), which would otherwise have implied slightly higher receipts.

### Capital gains tax

- A.17 The majority of capital gains tax (CGT) receipts are based on the disposal of assets in the previous financial year, therefore changes in economic determinants do not contribute much to errors, as they are known with some degree of accuracy at the time of a year-ahead forecast. The large fiscal forecasting error is probably due in part to the effect of forestalling ahead of the increase in CGT from 18 to 28 per cent in June 2010.

### Environmental levies

- A.18 Our forecasts have included environmental levies arising from DECC levy-funded spending policies such as Feed in Tariffs, Renewables Obligation, and Warm Homes Discount in the receipts forecast in line with our understanding of National Accounts rules. These levies are fiscally neutral as they are offset within AME. They also include receipts related to the Carbon Reduction Commitment. Only the Renewables Obligation is currently scored in receipts by ONS as they have yet to make classification decisions on the other receipts streams. The errors caused by the different treatments have been recorded as 'other' forecasting errors.
- A.19 We also include receipts from EU Emissions Trading Scheme (ETS) auctions, but a classification decision is also pending here and these receipts are currently excluded from the ONS data. As with environmental levies, this error has been recorded in the other factors category.

### Other receipts

- A.20 The March 2011 forecast included accrued rent of £1.0 billion relating to the 3G mobile licences. The ONS treatment of the proceeds from the auction of these licences changed in August 2011. The auction proceeds are now treated as the sale of an asset in 2000-01 rather than as the renting of an asset. This has resulted in the overall forecast for public sector receipts being £1.0 billion too high in each year after 2000-01. This is scored in the policy and classification changes column in Table A.2.

- A.21 Interest and dividend receipts were £2.3 billion lower than expected. Some of this error can be explained by the lower-than-expected interest rates, which have been 0.6 percentage points lower than originally assumed.

## Decomposition of fiscal forecast errors

Table A.2: Breakdown of March 2011 receipts forecast errors for 2011-12

	£ billion						
	Forecast	Outturn	Error	of which:			Total error (%)
				Economic factors	Policy and classification changes	Fiscal forecasting errors	
<b>National accounts taxes</b>							
Income tax (gross of tax credits)	157.6	152.9	-4.7	0.6	0.0	-5.3	-3.0
<i>of which</i>							
Pay as you earn (PAYE)	131.9	132.6	0.7	1.4	0.0	-0.7	0.6
Self assessment (SA)	25.4	20.3	-5.1	-0.2	0.0	-4.8	-19.9
Income tax credits	-4.7	-4.7	0.0	0.0	0.0	0.0	0.6
National insurance contributions	100.7	101.3	0.7	1.7	0.0	-1.0	0.7
Value added tax	100.3	97.9	-2.3	-3.1	0.0	0.7	-2.3
Corporation tax	49.0	43.1	-6.0	-2.1	0.3	-4.2	-12.2
<i>of which</i>							
Non-North Sea	37.6	33.8	-3.8	-0.2	0.3	-4.0	-10.1
North Sea	11.4	9.2	-2.2	-2.0	0.0	-0.2	-19.1
Corporation tax credits	-0.9	-0.9	0.0	0.0	0.0	0.0	-0.9
Petroleum revenue tax	2.0	2.0	0.0	0.0	0.0	0.0	0.1
Fuel duties	26.9	26.8	-0.1	0.0	-0.4	0.2	-0.4
Business rates	25.5	25.0	-0.4	0.0	0.0	-0.4	-1.7
Council tax	26.1	26.0	-0.1	0.0	0.0	-0.1	-0.4
VAT refunds	15.0	14.0	-1.1	-0.5	0.0	-0.6	-7.0
Capital gains tax	3.4	4.3	0.9	0.0	0.0	1.0	27.6
Inheritance tax	2.7	2.9	0.2	0.0	0.0	0.2	6.7
Stamp duties	9.1	8.9	-0.1	-0.9	0.0	0.7	-1.4
<i>of which</i>							
Stamp duty land tax	5.8	6.1	0.4	-0.1	0.0	0.4	6.3
Stamp duty on shares	3.3	2.8	-0.5	-0.8	0.0	0.3	-15.3
Tobacco duties	9.3	9.9	0.6	0.0	0.3	0.2	6.0
Alcohol duties	9.7	10.2	0.5	0.0	0.0	0.5	5.1
Air passenger duty	2.5	2.6	0.1	0.0	0.0	0.2	4.7
Insurance premium tax	2.9	3.0	0.1	-0.1	0.0	0.2	2.4
Climate change levy	0.7	0.7	-0.1	0.0	0.0	0.0	-7.5
Other HMRC	6.4	5.9	-0.4	-0.1	0.0	-0.3	-6.9
<i>of which</i>							
Agricultural levies and customs duties	3.3	2.9	-0.4	-0.1	0.0	-0.3	-12.0
Betting and gaming duty	1.6	1.7	0.1	0.0	0.0	0.2	8.4
Aggregates levy	0.3	0.3	-0.1	0.0	0.0	-0.1	-18.0
Landfill tax	1.2	1.1	-0.1	0.0	0.0	-0.1	-9.5
Vehicle excise duties	5.9	5.9	0.0	0.0	0.0	0.1	0.7
Bank levy	1.9	1.8	-0.1	0.0	-0.1	0.0	1.0
BBC licence fee receipts	3.1	3.1	0.0	0.0	0.0	0.0	2.0
Environmental levies	1.8	0.5	-1.3	0.0	-1.1	-0.2	-73.0
EU ETS auction receipts	0.3	0.0	-0.3	0.0	-0.3	0.0	-100.0
Other taxes	5.3	5.9	0.5	0.1	0.0	0.4	9.9
<b>National accounts taxes</b>	<b>562.4</b>	<b>549.1</b>	<b>-13.4</b>	<b>-4.5</b>	<b>-1.2</b>	<b>-7.7</b>	<b>-2.4</b>
less VAT and own resources EU contributions	-4.9	-5.2	-0.2	0.0	0.0	-0.2	4.8
Interest & dividends	5.2	2.9	-2.3	-0.7	0.0	-1.6	-44.5
Gross operating surplus	25.8	23.5	-2.3	0.0	-0.9	-1.4	-9.0
Other receipts	0.1	-1.0	-1.0	0.0	-1.0	0.0	0.0
<b>Current receipts</b>	<b>588.6</b>	<b>569.3</b>	<b>-19.3</b>	<b>-5.2</b>	<b>-3.1</b>	<b>-11.0</b>	<b>-3.3</b>

## Public sector spending

- A.22 The measurement of total public sector expenditure is based on the National Accounts aggregate total managed expenditure (TME). TME is made up of public sector current expenditure (PSCE) and public sector gross Investment (PSGI). For budgeting and control purposes, TME is split into:
- departmental expenditure limits (DEL), split into capital (CDEL) and current (RDEL), which consists of expenditure by government departments that is subject to fixed multi-year plans set at each Spending Review; and
  - annually managed expenditure (AME), split into capital and current, which is not subject to multi-year plans because it is affected by economic determinants and so is expected to be more volatile. Examples of AME spending include social security, debt interest and locally financed expenditure.

### 2010-11 spending

- A.23 Table A.3 shows the latest outturn for key public spending aggregates for 2010-11, compared with June 2010 Budget forecasts. Last year's *FER* assessed the performance of our June 2010 forecast for 2010-11, compared with outturns available in September 2011. We have re-assessed the year-ahead forecast made in June 2010, with the latest available data.
- A.24 The errors in individual spending forecasts have not changed significantly from those presented in last year's *FER*, but the overall error in TME has reduced from £8.3 billion to £6.2 billion, on a total of £690.6 billion of spending, representing just a 0.9 per cent overall error. Of this, PSCE accounted for £4.9 billion and PSGI £1.3 billion.
- A.25 On current spending, the majority of the error was on AME spending (£3.9 billion), where the most notable area of outturn being below forecast was locally financed current expenditure, which came in £4.6 billion below forecast, a 17 per cent error. The forecast assumed that local authorities would draw down their reserves by £0.6 billion to finance spending, whereas local authorities decided to increase reserves by £1.6 billion, thus reducing spending by about £2 billion. There was also an additional £1.7 billion of Capital Expenditure from the Revenue Account (CERA), which has the impact of reducing current spending and increasing capital spending, but has no effect on total spending.
- A.26 One other noticeable change is that the outturn for debt interest payments has been revised upwards by £1.8 billion since last year's *FER*. This is largely as a

## Decomposition of fiscal forecast errors

result of a change in the methodology used to move from a cash basis to an accruals basis.

Table A.3: Breakdown of June 2010 Budget forecasting errors for spending in 2010-11

	Forecast	Outturn	Error	£ billion			Total error (%)
				Economic factors	Policy and classification changes	Fiscal forecasting errors	
<b>Public sector current expenditure (PSCE)</b>							
<b>PSCE in RDEL</b>	<b>327.1</b>	<b>326.1</b>	<b>-0.9</b>	<b>0.0</b>	<b>2.2</b>	<b>-3.2</b>	<b>-0.3</b>
<b>PSCE in Annually Managed Expenditure</b>	<b>310.2</b>	<b>306.3</b>	<b>-3.9</b>	<b>0.3</b>	<b>0.1</b>	<b>-4.4</b>	<b>-1.3</b>
<i>of which:</i>							
Social security benefits <sup>1</sup>	168.5	168.6	0.1	-0.2	0.3	0.0	0.1
Tax credits <sup>1</sup>	24.8	25.3	0.5	0.2	0.0	0.3	2.1
Net public service pension payments	5.1	5.7	0.7	0.0	0.0	0.7	13.2
<i>of which: CG unfunded pension schemes</i>	4.0	4.6	0.6	0.0	0.0	0.6	14.0
<i>    LG police and fire pension schemes</i>	1.0	1.1	0.1	0.0	0.0	0.1	9.9
National lottery current grants	0.8	0.8	0.1	0.0	0.0	0.1	9.4
BBC domestic services current expenditure	3.7	3.4	-0.3	0.0	0.0	-0.3	-9.2
Fees associated with financial interventions	-2.5	-2.4	0.1	0.0	0.0	0.1	-4.3
Other PSCE items in departmental AME	0.6	0.2	-0.4	0.0	0.0	-0.4	-68.1
Expenditure transfers to EU institutions	6.8	6.8	0.0	0.0	0.0	0.0	-0.3
Locally-financed current expenditure	27.0	22.4	-4.6	0.0	0.0	-4.6	-17.0
Central government gross debt interest	43.3	44.6	1.4	0.9	0.2	0.3	3.2
Depreciation	15.2	15.2	0.1	0.0	0.0	0.1	0.4
Current VAT refunds	11.5	11.2	-0.3	-0.4	0.0	0.1	-2.7
Single use military expenditure	6.8	5.4	-1.4	0.0	-0.4	-1.0	-20.5
Environmental levies	0.7	0.5	-0.2	0.0	0.0	-0.2	-31.1
Other National Accounts adjustments	-1.9	-1.4	0.5	0.0	0.0	0.5	-24.3
<b>Total public sector current expenditure</b>	<b>637.3</b>	<b>632.4</b>	<b>-4.9</b>	<b>0.3</b>	<b>2.3</b>	<b>-7.5</b>	<b>-0.8</b>
<b>Public sector gross investment (PSGI)</b>							
<b>PSGI in CDEL</b>	<b>44.3</b>	<b>43.4</b>	<b>-0.9</b>	<b>0.0</b>	<b>-0.7</b>	<b>-0.1</b>	<b>-1.9</b>
<b>PSGI in Annually Managed Expenditure</b>	<b>15.2</b>	<b>14.7</b>	<b>-0.5</b>	<b>0.0</b>	<b>-0.5</b>	<b>0.0</b>	<b>-3.1</b>
<i>of which:</i>							
National lottery capital grants	0.6	0.4	-0.3	0.0	0.0	-0.3	-43.8
Other PSGI items in departmental AME	0.5	0.5	0.0	0.0	0.0	0.0	0.0
Locally-financed capital expenditure	5.4	5.4	0.0	0.0	0.0	0.0	0.2
Public corporations capital expenditure	8.1	8.0	-0.2	0.0	-0.5	0.3	-2.2
Other National Accounts adjustments	0.6	0.5	0.0	0.0	0.0	0.0	-5.9
<b>Total public sector gross investment</b>	<b>59.5</b>	<b>58.2</b>	<b>-1.3</b>	<b>0.0</b>	<b>-1.2</b>	<b>-0.2</b>	<b>-2.2</b>
Less depreciation	-20.6	-20.3	0.3	0.1	0.0	0.2	-1.3
<b>Public sector net investment</b>	<b>38.9</b>	<b>37.8</b>	<b>-1.1</b>	<b>0.1</b>	<b>-1.2</b>	<b>0.0</b>	<b>-2.7</b>
<b>Total managed expenditure</b>	<b>696.8</b>	<b>690.6</b>	<b>-6.2</b>	<b>0.3</b>	<b>1.1</b>	<b>-7.7</b>	<b>-0.9</b>

## 2011-12 spending

- A.27 In this year's *FER*, for the first time we compare our March 2011 forecasts with the latest available 2011-12 outturn data. It shows that TME was £21.8 billion below forecast (3.1 per cent), of which PSCE accounted for £13.6 billion (2.1 per cent) and PSGI £8.2 billion (15.3 per cent).
- A.28 The majority (£18 billion) of the difference between our forecast and the most recent outturn is due to fiscal forecasting errors, rather than errors in the economic determinants (£1.7 billion) or as a result of policy and classification changes (£2 billion).
- A.29 On current spending, £4.8 billion of the error is caused by underspending in DEL and £8.8 billion in AME, with locally financed current expenditure again being the largest area of underspending in AME at £5.6 billion. On capital, £3.0 billion of the error is caused by underspending in DEL and £5.3 billion in AME.

## Decomposition of fiscal forecast errors

Table A.4: Breakdown of March 2011 Budget forecasting errors for spending in 2011-12

	£ billion						
	Forecast	Outturn	Error	of which			Total error (%)
				Economic factors	Policy and classification changes	Fiscal Forecasting error	
<b>Public sector current expenditure (PSCE)</b>							
<b>PSCE in RDEL</b>	<b>327.6</b>	<b>322.8</b>	<b>-4.8</b>	<b>0.0</b>	<b>-1.1</b>	<b>-3.7</b>	<b>-1.5</b>
<b>PSCE in Annually Managed Expenditure</b>	<b>329.1</b>	<b>320.3</b>	<b>-8.8</b>	<b>-1.7</b>	<b>-0.6</b>	<b>-6.5</b>	<b>-2.7</b>
<i>of which:</i>							
Social security benefits	174.3	174.9	0.6	0.1	0.0	0.5	0.3
Tax credits	26.9	27.1	0.2	0.1	0.0	0.2	0.8
Net public service pension payments	7.0	8.0	1.1	0.0	0.0	1.1	15.1
<i>of which: CG unfunded pension schemes</i>	5.7	6.7	1.0	0.0	0.0	1.0	17.5
<i>LG police and fire pension schemes</i>	1.3	1.4	0.1	0.0	0.0	0.1	5.1
National lottery current grants	0.9	1.1	0.2	0.0	0.0	0.2	25.9
BBC domestic services current expenditure	3.6	3.8	0.2	0.0	0.0	0.2	4.9
Fees associated with financial interventions	-1.7	-2.0	-0.3	0.0	0.0	-0.3	17.5
Other PSCE items in departmental AME	0.7	0.1	-0.6	0.0	0.0	-0.6	-87.0
Expenditure transfers to EU institutions	7.3	5.9	-1.4	-0.2	0.0	-1.2	-19.0
Locally-financed current expenditure	26.6	21.0	-5.6	0.0	0.0	-5.6	-21.1
Central government gross debt interest	48.6	47.1	-1.5	-1.5	0.2	-0.2	-3.1
Depreciation	16.1	16.0	-0.1	-0.1	0.0	0.0	-0.6
Current VAT refunds	12.9	11.8	-1.2	0.0	0.0	-1.2	-8.9
Single use military expenditure	6.4	5.5	-0.9	0.0	-0.8	-0.1	-13.4
Environmental levies	1.1	0.5	-0.6	0.0	0.0	-0.6	-56.7
Other National Accounts adjustments	-1.8	-0.7	1.2	0.0	0.0	1.2	-62.8
<b>Total public sector current expenditure</b>	<b>656.7</b>	<b>643.1</b>	<b>-13.6</b>	<b>-1.7</b>	<b>-1.7</b>	<b>-10.2</b>	<b>-2.1</b>
<b>Public sector gross investment (PSGI)</b>							
<b>PSGI in CDEL</b>	<b>37.9</b>	<b>34.9</b>	<b>-3.0</b>	<b>0.0</b>	<b>0.1</b>	<b>-3.1</b>	<b>-7.8</b>
<b>PSGI in Annually Managed Expenditure</b>	<b>15.8</b>	<b>10.5</b>	<b>-5.3</b>	<b>0.0</b>	<b>-0.5</b>	<b>-4.8</b>	<b>-33.3</b>
<i>of which:</i>							
National lottery capital grants	0.5	0.4	-0.1	0.0	0.0	-0.1	-25.0
Other PSGI items in departmental AME	-7.3	-7.8	-0.5	0.0	0.0	-0.5	6.4
Locally-financed capital expenditure	13.2	16.1	2.9	0.0	0.0	2.9	22.1
Public corporations capital expenditure	9.2	5.3	-3.9	0.0	-0.5	-3.4	-42.2
Other National Accounts adjustments	0.1	-3.5	-3.7	0.0	0.0	-3.7	-2,474
<b>Total public sector gross investment</b>	<b>53.7</b>	<b>45.5</b>	<b>-8.2</b>	<b>0.0</b>	<b>-0.4</b>	<b>-7.9</b>	<b>-15.3</b>
Less depreciation	-21.9	-21.1	0.7	0.3	0.0	0.5	-3.4
<b>Public sector net investment</b>	<b>31.8</b>	<b>24.3</b>	<b>-7.5</b>	<b>0.3</b>	<b>-0.4</b>	<b>-7.4</b>	<b>-23.5</b>
<b>Total managed expenditure</b>	<b>710.4</b>	<b>688.6</b>	<b>-21.8</b>	<b>-1.7</b>	<b>-2.0</b>	<b>-18.0</b>	<b>-3.1</b>

### DEL forecasting errors

A.30 Table A.4 shows that outturn for PSCE in RDEL was £4.8 billion (1.5 per cent) lower than we forecast in the March 2011 EFO, and outturn for PSGI in CDEL

was £3.0 billion<sup>2</sup> (7.8 per cent) lower than forecast. These errors are mostly assigned to fiscal forecasting errors as a result of departments underspending against their final DEL plans.

- A.31 In the March 2011 forecast for 2011-12 we assumed that departmental spending would equal plans, i.e. that any policy changes such as spending increases would be balanced by underspends. For the second year running this has proved optimistic and departments have underspent again by more than any policy additions to spending in both current and capital. We plan to review this assumption for future years in our March 2013 forecast for 2013-14.
- A.32 The policy change column includes changes to the level of resources voted in-year by Parliament in the supplementary estimates, which are funded through DEL reserve claims or by use of the new budget exchange mechanism.<sup>3</sup> Full details of changes to departments DEL plans and underspending are set out by HM Treasury in Chapter 3 of Public Expenditure Statistical Analyses 2012.<sup>4</sup>

#### AME forecasting errors

- A.33 Table A.4 shows that current spending on AME was £8.8 billion lower than forecast, a 2.7 per cent error, and that capital AME was £5.3 billion lower than forecast, a 33.3 per cent error. However we expect the error on capital AME to fall by around £1.5 billion when the provisional outturn data is next revised.
- A.34 The most significant error in AME spending was locally financed expenditure, which in total was some £2.7 billion below forecast. This was largely caused by the error in our assumption on local authority reserves, which repeats what happened in 2010-11. We forecast a drawdown of £0.6 billion but they actually added approximately £2.7 billion, thus reducing spending by about £3 billion. We expect this is because local authorities are frontloading spending review savings and are putting more money aside because of uncertainty around the effects of forthcoming changes to business rates and council tax benefit and about their funding in the next spending review. The other significant change is an additional £1.6 billion of CERA, which has the impact of reducing current spending and increasing capital spending, but has no effect on total spending.

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<sup>2</sup> £1.4 billion of this underspend happened because the classification of expenditure was corrected to record it as outside capital spending as measured in the National Accounts.

<sup>3</sup> More detail on Budget exchange is set out on p.128 of our March 2012 EFO.

<sup>4</sup> [http://www.hm-treasury.gov.uk/d/pesa\\_complete\\_2012.pdf](http://www.hm-treasury.gov.uk/d/pesa_complete_2012.pdf)

### A.35 Other significant errors in our AME forecast are:

- **expenditure transfers to the EU** were lower than forecast by £1.4 billion, a 19.0 per cent error. This was a combination of higher than expected abatement, reflecting higher than expected expenditure in 2010 and 2011, and lower than expected GNI contributions;
- **current VAT refunds** were lower than forecast by £1.2 billion, a 8.9 per cent error, primarily because LA procurement was approximately £6 billion lower than forecast. This change is fiscally neutral;
- **public corporations capital expenditure** was lower than forecast by £3.9 billion, a 42.2 per cent error. £0.5 billion of this is caused by a National Accounts classification change moving British Energy to the private sector. We also expect the ONS to put through a correction increasing public corporations capital spending by approximately £1.5 billion in a future PSF release. This is a difficult spending stream to predict, given the lack of plans data available;
- **public service pensions** were higher than forecast by £1.1 billion, a 15.1 per cent error. This is mostly caused by us under forecasting lump sum payments in the Armed Forces and NHS pension schemes. Lump sums are difficult to forecast, particularly in the context of volatile early retirement and scheme exit patterns as a result of departmental spending review settlements and reforms to pension tax allowances; and
- **accounting adjustments** – £2.6 billion of the error in capital accounting adjustments was as a result of our under-estimating local authorities' financial transactions, which are included in the locally financed spending outturns, as measured by DCLG and the devolved authorities, and removed in the National Accounts as an accounting adjustment. In our forecast we assumed that these financial transactions would be £0.6 billion, whereas ONS are currently removing £3.2 billion of these financial transactions in the outturn data shown above. However we expect ONS to revise the outturn data in due course to reflect the latest statistics recently released by Department for Communities and Local Government (CLG), which reduce these financial transactions and this forecast error by £1 billion.

## Key aggregates

- A.36** We forecast net borrowing of £149 billion in 2010-11 and the most recent outturn is £142 billion. This was mainly due to lower than forecast spending with only a small error on the receipts forecast. In March 2011 we forecast net borrowing of £122 billion for 2011-12 and the most recent outturn shows that PSNB came in at £119 billion. The small overall error of £2 billion on PSNB masks a £19 billion overall shortfall in receipts, offset by £22 billion lower-than-expected spending. The relative accuracy of our PSNB forecast is discussed at length in Chapter 3, which also describes errors in our forecasts for the surplus on the current budget.
- A.37** The errors in forecasting public sector net debt have been larger than would otherwise have been implied by the errors in PSNB. As a stock measure of the public sector's net liability position, our errors partly reflect revisions to earlier periods. This was particularly the case for the June 2010 Budget, with estimates for net debt in 2009-10 having since been revised down by over £10 billion. That was mainly due to a reassessment by the ONS of the treatment in net debt of some of the financial sector interventions.
- A.38** Public sector net debt rises by the nominal value of gilts, rather than its market value. The difference between the two represents the premium investors are willing to pay for a given quoted yield. Our forecasts assume that the average quoted yield is equal to the effective yield, as determined by market expectations at the time. But over the course of 2011-12 in particular, gilts were on average issued at a premium, meaning that the nominal value of the debt rose by less than the amounts raised. In total, £179.5 billion was raised in the gilts market over the year, but the nominal value of these gilts was only £166.5 billion, triggering a £13 billion forecasting error.

## Decomposition of fiscal forecast errors

Table A.5: Fiscal aggregates 2010-11 and errors against June 2010 forecast

	Per cent of GDP (2010-11)					
	Forecast	Outturn	Error	of which:		
				Economic determinants	Policy and classification changes	Fiscal forecasting errors
<b>Receipts and expenditure</b>						
Public sector current receipts (a)	37.2	37.1	-0.1	-0.6	-0.1	0.7
Total managed expenditure (b)	47.3	46.7	-0.6	-0.2	0.1	-0.5
of which: PSCE (c)	43.2	42.7	-0.5	-0.2	0.1	-0.5
PSNI (d)	2.6	2.6	-0.1	0.0	0.0	0.0
Depreciation (e)	1.4	1.4	0.0	0.0	0.0	0.0
<b>Deficit</b>						
Public sector net borrowing (b-a)	10.1	9.6	-0.5	0.5	0.2	-1.2
Surplus on current budget (a-c-e)	-7.5	-7.0	0.5	-0.5	-0.3	1.2
Cyclically-adjusted net borrowing	7.4	7.3	-0.1	0.9	0.2	-1.2
Primary balance	-7.4	-6.7	0.7	-0.3	-0.2	1.2
<b>Fiscal mandate and supplementary target</b>						
Cyclically-adjusted surplus on current budget	-4.8	-4.7	0.1	-0.9	-0.3	1.2
Public sector net debt	61.9	60.0	-1.9	0.6	0.2	-2.7
<b>Financing</b>						
Public sector net cash requirement	10.3	9.4	-0.9	0.5	0.2	-1.5
£ billion						
Surplus on current budget	-110	-104	6	-7	-4	18
Net investment	39	38	-1	0	-1	0
Public sector net borrowing	149	142	-7	7	3	-18
Public sector net cash requirement	151	139	-12	7	3	-23
Public sector net debt	932	903	-29	7	3	-40
Memo: Output gap (per cent of GDP)	-3.7	-2.9	0.8	0.8	0.0	0.0

Table A.6: Fiscal aggregates 2011-12 and errors against March 2011 forecast

	Per cent of GDP (2011-12)					
	Forecast	Outturn	Error	of which:		
				Economic determinants	Policy and classification changes	Fiscal forecasting errors
<b>Receipts and expenditure</b>						
Public sector current receipts (a)	38.1	37.2	-0.9	0.0	-0.2	-0.7
Total managed expenditure (b)	46.0	45.0	-1.0	0.3	-0.1	-1.2
of which: PSCE (c)	42.5	42.1	-0.5	0.3	-0.1	-0.7
PSNI (d)	2.1	1.6	-0.5	0.0	0.0	-0.5
Depreciation (e)	1.4	1.4	0.0	0.0	0.0	0.0
<b>Deficit</b>						
Public sector net borrowing (b-a)	7.9	7.8	-0.1	0.3	0.1	-0.4
Surplus on current budget (a-c-e)	-5.8	-6.2	-0.4	-0.3	-0.1	0.0
Cyclically-adjusted net borrowing	5.3	5.9	0.7	1.0	0.1	-0.4
Primary balance	-5.0	-4.9	0.1	-0.3	-0.1	0.5
<b>Fiscal mandate and supplementary target</b>						
Cyclically-adjusted surplus on current budget	-3.2	-4.3	-1.1	-1.0	-0.1	0.0
Public sector net debt	66.1	65.6	-0.5	1.4	0.1	-2.0
<b>Financing</b>						
Public sector net cash requirement	8.4	8.1	-0.2	0.3	0.1	-0.6
£ billion						
Surplus on current budget	-90	-95	-5	-3	-1	-1
Net investment	32	24	-7	0	0	-7
Public sector net borrowing	122	119	-2	3	1	-7
Public sector net cash requirement	129	124	-5	3	1	-9
Public sector net debt	1046	1020	-26	3	1	-30
Memo: Output gap (per cent of GDP)	-3.9	-2.6	1.3	1.3	0.0	0.0

## Fiscal determinants

A.39 Tables A.7 and A.8 detail the financial year forecast errors associated with the key economic determinants in our fiscal forecast. Where these have had a significant impact on the accuracy of our fiscal forecast they are discussed in Chapter 2 and in previous sections of this annex.

Table A.7: Fiscal determinants 2010-11 and errors against June 2010 forecast

	Percentage change on a year earlier, unless otherwise stated		
	Forecast	Outturn	Error
<b>GDP and its components</b>			
Real GDP	1.8	1.8	0.0
Nominal GDP (£ billion) <sup>1</sup>	1474	1480	6
Nominal GDP <sup>1</sup>	4.7	4.5	-0.2
Wages and salaries <sup>2</sup>	1.7	1.3	-0.4
Non-oil PNFC profits <sup>2, 3</sup>	1.5	5.8	4.3
Consumer spending <sup>2, 3</sup>	4.3	5.0	0.7
<b>Prices and earnings</b>			
GDP deflator	2.9	2.9	0.0
RPI (September)	4.2	4.6	0.4
CPI (September)	2.9	3.1	0.2
Whole economy earnings growth	2.0	0.7	-1.3
<b>Other key fiscal determinants</b>			
Claimant count (millions) <sup>4</sup>	1.50	1.47	-0.03
VAT gap (per cent)	12.7	10.1	-2.6
<i>Financial and property sectors</i>			
Equity prices (FTSE All-share index)	2677	2885	208
HMRC financial sector profits <sup>1, 3, 5</sup>	8.9	4.0	-4.9
Residential property prices <sup>6</sup>	4.1	5.3	1.2
Residential property transactions	5.2	-2.2	-7.4
Commercial property prices <sup>7</sup>	6.7	0.1	-6.6
Commercial property transactions <sup>7</sup>	9.0	8.5	-0.5
<i>Oil and gas</i>			
Oil prices (\$ per barrel) <sup>3</sup>	78	80	2
Oil production (million tonnes) <sup>3</sup>	64.6	63.0	-1.6
Gas production (billion therms) <sup>3</sup>	20.3	20.6	0.3
<i>Interest rates</i>			
Market short-term interest rates (per cent) <sup>8</sup>	1.1	0.7	-0.4
Market gilt rates (per cent) <sup>9</sup>	3.4	2.8	-0.6

<sup>1</sup> Not seasonally adjusted

<sup>2</sup> Nominal

<sup>3</sup> Calendar year

<sup>4</sup> UK seasonally-adjusted claimant count

<sup>5</sup> HMRC Gross Case 1 trading profits

<sup>6</sup> Communities and Local Government (CLG) property prices index

<sup>7</sup> Outturn date from HMRC information on stamp duty land tax

<sup>8</sup> 3-month sterling interbank rate (LIBOR)

<sup>9</sup> Weighted average interest rate on conventional gilts

Table A.8: Fiscal determinants 2011-12 and errors against March 2011 forecast

	Percentage change on a year earlier, unless otherwise stated		
	Forecast	Outturn	Error
<b>GDP and its components</b>			
Real GDP	1.8	0.5	-1.3
Nominal GDP (£ billion) <sup>1</sup>	1544	1529	-15
Nominal GDP <sup>1</sup>	4.8	3.3	-1.5
Wages and salaries <sup>2</sup>	1.8	2.4	0.6
Non-oil PNFC profits <sup>2, 3</sup>	6.9	7.7	0.8
Consumer spending <sup>2, 3</sup>	5.2	3.7	-1.5
<b>Prices and earnings</b>			
GDP deflator	2.9	2.4	-0.6
RPI (September)	5.2	5.6	0.4
CPI (September)	4.3	5.2	0.9
Whole economy earnings growth	2.0	2.6	0.6
<b>Other key fiscal determinants</b>			
Claimant count (millions) <sup>4</sup>	1.55	1.57	0.02
Employment	29.0	29.2	0.2
VAT gap (per cent) <sup>5</sup>	12.0	9.7	-2.3
<i>Financial and property sectors</i>			
Equity prices (FTSE All-share index)	3168	2903	265
HMRC financial sector profits <sup>1, 3, 6</sup>	5.3	-10.0	-15.3
Residential property prices <sup>7</sup>	-2.9	-0.9	2.0
Residential property transactions	-1.9	4.9	6.8
Commercial property prices <sup>8</sup>	2.1	2.9	0.8
Commercial property transactions <sup>8</sup>	4.5	-3.3	-7.8
Volume of share transactions	-2.0	-10.3	-8.3
<i>Oil and gas</i>			
Oil prices (\$ per barrel) <sup>3</sup>	113	111	-2
Oil prices (£ per barrel) <sup>3</sup>	69.3	69.2	-0.1
Oil production (million tonnes) <sup>3</sup>	60.2	52.0	-8.2
Gas production (billion therms) <sup>3</sup>	18.9	16.1	-2.8
<i>Interest rates</i>			
Market short-term interest rates (per cent) <sup>9</sup>	1.6	1.0	-0.6
Market gilt rates (per cent) <sup>10</sup>	3.8	2.2	-1.6
Euro/sterling exchange rate	1.16	1.16	0.00
<sup>1</sup> Not seasonally adjusted			
<sup>2</sup> Nominal			
<sup>3</sup> Calendar year			
<sup>4</sup> UK seasonally-adjusted claimant count			
<sup>5</sup> VAT gap is compared against Budget 2012 estimate			
<sup>6</sup> HMRC Gross Case 1 trading profits			
<sup>7</sup> Communities and Local Government (CLG) property prices index			
<sup>8</sup> Outturn date from HMRC information on stamp duty land tax			
<sup>9</sup> 3-month sterling interbank rate (LIBOR)			
<sup>10</sup> Weighted average interest rate on conventional gilts			

## B Comparison with past official forecasts

- B.1 In this chapter we take a step back and compare our forecast errors with those generated by past official forecasts, relating to earlier periods.
- B.2 Our *EFOs* illustrate the degree of uncertainty around our central forecast by drawing lessons from the accuracy of previous official forecasts. The fan charts we display show the outcomes that someone might anticipate if they believed, rightly or wrongly, that errors in the past offered a reasonable guide to errors in the future.
- B.3 Outturns for both GDP growth and public sector net borrowing (PSNB) have fallen within the range of outcomes highlighted in these fan charts.

### GDP growth

- B.4 The year-ahead GDP growth forecasting errors have been larger than or in line with the historic average of errors (Table B.1). In-year forecasts produced for the June 2010 and March 2011 forecasts have been relatively high, but below the average absolute error over the preceding 20 years.<sup>1</sup>
- B.5 The average absolute in-year error is close to 1 per cent for forecasts produced both in the spring and the autumn. Typically, we might expect forecasts produced later in the year to be more accurate than those produced earlier in the year, as more outturn data becomes available. However, initial estimates for growth are themselves subject to revision, such that this apparent advantage is not clearly evident.

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<sup>1</sup> Historical GDP forecasts are available on our website.

Table B.1: Summary of GDP growth errors

	Error (percentage points)	
	Calendar years ahead	
	In-year	One
June 2010 Budget	0.6	-1.4
November 2010 EFO	0.0	-1.2
March 2011 EFO	-0.8	
November 2011 EFO	0.0	
March 2012 EFO		
Average absolute errors over the previous 20 years		
Spring/summer	0.9	1.3
Autumn	0.9	1.2
Key:		
Smaller than average absolute error		
Average sized error		
Bigger than average absolute error		

## Public sector net borrowing

- B.6** As emphasised in Chapter 3, the modest deterioration in the public finances relative to our initial and subsequent forecasts may appear surprising given the much weaker-than-expected performance of the real economy over the same period.
- B.7** PSNB is currently estimated to have shrunk by 3.4 per cent of GDP over the first two fiscal years of the parliament, slightly less than the 3.5 per cent of GDP that the OBR forecast following the Coalition government's first Budget in June 2010. PSNB was 0.3 per cent of GDP higher in 2011-12, but the level in 2009-10 has also been revised up by 0.2 per cent of GDP.
- B.8** Our error in forecasting PSNB for 2011-12 two years ahead is small by historical standards. The absolute error for official forecasts over this time horizon averaged over 2 per cent of GDP over the previous 20 years.<sup>2</sup> Indeed most of the one- and two-year ahead forecasts for borrowing that we have published since June 2010 have shown relatively small errors (Table B.2).
- B.9** Outturn estimates of PSNB also continue to be revised well after the fiscal year is over. Firm data on departmental spending and borrowing by local authorities and public corporations is only available some months after the initial outturn estimates have to be made. In both 2010-11 and 2011-12 the latest outturn

<sup>2</sup> Historical PSNB forecasts are available on our website.

data now show a smaller deficit than the initial outturn data did, on which our March 2011 and March 2012 estimates were largely based.

Table B.2: Summary of PSNB errors

	Error (per cent of GDP)		
	Fiscal years ahead		
	In-year	One	Two
June 2010 Budget <sup>1</sup>	0.2	-0.5	0.3
November 2010 EFO	-0.4	0.2	
March 2011 EFO	-0.3	-0.1	
November 2011 EFO	-0.6		
March 2012 EFO	-0.5		
Average absolute errors over the previous 20 years			
Spring/summer	0.3	1.2	2.3
Autumn	0.7	1.5	2.2

<sup>1</sup> For comparability with other forecasts, 'in-year' is assumed to be 2009-10

Key:

Smaller than average absolute error

Average sized error

Bigger than average absolute error



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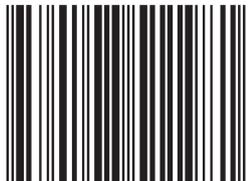
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