

# The IFS Green Budget

## February 2011

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## Preface

Welcome to the Institute for Fiscal Studies' 2011 Green Budget, my first as Director. In the following pages, we discuss some of the many pressing issues confronting Chancellor George Osborne as he prepares for his second Budget. He has already set out an ambitious agenda for repairing the damage to the UK's public finances. Here we assess some of the issues he will have to deal with as he tackles the triple challenges of ensuring that his fiscal strategy, particularly his planned spending cuts, keeps on track; dealing with the uncertainties in the macroeconomy; and moving the tax system in the right direction.

We are delighted once more to be producing the Green Budget in collaboration with Barclays Wealth and Barclays Capital. Michael Dicks, Managing Director and Chief Economist at Barclays Wealth, and Simon Hayes, Director and Chief UK Economist at Barclays Capital, have contributed chapters on the outlook for the economy, the UK's vulnerability to a fiscal crisis, and the impact of the financial crisis on the UK's productive potential. We are very grateful for their involvement and support.

We are also grateful to the Economic and Social Research Council for the support that it provides for our ongoing research work through the Centre for the Microeconomic Analysis of Public Policy at IFS. This underpins all our analysis in this volume.

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As with all IFS publications, the views expressed in it are those of the named authors of the particular chapters and not of the institute – which has no corporate views – or of the funders of the research.



Paul Johnson  
Director, Institute for Fiscal Studies



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# Summary

## Chapter 1

### Checking out the supply side of the economy

- Last year, we argued that the UK was likely to find that its productive capacity had been severely impaired by the financial crisis. Accordingly, we suspected that the (negative) output gap reached something like only 4% of productive capacity at its maximum, and averaged just over 3% during FY2009–10, as opposed to the official Treasury view of it averaging more than 6% at that time. We also argued that the potential growth rate of the economy in the years ahead was likely to be much slower than what the Treasury judged it would be, rising by close to 1¾% per annum by 2014 in our estimation, instead of the 2¾% that the Treasury had assumed in the December 2009 Pre-Budget Report.
- Although the Treasury stuck to its guns in the March 2010 Budget, the official view of the economy's supply side changed dramatically after the election. The new Office for Budget Responsibility (OBR) – charged with the preparation of macroeconomic and fiscal forecasts – revised down sharply the official view of both the output gap (to just over 4% of potential during FY2009–10) and potential growth (to just over 2%).
- Using a variety of methods, we estimate that the output gap is probably a little smaller than what the OBR is assuming. Our estimates seem to do a good job when employed to help explain why inflation turned out higher than many expected last year. We also believe that potential GDP growth is slightly lower than what the OBR has estimated it to be.
- Looking ahead, an updated forecast of our supply-side analysis suggests that productivity growth will only rise gradually in the years ahead, averaging about 1% per annum over the next five years. Accordingly, our predicted profile for potential GDP registers only a mild acceleration over the next few years, with the annual growth rate not reaching its long-run sustainable rate (of 1¾%) until 2014. We continue to worry that the official view of future prospects, as contained in the OBR's analysis, is overly complacent about both future inflation risks and the scale of the required fiscal consolidation. Relative to a year ago, however, the gaps between our own and the official forecasts are now a lot smaller.

## Chapter 2

### The new fiscal framework: an assessment

- The financial crisis and associated recession have reduced revenues and, to a greater extent, increased public spending as a share of national income. Without action, there would have been an unsustainable increase in borrowing and debt. The government's spending cuts and tax rises are forecast to be sufficient to return the UK's public finances to a sustainable position, but the same would have been true under the fiscal consolidation plan set out by Labour in its March 2010 Budget.
- Between 2010 and 2015, the IMF forecasts that most other industrial countries will reduce government borrowing by less than the UK: out of 29 industrial countries, only Greece is forecast to have a sharper decline in cyclically-adjusted borrowing.

- The government has introduced a new independent Office for Budget Responsibility (OBR) to help enhance the credibility of official forecasts. The transparency and presentation of official forecasts have already been improved since the OBR was established; the OBR, the Treasury and other departments should continue to build on this. There is a case for extending the remit of the OBR so that it is able to consider the impact of alternative policy options, at least in some limited circumstances such as the run-up to a general election.
- The government has set itself a new forward-looking fiscal mandate, that policy is consistent with achieving at least a cyclically-adjusted current budget balance by the end of the forecast horizon, and a supplementary target to reduce debt as a share of national income between 2014–15 and 2015–16. The OBR judges that current policy is consistent with the fiscal mandate, and forecasts that the supplementary target is more likely than not to be met. But if the OBR's forecasts are as accurate as past Treasury forecasts, there would still be a three-in-ten chance that further tax rises or spending cuts would be required to avoid a cyclically-adjusted current budget deficit in 2015–16.
- Compliance with the two fiscal targets does not ensure fiscal sustainability. The government's fiscal mandate will require careful monitoring to ensure that it is not being achieved only through policies that are always promised but never implemented. The supplementary target – to reduce debt – applies only to 2015–16; the government should consider what profile of debt it wishes to target beyond that date, taking into account likely pressures on the public finances such as those arising from an ageing population. There are merits in a 'sustainable commitments rule' which would place a ceiling on the flow of future debt interest and other pre-committed payments, rather than on the stock of accumulated public sector debt.

## **Chapter 3**

### **Fiscal vulnerability: a stocktake**

- In opting for an aggressive pace and size of fiscal consolidation, the government hopes to have insulated the UK from the types of funding crises that have beset other European nations.
- The UK government bond market has not shown any material signs of stress over the past year, implying that investors believed the UK deficit problem would be dealt with effectively. Investor demand for UK government debt remained healthy even after the Bank of England halted its bond purchases under its policy of quantitative easing.
- In financial markets, past calm is no guarantee of future stability, however, and so we attempt to gauge how secure the UK's fiscal position is. Using 16 indicators of fiscal vulnerability, we find that the UK ranks close to the middle of our sample of 57 countries.
- The UK benefits from the long average maturity of its debt and the fact that the vast majority of government borrowing is in sterling. The strength of regulation and the rule of law also lower the likelihood of a funding crisis. However, the large government deficit and high reliance on external debt are sources of vulnerability.

- Achieving a sustainable reduction in the structural budget deficit stands out as a policy priority. Effective oversight of banks' external exposures is also important if risks are to be contained.
- The front-loading of tax increases and capital spending cuts should ensure that the deficit reduction plan stays on track in the near term, although the risk of political turbulence remains high. Fiscal adjustment may also be hampered by further adverse macroeconomic shocks, which monetary policy is, arguably, not well placed to counter.

## Chapter 4

### The economic outlook

- Fiscal tightening is likely to be a major drag on growth over the next few years. The Office for Budget Responsibility's estimates of the effects of government cuts on national income are not unreasonable. However, we see a clear risk that the impact is larger than assumed.
- The consumer is key. Most households enter 2011 with their rates of pay failing to keep up with the cost of living. In addition, credit remains tight, house prices are falling and unemployment is starting to rise again. As a result, household consumption is likely to grow only marginally in real terms this year and accelerate only slowly in 2012 and 2013.
- The corporate sector is in much better shape than the household sector, enjoying strong profits growth and with healthy margins. Firms' balance sheets are in good shape too – leaving many cash-rich. Availability of finance is unlikely to constrain firms' investment plans. But we do not expect a strong investment-led recovery as many firms remain cautious about the demand outlook.
- Recent revisions to previous estimates have left the National Accounts looking as if there has been little in the way of rebalancing of the UK economy, with exports particularly disappointing, given the level of sterling and the strength of overseas demand. Models have over-predicted export growth in recent years. Although our forecast for exports is similar to that of the OBR – on the presumption that the models get back on track – the risks appear skewed to the downside.
- The labour market remains a puzzle, with productivity remaining very low relative to its pre-recession trend. We expect near-flat employment, subdued wage growth and unemployment to rise a little further this year. But the increase could be much larger if firms were to seek to regain the pre-recession productivity path. This is a major source of downside risk to household incomes and to consumption.
- All told, our single most likely forecast for GDP growth is very similar to the OBR's for 2011, but with the risks around this forecast skewed to the downside. We assess the chances of a double dip this year at about 20%. Much more likely is a year of sluggish growth. Further out, we judge the OBR projections to be optimistic, both in terms of the speed at which spare resources get used up and as regards the economy's potential growth rate. The cumulative gaps between our own and the OBR's five-year-out projections amount to some 1½% of GDP.
- We do not expect the Bank of England to respond to high inflation with near-term interest rate hikes. However, persistent above-target inflation is likely to constrain

the Bank's ability to provide additional support for the economy. It may therefore make sense for the government to consider ways of reducing the pace of fiscal consolidation should demand conditions deteriorate significantly – enabling it to 'trim the sails' again in the same manner that it did so last November.

## Chapter 5

### Green Budget public finance forecasts

- We expect both public sector net borrowing and the current budget deficit in 2010–11 to be £2.9 billion, or 0.2% of national income, smaller than the Office for Budget Responsibility (OBR) forecast in November 2010.
- Assuming that the economy evolves largely as the OBR expects, in the medium term we are around 0.2% of national income more optimistic than the OBR about the current budget balance, the cyclically-adjusted current budget balance and public sector net borrowing. We forecast that the current budget balance will improve from a deficit of 7.0% of national income in 2010–11 to a surplus of 0.5% of national income in 2015–16. Of this 7.5% of national income forecast reduction in the current budget deficit, 6.2% of national income is forecast to come from a fall in current spending as a share of national income and 1.3% of national income from an increase in the tax burden.
- We forecast that the cyclically-adjusted current budget balance will improve from a deficit of 4.5% of national income in 2010–11 to a surplus of 1.1% of national income in 2015–16. Our forecast therefore implies that current policy is consistent with the Chancellor's fiscal mandate. We also forecast that, under this scenario, net debt would peak at 69.3% of national income in 2013–14, before falling in 2014–15 and 2015–16, suggesting that the Chancellor's supplementary target would be on course to be met.
- Despite our slightly more optimistic outlook for the public finances than that of the OBR, there are large downside risks. If the economy were to evolve along the Barclays central scenario, we forecast that the cyclically-adjusted current budget would still be in deficit in 2015–16, albeit by only 0.4% of national income. Under this scenario, current policy would not be consistent with the Chancellor's fiscal mandate. Even under the Barclays 'optimistic' scenario for the economy, our fiscal forecasts are only just in line with the OBR's fiscal forecasts. This is because the composition of growth in this scenario is more skewed towards components that are taxed less heavily than in the OBR macroeconomic forecast. Under the Barclays 'pessimistic' scenario, the cyclically-adjusted current budget in 2015–16 is forecast to be in deficit by 2.2% of national income and public sector debt is forecast to be at 90.5% of national income and still rising.
- The case seems strong for the March 2011 Budget to contain no significant permanent net giveaways or takeaways. Any improvements in the public finances relative to the OBR's forecasts, such as those implied by our Green Budget baseline forecast, might best be banked to give the government additional headroom against a future worse outlook for the economy or the public finances or a need to top up its challenging plans for cuts to spending on public services. Although there may be no need to implement an alternative plan at this stage, with such large downside risks to the public finances, having alternative plans to hand could prove useful.



## Chapter 6

### Public spending cuts: pain shared?

- The government's six-year plan to reduce borrowing will see public spending brought down from its peak of 47.4% of national income in 2009–10 to 39.3% by 2015–16. The period from April 2011 is set to be the tightest five-year period for public spending since at least the Second World War. Out of 29 leading industrial countries, the IMF forecasts that only Iceland and Ireland will deliver sharper falls in spending as a share of national income than the UK between 2010 and 2015.
- The 2010 Spending Review set out broadly where the cuts will fall over the four years starting in April 2011. The big winners were the Department for International Development and the investment budget of the Department of Energy and Climate Change: both are to receive large spending increases by 2014–15. The areas that will see the largest cuts are housing, higher education and the Department for Environment, Food and Rural Affairs. There will also be deep cuts to local authority grants, the Home Office and the Ministry of Justice.
- The government has committed to real increases in the NHS budget each year between 2010–11 and 2014–15. If achieved, these will result in a continuation of the long-term trend for the NHS to take up an increasing proportion of public service spending.
- Within the nations, the Scottish parliament appears to have made similar decisions to those made for England; the Welsh Assembly government has chosen not to protect NHS spending from spending cuts, thereby reducing the scale of the cuts required elsewhere; and the Northern Ireland Executive appears to have chosen to cut spending on schools by more than spending on further and higher education.
- The last time the UK government attempted to implement real public spending cuts (in the 1990s), it was successful at sticking to its cash plans, but lower-than-expected inflation meant that the planned real cuts were not delivered as quickly as intended. The current government's planned cuts to public spending are far greater than those attempted at that time, and achieving these more ambitious plans will be more difficult.
- Delivering such tight spending plans will, as identified by the government, require 'a robust framework to control spending'. There are improvements that can be made to the current system – in particular, Spending Reviews should routinely consider as wide a set of spending areas as possible and not only departmental programme expenditure.
- The government should be prepared to review its 2010 Spending Review settlements in a couple of years' time in the light of any changes to the economic and fiscal outlook or of particular difficulties faced by departments in delivering spending cuts that are palatable to the government and the wider public.

## Chapter 7

### Public sector pay and pensions

- The public sector pay bill totalled £182 billion in 2009. It rose steadily as a share of national income from 2000 to 2005 and, after a pause, increased again in 2009.

Spending plans set out in the October 2010 Spending Review imply a significant public pay freeze and large employment cuts.

- Before the financial crisis, public sector employees were, on average, paid at levels roughly in line with their private sector counterparts once observed differences in skill composition were taken into account. Since 2008, a significant public pay premium has appeared. We do not therefore believe that the planned two-year pay freeze will lead to widespread recruitment problems in the public sector in the near future. However, the average pay differential hides large variations in relative pay between different areas of the country. Consequently, some public sector vacancies, especially in London and the South-East, will remain hard to fill.
- In certain parts of the public sector, such as education and health, the downsizing of the workforce implied by the Spending Review could be achieved using 'natural exits' and a freeze in recruitment, but this does not appear to be true of areas where exit rates are low and the spending cuts are deeper, such as the police. Given that redundancies and early retirement schemes are costly ways of reducing the size of the workforce, achieving spending targets within the timing set by the Spending Review will be difficult in these areas.
- The government has already made changes to public sector pensions, including a change in the way they are indexed which will affect existing workers as well as new entrants. Further reforms are likely as a result of the review by Lord Hutton. Public sector pensions continue to be more generous than their private equivalents for most workers. Reforms should consider not simply issues of generosity and long-term affordability, but also what incentive structures would help promote flexibility in the labour market.

## **Chapter 8**

### **Measuring the distributional impact of public service cuts**

- The fiscal tightening currently under way will rely on cuts to spending on public services to a greater extent than on cuts to social security spending or increases in taxation.
- Distributional analyses of changes to spending on public services are not common. This is because, unlike with changes to taxation and cash benefits (which directly affect the income of taxpayers and recipients), there is no readily calculable *quantitative* measure for valuing the benefit the public get from services that are provided in kind rather than in cash (such as hospitals, schools, the army and government administration).
- In spite of the unavoidable difficulties associated with carrying out this type of analysis, the imminent deep cuts in public service spending have provoked a good deal of interest in evaluating the distributional impact that they will have.
- The studies that have aimed to evaluate these distributional impacts (including that published by the Treasury alongside the Spending Review) typically assume that the value of a public service is equal to the cost of providing it. But the problems implicit in this approach (problems that are typically noted by those carrying out the studies) mean that the results should be interpreted extremely cautiously.

- It is certainly to be welcomed that the Treasury has considered the distributional impact of changes to spending on public services. However, we make a number of recommendations for any future analyses. In particular, given the absence of an established methodology for carrying out this type of analysis, it is crucial that details are published of how distributional impacts are estimated. Without such details, the robustness of the analysis cannot be assessed. It is also important that the Treasury take a more consistent approach to determining which measures are included in a distributional analysis.

## Chapter 9

### Defining a tax strategy

- Much tax policymaking over the past 20 years has lacked a coherent long-term strategy. It has often been harder to describe government tax strategy than the strategy for the major public services such as health and education and, indeed, the strategy for welfare benefits. Partly as a result, tax changes have tended to be piecemeal, have often lacked transparency and have not formed part of a long-term direction.
- As the Mirrlees Review has pointed out, it is extremely important that the tax system (and the benefit system as well) is seen as just that – a system. It is the overall effect of the system on outcomes such as efficiency, progressivity and the environment that matters. It is perfectly reasonable to have particular taxes that are regressive, or which don't help the environment, so long as the system as a whole meets objectives in these areas.
- The economic and welfare costs associated with a poorly designed tax system may not be obvious, but they are very large. As the tax system does more work as part of the current fiscal tightening, the costs of poor design will only grow.
- Lack of clear objectives and strategy can also contribute to unnecessary complexity in the tax system.
- Still near the start of a parliament, now is a good time for the government to set out its strategy. It should make clear where it sees the shape of the system in the medium term and the purpose and direction of each of the major taxes.
- This government has made an encouraging start in setting out its ambition for an improved tax system and tax policymaking process. But there is further to go in ensuring robust and accountable policymaking, and further review of the ways in which HM Treasury and HMRC work together and of the extent of parliamentary scrutiny may be in order.

## Chapter 10

### Corporate taxes and intellectual property

- The statutory corporate tax rate is due to fall gradually from 28% in 2010–11 to 24% in 2014–15, a rate lower than currently in most EU15 countries. Increases in the tax base will partially offset this reduction in firms' tax burden.
- The tax rate on small business will be reduced to 20% from April 2011. This is the latest in a series of changes over the last decade that has seen the rate cut, then increased and now cut again. There is little justification for taxing firms that earn low

profits differently from those that earn high profits or from unincorporated businesses.

- A Patent Box that reduces the corporate tax rate on the income derived from patents to 10% is to be introduced from April 2013. The policy is poorly targeted at promoting research and will add unnecessary complexity to the tax system. In addition, the government's own estimates predict that the policy will lead to a large reduction in UK tax receipts.
- Consultation on reforms to the Controlled Foreign Companies regime continues with a view to legislating in Finance Bill 2012. The extent to which the government attempts to tax the intellectual property UK firms hold offshore in order to address tax avoidance will be an important aspect of the debate.
- The government intends to consult on reforms to research and development (R&D) tax credits with an aim to make them more narrowly targeted at research activity. It seems likely that reforms will result in a narrowing of the costs eligible for R&D tax credits, and not an increase in the generosity of the small companies' element.
- If all these reforms are enacted, the UK will have a corporation tax rate lower than most European countries currently have, but a system with significant additional complexity and which provides an expensive and distortionary tax break to a handful of firms, largely for activity that would have occurred in the absence of the policy.

## Chapter 11

### Environmental policy

- The government inherited targets to reduce emissions of greenhouse gases and increase the share of renewable energy. A number of initiatives have been proposed to help meet these objectives. Emissions fell markedly during the recession but it is not clear how much of the fall is permanent.
- The government is on track to meet its pledge to increase the share of green taxes in total receipts: green taxes are forecast to rise from 7.9% of receipts in 2009–10 to 8.3% in 2014–15. It is not certain that this is a good measure of a government's environmental credentials.
- Revenues from the Carbon Reduction Commitment will be kept by the Treasury rather than redistributed back to participating firms. This may be a more efficient way to raise revenue than increasing other taxes. Although the change may reduce incentives for firms to abate their emissions, this effect should be modest.
- Proposed reforms to the climate change levy would introduce an additional tax based on the carbon content of fuels. Taxing on the basis of carbon is desirable and may help improve certainty about the future carbon price. However, the proposal will add another layer of complexity to carbon pricing and, despite this change, the range of carbon prices for different users of different fuels is likely to widen rather than narrow in the years ahead.
- A new 'Green Deal' will offer households and businesses investment in energy efficiency measures at no up-front cost, paid for by higher energy bills over a number of years. It will better target energy-inefficient properties than the Warm Front scheme which it replaces, but will be of less benefit to poorer households.

- The government is likely to revisit the idea of a per-plane tax to replace air passenger duty, consulted on but rejected by the previous government. This would be desirable since the relevant externalities of aviation are not directly related to passenger numbers.
- There is continued debate about a 'fair fuel stabiliser' for fuel prices that would see duty rates cut when the pre-tax price rose and vice versa. This would help stabilise household finances, but official estimates suggest that it would make the public finances more uncertain. It would also be very difficult to implement in practice.

## Chapter 12

### The impact of tax and benefit changes to be implemented in April 2011

- Tax and benefit changes to be introduced in April 2011 involve a net 'takeaway' of £5.4 billion from households in 2011–12; this is equivalent to £200 per household and comes on top of the £12.8 billion increase in indirect taxes introduced in January 2011, which is equivalent to £480 per household on average.
- Within this net 'takeaway', there is an £18.8 billion gross 'takeaway' and a £13.4 billion gross 'giveaway'. Many of these takeaways and giveaways have offsetting effects. This creates a complex pattern of gains and losses from the overall package of reforms.
- The biggest losers are the very richest households, who are particularly affected by the restriction on the amount that can be contributed to a private pension. This comes in addition to the introduction of the 50p income tax rate applying above £150,000 and the withdrawal of the income tax personal allowance above £100,000 that were introduced in April 2010. Working couples with children also lose significantly from cuts to tax credits.
- The main winners from these reforms are non-working lone parents and low- to middle-income households without children. The main factors offsetting the other reforms for these two groups are the increases in the child element of the Child Tax Credit and in the income tax personal allowance respectively.
- The reforms introduced in January 2011 and those to be introduced in April 2011 will slightly weaken the incentive to work at all, on average. However, those on low to middle earnings without children will see their work incentives strengthen because of the increase in the income tax personal allowance.
- On average, the incentive for the vast majority of workers to earn a little more will be slightly weakened as a result of these reforms. Some workers will see their marginal effective tax rates increase more substantially as a result of these changes – the number of individuals paying the higher 40% rate of income tax will increase by 750,000. However, some workers will face a lower marginal effective tax rate as a result of these reforms, in particular those brought out of the income tax and National Insurance systems by increases in the thresholds at which these taxes start to be paid.
- If the government were to meet its aspiration of having a £10,000 income tax personal allowance in 2015–16, this would increase the number of higher-rate taxpayers by a further 850,000 and take another million people out of income tax altogether.

# 1. Checking out the supply side of the economy

Michael Dicks (Barclays Wealth)

## Summary

- Last year, we argued that the UK was likely to find that its productive capacity had been severely impaired by the financial crisis. Accordingly, we suspected that the (negative) output gap reached something like only 4% of productive capacity at its maximum, and averaged just over 3% during FY2009–10, as opposed to the official Treasury view of it averaging more than 6% at that time. We also argued that the potential growth rate of the economy in the years ahead was likely to be much slower than what the Treasury judged it would be, rising by close to 1¾% per annum by 2014 in our estimation, instead of the 2¾% that the Treasury had assumed in the December 2009 Pre-Budget Report.
- Although the Treasury stuck to its guns in the March 2010 Budget, the official view of the economy's supply side changed dramatically after the election. The new Office for Budget Responsibility (OBR) – charged with the preparation of macroeconomic and fiscal forecasts – revised down sharply the official view of both the output gap (to just over 4% of potential during FY2009–10) and potential growth (to just over 2%).
- Using a variety of methods, we estimate that the output gap is probably a little smaller than what the OBR is assuming. Our estimates seem to do a good job when employed to help explain why inflation turned out higher than many expected last year. We also believe that potential GDP growth is slightly lower than what the OBR has estimated it to be.
- Looking ahead, an updated forecast of our supply-side analysis suggests that productivity growth will only rise gradually in the years ahead, averaging about 1% per annum over the next five years. Accordingly, our predicted profile for potential GDP registers only a mild acceleration over the next few years, with the annual growth rate not reaching its long-run sustainable rate (of 1¾%) until 2014. We continue to worry that the official view of future prospects, as contained in the OBR's analysis, is overly complacent about both future inflation risks and the scale of the required fiscal consolidation. Relative to a year ago, however, the gaps between our own and the official forecasts are now a lot smaller.

## 1.1 Introduction

'Supply' has been *the* really big issue for economists to grapple with over the past year or two, for the simple reason that, although it is normally a pretty dull affair – with potential growth rates for developed economies only gradually shifting from year to year by one or two tenths of one per cent – of late, it has got very exciting: some have argued that the 'hit' from the financial crisis for an economy such as the UK could be of the order of 10% on the level of supply. Moreover, some have also suggested that there may have been a permanent hit to potential growth of 1 percentage point per annum.

Given this room for disagreement concerning supply, and given that we know fairly precisely what has happened to demand (with just a little room for disagreement given the likelihood of there being some (small) revisions to current estimates of national income), estimates of the amount of spare capacity in the economy – the ‘output gap’ – vary enormously between the optimists’ and the pessimists’ numbers. Why does that matter so much? First, because a ‘big’ output gap is likely to indicate a relatively ‘small’ hole in public finances in need of repair by recourse to spending cuts and tax rises, and vice versa: a ‘small’ output gap means a ‘big’ estimated structural budget deficit. Second, because the size of the output gap will determine how much employment and earnings can grow by before capacity constraints start to create inflationary pressures.

In this chapter, we first briefly review the varying official estimates of supply that have been published over the past year – and, given the change of government, two Budgets, one Spending Review and one Autumn Forecast, there have been a lot of them. This serves to highlight that the gap between our own view on aggregate supply and the official one has narrowed somewhat, but not to the point that it is no longer interesting or important (Section 1.2). In Section 1.3, we look at two alternative ways of attacking the question of how big the output gap is, both of which entail using survey data to help improve the quality of the estimation of the gap. We then turn to examine the outlook for growth in potential output (Section 1.4). Finally, we check on the usefulness of our ‘best’ estimates, by seeing if they help explain what has happened to inflation over the past year better than do the official ones. This exercise helps corroborate our findings that the amount of spare capacity is likely to be less than what the Office for Budget Responsibility (OBR) suggests it to be, and the economy’s potential growth rate lower (Section 1.5). Section 1.6 concludes.

## 1.2 Recent estimates of ‘supply’

In last year’s Green Budget, we argued that the historical evidence suggested that the financial crisis was likely to have a more debilitating effect on the UK economy’s ability to supply goods and services than the Treasury had suggested would happen, affecting not just the level of aggregate supply, or potential, but also its future growth rate.<sup>1</sup>

Surveying the literature, and carrying out a few new analyses using a long run of UK data, we surmised that the overall hit to the level of potential GDP might be of the order of 7½%. And our studies pointed to the long-run (‘trend’) growth rate having fallen from 2½% per annum pre-crisis to around 1¾% by 2015, or ¾ percentage points lower once the ‘temporary’ effects of the crisis have worked their way through the numbers. These figures compared with a 5% hit to potential GDP that the 2009 Pre-Budget Report had pencilled in, and no impact on potential growth going forwards: the Treasury reckoned that growth was likely to return to the 2¾% that its economists had opined as the economy’s pre-crisis potential growth rate.<sup>2</sup>

These widely different estimates of potential GDP have implications for the output gap, and hence the level of the structural (or ‘cyclically-adjusted’) budget deficit, and, in so

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<sup>1</sup> See M. Dicks, ‘The UK’s productive capacity: surveying the damage’, in R. Chote, C. Emmerson and J. Shaw (eds), *The IFS Green Budget: February 2010*, IFS Commentary 112 (<http://www.ifs.org.uk/budgets/gb2010/10chap1.pdf>).

<sup>2</sup> We use the adjective ‘Treasury’ to describe the official view although it is, of course, possible that the view of Treasury officials was different from that of their bosses. Perhaps it was really the ‘Alistair Darling’ view, for example. For simplicity, we will refer to the published view as being the ‘Treasury’ view hereafter.



doing, affect what might be termed the potential impact of potential GDP on public finances. Whereas the 2009 Pre-Budget Report had reckoned on an output gap of around 6½% of potential national income at the end of last financial year, our own estimates had it pencilled in at only about 3%.<sup>3</sup> Accordingly, where the Treasury gauged the FY2010–11 structural current budget deficit to be 5.4% of national income, our figures were more than 2 percentage points higher, at 7.6% of national income: this difference was important, as our estimates implied that a greater fiscal tightening would be required if the deficit was to be lowered substantially over the lifetime of the new government, regardless of who ended up in power after the soon-to-be-held general election.

Before the 2010 election actually took place, the Labour government presented its March 2010 Budget, in which it included, inter alia, a spirited defence of its assumptions regarding the hit to national income from the crisis, although admitting to its projections being ‘subject to a significant degree of uncertainty’. Indeed, it not only reiterated its earlier analysis that the output gap exceeded 6% of potential national income by end-2009, but actually lowered slightly its gauge of the cyclically-adjusted current budget deficit in 2009–10 from 5.4% of national income to 4.8% (thanks largely to lower-than-expected out-turns).<sup>4</sup> Accordingly, the then Chancellor, Alistair Darling, chose not to make any radical departures from the previous planned fiscal tightening – sticking to the broad pace and scale of the 2009 Pre-Budget Report plans, which, if our estimate of the output gap was correct, would have probably been insufficient to restore public finances to probity. (The new measures, announced to run over the following three years, totalled less than £¾ billion – a rounding error compared with our projected 5.4% of GDP cyclically-adjusted current budget deficit for FY2014–15 – although as a pre-election Budget, it had the obvious merit of not increasing the size of the hole in the public finances any further.)

After the election, the new coalition government announced a big shift in the fiscal institutional structure with the formation of the Office for Budget Responsibility.<sup>5</sup> The aim of this body is to limit the room for political interference in the management of the state’s public finances by giving it responsibility (previously held by the Chancellor) both for forecasting and for assessing the amount of spare capacity currently available. Thus, it will be responsible for ruling on such sensitive issues as the size of the structural budget deficit. The government retains, however, the responsibility for deciding on the appropriate fiscal rule and the policy changes to implement in the event of a fiscal tightening being necessary (or a fiscal loosening being possible).

As an interim measure, the OBR was set up under the chairmanship of Sir Alan Budd, who – with the help of two members of the Budget Responsibility Committee (Geoff Dicks and Graham Parker) – was charged with reviewing the aggregate supply potential of the economy, and spelling out the implications for the output gap and cyclically-adjusted budget deficit, using the existent Treasury team of economists. Given the latter’s recent

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<sup>3</sup> These figures come from table 6.7 in R. Chote, R. Crawford, C. Emmerson and G. Tetlow, ‘Green Budget public finance forecasts’, in the February 2010 Green Budget (<http://www.ifs.org.uk/budgets/gb2010/10chap6.pdf>).

<sup>4</sup> The details of its reassessment of potential national income in the light of our analysis and the work done by the IMF and OECD on the subject were contained in annex B of HM Treasury, *Budget 2010: Securing the Recovery*, April 2010 ([http://webarchive.nationalarchives.gov.uk/20100407010852/http://www.hm-treasury.gov.uk/budget2010\\_documents.htm](http://webarchive.nationalarchives.gov.uk/20100407010852/http://www.hm-treasury.gov.uk/budget2010_documents.htm)). The implications for the state of the public finances were contained in chapter 2 of the same report.

<sup>5</sup> For details of the announcement, see [http://www.hm-treasury.gov.uk/d/press\\_01\\_10.pdf](http://www.hm-treasury.gov.uk/d/press_01_10.pdf). A discussion of the operation of the OBR, both in principle and in practice, can be found in Chapter 2.



adjudication on the subject in the March 2010 Budget, it might have been reasonable to expect little shift in the Treasury's assessment of the impact of the crisis on potential. In fact, a major move was made in the direction of what we had suggested was a reasonable interpretation of the facts, with the OBR's pre-Budget assessment (published the week before the new government's June 2010 Budget) resulting in three significant changes from the March Budget's assessment:

- The OBR reckoned that the output gap during FY2009–10 amounted to only about 4% of potential national income, quite a lot closer to what we had gauged it to be than to the Treasury's Budget assessment published in the spring (Figure 1.1).<sup>6</sup>
- The OBR gauged that the economy's potential growth rate was likely to run at just 2.1% between the first quarter of 2014 and the first quarter of 2016, i.e. rather less than the 2¾% per annum previously assumed by the Treasury to occur from the second half of 2010 onwards, but higher than the 1¾% that we had suggested it would be reasonable to expect.
- The OBR estimated that the cyclically-adjusted current budget deficit in FY2009–10 amounted to some 5.3% of national income (Figure 1.2). Again, the OBR assessment was between our own and the Treasury's assessments, although its estimates were rather closer to the Treasury's than to ours. The main reason for this is that the actual budget deficit on the current budget had turned out lower than seemed likely six months earlier. (On this measure, the deficit was around 7½% of GDP, or about ¾ of a per cent of GDP lower than we had predicted it to be in February.) In making its calculations, the OBR assumed that the impact of the cycle on public finances was much the same as what both we and the Treasury have assumed is the case.<sup>7</sup>

Given this more gloomy assessment, compared with that of his predecessor, the new Chancellor, George Osborne, had a justification to adopt a more aggressive fiscal tightening than his predecessor.<sup>8</sup> It was hardly surprising, therefore, that in the June 2010 Budget he added £32 billion a year to the previously planned £52 billion a year of spending cuts, along with an additional £8 billion a year of tax rises to go alongside the £21 billion a year inherited from the Labour government.

In late November, the OBR – now under the new chairman, Robert Chote (he, Stephen Nickell and Graham Parker now comprise the Budget Responsibility Committee) – reassessed its initial assessment, in the form of the Autumn Forecasts.<sup>9</sup> In that document, the OBR broadly concurred with Sir Alan's findings, with mere tweaks to the previous analysis, as shown in Figures 1.1 and 1.2. From the government's perspective, the resultant changes were too small to warrant adjusting the fiscal stance. In other words, the Treasury let it be known that this was not a 'fiscal event' (i.e. something that required

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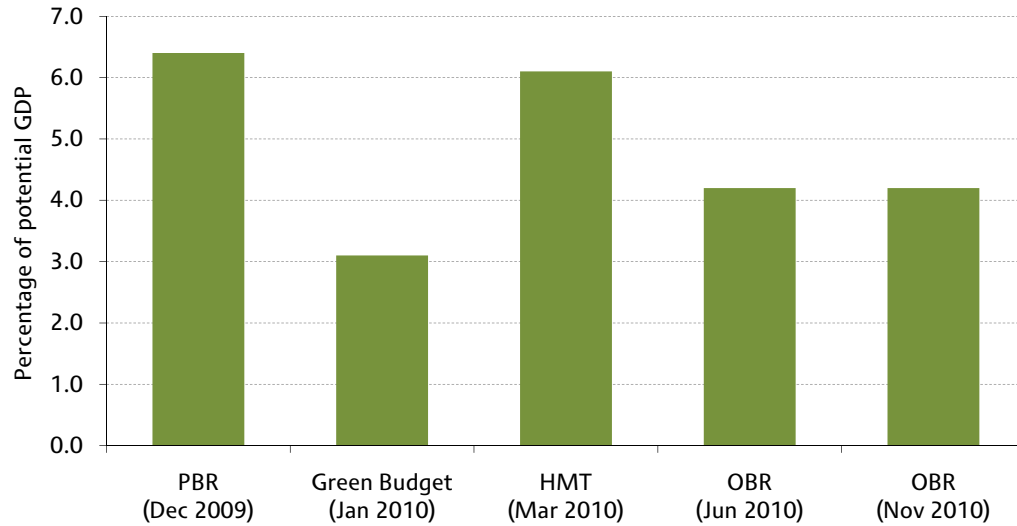
<sup>6</sup> See, for example, chart 1.1 within the supplementary material released along with the OBR's June forecasts, available at [http://budgetresponsibility.independent.gov.uk/d/junebudget\\_supplementary\\_material.pdf](http://budgetresponsibility.independent.gov.uk/d/junebudget_supplementary_material.pdf).

<sup>7</sup> A simple rule of thumb, to translate output gap estimates into impacts on the current budget balance, is to use a multiplier of around 0.5. (So, for example, an output gap of 4% of GDP should be responsible for just over 2 percentage points of the budget deficit (as a percentage of GDP).) The Treasury recommends also making allowance for lags, with an additional second-year multiplier of 0.2. For details, see HM Treasury, *Public Finances and the Cycle*, Treasury Economic Working Paper 5, November 2008 ([http://webarchive.nationalarchives.gov.uk/20100407010852/http://www.hm-treasury.gov.uk/prebud\\_pbr08\\_publicfinances.htm](http://webarchive.nationalarchives.gov.uk/20100407010852/http://www.hm-treasury.gov.uk/prebud_pbr08_publicfinances.htm)).

<sup>8</sup> Of course, even without such a reassessment, he might have chosen to adopt a more forthright fiscal tightening. But the changes certainly made it easier to sell a more radical tightening.

<sup>9</sup> Office for Budget Responsibility, *Economic and Fiscal Outlook: November 2010* (<http://budgetresponsibility.independent.gov.uk/econ-fiscal-outlook.html>).

Figure 1.1. Evolving estimates of the size of the output gap in FY2009–10

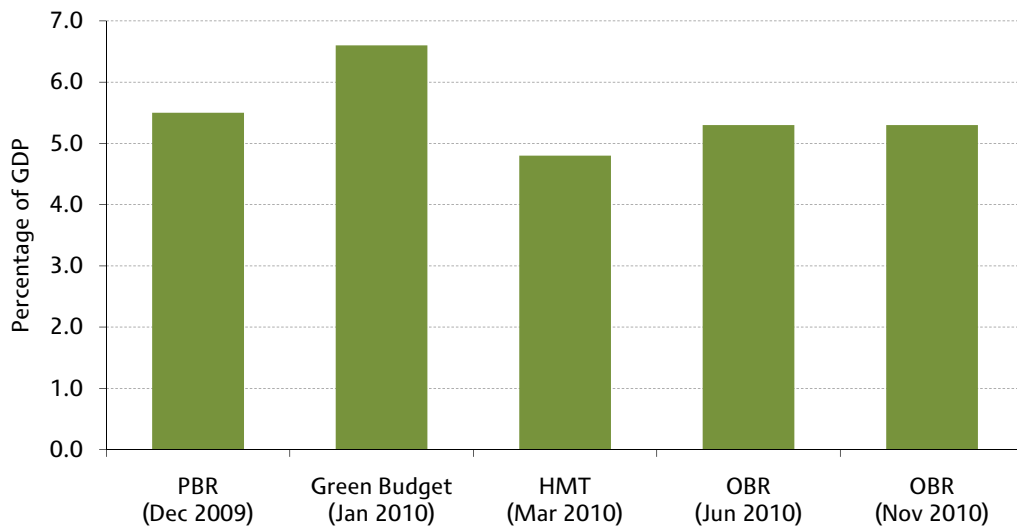


Note: The output gap is negative; actual GDP is below potential GDP.

Sources: In order of bars in graph: HM Treasury, *Pre-Budget Report 2009*, December 2009

([http://webarchive.nationalarchives.gov.uk/20100407010852/http://www.hm-treasury.gov.uk/prebud\\_pbr09\\_index.htm](http://webarchive.nationalarchives.gov.uk/20100407010852/http://www.hm-treasury.gov.uk/prebud_pbr09_index.htm)); M. Dicks, 'The UK's productive capacity: surveying the damage', in R. Chote, C. Emmerson and J. Shaw (eds), *The IFS Green Budget: February 2010*, IFS Commentary 112 (<http://www.ifs.org.uk/budgets/gb2010/10chap1.pdf>); HM Treasury, *Budget 2010: Securing the Recovery*, March 2010 (<http://webarchive.nationalarchives.gov.uk/20100407010852/http://www.hm-treasury.gov.uk/budget2010.htm>); Office for Budget Responsibility, *Pre-Budget Forecast: June 2010* ([http://budgetresponsibility.independent.gov.uk/d/pre\\_budget\\_forecast\\_140610.pdf](http://budgetresponsibility.independent.gov.uk/d/pre_budget_forecast_140610.pdf)); Office for Budget Responsibility, *Economic and Fiscal Outlook: November 2010* (<http://budgetresponsibility.independent.gov.uk/econ-fiscal-outlook.html>).

Figure 1.2. Evolving estimates of the cyclically-adjusted current budget deficit in FY2009–10

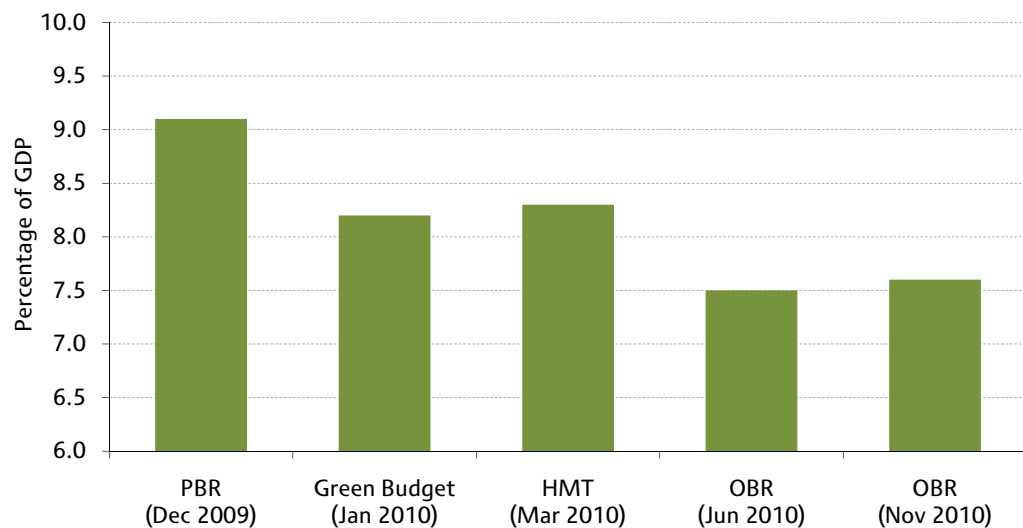


Sources: See Figure 1.1.

a policy shift). Accordingly, the new Chancellor noted the changes to the House of Commons, but did not lay out any tax or spending adjustments to go alongside them. Interestingly, however, the path for future government consumption, in volume terms, was raised by a cumulative 3 percentage points between 2011 and 2015 between the June and November OBR forecasts, of which half the shift up occurs this year and next. Most economists would, we suspect, define this as a significant shift in spending, but not, it would seem, the new government.

At first blush, Figure 1.2 makes our Green Budget analysis from last year stand out as the outlier. In fact, that is a rather rash judgement to draw. After all, between the March 2010 Budget and the subsequent OBR estimates there was a marked improvement in headline borrowing. This improvement almost cancelled out the deterioration in estimates due to the lowering of estimated trend/potential output. Figure 1.3, which shows the headline deficit estimates, helps make the point – showing a big drop in the headline (actual) current budget estimates taking place between the spring and early summer.

Figure 1.3. Evolving estimates of the headline current budget deficit in FY2009–10



Sources: See Figure 1.1.

So, what do we conclude from all this? Is there broad agreement over the hit to the economy’s supply capacity, and even of the resultant structural budget deficit once allowance has been made for recent public finances data, and therefore on the implied scale of fiscal effort on the part of the authorities to deal with it? The answer to these interlinked questions seems to be a firm ‘no’, and for two reasons.

The first, and more fundamental, reason is that our and the OBR’s figures are by no means identical: for example, there was a near 1 percentage point discrepancy in estimates of the scale of the output gap at end-2009, which would warrant a significant further adjustment to the planned fiscal tightening (of the order of 0.7% of national income, or roughly £10 billion), if our estimates turn out to be more accurate than the OBR’s.

The second reason concerns whether – even if the OBR’s estimate of the output gap, and of the resultant structural deficit, is accurate – the path down which the new government intends to tread is actually the right one or not. Might, for example, a front-loaded fiscal tightening that begins in 2010–11 when the recovery is in its infancy not just depress demand by more than the OBR assumes (and affect the output gap by lowering aggregate

demand relative to aggregate supply) but perhaps also lead to greater hits to supply as a consequence? (One route by which this might come about is if ‘cyclical’ unemployment becomes ‘structural’, say because those without work find that their skill levels deteriorate, turning them from being unemployed to almost unemployable – a process known as hysteresis.<sup>10</sup>) Indeed, if there is a perception that there is no ‘Plan B’, might such a tightening even lead to a further bout of downward pressure on sterling, fears concerning the sustainability of public finances and a possible downgrade of the UK’s triple-A rating – and perhaps too a significant worsening of the growth-inflation trade-off?

In the rest of this chapter, we start by re-examining the first of these issues, by looking at alternative means of gauging the amount of spare capacity to see whether or not we can corroborate our own previous assessment of the scale of the hit to potential GDP from the crisis and the current scale of the output gap. Later, in Chapter 4, we consider the second issue, by examining how much current planned fiscal tightening might depress demand, and thereby perhaps also influence supply.

### How the OBR attempts to gauge the ‘output gap’

In the latest publication from the OBR – its *Economic and Fiscal Outlook* (or Autumn Forecasts in the parlance of the new government) – chapter 3 goes to some lengths to explain how the OBR attempts to gauge the output gap, as well as providing a robustness analysis. Basically, it effectively uses three different approaches to see how much spare capacity there is in the economy:

- Considering what other forecasters – such as the OECD, IMF, European Commission (EC) and National Institute of Economic and Social Research (NIESR) – are saying about how big the output gap is. (Researchers at these institutions all use production functions to gauge the amount of slack in the economy.)
- Using surveys to gauge both the level of capacity utilisation and the scale of recruitment difficulties, and then weight them accordingly (using as a basis for doing so the labour and profit shares of national income).
- Using principal components analysis to identify the common (cyclical) trend in a set of indicators, including survey-based measures of capacity.

From these three different approaches, the OBR gauged that the output gap at the second quarter of 2010 was some 3¼% of potential national output, compared with the 4.2% of potential GDP that it estimated for 2009.

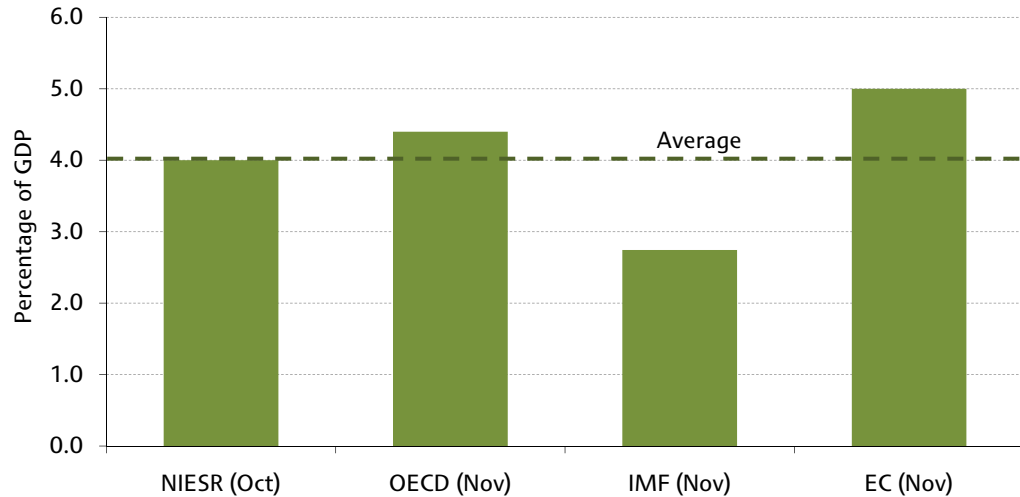
Taking the first of these approaches, Figure 1.4 shows the latest estimates of the 2010 output gap from the four external research teams cited by the OBR, along with their average. These estimates are similar to those that the OBR gathered together back in November, with the one significant change being the latest set of estimates from the EC. The EC, perhaps a little surprisingly when other bodies have been lowering their estimates over the past year, has decided to raise its estimate of the output gap, from about 4% of potential GDP to about 5%. Including the 5% figure, the average of the four external forecast groups’ 2010 output gap estimates turns out at just over 4% of GDP, or

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<sup>10</sup> This thesis was first laid out by Olivier Blanchard and Lawrence Summers; for details, see ‘Hysteresis and the European unemployment problem’, in the National Bureau of Economic Research’s *Macroeconomics Annual*, 1986.

smack on where the OBR chooses to put its own estimate. If one chooses to exclude the EC estimate, on the basis that it seems not only high compared with what it estimated back in the spring but to be bucking the trend, the average drops to 3.7%, suggesting perhaps a little downside risk to the OBR figure.

Figure 1.4. Comparing outside forecasters' assessments of the size of the 2010 output gap



Note: The OECD, IMF and EC all make their estimates available on their websites a month or so after publication of their new forecasts.

Sources: NIESR – *National Institute Economic Review*, October 2010 edition (for details, see <http://ner.sagepub.com/>); OECD – *OECD Economic Outlook*, December 2010 edition (for details, see [http://www.oecd-ilibrary.org/economics/oecd-economic-outlook\\_16097408](http://www.oecd-ilibrary.org/economics/oecd-economic-outlook_16097408)); IMF – *World Economic Outlook*, October 2010 edition (for details, see <http://www.imf.org/external/pubs/ft/weo/2010/02/index.htm>); EC – *European Economic Forecast: Autumn 2010* (for details, see [http://ec.europa.eu/economy\\_finance/eu/forecasts/2010\\_autumn\\_forecast\\_en.htm](http://ec.europa.eu/economy_finance/eu/forecasts/2010_autumn_forecast_en.htm)).

## Where our view differs from the OBR's

With the exception of some recent IMF research – which resulted in estimates of the output gap varying from 2% to 4% of potential national income – other external research teams use production-function-based approaches to infer how much spare capacity there is in the economy.<sup>11</sup> In last year's edition of the Green Budget, we also followed this (traditional) approach, i.e. using a production function to gauge potential GDP (or 'aggregate supply') and then calculating the output gap as the difference between actual GDP (or 'aggregate demand') and potential GDP as a percentage of the latter. (See Box 1.1.) To do this, however, requires one to make explicit assumptions regarding the hit to potential from the financial crisis (if any), with this hit coming via both impacts on the inputs to the production process (such as capital and labour) and to total factor productivity (TFP, i.e. the efficiency with which factor inputs are combined to produce value added).

<sup>11</sup> For details of the IMF's new work, see 'Estimating the UK's output gap', in *UK: Selected Issues Paper*, Country Report 10/337, November 2010 (<http://www.imf.org/external/pubs/ft/scr/2010/cr10337.pdf>). Note that the estimate shown in Figure 1.4 comes from the IMF's World Economic Outlook database. For details of that estimate, see <http://www.imf.org/external/pubs/ft/weo/2010/02/weodata/index.aspx>.

### Box 1.1. A production-function approach to estimation of potential GDP

A production-function approach to estimating potential GDP basically entails first regressing real GDP against measures of factor inputs (such as employment/total hours worked and the capital stock) in order to create a proxy for so-called total factor productivity (TFP), which is measured by the residuals from the model and acts as a gauge of the efficiency with which inputs are combined in order to produce value added (or 'output').

Once TFP has been gauged, it is possible to scale up actual employment to create a gauge of 'full employment' (say, by assuming that all unemployed workers might feasibly be as productive as currently employed ones if they had jobs), and then combine this with the capital stock data and the TFP estimates so as to produce a measure of aggregate supply, or potential GDP. This process is explained in some detail in last year's Green Budget.<sup>a</sup> The bottom line is that we use an equation of the following form to model potential GDP growth:

$$\Delta \log(\text{YPOT}) = \alpha \times [\Delta \log(\text{TFPT}) + \Delta \log(\text{POWAT}) + \Delta \log(\text{LFPRT}) + \Delta \log(1 - \text{NAWRU}) + \Delta \log(\text{HOURST})] + (1 - \alpha) \times \Delta \log(\text{K})$$

where the  $\Delta$  term refers to the one-period (in our case, annual) rate of change of a variable.

The left-hand side of the equation is simply the annual growth rate of potential GDP (YPOT), with the right-hand-side terms providing a means of calculating contributions from the six variables that help determine it. These six are: total factor productivity (TFP), the population of working age (POWA), the labour force participation rate (LFPR), the non-accelerating wage rate of unemployment (NAWRU), the average hours worked per worker (HOURS), and the capital stock (K). The 'T' at the end of some variable acronyms on the right-hand side of the equation refers to the fact that we use trend measures of each of the driving variables.

a. See box 1.1 of M. Dicks, 'The UK's productive capacity: surveying the damage', in the February 2010 Green Budget (<http://www.ifs.org.uk/budgets/gb2010/10chap1.pdf>).

To help justify the adjustments that we made to the raw data as a 'guess-estimate' of the effects of the crisis, we looked at studies carried out by the OECD and the IMF that had used past crises to help ascertain what the impacts of past financial crises had been on various economies. Not surprisingly, the range of impacts was wide, implying that any such 'judgement-based' analyses should be treated with a large pinch of salt. For that reason, as well as updating last year's analysis, we believe that it is important to consider alternative approaches to gauging aggregate supply.

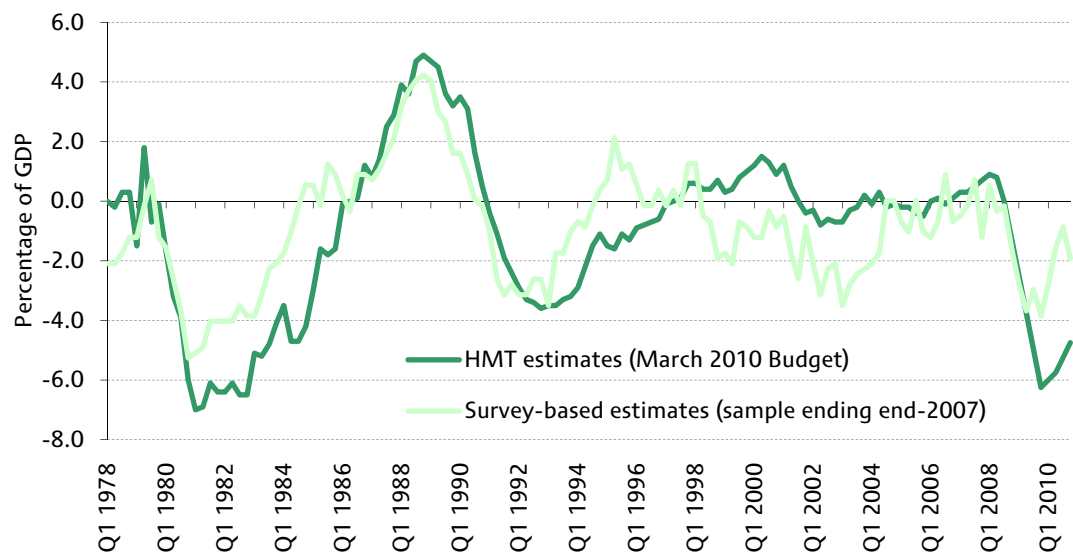
## 1.3 Using survey data to gauge 'supply'

In order to update last year's analysis, this year we start with a similar approach to the one that the OBR has adopted, by looking at the various survey measures compiled by the likes of the Confederation of British Industry (CBI), the British Chambers of Commerce (BCC), the Bank of England's agents (BoE), the European Commission's version of the CBI

survey<sup>12</sup> and a number of Grant Thornton sectoral series related to the willingness to boost investment spending in order to expand capacity. But rather than simply look for common trends in the survey data – as the OBR chooses to do – we take a different approach.<sup>13</sup>

First, we examined pre-crisis data to see if we could find a weighted average of the survey measures that provided a good fit to either production-function-based or filter-based estimates of the output gap.<sup>14</sup> Using the best such equations that we could find – which turn out to do a fairly good job in corroborating the traditional approach to gauging output gaps – we then ‘ran the models forward’, using data that cover both the financial crisis and the post-crisis period, to see what the models suggest has happened to the output gap over the past three years, given the survey data that have been collected over

Figure 1.5. Using survey-based measures to explain past Treasury estimates of the output gap and to provide estimates of the output gap since 2007



Notes: The HMT estimates come from last spring’s Budget. The survey-based estimates come from our attempt to explain this series, using as explanatory variables a number of business survey series, and a sample that ended pre-crisis (in 2007).

Sources: Barclays Economics Research and HM Treasury, *Budget 2010: Securing the Recovery*, March 2010 (<http://webarchive.nationalarchives.gov.uk/20100407010852/http://www.hm-treasury.gov.uk/budget2010.htm>).

<sup>12</sup> The European Commission attempts to make the business survey results more easily comparable across countries by re-weighting some of the raw series responses that it receives from individual country data and by using its own seasonal adjustment processes to adjust the raw data. For the UK, it takes the raw data from the CBI surveys for the manufacturing sector. For further details of the EC’s harmonisation efforts, see [http://ec.europa.eu/economy\\_finance/db\\_indicators/surveys/index\\_en.htm](http://ec.europa.eu/economy_finance/db_indicators/surveys/index_en.htm).

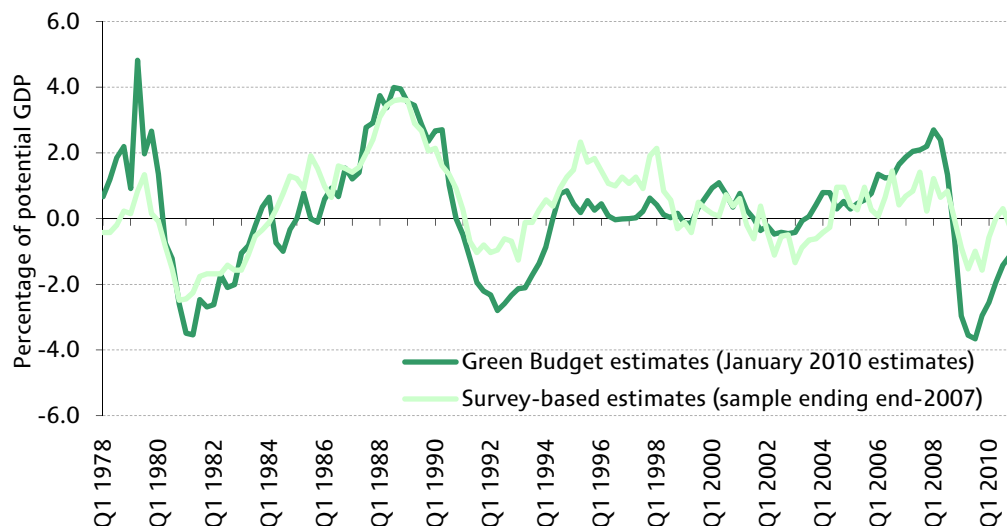
<sup>13</sup> Note that we have not investigated a purely statistical approach to gauging output gaps, such as the principal components approach that the OBR used. However, a recent attempt by some IMF researchers to use a multivariate filter to measure potential output concluded – like our work – that the UK’s output gap was probably only about 2% of potential GDP in mid-2010. For details, see J. Benes, K. Clinton, R. Garcia-Saltos, M. Johnson, D. Laxton, P. Manchev and T. Matheson, ‘Estimating potential output with a multivariate filter’, IMF Working Paper 10/285, 2010 (<http://www.imf.org/external/pubs/ft/wp/2010/wp10285.pdf>).

<sup>14</sup> Given that there was a strong consensus about the scale of the output gap pre-crisis – i.e. that it was small – it actually turns out to make little difference which set of output-gap estimates we use as the dependent variable in this exercise. So, we actually tried using both approaches, and checked for the robustness of our findings by using both the March Budget (Treasury) production-function-based output gap estimates and those that we published in last year’s Green Budget as the dependent variables when building survey-based models of the output gap. The filter that we used to gauge potential GDP was the Hodrick–Prescott filter. For further details, see [http://en.wikipedia.org/wiki/Hodrick-Prescott\\_filter](http://en.wikipedia.org/wiki/Hodrick-Prescott_filter).



that time. Interestingly, when using the Treasury estimates of the output gap as the dependent variable, as shown in Figure 1.5, this approach suggests that the output gap at the end of 2009 was more or less spot on what our judgement-aided production-function-based approach had suggested it was at that time (as published in last year's Green Budget). Running the model forward, through 2010, the survey-based model suggests that the output gap shrank to under 2% of potential GDP by end-year.

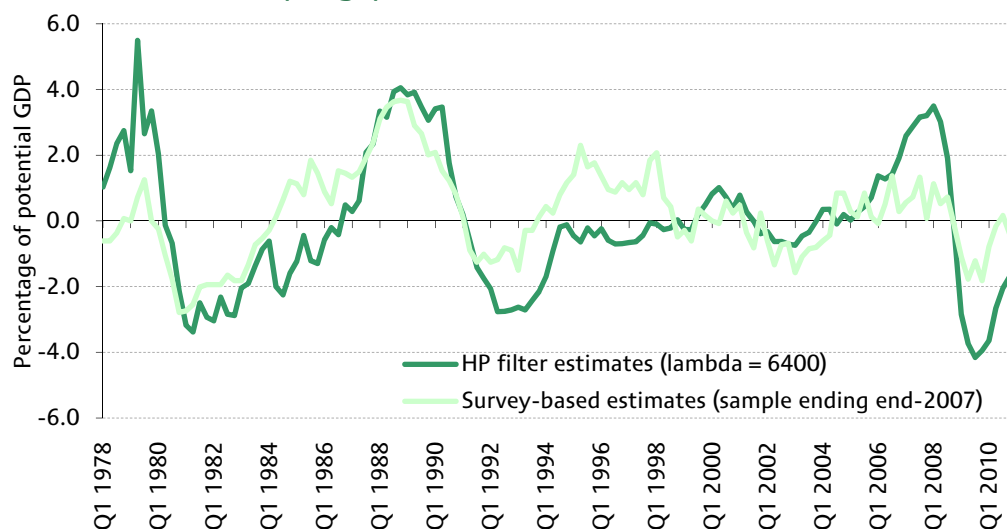
Figure 1.6. Using survey-based measures to explain our own 'old' production-function-based estimates of the output gap and to provide estimates of the output gap since 2007



Notes: The 'old' production-function-based output gap estimates are those that we published in last year's Green Budget. The survey-based estimates are the fitted values to that series, using a sample that ends in 2007, and using a number of business survey measures as explanatory variables.

Source: Barclays Economics Research.

Figure 1.7. Using survey-based measures to explain changes in a Hodrick–Prescott filter-based set of estimates of the output gap and to provide estimates of the output gap since 2007



Notes: The HP filter output gap estimates are based on a Hodrick–Prescott filter applied to actual GDP. Again, the survey-based estimates are the fitted values to that series, using a sample that ends in 2007, and using a number of business survey measures as explanatory variables.

Source: Barclays Economics Research.



When we use either our own estimates of the output gap (published in last year's Green Budget) as the dependent variable, or a filter-based series – as shown in Figures 1.6 and 1.7 respectively – we find a slightly more scary result, with both of the new survey-based models reckoning that the output gap was smaller than what we gauged it to be a year ago. At end-2009, for example, the two specifications point to a gap between aggregate demand and aggregate supply of only between 1½ and 2% of supply. Running the models forward, both suggest that the output gap has already effectively closed fully. This contrasts sharply with the OBR's assessment that the output gap was around 3¼% in the second quarter of last year.

## Using both surveys and a production function

One potential problem with the approach set out in the previous subsection, as highlighted a few months ago by the IMF in its *Selected Issues Paper* on the United Kingdom,<sup>15</sup> is that, when asked about their operating rates or capacity utilisation, survey respondents may simply be thinking of how much output they could produce if they fully utilised existing capital, i.e. what might be called an only 'short-run' definition of an economy's supply capacity. As a result, the IMF's researchers suggest adjusting the methodology used to gauge TFP by allowing for the possibility that survey-based measures of capacity utilisation provide a better way of adjusting raw TFP for the economic cycle than simply passing them through a filter.<sup>16</sup>

From a practical perspective, the IMF found that TFP measures based on 'adjusted' TFP still showed a marked slowdown from late 2007, resulting in an output gap measure that is smaller than what a standard production-function-based approach – such as that used by the OECD – suggests was the case, but larger than that gauged when using a Hodrick–Prescott filter (or, for that matter, from a simple survey-based approach such as that we have just illustrated). For example, in the second quarter of 2010, the IMF estimated the output gap to be nearly 4% of GDP using this new approach, compared with its maximum value (in late 2009) of about 5%. The OECD's 'raw' production-function-based measure in the second quarter of 2010, by contrast, was a rather bigger 6.3% of GDP.

One potential – but, it turns out, quite important – problem with the IMF's approach is that it has used a manufacturing-based estimate of capacity utilisation (based on the European Commission's version of the CBI manufacturing survey results), whereas fluctuations in the aggregate economy's capital stock may well vary rather less than for this (very cyclical) sector. In services, for example, production processes are likely to be

<sup>15</sup> 'Estimating the UK's output gap', in *UK: Selected Issues Paper*, Country Report 10/337, November 2010 (<http://www.imf.org/external/pubs/ft/scr/2010/cr10337.pdf>).

<sup>16</sup> In other words, rather than estimate TFP using a traditional decomposition of the form set out in Box 1.1, the IMF staff propose adjusting the key equation to take account of time-varying capacity utilisation. This basically involves adjusting the final term such that the measure of capital (K) is interacted with a measure of capacity utilisation (based on survey data). This result is an adjusted TFP measure (which is hopefully purged of the business-cycle-related variation in capacity utilisation). Or, more formally, rather than estimate TFP using a traditional ('Solow') decomposition of the form

$$\ln(Y) = \alpha \times \ln(\text{POWA} \times \text{PR} \times (1 - \text{UR}) \times \text{H}) + (1 - \alpha) \times \ln(K) + \varepsilon \quad (1)$$

where  $\ln$  stands for the natural logarithm, Y is output, POWA is the population of working age, PR is the participation rate, UR is the unemployment rate, H is average hours worked per worker and K is the capital stock, and with  $\alpha$  being the labour share of income and  $\varepsilon$  the residual – i.e. the proxy for TFP – the IMF staff propose adjusting (1) to take account of time-varying capacity utilisation, using the formula

$$\ln(Y) = \alpha \times \ln(\text{POWA} \times \text{PR} \times (1 - \text{UR}) \times \text{H}) + (1 - \alpha) \times \ln(\text{CU} \times K) + \varepsilon^* \quad (2)$$

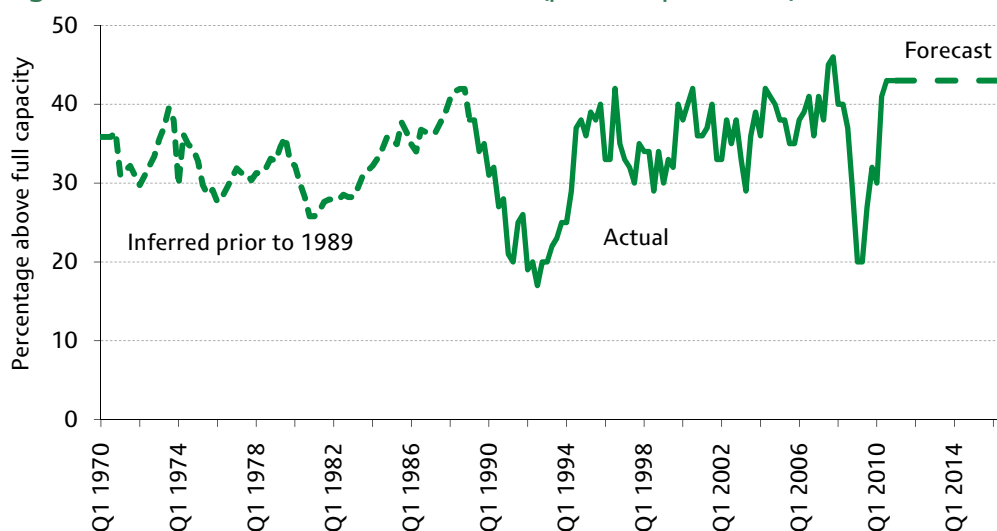
where CU is capacity utilisation (based on survey data) and  $\varepsilon^*$  stands for the adjusted TFP measure (which is hopefully purged of the business-cycle-related variation in capacity utilisation).

Figure 1.8. Utilisation rates in manufacturing



Source: Confederation of British Industry.

Figure 1.9. Utilisation rates in services (proxied pre-1989)



Note: Prior to 1989, the utilisation rate for services has been proxied on the basis of movements in the manufacturing sector's utilisation rate.

Sources: Confederation of British Industry; British Chambers of Commerce; Barclays Economics Research.

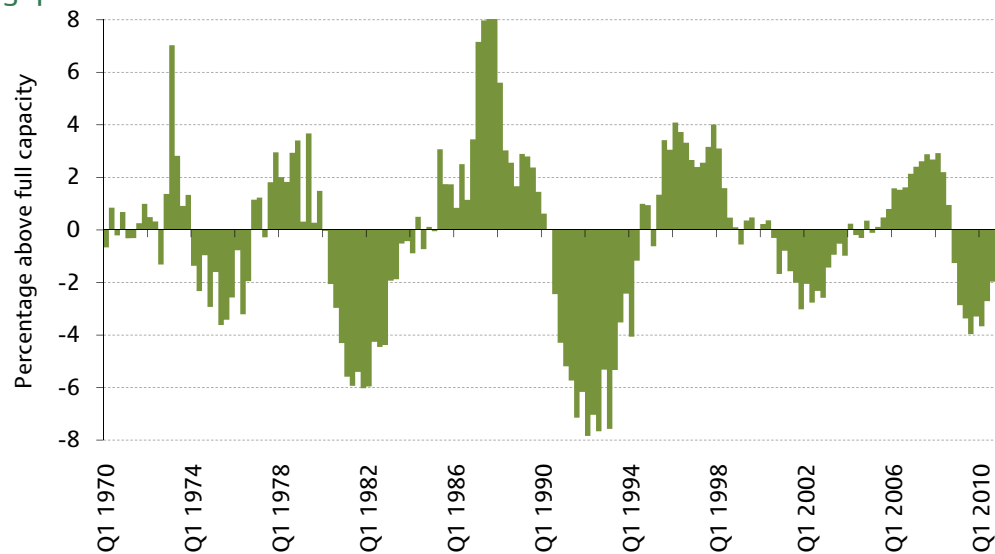
rather more labour intensive, and the cyclical variation in output (in terms of the amplitude of the peak-to-trough shifts in output) is probably somewhat less than for manufacturers. Accordingly, the IMF's approach seems to bias its analysis.

In order to check for this possibility, we tried using a weighted average of manufacturing and services measures of capacity when adjusting the capital stock, and thus created our own (new) gauge of 'adjusted' TFP. First, however, we had to create a proxy series for the services component for the period prior to 1990, as survey data on this sector are only available since that time.<sup>17</sup> Figures 1.8 and 1.9 show the component series, including the inferred (proxy) services values for the 1970s and 1980s.

<sup>17</sup> To do this, we regressed the services component against the manufacturing one for the (overlap) period (starting in 1989 and ending in 2010), i.e. that period over which both series have been published. Then, using

Using this ‘amended-IMF’ approach to gauge ‘adjusted’ TFP, we are able to produce a new set of IMF-style potential GDP estimates. Comparing these with actual GDP, we find that the resultant output gap series is estimated to have been close to 4% of potential national income at its maximum during the recent recession – in the third quarter of 2009 – but to have dropped in size to around 2% of potential national income by the end of last year (Figure 1.10).<sup>18</sup> In the second quarter of 2010, our IMF-style output gap was estimated to be around 2¾% of potential GDP, or more than a full percentage point smaller than the IMF’s estimate for this quarter. In other words, the bias that results from using just manufacturing data, as the IMF did, appears to be considerable, and failing to adjust for this factor seems to result in a significant overestimate of the amount of spare capacity that is available in the economy today.

Figure 1.10. An IMF-style ‘adjusted-TFP-based’ measure of the output gap



Notes: The approach that we adopt here is similar in spirit to that used by some IMF researchers in a *Selected Issues Paper*. The main text provides further details.

Sources: For the IMF paper, see <http://www.imf.org/external/pubs/ft/scr/2010/cr10337.pdf>. The estimates shown in the chart have been made by Barclays Economics Research.

When it comes to the rate of potential GDP growth, the new survey-adjusted production function suggests there were two years during which aggregate supply only expanded by a little over ¼% per annum (i.e. 2008 and 2009), followed by a year in which potential growth picked up to about 1%. Looking ahead, it – like our analysis last year – predicts potential GDP growth of around 1¾% per annum.

It is important to recognise, however, that this assessment is sensitive to what one assumes will happen to ‘trend’ TFP going ahead and/or what will happen to ‘trend’ capacity utilisation. We assume both change little from their current values. But we could easily be wrong. For example, as Figure 1.11 makes clear, the trend in TFP has been downward for some time, and it is certainly possible that this trend persists, which would

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this regression, we were able to back out proxy values for the services capacity utilisation series for the period 1970 to 1988, i.e. for the years prior to the series being available. We were then able to create a weighted average of the manufacturing and services utilisation rates to create a whole economy proxy, using weights of two-thirds and one-third, reflecting their broad shares in overall economic activity.

<sup>18</sup> Interestingly, this gauge of the output gap suggests that the recession of the early 1990s actually saw a rather bigger output gap open up than did the recent recession. If so, then the supply hit from the financial crisis must have been very big.

drag potential GDP growth below our central estimate. On the other hand, actual TFP has actually bounced back smartly of late – as Figure 1.11 illustrates – and this could mark the beginnings of a trend towards higher TFP, and a more optimistic assessment of potential GDP in the future. We have tried to steer a middle course through these opposing views. Given, however, that our proxy is based on the residuals from a regression – and thus represents an explicit measure of what we *don't* know about moves in supply – we should accept that any forecast for TFP ought to have wide error bands. In other words, we should have little conviction in any point forecast, and wide confidence levels around *all* such predictions.

Figure 1.11. Total factor productivity



Notes: TFP residuals are calculated by regressing actual GDP against measures of capital and labour. They therefore provide a gauge of the efficiency with which inputs are combined to produce value added. For further details, see the main text.

Source: Barclays Economics Research.

Figure 1.12. Actual and trend capacity utilisation rates



Notes: The utilisation rate shown here is a whole-economy measure, comprising a weighted average of the two series, for manufacturing and services, graphed earlier (in Figures 1.8 and 1.9). Trend values have been calculated using a Hodrick–Prescott filter.

Sources: Confederation of British Industry; British Chambers of Commerce; Barclays Economics Research.

Much the same sort of remarks can be made about the trend in capacity utilisation, shown in Figure 1.12. Again, a sharp drop in utilisation rates has been followed by a bounce back which could, reasonably, be seen as a process that takes the percentage of firms operating at full capacity back to the sorts of levels that were common before the crisis. Were that to happen, then the trend in utilisation would gradually recover, as indeed we assume it will. However, it might be the case that the role of financing has shifted, with, say, firms choosing to maintain bigger buffers against fluctuations in demand by operating at less than full potential (say because the cost of finance turns out to be permanently higher post-crisis). Certainly there have occasionally been long periods in the past, such as the 1970s, when utilisation rates trended lower and lower. So, again, it seems reasonable to think that there are significant downside risks to our central trend-rising projection.

## 1.4 How we expect potential GDP to evolve

All in all, we remain convinced that the survey-based approaches and the survey-augmented production-function approaches confirm our basic thesis – that the OBR is probably being a little optimistic about the degree of spare capacity. (We judge that the output gap was close to 2% of potential GDP in the third quarter of 2010, whereas the OBR reckoned on it being around 3%.) We have less conviction in our view that potential growth in the years ahead will be lower than what it is assuming. (We judge that aggregate supply will expand at an annual rate of near to 1¾% rather than the 2.35% that the OBR is pencilling in for the period up to the end of 2013, and 2.1% thereafter.) Our lower conviction on this view reflects the fact that there are a lot more moving parts to the forecast of potential growth, as well as an inherent difficulty of disentangling the contributions to past fluctuations when the best that one can hope to do with any attribution analysis is end up with an estimated output gap that helps explain some other variable – such as inflation (which is something that we attempt in Section 1.5).

Below, we detail our best guesses of how potential GDP will evolve going ahead, using the same basic building blocks that we did last year. Table 1.1 shows how the various contributions to what might be termed ‘potential labour’ are expected to evolve, along with some charts showing the extent to which fluctuations in the main drivers are due to cyclical and trend changes, with the partitioning between the two carried out using statistical filters (Figures 1.13 through 1.16). The estimated contribution of labour to aggregate supply has shifted a little from what we showed last year. (The latest estimates of the population of working age reveal that the number of people in this category expanded a little faster in recent years than previous estimates suggested had happened, but our calculations suggest that this was broadly offset by a small upward revision to our estimate of the NAWRU, or non-accelerating wage rate of unemployment.<sup>19</sup>) All in all, though, it still seems that the contribution that labour was providing to potential GDP growth a decade ago, of about ½% per annum, has now become a small drag. And it looks likely to stay that way for a while yet.

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<sup>19</sup> This is the rate of unemployment consistent with a constant growth rate of wages. When actual unemployment is higher than the NAWRU, wages decelerate. When it is lower, they accelerate.

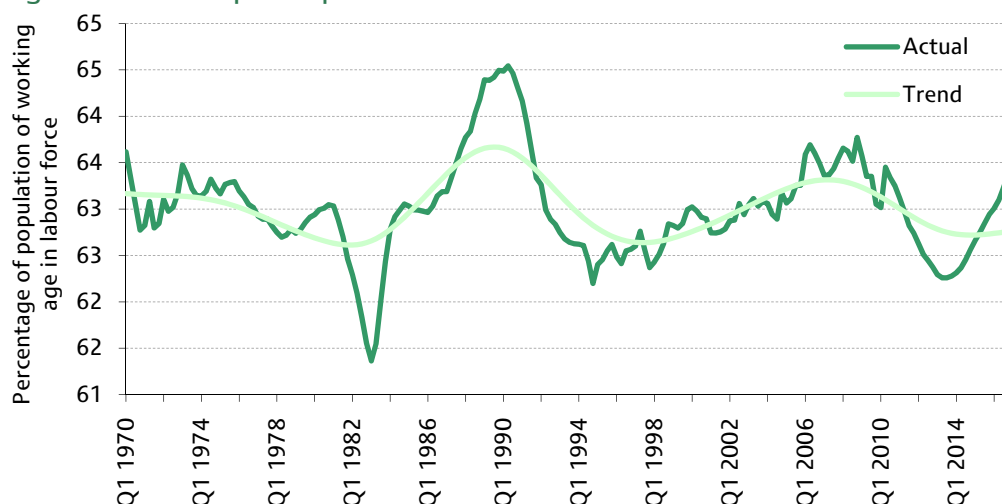
Table 1.1. The contribution of labour inputs to UK potential GDP growth (percentage points)

Factors:	Participation rate	Population of working age	Employment (NAWRU)	Hours worked	Total
1971–2009	0.0	0.5	-0.1	-0.3	0.2
1996–2009	0.1	0.6	0.1	-0.3	0.5
2001–2009	0.1	0.8	-0.1	-0.3	0.3
2001	0.1	0.6	0.4	-0.5	0.6
2002	0.2	0.7	0.2	-0.5	0.6
2003	0.2	0.7	0.1	-0.4	0.6
2004	0.1	0.8	0.0	-0.3	0.6
2005	0.1	0.8	-0.2	-0.2	0.5
2006	0.1	0.8	-0.3	-0.2	0.4
2007	0.0	0.8	-0.4	-0.3	0.2
2008	-0.1	0.8	-0.5	-0.3	-0.1
2009	-0.1	0.8	-0.5	-0.4	-0.3
<i>Forecasts</i>					
2010	-0.2	0.7	-0.5	-0.4	-0.4
2011	-0.2	0.7	-0.4	-0.4	-0.4
2012	-0.2	0.6	-0.3	-0.4	-0.2
2013	-0.1	0.6	-0.2	-0.3	-0.1
2014	-0.1	0.5	-0.1	-0.3	0.1
2015	0.0	0.5	0.0	-0.3	0.2
2016	0.0	0.4	0.0	-0.3	0.2

Note: The trend rates of the underlying components from the production function are calculated using an HP filter, which aims to decompose output into a permanent ('trend') component and a cyclical factor.

Source: Barclays Wealth Research estimates.

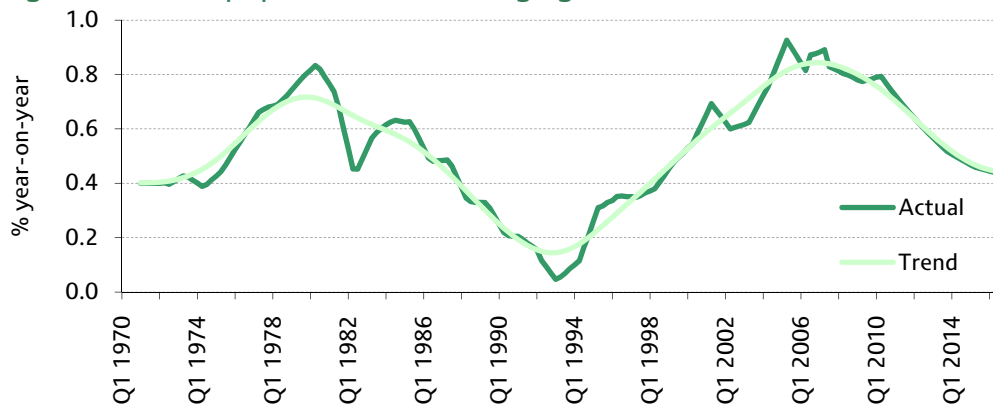
Figure 1.13. The participation rate



Note: Trend values have been calculated using a Hodrick–Prescott filter.

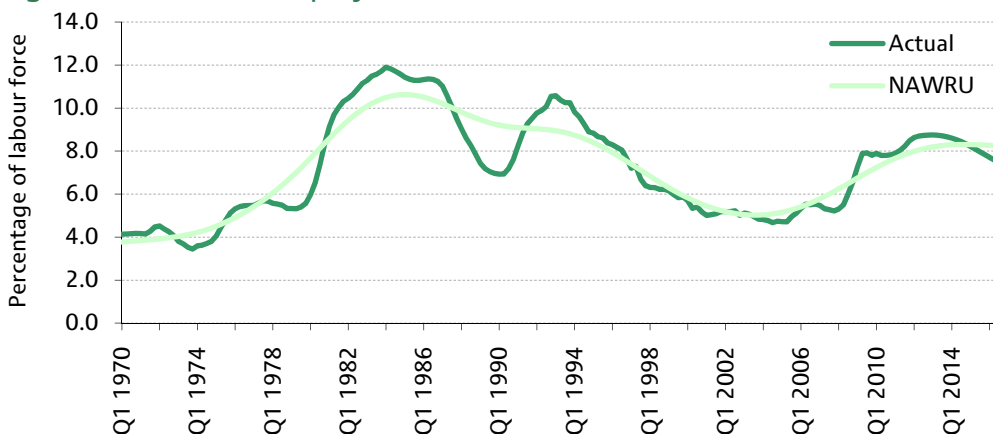
Sources: Office for National Statistics; Barclays Economics Research.

Figure 1.14. The population of working age



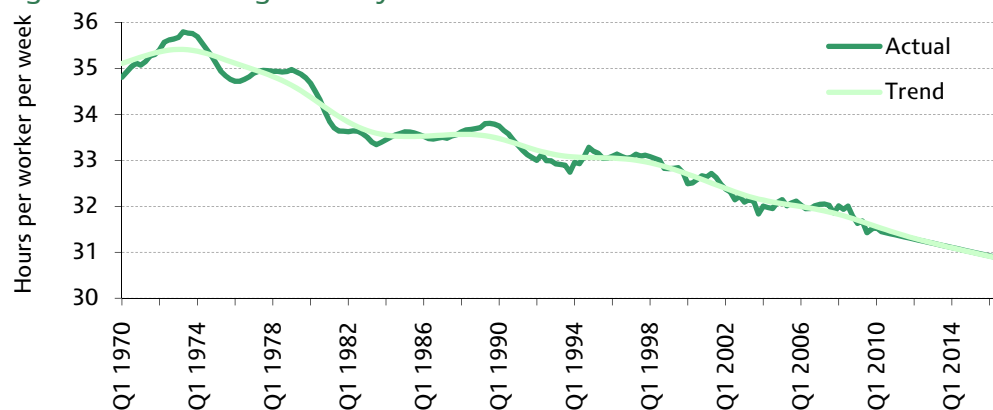
Note: Trend values have been calculated using a Hodrick–Prescott filter.  
Sources: Office for National Statistics; Barclays Economics Research.

Figure 1.15. The unemployment rate



Note: Trend values have been calculated using a Hodrick–Prescott filter.  
Sources: Office for National Statistics; Barclays Economics Research.

Figure 1.16. Average weekly hours



Note: Trend values have been calculated using a Hodrick–Prescott filter.  
Sources: Office for National Statistics; Barclays Economics Research

Table 1.2. The contribution of labour, capital and total factor productivity to UK potential GDP growth (percentage points)

Factors:	Capital deepening	TFP growth	Total contribution from labour variables and population (from Table 1.1)	Overall potential GDP growth from sum of filtered contributions	Actual or forecast GDP growth
1971–2009	0.9	1.3	0.1	2.2	2.2
1996–2009	1.0	1.2	0.3	2.5	2.2
2001–2009	0.8	1.0	0.2	2.0	1.5
2001	1.4	1.3	0.4	3.1	2.5
2002	1.1	1.2	0.4	2.7	2.1
2003	0.9	1.2	0.4	2.5	2.8
2004	0.8	1.1	0.4	2.3	3.0
2005	0.8	1.1	0.4	2.2	2.2
2006	0.8	1.0	0.3	2.0	2.9
2007	0.9	0.8	0.1	1.8	2.7
2008	0.5	0.7	–0.1	1.1	–0.1
2009	–0.2	0.7	–0.2	0.3	–4.9
<i>Forecasts</i>					
2010	–0.3	0.8	–0.3	0.2	1.4
2011	0.1	0.8	–0.2	0.7	1.8
2012	0.5	0.9	–0.2	1.2	2.1
2013	0.7	0.9	–0.1	1.6	2.2
2014	0.9	0.9	0.0	1.9	2.3
2015	1.1	0.9	0.1	2.1	2.5
2016	1.2	0.9	0.2	2.2	2.4

Note: The trend rates of the underlying components from the production function are calculated using an HP filter, which aims to decompose output into a permanent (“trend”) component and a cyclical factor.

Table 1.2 combines the contribution of labour to potential growth with that from capital and total factor productivity (TFP). Rather than use the IMF-style survey-based measures of capacity utilisation to measure the effective capital stock, we repeated the approach that we employed last year, basing the input from capital on the Office for National Statistics’ estimates of the services provided by capital. Accordingly, the numbers in Table 1.2 are very similar to those we produced a year ago.

## 1.5 Are output gaps actually useful?

Having convinced ourselves that the output gap analysis that we carried out last year seems to be broadly on track, we provide one last (but very important) check on its usefulness: we assess whether our output gap measure helps explain, in statistical terms, inflation. After all, if our pressure-of-demand gauge (i.e. the output gap) really is accurate, then it ought to help tell us when price pressures are building or stable or decreasing, even though it will be important to take account of other factors that also might influence inflation, such as the level of commodity prices, the value of sterling and tax rates.



The Treasury has clearly been concerned about the same issue and published a Working Paper on the subject in the spring of this year.<sup>20</sup> The authors concluded that ‘the level of the output gap has an important role in explaining inflation’, with this result being ‘robust across a range of output gap measures and for the all items CPI, goods CPI and services CPI’. Using their preferred model specification, based on their assessment that the output gap was in line with the official Treasury assessment made at the time of the Spring Budget and using Treasury projections for the main inputs to the model (such as input prices and known past shifts in VAT rates), the researchers produced an inflation forecast that was very benign, with price pressures set to gradually diminish during 2010 (to result in an annual rate of CPI inflation of a little under 2% by year-end) and with inflation set to remain close to the Bank of England’s target right through 2011 and 2012.

Of course, this projection was based on a gauge of the output gap that suggested that there was a huge amount of spare capacity at the trough of the recession: more than 6% of potential output. Thus, it is hardly surprising that the Treasury Working Paper concluded that ‘there is likely to be sustained disinflationary pressure over the next few years that can be attributed to a persistent negative output gap’. In reality, inflation has been rather higher than the Treasury predicted, with the targeted (CPI) rate having turned out to be rather more ‘sticky’ than expected, averaging the year at slightly above 3% and ending it at 3.7%.<sup>21</sup> Worse still, the average of independent forecasts today is that CPI inflation will average 3.3% in 2011, implying that they have limited faith in the Treasury’s assessment that output-gap-induced disinflationary pressures will prove to be powerful. Naturally, given these developments, it is worth asking what went wrong. Might it be that the Treasury is using an inaccurate gauge of spare capacity? Or is some other driving factor of inflation turning out different from what it expected? Or has the model just broken down in some way?

In order to help answer these questions, we first tried replicating the preferred specification that the Treasury economists came up with (equation 2 in table B.1 of their Working Paper). Using the same set of inflation drivers, we could straightforwardly estimate a near-identical model to theirs.<sup>22</sup> In running the model forward, so as to see how it performed during 2010, we discovered that the model under-predicted price pressures all year, and by a large amount. For 2010 as a whole, the average error looks to have amounted to some 1¾ percentage points, with the model reckoning on the CPI having risen about 1½% compared with its average level in 2009, but reality having delivered an average inflation rate this year of 3.3%.

The main reason why the model did poorly was two large residuals in a row, at the end of 2009 and the start of 2010. The first of these was nearly two standard errors in size – the sort of thing that has to be expected about once in every five years. In the following quarter, however, the equation not only under-predicted price pressures again, but this

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<sup>20</sup> For details, see A. Dwyer, K. Lam and A. Gurney, *Inflation and the Output Gap in the UK*, Treasury Economic Working Paper 6, 2010 ([http://www.hm-treasury.gov.uk/d/inflation\\_output\\_gap\\_uk.pdf](http://www.hm-treasury.gov.uk/d/inflation_output_gap_uk.pdf)).

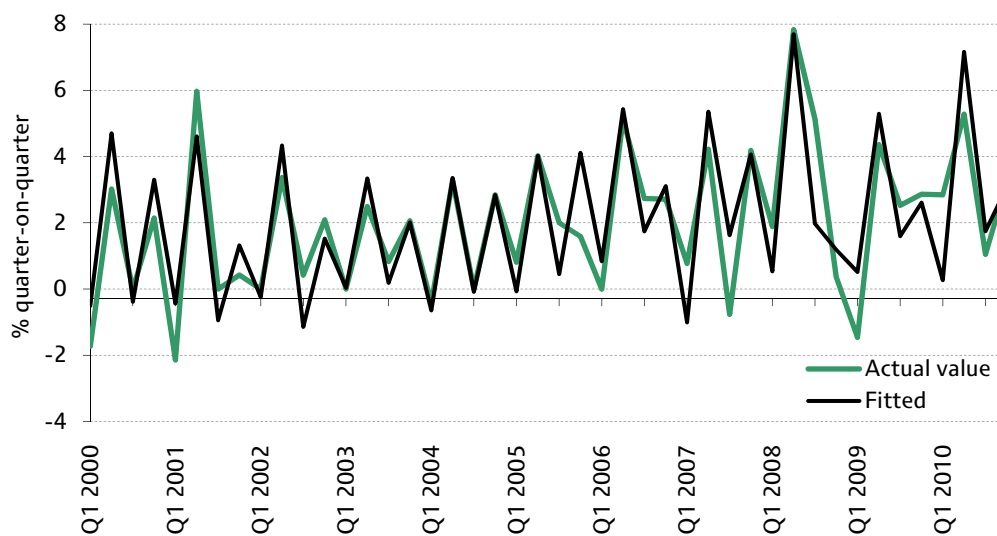
<sup>21</sup> The Bank of England’s record in forecasting has been no better. In its November 2009 *Inflation Report*, for example, it argued that ‘persistent spare capacity’ would result in inflation dropping back to its 2% target by mid-2010. Its February 2010 projections were almost as sanguine.

<sup>22</sup> The only issues we came across were whether or not to include an additional dummy variable, to capture the one-off inflationary impact of the ERM crisis, and what lag structure to use when modelling the impact of VAT changes on the CPI. As regards the former, the t-value obtained on the relevant dummy variable was a massive 5.8. So, excluding it results in significant bias of some of the estimated coefficients pertaining to other explanatory variables. As regards the VAT effects, we discovered that the model fitted better if we permitted the VAT effects to come through with a one-quarter lag. Details are available on request.

time by 4.7% (at an annual rate), which is more than three standard errors in scale. Thereafter, the model got broadly back on track again. But these two successive errors meant that the 2010 full-year forecast error of at least 1 percentage point was more or less set in stone.

Re-estimating the Treasury model but incorporating our own gauge of the output gap in it – which obviously entails using a model that assumes that there was a much smaller amount of spare capacity throughout the past several years – helps to deal with the under-prediction problem to a degree. It is not a perfect solution to the issue, however. One reason why is that the re-estimated model does not provide a full explanation for the big forecasting error at the start of 2010. We therefore experimented with letting VAT effects work their way through over two quarters, instead of instantly (as in the Treasury model) and also using a dummy variable to permit a one-off (downward) ‘crisis’ effect to come through on prices in the fourth quarter of 2008.<sup>23</sup> Once these two slight shifts are made to the model’s specification, we find the resultant equation does a pretty good job in tracking the quarter-on-quarter changes in the CPI, as shown in Figure 1.17.<sup>24</sup> The residuals of the equation have been a little bit bigger than normal in recent years, as one might expect, but there is nothing dramatic about the shift. So, on most reasonable grounds, it appears that there is compelling evidence to suggest that a model with a small output gap does a somewhat better job at explaining recent events, in the CPI space, than one that incorporates a big one.<sup>25</sup>

Figure 1.17. Recent actual and fitted values for our model of inflation



Notes: These data are not seasonally adjusted. The model used to explain past changes in the CPI is discussed in the main text.

Sources: Office for National Statistics; Barclays Economics Research

<sup>23</sup> In other words, rather than assume that all firms pass on the impact of a hike in VAT to consumers instantly, we found that the data can be better explained if one assumes instead that a minority of firms wait a while before deciding to raise prices (say because they want to monitor demand/competitors’ actions) or else, simply, that the implementation process takes time (say because of so-called ‘menu’ costs).

<sup>24</sup> Details of the model are available on request.

<sup>25</sup> Note that, as we are treating the fourth quarter of 2010 as ‘data’ – i.e. assuming that the December reading comes in exactly in line with consensus expectations – these comparisons are *not* flattered by the inclusion of the dummy variable for the fourth quarter of 2008 in the new model. The period of comparison is all of 2009 and all of 2010.

All of these comparisons are on the basis of quarter-on-quarter changes in the CPI. But what matters most, from the perspective of most professional inflation forecasters, is really year-on-year rates of change, i.e. annual inflation rates. On that basis, the difference between the two models is stark, with the Treasury specification having predicted an annual inflation rate in 2010 of slightly less than 1½%, whereas our revised model reckoned on an outcome of 3%, or only about one-third of a percentage point shy of reality.

All in all, it would seem that a model for forecasting inflation based on using our own, more pessimistic, assessment of the amount of spare capacity in the economy does a good job at explaining past events, especially compared with the Treasury's equation. The same would likely be true for the OBR's output gap estimate, as it, like the Treasury's, is bigger than our estimate. However, we are unable to test this formally as the OBR has not produced output gap estimates for years before 2009. Accordingly, we feel that our more pessimistic assessment than the OBR's is robust. We also feel comfortable using our inflation model when forecasting future price pressures, as we do in Chapter 4.

## **1.6 Conclusion**

A year ago, we took what seemed to many to be an extreme view, that the financial crisis had had a big impact on the economy's ability to supply goods and services. Consequently, we considered that there was much less spare capacity around than the Treasury suggested was the case. A year on, and the official view on this issue has shifted markedly, with the OBR much closer to our thinking than was the Treasury. We suspect, however, that the OBR is still a tad optimistic.

## 2. The new fiscal framework: an assessment

Rowena Crawford, Carl Emmerson and Gemma Tetlow (IFS)

### Summary

- The financial crisis and associated recession have reduced revenues and, to a greater extent, increased public spending as a share of national income. Without action, there would have been an unsustainable increase in borrowing and debt. The government's spending cuts and tax rises are forecast to be sufficient to return the UK's public finances to a sustainable position, but the same would have been true under the fiscal consolidation plan set out by Labour in its March 2010 Budget.
- Between 2010 and 2015, the IMF forecasts that most other industrial countries will reduce government borrowing by less than the UK: out of 29 industrial countries, only Greece is forecast to have a sharper decline in cyclically-adjusted borrowing.
- The government has introduced a new independent Office for Budget Responsibility (OBR) to help enhance the credibility of official forecasts. The transparency and presentation of official forecasts have already been improved since the OBR was established; the OBR, the Treasury and other departments should continue to build on this. There is a case for extending the remit of the OBR so that it is able to consider the impact of alternative policy options, at least in some limited circumstances such as the run-up to a general election.
- The government has set itself a new forward-looking fiscal mandate, that policy is consistent with achieving at least a cyclically-adjusted current budget balance by the end of the forecast horizon, and a supplementary target to reduce debt as a share of national income between 2014–15 and 2015–16. The OBR judges that current policy is consistent with the fiscal mandate, and forecasts that the supplementary target is more likely than not to be met. But if the OBR's forecasts are as accurate as past Treasury forecasts, there would still be a three-in-ten chance that further tax rises or spending cuts would be required to avoid a cyclically-adjusted current budget deficit in 2015–16.
- Compliance with the two fiscal targets does not ensure fiscal sustainability. The government's fiscal mandate will require careful monitoring to ensure that it is not being achieved only through policies that are always promised but never implemented. The supplementary target – to reduce debt – applies only to 2015–16; the government should consider what profile of debt it wishes to target beyond that date, taking into account likely pressures on the public finances such as those arising from an ageing population. There are merits in a 'sustainable commitments rule' which would place a ceiling on the flow of future debt interest and other pre-committed payments, rather than on the stock of accumulated public sector debt.

## 2.1 Introduction

The financial crisis and recession pushed the UK's public finances from an apparently sustainable path to one which, in the absence of an appropriate fiscal response, would have been unsustainable, with high levels of annual borrowing and rising debt. The biggest domestic policy challenge for the government over the next few years will be to ensure that the public finances are returned to a sustainable footing in a way that minimises the fall in living standards arising from higher taxes, lower welfare payments and reduced spending on public services. In the longer term, the government will need to ensure that fiscal policy is consistent with the ongoing sustainability of the public finances. This chapter examines the government's new framework for ensuring sound public finances, including the new fiscal rules and the role of the newly established Office for Budget Responsibility (OBR).

Section 2.2 starts by discussing how tax revenues, spending and borrowing evolved over the course of the recession, and how the government's fiscal consolidation is intended to return the public finances to a sustainable footing. We also examine how the changes in UK government borrowing and debt through the crisis compare with those seen in other similar countries.

The Chancellor, George Osborne, has set himself two new fiscal goals for the medium term. The first (his fiscal mandate) is that policy should be consistent with achieving at least a cyclically-adjusted current budget balance at the end of the forecasting horizon. The second (a supplementary target) is that debt should be falling as a share of national income in 2015–16. Sections 2.3 and 2.4, respectively, discuss these rules and how they might be improved upon.

Similar types of fiscal rules operated by former Chancellors Gordon Brown and Alistair Darling – the golden rule and the sustainable investment rule – had lost a lot of their credibility long before the financial crisis and recession made it almost inconceivable that they would be met and not sensible to try to meet them. Largely to aid public confidence in the new rules and the new government's commitment to fiscal prudence, Mr Osborne has established a new independent fiscal council – the OBR – which is responsible for producing economic and fiscal forecasts and signing off the government's costings of new policy measures. Section 2.5 discusses the remit of the OBR, its early operation and some possible improvements that could be made.

Section 2.6 concludes.

## 2.2 Borrowing and debt through the crisis

The onset of the financial crisis and associated economic recession radically altered the outlook for the strength of the public finances. Before the crisis, then Chancellor Darling's forecast in March 2008 suggested that the fiscal policy stance at that time was consistent both with the two fiscal rules that he inherited from Mr Brown and with sustainable public finances in the medium term.<sup>1</sup> More recent forecasts – such as those published by

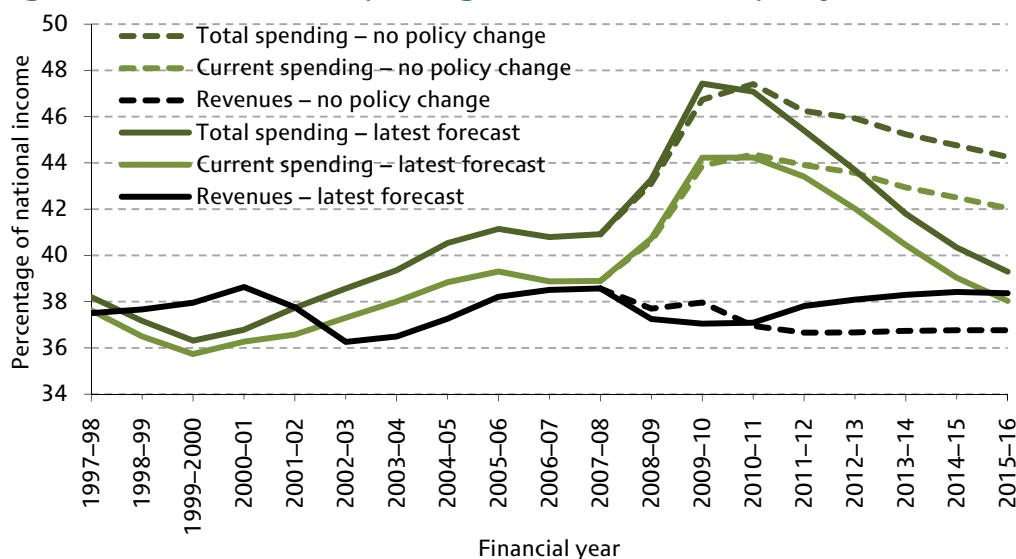
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<sup>1</sup> The judgement of IFS researchers in the January 2008 Green Budget was that the Treasury's forecasts for public borrowing at that time were actually a little optimistic given its expectations of economic growth. However, the size of the structural hole identified by IFS researchers then was only about one-tenth of the size of the structural hole that is now thought to exist (and the Treasury's expectations of economic growth have also proven optimistic). See R. Chote, C. Emmerson and G. Tetlow, 'Green Budget public finance forecasts', in

the new OBR in November 2010 – suggest that, in the light of adverse economic developments since mid-2008, the previous fiscal plans would no longer be consistent with sustainable public finances. This section examines how public spending and taxes, and hence public borrowing and debt, have evolved in the UK through the recession and how they are projected to evolve over the next five years, both with and without taking into account the impact of the planned fiscal consolidation. We then compare this to the changes in borrowing and debt that have been seen and are forecast in other industrialised countries.

Figure 2.1 shows how tax revenues and spending (both total spending and current spending on its own, i.e. excluding investment spending) evolved as a share of national income from 1997–98 onwards. The dotted lines show how they would have evolved from 2008–09 onwards if the direct impact of fiscal policy measures announced since the March 2008 Budget is ignored.

Figure 2.1. Revenues and spending – with and without policy action



Note: ‘No policy change’ ignores the direct impact of all fiscal policy measures that have been implemented since Budget 2008.

Sources: Authors’ calculations using all Budgets and Pre-Budget Reports since March 2008 (up to the March 2010 Budget are available at <http://webarchive.nationalarchives.gov.uk/20100407010852/http://www.hm-treasury.gov.uk/home.htm>; June 2010 Budget is available at <http://www.hm-treasury.gov.uk/>) and the Office for Budget Responsibility’s November 2010 *Economic and Fiscal Outlook* (<http://budgetresponsibility.independent.gov.uk/econ-fiscal-outlook.html>).

The amount of revenue yielded by the UK tax system is generally related to the level of national income, and so tax revenues as a share of national income were relatively unaffected by the financial crisis. The black dotted line shows that, without taking into account the direct impact of policy action since the March 2008 Budget, tax revenues would have fallen from 38.6% of national income in 2007–08 to 36.7% by 2011–12 and then remained at about that level thereafter. This forecast fall reflects factors such as lower-than-expected financial sector profitability – reducing tax receipts from those firms and their employees – and reduced equity and property prices, which reduce revenues from stamp duties, inheritance tax and capital gains tax.

Without taking into account the direct impact of policy action since the March 2008 Budget, total spending would have risen from 40.9% of national income in 2007–08 to 47.4% in 2010–11 before falling back to 44.3% by 2015–16. As discussed in more detail in Chapter 6, the increase largely reflects two things. First, Mr Darling's October 2007 Comprehensive Spending Review set out three-year plans for cash spending by central government on public services, while the economy has since turned out much smaller in cash terms than expected at the time. Second, some elements of spending (particularly welfare spending and debt interest spending) increased as a direct result of the recession.

Public borrowing in 2015–16 would, therefore, in the absence of any policy action since the March 2008 Budget, have stood at 7.5% of national income. With the economy expected to be back operating almost at its trend (or sustainable) level by 2015–16, most of this borrowing would have been structural, rather than simply reflecting some remaining temporary weakness in the economy. Borrowing at this level every year would likely be unsustainable for the UK economy.

To avoid such an unsustainable public finance position emerging, both the Labour government and the new coalition government announced a series of net tax increases and net spending cuts. The latest official forecasts from the OBR for tax revenues and spending, taking into account the impact of policies announced since March 2008, are shown by the solid lines for the years 2008–09 onwards in Figure 2.1. Comparing these lines with the dotted lines shows that the combined impact of policies announced since March 2008 has been to reduce forecast spending by 5.0% of national income and increase forecast tax revenues by 1.6% of national income by 2015–16, and thus reduce forecast borrowing by 6.6% of national income. Borrowing is forecast to be 1.0% of national income by 2015–16, which is below the 2.3% of national income that was borrowed pre-crisis in 2007–08. The tax rises and spending cuts are projected to be sufficient to eliminate the current budget deficit<sup>2</sup> in 2015–16, as shown by the fact that receipts are forecast to exceed current spending in that year. Projections for the cyclically-adjusted current budget under alternative policy scenarios are shown in Section 2.3.

The fiscal consolidation planned by the government is forecast by the OBR to be sufficient to limit the rise in public debt over the next few years (compared with what would have been expected without this policy action) and then result in debt falling as a share of national income from 2013–14 onwards. Forecasts for public debt under alternative policy scenarios are presented in more detail in Section 2.4.

It is clear from Figure 2.1 that the coalition government has decided that a much larger part (73% in 2014–15 rising to 76% in 2015–16) of the fiscal tightening should come from cuts to spending than from tax increases. (This is similar to the Labour government's plans, which implied that 70% of its announced fiscal tightening for 2014–15 would come from spending cuts.)<sup>3</sup> However, because the impact of the financial crisis and recession, had there been no policy response, would have been to increase spending far more dramatically than it would have reduced revenues, the impact of this fiscal tightening package is to return both spending and revenues as a proportion of national income to around the level they were at before the financial crisis. Government revenues

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<sup>2</sup> The current budget deficit is the amount by which public sector current spending (i.e. total spending less net investment) exceeds total public sector revenues in a particular year.

<sup>3</sup> See R. Crawford, 'Where did the axe fall?', presentation at IFS 2010 Spending Review briefing, 21 October 2010 (<http://www.ifs.org.uk/publications/5311>).



in 2015–16, at 38.4% of national income, would be at about the same level as they were at in 2006–07; total spending, at 39.3% of national income, would be at about the same level as it was at in 2003–04.<sup>4</sup>

## International comparisons

### Reducing borrowing

Many other industrial countries have also seen large increases in borrowing over the last few years and are planning substantial fiscal consolidations. (Some of these, such as in the cases of Greece and Ireland, have been prompted by pressure from credit markets which

Table 2.1. Borrowing as a share of national income in the UK compared with 28 other advanced economies

	UK rank	Notes
<b>Headline borrowing</b>		
<i>Level</i>		
2007 (pre-crisis)	Equal 3 <sup>rd</sup> highest	United States and France the same, Portugal and Greece higher
2010	3 <sup>rd</sup> highest	United States and Ireland higher
2015	12 <sup>th</sup> highest	
<i>Change</i>		
Increase, 2007 to 2010	8 <sup>th</sup> largest	
Reduction, 2010 to 2015	3 <sup>rd</sup> largest	Only Iceland and Ireland larger
Reduction, 2007 to 2015	3 <sup>rd</sup> largest	Only France and Greece larger
<b>Cyclically adjusted borrowing</b>		
<i>Level</i>		
2007 (pre-crisis)	5 <sup>th</sup> highest	France, Portugal, Greece and Ireland higher
2010	Equal 2 <sup>nd</sup> highest	United States the same, Ireland higher
2015	16 <sup>th</sup> highest	
<i>Change</i>		
Increase, 2007 to 2010	8 <sup>th</sup> largest	
Reduction, 2010 to 2015	2 <sup>nd</sup> largest	Only Greece larger
Reduction, 2007 to 2015	4 <sup>th</sup> largest	Ireland, Slovenia and Greece larger

Notes: Measures are general government balance as a percentage of GDP and general government cyclically adjusted overall balance as a percentage of potential GDP. The 28 advanced economies on which data comparable to the UK are available are: Australia, Austria, Belgium, Canada, Czech Republic, Denmark, Finland, France, Germany, Greece, Hong Kong, Iceland, Ireland, Israel, Italy, Japan, the Netherlands, New Zealand, Norway, Portugal, Singapore, Slovak Republic, Slovenia, South Korea, Spain, Sweden, Switzerland and the United States.

Source: Statistical table 1 (page 117) and statistical table 3 (page 119) of International Monetary Fund, 'Fiscal exit: from strategy to implementation', *Fiscal Monitor*, November 2010

(<http://www.imf.org/external/pubs/cat/longres.cfm?sk=24220>).

<sup>4</sup> More detailed discussion of the public finance impact of the financial crisis and recession and the Labour and coalition governments' fiscal responses can be found in R. Chote, R. Crawford, C. Emmerson and G. Tetlow, 'Disease and cure in the UK: the fiscal impact of the crisis and the policy response', presented at the European Commission workshop 'The UK Economy, Post-Recession – Same as it Ever Was?', 29 June 2010 ([http://ec.europa.eu/economy\\_finance/events/2010/20100629-uk\\_seminar/main\\_en.htm](http://ec.europa.eu/economy_finance/events/2010/20100629-uk_seminar/main_en.htm)).



forced these countries to apply to the International Monetary Fund for an emergency loan and thus sign up to the austerity measures agreed with the IMF.) Among 29 advanced economies (listed in the note to Table 2.1), the UK had the (equal) 3<sup>rd</sup> highest level of headline borrowing in 2007 (i.e. pre-crisis). Between 2007 and 2010, the UK experienced the 8<sup>th</sup> largest increase in headline borrowing, which left the UK still being the 3<sup>rd</sup> highest borrower in 2010 – as shown in the top panel of Table 2.1. However, between 2010 and 2015, the UK is forecast to have the 3<sup>rd</sup> largest reduction in headline borrowing (with only Iceland and Ireland forecast to see larger reductions), so that over the whole period 2007 to 2015 the UK will actually see the 3<sup>rd</sup> largest reduction in borrowing (behind France and Greece).

The story is very similar for cyclically-adjusted borrowing, with the UK seeing the 8<sup>th</sup> largest increase between 2007 and 2010, but the 2<sup>nd</sup> largest reduction between 2010 and 2015 (with only Greece being larger), as shown in the bottom panel of Table 2.1. The decline in headline borrowing over this period is largely driven by the government’s fiscal consolidation plan reducing structural borrowing, rather than simply a cyclical recovery in the public finances as the economy emerges from the recession.

### Limiting the rise in debt

The policy action taken by the government will mean that debt increases by less over the next few years than it would have in the absence of policy action; nonetheless, UK government debt is now (and will be in five years’ time) much higher than it was before the crisis. A comparison of the UK’s performance on debt with that of 21 other advanced economies is shown in Table 2.2.

In 2007, the UK had the 11<sup>th</sup> highest level of general government net debt, but between 2007 and 2010 it saw the 5<sup>th</sup> largest increase, sufficient to push the UK up to having the 9<sup>th</sup> highest level of debt among this set of countries. Despite the government’s plans to reduce borrowing over this parliament, the UK is forecast to see the 12<sup>th</sup> largest increase in debt between 2010 and 2015, leaving it with the 8<sup>th</sup> highest level of debt.

Table 2.2. Debt as a share of national income in the UK compared with 21 other advanced economies

	UK rank	Notes
<i>Level</i>		
2007 (pre-crisis)	11 <sup>th</sup> highest	
2010	9 <sup>th</sup> highest	
2015	8 <sup>th</sup> highest	
<i>Change</i>		
Increase, 2007 to 2010	5 <sup>th</sup> largest	Finland, Japan, Ireland and Iceland higher
Increase, 2010 to 2015	12 <sup>th</sup> largest	
Increase, 2007 to 2015	7 <sup>th</sup> largest	

Notes: Measure is general government net debt as a percentage of GDP. The 21 advanced economies on which comparable data are available are: Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Iceland, Ireland, Israel, Italy, Japan, the Netherlands, New Zealand, Norway, Portugal, Spain, Sweden, Switzerland and the United States.

Source: Statistical table 8 (page 124) of International Monetary Fund, ‘Fiscal exit: from strategy to implementation’, *Fiscal Monitor*, November 2010

(<http://www.imf.org/external/pubs/cat/longres.cfm?sk=24220>).

## 2.3 The new borrowing target

The new government has set itself a forward-looking ‘fiscal mandate’: the structural current budget must be forecast to be in balance or in surplus by the end of a rolling, five-year forecast horizon. In other words, after taking into account the estimated impact on the public finances of temporary ups-and-downs of the economic cycle, government receipts should be projected to be equal to, or to exceed, non-investment spending. The end of the forecast horizon is currently 2015–16, but this will change over time – for example, while the forecast horizon of the March 2011 Budget will presumably be 2015–16, the OBR’s 2011 Autumn forecast will presumably run to 2016–17. This section critiques this new fiscal mandate and assesses the likelihood that it would be met under the latest OBR forecasts and under two different policy scenarios.

### A new golden rule?

The principle behind the new fiscal mandate is the same as that which lay behind Mr Brown’s golden rule:<sup>5</sup> that it is appropriate for governments to borrow to finance investment spending, but inappropriate to borrow to finance day-to-day spending. However, as with Mr Brown’s golden rule, having tax revenues equal to current spending does not mean that each generation is paying for the public spending from which it benefits (which was the explicit object of Mr Brown’s golden rule). For example, there is no guarantee that the stream of interest payments resulting from a decision to borrow to invest will match the stream of benefits that arise from that investment having occurred.<sup>6</sup> Nevertheless, while not optimal, such a rule might be a reasonable approximation to follow most of the time.

By targeting the cyclically-adjusted current balance, the coalition government is, sensibly, allowing borrowing to be higher when the economy is thought to be temporarily weak. This, in principle, will give fiscal policy scope to support monetary policy over the economic cycle, which might be sensible. The same was true under Mr Brown’s golden rule: this was assessed not in any one year, but measured over the ups-and-downs of an economic cycle.<sup>7</sup>

The key difference between the new fiscal mandate and the old golden rule is in the way that it is operationalised. The previous golden rule’s assessment over an economic cycle required a judgement to be made as to when the current economic cycle began and ended, and also meant that the size of cumulative current budget surplus or deficit that was permissible between now and the end of the economic cycle depended on the cumulative surplus or deficit that had been accumulated so far. These features were unattractive: for example, in June 2005, whether or not the golden rule was on course to be met over the current cycle, which was then thought to end that financial year (2005–06), depended on whether that cycle was believed to have begun in 1999–2000 (in which

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<sup>5</sup> This rule aimed for a balance or surplus on the average current budget as a share of national income over the financial years covering an economic cycle.

<sup>6</sup> For a comprehensive discussion, see section 3.2 of R. Chote, C. Emmerson and G. Tetlow, ‘The fiscal rules and policy framework’, in the January 2008 Green Budget (<http://www.ifs.org.uk/budgets/gb2008/08chap3.pdf>).

<sup>7</sup> The coalition government’s formulation is slightly more restrictive than Labour’s golden rule since, while the former allows the automatic stabilisers to operate, the latter left open the possibility of discretionary fiscal stimulus and fiscal cooling over the economic cycle, in addition to the automatic stabilisers, as long as these balanced out. In practice, this distinction is unlikely to matter since the new formulation would only prevent a planned fiscal stimulus from taking place at the end of the forecast horizon.

case it was on course to be missed) or 1997–98 (in which case it was on course to be met). In July 2005, the then Chancellor Gordon Brown decided to revise his previous judgement that the cycle began in 1999–2000 to the view that it actually began in 1997–98 (despite the fact that the evidence used to support such a change seemed no stronger than it had been previously).<sup>8</sup> Whatever the correct answer to when that economic cycle began, it is difficult to argue that this should have affected the appropriate level of borrowing in 2005–06.

In order to avoid the problems associated with having to date the economic cycle, and the unwelcome feature that surpluses at the start of an economic cycle could allow inappropriately high current budget deficits towards the end of an economic cycle, IFS researchers have argued in Green Budgets since 2005 that the golden rule should be made forward-looking;<sup>9</sup> that is, that the government should set a target for the current budget – or the cyclically-adjusted current budget – for, say, five years hence. This is exactly what the new fiscal mandate does, and is a welcome improvement on the fiscal framework that existed before the financial crisis.

But this is not to say that the new formulation of the golden rule is completely unproblematic. Perhaps the main issue arises with the fact that it relates to a forecast for a fiscal aggregate – the cyclically-adjusted current budget at the end of the forecast horizon – rather than to a fact which is a matter of historical record (such as an out-turn for a fiscal aggregate). This is a problem because the moving horizon means that, although the rule does place a constraint on the government’s plans for the future, it does not place any constraints on its behaviour in the short run. For example, the government has set out a fiscal tightening that is forecast by the OBR to restore the structural current budget to balance in 2014–15, a year before the end of the current forecast horizon. By the 2013 Budget, the forecast horizon will presumably be 2017–18, and this will mean that the government would no longer be constrained by its fiscal mandate to implement its planned tightening for 2014–15 or 2015–16 so long as it planned to tighten by enough later so that the structural current budget would be forecast to be in balance or surplus by 2017–18. In a similar vein, future fiscal drag<sup>10</sup> could always be claimed to contribute towards meeting a fiscal target even if in practice a government each year chose to offset this with discretionary tax cuts, never allowing the planned tightening to materialise.

Under the current formulation of the new borrowing rule, a government that continually promised to tighten in future, but never delivered on those promises, would not technically be judged to be breaking the rule. The government has indicated that, once the public finances are closer to balance – presumably towards the end of the current forecasting horizon – the period over which the rule is judged could be shortened. This would reduce the scope for this problem to materialise, but it would not eliminate it. Furthermore, government plans may quickly lose credibility if they were seen continually to promise but never deliver future pain. Careful independent scrutiny of the

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<sup>8</sup> As it turned out, the golden rule would have been met over an economic cycle that ran from 1999–2000 to 2005–06, i.e. Mr Brown’s redating of the cycle did not, *ex post*, make the difference between meeting and breaching the rule.

<sup>9</sup> This was first proposed by IFS researchers in section 2.6 of R. Chote and C. Emmerson, ‘The fiscal policy framework’, in R. Chote, C. Emmerson, D. Miles and Z. Oldfield (eds), *The IFS Green Budget 2005*, IFS Commentary 97 (<http://www.ifs.org.uk/budgets/gb2005/05chap2.pdf>). The argument has been refined and repeated in more recent Green Budgets.

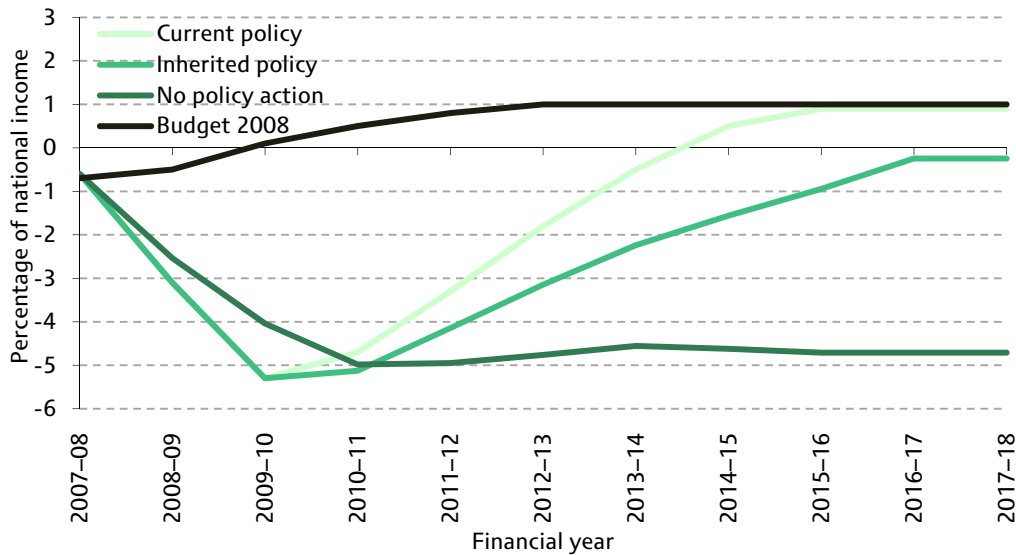
<sup>10</sup> Fiscal drag is the phenomenon whereby, as the economy grows, tax revenues increase as a share of national income. This is because tax thresholds are typically updated less quickly than growth in the tax base to which they apply.

government's management of the public finances – aided by the increase in transparency and credibility of the official forecasts associated with the introduction of the OBR (discussed in detail in Section 2.5) – will help police a forward-looking rule (with all its attendant benefits) so that any government did not inappropriately manipulate such a target.

### Will the UK meet the new golden rule?

Forecasts for the cyclically-adjusted current budget balance, both with and without policy action since Budget 2008, are shown in Figure 2.2. The fiscal mandate requires this to be zero or positive by the end of the forecast horizon (currently 2015–16). At the time of Budget 2008, the cyclically-adjusted current budget was in deficit, but it was forecast to reach surplus in 2009–10 and then level off at a surplus of 1.0% of national income from 2012–13 onwards. So, then Chancellor Alistair Darling's March 2008 Budget forecast was consistent with the new coalition government's fiscal mandate.

Figure 2.2. Cyclically-adjusted current budget balance – with and without policy action since Budget 2008



Notes: Budget 2008 projections assume that the cyclically-adjusted current budget surplus of 1.0% of national income forecast in 2012–13 would have persisted. All other forecasts are based on the OBR's November 2010 *Economic and Fiscal Outlook* projection. 'No policy action' ignores the direct impact of all fiscal policy measures that have been implemented since Budget 2008. 'Inherited policy' takes policy as of the March 2010 Budget.

Sources: As Figure 2.1.

However, as a result of the financial crisis and the associated recession, the structural current budget turned out to be in far greater deficit than was forecast at the time of Budget 2008. Without policy action, the structural current budget would have reached 5% of national income in 2010–11 and would have continued at nearly that level every year in the future. The Labour government reacted to the crisis by introducing a fiscal stimulus package, increasing government spending and reducing government tax revenues in the short term, causing the cyclically-adjusted current budget to reach a deficit of more than 5% a year earlier, in 2009–10.

The new government's planned six-year fiscal consolidation between 2010–11 and 2015–16 will, under current forecasts, be sufficient to bring the cyclically-adjusted current budget into surplus in 2014–15. The structural current budget surplus is forecast

to be 0.5% of national income in 2014–15 and 0.9% in 2015–16 – thereby meeting the government’s new borrowing target a year earlier than is currently required by the rule.

Clearly, without any policy action, the government’s new borrowing rule would not have been met: the structural current budget would still have been in deficit by 4.7% of national income in 2015–16 in the absence of any fiscal consolidation. However, before the general election of 2010, the Labour government had also planned a fiscal tightening, between 2011–12 and 2016–17. The effect of this alternative fiscal consolidation, given current forecasts for the economy and the public finances, is also shown in Figure 2.2. The cyclically-adjusted current budget deficit would have been significantly reduced over this period, but Labour’s planned tightening at the time of the March 2010 Budget would not have been sufficient to bring it back into balance by 2015–16.

At the time of the March 2010 Budget, the Labour government had thought its consolidation plan was sufficient to return the cyclically-adjusted current budget to surplus by 2016–17 (i.e. one year later than required by the coalition government’s new fiscal mandate). However, more recent forecasts from the new OBR, published since the general election, have suggested that the size of the problem revealed by the financial crisis – that is, the permanent increase in structural borrowing that would have occurred in the absence of any policy action – is slightly greater than was thought in March 2010. As a result, under current forecasts, the Labour government’s fiscal consolidation would not have been quite sufficient to return the cyclically-adjusted current budget to surplus in 2016–17.

As discussed in more detail in Section 2.5, the government has required the OBR to publish – twice a year – a judgement on whether current policy is consistent with the cyclically-adjusted current budget being in surplus at the end of the forecast horizon. In its November 2010 *Economic and Fiscal Outlook*, the OBR illustrated uncertainty over the cyclically-adjusted current budget using confidence intervals around its central projection. These were calculated on the basis of past forecasting errors made by the Treasury in Pre-Budget Reports (since these, like the latest OBR forecast, were made in the autumn). That is to say, they show the likelihood of future borrowing being in different ranges under the assumption that the OBR’s forecasts are as likely to be optimistic as they are pessimistic and that the OBR can be expected to be no better and no worse at forecasting borrowing than the Treasury has been in the past. Therefore, these confidence intervals do not allow for the possibility that forecasts are becoming more accurate over time (for example, due to more advanced human understanding, better data and more powerful processing capability of computers) nor for the possibility that forecasting in the aftermath of a financial crisis and deep recession is harder than forecasting in less turbulent times.<sup>11</sup>

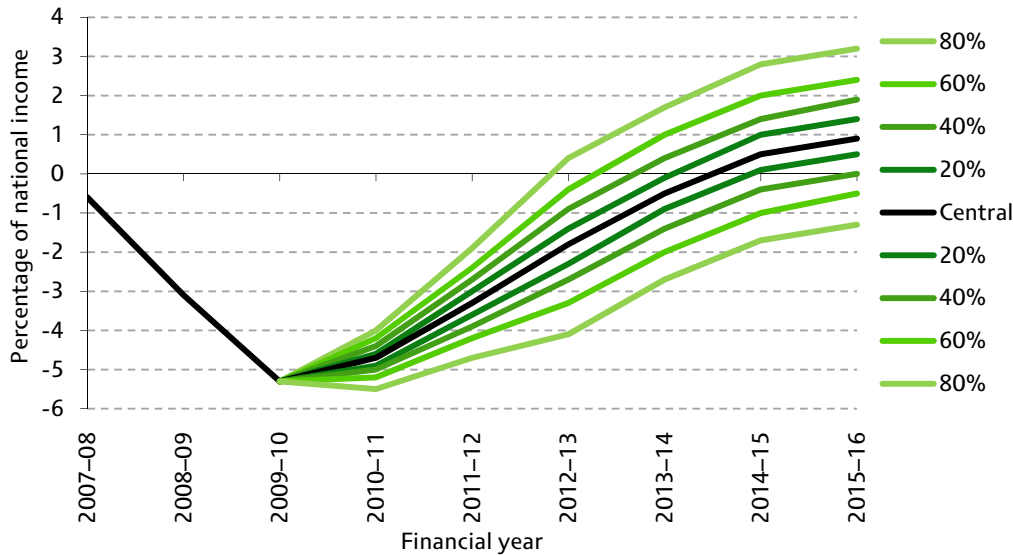
The black line in Figure 2.3 shows the OBR ‘central’ forecast for the cyclically-adjusted current budget under current policies (the same as the ‘current policy’ line in Figure 2.2).

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<sup>11</sup> The OBR’s methodology for computing these forecasts is the same as that recommended by C. Emmerson, C. Frayne and S. Love, ‘Updating the UK’s Code for Fiscal Stability’, IFS Working Paper 04/29, 2004 (<http://www.ifs.org.uk/publications/3163>). As these authors point out, another problem arising when comparing forecasts with eventual out-turns for borrowing, without taking account of the impact of new policy changes made between the date of a forecast and the eventual out-turn for borrowing, is that it is likely to understate the size of previous forecasting errors. This is because Chancellors are likely to implement a fiscal tightening (loosening) when borrowing looks like it is going to overshoot (undershoot) their previous forecast, thereby bringing the eventual out-turn closer to the original forecast. The OBR should consider adjusting the previous forecasts for the impact of subsequent measures both to describe the size of errors made previously and for computing the confidence intervals on its projections.

Figure 2.3 shows there is a 20% probability that the outcome will lie within the darkest green bands either side of the central forecast, a 40% chance it will lie within the next darkest bands, and so on. There is a 69% chance (based on past forecasting performance) that the cyclically-adjusted structural current budget will be in balance or surplus in 2015–16.<sup>12</sup>

Figure 2.3. Cyclically-adjusted current budget fan chart



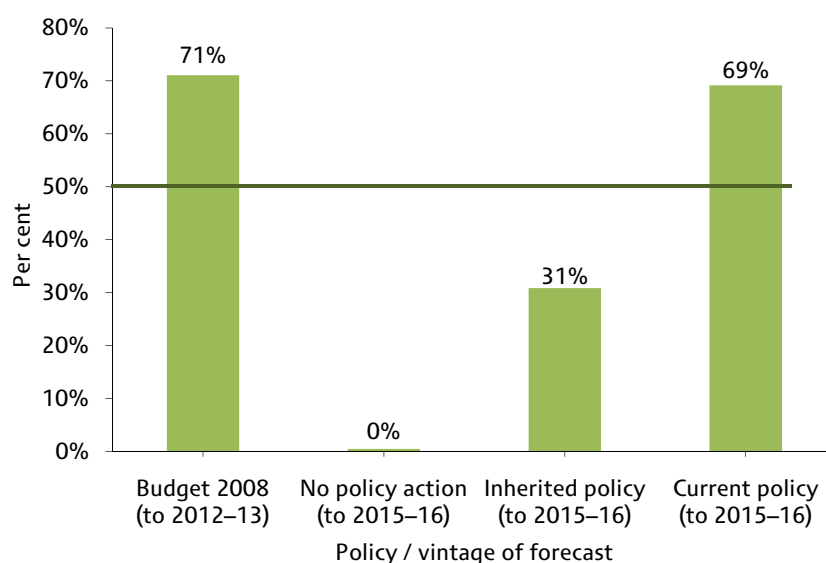
Source: Chart 5.1 (page 135) of Office for Budget Responsibility, *Economic and Fiscal Outlook*, November 2010 (<http://budgetresponsibility.independent.gov.uk/econ-fiscal-outlook.html>).

In Figure 2.4, we compare the government’s chance of achieving a cyclically-adjusted current budget balance or surplus under current policies with the forecast chance under the other policy scenarios shown in Figure 2.2, assuming the same degree of uncertainty existed around these other central forecasts as the OBR has assumed exists around its forecasts. Under the March 2008 Budget forecasts – that is, the last forecast before the financial crisis and the associated recession struck – there was a 71% chance that there would be a cyclically-adjusted surplus in 2012–13 (which was then the last year of the forecast horizon). Had no post-crisis fiscal tightening been planned, there would have been a negligible chance of a surplus on the cyclically-adjusted current budget by 2015–16. Had the new government instead chosen not to alter the fiscal consolidation plan that had been announced by Labour in the March 2010 Budget, this would have risen to a 31% chance by 2015–16 (and would probably be closer to, but still below, 50% if the forecast horizon had been extended one more year to 2016–17).

The coalition government’s policies therefore give it some headroom against the chances of the current budget being in deficit in 2015–16, which would not have been the case had it retained the fiscal tightening planned by the previous Labour government. However, past forecasting errors suggest that there is still a three-in-ten chance that there will still be a cyclically-adjusted current budget deficit by the time we get to 2015–16.

<sup>12</sup> It is the fact that the government is aiming to overachieve its fiscal mandate by 0.9% of national income (that is, the latest OBR forecasts suggest a cyclically-adjusted current budget surplus of 0.9% of national income in 2015–16, rather than a cyclically-adjusted current budget balance) that means that it has an estimated 69% chance of a cyclically-adjusted surplus. As the OBR assumes its forecasts are as likely to prove optimistic as pessimistic, if the government had aimed to meet its fiscal mandate with no headroom then the OBR would have assessed it to have a 50% chance of a cyclically-adjusted balance or surplus in 2015–16.

Figure 2.4. Likelihood of a surplus on the cyclically-adjusted current budget by the end of the forecast horizon



Sources: As Figure 2.1; authors' calculations using table B.1 (page 151) of Office for Budget Responsibility, *Economic and Fiscal Outlook*, November 2010 (<http://budgetresponsibility.independent.gov.uk/econ-fiscal-outlook.html>).

### Specific risks to public borrowing

There are many sources of uncertainty that could cause the public finances to differ from their forecast path. These include the following:

- The financial crisis and associated recession may have had a larger impact on the sustainable level of output in the UK than official forecasts currently assume.
- The public finances might not evolve as the OBR currently forecasts even if the economy were to grow as it expects.

The financial crisis and associated recession may have had a larger impact on the sustainable level of output in the UK than the official forecasts from the OBR currently assume, as discussed in Chapter 1. This would result in the output gap being smaller and, other things remaining equal, a greater proportion of total borrowing, and of the current budget deficit, being estimated to be structural as opposed to cyclical. If a larger proportion of the forecast current budget deficit turned out to be structural, the government would have a smaller margin of error against its fiscal mandate under current policies than the OBR currently estimates. The Treasury's methodology for assessing the impact of an output gap on borrowing implies that a 1% permanent loss in output would structurally weaken the public finances by 0.7% of national income.<sup>13</sup> This estimate, which has since been used by the OBR, implies that an additional 1.3% loss of potential output would eliminate the 0.9% of national income cyclically-adjusted current budget surplus that is forecast by the OBR for 2015–16.<sup>14</sup>

<sup>13</sup> See HM Treasury, *Public Finances and the Cycle*, Treasury Economic Working Paper 5, November 2008 ([http://webarchive.nationalarchives.gov.uk/+http://www.hm-treasury.gov.uk/d/pbr08\\_publicfinances\\_444.pdf](http://webarchive.nationalarchives.gov.uk/+http://www.hm-treasury.gov.uk/d/pbr08_publicfinances_444.pdf)).

<sup>14</sup> Calculated as  $0.9 / 0.7 = 1.3$ .



Another source of uncertainty is that the public finances might not evolve as the OBR has forecast even if the economy were to. In 1998, the Treasury published estimates of the average absolute errors in forecasting public sector net borrowing that it had made over the period from 1985–86 and also calculated how large the errors would have been had the Treasury correctly forecast the macroeconomy.<sup>15</sup> This found an average error in public sector net borrowing one year hence of 1.2% of national income, of which 1.0% of national income was not explained by errors in forecasting the macroeconomy. Errors in the macroeconomic forecast were relatively more important for longer-run projections, but they still explained only a minority of the total fiscal forecast error. For example, among the forecasts made for four years hence, the average absolute error in forecasting public sector net borrowing was 4.1% of national income, with 2.4% of national income not explained by errors in forecasting the macroeconomy.

One way to consider the uncertainty over how a given level of growth in the economy in the next few years will impact on the public finances is to make different assumptions over how the size of the output gap affects the public finances. To date, the OBR has continued to use the same estimates as produced by the Treasury.<sup>16</sup> The assumed relationship is that to adjust headline borrowing for the economic cycle, you need to add 0.2 times the previous year's output gap and 0.5 times the current year's output gap. On this basis, the headline level of borrowing of 10.0% of national income forecast for 2010–11, in combination with a negative output gap of 4.2% of trend output in 2009–10 falling to 3.2% in 2010–11, leads to an estimate of cyclically-adjusted public sector net borrowing of 7.6% of national income (i.e. 2.4% of national income of borrowing is estimated to be explained by temporary weakness in the economy).<sup>17</sup> As investment spending (net of depreciation and asset sales) is forecast to total 2.9% of national income, this leaves a cyclically-adjusted (or structural) deficit on the current budget of 4.7% of national income.

But the 0.5 and 0.2 parameters are estimates, rather than being known with certainty. Thus, even if we were certain about the headline level of borrowing this year, and the level of output gap last year and this year, there is uncertainty about what fraction of total borrowing is structural rather than cyclical. Based on the analysis carried out by the Treasury – that is, assuming we were confident that the Treasury's methodology was completely correct – our calculations suggest that there is a 95% chance that the cyclically-adjusted deficit on the current budget actually lies somewhere between 4.3% of national income and 5.4% of national income. This is shown in Figure 2.5 (with the notes to Figure 2.5 setting out our methodology). Uncertainty over the headline level of borrowing this year, the size of the output gap (as quantified above), and whether the Treasury's methodology is indeed the correct one would increase this range further. But even as it is, the 0.7% of national income difference between the 4.7% of national income OBR forecast for cyclically-adjusted current budget deficit in 2010–11 and the higher estimate of 5.4% – which assumes that the public finances are less affected by the

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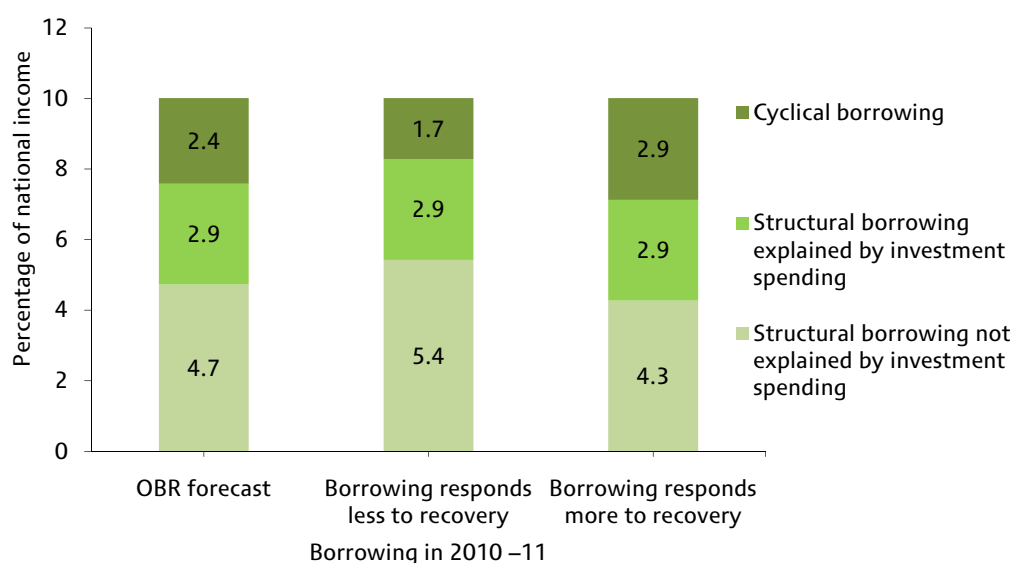
<sup>15</sup> See table B13 (page 122) of HM Treasury, *Pre-Budget Report*, November 1998 ([http://webarchive.nationalarchives.gov.uk/http://www.hm-treasury.gov.uk/prebud\\_pbr98\\_repindex.htm](http://webarchive.nationalarchives.gov.uk/http://www.hm-treasury.gov.uk/prebud_pbr98_repindex.htm)).

<sup>16</sup> The Treasury's estimates are based on an assessment of how borrowing has varied over the ups-and-downs of previous economic cycles. See HM Treasury, *Public Finances and the Cycle*, Treasury Economic Working Paper 5, November 2008 ([http://webarchive.nationalarchives.gov.uk/http://www.hm-treasury.gov.uk/d/pbr08\\_publicfinances\\_444.pdf](http://webarchive.nationalarchives.gov.uk/http://www.hm-treasury.gov.uk/d/pbr08_publicfinances_444.pdf)).

<sup>17</sup> Calculated as  $10.0 + 0.5 \times (-3.2) + 0.2 \times (-4.2) = 7.6$ .



Figure 2.5. Different estimates for structural and cyclical borrowing in 2010–11



Notes: The Treasury’s method suggests that cyclically-adjusted borrowing is equal to headline borrowing plus 0.5 times the contemporaneous output gap and 0.2 times the lagged output gap. We assume the Treasury is correct in assuming a ‘denominator’ effect of economic growth on total public spending of 0.4 times the contemporaneous output gap. For the remaining ‘numerator’ effects, we take the 95% confidence interval of the weighted sum of the estimated regression coefficients for how cyclical social security, debt interest spending and government receipts vary with the economic cycle (under the assumption that these estimates are independent). This gives a ‘less responsive’ estimate that cyclically-adjusted borrowing is equal to headline borrowing plus 0.43 times the contemporaneous output gap and 0.09 times the lagged output gap, and a ‘more responsive’ estimate of 0.55 and 0.27 respectively.

Source: Authors’ calculations using results set out in HM Treasury, *Public Finances and the Cycle*, Treasury Economic Working Paper 5, November 2008 ([http://webarchive.nationalarchives.gov.uk/+http://www.hm-treasury.gov.uk/prebud\\_pbr08\\_publicfinances.htm](http://webarchive.nationalarchives.gov.uk/+http://www.hm-treasury.gov.uk/prebud_pbr08_publicfinances.htm)) (in particular tables 2.B, 2.C and 2.D) and the forecasts for borrowing, net investment and the output gap from Office for Budget Responsibility, *Economic and Fiscal Outlook*, November 2010 (<http://budgetresponsibility.independent.gov.uk/econ-fiscal-outlook.html>).

economic cycle – would be sufficient to eliminate most of the 0.9% of national income room for manoeuvre that the Chancellor has built in against his fiscal mandate.

## Summary

The Chancellor has set a new fiscal mandate: the structural current budget must be forecast to be in balance or in surplus by the end of a rolling, five-year forecast horizon. The OBR forecasts that the government’s policy will more likely than not lead to a cyclically-adjusted current budget surplus in 2015–16 and therefore assesses that current policy complies with the Chancellor’s fiscal mandate. In contrast, the policies that the government inherited from its predecessor would have been inconsistent with the new mandate. But there are considerable risks to, and therefore uncertainty around, any fiscal forecast. The OBR estimates that, on the basis of past forecasting performance, there is still roughly a three-in-ten chance of current policies not being sufficient to bring about a cyclically-adjusted current budget surplus in 2015–16.

## 2.4 The new debt profile target

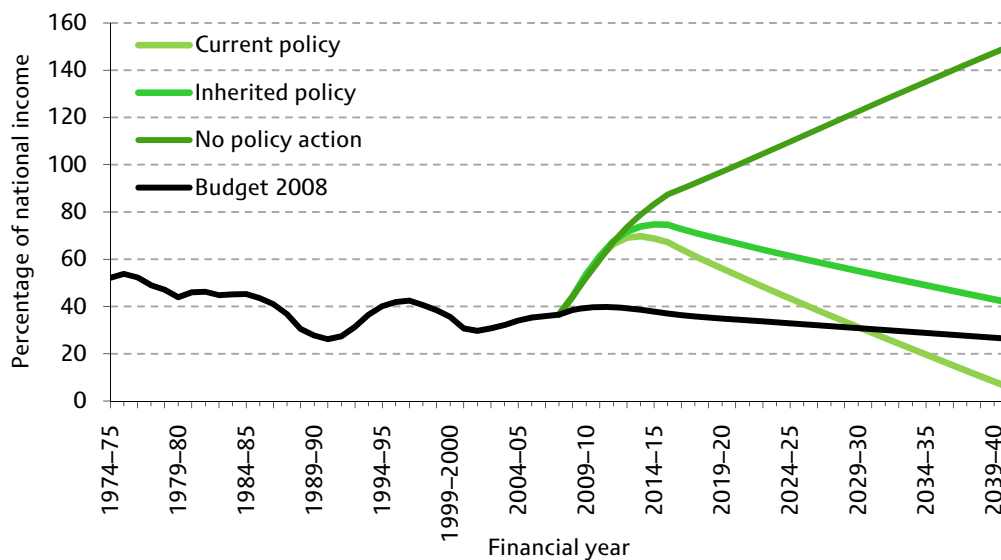
The government’s ‘fiscal mandate’ sits alongside a ‘supplementary target’: that public sector debt should be falling as a share of national income at the fixed date of 2015–16.

This section assesses whether this target will be met according to the latest OBR forecasts and under alternative scenarios. As this target is only a goal through to 2015–16, this section ends by discussing how one should choose a longer-term target consistent with fiscal sustainability.

## Meeting the new debt profile target?

The path of debt implied by the forecasts published at the time of Budget 2008 (before the financial crisis) is shown in Figure 2.6, along with the likely path of debt under three other scenarios: current policy, assuming no policy had been introduced since Budget 2008, and assuming that the new government chose to follow the previous Labour government’s policies as set out in the March 2010 Budget. For the years beyond the standard five-year forecast horizon, the figure assumes that the primary balance – that is, borrowing less debt interest spending – is held constant as a share of national income (a standard assumption to make in these types of analyses).<sup>18</sup>

Figure 2.6. Debt forecasts – with and without policy action since Budget 2008



Notes: Forecasts for debt levels assume that non-debt interest spending and revenues remain constant as a share of national income from 2017–18 onwards, while inflation is assumed to run at 2.7% a year and real growth in national income at 2.2% a year. Average nominal interest rates are assumed to rise from 4.1% (the level forecast in the November 2010 *Economic and Fiscal Outlook* for the end of the OBR’s forecast horizon, 2015–16) to 4.4% between 2017–18 and 2027–28. From 2027–28 onwards, nominal interest rates are assumed to remain at 4.4%. ‘No policy action’ ignores the direct impact of all fiscal policy measures that have been implemented since Budget 2008. ‘Inherited policy’ takes policy as of the March 2010 Budget. Sources: Historical data are from HM Treasury, *Public Sector Finances Databank*, 11 January 2011 ([http://www.hm-treasury.gov.uk/d/public\\_finances\\_databank.xls](http://www.hm-treasury.gov.uk/d/public_finances_databank.xls)). Forecasts are authors’ calculations using all Budgets and Pre-Budget Reports since March 2008 (up to the March 2010 Budget are available at <http://webarchive.nationalarchives.gov.uk/20100407010852/http://www.hm-treasury.gov.uk/home.htm>; June 2010 Budget is available at <http://www.hm-treasury.gov.uk/>) and the Office for Budget Responsibility’s November 2010 *Economic and Fiscal Outlook* (<http://budgetresponsibility.independent.gov.uk/econ-fiscal-outlook.html>).

<sup>18</sup> In cases where the economy was not forecast to be operating at trend at the end of the forecast horizon, we actually allow for some improvement in the primary balance beyond the end of the forecast horizon while the economy returns to trend. The primary balance is held constant thereafter.

Mr Darling's March 2008 Budget forecast was for public sector net debt to remain just below the 40% of national income ceiling set by the sustainable investment rule that had been announced by his predecessor, Mr Brown.

In the absence of any policy to deal with the permanent increase in borrowing that was brought about by the financial crisis, debt would have risen sharply as a share of national income, reaching over 87% of national income in 2015–16 and continuing to rise thereafter. Such a scenario would clearly not be consistent with the coalition government's target for falling debt in 2015–16. More fundamentally, such a scenario would, in all likelihood, have led to the UK government being forced into a combination of tax rises and spending cuts, as international investors became unwilling to lend the UK government funds at anything other than prohibitively expensive rates of interest (see Chapter 3 for a discussion of the factors, including high and increasing debt, that are associated with such an event occurring).

The Labour government's plans from Budget 2010 were not quite sufficient to offset completely the increase in the structural current deficit resulting from the crisis implied by the latest OBR forecasts (as was shown in Figure 2.2), but they would have been (just) sufficient to bring about a decline in the national debt each year from 2015–16 onwards. Therefore, if delivered, the fiscal consolidation set out in the March 2010 Budget would be forecast now to leave public sector net debt on a sustainable path and would have meant the government would now be on course to meet the supplementary target for falling debt in 2015–16, although the decline in 2015–16 would have been just 0.1% of national income.

The current government's plan is for a greater and faster fiscal tightening than the Labour government had planned, and therefore debt is currently forecast to be declining from 2014–15, a year earlier than what we estimate would have occurred under the inherited fiscal consolidation package, and a year earlier than the government's supplementary target requires. The decline in 2015–16 is also forecast to be a much more convincing one, of about 1.6% of national income. Despite this faster decline, public sector net debt is not forecast to fall back below the pre-crisis ceiling of 40% of national income until the mid-2020s. This is, however, at least 15 years sooner than we estimate would have been the case under the fiscal consolidation package that the government inherited from its Labour predecessor.

Given that the government is meeting its fiscal mandate for the forecast structural current budget to be in balance or better, it is unsurprising that it is also on course to meet its supplementary target for falling debt in 2015–16. This is because forecasting a structural current budget balance (or surplus) in 2015–16 will be sufficient to imply a forecast of falling debt as a share of national income in that year for any plausible investment plan. For example, if the OBR's *Economic and Fiscal Outlook* forecasts prove correct to 2014–15, and if the structural current budget was in balance in 2015–16 (rather than in surplus by 0.9% of national income as the OBR currently forecasts), then investment spending would still need to exceed the planned 1.3% of national income by 1.8% of national income for public sector net debt not to fall.<sup>19</sup>

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<sup>19</sup> The debt falling condition requires:

$$d_t \left( \frac{r-g}{1+g} \right) < ps_{t+1}$$

where  $d_t$  is the debt to GDP ratio in period  $t$ ,  $r$  is the nominal interest rate,  $g$  is the nominal growth rate of GDP and  $ps_{t+1}$  is the primary surplus (as a share of national income) in period  $t+1$ . (footnote continues)

The greater risks are likely to come from the OBR's fiscal forecasts turning out not to be accurate, although the risk to the supplementary target being threatened given a cyclically-adjusted budget balance is low. If all other forecasts proved to be correct up to 2014–15, then the nominal growth rate of the economy in 2015–16 would have to be around 2.4 percentage points lower (3.1% instead of the currently forecast 5.5%) for the supplementary target not to be met, or, alternatively, the average nominal interest rate on the national debt would need to be about 2.5 percentage points higher.

## Options for a longer-term debt target

The supplementary target for the profile of debt applies to one year only. If debt were to fall as a share of national income in 2015–16, but increase in every year up to then and in every year after then, the supplementary target would still be satisfied. Therefore, it is not a sufficient rule – even when combined with the government's fiscal mandate, discussed in the previous section – to ensure fiscal sustainability. After 2015–16 has passed, the supplementary target will no longer be relevant.

Sensibly, the government intends to replace the current supplementary target for the profile of debt in the long term when debt has been brought back down to more 'normal' levels. The current intention is to introduce a new target for debt as a share of national income that is based on an assessment by the OBR of the long-term sustainability of the public finances (the requirement for the OBR to carry out this assessment is discussed in Section 2.5).

This subsection sets out two key issues that need to be considered when setting such a target. First, the government needs to consider the possible impact on public sector net debt of an ageing population. Second, the government needs to consider the case for targeting a broader measure of public sector indebtedness than public sector net debt and, potentially, the case for targeting the cost of servicing that indebtedness rather than the headline level of debt itself.

### *An ageing population and the public finances*

The government's fiscal consolidation is forecast to be sufficient to deal with the short-term pressures arising from the financial crisis and bring debt as a share of national income onto a declining, sustainable path. But the government should – and the OBR will (as discussed in Section 2.5) – also consider longer-term pressures on the public finances. One such pressure is changing demographics: the increasing numbers at older ages, and the fact that they will comprise a larger share of the population, will tend to increase public spending, particularly on health, long-term care and state pensions. If the government does not offset these increases in spending by raising tax revenues or by cutting other areas of public spending, then this will cause higher government borrowing.

An estimate of the impact of these ageing pressures (assuming they are not offset) on debt is shown in Figure 2.7.<sup>20</sup> From the 2020s, the increase in age-related expenditure

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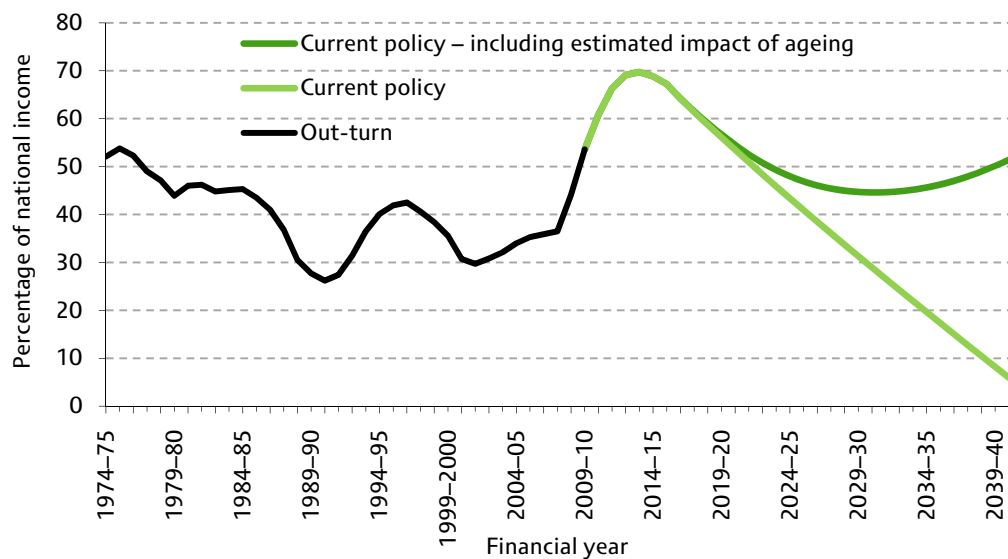
Under the OBR forecasts: nominal growth in 2015–16 is 5.5%, debt in 2014–15 is 68.8% of national income, and the average nominal interest rate on government borrowing is 4.1%. This implies that the minimum allowable primary balance in 2015–16 for debt to be falling is a deficit of 0.9%, compared with the forecast surplus of 1.8%. For debt to be falling therefore requires the primary balance to be 2.7% of national income worse than forecast. 0.9% of national income of this could come from the structural current budget being in balance rather than the forecast 0.9% of national income surplus, but the rest would have to come from greater-than-forecast investment spending.

<sup>20</sup> This uses the estimates of the increase in borrowing arising from an ageing population described by the OBR in table 5.6 (page 145) of its *Economic and Fiscal Outlook*, November 2010 (footnote continues)

would be sufficient to start a noticeable slowdown in the reduction of debt as a share of national income, and from the start of the 2030s debt is likely to start increasing again.

This suggests that, without further spending cuts or tax rises over and above those already announced, the ageing population will lead to increased spending and hence borrowing and this will be sufficient to prevent public sector net debt from falling back to below pre-crisis levels. Therefore, the government will need to consider the extent to which it is prepared to tolerate a future path for debt that is above that which existed before the financial crisis, and how this compares with its willingness to announce further tax rises and spending cuts in order to limit this situation.

Figure 2.7. Debt forecasts – with and without estimated impact of an ageing population



Notes: As for Figure 2.6. The forecast including the impact of demographic pressures assumes that the primary balance changes from year to year, beyond 2016–17.

Sources: As for Figure 2.6. Impact of long-term demographic pressures on the primary balance taken from table 5.6 of Office for Budget Responsibility, *Economic and Fiscal Outlook*, November 2010 ([http://budgetresponsibility.independent.gov.uk/d/econ\\_fiscal\\_outlook\\_291110.pdf](http://budgetresponsibility.independent.gov.uk/d/econ_fiscal_outlook_291110.pdf)).

### A ‘sustainable commitments rule’?

The key rationale for a debt ceiling is to limit the impact on future taxpayers of tax and spending decisions made today. This could be justified both on the grounds of ensuring financial sustainability and on the grounds of fairness. Specifically, it might be deemed inappropriate to pre-commit too great a share of national income to, for example, service debt that has been accumulated in the past even if that debt is used to finance investment projects from which future generations will benefit.

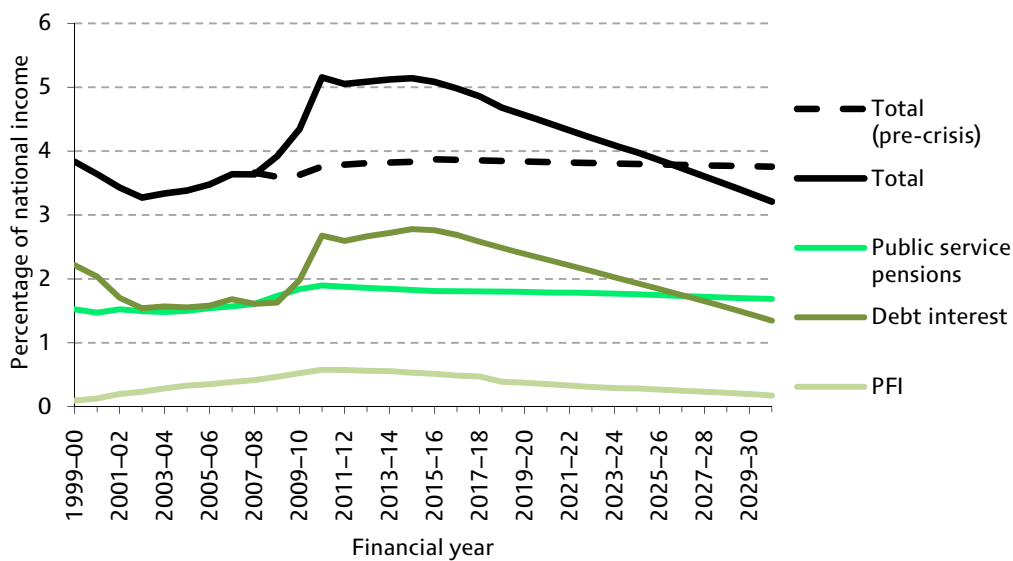
But if it is the burden on taxpayers that is of concern, then we should perhaps focus on the cost of servicing the debt they will have to pay, rather than on the outstanding stock of debt itself. The key difference is that the first depends upon the rate of interest: if the long-term rate of interest at which the government can borrow falls (rises), it would seem reasonable to carry out more (fewer) investment projects from which current and future

([http://budgetresponsibility.independent.gov.uk/d/econ\\_fiscal\\_outlook\\_291110.pdf](http://budgetresponsibility.independent.gov.uk/d/econ_fiscal_outlook_291110.pdf)) and is similar to the analysis the OBR presented in its chart 5.6 (page 146).

taxpayers can benefit. A ceiling on public sector net debt would not allow this, but a ceiling on public sector net debt interest payments would.

For this reason, IFS researchers have argued that the government should consider a target for the amount of future national income that is pre-committed to certain items – dubbed a ‘sustainable commitments rule’ – rather than (or perhaps alongside) a ceiling on headline debt.<sup>21</sup> A further advantage of such a rule is that it would also lend itself more easily to the inclusion of some of the other commitments that the public sector has made that are not scored in public sector net debt (since the estimates will not be sensitive to the choice of discount rate). For example, both spending on future public service pension payments and payments to Private Finance Initiative (PFI) providers could be included, as both represent pledges made by current governments that future governments will have to – or will be strongly expected to – honour.

Figure 2.8. A possible ‘sustainable commitments rule’: some projected future public spending obligations



Sources:

Debt interest is public sector net debt interest (i.e. gross interest paid less gross interest received). Data to 2008–09 are calculated as the difference between ONS series ANLO and ANBQ from table 2.3C of *Financial Statistics Freestanding Time Series Data* (<http://www.statistics.gov.uk/statbase/tsdtimezone.asp>). Figures for 2009–10 to 2015–16 are from OBR public finances supplementary tables 1.11 and 1.12 which accompanied the November 2010 *Economic and Fiscal Outlook* (<http://budgetresponsibility.independent.gov.uk/econ-fiscal-outlook.html>). Projections beyond 2015–16 are calculated on the same basis as the data in Figure 2.6. Public service pension spending is taken from figure 4.A (page 64) of Independent Public Service Pensions Commission, *Independent Public Service Pensions Commission: Interim Report, 2010* ([http://www.hm-treasury.gov.uk/indreview\\_johnhutton\\_pensions.htm](http://www.hm-treasury.gov.uk/indreview_johnhutton_pensions.htm)). PFI commitments from 1999–2000 to 2009–10 are computed from HM Treasury, *PFI Signed Projects List – February 2010* ([http://www.hm-treasury.gov.uk/d/pfi\\_signed\\_projects\\_list.xls](http://www.hm-treasury.gov.uk/d/pfi_signed_projects_list.xls)). Figures from 2010–11 are from table 2.8 (page 26) of Office for Budget Responsibility, *Budget 2010: The Economy & Public Finances – Supplementary Material*, June 2010 ([http://budgetresponsibility.independent.gov.uk/d/junebudget\\_supplementary\\_material.pdf](http://budgetresponsibility.independent.gov.uk/d/junebudget_supplementary_material.pdf)). Pre-crisis estimates taken from the ‘Budget 2007’ line in figure 5.9 of R. Chote, C. Emmerson and G. Tetlow, ‘The fiscal rules and policy framework’, in R. Chote, C. Emmerson, D. Miles and J. Shaw (eds), *The IFS Green Budget: January 2009*, IFS Commentary 107 (<http://www.ifs.org.uk/budgets/qb2009/09chap5.pdf>).

<sup>21</sup> See pages 101–106 of R. Chote, C. Emmerson and G. Tetlow, ‘The fiscal rules and policy framework’, in R. Chote, C. Emmerson, D. Miles and J. Shaw (eds), *The IFS Green Budget: January 2009*, IFS Commentary 107 (<http://www.ifs.org.uk/budgets/qb2009/09chap5.pdf>).

Our latest estimates for total future public spending commitments on debt interest payments, public service pensions and payments to PFI providers, all based on official sources, are shown in Figure 2.8. Debt interest payments are projected by the OBR to increase from 1.6% of national income in 2007–08 (prior to the financial crisis) to 2.8% of national income in 2014–15. Our calculations suggest that these will then decline over time and return to 1.6% of national income in the late 2020s.

Figures produced by the Independent Public Service Pensions Commission (IPSPC) and the Government Actuary's Department for the IPSPC's recent interim report suggest that spending on public service pensions will increase from 1.5% of national income in 2004–05 to a peak of 1.9% of national income in 2010–11 before declining gradually through to the middle of this century.

Payments to PFI providers for deals already signed have increased steadily from 0.1% of national income in 1999–2000 (as capital spending by the PFI has grown in scale) and are forecast by the Treasury to peak at 0.6% of national income in 2010–11 before declining gradually over time. However, the signing of any new deals would increase future payments beyond the levels shown here; at the time of the June 2010 Budget (when these figures were produced), the Treasury estimated that there were PFI deals with a capital value of £10.8 billion yet to be signed but at 'preferred bidder' stage.<sup>22</sup>

The total of these three streams of payments is estimated to have increased in recent years, with a particularly sharp increase from 3.6% of national income in 2007–08 to 5.2% of national income in 2010–11. They are projected to stabilise around this higher level until the middle of this decade before declining over time. Also shown in Figure 2.8 is the equivalent pre-committed spending total estimated by IFS researchers based on data from before the financial crisis hit, which suggested that it would remain below 4.0% of national income.

The idea of a 'sustainable commitments rule' would need further investigation before being put forward as a firm policy proposal. But it would seem to have the strengths of Mr Brown's sustainable investment rule objective of targeting public sector net debt, along with the additional advantages of allowing higher government borrowing when such finance was cheaper and of taking into account a more comprehensive set of commitments affecting future taxpayers. Which commitments should be encompassed by such a rule would need to be considered very carefully, as would the choice over the appropriate level (or path) of the ceiling on these commitments. Were the government to move towards such a target, official forecasts for public sector net debt as well as other measures of the state of the public finances such as 'net worth' and the 'primary balance' should, nonetheless, continue to be published.

## 2.5 The Office for Budget Responsibility

In an attempt to enhance the credibility of its fiscal policy commitments, the coalition government has set up an independent Office for Budget Responsibility.<sup>23</sup> This body has taken over responsibility for producing and publishing official economic and fiscal

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<sup>22</sup> Table 2.7 (page 26) of Office for Budget Responsibility, *Budget 2010: The Economy & Public Finances – Supplementary Material*, June 2010 ([http://budgetresponsibility.independent.gov.uk/d/junebudget\\_supplementary\\_material.pdf](http://budgetresponsibility.independent.gov.uk/d/junebudget_supplementary_material.pdf)).

<sup>23</sup> See <http://budgetresponsibility.independent.gov.uk/> and [http://www.hm-treasury.gov.uk/leg\\_budgetresponsibility\\_bill.htm](http://www.hm-treasury.gov.uk/leg_budgetresponsibility_bill.htm) for details.



forecasts from Treasury ministers. The UK is one of a number of countries to have adopted such an independent fiscal council in recent years; Sweden, Canada, Hungary and Slovenia have also all created similar bodies over the last four years. These in turn follow the example of bodies such as the Central Planning Bureau (CPB) in the Netherlands and the Congressional Budget Office (CBO) in the United States.

Though the structure and remit of each of these bodies are all slightly different, the broad aims are the same. Essentially, there is a concern that politicians are prone, or are perceived to be prone, to undervalue the longer-term costs of borrowing – perhaps because of pressure from special interest groups or political short-termism – which causes them to allow excessive debt accumulation.<sup>24</sup> Even if politicians sign up to fiscal rules which theoretically constrain the amount of borrowing they are allowed to do (such as Mr Osborne’s fiscal mandate and supplementary target discussed above), the complex nature of economic and fiscal forecasting is such that the electorate finds it hard to hold governments to account. If the electorate prefers less borrowing than politicians do, politicians have an incentive to produce optimistic fiscal forecasts to hide their intention to borrow excessively. (It is also possible that, immediately after a change of government, politicians might have an incentive to produce deliberately pessimistic forecasts in order to increase the chance that the new government will be able to announce better-than-expected performance in subsequent budgets.)

Deviations from forecasts could indicate either that the initial forecasts were intentionally misleading or that unforeseen events occurred after the forecasts were produced. This in turn also has a cost for prudent governments: though they may be committed to maintaining sound public finances, they may struggle to convince the electorate and market actors of this, and so may not be fully rewarded for behaving virtuously. This was a key rationale behind Mr Brown’s decision to place a lot of personal political capital on his pledge to meet two fiscal rules on becoming Chancellor in 1997: he wanted to convince others that he would not repeat the perceived mistakes of some previous Labour Chancellors.

Fiscal councils are intended to help improve scrutiny of the government’s fiscal intentions by providing a transparent and independent assessment of the economic and fiscal position and forecasts. By increasing transparency and credibility, they can complement fiscal rules. The desire for this reform in the UK in part reflects that the fiscal promises of the previous Labour government were undermined by the moving of the goalposts that occurred just as Mr Brown’s golden rule looked on course to be missed rather than met (discussed in Section 2.3), and that fiscal forecasts reflected politically-motivated wishful thinking rather than dispassionate professional judgement – notably in the run-up to the 2005 general election.

The remit of the OBR is to:<sup>25</sup>

- examine and report on the sustainability of the public finances;

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<sup>24</sup> A number of previous papers have discussed the reasons behind excessive government debt accumulation and the arguments for independent fiscal councils. See L. Calmfors, *The Role of Independent Fiscal Policy Institutions*, 2010 (<http://www.finanspolitiskaradet.se/download/18.64075cf012c96962a7d800012034/Underlagsrapport+9+2010+Calmfors.pdf>) for a useful summary of these.

<sup>25</sup> This list is based on the wording of legislation currently going through parliament. The final remit of the OBR may differ. Source: Budget Responsibility and National Audit Bill [HL] 2010–11 (<http://services.parliament.uk/bills/2010-11/budgetresponsibilityandnationalaudit.html>).



- produce fiscal and economic forecasts, and provide an assessment of the extent to which the fiscal mandate has been or is likely to be achieved, on at least two occasions each financial year;
- prepare an assessment, at least once a year, of the accuracy of economic and fiscal forecasts previously prepared by it;
- prepare an analysis, at least once a year, of the sustainability of the public finances;
- examine the impact of decisions made by the government on the sustainability of the public finances, but not comment on the merits of individual policies or examine alternative policy scenarios;
- act objectively, transparently and impartially.

The OBR's funding allocation has been fixed, for the four years covered by the recent Spending Review (2011–12 to 2014–15), at £1.75 million a year. Having such certainty over funding is an important part of establishing an independent fiscal council. It is more likely that such a fiscal council will feel able to act – and will be perceived as being able to act – without let or hindrance from the government if it is certain that comments that are detrimental to the government will not lead to its funding being cut. The recent experience of the Hungarian Fiscal Council – which faces the prospect of its budget for 2011 being cut by nearly 99%, from 835.5 million forints to just 10 million forints – suggests that this risk can be all too real.<sup>26</sup>

## The OBR in practice

The OBR produces forecasts for the economy and public finances using resources similar to those previously used by the Treasury. Importantly, the OBR has access to all the same data, expertise and models as the Treasury. The forecasting judgements are made by the three-person Budget Responsibility Committee (BRC), which comprises Robert Chote (Chairman), Stephen Nickell and Graham Parker. Previously, such forecasting judgements were the responsibility of the Chancellor. The OBR is now charged with publishing these forecasts and the Chancellor can either accept them or, in theory, reject them and use his or her own.

Three OBR forecasts have been published since the general election in May 2010. The first two were a pre-Budget report (in June 2010 – preceding the government's emergency Budget) and a Budget forecast (accompanying the June 2010 Budget). Both of these were carried out by an interim OBR, with an interim BRC comprising Sir Alan Budd (Chairman), Geoffrey Dicks and Graham Parker. Since then, the permanent OBR has produced an *Economic and Fiscal Outlook* (in November 2010), which is the latest set of official forecasts. In addition, it provided independent scrutiny and certification of the government's costings of Annually Managed Expenditure (AME) policies in the October 2010 Spending Review.

In the future, it seems likely that the OBR will publish four types of analysis (all of which were previously published at least semi-regularly by the Treasury):

- economic and fiscal forecasts, an assessment of the cost of any new policies, and a judgement on compliance with the fiscal mandate and supplementary target, at the time of the government's Spring Budgets;

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<sup>26</sup> 'Hungary to disband Fiscal Council', *Wall Street Journal*, 22 November 2010 (<http://blogs.wsj.com/new-europe/2010/11/22/hungary-to-disband-fiscal-council/>).

- economic and fiscal forecasts and a judgement on compliance with the fiscal mandate and supplementary target in the autumn; the Chancellor has reserved the right to announce new policy measures at this time, the costings of which would also need to be approved by the OBR;
- an annual end-of-year fiscal report, examining how fiscal out-turns for the last financial year compare with previous forecasts;
- an annual long-term fiscal sustainability report, examining long-term pressures facing the public finances.

Most of the forecasts produced by the OBR are, like all economic forecasts, likely to prove to be inaccurate. Therefore, in order for the OBR to build its reputation, it should take as much advantage as possible of the required end-of-year fiscal report to conduct and communicate detailed analysis of how and why outcomes deviated from the forecasts. Informing the public about the extent to which errors made in forecasts were unavoidable, due to the inherent nature of the task at hand, or were avoidable and therefore will not be repeated again, will be an important part of the OBR's role. This should help to increase confidence that the forecasts were not intentionally misleading and that any lessons that can be learnt are being learnt.

It would be sensible for the OBR to commit to a regular timetable for these. Mr Chote, in evidence to the Treasury Select Committee in December 2010, confirmed that the first OBR long-term fiscal sustainability report will be published in June or July 2011.<sup>27</sup> The end-of-year fiscal report cannot be produced before full out-turn data become available, and it would seem sensible – both to spread workload and to ensure appropriate attention is paid to it – to avoid publishing it at the same time as any of the other statements (meaning that September might be the most obvious month to choose).

## **Interaction between the OBR and the government**

The Treasury does retain a copy of the economic and fiscal forecasting models that now also reside at the OBR. However, if the OBR takes the lead in producing these forecasts, fewer resources may be devoted to maintaining this skill base at the Treasury. Therefore, over time, the OBR could end up being the only government or parliamentary body with sufficient resources to produce detailed economic and fiscal forecasts (or at least being substantially better placed than other official bodies to produce such forecasts). This would have the advantage of avoiding costly duplication of tasks. However, it would have the cost that the government – when deciding whether, and what, additional policy measures might be required – would not have the same forecasting expertise to draw on. It would be necessary, therefore, for the government to know what the OBR's forecasts are before it can decide exactly what policy measures it can or should implement – whether this is giving away extra money if the outlook improves, or announcing further tax increases or spending cuts if the OBR thinks that current policy is not consistent with meeting the Chancellor's fiscal mandate. This exchange of information could happen in a number of different ways and there are advantages and disadvantages to each of them, from the OBR's, the government's and the public's perspectives.

At one extreme, the OBR could decide to have no private interaction with the government at all. It would produce its forecasts independently and then make them publicly

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<sup>27</sup> R. Chote, evidence to the Treasury Select Committee, 6 December 2010 (<http://www.publications.parliament.uk/pa/cm201011/cmselect/cmtreasy/uc664-i/uc66401.htm>).

available, including stating whether current policy was consistent with the Chancellor's fiscal mandate. The government could then decide what action to take in its next Budget. The advantage of this approach is that it would probably help maximise the appearance of independence for the OBR. There should be little suspicion that the OBR has been coerced by ministers into making suboptimal forecasting assumptions. However, there are at least two disadvantages:

- First, the government would potentially be put in the position of the OBR stating publicly that fiscal policy was not consistent with meeting the fiscal mandate before it had had a chance to decide how to deal with this problem. This is almost certainly undesirable from the government's point of view but might also be undesirable for the country more generally if it led to periods of greater uncertainty about the stability of the UK's public finances.
- Second, this approach might lead to worse policymaking. As an example, suppose the government were to decide – in light of the OBR's revised forecasts – that a 1% of national income fiscal tightening was required to reduce borrowing. The government would have to adopt a package of measures that it thought likely to cut borrowing by this amount. However, without the ability to confer with the OBR and without any other official source of forecasting expertise, making such a decision would be difficult. It is quite possible that the OBR would then judge that the package actually raised more (or less) money than the government was hoping for. This would be an undesirable situation for both the government and the public.

The Swedish Fiscal Policy Council is one independent fiscal council that explicitly has no discussions with its government before publishing each annual report. However, this modus operandi is perhaps facilitated by the fact that it is not responsible for producing economic and fiscal forecasts (this is done by other public bodies in Sweden) but considers only broader issues of fiscal sustainability.

An alternative option is to adopt a more consultative approach. This is essentially what the OBR has done so far. Under this model, the OBR discusses its forecasts with the Chancellor; then the government decides what – if any – policies to implement; then the OBR incorporates the impact of these policies into its forecasts, which are published at the same time as the policy announcements. One of the advantages of this approach is that one set of economic and fiscal forecasts can be published alongside the policy announcements at the time of each Budget. A clear advantage from the government's point of view is that it is able to prepare and take action before the OBR makes any public statement. This approach should also aid policymaking by giving ministers access to better information about how the policies they are considering might affect the outlook for the economy and public finances before they finalise policy decisions.

However, the disadvantage is that these kinds of private consultations between ministers and the OBR could make the forecasting process less transparent. This in turn could potentially undermine at least the appearance of the OBR's independence. For example, it has been argued that regular meetings between cabinet ministers and officials at the CPB in the Netherlands are sometimes used to coerce the bureau into changing its analysis.<sup>28</sup> Many of the benefits that are derived from an independent fiscal council come from the

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<sup>28</sup> Bos and Teulings (2010), cited in L. Calmfors, *The Role of Independent Fiscal Policy Institutions*, 2010 (<http://www.finanspolitiskaradet.se/download/18.64075cf012c96962a7d800012034/Underlagsrapport+9+2010+Calmfors.pdf>).

increased transparency and credibility, which are argued to outweigh the additional costs of such a body. To lose these advantages would be a heavy price to pay, and the OBR will have to continue to ward against this danger. But the risks of losing the perception of independence are probably outweighed by the potential gains in the quality of policymaking to be derived from the OBR holding meetings with ministers during the forecasting process. Therefore a continuation of the model that has been adopted so far, whereby members of the BRC have held a limited number of meetings with ministers prior to the publication of forecasts, seems appropriate. However, to reduce any suspicions that these meetings might cause the OBR to be coerced into changing its judgements, the OBR should be as transparent as possible about what meetings have been held, and when and how all key assumptions made in its forecasts were decided upon.<sup>29</sup>

## Increasing transparency

### *Macroeconomic forecasts*

Instead of tasking the OBR with producing macroeconomic forecasts, the government could instead have made use of the macroeconomic forecasts already being produced by the Bank of England – the existing, official body that is responsible for setting monetary policy but is independent of government. Some of the attractions and drawbacks of such an arrangement were discussed in the 2010 IFS Green Budget.<sup>30</sup>

As this option has not been chosen, there are now two sets of forecasts for the UK economy being produced by bodies that are official but independent of government. Those produced by the OBR will be used when deciding fiscal policy, while those produced by the Bank of England will be used by the Monetary Policy Committee when deciding on monetary policy. Understanding how and why these forecasts are different – or similar – may well be important for assessing how well coordinated are fiscal and monetary policy.<sup>31</sup> Analysis of these similarities and differences by experts both inside and outside these bodies has the potential to increase debate and understanding of which assumptions underlying the forecasts are most important or controversial, and thus could improve the quality of the macroeconomic forecasts produced.

Quite how much understanding of the differences and similarities between these forecasts will be possible will depend in part on how much detail on its forecasts and forecasting models the OBR makes publicly available. Thus far, it has published more detail than the Treasury previously did – for example, on some of the outputs of the macroeconomic modelling that are important inputs into the modelling of the public finances (see first bullet point below). This is a welcome development. The OBR should

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<sup>29</sup> Alongside the November 2010 *Economic and Fiscal Outlook*, the OBR published a log of all contacts that had been made between the OBR and ministers. This is quite a high degree of transparency. However, repeating such an exercise may be more difficult in cases where there is more interaction between the OBR and the Treasury, as might be required if the government were considering a substantial package of new policy measures.

<sup>30</sup> See R. Chote, C. Emmerson, L. Sibieta and G. Tetlow, 'Reforming UK fiscal institutions', in R. Chote, C. Emmerson and J. Shaw (eds), *The IFS Green Budget: February 2010*, IFS Commentary (<http://www.ifs.org.uk/budgets/gb2010/10chap11.pdf>).

<sup>31</sup> For example, in November 2010, both the OBR and the Bank of England published new forecasts for GDP growth. The Bank's forecast was for cumulative real GDP growth to be about 0.5 percentage points higher over the next three years – 2011 to 2013 – than the OBR forecast. The OBR's forecast for growth in the consumer price index (CPI) was also lower than the Bank's up to the end of 2012, but higher thereafter. Sources: Bank of England, *Inflation Report: November 2010*; Office for Budget Responsibility, *Economic and Fiscal Outlook: November 2010*.

continue to go further – for instance, by providing more detail on its underlying economic forecasting models as well.

### *Fiscal forecasts*

There have been a number of welcome increases in transparency that have accompanied the shift of fiscal forecasting from the Treasury to the OBR:

- To date, the OBR's publications have provided much more information on the economic assumptions underlying the fiscal projections than the equivalent documents previously produced by HM Treasury. For example, they now reveal key assumptions about corporate profits growth, earnings growth, and growth in property prices and the volume of transactions.
- The OBR has been responsive to requests for additional detail on its assumptions where this was not already provided in its publications.<sup>32</sup> Furthermore, to aid the perception of impartiality, it has adopted the policy of publishing responses to such requests at a fixed (pre-announced) time and date each month.
- The OBR has also published a document explaining in more detail what the main determinants of their spending and receipts forecasts are and over what key judgements were made.<sup>33</sup>
- The requirement that the OBR provides independent scrutiny of the Treasury's estimates of the 'direct' impact of individual budget policy measures on the public finances<sup>34</sup> has been associated with more detail being publicly provided by the Treasury of how these estimates have been reached.
- Previously, the Treasury published forecasts for the public finances that built in an unquantified degree of 'caution'. That is, the forecasts were claimed not to be the Treasury's best central estimate but rather a slightly pessimistic view. In contrast, the main forecasts of the OBR are central estimates. This then leaves the Chancellor to make the explicit policy decision over the extent of caution with which he or she wishes to aim to meet the fiscal target.
- The OBR explicitly takes uncertainty into account by also publishing 'fan charts' that indicate the likelihood of alternative outcomes, in much the same way as the Bank of England does for its inflation and economic growth forecasts. The *Economic and Fiscal Outlook* also considered the sensitivity of the forecasts to several parameters and forecast the key fiscal aggregates under two alternative economic scenarios.

We have previously recommended all of these improvements (and as far as possible have been practising them in our own Green Budget forecasts). We therefore welcome these developments. So far, the OBR publications have omitted some information that was previously provided in similar Treasury publications. However, it appears that this has

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<sup>32</sup> A variety of supplementary information has already been made available on the OBR's website: <http://budgetresponsibility.independent.gov.uk/publications.html>.

<sup>33</sup> Source: Office for Budget Responsibility, *Forecasting the Public Finances*, Briefing Paper 1, January 2011 ([http://budgetresponsibility.independent.gov.uk/d/obr\\_briefing1.pdf](http://budgetresponsibility.independent.gov.uk/d/obr_briefing1.pdf)).

<sup>34</sup> The Treasury estimates the cost or yield of firm and final policies. These costings take into account direct behavioural effects on the tax base that the policy is applied to and the base of closely related taxes. In the case of benefit reforms, these costings take into account the effect of interactions with other benefits. For further detail of the Treasury's methodology, see HM Treasury, *Budget 2010 Policy Costings*, 2010 ([http://www.hm-treasury.gov.uk/d/junebudget\\_costings.pdf](http://www.hm-treasury.gov.uk/d/junebudget_costings.pdf)). For a detailed discussion of alternative methods for costing policies, see S. Adam and A. Bozio, 'Dynamic scoring', *OECD Journal on Budgeting*, 2009/2, 99–124.

usually been through oversight rather than intentional omission, and experience to date suggests that, if these gaps are drawn to the OBR's attention, they will be remedied in future publications.

In the realms of both macroeconomic and fiscal forecasting, we would encourage the OBR to make publicly available as much data, and as much detail on its models, as possible.

## Consideration of alternative policy scenarios

The OBR's remit expressly forbids it from 'examin[ing] alternative policy scenarios'.<sup>35</sup> In other words, it is not allowed to publish an assessment of what the outlook for the economy and public finances would be under a different set of policies from those legislated by the government (such as those presented in this chapter in Figures 2.1, 2.2 and 2.6). One simple alternative policy scenario for which forecasts should certainly always be published alongside each significant fiscal event (such as Budgets) is that of no new discretionary measures. This would inform debate on the impact of the new measures on both the economy and the public finances.

There are also some other policy scenarios that the OBR's consideration of might aid public debate. The current remit forbids the OBR from commenting on the public finance implications of proposals made by other political parties (or indeed the individual parties that form the current coalition), and also from considering policies that the government has mooted (for example, in speeches, White Papers, legislation, manifestos and the coalition agreement) but not implemented.

This is in contrast to the CPB in the Netherlands, which does provide costings of other political parties' policies, as set out in their manifestos, before each election (and during negotiations over the formation of a new coalition government).<sup>36</sup> The advantage for the OBR of being prevented from considering opposition parties' policies is that it is less likely to be drawn into a political debate on the relative merits of alternative policy options. However, it may not be immune from this, as the current arrangement means that the government will be able to have 'OBR approved' costings for future policies that it has committed to in past Budgets, but the opposition parties will not have this option open to them. The disadvantage for the public of the OBR being prevented from considering opposition parties' policies is that, while existing policies are subject to intense scrutiny, the options with which they are presented at the time of general elections will not be, and so they will find it harder to make informed decisions. Moreover, in the run-up to a general election where it is widely believed that an opposition party is likely to form the next government, the fiscal plans of that opposition party are, arguably, more important than those of the current government for the sustainability of the public finances. Of course, IFS researchers – who are also independent of the government and the opposition parties – and other bodies will continue to provide careful scrutiny of policy proposals including, where possible, costings of new measures. But, in at least some cases, the OBR would have the advantage of having access to better data.

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<sup>35</sup> [http://budgetresponsibility.independent.gov.uk/d/terms\\_of\\_reference\\_final.pdf](http://budgetresponsibility.independent.gov.uk/d/terms_of_reference_final.pdf).

<sup>36</sup> See <http://www.cpb.nl/en/what-does-cpb-do>.



## Summary

Overall, the OBR is a welcome innovation. The intention, and the practice to date, of promoting greater transparency of official economic and fiscal forecasts will aid scrutiny of the government's compliance with its specific fiscal targets. A better assessment of broader compliance with the longer-term objective of fiscal sustainability should also be aided by the OBR's future work programme. The OBR will need to work hard to maintain its reputation as a politically independent body, particularly as quite considerable discussion and exchange of information may be required between the Treasury and the OBR in advance of the publication of its forecasts. There is a case for extending the remit of the OBR so that it is able to consider the impact on the economy and public finances of alternative policy options, at least in some limited circumstances such as the run-up to a general election.

## 2.6 Conclusion

The biggest domestic policy challenge for the government over the next few years will be to ensure that the public finances are returned to a sustainable footing in a way that minimises the fall in households' living standards arising from higher taxes, lower welfare payments and cuts to spending on public services. To help signal the government's commitment to strengthening the public finances, the Chancellor has set himself two fiscal goals: that policy should be consistent with achieving a cyclically-adjusted current budget balance at the end of the forecasting horizon (the fiscal mandate) and that debt should be falling as a share of national income in 2015–16 (the supplementary target). The OBR judges that current policies are consistent with the fiscal mandate and forecasts that it is more likely that the supplementary target will be met than missed. The second target is sufficiently unchallenging that it would be unlikely to be missed if the first were met.

Similar rules operated by the previous Labour Chancellors – Mr Brown and Mr Darling – had ceased to have much public credibility long before the onset of the financial crisis made it almost inconceivable that they would be met and unwise for the government to try to meet them. One problem was a perception that the government produced unduly optimistic economic and fiscal forecasts to support its claim that it was on course to meet the rules (particularly in the run-up to the 2005 election) and then moved the goalposts when it looked like the target was going to be missed. In an attempt to circumvent similar credibility issues, the new government has set up the independent OBR to provide forecasts of the economy and the public finances and to assess whether current policies are likely to be consistent with fiscal targets that the government has set itself.

The creation of the OBR has been accompanied by a welcome increase in transparency of both the forecasting process and the forecasts themselves. The provision of central forecasts and descriptions of uncertainty around these should help to improve public understanding of the level of uncertainty in official forecasts and the degree of caution built into the government's stated plans. Perhaps the key challenge for the OBR going forwards will be to work closely with the Treasury and the government in order to ensure that its forecasts take account of as much information as possible, and that government policy is based on as much information as possible, whilst ensuring that it remains, and is perceived to remain, independent.

At some point, the government will need to decide how to adapt its fiscal rules once recovery from the financial crisis is more secure. In particular, the supplementary target for the profile of debt will cease to be relevant from 2015–16. We continue to argue that this government, or a future one, may wish to consider the merits of a ‘sustainable commitments rule’ which places a ceiling on the flow of future debt interest and other pre-committed future payments, rather than on the stock of accumulated public sector debt. While the fiscal mandate will not become obsolete once the public finances have recovered, it will necessitate careful independent scrutiny of the public finances in order to ensure that governments do not inappropriately manipulate the forward-looking nature of the rule.



## 3. Fiscal vulnerability: a stocktake

Simon Hayes (Barclays Capital)

### Summary

- In opting for an aggressive pace and size of fiscal consolidation, the government hopes to have insulated the UK from the types of funding crises that have beset other European nations.
- The UK government bond market has not shown any material signs of stress over the past year, implying that investors believed the UK deficit problem would be dealt with effectively. Investor demand for UK government debt remained healthy even after the Bank of England halted its bond purchases under its policy of quantitative easing.
- In financial markets, past calm is no guarantee of future stability, however, and so we attempt to gauge how secure the UK's fiscal position is. Using 16 indicators of fiscal vulnerability, we find that the UK ranks close to the middle of our sample of 57 countries.
- The UK benefits from the long average maturity of its debt and the fact that the vast majority of government borrowing is in sterling. The strength of regulation and the rule of law also lower the likelihood of a funding crisis. However, the large government deficit and high reliance on external debt are sources of vulnerability.
- Achieving a sustainable reduction in the structural budget deficit stands out as a policy priority. Effective oversight of banks' external exposures is also important if risks are to be contained.
- The front-loading of tax increases and capital spending cuts should ensure that the deficit reduction plan stays on track in the near term, although the risk of political turbulence remains high. Fiscal adjustment may also be hampered by further adverse macroeconomic shocks, which monetary policy is, arguably, not well placed to counter.

### 3.1 Introduction

The issue of how best to cut the fiscal deficit has become highly contentious. The Chancellor, George Osborne, has argued that the government's deficit reduction plan has removed 'the biggest downside risk to the recovery – a loss of confidence and a sharp rise in market interest rates'.<sup>1</sup> Financial markets seem to have reacted positively to the plan: the interest rate differential between UK and German government bonds has declined since the general election, in contrast to that between Spanish and German government bonds, for example (Figure 3.1). The UK's triple-A credit rating appears assured for the time being.

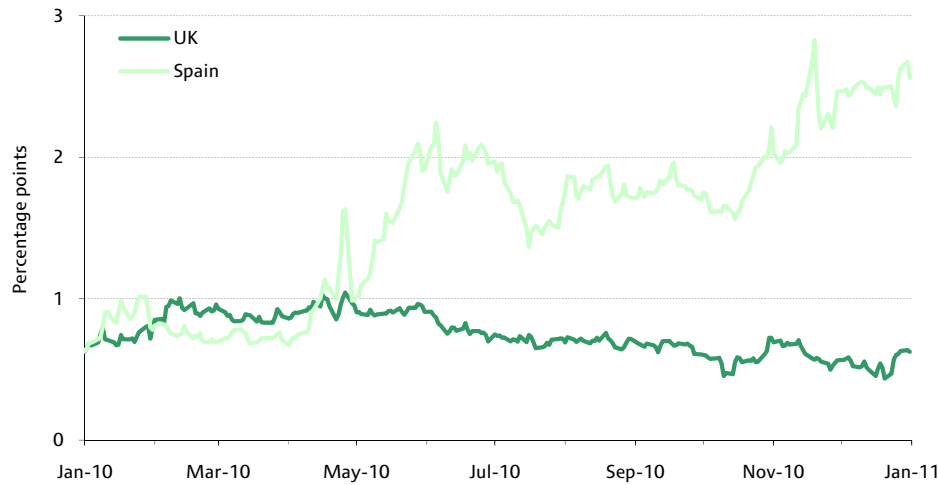
However, critics have contended that the government is cutting the deficit too quickly, causing unnecessary hardship and risking a renewed recession. Household and business

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<sup>1</sup> G. Osborne, 'Building the economy of the future', speech to Bloomberg, 17 August 2010 ([http://www.conservatives.com/News/Speeches/2010/08/George\\_Osborne\\_Building\\_the\\_economy\\_of\\_the\\_future.aspx](http://www.conservatives.com/News/Speeches/2010/08/George_Osborne_Building_the_economy_of_the_future.aspx)).

confidence have sagged as the size of government cuts has become clear (Figure 3.2). The opposition Labour Party has maintained that its plan when in government – to halve the deficit over a four-year period – would have been more likely to generate a sustainable improvement in the public finances.

Figure 3.1. Interest rate spreads over German government bonds



Source: Barclays Capital.

Figure 3.2. Consumer confidence



Note: The percentage balance is the difference between the percentage of respondents saying the situation has improved and the percentage saying the situation has worsened.

Sources: Haver Analytics; Barclays Capital.

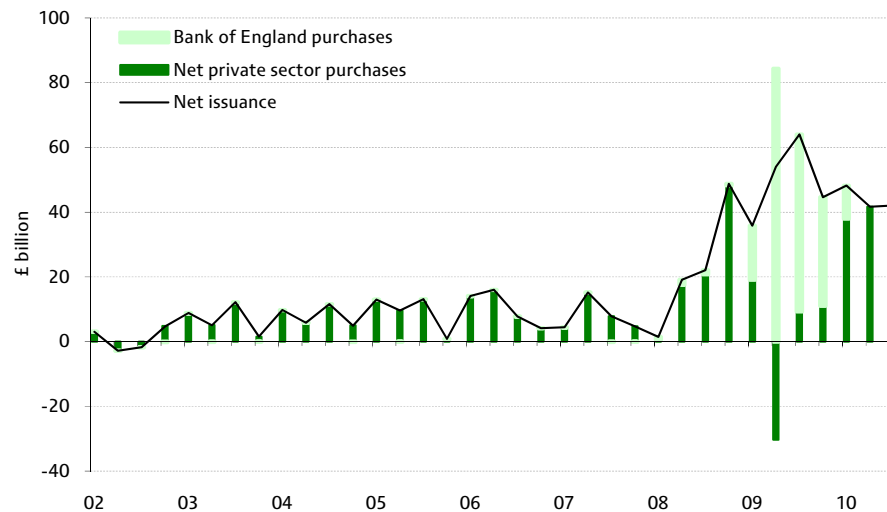
Implementation of the plan remains in the early stages, and uncertainty about the macroeconomic outlook is even higher than usual. If financial markets become concerned about the government's ability to reduce the deficit, they may demand a large risk premium on government bonds. Higher borrowing costs add to the pressure on the public finances, and, if large enough, can tip a country from solvency into insolvency. It is therefore worth asking how secure the UK's situation is.

In this chapter, we assess the UK's vulnerability to a fiscal crisis. Our analysis has three parts. First, we study how the market for UK government bonds (gilts) has behaved recently, against the backdrop of volatile economic and political developments both in the UK and overseas (Section 3.2). We look for evidence that investors have become unusually concerned about the risks associated with purchasing UK government debt. Second, we examine international evidence to identify the main factors that determine a country's susceptibility to a fiscal crisis (Section 3.3). This analysis draws on Barclays Capital's Fiscal Vulnerability Index, which provides a summary measure of a country's fiscal strength. Third, we identify specific risks facing the UK and ask what policymakers need to do to minimise the threat from these latent vulnerabilities (Section 3.4). Section 3.5 concludes.

## 3.2 Financial markets and the public finances

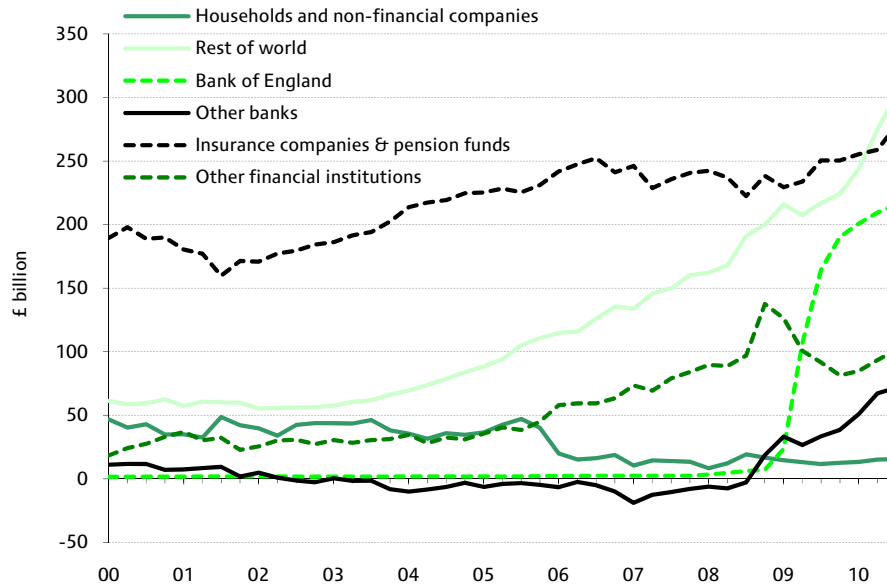
A year ago, there was widespread concern that the UK government might be unable to obtain funding from financial markets at reasonable rates of interest. The Debt Management Office (DMO), which sells bonds on behalf of the government, had embarked upon a programme of gilt sales that was several times the size of previous plans, and the Treasury's projections for the deficit implied that large quantities of gilts would be issued for some years to come. Moreover, whereas in 2009 the Bank of England had been a major purchaser of gilts under its quantitative easing (QE) policy, these purchases had been halted, meaning that private sector investors were to be asked to buy government debt to an unprecedented degree. Some commentators worried that the requisite private demand might not be forthcoming. Furthermore, the rating agencies had intimated that the UK's triple-A government credit rating was under threat, and sterling appeared vulnerable to a further decline, having already fallen by a quarter from its pre-crisis level.

Figure 3.3. Gilt sales



Sources: Haver Analytics; Barclays Capital.

Figure 3.4. Gilt holdings



Sources: Haver Analytics; Barclays Capital.

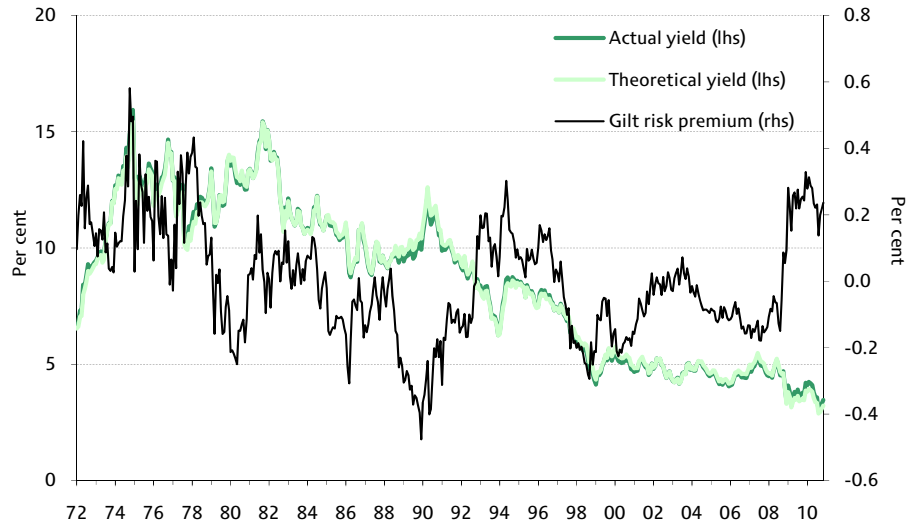
A funding crisis has not transpired, however. Private investors have stepped up their purchases of gilts to fill the void left by the Bank of England (Figure 3.3). Perhaps surprisingly, given the concerns that the UK was set to fare particularly badly in the wake of the global banking crisis, foreign investors continued to increase their purchases of gilts (Figure 3.4). UK banks also raised their gilt holdings, in part to strengthen their liquidity positions in line with guidance from the Financial Services Authority. Domestic insurance companies and pension funds also stepped in, albeit to a limited degree.

Remarkably, all of this has been achieved without any major pressure on gilt prices. The price of a government bond is inversely related to the interest rate (yield) the market charges for the government to borrow, and we might have expected gilt prices to fall and gilt yields to rise. In fact, the yield on a ten-year gilt has fallen by around 0.7 percentage points over the past year, and stands close to historical lows at around 3.5%.

To some extent, the fall in gilt yields reflects the stance of monetary policy. The Bank of England’s policy rate has been set at an all-time low of 0.5% since March 2009 and the Bank has purchased £200 billion of gilts under QE, a policy specifically aimed at lowering longer-term interest rates. We cannot, therefore, conclude that concerns about government default risk have had no effect on gilt yields, as they may have been even lower had the public finances been in better shape. We have therefore attempted to estimate the extent to which gilt yields are different from what would have been expected on the basis of monetary policy changes alone.

To this end, Figure 3.5 compares the actual interest rate charged in financial markets for the government to borrow for ten years with a measure of what this interest rate would be ‘in theory’. The posited theoretical value is based on the idea that long-term interest rates should be closely related to current and expected future shorter-term interest rates – the so-called ‘expectations hypothesis’ of the term structure of interest rates. For example, the interest rate on borrowing for ten years should, in theory, be close to the interest rate for borrowing for five years plus the five-year borrowing rate that is expected to prevail in five years’ time. If the ten-year rate were lower than the current

Figure 3.5. Ten-year gilt yield and the gilt risk premium



Source: Barclays Capital.

and expected five-year rates, for example, borrowers would shift towards borrowing for ten years rather than for two sequential five-year periods and this would push the ten-year rate up and the five-year rates down until equilibrium was restored.

The calculation shown in Figure 3.5 involves estimating, for each month, the theoretical ten-year interest rate from forecasts of the one-year interest rate over the subsequent ten years.<sup>2</sup> The one-year interest rate moves closely with the Bank of England's policy rate. We also allow for a constant risk premium in our calculation of the theoretical rate, and so the resultant risk premium series measures deviations from the average premium.

A change in monetary policy would affect the forecasts of one-year interest rates and so change our estimate of the theoretical ten-year interest rate. Any remaining deviation of the actual gilt rate from the theoretical rate therefore reflects time-variation in factors not related to short-term interest rate expectations. These include investors' perceptions of the risks attached to purchasing government debt relative to other assets. We label this deviation the 'gilt risk premium'. If investors were unusually concerned about UK government default risks, we would expect the observed gilt yield to be higher than its theoretical counterpart, generating a positive risk premium.

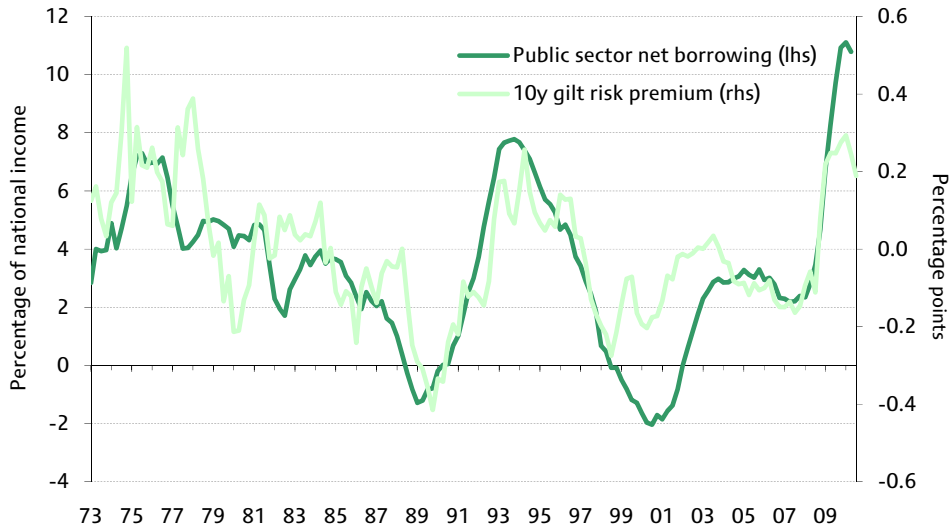
Figure 3.5 illustrates a crucial point, which is that government bond yields are primarily driven by changing expectations of monetary policy. Other factors, such as government default risk, have played a relatively minor role. The residual risk premium is small – tens of basis points, rather than percentage points, in size. Even so, our estimates indicate that although the gilt yield has fallen recently, it has not fallen by as much as would be predicted solely on the basis of interest rate expectations, and so the implied risk premium has risen.

As Figure 3.6 illustrates, the idea that this premium is related to concerns about government default is given credence by its correspondence with movements in public

<sup>2</sup> A vector autoregression is used to produce the one-year rate forecasts, similar to the method employed in K. Cuthbertson, S. Hayes and D. Nitzsche, 'Are German money market rates well behaved?', *Journal of Economic Dynamics and Control*, 2000, 24, 347–60, which itself draws on the methodology set out in J. Campbell and R. Shiller, 'Cointegration and tests of present value models', *Journal of Political Economy*, 1987, 95, 1062–88.

sector net borrowing, with higher borrowing being associated with a larger gilt risk premium.<sup>3</sup> On this measure, the gilt risk premium is close to its highest levels since the mid-1970s, around the time of the UK's IMF bailout. Moreover, to the extent that QE has depressed ten-year gilt yields, the true gilt risk premium will be even higher, and possibly at its highest level since at least 1973.

Figure 3.6. The gilt premium and the public deficit



Source: Barclays Capital.

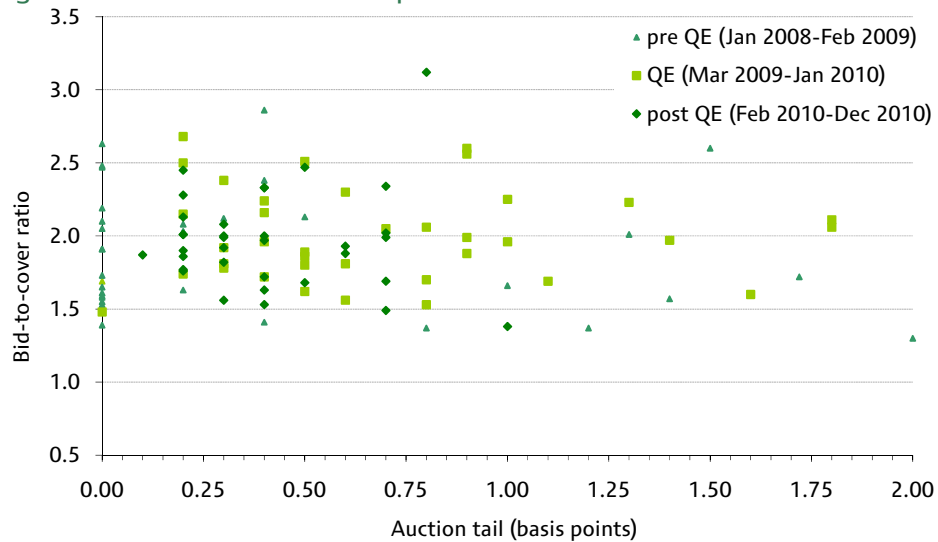
Another way of looking at the pressure on the gilt market over the last year is to examine the DMO's bond auctions, at which government debt is first issued in the market.<sup>4</sup> In a bond auction, investors typically place bids for certain quantities at specified prices/yields, and the DMO accepts the most favourable bids (i.e. the ones with the highest prices/lowest yields) until the requisite amount of money has been raised. One way of judging how smoothly an auction has proceeded is to look at the 'auction tail', which is defined as the difference between the yield paid at the average accepted price and that paid at the lowest accepted price. A small tail indicates that the government was not forced to accept bids at much lower prices (higher interest rates) than the average. A second measure of the 'success' of a bond auction is the bid-to-cover ratio, which is the ratio of the total amount of bonds that investors offer to buy to the amount the DMO wishes to raise. A large bid-to-cover ratio tends to be associated with a healthy amount of demand.

Taking these two measures together, an ideal auction from the DMO's perspective would have a small auction tail and a high bid-to-offer ratio. Conversely, if the increase in government borrowing had put extra strain on the gilt market, we would expect to have seen larger tails and lower bid-to-cover ratios. This would have been especially likely in the period after the Bank of England stopped its gilt purchases under QE. Figure 3.7 shows the bid-to-cover ratio and auction tail for each of the DMO auctions over the past three years. Dots in the north-west of the figure denote 'healthy' demand while those in

<sup>3</sup> The same pattern is apparent if the difference between the gilt yield and the market interest rate on overnight swaps is used instead of our model-based estimate of the theoretical yield.

<sup>4</sup> I am grateful to Moyeen Islam, Barclays Capital's gilt strategist, for this analysis.

Figure 3.7. DMO bond auction performance



Source: Barclays Capital.

the south-east are indicative of difficult auctions. There is no discernible evidence of a worsening in demand since QE was halted.

This analysis indicates that the gilt market has taken the step-up in government borrowing in its stride. It would be inaccurate to characterise the gilt market as having become distressed as the hole in the public finances became apparent, and then becalmed by the coalition government's deficit reduction plan. However, the cost of borrowing, and therefore the solvency of the government, is not immune to worries about the deficit. Moreover, although we may take some encouragement from the fact that movements in the gilt risk premium have so far been undramatic, financial markets can suddenly lurch from tranquillity to crisis: past calm is no guarantee of future stability. In the next section, we examine the factors that appear to drive financial markets' views about the soundness of a country's fiscal position.

### 3.3 Measuring fiscal vulnerability

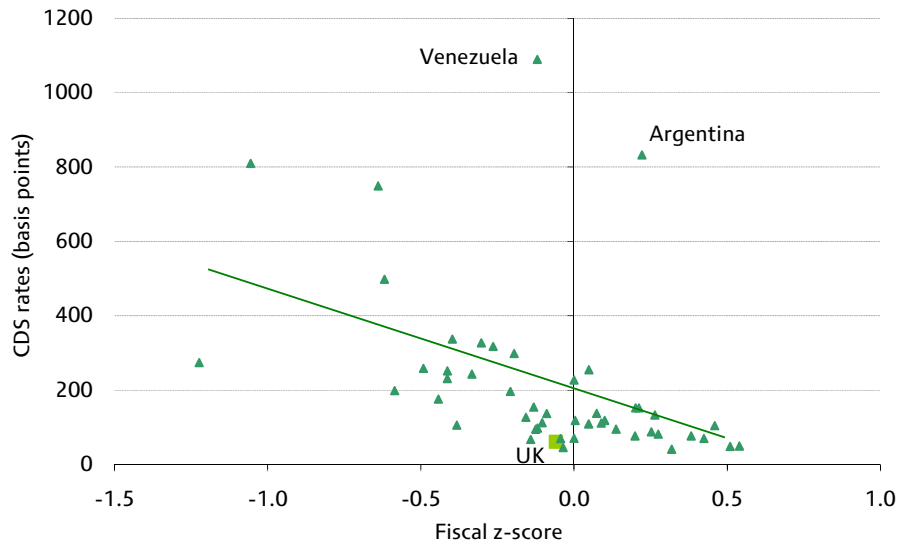
The likelihood that a country will find itself facing prohibitively high borrowing costs, or unable to raise finance at all, depends on many factors. However, although no two crises are exactly the same, they tend to have common elements, both across countries and through time. Researchers have therefore attempted to identify the main features of an economy that make it vulnerable to a fiscal crisis.<sup>5</sup> Barclays Capital has drawn on this literature and developed a Fiscal Vulnerability Index (FVI) based on 16 indicators of fiscal vulnerability across 57 countries.

To measure fiscal vulnerability, the Barclays Capital FVI uses a measure of financial market concerns about a country's debt sustainability, namely the cost of insuring against a government defaulting on its bonds, as measured by credit default swap (CDS) rates. A higher CDS rate indicates that investors attach a higher likelihood to a government default, and we take this to indicate a heightened probability of a financing crisis. The

<sup>5</sup> See, for example, P. Manasse, N. Roubini and A. Schimmelpfennig, 'Predicting government debt crises', International Monetary Fund (IMF), Working Paper 03/221, 2003.

choice of vulnerability indicators and the weights given to them in the overall FVI are determined by their ability to account for cross-country variation in CDS rates. Although there are some notable outliers (the CDS rates of Argentina and Venezuela are difficult to account for on the basis of our set of indicators, for example), the resultant FVI shows a strong negative correlation with the CDS rates of most countries (Figure 3.8).

Figure 3.8. Five-year CDS rates and the Fiscal Vulnerability Index



Source: Barclays Capital.

We group the indicators under five broad headings: solvency, government financing needs, external financing dependence, financial sector health and institutional strength.

### Solvency

The notion of solvency is less straightforward in the context of a government than for a household or business. A firm or household might borrow more money than it can ever hope to pay back. This is likely to be less true of a government, which has recourse to taxation to repay debt, and can even resort to printing money to pay back debt denominated in its own currency. However, beyond some point, the government might think that servicing the debt would impose an excessive cost on its citizens (including the costs of currency debasement in the case of printing money) for it to be practicable. Government default is therefore often said to reflect a lack of willingness to repay, rather than a lack of ability to repay.

Our indicators of government solvency provide measures of the degree of effort a government would need to expend to ensure that its debt profile is stable and at a sustainable level. Specifically, we take the prevailing ratio of gross general government debt to GDP and compare it to 'benchmark' levels of 40% of GDP for emerging markets, 60% of GDP for most developed economies and 90% of GDP for the US and Japan. The higher is the prevailing debt level relative to the benchmark, the more difficult the government is likely to find it to adjust to a sustainable debt level.

The benchmarks are arbitrary: economic theory provides little practical guidance on the optimum level of public debt. The 40% and 60% levels have been employed by the IMF on the basis that they are 'often considered' to be levels beyond which fiscal risks become



a concern.<sup>6</sup> We have chosen a higher level for the US because the dollar's position as a world reserve currency means the US is able to sustain a higher level of public debt than other countries. Japan is afforded a higher level because the vast majority of its public debt is held domestically. This is likely to reduce the incentive to default and so means that it can support a higher debt ratio.

Our second measure of solvency is the degree of adjustment in the government deficit needed to stabilise the public debt ratio at its prevailing level.<sup>7</sup> The size of adjustment in relation to the level of government revenues is used to gauge how likely it is that the adjustment would be achieved.

### ***Government financing needs***

A government is more vulnerable to a funding crisis if it needs to raise large amounts of money at frequent intervals; or, to put it another way, a period of high financial market interest rates matters only if the government needs to raise large amounts of finance during that time. The vulnerability is likely to be heightened if the financing need is in foreign currency, as foreign investors are often seen as a less reliable source of financing than domestic investors. Our FVI incorporates three measures of financing needs: the fiscal balance over the next year; the average duration of government bonds (a measure of how frequently borrowing needs to be refinanced); and the share of debt that is denominated in foreign currency.

### ***External financing dependence***

Problems with the government finances are not the only catalyst of funding crises. An economy that is heavily reliant on external finance may be vulnerable to a crisis whichever sector has a substantial dependence. For example, economies in which banks, large non-financial corporations or households have borrowed heavily in foreign currency may encounter difficulties if there are sharp movements in exchange rates or shifts in foreign investors' appetite for international lending. Governments may be called upon to support other sectors, placing a strain on the public finances. Our FVI therefore includes two measures of dependence on external finance, the current account balance and the ratio of external debt to the value of the country's exports.

### ***Financial sector health***

Banking crises and government debt crises often go hand-in-hand. As has been evident recently, banks' balance sheets have the capacity to expand to multiples of a country's annual national output and the provision of support by the government in the event of a crisis can have major implications for the public finances. We therefore include three indicators of financial sector health in our vulnerability index: the banking sector's capital ratio, which indicates the sector's capacity to absorb losses without recourse to government support; the ratio of loans that are non-performing, which measures the quality of banks' past lending; and the ratio of loans to deposits. This last measure captures the banks' dependence on wholesale funding, which may be more prone to volatility in availability and cost than are deposits.

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<sup>6</sup> International Monetary Fund, 'Navigating the fiscal challenges ahead', *Fiscal Monitor*, May 2010.

<sup>7</sup> Specifically, the primary deficit, which is the deficit before debt interest payments are made.

### ***Institutional strength***

Investors are likely to retain confidence more readily in a country that is perceived to have strong legal and political institutions. The World Bank has compiled a set of indicators for six dimensions of governance:<sup>8</sup>

- voice and accountability, which refers to the degree of democratic participation, freedom of expression, freedom of association and the freedom of the media;
- political stability and absence of violence/terrorism, which measures perceptions of the likelihood that the government will be destabilised or overthrown by unconstitutional or violent means;
- government effectiveness, which measures the quality of public services, the quality and independence of the civil service and the credibility of the government's commitment to policy implementation;
- regulatory quality, covering dimensions such as competition law, financial regulation and the degree to which regulations and taxes are burdensome and distortionary;
- rule of law, in particular the quality of contract enforcement, property rights, the police and the courts;
- control of corruption, which captures perceptions of the extent to which public power is exercised for private gain.

The aggregate indicators are derived from a large number of surveys of individuals, businesses and experts.

### **The UK's fiscal vulnerability**

Our FVI is reported as a z-score for each country.<sup>9</sup> A z-score is a measure of how far a country's vulnerability is from the cross-country average, and so it is a measure of relative, rather than absolute, vulnerability. A positive score indicates that the country's fiscal resilience is above average, while a negative score indicates below-average resilience.

Table 3.1 shows the overall z-scores for our sample of 57 countries. The UK's score of -0.06 places it close to the middle of the pack: the UK is ranked 32<sup>nd</sup>, close to Japan (31<sup>st</sup>) and the US (30<sup>th</sup>). Among the larger European economies, the UK scores reasonably well. Although it ranks well below Germany (11<sup>th</sup>), it is above France (39<sup>th</sup>), Spain (42<sup>nd</sup>), Portugal (49<sup>th</sup>), Italy (51<sup>st</sup>), Ireland (52<sup>nd</sup>) and Greece (56<sup>th</sup>).

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<sup>8</sup> See <http://info.worldbank.org/governance/wgi/resources.htm> for more information.

<sup>9</sup> The z-score is the difference between the value of an indicator for a given country and the average value of the indicator across all countries in the sample, divided by the cross-country standard deviation of the indicator.

Table 3.1. Barclays Capital Fiscal Vulnerability Index

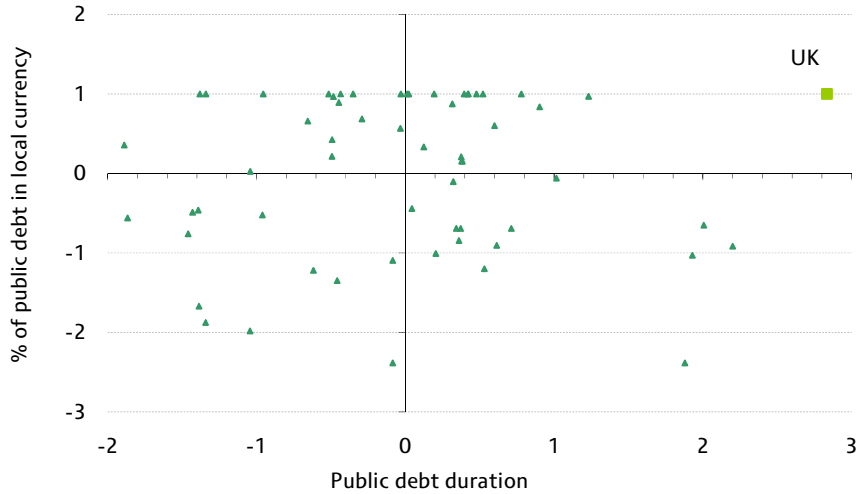
Rank	Country	FVI	Rank	Country	FVI
Top	Switzerland	0.86	30	United States	-0.04
2	Norway	0.62	31	Japan	-0.04
3	Hong Kong	0.54	32	United Kingdom	-0.06
4	Australia	0.52	33	Philippines	-0.09
5	Canada	0.52	34	Colombia	-0.10
6	Singapore	0.51	35	India	-0.12
7	Korea	0.46	36	Venezuela	-0.12
8	Chile	0.42	37	Panama	-0.13
9	Finland	0.41	38	Turkey	-0.13
10	Taiwan	0.38	39	France	-0.14
11	Germany	0.32	40	Poland	-0.16
12	Denmark	0.32	41	Dominican Republic	-0.20
13	Sweden	0.28	42	Spain	-0.21
14	Czech Republic	0.27	43	Hungary	-0.26
15	South Africa	0.26	44	Serbia & Montenegro	-0.30
16	Malaysia	0.25	45	El Salvador	-0.33
17	Netherlands	0.24	46	Iceland	-0.38
18	Argentina	0.22	47	Tunisia	-0.38
19	Uruguay	0.21	48	Romania	-0.40
20	Russia	0.20	49	Portugal	-0.41
21	China	0.20	50	Lithuania	-0.41
22	Peru	0.14	51	Italy	-0.44
23	Mexico	0.10	52	Ireland	-0.49
24	Brazil	0.09	53	Egypt	-0.59
25	Indonesia	0.07	54	Ukraine	-0.62
26	Belgium	0.07	55	Pakistan	-0.64
27	Bulgaria	0.05	56	Greece	-1.06
28	Thailand	0.05	Last	Lebanon	-1.22
29	Israel	0.00			

Source: Barclays Capital.

Unpacking the aggregate score into its component parts shows that the UK's middling score is the average of some strong positive and large negative scores. The UK scores particularly strongly on some of the government financing needs indicators: it ranks 4<sup>th</sup> overall, 1<sup>st</sup> on public debt duration (i.e. the UK has the longest average maturity of its borrowing of any country) and joint 1<sup>st</sup> on the percentage of borrowing that is in domestic currency. This is illustrated in Figure 3.9, in which a dot in the top right quadrant is a sign of strength (above-average scores on both indicators) while a dot in the bottom left quadrant denotes weakness (below-average scores on both). However, the UK's aggregate financing needs score is reduced by the large government deficit, on which it is ranked 52<sup>nd</sup> with only Iceland, Japan, Spain, Lebanon and Ireland having worse scores.

Another positive area for the UK is institutional strength, in which it is above average (with positive z-scores) on all six of the World Bank indicators.

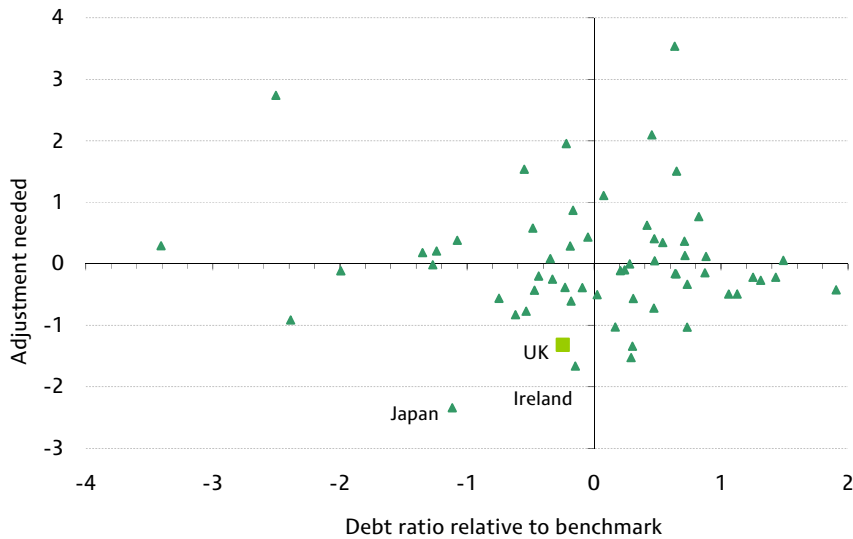
Figure 3.9. Financing needs z-scores



Source: Barclays Capital.

The main areas of vulnerability for the UK relate to solvency and external financing dependence. Figure 3.10 shows that the UK scores below average on both the level of debt relative to its sustainable benchmark and, in particular, the degree of adjustment needed to stabilise debt. Ireland is close by, and only Japan scores materially worse on both indicators. If the avoidance of a fiscal crisis is a government priority, therefore, cutting the deficit stands out as a policy priority.

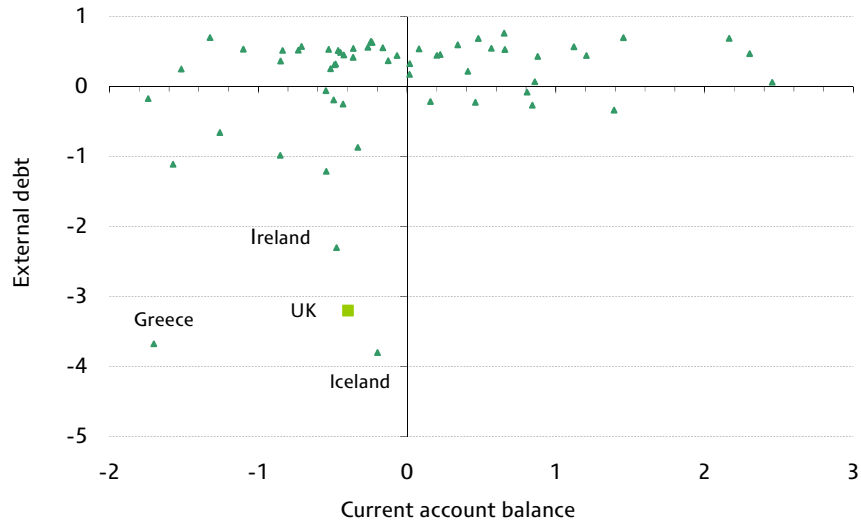
Figure 3.10. Solvency z-scores



Source: Barclays Capital.

Figure 3.11, which shows our two measures of external financing dependence, also raises an alarm. The UK is one of four large outliers, the others being Ireland, Iceland and Greece, all three of which are currently operating under IMF programmes.

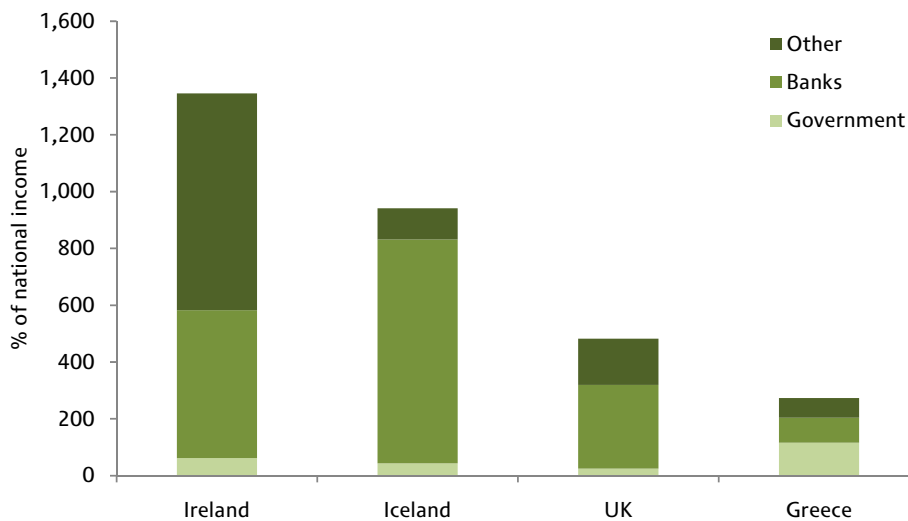
Figure 3.11. External financing dependence z-scores



Source: Barclays Capital.

The amount of external debt is the main common vulnerability flagged by this analysis. This is worthy of further investigation. Our FVI analysis, in common with all similar studies, is designed to identify broad-brush vulnerability indicators. The transmission mechanism for the vulnerability, and therefore the degree of vulnerability itself, may differ across countries with similar overall scores.

Figure 3.12. External debt (% of national income)



Sources: Haver Analytics; Central Bank of Iceland; Barclays Capital.

Figure 3.12 breaks external debt for each of the four countries identified in Figure 3.11 into government debt, bank debt and other (i.e. private sector non-bank) debt, as a percentage of each country's national income. Greece has relatively little private external debt, but its public external debt, at 116% of national income, is the highest. The fiscal vulnerability applying through Greek external debt is therefore directly related to government borrowing. Iceland's external debt vulnerability is largely a banking sector issue: the external debt of Iceland's banking sector amounts to nearly 800% of national

income. Ireland has both a large banking sector exposure (520% of national income) and a huge non-bank private sector exposure (764% of national income).

Relative to this set of bedfellows, the UK does not appear overly stretched in any dimension. The direct fiscal vulnerability is small: external holdings of UK government debt amount to only about 25% of national income. Non-bank private liabilities are 163% of national income, reflecting the fact that the UK hosts a number of multinational non-financial companies.

The UK banking sector exposure, although substantially less than those of Iceland and Ireland, is sizeable at 295% of national income. This potential source of vulnerability is well known, however. For example, in its December 2010 *Financial Stability Report*, the Bank of England noted that UK banks' lending to French and German banks provided one channel through which the UK could be affected by a European government debt crisis. As the IMF has highlighted<sup>10</sup> when contrasting the performance of Ireland and Iceland with that of Hong Kong and Singapore – two other economies with large banking systems relative to national income – such exposures need not be of major concern so long as they are subject to appropriate oversight by bank management and regulators.

In summary, our overall assessment is that the UK is neither particularly susceptible to a fiscal crisis but nor is it home and dry. The UK benefits from the long average maturity of its debt and the fact that the vast majority of government borrowing is in sterling. The strength of regulation and the rule of law also lower the likelihood of a funding crisis. However, the UK's large government budget deficit puts a question mark over the government's solvency. Cutting the deficit, other things equal, would further insulate the UK from potential financial market volatility.

### 3.4 Risks

The analysis in the previous section suggests that achieving a lasting reduction in the public deficit stands out as a policy priority if the risk of a funding crisis is to be minimised. The absence of bond market stress documented in Section 3.2 suggests that the government's plan to cut the deficit is viewed as credible by financial markets. But there are still risks. In particular, there must be some uncertainty over whether the government will be able to implement the proposed tax increases and spending cuts, and whether the level of aggregate demand in the economy will be sufficient to support the requisite adjustment.

The largest single year of tightening is 2011–12, during which the government is seeking to cut the structural deficit by £32 billion (2.1% of national income). Around half of this is due to come through net tax increases, with higher VAT, National Insurance contributions and increases in other taxes more than outweighing the cost of an above-inflation rise in the income tax personal allowance. The other half comes from spending cuts, primarily capital spending. To the extent that tax increases and capital spending cuts are more easily achievable, both practically and politically, than cuts in current departmental spending and welfare, this configuration may mean that the deficit reduction plan stays on track in the near term.

Clear signs that the deficit reduction plan is on course may help bolster support for the programme from the general public. Nevertheless, some of the proposed cuts to

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<sup>10</sup> International Monetary Fund, 'Cross-cutting themes in economies with large banking systems', IMF Policy Paper, April 2010 (<http://www.imf.org/external/np/pp/eng/2010/041610.pdf>).

government spending are likely to be politically contentious, and the cohesiveness of the coalition government is likely to be tested. But any substantial watering-down of the fiscal consolidation plan might reignite market concerns about the UK's public debt trajectory, and the triple-A credit rating might come under renewed pressure.

Other vulnerabilities stem from the outlook for aggregate demand. Household and business demand are fragile, as real labour incomes have fallen and uncertainty about the strength of the recovery remains unusually high. The recent turbulence in some euro-area countries has raised concerns about an outright government debt crisis, which could adversely affect UK export sales and possibly lead to losses for the UK's banks, further impeding their ability to lend.

The much-touted Plan A is that in the event of an adverse shock to demand, the automatic stabilisers would be allowed to operate and the Bank of England would loosen monetary policy. However, it is questionable how effective a further monetary expansion would be in the current circumstances. There is little scope to cut the policy rate from its current level of 0.5%, and so the most likely response by the Bank of England would be to embark on further QE via purchases of gilts. According to the Bank of England, QE works primarily by lowering the yields on government bonds and thus encouraging investors to buy other assets, such as corporate bonds and equities.<sup>11</sup> The resultant rise in financial asset prices can then boost aggregate demand through 'wealth effects'.

This is a rather circuitous channel, however, and may be impotent in the short term. For example, if consumer and business confidence were damaged by renewed economic turmoil, households' and firms' willingness to spend in response to increased wealth might be similarly reduced. If Plan A were to prove ineffective, a Plan B might be needed, potentially involving some reduction in the size and pace of cuts in the structural deficit. The coalition government has been reluctant even to hint that a Plan B exists, however, possibly fearing that such an indication would call into question its commitment to the announced consolidation path. From this perspective, good luck in the form of a continued, steady recovery is likely to be an important ingredient in the successful achievement of the deficit reduction plan, and the ongoing solvency of the UK government.

### 3.5 Conclusion

In opting for an aggressive pace and size of fiscal consolidation, the government hopes to have insulated the UK from the types of funding crises that have beset other European countries. The market for UK government bonds has not shown any material signs of stress over the past year, implying that investors believed the government would deal with the deficit problem effectively. Investor demand for UK government debt has remained healthy even after the Bank of England halted its bond purchases under its policy of quantitative easing. The gilt risk premium has risen, however, and, in financial markets, past calm is no guarantee of future stability, and so fiscal vulnerability remains an important issue.

Our fiscal vulnerability analysis indicates that the UK ranks close to the middle of our sample of 57 countries, suggesting no immediate cause for concern. However, the large structural government deficit remains a source of vulnerability, and achieving a

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<sup>11</sup> See, for example, Bank of England, 'Quantitative easing explained: putting more money into our economy to boost spending' (<http://www.bankofengland.co.uk/monetarypolicy/pdf/qe-pamphlet.pdf>).

sustainable deficit reduction stands out as a policy priority. The front-loading of tax increases and capital spending cuts should ensure that the deficit reduction plan stays on track in the near term, but the risk of political turbulence remains high. Fiscal adjustment may also be hampered by further adverse macroeconomic shocks, which monetary policy is arguably not well placed to counter.



## 4. The economic outlook

Michael Dicks (Barclays Wealth) and Simon Hayes (Barclays Capital)

### Summary

- Fiscal tightening is likely to be a major drag on growth over the next few years. The Office for Budget Responsibility's estimates of the effects of government cuts on national income are not unreasonable. However, we see a clear risk that the impact is larger than assumed.
- The consumer is key. Most households enter 2011 with their rates of pay failing to keep up with the cost of living. In addition, credit remains tight, house prices are falling and unemployment is starting to rise again. As a result, household consumption is likely to grow only marginally in real terms this year and accelerate only slowly in 2012 and 2013.
- The corporate sector is in much better shape than the household sector, enjoying strong profits growth and with healthy margins. Firms' balance sheets are in good shape too – leaving many cash-rich. Availability of finance is unlikely to constrain firms' investment plans. But we do not expect a strong investment-led recovery as many firms remain cautious about the demand outlook.
- Recent revisions to previous estimates have left the National Accounts looking as if there has been little in the way of rebalancing of the UK economy, with exports particularly disappointing, given the level of sterling and the strength of overseas demand. Models have over-predicted export growth in recent years. Although our forecast for exports is similar to that of the OBR – on the presumption that the models get back on track – the risks appear skewed to the downside.
- The labour market remains a puzzle, with productivity remaining very low relative to its pre-recession trend. We expect near-flat employment, subdued wage growth and unemployment to rise a little further this year. But the increase could be much larger if firms were to seek to regain the pre-recession productivity path. This is a major source of downside risk to household incomes and to consumption.
- All told, our single most likely forecast for GDP growth is very similar to the OBR's for 2011, but with the risks around this forecast skewed to the downside. We assess the chances of a double dip this year at about 20%. Much more likely is a year of sluggish growth. Further out, we judge the OBR projections to be optimistic, both in terms of the speed at which spare resources get used up and as regards the economy's potential growth rate. The cumulative gaps between our own and the OBR's five-year-out projections amount to some 1½% of GDP.
- We do not expect the Bank of England to respond to high inflation with near-term interest rate hikes. However, persistent above-target inflation is likely to constrain the Bank's ability to provide additional support for the economy. It may therefore make sense for the government to consider ways of reducing the pace of fiscal consolidation should demand conditions deteriorate significantly – enabling it to 'trim the sails' again in the same manner that it did so last November.

## 4.1 Introduction: the backdrop to 2011

Economic growth last year turned out fairly much in line with expectations, although the path travelled threw up some surprises, both in the form of much stronger-than-expected second-quarter growth and a much weaker-than-expected fourth quarter (of outright contraction). Real GDP in 2010 as a whole is likely to have expanded by about 1½% compared with its average level in 2009,<sup>1</sup> against a general expectation of 1.5% growth and our own Green Budget projection in February 2010 of 1.8%. Inflation, by contrast, turned out markedly higher than expected, with the 3.2% out-turn well above both the 2.1% that we had expected and the 2.4% consensus forecast.

Given that the recovery turned out broadly as expected, it is perhaps unsurprising that the consensus now deems it likely that growth will persist through 2011, with the average prediction being that GDP will increase by a slightly greater percentage this year than it did last. The Treasury conducts a regular survey of UK forecasts and, in its latest analysis, reports that only seven of the 38 economics teams covered by the survey have pencilled in a significant deceleration in GDP in 2011, while 21 expect an acceleration to occur.<sup>2</sup> Thus, one might well conclude that concern over whether the recovery will persist or not is no longer warranted – as most economists judge that it will. In this chapter, we examine whether it might be premature to draw such a conclusion, by examining some of the key growth drivers and considering factors that may surprise the general expectations (Section 4.2). We conclude that the downside risks to growth far outweigh the upside ones.

With inflation forecasts for the consumer price index (CPI) at the end of 2011 all over the place – ranging from as low as 2.5% to as high as 4.1% – we also look, in Section 4.3, at prospects for surprises to the general expectation (i.e. the median forecast) that inflation will, by the end of the year, be nearly half a percentage point lower than the current 3.7% rate, at 3.3% – which would be about half a percentage point higher than what the Office for Budget Responsibility is projecting (at 2.8%). Considering the potential for surprises to the consensus view, we judge that upside risks to inflation dominate, despite the downside skew to our modal growth forecast. In other words, we fear that the growth–inflation trade-off will turn out worse than what the OBR or the consensus expects.

Section 4.4 concludes by considering whether there is a rationale for the government to have an explicit ‘Plan B’.

## 4.2 Demand drivers

Starting with the outlook for demand, we judge there to be five key issues that warrant looking at when considering the robustness of the recovery, these being factors that may surprise the general expectation:

- **The impact of fiscal tightening.** The OBR assumed that the rise in the standard rate of VAT from 17.5% to 20% in January 2011 would reduce the level of GDP by around

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<sup>1</sup> Note that the full-year out-turn is based on a provisional estimate for the fourth quarter. This – and, indeed, its predecessors – stands a good chance of being revised.

<sup>2</sup> See HM Treasury, *Forecasts for the UK Economy: A Comparison of Independent Forecasts*, 2011 ([http://www.hm-treasury.gov.uk/data\\_forecasts\\_index.htm](http://www.hm-treasury.gov.uk/data_forecasts_index.htm)).

0.3% in 2011–12.<sup>3</sup> On the spending side of the government's accounts, it seemed comfortable using the range of fiscal multipliers used by its interim predecessor, which averaged a little over one-half. These, given the scale of planned cuts, seem to imply a hit to GDP from the expenditure reductions of around the same mark as the tax hikes. (Note that we write 'seem to imply' as the OBR was not explicit on this point.) Thus, fiscal contractions are probably being pencilled in as likely to lower GDP by less than 1%. But might the pass-through be higher than this, and perhaps a lot higher?

- **The vulnerability of households.** Consumer spending looks set to have staged a half-decent recovery in 2010 – expanding about 1% in real terms after the massive (3.2%) drop that occurred in 2009. It is generally presumed that 2011 will witness a repeat performance. But, with wages rising less fast than prices, house prices on the slide and credit availability still limited, might the combination of tax hikes, welfare cuts and job cuts in the public sector (detailed in Chapter 7) lead to weakening consumer demand?
- **The renaissance of British industry.** Here, the risks may be to the upside rather than to the downside. After all, investment has not just fallen a long way from where it was pre-crisis – much as typically happens after severe financial crises, as we highlighted in last year's Green Budget<sup>4</sup> – but it has fallen more sharply than most models suggest ought to have happened. But might that also mean that capital spending can spring back more forcefully than it usually does during the subsequent recovery? After all, corporate fundamentals are in great shape.
- **Rebalancing – and prospects for the UK regaining lost market share.** Here, too, the risk may not all be on one side. UK exporters have failed to grow their businesses as fast as overseas demand has expanded of late. So, on the one hand, there is a risk that this represents a structural, or secular, decline, which plays out in the form of continuing decline in the UK's share of global markets. On the other hand, there is a risk that the benefit of currency depreciation – i.e. improved competitiveness – is taking longer than usual to come through, perhaps because of the financial crisis. So, might it be that the next few years witnesses catch-up, with the UK regaining market share more forcefully than the models suggest it is reasonable to expect?
- **The labour market.** The UK's labour market looked quite a lot like Germany's during the crisis – with most workers staying on the books even though they produced a lot less than previously. The main difference between the two was that in Germany's case the outcome was thanks to the government offering firms subsidies to hang on to their employees. (So it made sense to wait and see if demand recovered.) In the UK's case, by contrast, there were no subsidies. So British firms paid for their decision to retain staff in the form of higher unit labour costs. Now, with the recovery in demand being fairly paltry, might they decide to start paring back on their workforces or might low pay growth continue?

The remainder of this section examines each of these issues in turn.

<sup>3</sup> For details, see [http://budgetresponsibility.independent.gov.uk/d/vat\\_impact\\_on\\_real\\_gdp\\_171110.pdf](http://budgetresponsibility.independent.gov.uk/d/vat_impact_on_real_gdp_171110.pdf).

<sup>4</sup> See M. Dicks, 'The UK's productive capacity: surveying the damage', in R. Chote, C. Emmerson and J. Shaw (eds), *The IFS Green Budget: February 2010*, IFS Commentary 112, 2010 (<http://www.ifs.org.uk/budgets/gb2010/10chap1.pdf>).

## **The impact of fiscal tightening**

When it comes to fiscal tightening, the really important issue is the size of the fiscal multiplier – the amount that each percentage point of GDP's worth of tightening crimps growth. As we shall show in what follows, different studies and different considerations lead to different estimates. For a medium-sized economy such as the UK, a good rule of thumb will be a fiscal multiplier near unity, with some movement around this depending on actions by the central bank and conditions in other countries.

When considering this issue, a good place to start is with a recent overview of past academic studies, incorporating not just ad hoc, one-off examinations of the effects of changes in government spending and tax rates but also analyses of the large-scale macroeconomic models of the economy, such as those employed by the IMF and OECD when making their regular global economic projections.

The IMF published such a study in 2009.<sup>5</sup> It concluded that 'a [good] rule of thumb is a multiplier of 1 to 1½ for spending multipliers in large countries and ½ to 1 in medium sized countries (assuming a constant interest rate)'. In other words, for a medium-sized economy such as the UK – which is attempting to cut the volume of spending by around 2% per annum in both 2011 and 2012 – it would not be unreasonable to expect a 1% hit to GDP both this year and again next. But it could easily turn out to be a 2% hit.

When it comes to tax increases, the same study argued that a reasonable rule of thumb to use was 'about half of the above values' – so, about ¼ to ½ for a medium-sized economy. With the UK planning to increase taxes by about 1.2% of GDP this year and a further 0.4% of GDP in 2012, these consolidation efforts might be reasonably thought likely to depress the level of GDP by about 0.3% to 0.6% of GDP this year and perhaps something closer to 0.1% to 0.2% next. Clearly, combining these two sets of estimates hints that the overall hits to activity might be a great deal larger than what the OBR is assuming – i.e. perhaps as big as 2% of GDP this year rather than the 1% or so that the OBR's projections appear to be predicated on.

So, the first conclusion one might make from the 'meta' study approach is that the OBR might well be being overly optimistic about the economy's ability to ride through the coming fiscal tightening.

### *The mainstream macro models are not quite so gloomy ...*

Many of the academic analyses carried out refer to rather narrow aspects of fiscal tightening – being based on only a small number of countries or a small number of specific tightenings. Certainly, they have been criticised for being 'all over the map' when it comes to the size of the fiscal multiplier.<sup>6</sup> So, perhaps this 'meta' study approach exaggerates the size of fiscal multipliers. Instead, it might be better to focus on the properties of the large structural macroeconomic models – such as the IMF's 'Global Integrated Monetary and Fiscal Model' (GIMF); the OECD's 'New Global' and 'INTERLINK'

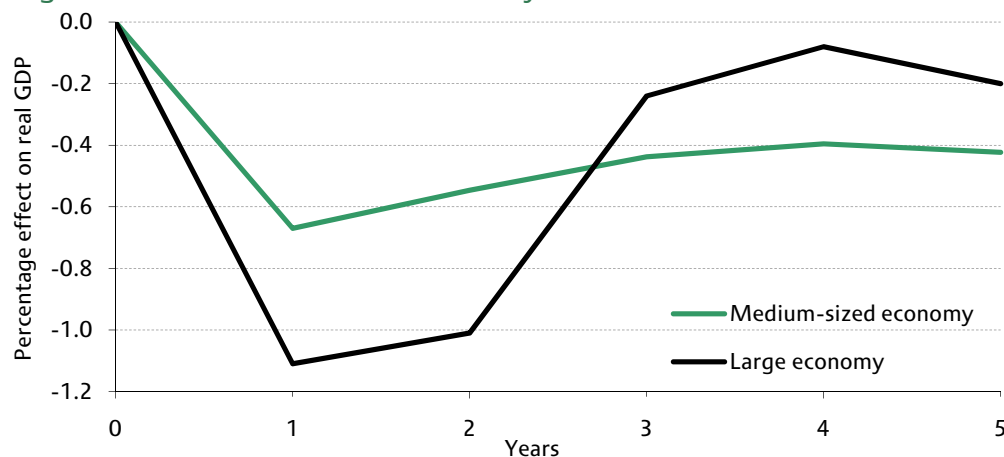
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<sup>5</sup> See A. Spilimbergo, S. Symansky and M. Schindler, 'Fiscal multipliers', IMF Staff Position Note 2009/11, 2009 (<http://www.imf.org/external/pubs/ft/spn/2009/spn0911.pdf>).

<sup>6</sup> This quote comes from E. Leeper, 'Monetary science, fiscal alchemy', National Bureau of Economic Research, Working Paper 16510, 2010 (<http://www.nber.org/papers/w16510>). Interestingly, Leeper's research helps explain why different researchers have come up with very different answers to the same question when it comes to estimating the size of fiscal multipliers. Much, he suggests, is because they do not all take into account both the reaction function of the monetary authorities and the means the public authorities have open to them to finance the public debt, although there are other important econometric and structural issues that are relevant too.

models; and the EU's 'QUEST' mode.<sup>7</sup> After all, these models are not only the workhorses of institutions for which macroeconomic forecasting is a central function, but also they are models designed to help answer policy questions. Because of that, the impacts of fiscal and monetary policy shifts on activity are studied extensively when the models are constructed.

**Figure 4.1. The effect on real GDP of a 1% of GDP fiscal tightening for a large and for a medium-sized economy**



Note: This graph shows the effect on real GDP of a 1% of GDP fiscal tightening in year 1 and a further 0.5% of GDP tightening in year 2.

Source: IMF's Global Integrated Monetary and Fiscal Model, as quoted in chapter 5 of IMF's *World Economic Outlook*, October 2008 and chapter 3 of IMF's *World Economic Outlook*, October 2010.

In fact, separating out the macro models' properties, in terms of fiscal multipliers, from the academic studies' findings does not lead to a massive shift away from the rules of thumb used above. For most of them have similar-sized multipliers, although some of those with a more forward-looking emphasis tend to suggest smaller impacts. Figure 4.1 illustrates, for both a 'large' and a 'medium-sized' economy, the simulated effect on GDP of a 1% of GDP fiscal tightening in year 1, followed by a further tightening of 0.5% of GDP in year 2, using the IMF's GIMF model for expenditure-driven fiscal tightening. It shows that the multiplier appears to be close to unity in the first year of the tightening for a large economy and around two-thirds for a medium-sized one. As the first may well be more appropriate for an economy such as the US and the second more relevant for the UK, for example, it does appear that the meta study's rule of thumb looks to be in the right ballpark.

### ... until likely central bank reactions are taken into account

There are, however, two big problems with the simulations illustrated above. First, they assume that the central bank is in effect 'riding to the rescue' – by cutting rates so as to stimulate activity.<sup>8</sup> Second, they assume that the country involved acts in isolation. So, the

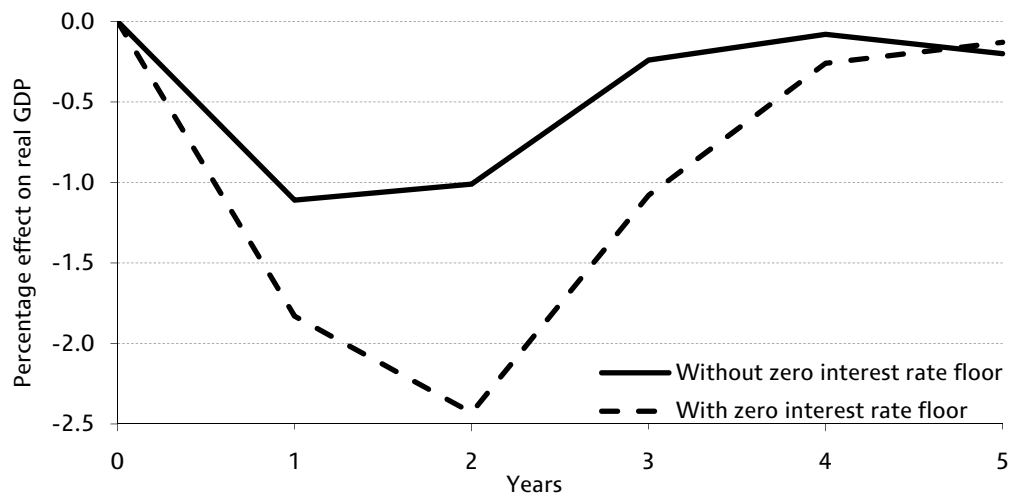
<sup>7</sup> Fortunately, the IMF has considered just such models – with detailed simulation results for seven different structural econometric models contained in G. Coenen, C. Resende, C. Erceg, C. Freedman, D. Furceri, J. in't Veld, M. Kumhof, R. Lalonde, D. Laxton, J. Linde, A. Mourougane, D. Muir, S. Mursula, J. Roberts, W. Roeger, S. Snudden and M. Trabandt, 'Effects of fiscal stimulus in structural models', IMF, Working Paper WP/10/73, 2010 (<http://www.imf.org/external/pubs/ft/wp/2010/wp1073.pdf>). The paper also provides references for each of the models for those interested in learning more about them.

<sup>8</sup> The models are predicated on the central bank following a Taylor rule, which means that rates are cut whenever GDP and inflation turn out lower than what is consistent with the central bank hitting its inflation target.

rest-of-the-world economy is hardly affected, especially in the case when it is a medium-sized economy that is attempting the fiscal contraction.

What if we look at IMF simulations under two different assumed monetary policy responses? In the first, interest rates are permitted to fall so as to offset some of the hit to activity, as before. In the second, by contrast, it is assumed that the central bank sits tight – either because it wants to adopt a wait-and-see attitude concerning the impact of the

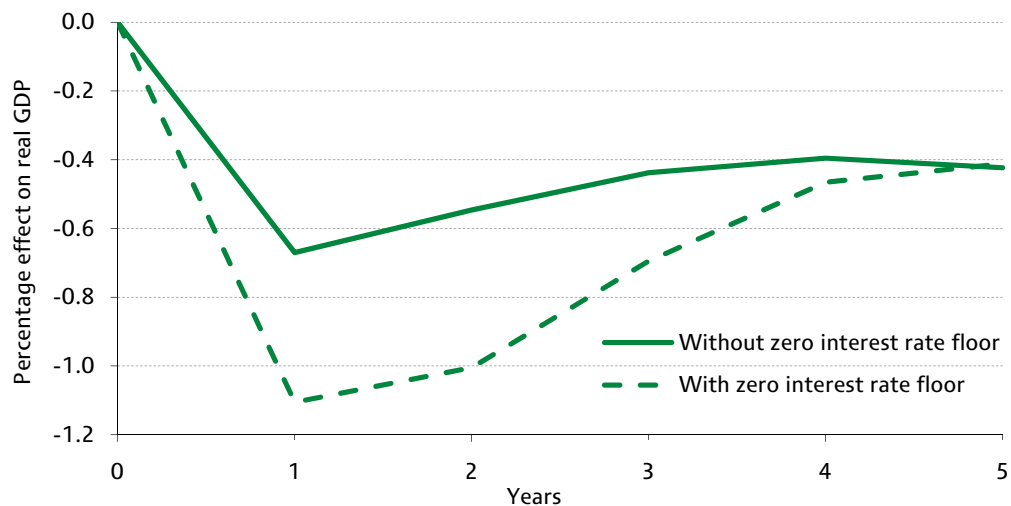
Figure 4.2. The effect on real GDP of a 1% of GDP fiscal tightening for a large economy, with and without the restriction of a zero interest rate floor



Note: This graph shows the effect on real GDP of a 1% of GDP fiscal tightening in year 1 and a further 0.5% of GDP tightening in year 2.

Source: IMF’s Global Integrated Monetary and Fiscal Model, as quoted in chapter 5 of IMF’s *World Economic Outlook*, October 2008.

Figure 4.3. The effect on real GDP of a 1% of GDP fiscal tightening for a medium-sized economy, with and without the restriction of a zero interest rate floor



Note: This graph shows the effect on real GDP of a 1% of GDP fiscal tightening in year 1 and a further 0.5% of GDP tightening in year 2.

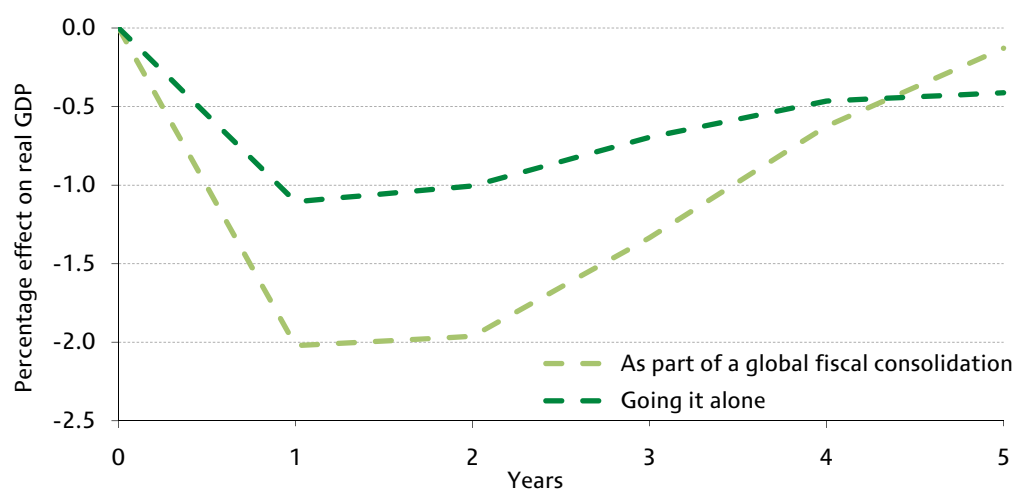
Source: IMF’s Global Integrated Monetary and Fiscal Model, as quoted in chapter 3 of IMF’s *World Economic Outlook*, October 2010.

fiscal shift or because it is constrained from moving, say, because it is at the zero interest rate floor and alternative monetary policy levers are not used or are ineffectual. Figures 4.2 and 4.3 show the consequences, again for both a ‘large’ and a ‘medium-sized’ economy.

The figures show that the multipliers are much larger when the zero interest rate bound bites. For a large economy, the first-year multiplier rises from close to 1 when the central bank does help provide an offset, to more than 2 when it cannot do so, or chooses not to. For the medium-sized economy, the respective estimates are around  $\frac{2}{3}$  and just over 1. So, in a situation where it is not feasible for the Bank of England to cut official rates further, it may well be that a near-unity rule of thumb is a good estimate to use. Only if one believed that a second dose of quantitative easing (QE) could provide as much stimulus as rate cuts might one assume that it is more appropriate to use the ‘without zero interest rate floor’ simulation results as a guide. The OBR does not appear to be assuming that further QE measures are around the corner. So the risks appear to be that it is being overly optimistic about the scale of the fiscal hit.

When it comes to the issue of ‘going it alone’ when tightening fiscal policy, or acting as part of a global effort to rein in red ink in the public finances, the IMF’s simulation results are even more concerning. The first-year multiplier for a medium-sized country increases from a little above 1 to around 2 if other countries also tighten fiscal policy simultaneously, and by a similar amount (by 1% of GDP), as shown in Figure 4.4.<sup>9</sup>

Figure 4.4. The effect on real GDP of a 1% of GDP fiscal tightening for a medium-sized economy, going it alone and when others tighten simultaneously, with a zero interest rate floor



Note: This graph shows the effect on real GDP of a 1% of GDP fiscal tightening in year 1 and a further 0.5% of GDP tightening in year 2.

Source: IMF’s Global Integrated Monetary and Fiscal Model, as quoted in chapter 3 of IMF’s *World Economic Outlook*, October 2010.

<sup>9</sup> And there is nothing quirky about the IMF’s model either in this respect or from the point of view of the importance of the zero bound. The OECD’s ‘INTERLINK’ and ‘New Global’ models, for example, have similar features. For details, see T. Dalsgaard, C. André and P. Richardson, ‘Standard shocks in the OECD’s INTERLINK model’, OECD Economics Department, Working Paper 306, 2001 ([http://www.oecd-ilibrary.org/economics/standard-shocks-in-the-oecd-interlink-model\\_000706200171](http://www.oecd-ilibrary.org/economics/standard-shocks-in-the-oecd-interlink-model_000706200171)) and K. Hervé, N. Pain, P. Richardson, F. Sédillot and P. Befy, ‘The OECD’s new global model’, OECD Economics Department, Working Paper 768, 2010 ([http://www.oecd-ilibrary.org/economics/the-oecd-s-new-global-model\\_5kmftp85kr8p-en](http://www.oecd-ilibrary.org/economics/the-oecd-s-new-global-model_5kmftp85kr8p-en)).



The IMF estimates that the advanced economies will need to tighten fiscal policy by an average of 9% of GDP by 2020 if they are to stabilise the public debt to GDP ratio.<sup>10</sup> Given that most of the major developed economies are planning to make a start on that process soon – with a substantive fiscal effort over the next five years budgeted for, as shown by IMF assessments of expected future fiscal efforts – it seems reasonable to conclude that the risks to the meta-study rule of thumb, regarding the coming hit to GDP, are skewed to the downside. At best, it might be hoped that the UK benefits this year from the US postponing starting its (much-needed) multi-year fiscal tightening to 2012 at the earliest and instead opting for a last dose of fiscal easing this year. The reality may then turn out to be akin to a weighted average of the ‘going it alone’ and ‘as part of a global fiscal tightening’ simulation results, rather than being like the latter.<sup>11</sup> In other words, perhaps the multiplier will be around 1½ – or ‘big’ rather than ‘huge’.

### ***A recent robustness test is also worrying***

One last issue concerns whether or not traditional means of estimating fiscal multipliers might be the best way of gleaning information concerning how policy shifts impact on the economy. Disentangling the impacts of the business cycle on the fiscal stance from the impacts of shifts in the fiscal stance on the economy is tough, to put it mildly. Accordingly, some IMF researchers have argued that an event-study methodology works better.<sup>12</sup> Their recent attempt, based on such an approach, looked at 15 advanced countries’ experiences over the past three decades and found that a fiscal consolidation of 1% of GDP typically reduces GDP by about ½% within two years, but with domestic demand (i.e. consumption plus investment) typically dropping by around 1%. So, at first blush, what the IMF prefers to term an ‘action-based’ approach to gauging multipliers hints that they might be a little smaller than what the typical macro model or academic study suggests.

In fact, however, the IMF study also finds that, in a typical fiscal consolidation process, the authorities are rewarded by rate cuts from the central bank – which helps to soften the impact on demand and GDP. Also, what typically happens is that the country’s currency drops in value, helping to stimulate exports. When, by contrast, the central bank is unable, or unwilling, to cut rates, the event-study approach finds that the effects of fiscal tightening are markedly higher. Likewise when all countries cut together – so ensuring that no big currency realignments can occur and the potential gain from currency depreciation is lost. Indeed, the IMF study concluded that, when the benefit to net exports is absent, ‘the output cost of fiscal consolidation would be roughly twice as large, with output falling by 1 percent instead of 0.5 percent’.

So, a simple rule of thumb to use when considering the likely impact of how a contractionary fiscal policy might hurt growth is that each percentage point of fiscal tightening (in terms of percentage points of GDP) will lower GDP by about 1%, *ceteris*

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<sup>10</sup> These calculations are laid out in detail in IMF, ‘Fiscal exit: from strategy to implementation’, *Fiscal Monitor*, November 2010 (<http://www.imf.org/external/pubs/ft/fm/2010/fm1002.pdf>). Table 1 in the appendix to that document provides a good overview of the required adjustments, country by country.

<sup>11</sup> One recent OECD study highlights what it calls the ‘challenging budgetary prospects’ that the US authorities face, as well as the fact that the needed fiscal tightening measures have yet to be identified (by the US authorities). For details, see P. Lenain, R. Hagemann and D. Carey, ‘Restoring fiscal sustainability in the United States’, OECD Economics Department, Working Paper 806, 2010 ([http://www.oecd-ilibrary.org/economics/restoring-fiscal-sustainability-in-the-united-states\\_5km5zrsp9230-en](http://www.oecd-ilibrary.org/economics/restoring-fiscal-sustainability-in-the-united-states_5km5zrsp9230-en)).

<sup>12</sup> See, for example, chapter 3 of the October 2010 edition of the IMF’s *World Economic Outlook* (<http://www.imf.org/external/pubs/ft/weo/2010/02/pdf/text.pdf>), entitled ‘Will it hurt? Macroeconomic effects of fiscal consolidation’, and especially appendix 3.3.

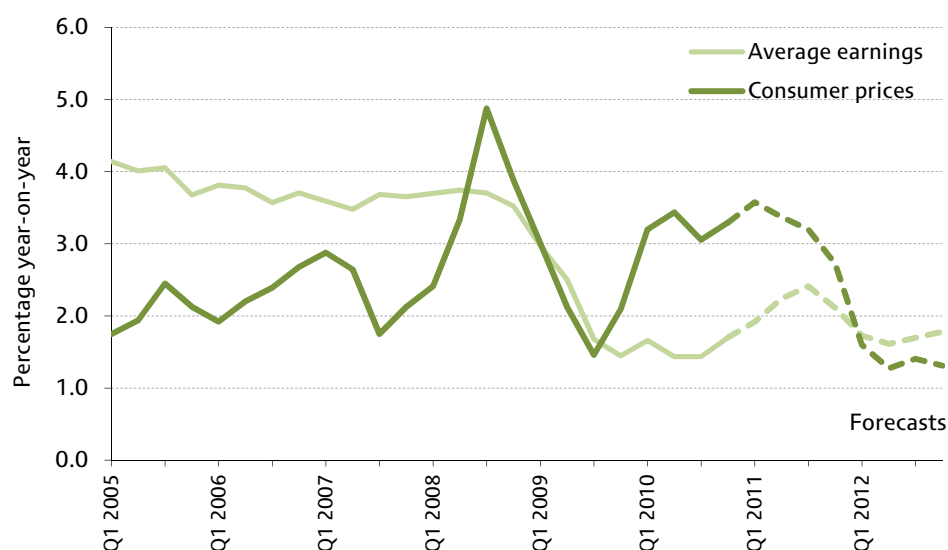


*paribus*. Of course, other things will not be equal. The fact that this year will witness such a marked tightening serves to emphasise that the things that will not be equal will have to be very positive – i.e. provide a great deal of support to the economy – if the OBR’s projection of a slight pickup in GDP growth is going to materialise this year. Before we turn to these other, potentially more positive forces, we consider an aspect of demand where we envisage there to be significant downside risks: personal consumption.

## The vulnerability of households

The majority of households ended 2010 with their wages rising more slowly than prices.<sup>13</sup> As a result, average earnings were also rising less fast than the CPI (Figure 4.5). In other words, their purchasing power was dropping in real terms even before the recent tax hikes took effect (discussed in Chapter 12). Thus, it may well be that those elements of fiscal tightening that hit households directly – such as the increase in the main rate of VAT from 17½% to 20% that came into force at the start of this year – have a greater-than-normal impact on them and their spending, as they come at a time when, psychologically speaking, most households are feeling vulnerable: many feel that they have yet to join in with the supposed economic recovery that they have read about in the papers.

Figure 4.5. Average earnings and consumer prices



Note: Figures after 2010Q3 are forecasts.

Sources: Office for National Statistics; Barclays Economics Research.

To test this proposition, we have experimented with using additional variables to augment our ‘consumption function’ – a model that links expenditure by households with a number of fundamental factors found to help explain past spending patterns. The basic idea was to see whether households react proportionately more to fiscal tightening when their incomes are weak (and the economy sluggish or in recession). But to do this effectively, it is important to make allowance for all other factors that might be driving spending patterns. We attempt to do this by using a model of consumer spending of what

<sup>13</sup> More than 80% of pay settlements have involved increases of less than 3%, according to Incomes Data Services. The median settlement (weighted by number of employees) was 2.2%. For further details, see <http://www.incomesdata.co.uk/news/press-releases/paysettlements1064.pdf>.

might be called the ‘Muellbauer’ variety – relying as it does on a wide variety of factors that have been found to be useful in explaining, in statistical terms, past variation in spending.<sup>14</sup> Importantly, these factors include not just real household disposable incomes and interest rates but also explicit gauges of credit availability, so-called ‘wealth’ terms (such as the ratio of net liquid and illiquid financial assets to income and the ratio of housing wealth to income) and proxies for expectations for future permanent income growth.

*Estimating the impact of VAT changes is tough ...*

In our preferred model of consumption, we have tried including explicit gauges of ‘animal spirits’ to measure feel-good, such as our market-based Risk Appetite Index (RAI).<sup>15</sup> Our consumption function does a good job, statistically speaking, in explaining past changes in consumption – *ex post*, we are able to explain more than 99% of the quarter-on-quarter variation in real personal consumption. Nevertheless, it can be improved upon (a little) by augmenting it with the RAI. When risk appetite is high, for example, it is not just that investors appear to be more willing to take on risk: on these occasions, consumers appear to have a higher propensity to consume too.<sup>16</sup> This evidence is not confined to the UK. In other work, we have found similar effects in the US and in the euro area.<sup>17</sup>

We have also experimented with incorporating additional variables to our consumption function so as to allow us to model the possible impact of past changes in VAT. We found no evidence of a permanent impact from VAT changes on the volume of households’ spending. However, we did find that the impact of changes in income is affected temporarily around the time of VAT shifts. In particular, in the quarter before a VAT hike takes place, it appears that consumers are a little less willing to make purchases than they typically are – perhaps because they feel more concerned about the economic situation. Once the hike is out of the way, however, households seem to regain their confidence again, and run down fairly quickly the ‘extra’ saving that they did before the hike. It should be emphasised, however, that, with so few VAT shifts having taken place during the past 35 years – the sample period available to us when undertaking this type of research – any findings have to be treated with a large pinch of salt.

*... with perhaps a temporary impact the most likely outcome*

We had less success interacting the RAI term with shifts in VAT rates – which is actually what we thought would be the most powerful effect. The new variable did slightly increase the precision of the estimated equation but was not significant at conventional

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<sup>14</sup> The most recent study of this type is J. Aron, J. Duca, J. Muellbauer, K. Murata and A. Murphy, ‘Credit, housing collateral and consumption: evidence from the UK, Japan and the US’, University of Oxford, Department of Economics, Discussion Paper 487, 2010 (<http://www.economics.ox.ac.uk/research/WP/pdf/paper487.pdf>). For those interested in seeing details of our version of such a model, please contact Michael Dicks.

<sup>15</sup> For details of how the RAI is constructed, see chapter 2 of the 2010 edition of the Equity Gilt Study, available at <http://www.barcap.com/egs/>.

<sup>16</sup> Ideally, we would use a measure of risk appetite based on households’ shifts in their portfolios or surveys of their attitudes to risk/saving. However, we know of no long run of such data that is rich enough to prove to be useful, from a statistical point of view. (Consumer confidence series, for example, do not seem to be very helpful.) Hence we use price-based data relating to the major financial markets. Of course, the assets involved are owned, ultimately, by households. But the fact that they are traded mainly by professionals risks there being (sometimes large) wedges between our investor-based risk appetite measure and true household-sector risk appetite.

<sup>17</sup> In the case of the US, for example, see M. Dicks, ‘Some thoughts regarding current financial market conditions and their implications for policymakers’, presented at the 2007 ECB Watchers’ conference ([https://www.ifk-cfs.de/fileadmin/downloads/events/ecbwatchers/20070907ecb\\_dicks\\_document.pdf](https://www.ifk-cfs.de/fileadmin/downloads/events/ecbwatchers/20070907ecb_dicks_document.pdf)).

levels.<sup>18</sup> Again, that may simply reflect the scarcity of VAT shifts in our sample. Accordingly, we see the risks around our modal (single most likely) forecast as skewed to the downside – with there being a real possibility that the recent VAT hike has a more powerful impact than what most forecasters, including the OBR, expect. In other words, as most models do not allow for even an impact from risk appetite, let alone the possibility that the hit interacts with the effect of higher VAT, there is a real chance that the tax hikes do more damage than consensus forecasts expect.

**Prospects for household income growth look poor**

What about our modal forecast? What does that look like? Well, given the likelihood of still-weak fundamentals, we suspect that the first quarter of 2011 – i.e. the quarter when the 2½ percentage point hike in VAT will kick in – will witness very weak personal consumption. Stagnation looks to be the order of the day, although we would not be surprised if the start of this year were marked by a small contraction in the volume of spending. (The main argument against this happening, ironically, is that the fourth quarter turned out to have been so awful – thanks in part to the effects of the unusually bad weather in December. So the resumption of more normal weather may well lead to artificially high rates of growth in GDP and in consumption as their levels return to normal.)

What about prospects thereafter? On the one hand, the good news is that a strong corporate performance (to be discussed below) means that firms have the capacity to pay more for labour services, and may well desire to employ more people too. Moreover, real wages appear to be near a trough, while the number of adults in work is well above its bottom (Figure 4.6). On the other hand, we do not envisage average earnings rising faster

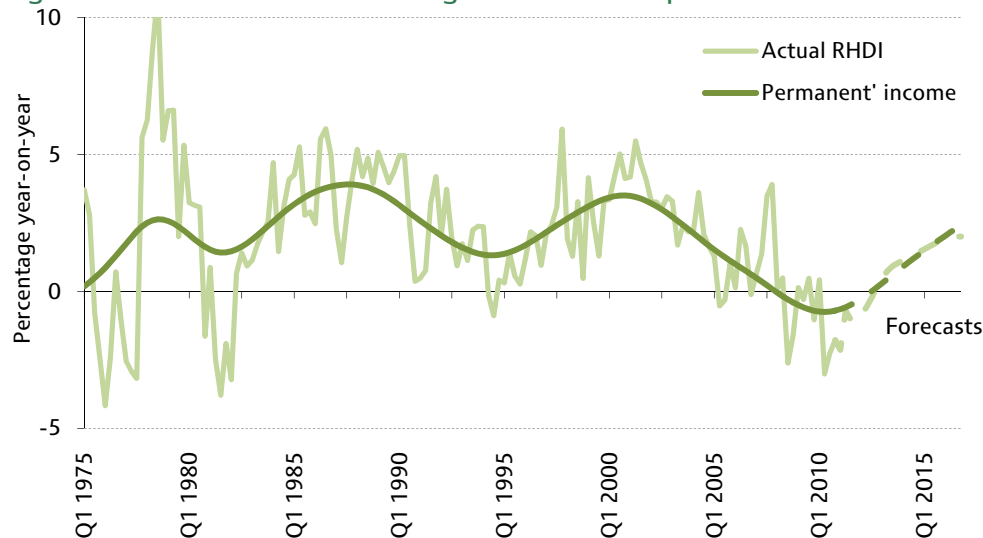
**Figure 4.6. Employment and real wages**



Note: Figures after 2010Q3 are forecasts.  
Sources: Office for National Statistics; Barclays Economics Research.

<sup>18</sup> The new variable had a t-value of just over unity – sufficient to lower the standard error of the equation a tiny amount, but not enough to pass the relevant statistical tests for significance of the effect at conventional levels of acceptance. What this means, in layman’s terms, is that you wouldn’t get your academic paper published if you retained such a variable in your model: people would not be convinced by the evidence. But, if you really believed strongly that that is how the world works, you might retain it anyway if you were a practical, professional forecaster.

Figure 4.7. Annual rates of change of RHDl and 'permanent' income



Note: Figures after 2010Q3 are forecasts.

Sources: Office for National Statistics; Barclays Economics Research.

than consumer prices until the fourth quarter of this year or early in 2012. And we doubt that employment growth will be anything much to write home about, as argued later in this chapter. At best, we suspect, the number of people in work will rise a fraction of one per cent this year.

Given the fairly feeble recovery forecast in wages and employment, we expect real household disposable income (RHDl) to be broadly stagnant for this year as a whole compared with last (Figure 4.7). Indeed, a small contraction in RHDl actually looks slightly more likely than a small expansion. Likewise, our proxy for permanent income expectations – which is a trend (moving-average) measure of actual income changes – looks set to increase in a meaningful fashion only from 2012 onwards. If this is the case, income growth will contribute little to consumption this year.<sup>19</sup> So, for consumption to surge, it will be necessary for the saving ratio to fall smartly.

### What might drive the saving ratio down?

In the sort of model that we use – and have used with some success for several decades<sup>20</sup> – the main drivers of potential drops in the saving ratio are the following:

- **Wealth.** When either net liquid assets or illiquid financial wealth (mainly pension fund assets) or tangible (housing) wealth increase relative to incomes, the saving ratio tends to decline. This is unlikely to be because UK households, as a group, are actually better off. (After all, they won't be, unless they sell houses to foreigners.) But it may be that, nevertheless, they feel so. Or it may be that, as housing acts as collateral, the extra wealth helps loosen otherwise binding credit constraints that

<sup>19</sup> Neither will shifts in the distribution of income – proxied in our model using changes in the unemployment rate – provide much support for consumption. For it appears likely that the unemployment rate will drift higher for a while, before stabilising: not enough of a shift to make much impact on spending patterns.

<sup>20</sup> Our latest model for UK consumption is not so different from the one we estimated back in the 1980s. See, for example, chapter 3 of S. Henry and K. Patterson (eds), *Economic Modelling at the Bank of England*, Chapman and Hall, London, 1990.

impinge on households' ability to raise their actual spending as fast as desired. Moreover, the rise may be associated with a higher (perceived) permanent income.<sup>21</sup>

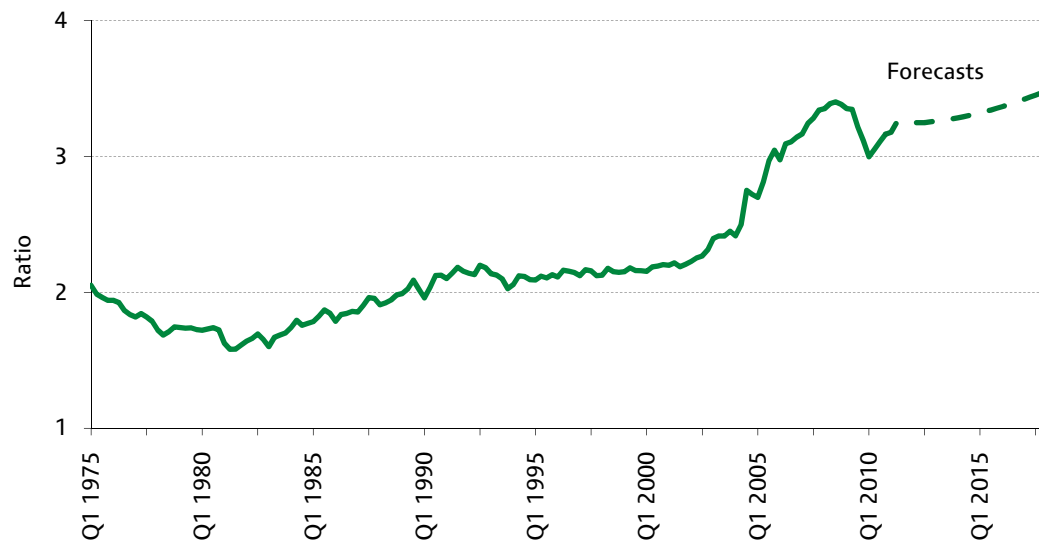
- **Credit conditions.** When lenders become more generous in the way that they provide credit to households, consumers tend to raise the proportion of their earnings devoted to current spending. This may, again, be because credit constraints limit their ability to translate current wealth or future income into current spending in the way that they may desire. It could also be that, when households buy properties in response to greater availability of credit, they also tend to buy

Figure 4.8. The loan-to-value ratio for first-time buyers



Note: Figures after 2010Q3 are forecasts.  
Sources: Council for Mortgage Lenders; Barclays Economics Research.

Figure 4.9. The loan-to-income multiple for first-time buyers



Note: Figures after 2010Q3 are forecasts.  
Sources: Council for Mortgage Lenders; Barclays Economics Research.

<sup>21</sup> One way of squaring the circle is to use a so-called 'Hicksian' definition of income, as opposed to a National Accounts one, as detailed in J. Hicks, *Value and Capital: An Inquiry into Some Fundamental Principles of Economic Theory*, Clarendon Press, Oxford, 1939.

complementary durable goods such as carpets, furniture and white goods. There have been a number of studies into how best to measure credit conditions.<sup>22</sup> We find that the loan-to-value ratio and loan-to-income multiple for first-time buyers, shown in Figures 4.8 and 4.9, do a good job. When, for example, financial liberalisation led to credit becoming more easily available during the 1980s, both ratios rose. By contrast, both dropped sharply during the financial crisis.

- **Interest rates.** When the real interest rate falls, the marginal propensity to consume tends to rise. Here, we find a simple, backward-looking measure of (actual) inflation works well as a gauge of future inflation expectations when constructing a 'real' rate, with the short-term Bank of England base rate working well as a gauge of the return that can be achieved on marginal savings.

Currently, wealth effects do not look to be especially supportive of a sharp drop in the saving ratio being around the corner, although the sustained recovery in the stock market has helped the ratio of illiquid financial assets (measured versus personal incomes) recoup most of the decline that it experienced during the financial crisis, and the housing equivalent has recovered about half of its fall. As for the ratio of net liquid assets to income, it has sustained its trend move higher: something that has been sustained since 2003. Figures 4.10–4.12 put these moves into a historical context.

The majority of economists now predict small falls in house prices this year and next – a view with which we concur. (Supply, being so inelastic, is largely irrelevant to house price determination over the next year or two – with most models for house prices being, in effect, inverted housing demand equations.) Thus, taken together, 'wealth' does not look set to help support consumption through a big drop in the saving ratio; more likely, it will act as a small drag. Only in the longer term does it look likely that wealth-to-income ratios will be appreciably higher again, perhaps helping to push the saving ratio back down to where it was pre-crisis.

Credit conditions appear to be a lot tighter than they were pre-crisis – with most first-time buyers now able to borrow only about three-quarters of the value of their properties (in 2007, ratios of close to 85% were the norm). Likewise, loan-to-income multiples for this group have made up only about half of the drop that took place between late 2008 and early 2010 (from about 3½ to about 3) during the past year. Existing borrowers who want to top up their borrowing are also finding that credit conditions are tighter than they were pre-crisis. Looking ahead, we expect a gradual increase in the supply of credit, as a mixture of pressure from the authorities and a return to profitability and accompanying risk appetite leads to slightly more generous terms of credit provision (with 'generous' defined from households' perspective). Banks and other providers of funds are assumed to repair their balance sheets only gradually. Hence, we assume a drift up in the loan-to-value and loan-to-income ratios.

Real interest rates are currently very low, despite high margins for lenders. With the typical annual rate charged to borrowers just under the 4% mark, but inflation generally expected to exceed 3% this year, the one-year real interest rate is very low. Even using medium-term inflation expectations of close to 2%, the real cost of funds is clearly low. And the return on savings is correspondingly poor too, by historical standards: the real base rate is a negative 2½%. This constellation of interest rates ought to encourage

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<sup>22</sup> See, for example, E. Fernandez-Corugedo and J. Muellbauer, 'Consumer credit conditions in the United Kingdom', Bank of England, Working Paper 314, 2006.

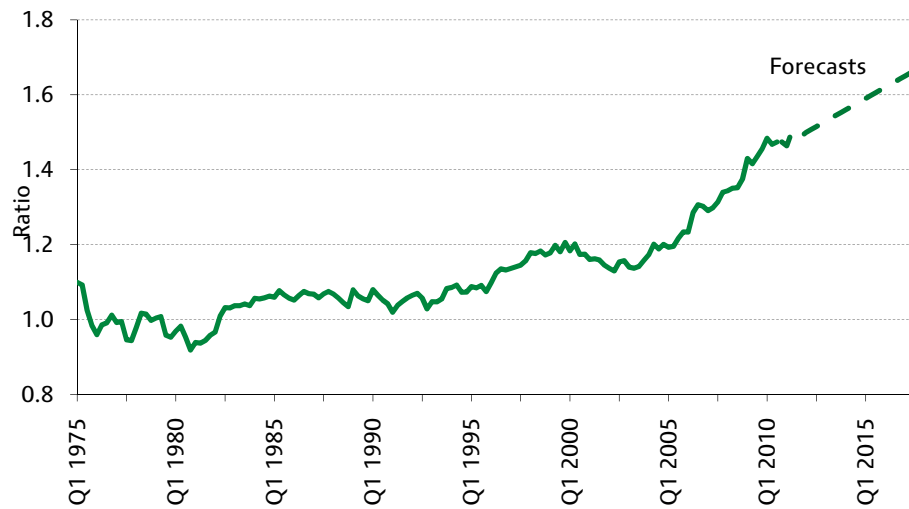
Figure 4.10. The ratio of illiquid financial assets to income



Note: Figures after 2010Q3 are forecasts.

Sources: Office for National Statistics; Barclays Economics Research.

Figure 4.11. The ratio of (net) liquid assets to income



Notes and Sources: See Figure 4.10.

Figure 4.12. The ratio of housing wealth to income



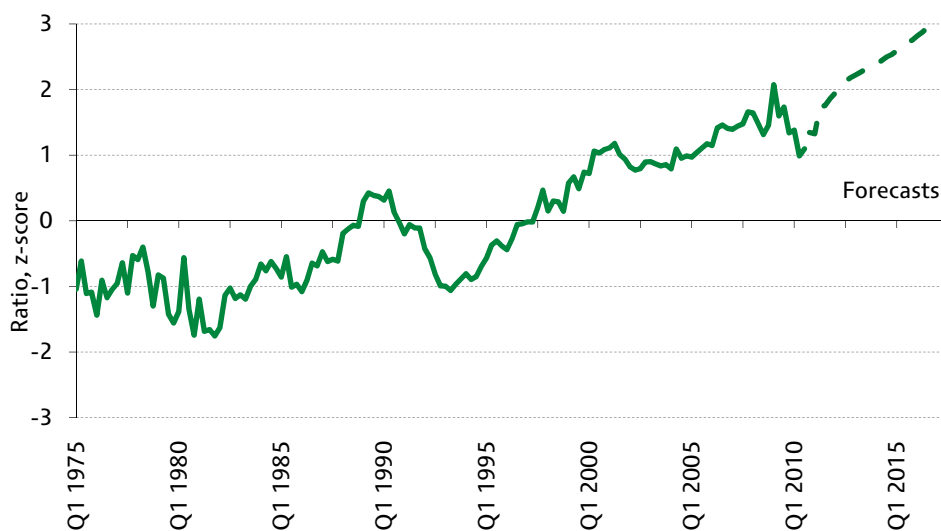
Notes and Sources: See Figure 4.10. Additional source: Department for Communities and Local Government.

borrowing and discourage saving, despite the backdrop of the pre-crisis excess debt build-up naturally leading to a period of deleveraging. Accordingly, the low real interest rate is one of the main causes of the fall in the saving ratio that we predict for the next year or two.

The bottom line is that we expect only a sluggish pickup in consumer spending. All told, we expect a real household disposable income contraction this year to give way to stabilisation in consumers' purchasing power in 2012 and a gradual acceleration thereafter. The further ahead we look, the more optimistic we are – presuming that a gradual return to more normal income generation and consumption patterns will take place. Thus we pencil in wages beginning to outstrip prices by a healthy margin by 2013, and employment expanding by a good ¾% or more, at an annual rate, from around the same time.

We doubt that the pace of expansion of RHDI will reach a decent level (of 2%) before 2015. Such an outcome will, we suspect, lead to a real-terms expansion of consumption of only about 1% this year and again next, but a pickup in the growth rate to around 1½% in 2013 and to around 2% thereafter. Importantly, this saving-ratio-driven pickup in spending assumes that policymakers (and perhaps, too, market participants) are comfortable going back to the pre-crisis situation, in which households rely on asset price rises and debt to drive spending faster than if they were constrained to rely solely on disposable incomes. Or, to put it another way, it assumes that the consumption-to-income ratio – which is currently one-and-a-half standard deviations above its long-run average – rises further, rather than mean reverts (Figure 4.13; see its notes for a more detailed explanation). Accordingly, the risks around this forecast appear to be skewed rather to the downside.

Figure 4.13. The consumption-to-income ratio in z-score terms



Notes: A z-score measures a variable in terms of standard deviations from its long-run average. We have used this measure to emphasise that the ratio of consumption is not only already very high relative to income, compared with its long-run average, but set to rise still further. Figures after 2010Q3 are forecasts. Sources: Office for National Statistics; Barclays Economics Research.

## The renaissance of British industry

While households are feeling the pinch from below-inflation pay settlements and labour market uncertainty, the same factors have contributed to robust profit performance and



healthy balance sheets for firms. As a result, businesses have increasing internal funds to channel into investment, easing the impact of credit constraints. Indeed, business investment increased in real terms by 9% year-on-year in the third quarter of 2010.

However, this strong performance largely reflected a process of normalisation after an unprecedented 19% collapse in fixed investment in 2009. Going forward, one cannot be too confident that this robust investment growth will continue into 2011. Recent surveys of business confidence suggest firms are concerned about the uncertainty over both consumption at home and export performance, in light of continued weakness in some of the UK's major export markets. Investment demand is generally volatile and hard to forecast with any great accuracy, but the central forecast must factor in likely prospects for consumption and export demand: firms will not invest if the outlook for domestic sales or exports is poor. Firms exporting to fast-growing, non-traditional export markets (for example, those in Asia) are therefore likely to channel internal and borrowed funds into investment. However, the bulk of firms, producing for the sluggish home market and still-weak major export markets (predominately other European countries and the US), seem likely to contribute only modestly to investment demand.

Figure 4.14. Is an investment boom a likely driver of recovery?



Note: Investment to GDP ratio is shown relative to the end of each recession.

Sources: Haver Analytics; Barclays Capital.

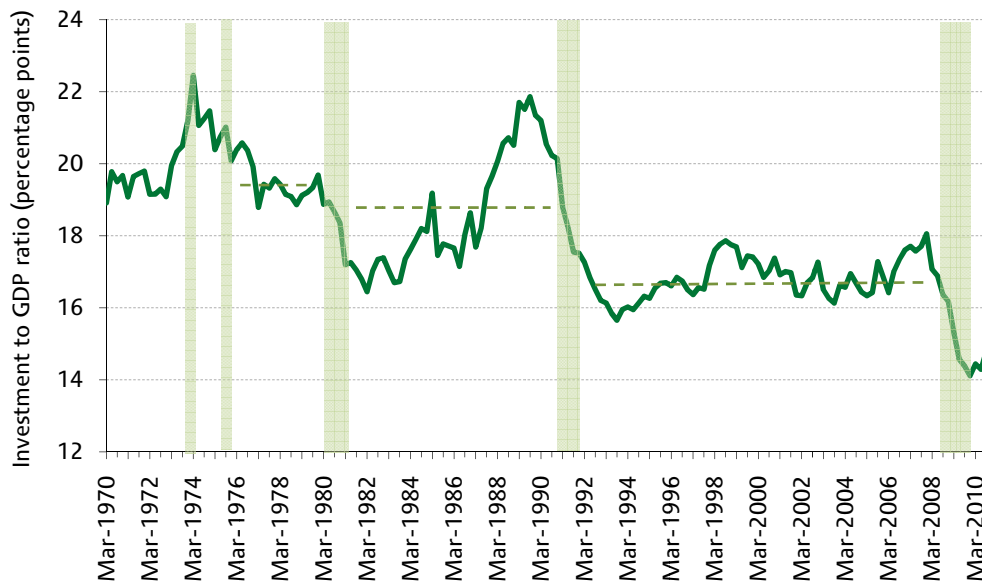
This analysis is strengthened by a review of past recovery episodes in the UK, where investment has typically responded with a lag to a pickup in general activity (supporting the accelerator view of investment) rather than acting as a leading independent driver of recovery. Figure 4.14 plots the investment to GDP ratio for the last four UK recessions, relative to the ratio in the last quarter of the recession.<sup>23</sup> All recessions, excluding that in 1973–75, show a secular decline in investment in relation to GDP in the run-up to and during the recession (in the case of the 1973–75 recession, investment to GDP was volatile but showed no discernible upwards or downwards trend during the recession itself). Crucially, investment is not a key driver of growth during the recovery phase: the

<sup>23</sup> The recessions are dated on the basis of two consecutive quarters of negative GDP growth (1973Q3–1974Q1 and 1975Q2–1975Q3 are considered as one continuous recession, including the intervening four quarters, which included one quarter of negative growth). The last quarter of the recession is therefore dated as 1975Q3, 1981Q1, 1991Q3 and 2009Q3, respectively.

investment to GDP ratio is typically constant or continues to decline during the subsequent three years. On the basis of 2010Q3 data in particular, investment appears to be staging a somewhat more robust recovery during the current episode, compared with earlier recoveries. However, previous episodes of robust post-recession investment growth (for example, in early 1976 or during 1982 have petered out, and we would want to see several quarters of robust investment growth, or some other convincing counter-argument, before viewing this recovery as likely to be substantially different.

One characteristic of the current episode is that there was no significant investment boom in the years preceding the recession and its immediate run-up. This contrasts strongly with the previous recession, in 1991, when the ratio of investment to GDP had increased by 5 percentage points in the seven or eight previous years (Figure 4.15). Since some of this likely turned out to be wasteful over-investment, this helps to account for the sharp fall in the investment rate in the year before the 1991 recession, which accelerated further during the recession and continued, albeit at a less dramatic rate, in the subsequent two years.

Figure 4.15. Investment: the historical performance



Note: Each dashed line shows the average ratio over the quarters between recessions.  
Sources: Haver Analytics; Barclays Capital.

With little evidence of a substantial boom in investment before the most recent recession (in fact, investment tracked upwards alongside GDP for around 15 years, producing a period of uncharacteristic stability in the investment/GDP ratio), and a substantial drop during the recession and the preceding couple of quarters, one could make the case for a more rapid up-tick in investment this time round, as firms seek to return to pre-crisis investment levels. However, comparing the recent experience to the 1980–81 recession is informative. The latter half of the 1970s saw a similar period of relative stability in the investment/GDP ratio (albeit less prolonged than the recent experience), with no pre-crisis investment boom. In this case, investment did increase slightly after the recession, but did not mount a sustained recovery until the end of 1983, some two-and-a-half years after output started to recover, and pre-recession levels of investment relative to GDP were not attained until the end of 1987. Thus, we do anticipate a gradual secular recovery in investment, but we would caution against expecting a rapid reversion to pre-recession

investment levels, and we do not expect the rapid growth in investment in 2010Q3 to be maintained in the short to medium term.

One final point comes out of this analysis: the trend ratio of investment to GDP declined in the wake of the last two recession episodes. That is, while there was a delayed up-tick in investment following a sharp decline during the recession, the average level was in each case lower than the average level before the recession. A similar pattern has been noted in other countries emerging from economic crises (for example, the countries impacted by the East Asian crisis). Again, this might lead us to take a relatively pessimistic view of the medium-term prospects for investment.

Thus, our central projection for investment sees a decline in the quarterly rate of growth in 2011, compared with 2010. Of course, if household consumption and/or export demand were to outperform our forecast significantly, then more robust investment growth could be expected, although, by the same token, further euro-area or US weakness and/or a more negative prospect for household incomes would likely contribute to even weaker investment growth. To this extent, investment will most likely act as an amplification mechanism for trends elsewhere in the economy, rather than robust investment demand acting to offset weak consumption growth (or vice versa).

## Rebalancing – and prospects for the UK regaining lost market share

Even before the financial crisis struck, investors had reassessed prospects for the UK and decided that they looked less attractive than for other major advanced economies, with the consequence that sterling fell sharply in value. Between the beginning of 2007 and the spring of 2008, the pound depreciated by about an eighth in trade-weighted terms – half of what is required to register as a crisis in its own right according to the definition of a currency crisis used by most academics (of 25%).

In last year's Green Budget, we focused on whether or not the step-down in the value of sterling was just the forerunner of an even greater depreciation – what might be called a 'real' crisis with big macroeconomic, and perhaps political, consequences – or, rather, an over-reaction by investors, in which case a gradual recovery in the currency's fortunes ought to be in store. We concluded that the latter, more positive, assessment made more sense, especially if after the 2010 general election more emphasis was placed by government on tackling the large budget deficit.<sup>24</sup>

A year on, and this assessment still feels about right. Thus it comes as little surprise to us to learn that the pound has, if not found its feet again, at least found a floor – up about 5% in trade-weighted terms from its trough, but trending sideways rather than up (Figure 4.16). Such a 'recovery', if that is the right word for it, is very tepid against the speed and scale of the decline that came before. Accordingly, the pound is still competitive: the real effective exchange rate ended last year more than 16% below its average for the decade prior to 2007.

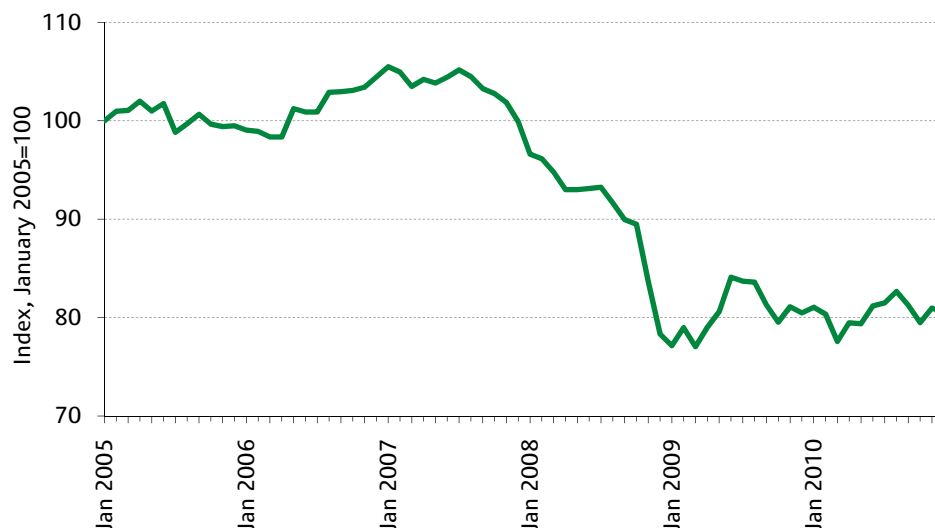
Such a cheap currency ought to have left British firms in a strong position to start regaining market share in export markets. And it ought to have encouraged import substitution too, as UK producers should have benefited from the gain in competitiveness.

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<sup>24</sup> See S. Hayes, 'The public finances and sterling', in R. Chote, C. Emmerson and J. Shaw (eds), *The IFS Green Budget: February 2010*, IFS Commentary 112, 2010 (<http://www.ifs.org.uk/budgets/gb2010/10chap5.pdf>).

Taken together, the rise in exports and drop in imports should have resulted in a major rebalancing of UK growth, with net exports providing an increasing share of GDP, thus permitting the ‘over-consumption’ by households in the pre-crisis period to drop back, and perhaps too the ‘over-investment’ in non-productive assets such as housing.<sup>25</sup>

Figure 4.16. The value of sterling in trade-weighted terms



Note: Not seasonally adjusted.  
Source: Bank of England.

Although early attempts by the statisticians to gauge the drivers of growth hinted that net exports were beginning to enjoy something of a renaissance, revisions to those ‘preliminary’ figures have changed the story somewhat, with the latest set of National Accounts (available up to the third quarter of last year) revealing that export volume growth was outpaced by that of imports by several percentage points last year.<sup>26</sup> Exports rose, but did not soar. Imports surged.

When we re-estimated our export and import equations late in 2009, using data up to the end of 2007 so as to avoid over-fitting recent data, we discovered that the currency was a less powerful driver of trade volumes than in the past. Indeed, we started to grow concerned that the so-called Marshall-Lerner conditions might not hold. These focus on the size of the price elasticities of imports and exports, pointing out that only when the sum of the two is in excess of unity in absolute terms will a depreciation of the currency lead to an improvement in the (value of the) trade balance. When, by contrast, the elasticities are very small, a ‘big’ depreciation leads to the value of exports dropping and/or that of imports rising, with the new (sterling) prices of the two dominating the shifts in trade volumes in terms of the impact on the trade balance.<sup>27</sup>

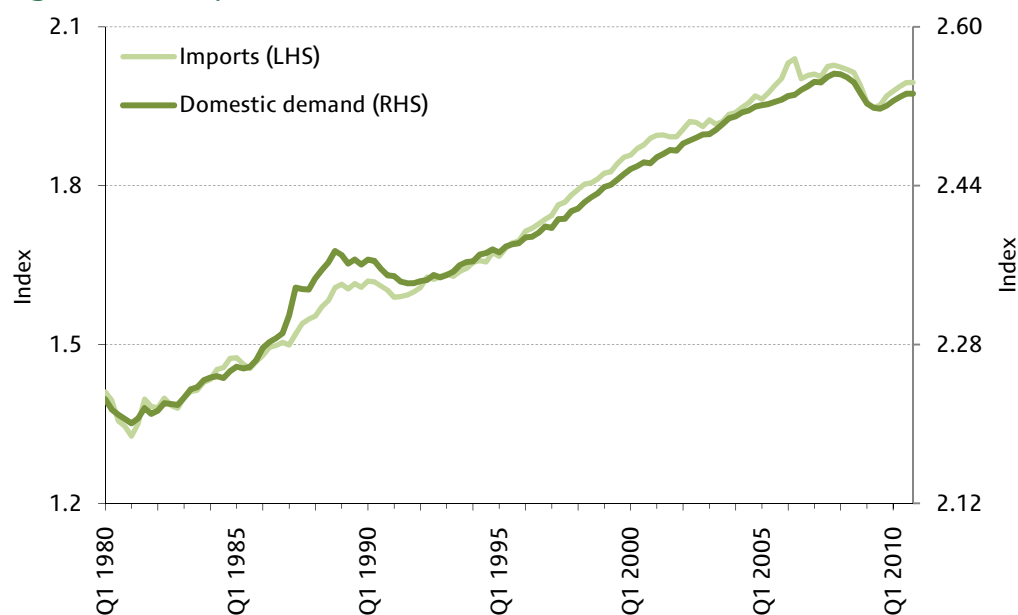
<sup>25</sup> Remember that  $GDP = C + I + G + (X - M)$ , where C is consumption, I is investment, G is government spending, X is exports and M imports. The total  $(X - M)$  is net exports. Note that both higher X and lower M help boost GDP.

<sup>26</sup> For details, see <http://www.statistics.gov.uk/pdfdir/qna1210.pdf>.

<sup>27</sup> In other words, a depreciation of sterling leads to a big drop in the price of exports (in foreign currency terms) but no significant increase in the volume of demand as the price elasticity of exports is low. So, in pounds, the value of exports is pretty much the same after the depreciation as it was before. (At best, it is up just a little.) But the large increase in the price of imports (in pounds) leads to an only small decrease in the volume of demand (again because the price elasticity of imports is low). So, in pounds, the value of imports rises markedly. Therefore the trade balance worsens.

The main reason for our concern was that the import price elasticity appeared to be quite close to zero – with a drop in the value of sterling apparently leading to little, if any, cutting of the amounts of imports coming into the country, despite their new raised sterling cost: the long-run price elasticity was just 0.18.<sup>28</sup> As a result, there is actually a tight correspondence between changes in import volumes and shifts in the volume of domestic demand (i.e. the sum of consumption, investment and stock-building), as shown by Figure 4.17. The only other significant driver of the long-run propensity to import (except for a competitiveness term with a price elasticity of just 0.18) came via a slow-moving trend variable, designed to capture the gradual loss of market share that UK producers have experienced in their home market. (This may be because the relative quality of their products is declining relative to those produced by overseas companies. Or it may be because of other relevant costs terms not included in the real effective exchange rate gauge of competitiveness that we employ in our modelling work.)

Figure 4.17. Import volumes and domestic demand



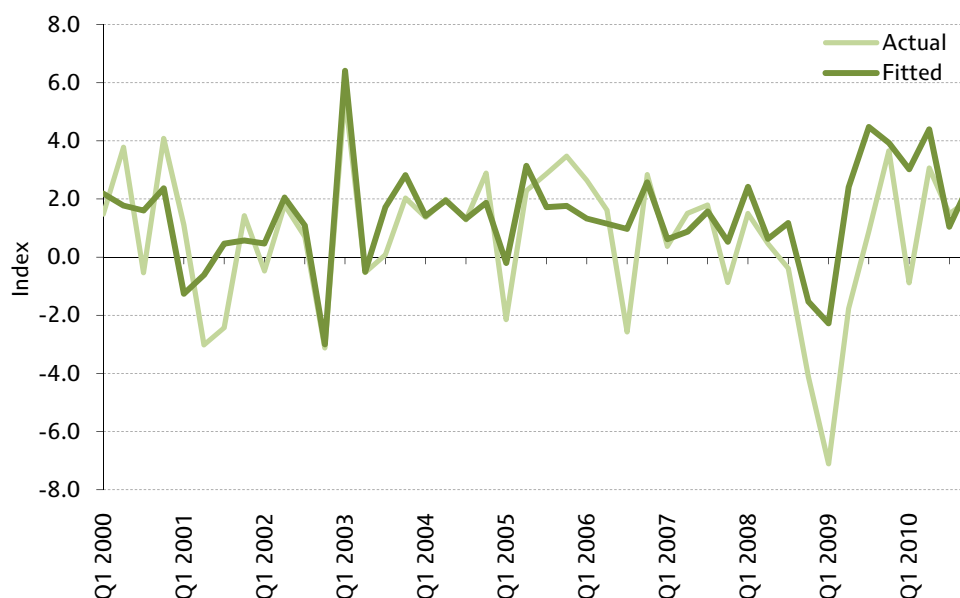
Sources: Office for National Statistics; Barclays Economics Research.

Whatever the theoretical justification for the model, its ability to fit the data was good in sample, but bad outside it. In other words, over the past several years, the apparent (past) relationship between the drivers of imports and actual import volumes appears to have broken down somewhat. In particular, during the crisis, import volumes fell precipitately – both in actual terms and relative to what the model predicted they would, given domestic demand, the real effective exchange rate and so on. Since the middle of 2009, however, the model has done a much better job, with an average residual that is close to zero. It seems reasonable to posit that there may have been some pay-back for the sharper-than-modelled drop in volumes in the form of a faster-than-expected recovery in the early part of the bounce-back. Now, however, it seems reasonable to trust the model again, which is precisely what we do when making our forecast. Of course, in doing so, we are implicitly assuming no further crises around the corner.

<sup>28</sup> To put this into perspective, our model had formerly had an elasticity that was more than three times larger – much like the Bank of England's model of similar vintage. (The Bank's had an elasticity of 0.62.) For details of the Bank's equation, see *Economic Models at the Bank of England*, Bank of England, 1999 (<http://www.bankofengland.co.uk/publications/other/beqm/modcobook.htm>).

When it comes to exports, the model specification that we came up with in 2009 had a big elasticity with respect to competitiveness – with a 1% depreciation in sterling in trade-weighted terms estimated to lead to a 0.9% rise in export volumes.<sup>29</sup> The model also tracked performance well too, as shown in Figure 4.18. Out of sample, however, it has done poorly, with again the volume of exports dropping like a stone during the crisis – and much more sharply than seemed reasonable to expect given overseas demand and the level of the currency. Unlike with the imports equation, however, the exports model has not come back on track during the last year or so of economic recovery. Indeed, there has been a near-three-year-long run of negative residuals (during which the model has over-predicted export volumes). Although there is tentative evidence to suggest that may have come to an end in the third quarter of last year, tentative is the operative word – not just because existing estimates of both UK exports and overseas imports are liable to significant revisions, but because, even if the data do not get revised, we have little faith in the model specification getting back on track. In other words, a one-quarter under-prediction might well prove to be a blip in the trend, not a trend reversal.

Figure 4.18. Export volumes



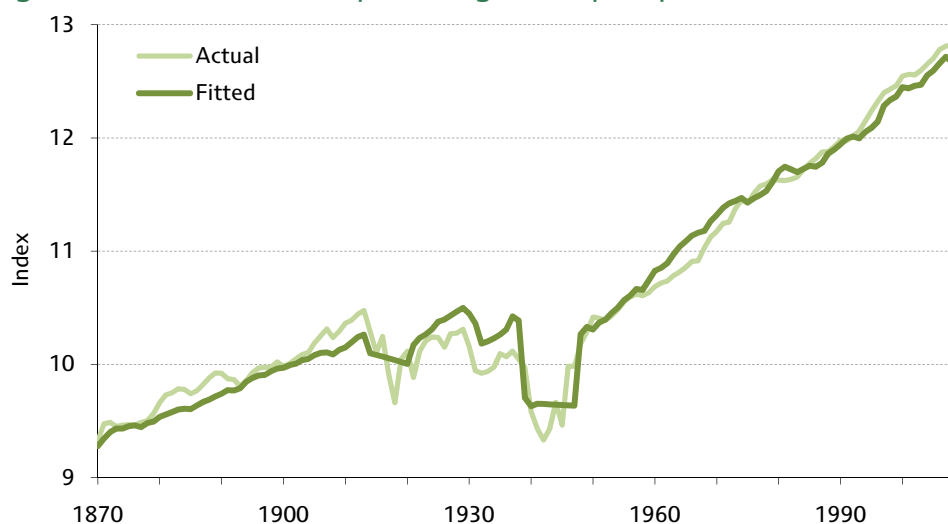
Sources: Office for National Statistics; Barclays Economics Research

The scale of the over-prediction is immense. In 2009, for example, the actual drop in exports was 12 percentage points greater than predicted. And in the first half of 2010, another gap of around 5 percentage points opened up between actual export volume growth and predicted changes. No doubt, some of the shortfall can be put down to temporary factors, such as the difficulty that British firms had in raising external sources of finance and the fact that much of overseas demand growth has taken place in markets where we have not traditionally been strong competitors. But the truth is that, with such a big forecasting error having occurred, there must be a good chance that something in the relationship has shifted. The most obvious thing would be a lowering of the price elasticity more in line with the longer-term historical norm. After all, using annual data

<sup>29</sup> Interestingly, this was not only similar to its predecessor but also very much like the Bank of England’s specification, which had a long-run price elasticity of 0.80. For further details, see *Economic Models at the Bank of England*, Bank of England, 1999 (<http://www.bankofengland.co.uk/publications/other/beqm/modcobook.htm>).

stretching right back to 1870, we find that a regression in which export volumes are explained by world trade volumes and the real effective exchange rate does a fairly good job – as illustrated by Figure 4.19 – but on the basis that the price elasticity is just 0.48. Of course, if the elasticity has dropped back close to its historical norm, then the benefit of the big drop in sterling will turn out to be a lot lower than what our ‘old’ exports model (illustrated in Figure 4.18) predicted it would be.

**Figure 4.19. A model to explain long-run export performance**



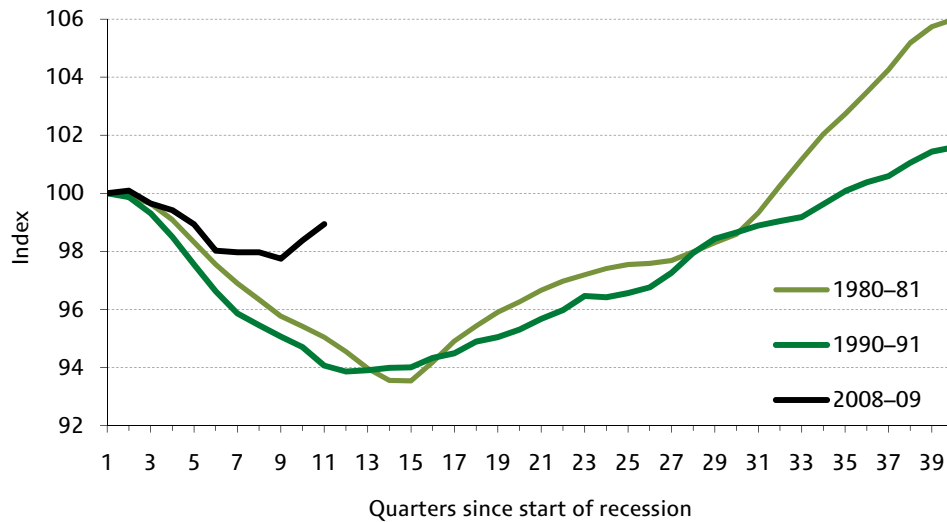
Sources: Bank of England; Barclays Economics Research.

The bottom line of all of this is that, although we use the existing quarterly model when making our modal forecast – and thereby end up with a profile for exports broadly in line with both consensus and OBR projections – all the risks seem to lie on something less vibrant actually coming about, or a story of continued loss of UK exporters’ market share. Were the true elasticity of exports to the real effective exchange rate to drop back to its long-run historical average, instead of turning out close to what it averaged in the 1990s and 2000s, then the scale of the ultimate shortfall in export volume expansion could be as much as 6%. In other words, export volume growth could easily fall shy of the OBR’s projection by 1 percentage point in each and every year of its 2010 to 2015 forecast.

## The labour market

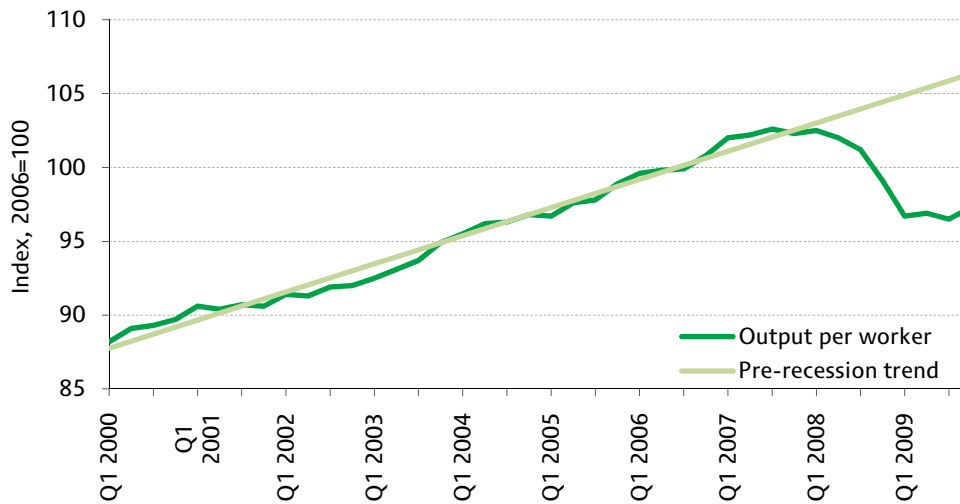
A prominent feature of the 2008–09 recession was firms’ apparent reluctance to fire workers – as evidenced by the number of people in work turning out higher than what a typical employment model suggested would happen. ‘High’ employment meant that labour productivity declined precipitously and has failed to recover since. This stands in contrast to the experience from previous recessions, as well as that from some other countries during the recent recession, such as the US (Figures 4.20–4.22). It therefore seemed reasonable to anticipate a ‘jobless recovery’ as economic activity picked up and firms sought to rebuild productivity. However, employment rose sharply during the middle of 2010, so that the recovery in productivity was relatively limited. In fact, productivity remains some 8% lower than the level implied by the pre-recession trend.

Figure 4.20. Employment following the start of a recession



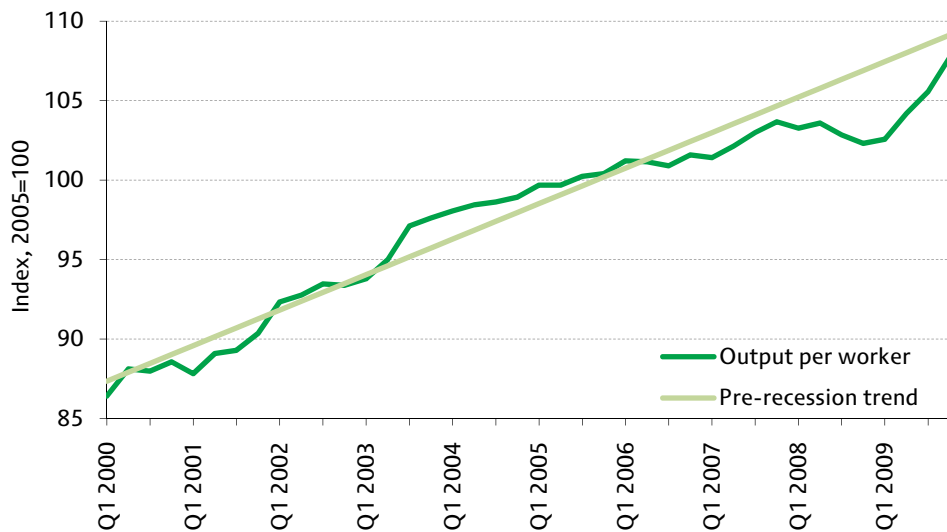
Note: The recessions shown in the figure started in 1980Q1, 1990Q3 and 2008Q2.  
Sources: Haver Analytics; Barclays Capital.

Figure 4.21. UK labour productivity



Sources: Haver Analytics; Barclays Capital.

Figure 4.22. US labour productivity

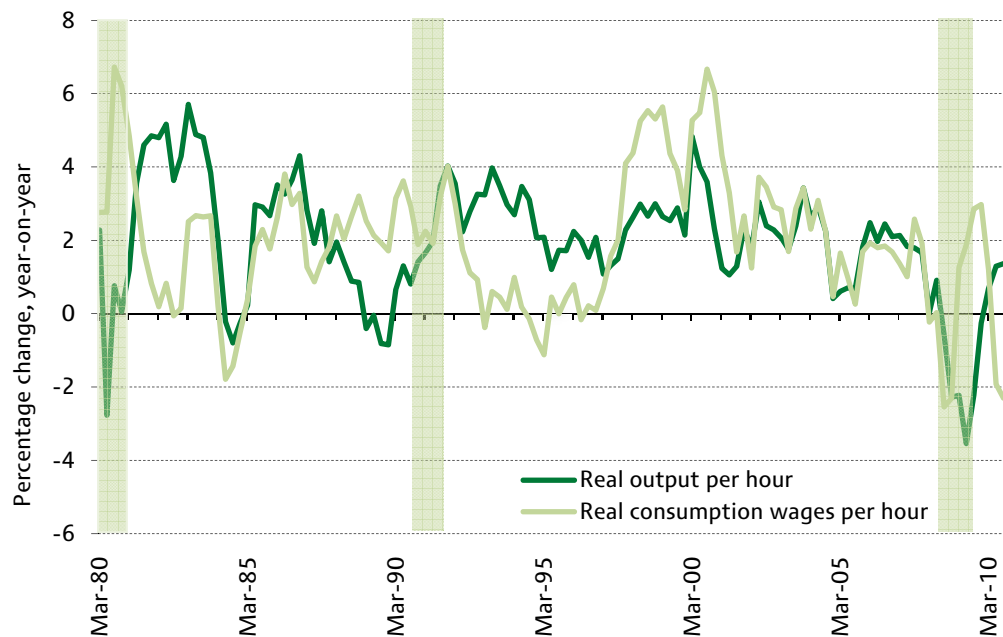


Sources: Haver Analytics; Barclays Capital.



A sharp labour market correction, with firms shedding workers (US-style) to regain lost productivity, at the same time that the public sector workforce is trimmed, cannot be ruled out. In this case, unemployment could increase beyond 12%, which would be expected to have a significant negative impact on household demand, as well as potentially precipitating a sharp rise in household financial distress. Fortunately, this kind of dramatic correction seems unlikely. Recent employment growth has outstripped forecasts, as already discussed, while business surveys have not reported a worsening in employment intentions.

Figure 4.23. Growth in productivity and consumption wage



Sources: Haver Analytics; Barclays Capital.

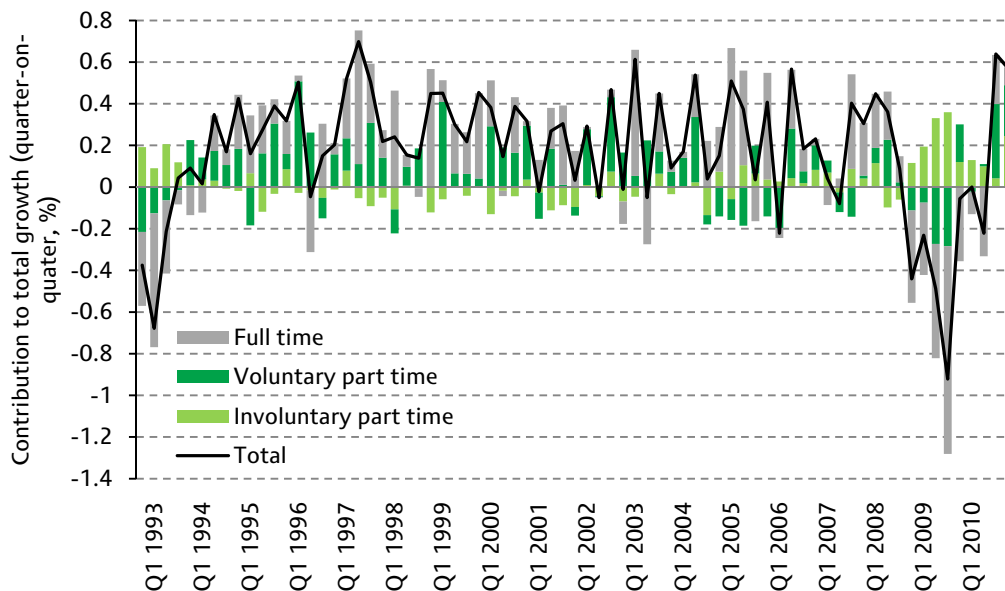
A more likely scenario is that firms' hiring intentions hold steady, with employers neither shedding workers at an accelerating rate nor expanding their hiring dramatically. As we have seen, productivity dipped sharply during the recession, and the subsequent pickup has been too anaemic to recover earlier losses. As Figure 4.23 illustrates, real output per hour worked fell sharply during the recession, similarly to the performance during the early 1980s. Compared to that earlier experience, though, the subsequent productivity recovery has been relatively modest, no doubt reflecting the fact that firms have been much less willing to shed labour this time around. With no sharp up-tick expected in unemployment, one might expect consumption growth to hold up reasonably well. However, we expect household labour income growth to maintain its very weak recent performance, as labour market weakness and relatively high inflation continue to squeeze incomes. Figure 4.23 also illustrates that growth in the real consumption wage (economy-wide wages and salaries per hour worked, deflated by the consumption deflator) is currently negative, and, based on the experience during previous recovery phases, we would expect this performance to continue. Since labour market income makes up the bulk of household income, we would therefore expect consumption growth to be correspondingly tepid.

Finally, in assessing recent employment trends – and understanding how the relatively robust headline employment performance might affect household consumption behaviour – it is informative to look at the contributions to the overall picture made by

full-time and part-time employment separately. It is also interesting to see how many part-time jobs are held by those who want to work part-time, and how many are held by employees who would have preferred a full-time job: the latter can be considered to be under-employed (or involuntarily employed part-time).

Two main messages arise from this analysis (Figure 4.24). First, a significant increase in under-employment helped to limit the extent of labour shedding during the recession. Hence, the headline employment performance may give a flattering picture of households' employment and income experience during the downturn: many employees were working fewer hours than they would have wanted, and presumably this affected their income. Second, the increase in employment during the middle of 2010 was driven predominantly by part-time employment (and, in the third quarter, involuntary part-time employment growth made up half of the contribution). Thus, the robust recent headline jobs growth will probably deliver less of a boost to household income and consumption in the near term than one might have expected.

Figure 4.24. Contributions to overall employment growth



Sources: Haver Analytics; Barclays Capital.

### The outlook for demand

Taking all these issues together, and attempting to forecast aggregate demand – i.e. actual GDP – we end up with a modal forecast that is not too different from the OBR's central scenario or from the average consensus forecast. (Our numbers are detailed in Table 4.1.) The recovery is projected to continue, albeit with only moderate growth over the next several years. In that sense, the business cycle is turning out like a 'deformed V' – with disappointingly weak growth during the recovery given how sharp the pace of decline was during the recession.

The hangover of high public and household debts is evident in both the paring-back of government expenditures and the relatively weak growth in personal consumption spending. The corporate sector's relatively strong position permits business fixed investment to bounce back quite strongly. But low and stagnant productivity means that firms will grant only limited increases in wages. Indeed, there looks to be a good chance that 2011 witnesses the third successive year in which households' labour income will

fall in real terms. If so, then that would be an even longer period of falling real earnings than occurred in the mid-1970s.

The main difference between our forecast and the OBR's comes about because we have assumed both a slower speed limit for the economy and a smaller output gap (as discussed in Chapter 1). As a result, our cumulative growth projection over the period from 2011 to 2015 is about one-and-a-half percentage points lower than the OBR's. This is not a huge difference, especially when compared with the gap between our forecasts and the Treasury's a year ago. But it is not negligible.

Table 4.1. Barclays 'central case' scenario

<i>% changes year on year except where noted</i>	2009	2010	2011	2012	2013	2014	2015	2016
<b>Aggregate demand</b>								
Real GDP	-4.9	1.4	1.8	2.1	2.2	2.3	2.5	2.4
Personal consumption	-3.2	1.2	1.1	1.3	1.6	1.9	2.2	2.1
Fixed investment	-14.5	3.5	2.7	4.4	6.2	6.7	6.0	5.9
Govt consumption	1.0	1.3	-0.2	-1.4	-1.8	-2.4	-1.7	-1.2
Exports	-10.1	5.2	6.5	8.0	8.4	8.6	8.0	7.4
Imports	-11.9	7.7	3.9	4.9	6.1	6.7	6.6	6.6
<b>Inflation drivers</b>								
Unemployment rate (%)	7.7	8.0	8.9	9.2	9.3	9.1	8.9	8.7
Employment	-1.7	0.4	-0.1	0.3	0.4	0.8	0.8	0.7
Wages	1.4	2.3	2.0	2.4	3.4	4.1	5.0	5.6
Consumer prices (CPI)	2.2	3.4	3.7	1.9	2.1	2.0	2.0	2.0
Consumer prices (RPI)	-0.5	4.8	5.6	3.8	4.5	4.6	4.6	4.6
<b>Financial markets</b>								
Official rates (%)	0.5	0.5	1.0	1.5	2.5	3.5	4.5	5.0
10-year bond yields (%)	3.7	3.3	4.0	4.5	5.0	5.5	6.0	6.3
<b>Aggregate supply</b>								
Potential GDP	-0.6	0.8	2.0	1.8	1.8	1.8	1.8	1.8
Output gap (% of GDP)	-3.0	-2.4	-2.6	-2.2	-1.8	-1.2	-0.6	0.0

Notes: Financial market variables are end-of-period values. All data and forecasts are for calendar years.  
Source: Barclays Economics Research.

We see there being few upside risks to this forecast. Perhaps the output gap is a little bigger than what we estimate it to be – as the OBR is suggesting may be the case. Perhaps, too, the economy's potential GDP growth rate is a little higher than what we gauge it is – again as the OBR is reckoning. But this upside risk seems relatively limited. So our optimistic scenario, detailed in Table 4.2, does not look a lot different from our central one.

But there is a little more room for reasonable people to disagree about the state of the labour market. The surprisingly high employment, and surprisingly low unemployment, that have been a feature of the past year-and-a-half might reflect a more permanent shift in the relationship between growth and unemployment. (In other words, labour productivity, in terms of output per worker, might be lower.) What this means in terms of future wage deals and possible shifts in the labour share of national income is hard to say. But, in our optimistic scenario, we assume a more employment-friendly path for the economy, even though that might represent a less profit-friendly trajectory too.

We should highlight uncertainty regarding the growth–inflation trade-off. Given that it is tough providing a complete explanation for the inflation overshoot of recent times, it is always possible that the apparent deterioration in the growth–inflation trade-off turns out to be temporary. Indeed, in an optimistic scenario, it might be that 2012 – perhaps even 2011 – witnesses some payback for last year’s higher-than-expected price

Table 4.2. Barclays ‘optimistic’ scenario

<i>% changes year on year except where noted</i>	2009	2010	2011	2012	2013	2014	2015	2016
<b>Aggregate demand</b>								
Real GDP	–4.9	1.4	2.0	2.4	3.0	3.3	3.3	2.5
Personal consumption	–3.2	1.2	1.3	1.6	2.0	2.4	2.5	2.3
Fixed investment	–14.5	3.5	2.7	5.2	8.4	10.0	9.8	8.8
Govt consumption	1.0	1.3	–0.2	–1.4	–1.8	–2.4	–1.7	–1.2
Exports	–10.1	5.2	6.6	8.9	10.8	11.6	10.7	9.5
Imports	–11.9	7.7	4.2	5.9	7.9	9.5	9.7	10.5
<b>Inflation drivers</b>								
Unemployment rate (%)	7.7	8.0	8.5	8.9	9.0	9.0	8.8	8.6
Employment	–1.7	0.4	0.1	0.4	0.5	0.7	0.8	0.7
Wages	1.4	2.3	2.2	2.9	4.1	4.5	5.0	5.5
Consumer prices (CPI)	2.2	3.4	3.8	2.1	2.5	2.2	2.0	2.0
Consumer prices (RPI)	–0.5	4.8	5.6	4.3	5.0	4.8	4.7	4.7
<b>Financial markets</b>								
Official rates (%)	0.5	0.5	1.0	2.0	3.0	4.0	5.0	6.0
10-year bond yields (%)	3.7	3.3	4.5	5.2	6.0	6.7	7.3	8.0

Notes: Financial market variables are end-of-period values. All data and forecasts are for calendar years.

Source: Barclays Economics Research.

Table 4.3. Barclays ‘pessimistic’ scenario

<i>% changes year on year except where noted</i>	2009	2010	2011	2012	2013	2014	2015	2016
<b>Aggregate demand</b>								
Real GDP	–4.9	1.4	0.9	0.9	1.5	1.8	1.8	1.9
Personal consumption	–3.2	1.2	0.0	0.7	1.6	1.8	1.9	2.0
Fixed investment	–14.5	3.5	0.4	0.3	2.6	4.0	4.4	4.2
Govt consumption	1.0	1.3	–0.2	–1.4	–1.8	–2.4	–1.7	–1.2
Exports	–10.1	5.2	5.1	5.3	6.2	6.9	6.2	5.9
Imports	–11.9	7.7	2.6	2.9	4.4	5.2	5.3	5.3
<b>Inflation drivers</b>								
Unemployment rate (%)	7.7	8.0	9.1	10.1	10.7	11.0	11.3	11.5
Employment	–1.7	0.4	–0.4	–0.6	–0.3	0.1	0.1	0.1
Wages	1.4	2.2	1.0	0.5	1.0	2.0	3.1	3.7
Consumer prices (CPI)	2.2	3.4	3.4	1.5	1.7	1.8	2.0	2.0
Consumer prices (RPI)	–0.5	4.8	5.4	3.5	3.8	4.0	4.4	4.6
<b>Financial markets</b>								
Official rates (%)	0.5	0.5	0.5	0.75	1.25	2.0	3.0	4.0
10-year bond yields (%)	3.7	3.3	3.6	3.8	4.0	4.2	4.6	5.0

Notes: Financial market variables are end-of-period values. All data and forecasts are for calendar years.

Source: Barclays Economics Research.

pressures. All in all, though, our optimistic scenario retains the flavour of our central one: in time, the Bank will be back on the straight and narrow, with inflation close to target and likely to stay that way.

Last of all, we briefly consider a 'bad' outcome, in which the economy fails to gather much momentum at all – despite, perhaps, additional efforts from the authorities to help bolster demand. The value in any particular set of figures in this sort of scenario is limited, as it is possible to tell any number of stories not just about what goes wrong but about how they interact. In the worst of all possible worlds, the UK could end up in a scenario where the ratings agencies downgrade its debt and a further dose of fiscal tightening ends up pushing it into a mini-Greek-style 'double dip'. However, we put the chances of that happening as low. Rather more likely, we suspect, is a situation in which the economy just lacks energy and 'goes nowhere' for a while. Table 4.3 illustrates the sort of situation that we mean. The chances of a 'double dip', whether great or small, we assess to be small – perhaps about one in five. More important, we believe, is the fact that the much more likely outcome is a sluggish recovery. Such an out-turn could have serious implications for the public finances, as detailed in Chapter 5.

### 4.3 Inflation prospects

CPI inflation was 3% or higher throughout 2010 and has been above the government's 2% target in 52 of the past 66 months. At 3.7% in December 2010, it was still substantially lower than the 5.2% peak seen in September 2008. However, whereas in 2008 inflation was driven almost exclusively by rising energy and food prices, inflationary pressures at present are broadly based. For example, clothing and footwear inflation is at its highest level for nearly 20 years and inflation across a range of consumer services has risen.

The overshoots of the inflation target have not gone unnoticed. According to the Bank of England's own survey of the general public, inflation expectations have risen. The rise in inflation expectations has not just been at the one-year horizon, which, given the historical stickiness of inflation, might be expected to correlate closely to the prevailing inflation rate, but also at horizons of two and five years. In addition, so-called 'break-even' inflation rates from bond markets, which measure the implied rate of inflation that would cause the yield on inflation-protected bonds to equal that on an otherwise identical unprotected bond, have increased recently.

Rising inflation expectations are a concern because conventional economic analysis suggests that they can become self-fulfilling. For example, if households expect higher inflation, they will bargain harder for larger nominal pay increases to maintain their expected standard of living. Higher wages (themselves a price) will add to firms' costs and ultimately be passed through into final prices, potentially generating the dreaded 'wage-price spiral'.

The Bank of England has not, however, responded to these developments with tighter monetary policy. On the contrary, the Monetary Policy Committee (MPC) has held policy on an ultra-loose setting and has so far faced down critics who have questioned the Bank's commitment to the inflation target.

The Bank of England's contention is that the rise in inflation is temporary. The Bank believes that much of the recent increase can be attributed to the increase in the main rate of VAT from 17½% to 20% (which would add about 1.4% to the CPI if there were full

pass-through to prices) and the effects of one-off increases in import prices, the latter partly reflecting the fall in sterling since the onset of the financial crisis.<sup>30</sup> The Bank argues that underlying inflationary pressures are weak because the recession has left the economy with a large amount of spare capacity: even if households were to expect higher inflation, there is too much unemployment for high pay claims to be sustained and for a wage-price spiral to take hold. The Bank of England therefore predicts that when the temporary impulses drop out of the annual inflation rate, which should be around the end of this year, inflation is likely to fall below the 2% target.

We agree with the Bank of England's analysis in broad terms. We agree that much of the current high rate of inflation can be accounted for by one-off price-level shocks that are unlikely to persist, and that the subdued demand outlook means that inflation is unlikely to be a problem in the medium term. We are less convinced than the Bank of England that inflation will fall significantly below target next year, however, and we forecast an outcome that is close to the 2% target. The latter is likely to reflect two of our judgements: first, that the amount of spare capacity in the economy is less than the Bank of England supposes (although, as the Bank is not explicit about its estimate of the degree of spare capacity, we cannot be certain on this point); and, second, that there is some, albeit small, pass-through from higher inflation expectations to pay claims.

The key issue for our forecast is whether there is likely to be a shift in the Bank of England's policy stance. One question is whether the Bank would enact a 'tactical' one-off rate hike, designed to demonstrate that it is concerned about inflationary developments but without doing any great harm to the growth outlook. We think this is unlikely, as the Bank has in the past spoken out against such 'fine tuning'. Moreover, the Bank of England's credibility worries have two sides to them. A failure to respond to persistent overshoots of the inflation target may well be damaging to the Bank's credibility. However, a premature policy tightening that significantly dented growth prospects could be equally damaging to perceptions of the Bank's ability.

There is also the issue of which risk the Bank of England is better placed to respond to. If inflation were to confound the Bank's forecast and remain high, policy could be tightened rapidly. However, if inflation were to drop suddenly, with the policy rate at an all-time low of 0.5% and asset purchases already some 14% of annual national income, then it is not clear the Bank would have the scope to loosen policy much further. These considerations lead us to expect that the Bank will resist pressure for a near-term rate hike, and that policy tightening is more likely to begin in the latter part of the year, assuming the economy is demonstrably robust.

High inflation has one important implication, however, which is that it may constrain the Bank of England's ability to provide further support to the economy in the event of another adverse shock to aggregate demand. The government has insisted that if the economy were to slow, it would be monetary policy, and not fiscal policy, that would need to adjust. However, with the Bank of England's credibility already under scrutiny, there must be a question mark over the degree to which such support would be forthcoming. As a result, it may be wise for the government to have a contingency plan for 'trimming the

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<sup>30</sup> In fact, in its latest *Inflation Report*, the Bank seems to side with ONS evidence that suggests that only about half of the VAT-induced cost shifts are passed on to consumers. For details, see 'Costs and prices', chapter 4 of the November 2010 report (<http://www.bankofengland.co.uk/publications/inflationreport/irlatest.htm>).

sails', holding back on tax increases and/or delaying spending cuts to ensure that poor growth out-turns in the short run do not sink the longer-term fiscal consolidation plan.

## 4.4 Conclusion

Last year turned out to be a fairly positive one from a growth point of view, with the economic recovery having gained vigour, even if it turned out that growth was still pretty meagre compared with the sharp decline that occurred during the financial crisis and subsequent recession. (Usually, economies bounce back more energetically than the UK has done so on this occasion.)

More worryingly, however, this growth pickup came hand in hand with a significantly higher-than-expected inflation rate that was well above the Bank of England's 2% target. The fact that inflation has been higher than target, and higher than the Bank predicted it would be, for some time has meant that confidence in the MPC's ability to deliver the inflation target has been eroded slightly. As a result, one of the main policy actors has, in effect, been put out of action, or at least left in such a position that its reaction function has become asymmetric. A hike in interest rates is feasible if the economy roars and inflation soars, but, were the economy to hit a big bump in the road – say in the form of a second quarter of outright contraction – the Bank would find it tough to provide additional support, say through another dose of quantitative easing.

The chances of such a scenario developing are not insignificant. This chapter has tried to show that there are rather more downside risks to our 'central case' scenario – which looks quite a lot like most other people's, in as much as it posits that the recovery will continue – than there are upside ones. (Of the five issues we have examined in this chapter, only one – the possibility of a stronger-than-expected investment boom – seems to be skewed slightly towards more positive outcomes than in our main scenario.) So, all in all, it appears that the authorities ought to consider, if not a 'Plan B', then at least the possibility that they might need to nudge the economy towards a more favourable growth trajectory.

One potential means of doing this was demonstrated, though hardly noticed, last November, when the OBR produced its updated (November) forecasts. For, although the Treasury let it be known that this was not considered a 'fiscal event' – i.e. a significant enough adjustment to the OBR's forecasts that the government deemed it necessary to adjust its tax or spending policies – the OBR's new forecasts for real government consumption were in fact higher than its old ones (which were contained in its previous forecasts, as part of the Budget and laid out again in the Spending Review) and its forecasts for transfers lower. In effect, the decision had been taken to push out the coming consumption tightening a little, so that it came a bit later and gave the recovery greater time to gather momentum, and hopefully garner sufficient impetus to be able to ride through it. Were any of the downside risks that we have examined in detail to materialise during 2011, a further dose of postponement of the fiscal tightening might well be in order.



## 5. Green Budget public finance forecasts

Rowena Crawford, Carl Emmerson and Gemma Tetlow (IFS)

### Summary

- We expect both public sector net borrowing and the current budget deficit in 2010–11 to be £2.9 billion, or 0.2% of national income, smaller than the Office for Budget Responsibility (OBR) forecast in November 2010.
- Assuming that the economy evolves largely as the OBR expects, in the medium term we are around 0.2% of national income more optimistic than the OBR about the current budget balance, the cyclically-adjusted current budget balance and public sector net borrowing. We forecast that the current budget balance will improve from a deficit of 7.0% of national income in 2010–11 to a surplus of 0.5% of national income in 2015–16. Of this 7.5% of national income forecast reduction in the current budget deficit, 6.2% of national income is forecast to come from a fall in current spending as a share of national income and 1.3% of national income from an increase in the tax burden.
- We forecast that the cyclically-adjusted current budget balance will improve from a deficit of 4.5% of national income in 2010–11 to a surplus of 1.1% of national income in 2015–16. Our forecast therefore implies that current policy is consistent with the Chancellor’s fiscal mandate. We also forecast that, under this scenario, net debt would peak at 69.3% of national income in 2013–14, before falling in 2014–15 and 2015–16, suggesting that the Chancellor’s supplementary target would be on course to be met.
- Despite our slightly more optimistic outlook for the public finances than that of the OBR, there are large downside risks. If the economy were to evolve along the Barclays central scenario, we forecast that the cyclically-adjusted current budget would still be in deficit in 2015–16, albeit by only 0.4% of national income. Under this scenario, current policy would not be consistent with the Chancellor’s fiscal mandate. Even under the Barclays ‘optimistic’ scenario for the economy, our fiscal forecasts are only just in line with the OBR’s fiscal forecasts. This is because the composition of growth in this scenario is more skewed towards components that are taxed less heavily than in the OBR macroeconomic forecast. Under the Barclays ‘pessimistic’ scenario, the cyclically-adjusted current budget in 2015–16 is forecast to be in deficit by 2.2% of national income and public sector debt is forecast to be at 90.5% of national income and still rising.
- The case seems strong for the March 2011 Budget to contain no significant permanent net giveaways or takeaways. Any improvements in the public finances relative to the OBR’s forecasts, such as those implied by our Green Budget baseline forecast, might best be banked to give the government additional headroom against a future worse outlook for the economy or the public finances or a need to top up its challenging plans for cuts to spending on public services. Although there may be no need to implement an alternative plan at this stage, with such large downside risks to the public finances, having alternative plans to hand could prove useful.



## 5.1 Introduction

A large fiscal tightening is required over the medium term to narrow the gap between public spending and government revenues in order bring the UK's public finances back to a sustainable position. The government has announced tax increases and spending cuts over the next five years to bring this about, as shown in Figure 2.1 of Chapter 2. This chapter presents the IFS Green Budget fiscal forecasts and discusses them in the context of George Osborne's new fiscal mandate and supplementary target (also described in Chapter 2).

We start in Section 5.2 by comparing last year's Green Budget forecasts for receipts, spending and borrowing in 2009–10 with the latest estimated out-turns and examine how our forecasting errors compare with those made by the Treasury in its December 2009 Pre-Budget Report (PBR). Section 5.3 then presents the 2011 Green Budget forecasts, using as a baseline the assumption that the economy evolves over the next five years largely as the Office for Budget Responsibility (OBR) forecast in its November 2010 *Economic and Fiscal Outlook*. Under this scenario, we forecast that tax revenues will be slightly stronger in the medium term than the OBR forecasts, although the differences are small relative to the size of the planned fiscal tightening. Section 5.4 compares our baseline forecasts with forecasts based on the alternative macroeconomic assumptions outlined by Barclays in Chapter 4. Section 5.5 concludes with what these projections imply for the 2011 Budget judgement.

## 5.2 Errors in forecasting borrowing for 2009–10

In 2009–10, receipts came in £15.7 billion higher than the Treasury had forecast in its 2009 Pre-Budget Report and £8.6 billion higher than we forecast in the February 2010 Green Budget, as shown in Table 5.1. The forecasting errors made by both the Treasury and last year's Green Budget on the receipts for individual taxes are shown in Table A.2 of Appendix A. The forecasting errors made in last year's Green Budget (which had the

**Table 5.1. Comparisons of forecasts for government borrowing, 2009–10**

<i>£ billion</i>	<b>HM Treasury, PBR forecast, December 2009</b>	<b>IFS Green Budget forecast, February 2010</b>	<b>Estimate, OBR, November 2010</b>
Current receipts	498.1	505.2	513.8
Current expenditure <sup>a</sup>	626.2	623.0	620.4
Surplus on current budget	–128.1	–117.7	–106.6
Net investment	49.5	49.5	49.4
Total Managed Expenditure	675.7	672.5	669.8
Public sector net borrowing	177.6	167.2	156.0

a. In line with the National Accounts, depreciation has been included as current expenditure.

Note: Figures shown in this table exclude the temporary effects of financial interventions.

Sources: Out-turn figures from Office for Budget Responsibility, *Economic and Fiscal Outlook*, November 2010 (<http://budgetresponsibility.independent.gov.uk/econ-fiscal-outlook.html>). Forecasts from HM Treasury, *Pre-Budget Report*, December 2009

([http://webarchive.nationalarchives.gov.uk/20100407010852/http://www.hm-treasury.gov.uk/prebud\\_pbr09\\_repindex.htm](http://webarchive.nationalarchives.gov.uk/20100407010852/http://www.hm-treasury.gov.uk/prebud_pbr09_repindex.htm)) and table 6.2 of R. Chote, R. Crawford, C. Emmerson and G. Tetlow, 'Green Budget public finance forecasts', in R. Chote, C. Emmerson and J. Shaw (eds), *The IFS Green Budget: February 2010*, IFS Commentary C112 (<http://www.ifs.org.uk/budgets/gb2010/10chap6.pdf>).

benefit of access to two months' additional out-turn data) were smaller than those made by the Treasury for all the major taxes.

The out-turn for current spending was £5.8 billion lower than the Treasury forecast and £2.6 billion lower than we had forecast. As a result of the higher-than-forecast receipts and lower-than-forecast spending, the current budget deficit was ultimately £21.5 billion smaller than the Treasury had forecast and £11.1 billion smaller than we had forecast. With investment spending coming in just £0.1 billion below both the Treasury's and our forecast, total borrowing was £21.6 billion lower than the Treasury forecast and £11.2 billion lower than we forecast.

For further details on the components of these forecasts and out-turns, see Appendix A.

### 5.3 Baseline forecasts

The IFS Green Budget baseline fiscal forecasts assume that the economy evolves over the next five years largely as the OBR forecast in its November 2010 *Economic and Fiscal Outlook*. While growth in 2010–11 is likely to undershoot this forecast given the estimated decline in national income in the fourth quarter of 2010, our estimates for the strength of the public finances in the current year are heavily based on the pattern of actual receipts and spending so far this year. Lower growth than expected at the end of 2010 does not necessarily imply lower growth going forwards, and it could imply higher growth than the OBR forecast – in particular to the extent to which it was caused by one-off factors such as adverse weather conditions. Additional detail on our methodology can be found in Appendix A.

#### Borrowing in 2010–11

Table 5.2 provides an overview of the OBR forecasts and Green Budget baseline forecasts for key fiscal aggregates in the current financial year. The 2011 Green Budget forecast for 2010–11 is that receipts will be £2.9 billion higher than was forecast by the OBR in November 2010, while we expect both current and investment spending to come in as forecast by the OBR. Consequently, we forecast that the current budget deficit and public sector net borrowing will both be £2.9 billion lower than was forecast by the OBR last November. The Green Budget baseline forecast is for a current budget deficit of £103.3 billion and public sector net borrowing totalling £145.6 billion, compared with the OBR's forecasts of £106.2 billion and £148.5 billion respectively.

Table 5.2. Comparisons of forecasts for government borrowing, 2010–11

<i>£ billion</i>	<b>OBR November 2010</b>	<b>Green Budget February 2011</b>	<b>Difference</b>
Current receipts	549.7	552.6	+2.9
Current expenditure <sup>a</sup>	655.9	655.9	0.0
Surplus on current budget	-106.2	-103.3	+2.9
Net investment	42.3	42.3	0.0
Total managed expenditure	698.2	698.2	0.0
Public sector net borrowing	148.5	145.6	-2.9

a. In line with the National Accounts, depreciation has been included as current expenditure.

Note: Figures shown in this table exclude the temporary effects of financial interventions.

Source: OBR forecasts from Office for Budget Responsibility, *Economic and Fiscal Outlook*, November 2010 (<http://budgetresponsibility.independent.gov.uk/econ-fiscal-outlook.html>).

### Receipts in 2010–11

Between the June 2010 Budget and the November 2010 *Economic and Fiscal Outlook*, the OBR revised upwards its forecast for receipts by £2.0 billion. This was the combined effect of relatively small revisions (both upwards and downwards) for a number of taxes and other government receipts. We forecast that receipts will be a further £2.9 billion higher than was forecast by the OBR in November.

Table 5.3 shows the forecasts for receipts in 2010–11 broken down into the constituent taxes. For most taxes, we forecast receipts in 2010–11 to be in line with the OBR's forecasts. The most significant – though all still individually small – differences between our forecast and the OBR's are for income tax, National Insurance contributions (NICs), VAT, corporation tax and fuel duties.

The IFS Green Budget baseline forecast is that income tax revenues and NICs receipts will both be £1.5 billion higher this year than the OBR forecast. Our relative optimism is based on three factors. First, growth in employment and earnings this year would suggest, at least according to our model, that receipts from both of these taxes should grow more strongly than the OBR is predicting. Second, growth in receipts of these taxes so far this financial year has also been slightly stronger than implied by the OBR's forecast. Third, we also forecast some further acceleration in the growth of receipts in the final three months, particularly as higher bonuses return in the financial sector – driven both by increasing profitability and the removal of the temporary bank payroll tax, which was in place last year. Income tax owed on bonus payments made in January that is collected through the Pay-As-You-Earn (PAYE) system will show up in January's income tax receipts. The first estimated out-turn for these receipts is scheduled to be published by the Office for National Statistics (ONS) on 22 February 2011.

We forecast that VAT revenues will be £0.5 billion below those forecast by the OBR. Our model suggests that – based on the OBR's forecasts for consumer spending growth this year – VAT revenues (excluding VAT refunds) should come in above the OBR forecast, at £88.3 billion rather than £84.9 billion. However, growth in receipts of VAT so far this year has been somewhat weaker than the latest OBR forecast for VAT receipts suggests for the year as a whole. Assuming the OBR is correct about the scale of VAT refunds this year, the current receipts data so far this year suggest VAT receipts (excluding VAT refunds) will be just £82.3 billion in 2010–11. In addition, the year-on-year growth rate in VAT receipts has slowed in the two months since the OBR forecast was published, possibly reflecting the relatively bad weather towards the end of 2010. Therefore we project that VAT receipts will come in at £98.0 billion (including VAT refunds), £0.5 billion below the £98.5 billion projected by the OBR.

Since the OBR published its latest forecast, oil prices have risen substantially faster than it assumed – oil is now about £12 a barrel more expensive than it was in late November 2010. We expect this to have an impact on corporation tax receipts. Specifically, we forecast that the price rise will increase offshore corporation tax revenues (i.e. revenues derived from companies extracting oil and gas in UK coastal waters) by £1.4 billion both this year and next, while depressing onshore corporation tax receipts (by £1.0 billion this year and £1.7 billion next year).<sup>1</sup> As a result, we forecast corporation tax receipts will total £43.0 billion in 2010–11, £0.4 billion higher than forecast by the OBR.

<sup>1</sup> These calculations are based on the analysis in tables 1 and 2 (page 3) of Office for Budget Responsibility, *Assessment of the Effect of Oil Price Fluctuations on the Public Finances*, 14 September 2010 ([http://budgetresponsibility.independent.gov.uk/d/assessment\\_oilprice\\_publicfinances.pdf](http://budgetresponsibility.independent.gov.uk/d/assessment_oilprice_publicfinances.pdf)).

We forecast fuel duties will yield £0.4 billion less revenue this year than forecast by the OBR. This judgement is based on the output of our forecasting model, coupled with the fact that the recent rise in the oil price has led to higher pump prices which in turn will tend to depress revenues from fuel duties as consumers respond by purchasing less fuel.

Table 5.3. Comparison of forecasts for tax receipts, 2010–11 and 2011–12

<i>£ billion</i>	2010–11		2011–12	
	<i>OBR Nov 2010</i>	<i>Green Budget Feb 2011</i>	<i>OBR Nov 2010</i>	<i>Green Budget Feb 2011</i>
Income tax (net of tax credits)	145.5	147.0	151.8	152.3
National Insurance contributions (NICs)	98.5	100.0	102.8	105.0
Value added tax (VAT) <sup>a</sup>	98.5	98.0	115.2	112.7
Corporation tax (net of tax credits)	42.6	43.0	44.6	46.0
Petroleum revenue tax	1.5	1.5	1.6	1.6
Fuel duties	27.7	27.3	29.3	28.5
Business rates	23.8	23.8	25.6	25.2
Council tax	25.7	25.7	26.1	26.1
Capital gains tax	2.8	2.9	3.2	3.8
Inheritance tax	2.7	2.7	2.7	2.9
Stamp duties	9.1	9.1	9.7	9.6
Tobacco duties	9.4	9.4	9.4	9.8
Spirits duties	2.6	2.6	2.5	2.7
Wine duties	3.2	3.2	3.3	3.4
Beer and cider duties	3.7	3.7	3.8	3.8
Air passenger duty	2.2	2.2	2.6	2.5
Insurance premium tax	2.5	2.5	2.8	2.8
Customs duties	3.0	3.0	3.1	3.1
Betting and gaming taxes	1.5	1.5	1.5	1.6
Landfill tax	1.2	1.2	1.3	1.4
Climate change levy	0.7	0.7	0.7	0.8
Aggregates levy	0.3	0.3	0.3	0.3
Vehicle excise duties	5.9	5.7	5.9	5.7
Temporary bank payroll tax / Bank levy <sup>b</sup>	3.5	3.5	1.2	1.2
Other taxes <sup>c</sup>	9.0	9.0	10.3	10.3
<b>National Accounts taxes</b>	<b>526.7</b>	<b>529.7</b>	<b>561.5</b>	<b>563.2</b>
Less Own resources contribution to EU budget	−4.9	−4.9	−4.9	−4.9
Interest and dividends	3.8	3.8	4.7	4.7
Other receipts <sup>d</sup>	24.0	24.0	25.0	25.0
<b>Current receipts</b>	<b>549.7</b>	<b>552.6</b>	<b>586.2</b>	<b>588.0</b>

a. Includes VAT refunds.

b. Includes both revenues from the temporary bank payroll tax introduced by the Labour government and the new, permanent bank levy announced in the June 2010 Budget.

c. Includes licence fee receipts and environmental levies.

d. Includes gross operating surplus of public corporations.

Notes: Figures for tax receipts in this table are on an accruals basis. Figures shown in this table exclude the temporary effects of financial interventions.

Sources: OBR forecasts from Office for Budget Responsibility, *Economic and Fiscal Outlook*, November 2010

(<http://budgetresponsibility.independent.gov.uk/econ-fiscal-outlook.html>); this table is similar to table 4.6 on page 91 and also uses public finances supplementary table 1.2. Authors' calculations.

### Spending in 2010–11

As mentioned above, we expect that current spending for the year as a whole will be as forecast by the OBR in November 2010. So far this financial year, most of the components of central government current spending have evolved largely as the OBR forecast for the financial year as a whole. The one exception to this has been the growth in debt interest payments. Debt interest spending has grown by 55% so far this year, compared with the OBR forecast of 38% growth over the year as a whole.<sup>2</sup> However, debt interest payments depend almost entirely on the stock of gilts already in issuance and (in the case of index-linked gilts) on inflation out-turns from previous months. All of this information would have been available to the OBR at the time it produced its latest forecasts and we therefore have no reason to question its forecast for this item of spending.

Net investment spending by the public sector has also fallen more quickly so far this year than the OBR forecast for the year as a whole. Over the period from April 2010 to December 2010, public sector net investment spending was 19.7% lower than it was over the same period in 2009. The OBR forecast that, over the whole of 2010–11, net investment spending would be 9.2% below its 2009–10 level. Nonetheless, our judgement is that public sector net investment for the year as a whole will be in line with the OBR's forecast of £42.3 billion. In part, this is because investment spending is inherently lumpy and therefore is less likely to evolve smoothly over the financial year than other components of spending. It is also the case that, at the same time last year, investment spending was not in line with the forecast growth for the year as a whole but, as shown in Table 5.1, the December 2009 PBR forecast proved very accurate.

We therefore expect Total Managed Expenditure (TME) in 2010–11 to be as forecast by the OBR, £698.2 billion.

### Medium-term prospects

As just discussed, in 2010–11 we forecast borrowing to be £2.9 billion (or 0.2% of national income) lower than forecast by the OBR in November 2010. In 2011–12, the gap between our forecast and the OBR's narrows slightly to £1.9 billion (or 0.1% of national income). Our forecast for spending in 2011–12 is just £0.1 billion lower than the OBR's, as we forecast fractionally lower debt interest spending resulting from our slightly lower forecast level of borrowing in 2010–11. On the receipts side, our forecast is that – on average – receipts will grow a little less quickly in 2011–12 than the OBR is forecasting (though from a higher base). This overall effect includes receipts from some taxes growing faster under our forecasts than the OBR's, but receipts from others growing less quickly. The gap between the OBR's forecast of receipts and ours therefore narrows somewhat in 2011–12. Table 5.3 provides a detailed breakdown of our receipts forecasts for 2011–12.

Over the medium term, we forecast the gap between our borrowing forecast and the OBR's will close between 2011–12 and 2014–15 but then widen to 0.2% of national income in 2015–16. Forecasts for the key fiscal aggregates under both our baseline Green Budget forecast and the OBR's November 2010 forecast are shown in Table 5.4 (in billions of pounds) and Table 5.5 (as a percentage of national income). These differences

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<sup>2</sup> Latest out-turns from Office for National Statistics, 'Public sector finances: December 2010' (<http://www.statistics.gov.uk/pdfrdir/psf0111.pdf>). Forecasts from Office for Budget Responsibility, *Economic and Fiscal Outlook*, November 2010 (<http://budgetresponsibility.independent.gov.uk/econ-fiscal-outlook.html>).

in forecast borrowing are very small relative to the uncertainties around both forecasts, judging from past forecasting performance.

We forecast the current budget will move from a deficit of 7.0% of national income this year to a surplus of 0.5% of national income in 2015–16. Of this 7.5% of national income improvement, 1.3% of national income (or £19 billion in today's terms) comes from an increase in the tax burden and 6.2% of national income (or £92 billion in today's terms) from a fall in current spending. Over the same period, the OBR forecasts the same increase in the tax burden and the same fall in spending.

The Chancellor's fiscal mandate (discussed in detail in Chapter 2) requires that the cyclically-adjusted current budget should be forecast to be in balance or surplus at the end of the forecast horizon. Our baseline forecast is for a cyclically-adjusted current budget surplus of 1.1% of national income in 2015–16. This is slightly larger than the 0.9% of national income surplus forecast by the OBR at the time of its Autumn Forecast in November 2010 and than the 0.8% of national income surplus forecast by the OBR at the time of the June 2010 Budget.

The Chancellor's supplementary fiscal target (also discussed in more detail in Chapter 2) requires that debt be falling as a share of national income between 2014–15 and 2015–16. With our baseline forecast being for slightly lower borrowing in each of the next five years than was forecast by the OBR, our baseline forecast for debt is that it will peak slightly lower than the OBR forecasts – at 69.3% of national income rather than 69.7% – in 2013–14. We forecast that there will be a 1.7 percentage point decline in debt as a share of national income between 2014–15 and 2015–16; this is slightly larger than the 1.6 percentage point decline forecast by the OBR in its November 2010 Autumn Forecast.

Table 5.4. Medium-term public finance forecasts under OBR November 2010 assumptions: £ billion

<i>£ billion</i>	2010–11	2011–12	2012–13	2013–14	2014–15	2015–16
<b>Green Budget forecasts</b>						
<i>Current budget</i>						
Current receipts	552.6	588.0	620.6	659.8	698.6	737.9
Current expenditure <sup>a</sup>	655.9	672.7	684.0	695.8	708.9	728.4
<b>Surplus on current budget</b>	<b>-103.3</b>	<b>-84.7</b>	<b>-63.4</b>	<b>-35.9</b>	<b>-10.3</b>	<b>9.5</b>
<i>Capital budget</i>						
Net investment	42.3	30.9	27.1	23.3	23.8	24.1
<b>Public sector net borrowing</b>	<b>145.6</b>	<b>115.6</b>	<b>90.5</b>	<b>59.2</b>	<b>34.1</b>	<b>14.6</b>
<b>OBR forecasts</b>						
<i>Current budget</i>						
Current receipts	549.7	586.2	620.3	659.1	698.0	734.6
Current expenditure <sup>a</sup>	655.9	672.8	684.1	696.0	709.2	728.7
<b>Surplus on current budget</b>	<b>-106.2</b>	<b>-86.6</b>	<b>-63.8</b>	<b>-36.9</b>	<b>-11.2</b>	<b>5.9</b>
<i>Capital budget</i>						
Net investment	42.3	30.9	27.1	23.4	23.8	24.1
<b>Public sector net borrowing</b>	<b>148.5</b>	<b>117.5</b>	<b>91.0</b>	<b>60.2</b>	<b>35.0</b>	<b>18.3</b>
<b>Difference in borrowing forecasts (GB–OBR)</b>	<b>-2.9</b>	<b>-1.9</b>	<b>-0.4</b>	<b>-1.1</b>	<b>-0.9</b>	<b>-3.6</b>

a. In line with the National Accounts, depreciation has been included as current expenditure.

Sources: Authors' calculations. OBR forecasts from Office for Budget Responsibility, *Economic and Fiscal Outlook*, November 2010 (<http://budgetresponsibility.independent.gov.uk/econ-fiscal-outlook.html>).



Table 5.5. Medium-term public finance forecasts under OBR November 2010 assumptions: % of national income

<i>% of national income</i>	2010–11	2011–12	2012–13	2013–14	2014–15	2015–16
<b><i>Green Budget forecasts</i></b>						
<i>Current budget</i>						
Current receipts	37.3	37.9	38.1	38.3	38.4	38.5
Current expenditure <sup>a</sup>	44.2	43.4	42.0	40.4	39.0	38.0
<b>Surplus on current budget</b>	<b>-7.0</b>	<b>-5.5</b>	<b>-3.9</b>	<b>-2.1</b>	<b>-0.6</b>	<b>0.5</b>
<b>Cyclically-adjusted surplus on current budget</b>	<b>-4.5</b>	<b>-3.2</b>	<b>-1.8</b>	<b>-0.4</b>	<b>0.6</b>	<b>1.1</b>
<i>Capital budget</i>						
Net investment	2.9	2.0	1.7	1.4	1.3	1.3
<b>Public sector net borrowing</b>	<b>9.8</b>	<b>7.5</b>	<b>5.6</b>	<b>3.4</b>	<b>1.9</b>	<b>0.8</b>
<b>Cyclically-adjusted public sector net borrowing</b>	<b>7.4</b>	<b>5.2</b>	<b>3.5</b>	<b>1.8</b>	<b>0.7</b>	<b>0.1</b>
<b>Public sector net debt</b>	<b>60.6</b>	<b>66.0</b>	<b>68.8</b>	<b>69.3</b>	<b>68.4</b>	<b>66.7</b>
<b><i>OBR forecasts</i></b>						
<i>Current budget</i>						
Current receipts	37.1	37.8	38.1	38.3	38.4	38.3
Current expenditure <sup>a</sup>	44.2	43.4	42.0	40.4	39.0	38.0
<b>Surplus on current budget</b>	<b>-7.2</b>	<b>-5.6</b>	<b>-3.9</b>	<b>-2.1</b>	<b>-0.6</b>	<b>0.3</b>
<b>Cyclically-adjusted surplus on current budget</b>	<b>-4.7</b>	<b>-3.3</b>	<b>-1.8</b>	<b>-0.5</b>	<b>0.5</b>	<b>0.9</b>
<i>Capital budget</i>						
Net investment	2.9	2.0	1.7	1.4	1.3	1.3
<b>Public sector net borrowing</b>	<b>10.0</b>	<b>7.6</b>	<b>5.6</b>	<b>3.5</b>	<b>1.9</b>	<b>1.0</b>
<b>Cyclically-adjusted public sector net borrowing</b>	<b>7.6</b>	<b>5.3</b>	<b>3.5</b>	<b>1.9</b>	<b>0.8</b>	<b>0.3</b>
<b>Public sector net debt</b>	<b>60.8</b>	<b>66.3</b>	<b>69.1</b>	<b>69.7</b>	<b>68.8</b>	<b>67.2</b>
<b><i>Difference in borrowing forecasts (GB–OBR)</i></b>	<b>-0.2</b>	<b>-0.1</b>	<b>0.0</b>	<b>-0.1</b>	<b>0.0</b>	<b>-0.2</b>

a. In line with the National Accounts, depreciation has been included as current expenditure.

Sources: Authors' calculations. OBR forecasts from Office for Budget Responsibility, *Economic and Fiscal Outlook*, November 2010 (<http://budgetresponsibility.independent.gov.uk/econ-fiscal-outlook.html>).

### *Spending in the medium term*

Our baseline forecast is for a similar level of growth in spending over the next five years to that forecast by the OBR. We forecast slightly lower growth in current spending as our lower forecast borrowing feeds through into slightly lower debt interest spending.

The 2010 Spending Review set out detailed spending plans for the next four years, 2011–12 to 2014–15. In theory, the Spending Review set firm limits for departmental programme expenditure for each of the next four years. We assume that, in aggregate, these spending totals for Whitehall departments are met in cash terms.

As discussed in detail in Chapter 6, the plans for public service spending over the next four years are very tight, and one risk to the public finances is that these are not delivered. However, as also described in Chapter 6, when spending was cut during the early 1990s the government at the time was able to keep to its cash spending totals.

There are, though, two important caveats to this. First, the current government intends to

implement cash cuts to planned spending, whereas this was not the case in the early 1990s. Second, while the previous spending plans were adhered to in cash terms, lower-than-expected inflation meant that the government's intended real cut to spending took longer to materialise than initially envisaged. Higher-than-expected inflation would, if the cash plans were kept to, lead to deeper real cuts in public spending; while this could make implementing the cash spending plans less palatable, it might nonetheless help strengthen the public finances further.

One specific risk, related to inflation, to the current government's ability to adhere to its existing spending plans is the possible cost of David Cameron's public commitment to increase NHS spending in real terms in each of the next four years. As discussed in more detail in Chapter 6, the original Spending Review plans did imply a real-terms (i.e. after taking account of economy-wide inflation) increase for the NHS. However, the OBR has subsequently revised upwards its estimates for inflation over the next few years. This means that the cash spending plans set for the NHS last October now imply a small real-terms cut in budget, rather than an increase.

Our baseline forecast (and the alternative scenarios presented in Section 5.4) assumes that the government delivers the same real-terms increase in the NHS budget in each of the next four years as was planned in the Spending Review. In other words, in our baseline forecast, we increase the cash spending plans for the NHS (by £0.6 billion in 2011–12, rising to £0.7 billion in 2014–15) because inflation is now forecast by the OBR to be higher than was assumed at the time of the Spending Review. Under our baseline forecast, this does not actually increase total public spending because we assume that the government pays for this extra NHS spending out of the reserve that has already been set aside. This reserve amounts to £3.3 billion in 2011–12, rising slightly to £3.6 billion by 2014–15. However, using the reserve for this purpose would, of course, reduce the government's scope to absorb any other unexpected spending demands over the next few years. In all other areas, we assume that the government delivers its cash plans for departmental programme expenditure.

As our baseline forecast assumes that the economy evolves largely as the OBR expects, we forecast that spending on social security benefits and other non-debt-interest, non-departmental-programme spending is the same as forecast by the OBR. With lower borrowing in 2010–11 and in each of the next five years, our forecast for debt interest spending is slightly lower than the OBR forecasts. By 2014–15, we forecast that public sector gross debt interest payments will amount to £59.8 billion, rather than the £60.1 billion forecast by the OBR.

In 2015–16, we assume that total current spending is frozen in real terms, as is public sector net investment. This is in line with the government's stated intention to freeze real-terms public spending in that year.<sup>3</sup> Decisions over the split between different spending priorities will be made in the next Spending Review; as we argue in Chapter 6, it would be sensible for this Review to consider spending on welfare benefits alongside spending on public services, as was the case with the October 2010 Spending Review. Our forecast for lower debt interest and thus lower total current spending than forecast by the OBR in 2014–15 therefore feeds through into lower total spending in 2015–16. We forecast that current spending will be £728.4 billion in 2015–16, while net investment

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<sup>3</sup> Source: paragraph 1.37 (page 16) of HM Treasury, *Budget 2010*, June 2010 ([http://www.hm-treasury.gov.uk/junebudget\\_documents.htm](http://www.hm-treasury.gov.uk/junebudget_documents.htm)).

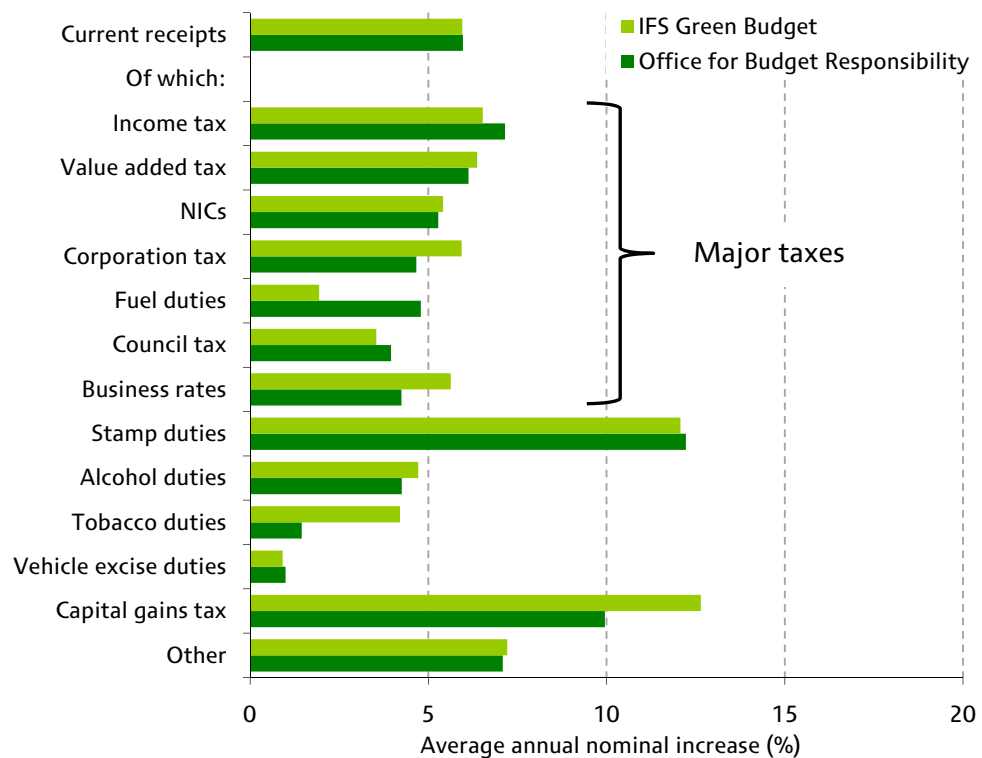


will be £24.1 billion (this is almost identical to the £728.7 billion and by assumption identical to the £24.1 billion, respectively, forecast by the OBR).

### Revenues in the medium term

On the receipts side, overall our baseline forecast is for the same growth in tax (and non-tax) revenues between 2010–11 and 2015–16 as that forecast by the OBR in November 2010 but, as mentioned above, from a slightly higher base. Between 2010–11 and 2015–16, we forecast that, in nominal terms, receipts will grow by 6.0% a year on average. This compares with assumed average annual growth in nominal national income of 5.3% a year.

Figure 5.1. OBR and IFS forecasts for revenue growth, 2010–11 to 2015–16



Notes: Income tax net of income tax credits; corporation tax net of company tax credits. VAT includes VAT refunds. Taxes ranked in descending order by amount that the *Economic and Fiscal Outlook: November 2010* forecasts suggest they will raise in 2015–16, with all taxes that are forecast to raise less than capital gains tax (£4.5 billion in 2015–16) included in ‘other’.

Sources: Authors’ calculations. OBR forecasts from Office for Budget Responsibility, *Economic and Fiscal Outlook*, November 2010 (<http://budgetresponsibility.independent.gov.uk/econ-fiscal-outlook.html>).

Figure 5.1 provides a breakdown of the forecast average annual growth rates for each of the largest taxes over the period from 2010–11 to 2015–16. For some of these taxes, we forecast higher growth than the OBR does, while for others we forecast lower growth. Amongst the major taxes, our forecast is for lower growth in income tax, council tax and – in particular – fuel duties, offset by higher growth in NICs, VAT, corporation tax and business rates.

Our forecast for income tax receipts is based on the OBR’s forecasts for growth in earnings and employment over the next few years, coupled with an assumption that the incomes of the highest-income 5% of income taxpayers (who contribute about a quarter

of total income tax revenues) will grow more strongly than the incomes of lower-income individuals in 2011–12.

In our baseline forecast, we assume that the unexpectedly high current oil price unwinds next year – that is, oil prices return to the level forecast by the OBR. Therefore, beyond 2011–12, we forecast that the boost to offshore corporation tax receipts and the (slightly larger) depression of onshore corporation tax receipts resulting from the high oil price, mentioned above, will also unwind. The forecast decline in oil and gas production over the next few years leads us to forecast a decline in receipts of offshore corporation tax, which offsets somewhat the growth in onshore corporation tax receipts.

Our forecast for fuel duties is based on the OBR's forecast for nominal earnings growth coupled with an estimate of the extent to which any increase in income feeds through into additional fuel purchases taken from a previous IFS study.<sup>4</sup>

Our forecasts for growth in tobacco duties and capital gains tax are different from the OBR's, but these taxes make up only a small part of total revenues (amounting to just 2% of total revenues in 2009–10). Our forecast for capital gains tax revenues is based on expected growth in property and equity prices, coupled with forecast increases in the volume of housing transactions. Our forecast for tobacco duty is based on the OBR's forecast for consumer spending growth over the medium term, coupled with an estimate of the extent to which any increase in spending will feed through into higher spending on tobacco taken from a previous government study.<sup>5</sup>

The forecasts we present here assume no further policy changes in addition to those already set out in the June 2010 Budget, the October 2010 Spending Review or previous Budgets and PBRs. However, there are some policy aspirations – for example, those outlined in the government's coalition agreement<sup>6</sup> drawn up in May – that would have implications for the public finances if implemented.

One high-profile example is stated in the section on taxation in the coalition agreement:

We will further increase the personal allowance to £10,000, making real terms steps each year towards meeting this as a longer-term policy objective. We will prioritise this over other tax cuts, including cuts to Inheritance Tax.

Deputy Prime Minister Nick Clegg recently wrote, in an article in *The Sun* on 11 January 2011, that this policy would be in place before the next election.<sup>7</sup> This would mean that it would need to be in place in the 2015–16 financial year at the latest.

The June 2010 Budget announced that the income tax personal allowance will be increased in cash terms by significantly more than the rate of inflation (from £6,475 to £7,475) in April 2011, with the income tax higher-rate threshold and the National

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<sup>4</sup> The elasticity of fuel purchases with respect to income is taken from L. Blow and I. Crawford, *The Distributional Effects of Taxes on Private Motoring*, IFS Commentary 65, 1997 (<http://www.ifs.org.uk/publications/1887>).

<sup>5</sup> The elasticity of tobacco consumption with respect to consumer spending is taken from M. Chambers, 'Consumers' demand and excise duty receipts equations for alcohol, tobacco, petrol and DERV', Government Economic Service, Working Paper 138, August 1999.

<sup>6</sup> See HM Government, *The Coalition: Our Programme for Government*, 2011 ([http://www.cabinetoffice.gov.uk/sites/default/files/resources/coalition\\_programme\\_for\\_government.pdf](http://www.cabinetoffice.gov.uk/sites/default/files/resources/coalition_programme_for_government.pdf)).

<sup>7</sup> See N. Clegg, *We'll help the alarm clock heroes keep Britain ticking*, *The Sun*, 11 January 2011 (<http://www.thesun.co.uk/sol/homepage/features/3341539/Well-help-the-Alarm-Clock-heroes-keep-Britain-ticking.html>).

Insurance upper earnings limit (UEL) both being cut to ensure that higher-income individuals do not gain from this change (for more details of the April 2011 planned changes, see Chapter 12). By 2015–16, we forecast that under current policy the personal allowance would be at £8,505. To increase this to £10,000, while clawing the gains back from higher-income individuals through reductions in the higher-rate threshold and the UEL, would reduce tax revenues by £4.8 billion. Offsetting this cost to the government slightly would be a knock-on reduction in spending on Child Benefit, Housing Benefit and Council Tax Benefit, which means that overall the policy would have a net cost to the government of £4.3 billion (in 2010–11 prices). The measure would have the advantage of taking about 1 million people out of income tax altogether, although it would also increase the number of higher-rate income taxpayers by about 850,000.<sup>8</sup> Incorporating this policy into our forecasts would clearly weaken the outlook for the public finances unless offsetting tax rises or spending cuts were introduced elsewhere.

### *Uncertainties around the baseline Green Budget forecast*

Public finance forecasts are, by their nature, uncertain, and it is important to acknowledge this uncertainty when presenting them. As discussed in Chapter 2, it is a welcome development that the OBR has, since its inception, presented an estimate of the uncertainty surrounding its central forecast for borrowing, following a methodology similar to that which we have previously argued for, and used in past Green Budgets.<sup>9</sup>

The OBR's November 2010 fiscal forecasts are presented as 'fan charts', with lines showing how likely a fiscal aggregate is to be within a particular range. These ranges are calculated under three key assumptions: first, that the central forecast is as likely to be an underestimate as it is to be an overestimate; second, that the latest forecasts are likely to be as (in)accurate as previous PBR forecasts; and third, that there are no further policy changes implemented.<sup>10</sup>

The IFS Green Budget baseline forecast for the cyclically-adjusted current budget surplus is shown in fan-chart style in Figure 5.2. The uncertainty around the forecasts is taken from that used for the OBR's forecasts – that is, we are also assuming that our forecasts are as (in)accurate as previous Treasury PBR forecasts. The figure shows that, under the assumptions just described, there is an 80% chance on our baseline IFS Green Budget forecast that the cyclically-adjusted current budget in 2015–16 will be between –1.2% of national income and +3.4% of national income, with the narrower bands corresponding to ranges with lower likelihoods of occurring. The forecast surplus of 1.1% of national income for 2015–16 is, again under the assumptions set out above, consistent with a 75% chance of there being a balance or surplus on the cyclically-adjusted current budget in 2015–16. In other words, there is a one-in-four chance that additional fiscal tightening – in the form of further tax increases and/or deeper spending cuts – would be required to prevent the cyclically-adjusted current budget from being in deficit in 2015–16.

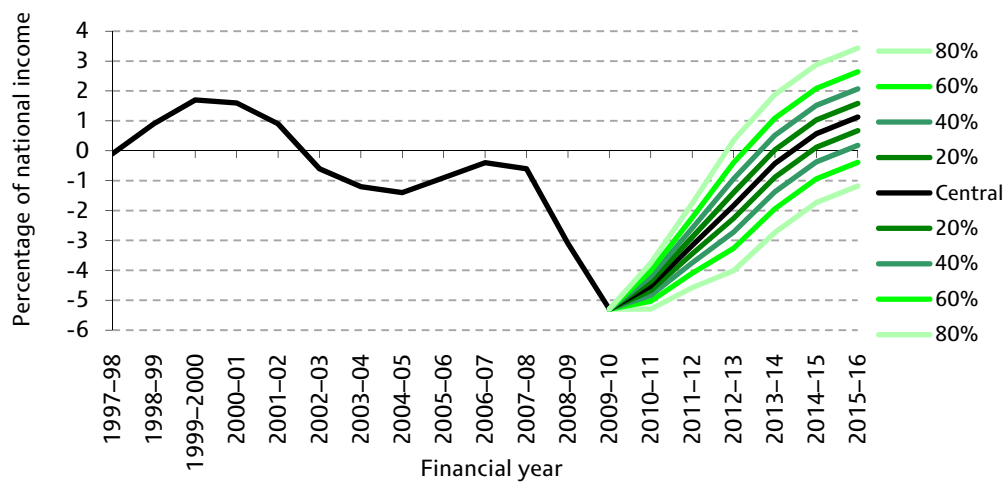
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<sup>8</sup> The authors would like to thank James Browne for producing these calculations, which were done using the IFS tax and benefit model, TAXBEN, run on the 2008–09 Family Resources Survey.

<sup>9</sup> See C. Emmerson, C. Frayne and S. Love, 'Updating the UK's Code for Fiscal Stability', IFS Working Paper W04/29, 2004 ([http://www.ifs.org.uk/publications.php?publication\\_id=3163](http://www.ifs.org.uk/publications.php?publication_id=3163)).

<sup>10</sup> The fan charts assume a normal distribution for forecast errors with a mean of zero and a standard deviation calculated from comparing previous PBR forecasts with eventual out-turns.

Figure 5.2. Probabilities of cyclically-adjusted current budget balance outcomes (Green Budget baseline)



Note: Central projections are taken from Table 5.5.

Source: Standard errors on forecasts taken from appendix B of Office for Budget Responsibility, *Economic and Fiscal Outlook*, November 2010

([http://budgetresponsibility.independent.gov.uk/d/econ\\_fiscal\\_outlook\\_291110.pdf](http://budgetresponsibility.independent.gov.uk/d/econ_fiscal_outlook_291110.pdf)).

## 5.4 Alternative macroeconomic assumptions

Another way to highlight the uncertainty in the public finances is to produce forecasts for key fiscal aggregates under not just a central scenario for the macroeconomy but also some alternative scenarios. This has been longstanding practice in the IFS Green Budget, and we welcome the fact that the OBR also chose to present fiscal forecasts under different alternatives for the economy in its November 2010 Autumn Forecast.

Table 5.6 presents forecasts for the public finances under three alternative scenarios for the economy, along with the OBR and IFS baseline forecasts discussed above. These alternative scenarios are the Barclays central case, the Barclays ‘optimistic’ case and the Barclays ‘pessimistic’ case, as set out in detail in Chapter 4.<sup>11</sup>

Under the Barclays central scenario, headline borrowing and the current budget deficit are both forecast to be worse than under the IFS Green Budget baseline forecast through to 2015–16. As the Barclays central forecast is for a smaller output gap than estimated by the OBR, a greater proportion of the borrowing is expected to be permanent rather than explained by temporary weakness in the economy. This therefore means that, while the headline current budget surplus is forecast to be 1.3% of national income lower in 2015–16 under the Barclays central case than under our baseline forecast, the cyclically-adjusted current budget surplus is projected to be 1.5% of national income lower. In 2015–16, we forecast that, under the Barclays central scenario, the cyclically-adjusted current budget would be in deficit by 0.4% of national income (£6 billion in today’s terms), meaning that, under this forecast, current policy would not comply with the Chancellor’s fiscal mandate.

<sup>11</sup> Further details of these scenarios can be found in Appendix A.

Table 5.6. Public finance forecasts under various macroeconomic scenarios

<i>% of national income</i>	2010–11	2011–12	2012–13	2013–14	2014–15	2015–16
<b>OBR, November 2010</b>						
Real GDP growth (%)	2.5	2.0	2.7	2.9	2.8	2.7
Output gap (%)	-3.2	-3.3	-2.8	-2.2	-1.4	-0.7
<i>Public finance forecasts (% GDP)</i>						
Current budget surplus	-7.2	-5.6	-3.9	-2.1	-0.6	0.3
Cyclically-adjusted current budget surplus	-4.7	-3.3	-1.8	-0.5	0.5	0.9
Net borrowing	10.0	7.6	5.6	3.5	1.9	1.0
Net debt	60.8	66.3	69.1	69.7	68.8	67.2
<b>Green Budget baseline</b>						
Real GDP growth (%)	2.5	2.0	2.7	2.9	2.8	2.7
Output gap (%)	-3.2	-3.3	-2.8	-2.2	-1.4	-0.7
<i>Public finance forecasts (% GDP)</i>						
Current budget surplus	-7.0	-5.5	-3.9	-2.1	-0.6	0.5
Cyclically-adjusted current budget surplus	-4.5	-3.2	-1.8	-0.4	0.6	1.1
Net borrowing	9.8	7.5	5.6	3.4	1.9	0.8
Net debt	60.6	66.0	68.8	69.3	68.4	66.7
<b>Barclays central case</b>						
Real GDP growth (%)	2.0	1.8	2.1	2.3	2.3	2.5
Output gap (%)	-2.5	-2.5	-2.1	-1.7	-1.1	-0.4
<i>Public finance forecasts (% GDP)</i>						
Current budget surplus	-7.1	-5.7	-4.4	-3.1	-1.9	-0.8
Cyclically-adjusted current budget surplus	-5.3	-4.0	-2.9	-1.9	-1.0	-0.4
Net borrowing	10.0	7.7	6.1	4.5	3.3	2.1
Net debt	61.2	67.1	71.0	73.4	74.2	73.6
<b>Barclays 'optimistic' case</b>						
Real GDP growth (%)	2.0	2.1	2.4	3.2	3.3	3.1
Output gap (%)	-3.4	-3.4	-3.2	-2.3	-1.3	-0.5
<i>Public finance forecasts (% GDP)</i>						
Current budget surplus	-7.1	-5.5	-4.0	-2.4	-0.9	0.2
Cyclically-adjusted current budget surplus	-4.6	-3.2	-1.8	-0.6	0.2	0.7
Net borrowing	10.0	7.5	5.7	3.8	2.2	1.1
Net debt	61.2	66.5	69.8	70.8	69.7	67.7
<b>Barclays 'pessimistic' case</b>						
Real GDP growth (%)	1.9	0.6	0.9	1.7	1.7	1.8
Output gap (%)	-1.5	-2.6	-3.4	-3.4	-3.4	-3.4
<i>Public finance forecasts (% GDP)</i>						
Current budget surplus	-7.1	-6.3	-5.9	-5.8	-5.5	-4.5
Cyclically-adjusted current budget surplus	-6.0	-4.7	-3.7	-3.4	-3.1	-2.2
Net borrowing	10.0	8.3	7.6	7.3	6.9	5.9
Net debt	61.2	68.2	74.5	80.6	86.1	90.5

Sources: Authors' calculations. Barclays. OBR forecasts from Office for Budget Responsibility, *Economic and Fiscal Outlook*, November 2010 (<http://budgetresponsibility.independent.gov.uk/econ-fiscal-outlook.html>).

Under the Barclays central scenario, public sector net debt is forecast to peak one year later than in our Green Budget baseline forecast, at 74.2% of national income in 2014–15, and then fall to 73.6% of national income in 2015–16. This suggests that under this scenario, the Chancellor's supplementary target would, despite the breach of the fiscal mandate, be on course to be met.

The Barclays 'optimistic' scenario features higher real GDP growth than both its central forecast and the OBR's forecast. This is because this scenario assumes that there is more spare capacity in the UK economy at the moment, and thus more scope for above-trend growth over the next few years before inflationary pressures emerge. This scenario also involves the composition of growth in the economy being more skewed towards components that are taxed less heavily than in the OBR macroeconomic forecast: in particular, it contains a forecast of lower nominal growth in consumer spending than the OBR forecast. The evolution of the public finances under this scenario is closest to the OBR's own public finance projections. The current budget strengthens to a surplus of 0.2% of national income in 2015–16, implying an estimated cyclically-adjusted current budget surplus of 0.7% of national income. This is 0.2% of national income lower than the cyclically-adjusted current budget forecast by the OBR for 2015–16. Public sector net debt is forecast to peak at 70.8% of national income in 2013–14 and then fall over time. Therefore, under the Barclays 'optimistic' forecast for the economy, current policy would be consistent with the fiscal mandate and the supplementary target would be on course to be met.

The final alternative Green Budget scenario (the Barclays 'pessimistic' case) assumes that economic growth is much lower over the next few years, as a result of there being less spare capacity in the economy at the moment. This feeds through into higher headline and cyclically-adjusted borrowing and a higher current budget deficit. By 2015–16, the headline current budget deficit is forecast still to be running at 4.5% of national income, with the cyclically-adjusted deficit running at 2.2% of national income (£33 billion in today's terms). Public sector net debt would still be rising, reaching 90.5% of national income in 2015–16. So under current policy in this scenario, the fiscal mandate would be missed and the supplementary target would be on course to be missed. In practice, with borrowing remaining so high and debt still rising, it would be likely that this scenario would lead to current policy having to be revised significantly.

## **5.5 The Budget judgement**

A large fiscal tightening is required over the medium term to narrow the gap between public spending and government revenues in order to bring the UK's public finances back to a sustainable position. The government has announced tax increases and spending cuts over the next five years to bring this about. The IFS Green Budget baseline forecast, which assumes that the economy evolves in line with the macroeconomic forecasts set out by the OBR in November 2010 and that all policies confirmed to date (and no others) are implemented, is for the public finances to follow a similar path to that projected by the OBR. We forecast that by 2015–16 the cyclically-adjusted current budget surplus would be 1.1% of national income compared with the 0.9% forecast by the OBR in November (and the 0.8% of national income forecast by the OBR at the time of the June 2010 Budget).

In last year's Green Budget, our baseline forecast for the public finances was also similar to the then latest official forecast (taken from the December 2009 PBR). Our main recommendations at that time were that:

- it would be desirable to put in place a fiscal tightening that was more ambitious over this parliament than that set out in the December 2009 PBR;
- significant additional net spending cuts or tax rises should be avoided in 2010–11;
- credibility could be enhanced if the official forecasts for the public finances were produced or overseen by a properly resourced independent body.<sup>12</sup>

The March 2010 Budget did little to alter the medium-term path of the public finances, but there were significant changes after the general election. First, the new government has set about implementing measures (largely spending cuts and an increase in the main rate of VAT that came into force on 4 January 2011) that the Treasury estimates will reduce borrowing by £8.1 billion in 2010–11.<sup>13</sup> Second, it has both significantly increased the size of the planned fiscal consolidation and brought forward the timescale so that the fiscal repair job is scheduled to be completed in 2015–16 rather than in 2016–17, as was the case under the previous Labour government's March 2010 Budget plans (or rather than in 2017–18 as was planned by the Labour government in the December 2009 PBR, the prevailing official forecast at the time of last year's Green Budget).<sup>14</sup> Third, the coalition government has set up the new, independent OBR with its three-person Budget Responsibility Committee now operating under the leadership of Robert Chote (as discussed in Chapter 2).

The IFS baseline forecast is slightly more optimistic about the outlook for the public finances than the OBR forecast in November 2010, although the differences are small relative to the size of the planned fiscal tightening. Therefore, under our baseline, the Chancellor could afford to reduce the size of the planned fiscal tightening by 0.3% of national income by 2015–16, equivalent to about £4 billion in today's terms, and retain a comparable degree of caution to that which he was planning in his June 2010 Budget. However, we believe that to do so would be hasty. Given the uncertainties facing the UK economy and public finances, our judgement is that Mr Osborne should refrain from announcing any net permanent giveaway in his March Budget.

This section sets out our recommendations – based on the analysis in this chapter and elsewhere in the Green Budget – for Mr Osborne's Budget, which is scheduled for 23 March 2011.

## Short-term risks and judgement

Quite what impact the £8.1 billion of fiscal tightening implemented by the new government in 2010–11 has on economic growth will never be known for certain. The overall tightening amounts to half of one per cent of national income. While the

<sup>12</sup> See R. Chote, R. Crawford, C. Emmerson and G. Tetlow, 'Green Budget public finance forecasts', in R. Chote, C. Emmerson and J. Shaw (eds), *The IFS Green Budget: February 2010*, IFS Commentary 112 (<http://www.ifs.org.uk/budgets/qb2010/10chap6.pdf>).

<sup>13</sup> Source: Table 2.1 (page 40) of HM Treasury, *Budget 2010*, June 2010 ([http://www.hm-treasury.gov.uk/2010\\_june\\_budget.htm](http://www.hm-treasury.gov.uk/2010_june_budget.htm)).

<sup>14</sup> More detailed discussion of the public finance impact of the financial crisis and recession and the Labour and coalition governments' fiscal responses can be found in R. Chote, R. Crawford, C. Emmerson and G. Tetlow, 'Disease and cure in the UK: the fiscal impact of the crisis and the policy response', presented at the European Commission workshop 'The UK Economy, Post-Recession – Same As It Ever Was?', 29 June 2010 ([http://ec.europa.eu/economy\\_finance/events/2010/20100629-uk\\_seminar/main\\_en.htm](http://ec.europa.eu/economy_finance/events/2010/20100629-uk_seminar/main_en.htm)).



£5.2 billion of net spending cuts may have been significant for some of those areas directly affected – the affected Departmental Expenditure Limits were cut by an estimated 3.7% overall<sup>15</sup> – the cuts are smaller when considered as a share of total government spending (amounting to less than 1% of total public spending). Whatever the effect, however, by the time of the forthcoming Budget it will be too late to reverse these changes.

What matters for the short-term decisions to be made in the Budget in March is the fiscal tightening to be implemented in 2011–12. The latest OBR forecasts (and our baseline forecast) suggest that public sector net borrowing will be 2.4% of national income lower in 2011–12 than in 2010–11. We estimate that, of this, 1.5% of national income is to come from discretionary fiscal measures that have been announced over the last few years but will come into force in April (the impact of these on the distribution of income and measures of work incentives is discussed in Chapter 12). The fall in overall borrowing between 2010–11 and 2011–12 is about twice as large as the overall reduction in borrowing that occurred between 2009–10 and 2010–11. However, the reduction in borrowing between 2010–11 and 2011–12 coming from discretionary measures (rather than a fall in borrowing that would be expected to have happened anyway, for example as the economy recovers from recession) is smaller than that which occurred between 2009–10 and 2010–11.<sup>16</sup>

Exactly what size of fiscal consolidation is appropriate in 2011–12 depends on the balance between opposing considerations. On the one hand, to reassure investors that the UK will continue to be able to service its stock of public debt, the government needs to have in place a credible plan for reducing annual borrowing from its currently unsustainably high level. But on the other hand, the risk with reducing government borrowing is that this may reduce demand in the economy and thus economic growth at a time when the economy is weak. The current weakness of the UK economy has been re-emphasised by the recent initial estimates for growth between the third and fourth quarters of 2010, which stands at –0.5%.<sup>17</sup>

Given this risk to growth and these recent developments, the government could consider loosening its currently planned fiscal tightening for 2011–12. However, this would not necessarily pass through into higher demand in the economy if it merely causes monetary policy to become tighter than would otherwise have been the case. Essentially, the argument in favour of announcing a temporary fiscal loosening in the forthcoming Budget is weaker the more confident one is that it would result in tighter monetary policy. A significant loosening of the planned fiscal tightening could push CPI inflation further above the 2% target and thus lead to increased concerns among members of the Monetary Policy Committee (MPC) of the Bank of England that expectations of above-target inflation could become engrained. Two of the nine MPC members voted for an increase in the bank rate from 0.5% to 0.75% in January 2011.<sup>18</sup>

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<sup>15</sup> See R. Chote and C. Emmerson, 'The first cut', IFS Observation, May 2010 (<http://www.ifs.org.uk/publications/4924>).

<sup>16</sup> The discretionary fiscal tightening between 2009–10 and 2010–11 includes the unwinding of the fiscal stimulus package that was in place in 2009–10 and the net fiscal tightening implemented by the new government, discussed above.

<sup>17</sup> ONS, 'Gross domestic product preliminary estimate: 4<sup>th</sup> Quarter 2010', *Statistical Bulletin*, 25 January 2011 (<http://www.statistics.gov.uk/pdfdir/gdp0111.pdf>).

<sup>18</sup> Andrew Sentance and Martin Weale – see <http://www.bankofengland.co.uk/monetarypolicy/mpcvoting.xls>. A concern about the possibility of expectations of persistent above-target inflation arising is mentioned in the



As discussed in Chapters 2 and 3, the UK has a large structural deficit compared with other similar countries. The government has announced measures to eliminate this deficit by the end of this parliament, but investors may start to question the credibility of this plan if the government appears to fail to implement the first part. We said in last year's Green Budget that 'given the distance that needs to be covered, repairing the public finances will be a marathon rather than a sprint, so it is more important to convince investors that you will last the course than it is to lead on the first bend'.<sup>19</sup> Having set out a game plan, however, shying at an early hurdle could lead investors to question the government's commitment to staying the course.

Given the importance of retaining credibility and the possibility that any fiscal loosening could prompt an offsetting monetary tightening, our judgement is that Mr Osborne might be best advised not to implement a significant short-term net loosening in the Budget.

## Medium-term risks and judgement

The government has brought forward the planned fiscal tightening inherited from the previous Labour government so that the repair job is scheduled to be completed in 2015–16, a year earlier than implied by Labour's March 2010 Budget plans. Alongside this, the Chancellor has introduced a new fiscal mandate that currently requires the cyclically-adjusted current budget to be forecast to be in balance or surplus in 2015–16, which would be the year of the next general election if this parliament runs its full course. We continue to believe, as we argued in last year's Green Budget, that aiming to complete the fiscal repair job in one parliament is a sensible strategy as it should be more credible with international investors than a plan that involves tightening in a future parliament.

As well as being brought forward, the overall size of the intended fiscal tightening has been increased from that announced by the previous Labour government. This can be thought of as reflecting two factors.

First, the OBR's estimates for the structural budget deficit are now larger than the official estimates produced before the general election (see Chapter 1). This is because the OBR is less optimistic about the amount of spare capacity in the UK economy – that is, the scope for further above-trend growth before inflationary pressures emerge is now thought to be less. The OBR's assessment last June, therefore, implied that the current budget would (under Labour's bequeathed policies and indicative plans) be weaker than was forecast before the general election. Specifically, the OBR forecast in June implied that there would (under unchanged policy) be a cyclically-adjusted current budget deficit of 0.2% of national income by 2016–17 (the end of Labour's planned fiscal consolidation), rather than a surplus of 0.1% as previously implied by the Treasury's forecast before the general election.<sup>20</sup> An additional fiscal tightening of 0.2% of national income was, therefore, required to ensure that the forecast was for a cyclically-adjusted current budget balance, as required by the Chancellor's fiscal mandate. (In addition, all of the

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minutes of the MPC meetings held on 12 and 13 January (<http://www.bankofengland.co.uk/publications/minutes/mpc/pdf/2011/mpc1101.pdf>).

<sup>19</sup> Page 128 of R. Chote, R. Crawford, C. Emmerson and G. Tetlow, 'Green Budget public finance forecasts', in R. Chote, C. Emmerson and J. Shaw (eds), *The IFS Green Budget: February 2010*, IFS Commentary 112 (<http://www.ifs.org.uk/budgets/gb2010/10chap6.pdf>).

<sup>20</sup> Sources: Authors' calculations. Treasury pre-election figure is based on table C2 and chart 2.4 of HM Treasury, *Budget 2010*, March 2010 ([http://webarchive.nationalarchives.gov.uk/20100407010852/http://www.hm-treasury.gov.uk/budget2010\\_documents.htm](http://webarchive.nationalarchives.gov.uk/20100407010852/http://www.hm-treasury.gov.uk/budget2010_documents.htm)). OBR figure is based on table 4.3 of Office for Budget Responsibility, *Pre-Budget Forecast: June 2010*.

fiscal tightening needed to be in place by 2015–16, rather than 2016–17, and so the timescale of Labour’s planned tightening had to be accelerated.)

However, the OBR’s revision to the estimated structural current budget deficit does not explain all the additional fiscal tightening that has been introduced by the new government. The second explanation is that Mr Osborne chose, in his June 2010 Budget, to build some additional caution into his plans. In June 2010, Mr Osborne chose to aim for a 0.8% of national income cyclically-adjusted current budget surplus, rather than simply a balance.<sup>21</sup> Ultimately, the appropriate degree of caution that should be built in will depend both on the type and magnitude of the uncertainties thought to face the UK’s public finances and on an element of political judgement. In addition, the appropriate level of surplus on the current budget will also depend on the government’s views on longer-term fiscal pressures, such as those arising from an ageing population. The OBR is due to publish a report in the summer on the long-term sustainability of the public finances (as discussed in Chapter 2). This, coupled with a judgement from the government on what its longer-term objectives for public indebtedness are, should shed light on the appropriate stance for medium-term fiscal policy.

As the OBR and we have highlighted, there are risks around any fiscal forecast. These risks are particularly considerable at the present time. Potential downside risks to the fiscal forecasts include the following:

- **Trend output lower than thought.** The outlook for the economy is uncertain. A key downside risk for the public finances is that the level of trend output in the UK, and possibly also trend growth, have both been more adversely affected by the financial crisis and associated recession than the OBR’s central estimates imply. This is discussed in detail in Chapter 1, and the implications for the public finances are demonstrated through the forecasts under alternative Barclays scenarios presented in this chapter.
- **Public finances recover less as growth returns.** Even if the forecasts for the economy turn out to be correct, it does not necessarily follow that the public finances will strengthen as projected. As discussed in Chapter 2, the Treasury has previously estimated that the majority of past errors in projecting the public finances were not explained by errors in the macroeconomic forecasts.
- **Fiscal consolidation is not delivered.** While the impact of the tax rises and welfare cuts on household budgets can be estimated reasonably accurately, it is harder to assess what the impact will be of cuts to public service spending on the quantity and quality of services provided. As set out in Chapter 6, the planned cuts to some areas of public services are extremely deep. This, combined with low labour turnover, means that in some parts of the public sector – such as the police – a downsizing of the workforce on the scale implied by the Spending Review will be difficult to achieve, as discussed in Chapter 7. This suggests that some of the spending plans might need to be topped up to help ensure that the impact of the cuts is palatable to the government and the public.

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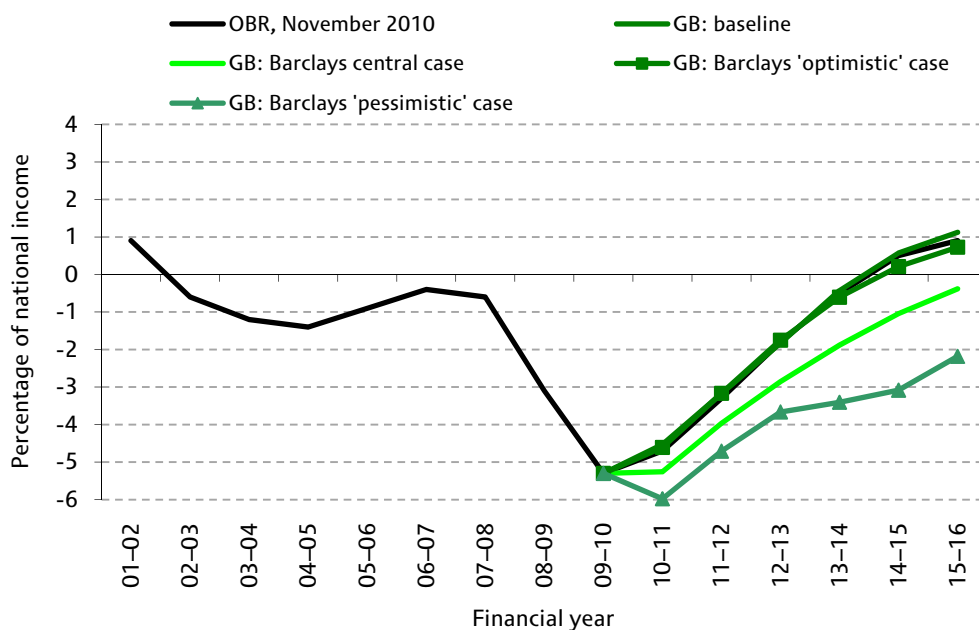
<sup>21</sup> A 0.8% of national income surplus on the cyclically-adjusted current budget by the end of the forecast horizon is similar to the forecasts typically produced by Gordon Brown when he was Chancellor, so it could be that there is a consensus over what the medium-term target should be. During Mr Brown’s Chancellorship, the forecast cyclically-adjusted current budget surplus for the end of the forecast horizon was: 1.0% of national income in Budget 1999; 0.7% in Budget 2000; 0.7% in Budget 2001; 0.7% in Budget 2002; 0.6% in Budget 2003; 0.7% in Budget 2004; 0.8% in Budget 2005; 0.8% in Budget 2006; and 0.8% in Budget 2007.

- Investor sentiment worsens.** A credible deficit reduction plan is important to help keep the rate of interest at which the government can borrow low. With debt interest payments expected to account for about 9% of public spending by 2015–16, the strength of the UK's public finances is clearly sensitive to movements in market interest rates, though not as sensitive as some other countries' finances are because – as discussed in Chapter 3 – a relatively large proportion of our debt is long-dated. Chapter 3 argues that over the last year, the UK government bond market has not shown any difficulties, but that reducing the structural budget deficit is likely to be one of the keys to ensuring that this situation continues, as this is one of the measures on which the UK scores badly compared with other countries.

One quantification of the downside risk to the public finances from the economy not recovering as the OBR expects is provided by the Barclays central scenario. This assumes that the financial crisis and associated recession have had a more detrimental impact on trend output than forecast by the OBR, and therefore assumes the output gap in 2010–11 is running at 2.5% of trend output rather than the 3.2% projected by the OBR. Under this scenario, our forecasts suggest that the current budget would strengthen, but that the cyclically-adjusted current budget would still be in deficit in 2015–16 by 0.4% of national income, as shown in Figure 5.3. Therefore, under this scenario, current policy would not be consistent with the Chancellor's fiscal mandate though the supplementary target (that debt should fall between 2014–15 and 2015–16) would still be on course to be met, as shown in Figure 5.4.

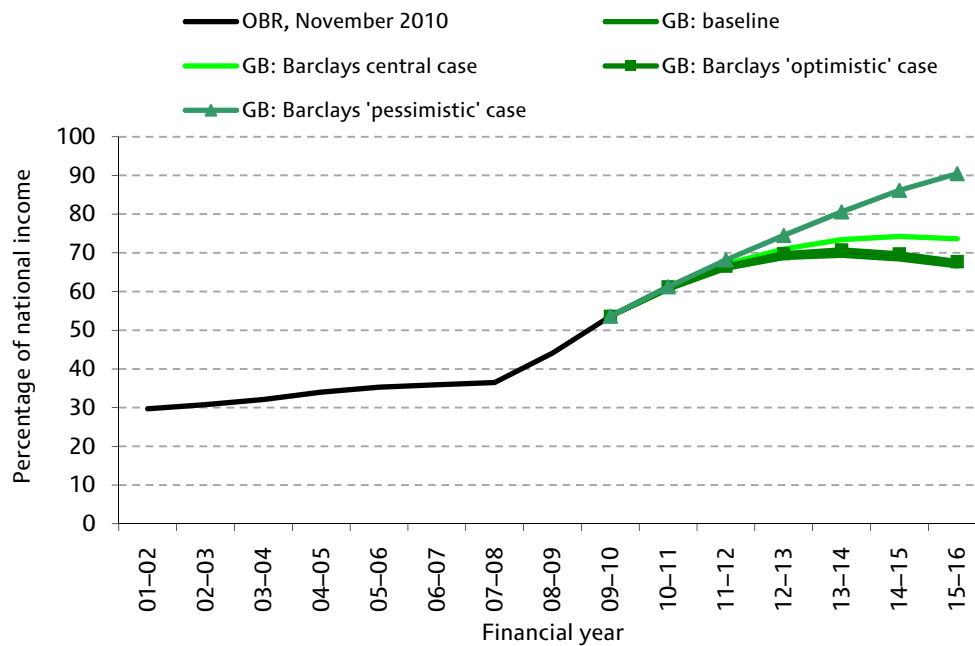
To bring the cyclically-adjusted current budget back to balance would require the Chancellor to announce further future tax rises and/or spending cuts amounting to 0.4% of national income (or £6 billion in today's terms). To restore the degree of caution in the public finances that he intended in his June 2010 Budget, Mr Osborne would in addition, under this scenario, need to announce further future tax increases or spending cuts of 0.8% of national income (or £12 billion in today's terms).

Figure 5.3. Cyclically-adjusted current budget balance forecasts



Sources: Authors' calculations. Barclays. OBR forecasts from Office for Budget Responsibility, *Economic and Fiscal Outlook*, November 2010 (<http://budgetresponsibility.independent.gov.uk/econ-fiscal-outlook.html>).

Figure 5.4. Public sector net debt forecasts



Sources: Authors' calculations. Barclays. OBR forecasts from Office for Budget Responsibility, *Economic and Fiscal Outlook*, November 2010 (<http://budgetresponsibility.independent.gov.uk/econ-fiscal-outlook.html>).

Things would be even worse if the economy were to follow the Barclays 'pessimistic' scenario. Under this scenario, there is both less scope for above-trend growth in the economy before inflationary pressures return and demand in the economy is assumed to take a long time to catch up to supply. This means that the output gap starts off smaller but continues to widen over the next few years. Our forecasts under the Barclays 'pessimistic' case suggest that the cyclically-adjusted current budget deficit would still be running at 2.2% of national income in 2015-16. Under this scenario, current policy would not be consistent with the fiscal mandate and the supplementary target would be on course to be missed. To comply with the fiscal mandate and to restore caution in the public finances to the level Mr Osborne intended in June would require him to increase the fiscal tightening by a further 3.0% of national income by 2015-16, equivalent to £44 billion in today's terms.

Not all of the economic risks are on the downside: for example, the economy could evolve as set out in the Barclays 'optimistic' scenario. However, this scenario highlights another risk to the public finances. If this higher growth materialises in components that are taxed less heavily, such as exports and investment rather than consumer spending, the outlook for the public finances might still be no better than the OBR is forecasting. Under the Barclays 'optimistic' case, there would be more scope for above-trend growth than the OBR envisages but our forecasts suggest that the cyclically-adjusted current budget would only climb to a surplus of 0.7% of national income in 2015-16, slightly smaller than the 0.9% forecast by the OBR.

So, although our IFS Green Budget baseline forecast is slightly more optimistic than the OBR's November 2010 forecast, the downside risks are particularly large. As a result, even if the OBR or the Chancellor were to accept our central forecast, the case for the Budget containing no significant net permanent giveaway seems strong. A rosier outlook for the public finances could be used as a justification for a scaling-back of the planned

medium-term fiscal consolidation plan, but investors might question whether the government would have been as keen to increase the size of the announced tightening had less rosy forecasts materialised. By banking any improvement in the public finance forecasts that occurs in the near term, the government would give itself a greater cushion against some of the risks mentioned above, including the risk that spending plans would have to be topped up for departments that were finding them particularly difficult and falling short of expectations.

Although there may be no need to implement an alternative short- or medium-term plan at this stage, the Chancellor would be best advised to consider how he would respond to a changing – and, in particular, a worsening – outlook for the economy, the public finances or the quality and quantity of public services being enjoyed. Having such alternative plans to hand could prove useful.

## 6. Public spending cuts: pain shared?

Rowena Crawford, Carl Emmerson, David Phillips and Gemma Tetlow (IFS)

### Summary

- The government's six-year plan to reduce borrowing will see public spending brought down from its peak of 47.4% of national income in 2009–10 to 39.3% by 2015–16. The period from April 2011 is set to be the tightest five-year period for public spending since at least the Second World War. Out of 29 leading industrial countries, the IMF forecasts that only Iceland and Ireland will deliver sharper falls in spending as a share of national income than the UK between 2010 and 2015.
- The 2010 Spending Review set out broadly where the cuts will fall over the four years starting in April 2011. The big winners were the Department for International Development and the investment budget of the Department of Energy and Climate Change: both are to receive large spending increases by 2014–15. The areas that will see the largest cuts are housing, higher education and the Department for Environment, Food and Rural Affairs. There will also be deep cuts to local authority grants, the Home Office and the Ministry of Justice.
- The government has committed to real increases in the NHS budget each year between 2010–11 and 2014–15. If achieved, these will result in a continuation of the long-term trend for the NHS to take up an increasing proportion of public service spending.
- Within the nations, the Scottish parliament appears to have made similar decisions to those made for England; the Welsh Assembly government has chosen not to protect NHS spending from spending cuts, thereby reducing the scale of the cuts required elsewhere; and the Northern Ireland Executive appears to have chosen to cut spending on schools by more than spending on further and higher education.
- The last time the UK government attempted to implement real public spending cuts (in the 1990s), it was successful at sticking to its cash plans, but lower-than-expected inflation meant that the planned real cuts were not delivered as quickly as intended. The current government's planned cuts to public spending are far greater than those attempted at that time, and achieving these more ambitious plans will be more difficult.
- Delivering such tight spending plans will, as identified by the government, require 'a robust framework to control spending'. There are improvements that can be made to the current system – in particular, Spending Reviews should routinely consider as wide a set of spending areas as possible and not only departmental programme expenditure.
- The government should be prepared to review its 2010 Spending Review settlements in a couple of years' time in the light of any changes to the economic and fiscal outlook or of particular difficulties faced by departments in delivering spending cuts that are palatable to the government and the wider public.

## 6.1 Introduction

Over the last few years, the public finances have weakened significantly: annual borrowing and the stock of public debt have both increased sharply. The government is planning a substantial reduction in borrowing over the next few years to help return the UK's public finances to a sustainable footing, as discussed in more detail in Chapter 2. To deliver this reduction in borrowing, the government is planning – much like the previous Labour government was – to rely heavily on deep spending cuts. By 2014–15, our estimates suggest that 73% of the planned fiscal tightening is to come from cuts to spending (with the other 27% coming from a discretionary net tax increase). This compares with 70% of the fiscal consolidation to come from spending cuts planned in Alistair Darling's March 2010 Budget (with 30% coming from a net tax rise).<sup>1</sup>

The planned cut in total public spending over the five years from April 2011 will be larger in real terms than the UK has seen in any other five-year period since the end of the Second World War. This chapter begins in Section 6.2 with a description of the historical trends in public spending and how these compare with the plans for total spending over the next five years and with the overall spending reductions planned in other similar countries over the same period.

Which departments win and lose over the next four years will be an important determinant of which households fare better and worse from the overall fiscal consolidation. Unfortunately, estimating the losses to households from public service cuts is difficult (see Chapter 8). We are, however, able to document the allocation of cuts across Whitehall spending departments announced in the October 2010 Spending Review. Section 6.3 sets out the relative winners and losers from this review across Whitehall departments and highlights how the timing of the cuts varies between departments. It then describes the decisions on allocating the spending cuts that have been made by the devolved administrations in Scotland, Wales and Northern Ireland for their jurisdictions.

One key risk to the future strength of the public finances is that the government might not be able to deliver the planned squeeze on public spending. In Section 6.4, we look back to the last time the UK government tried to cut public spending substantially (the mid-1990s) to see what lessons can be drawn.

The 2010 Spending Review highlighted the need for 'a robust framework to control spending' in order to deliver the current spending plans.<sup>2</sup> In Section 6.5, we discuss some of the problems with the current regime for planning and controlling public spending, and some ways in which it could be improved to enhance the government's ability to deliver lower public spending at least cost to the quality and quantity of public services provided. Section 6.6 concludes.

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<sup>1</sup> See R. Crawford, 'Where did the axe fall?', presentation at IFS 2010 Spending Review briefing, 21 October 2010 (<http://www.ifs.org.uk/publications/5311>).

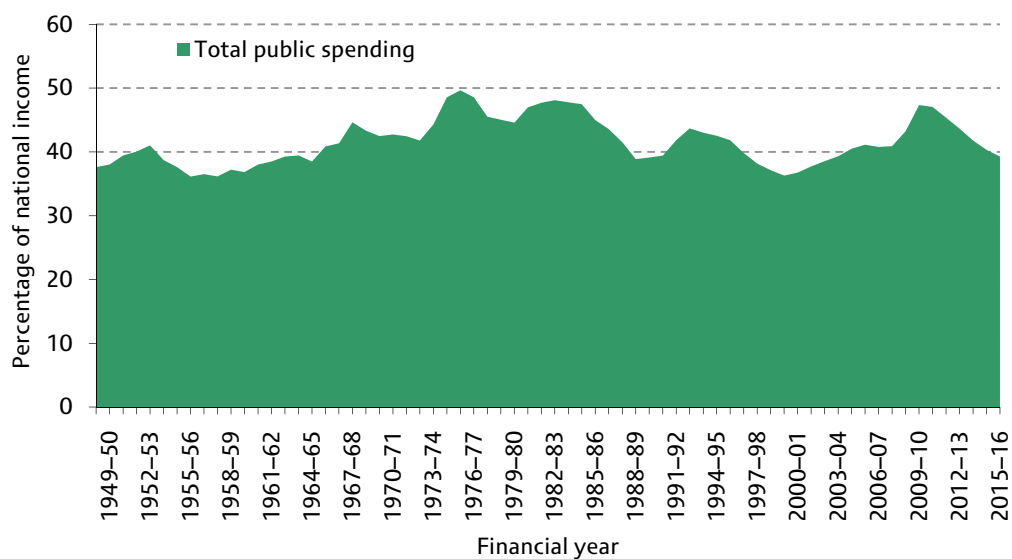
<sup>2</sup> Page 18 of HM Treasury, *Spending Review 2010*, Cm 7942, 2010 ([http://cdn.hm-treasury.gov.uk/sr2010\\_completereport.pdf](http://cdn.hm-treasury.gov.uk/sr2010_completereport.pdf)).

## 6.2 Trends in UK public spending

### Total spending since 1948–49

The Office for Budget Responsibility (OBR) forecasts that Total Managed Expenditure (TME), the broadest measure of government expenditure, will be £698.2 billion in 2010–11. This equates to 47.1% of national income, or just over £26,400 for each of the 26.4 million households in the UK. Figure 6.1 shows how public spending as a share of national income has varied since 1948–49. The level seen in 2009–10 (47.4% of national income) was the highest level since 1984–85, when public spending accounted for 47.5% of national income.

Figure 6.1. Total public spending



Note: Figures for 2007–08 to 2009–10 are on a basis that includes the temporary effects of financial sector interventions, while those for 2010–11 onwards are on a basis that excludes these.

Sources: Out-turn figures for public spending from ONS series ANLT, ANNW and ANNZ from table 2.3C of *Financial Statistics Freestanding Time Series Data* (<http://www.statistics.gov.uk/statbase/tsdtimezone.asp>).

Forecasts from Office for Budget Responsibility, *Economic and Fiscal Outlook: November 2010*

(<http://budgetresponsibility.independent.gov.uk/econ-fiscal-outlook.html>). GDP is ONS series BKTL from table A2 of *United Kingdom Economic Accounts* (<http://www.statistics.gov.uk/statbase/tsdtimezone.asp>).

### Growth in public spending under Labour

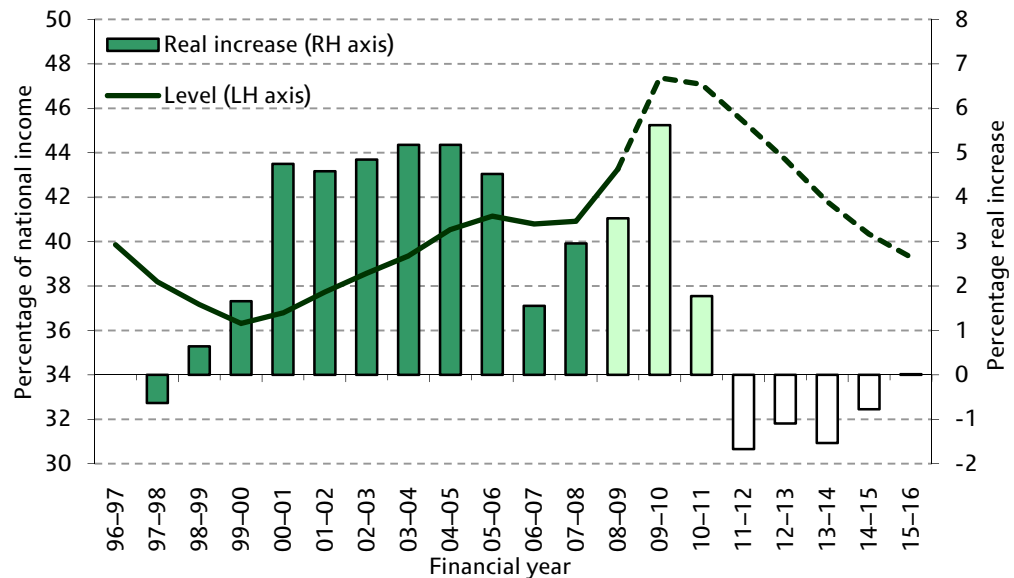
As shown in Figure 6.2, under the previous Labour government there were relatively large real increases in total public spending in most years: growth in spending exceeded 4% a year in real terms in each year from 2000–01 to 2005–06. The spending plans for 2008–09, 2009–10 and 2010–11 were set in the 2007 Comprehensive Spending Review (CSR). At the time of its publication, this set out a tighter settlement than those made since 2000–01, with real growth in TME planned to average just 2.0% a year. Had the economy followed the path forecast by the Treasury at the time, this would have led to public spending falling as a share of national income.

But the actual real increase in TME over this period was much greater. Most spending on public services had been set in cash terms, so when inflation turned out to be lower than expected, real-terms spending was correspondingly higher; in addition, cash spending on social security benefits and debt interest payments was higher than expected as a result of the recession. The resulting increase in spending as a share of national income has been even more dramatic – increasing from 40.9% of national income in 2007–08 to



47.4% in 2009–10 – because the cash value of national income is now much lower than was previously forecast (reflecting both a shrinking real economy and lower-than-expected inflation). So, it would be fair to say that the increase in spending as a share of national income between 1999–2000 and 2007–08 was intended, but the increase that occurred between 2007–08 and 2010–11 was not.

Figure 6.2. Total Managed Expenditure



Notes: Light green bars represent the years covered by the CSR 2007. 2011–12 to 2014–15 are the years covered by the 2010 Spending Review. The figures for 2015–16 are based on the government’s statement that TME will be held fixed in real terms between 2014–15 and 2015–16 (paragraph 4.81 of the OBR’s November 2010 *Economic and Fiscal Outlook*); detailed spending plans for this year will not be set until the next Spending Review. Figures for 2007–08 to 2009–10 are on a basis that includes the temporary effects of financial sector interventions, while those for 2010–11 onwards are on a basis that excludes these. Sources: Figures for TME are from table B1 of HM Treasury, *Public Sector Finances Databank*, 11 January 2011 ([http://www.hm-treasury.gov.uk/d/public\\_finances\\_databank.xls](http://www.hm-treasury.gov.uk/d/public_finances_databank.xls)). Figures for GDP and the GDP deflator are from HM Treasury ([http://www.hm-treasury.gov.uk/data\\_gdp\\_fig.htm](http://www.hm-treasury.gov.uk/data_gdp_fig.htm)).

Two key subsequent changes to the original 2007 CSR spending plans were then implemented by the Labour government. First, some investment spending originally planned for 2010–11 was brought forward into 2009–10 as part of the fiscal stimulus package aimed at limiting the length and depth of the recession. Second, in order to reduce borrowing in 2010–11, planned investment spending in the National Health Service (NHS) in England was reduced. Both serve to reduce the growth rate of spending in 2010–11.

### *The fiscal consolidation under the coalition government*

In order to bring public sector borrowing back down to a sustainable level, the government has planned a six-year fiscal consolidation package, which started in 2010–11. Of the £126 billion tightening that is planned by 2015–16, we estimate that 76% is to come from cuts to public spending. The resulting real changes in TME over the next five years (2011–12 to 2015–16) are shown by the white bars in Figure 6.2. Over this period, TME will fall in real terms by an average 1.0% a year, which will make it the tightest five-year period for public spending since at least the Second World War. As a share of national income, public spending will peak in 2009–10 at 47.4%, before being brought down to 39.3% by 2015–16, which is around the same level of public spending as a share of national income as was last seen in 2003–04.

### An international comparison

The rapid increase in UK public spending as a share of national income that occurred as a result of the financial crisis and recession was not unique. Among 29 advanced economies (listed in the note to Table 6.1), the UK had the 5<sup>th</sup> largest increase in government spending between 2007 (i.e. pre-crisis) and 2010, but this only moved the UK from being the country with the 16<sup>th</sup> highest level of government spending (as a share of national income) to the 14<sup>th</sup> highest. Table 6.1 also shows that the government's planned cuts to spending between 2010 and 2015 are the 3<sup>rd</sup> largest, smaller than only those of Iceland and Ireland. The IMF's forecasts suggest this would result in the UK seeing the 9<sup>th</sup> smallest increase in government spending as a share of national income between 2007 and 2015, and maintaining its mid-table position with the 19<sup>th</sup> highest level of government spending in 2015.

**Table 6.1. General government expenditure as a share of national income in the UK compared with 28 other advanced economies**

	UK rank	Notes
<b>General government expenditure</b>		
<i>Level</i>		
2007 (pre-crisis)	Equal 16 <sup>th</sup> highest	
2010	14 <sup>th</sup> highest	
2015	19 <sup>th</sup> highest	
<i>Change</i>		
Increase, 2007 to 2010	5 <sup>th</sup> largest	Ireland, Finland, Slovenia & Spain larger
Reduction, 2010 to 2015	3 <sup>rd</sup> largest	Only Iceland and Ireland larger
Increase, 2007 to 2015	9 <sup>th</sup> smallest	

Notes: Measure is general government expenditure as a percentage of GDP. The 28 advanced economies on which data comparable to the UK are available are: Australia, Austria, Belgium, Canada, Czech Republic, Denmark, Finland, France, Germany, Greece, Hong Kong, Iceland, Ireland, Israel, Italy, Japan, the Netherlands, New Zealand, Norway, Portugal, Singapore, Slovak Republic, Slovenia, South Korea, Spain, Sweden, Switzerland and the United States.

Source: Statistical table 5, page 121 of International Monetary Fund, 'Fiscal exit: from strategy to implementation', *Fiscal Monitor*, November 2010

(<http://www.imf.org/external/pubs/cat/longres.cfm?sk=24220>).

### Spending on public services since 1948–49

The composition of total public spending has changed somewhat over time. Figure 6.3 splits TME into three components of spending: social security, gross debt interest payments and a residual which we refer to as 'public service spending'.

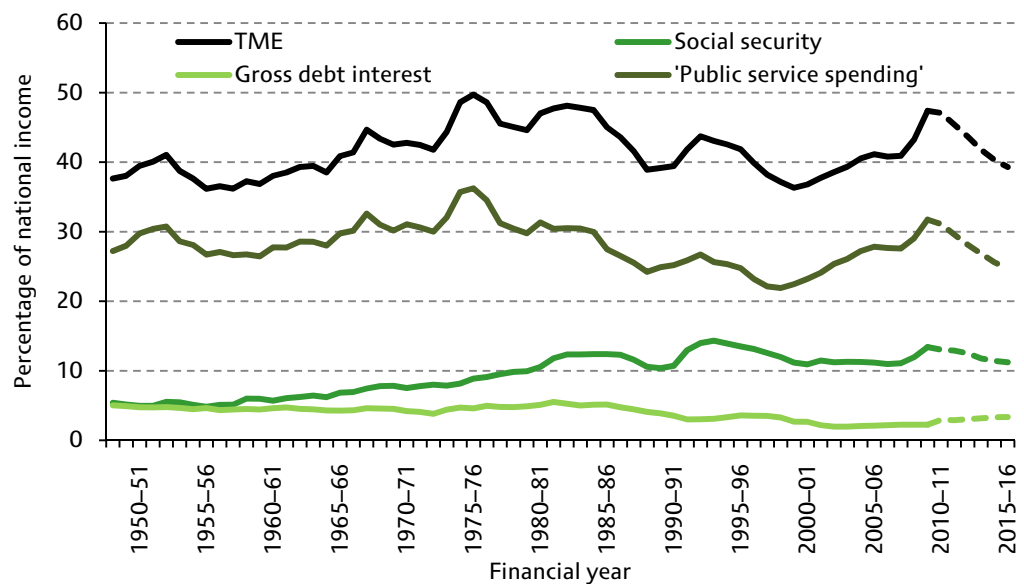
Spending on debt interest payments was fairly stable at around 5% of national income until the late 1980s; it then fell gradually until the mid-2000s. Despite the rapid increases in public sector net debt over the last couple of years (from 36.5% of national income in 2007–08 to 53.6% in 2009–10), spending on debt interest payments is forecast to rise only slightly as a share of national income by 2014–15 as interest rates are expected to remain very low, by historical standards.

Spending on welfare payments (social security benefits and tax credits) rose steadily from the end of the Second World War to the early 1980s as the welfare state grew and the number of pensioners increased. Since then, it has fluctuated around 12% of national

income, with higher spending during the last three recessions, and lower spending during the economic boom that occurred in the second half of the 1980s.

Public service spending as a share of national income has been much more volatile. It climbed to over 35% of national income in 1975–76, but then fell steadily to a post Second World War low of 22% in 1998–99. The decline in public service spending during the 1980s and 1990s was due to a combination of factors, including the sale of council homes, the privatisation programme, cuts to the defence budget (from 1983) and a fall in education spending as a share of national income. The Labour government reversed this trend, and the period from 1999–2000 to 2005–06 saw a deliberate increase in spending on public services, in particular school education, services for pre-school children and the NHS. In contrast (as mentioned above), the rapid increases in public service spending in 2008–09 and 2009–10 were more to do with unexpectedly low levels of national income than a policy decision to increase public service spending as a share of national income.

Figure 6.3. Composition of total public spending



Notes: Figures for spending on social security are 'public sector social benefits' for the years up to 2009–10, and total spending on social security benefits and tax credits forecast by the OBR in its November 2010 *Economic and Fiscal Outlook* thereafter. 'Public service spending' is the residual of Total Managed Expenditure less spending on social security and public sector gross debt interest. The government has said that between 2014–15 and 2015–16, TME will be held constant in real terms; figures for social security and debt interest spending in 2015–16 are OBR forecasts under unchanged policy. Figures for 2007–08 to 2009–10 are on a basis that includes the temporary effects of financial sector interventions, while those for 2010–11 onwards are on a basis that excludes these.

Sources: Historical data from ONS series ANLY, ANLT, ANNW, ANNZ and ANLO from table 2.3C of *Financial Statistics Freestanding Time Series Data* (<http://www.statistics.gov.uk/statbase/tsdtimezone.asp>). Forecasts are from Office for Budget Responsibility, *Economic and Fiscal Outlook: November 2010* (<http://budgetresponsibility.independent.gov.uk/econ-fiscal-outlook.html>).

The plans set out by the government in the October 2010 Spending Review for the next four years imply public service spending declining rapidly as a share of national income, falling from 31.7% in 2009–10 back to 25.6% of national income in 2014–15, a level last seen in around 2002–03. Detailed spending plans for 2015–16 have not yet been set out, but the OBR forecasts for social security and debt interest spending suggest that, given the level of total spending that the government pencilled in for 2015–16 in the June Budget, public service spending would fall further to 24.7% of national income. If

delivered, this would return public service spending as a share of national income to a level last seen in 2001–02.

## 6.3 Spending Review 2010

In October 2010, the government published the outcome of the long-awaited Spending Review, which set out government spending plans, the budgets of individual Whitehall departments, and grants to the devolved administrations for the four years 2011–12 to 2014–15. This section starts by setting out which government departments were relative winners and losers from this review, and highlights how the timing of the cuts varies between departments. We then discuss the settlements received by the devolved administrations and how each of the regions is choosing to prioritise its spending.

### Allocations to Whitehall spending departments

Detailed plans for certain components of public spending were set out in the October 2010 Spending Review. This included all items of spending that are deemed to benefit either the UK as a whole or multiple regions of the UK, along with all spending that is deemed to benefit England alone. These items of spending are administered by Whitehall departments. The respective grants for the devolved administrations were calculated on the basis of these settlements for Whitehall departments. This subsection discusses the spending settlements for Whitehall departments, and the next subsection discusses the grants to the devolved administrations. As far as possible, we make clear in this subsection which components of Whitehall spending cover only England.

#### *The size of spending cuts*

The plans set out in the 2010 Spending Review imply that Departmental Expenditure Limits (DELs) – that is, annual limits for departmental programme expenditure – would, on average, be reduced from their 2010–11 level by 11.7% in real terms by 2014–15. Figure 6.4 shows how the pain of DEL cuts was shared out between Whitehall departments by describing how much higher or lower each department's total budget will be in 2014–15, in real terms, compared with its 2010–11 level. Table 6.2 additionally describes how much lower/higher their resource and capital budgets will be, and what proportion of the real change in their total budget over this period will be accounted for by changes in capital spending.

For many departments, a large part of their budget is spent on the pay of their employees. Implementing these spending cuts in the way that minimises the impact on the quality and quantity of public services is therefore likely to involve a combination of real cuts to pay levels and reductions in the size of the workforce. This is discussed in more detail in Chapter 7.

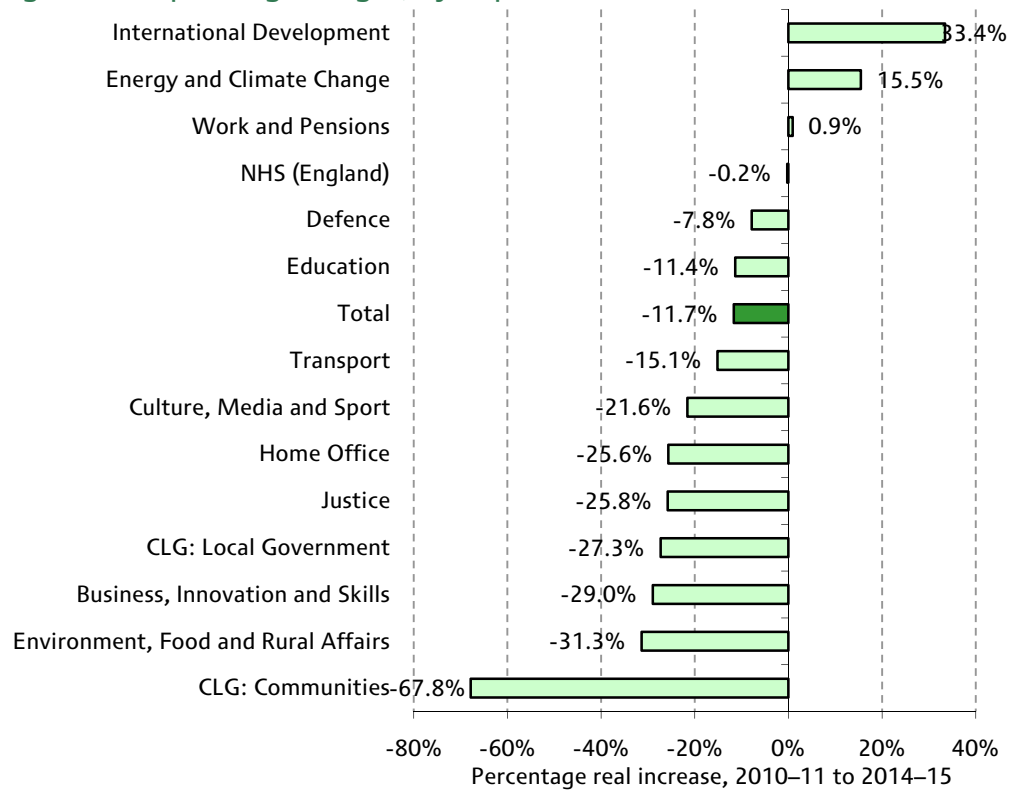
The undisputed winner from the Spending Review was the Department for International Development (DfID), whose budget will increase by one-third over the next four years. This is driven by the government's commitment to spend 0.7% of gross national income (GNI) on Official Development Assistance (ODA) by 2013.<sup>3</sup>

The Department of Energy and Climate Change (DECC) also fared relatively well and will see its budget increase by 15.5% in real terms by 2014–15. This is a result of a sharp

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<sup>3</sup> All overseas aid spending is deemed to be for the benefit of the UK as a whole.

Figure 6.4. Spending changes, by department



Notes: Figures show the real-terms percentage change in the department's budget by 2014–15, from its 2010–11 level. Culture, Media and Sport excludes the 2012 London Olympics.

Sources: Authors' calculations using cash spending plans from HM Treasury, *Spending Review 2010* ([http://www.hm-treasury.gov.uk/spend\\_sr2010\\_documents.htm](http://www.hm-treasury.gov.uk/spend_sr2010_documents.htm)) and GDP deflators from Office for Budget Responsibility, *Economic and Fiscal Outlook: November 2010* (<http://budgetresponsibility.independent.gov.uk/econ-fiscal-outlook.html>).

(43.7%) increase in its budget for investment spending to help reduce carbon emissions, through, for example, greater use of carbon capture and storage (CCS) technologies; the resource budget of the department will be cut by about one-quarter over the period.<sup>4</sup> (See Chapter 11 for a detailed discussion of environmental policy.)

At the time of the October 2010 Spending Review, the cash spending plans for the NHS in England implied that its budget would increase slightly faster than the economy-wide inflation that had been projected by the OBR alongside the June 2010 Budget. However, in its November 2010 publication, the OBR revised upwards slightly its forecast for economy-wide inflation. As a result, the latest projections suggest that the NHS in England will see a slight decline in its budget, after economy-wide inflation, over the course of this parliament. Were the planned levels of cash spending and the forecast economy-wide inflation to occur, the government would not have met its pledge to increase spending on the NHS in real terms each year over the next four years.<sup>5</sup> But the

<sup>4</sup> About one-fifth of DECC's programme spending is devolved to Scotland, Wales and Northern Ireland ([http://cdn.hm-treasury.gov.uk/sr2010\\_fundingpolicy.pdf](http://cdn.hm-treasury.gov.uk/sr2010_fundingpolicy.pdf)).

<sup>5</sup> Section 22 of HM Government, *The Coalition: Our Programme for Government*, 2010 ([http://www.direct.gov.uk/prod\\_consum\\_dg/groups/dg\\_digitalassets/@dg/@en/documents/digitalasset/dg\\_187876.pdf](http://www.direct.gov.uk/prod_consum_dg/groups/dg_digitalassets/@dg/@en/documents/digitalasset/dg_187876.pdf)). Note that the government's pledge to increase spending on the NHS in real terms is defined relative to economy-wide inflation, not NHS-wide inflation. To the extent that these are different (e.g. because wage inflation or the increases in drug prices, to which the NHS is particularly susceptible, are higher or lower than economy-wide inflation), the government's pledge may be met (or missed) even if spending on the NHS increases by less (or more) than NHS-specific inflation.

Table 6.2. Spending changes by department: resource and capital

Department	Real increase 2010–11 to 2014–15:			Proportion of change from capital
	% total budget	% resource budget	% capital budget	
International Development	+33.4	+35.0	+13.1	8.1%
Energy and Climate Change	+15.5	-24.6	+43.7	*
NHS (England)	-0.2	+0.8	-18.4	*
Defence	-7.8	-5.3	-8.4	28.1%
Education	-11.4	-4.0	-59.5	68.2%
Transport	-15.1	-18.5	-11.8	47.0%
Culture, Media and Sport	-21.6	-21.6	-54.7	33.9%
Home Office	-25.6	-22.8	-43.4	13.4%
Justice	-25.8	-20.8	-54.7	14.3%
CLG: Local Government	-27.3	-27.3	-	-
Business, Innovation and Skills	-29.0	-15.9	-49.7	16.6%
DEFRA	-31.3	-27.6	-39.7	26.2%
CLG: Communities	-67.8	-48.8	-73.4	81.8%
<b>Total</b>	<b>-11.7</b>	<b>-8.1</b>	<b>-29.5</b>	<b>34.5%</b>

Notes: \* indicates that the change in the capital budget is greater than the total tightening. Culture, Media and Sport excludes the 2012 London Olympics. Resource spending includes depreciation; capital spending figures refer to gross capital spending.

Sources: As Figure 6.4.

Prime Minister, David Cameron, has stated that ‘We are not breaking that promise. We want to see NHS spending increase by more than inflation every year’.<sup>6</sup> This suggests that he wishes to find more money for the NHS between now and 2014–15. The Spending Review left £3.3 billion of department spending in 2011–12 unallocated (known as the DEL reserve), some of which could be used to top up spending on the NHS if the government wished to do so. However, it is not clear that giving the money to the NHS in light of higher-than-expected economy-wide inflation is the best use of this reserve (not least because other government departments could also see the purchasing power of their planned cash spending allocation reduced by the higher-than-expected level of economy-wide inflation).

The Ministry of Defence (MoD) and the Department for Education (which provides education services in England only) were also relative winners, in that they will see less than the average cut experienced across departments over the next four years. The MoD settlement was reached after the Strategic Defence and Security Review, published just before the Spending Review in October 2010.<sup>7</sup> This set out the defence and security pressures facing the UK over the coming years and how these could be handled within a constrained budget. It included proposals to cut substantial assets from all three of the armed forces – such as the decommissioning of the navy’s flagship (HMS Ark Royal),

<sup>6</sup> Hansard, 15 December 2010, column 902 (<http://www.publications.parliament.uk/pa/cm201011/cmhansrd/cm101215/debtext/101215-0001.htm#1012153000010>).

<sup>7</sup> HM Government, *Securing Britain in an Age of Uncertainty: The Strategic Defence and Security Review*, Cm 7948, 2010 ([http://www.direct.gov.uk/prod\\_consum\\_dg/groups/dg\\_digitalassets/@dg/@en/documents/digitalasset/dg\\_191634.pdf](http://www.direct.gov.uk/prod_consum_dg/groups/dg_digitalassets/@dg/@en/documents/digitalasset/dg_191634.pdf)).

reducing the number of Challenger 2 battle tanks by 40%, and removing Harrier jets from service in 2011.<sup>8</sup>

Over two-thirds of the cuts to education spending in England are accounted for by cuts to capital spending; the resource budget of the department will be cut by just 4% by 2014–15, but the capital budget will be cut by 60%. The cut to capital spending will largely be achieved by the government's decision to scale back substantially school refurbishment and building programmes, while the government has chosen to ensure that, on average, schools' resource spending per pupil is not cut in cash terms.<sup>9</sup>

The Department for Transport (which provides transport services to England and is also responsible for the rail network in Wales and a limited number of UK-wide functions, such as the Maritime and Coastguard Agency) fared relatively well for a capital-intensive department, with a real cut to its total budget of 15.1% by 2014–15.

Both the Home Office and the Ministry of Justice – which are responsible, among other things, for policing, prisons and the courts in England and Wales, and for UK immigration – will see their budgets cut by around one-quarter. The Department for Business, Innovation and Skills (whose main remit areas include higher education and skills training in England and funding for the UK-wide research councils) will also see a relatively large cut, of 29.0%, to its budget over the next four years, which will predominantly be delivered by a dramatic change in the way in which teaching in higher education institutions in England is funded – shifting the burden from the taxpayer to future graduates.<sup>10</sup> The Spending Review indicated that higher education non-investment spending would be cut by 40%, including very deep cuts (of the order of around 80%) to higher education teaching budgets, by 2014–15.<sup>11</sup>

The biggest loser from the Spending Review was the Communities budget of the Department for Communities and Local Government (DCLG).<sup>12</sup> This is mostly due to cuts to spending on social housing in England: the department's capital budget will be cut by nearly three-quarters by 2014–15 (a cut in cash terms from £6.8 billion in 2010–11 to £2.0 billion in 2014–15), accounting for over 80% of the overall cut to the Communities budget.

The Local Government budget of DCLG is also forecast to see a relatively large real cut, of 27.3% by 2014–15. The picture for local authorities in England, however, is not as bleak as this perhaps suggests. Local authorities also have spending financed from their council tax revenues, which is under their direct control and unlikely to fall to the same extent.

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<sup>8</sup> For analysis of the Strategic Defence and Security Review, see M. Codner and M. Clarke (eds), *A Question of Security: The British Defence Review in an Age of Austerity*, I. B. Tauris, London, 2011 (<http://www.rusi.org/publications/rusibooks/ref:O4CBD5CE6D4EEA/>).

<sup>9</sup> For a discussion of variation in per-pupil spending changes, see L. Sibieta, 'Pupil premium: simple and transparent financial incentive', IFS Observation, December 2010 (<http://www.ifs.org.uk/publications/5371>).

<sup>10</sup> An analysis of the government's higher education reforms can be found in H. Chowdry, L. Dearden and G. Wyness, *Higher Education Reforms: Progressive but Complicated with an Unwelcome Incentive*, IFS Briefing Note 113 (<http://www.ifs.org.uk/publications/5366>).

<sup>11</sup> Page 44 of the Browne Review of Higher Education Funding shows the teaching grant falling from £3.5 billion to £0.7 billion, which would equate to an 82% cut in real terms if it occurred between 2010–11 and 2014–15 (<http://www.bis.gov.uk/assets/biscore/corporate/docs/s/10-1208-securing-sustainable-higher-education-browne-report.pdf>).

<sup>12</sup> The DCLG is unique in that it has two separate DELs. The 'CLG: Local Government' DEL includes Revenue Support Grant, national non-domestic rates, and related grants to local authorities in England that support services that are typically overall the responsibility of other government departments (such as police and social services). The 'CLG: Communities' DEL includes the department's main programme expenditure and administration costs; most of this expenditure is deemed to benefit England only.



Box 6.1. Changing priorities: composition of public service spending over time

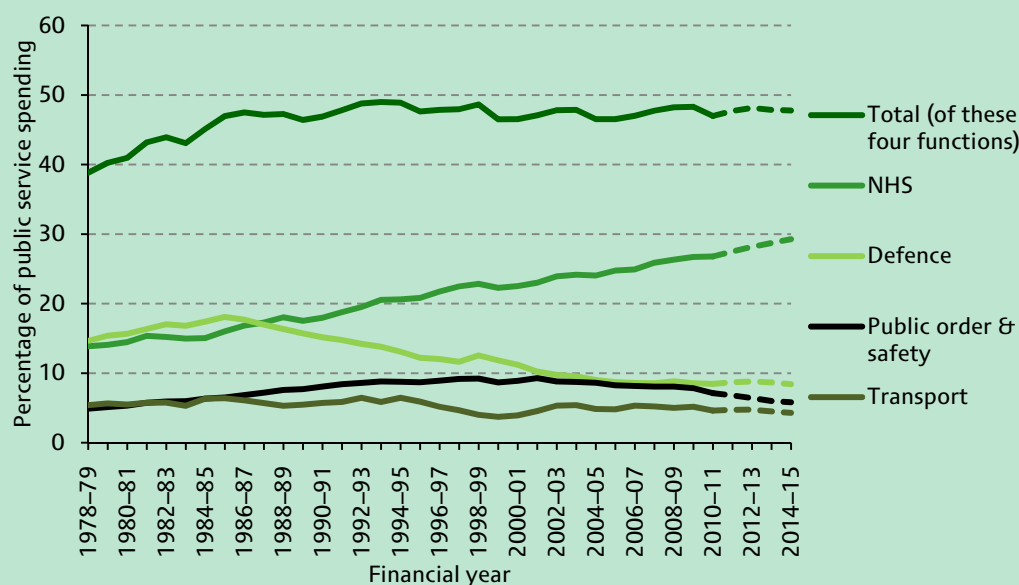
Figure 6.5 shows how current government spending priorities compare with those over the last 30 years, by considering how the proportion of public service spending in four key areas (the NHS, defence, public order and safety, and transport) has changed over time and is forecast to change over the next four years.

The relative protection afforded to the NHS by the government is consistent with the priorities of recent governments. The NHS accounted for a steadily increasing proportion of public service spending from 1984–85, when it was just 15.0%, reaching 26.8% in 2010–11. Our estimates suggest that it could reach nearly 30% in 2014–15.

The increase in the proportion of public service spending on the NHS has been largely matched by a decline in the percentage accounted for by defence spending – down from a high of 18.1% in 1985–86, to a forecast 8.4% in 2014–15. The proportion of public service spending on public order and safety is forecast to continue (although slightly more rapidly) the gradual decline that began in the 2000s, and the proportion spent on transport is also forecast to fall slightly. The total proportion of public service spending going on in these four areas has remained fairly steady since the mid-1980s, at around 47–48%, and is forecast to continue to do so.

The significant area of spending omitted from Figure 6.5 is education spending. Unfortunately, in a departure from the practice of previous Labour spending reviews, the Treasury has not published an estimate of total UK education spending (or even total education spending in England) and – unlike for the other areas of spending – we do not feel we can confidently make an estimate given the available information.

Figure 6.5. Composition of public service spending



Notes: Total public service spending is calculated as in Figure 6.3. Forecasts for spending by function are constructed as follows: assume NHS spending in England remains 84% of total UK NHS spending; assume the Department for Transport’s DEL budget remains 60% of total UK transport spending; assume defence spending is the sum of the DEL budgets of the Ministry of Defence, the Security and Intelligence Agencies and the Special Reserve; assume that the sum of the DEL budgets of the Home Office, the Justice Department and the Law Officers’ Departments remains 60% of total UK spending on public order and safety. Sources: Figures for total public service spending as Figure 6.3. For historical spending by function, see [http://www.ifs.org.uk/ff/lr\\_spending.xls](http://www.ifs.org.uk/ff/lr_spending.xls). Forecasts are authors’ calculations based on the 2010 Spending Review ([http://www.hm-treasury.gov.uk/spend\\_index.htm](http://www.hm-treasury.gov.uk/spend_index.htm)) and HM Treasury, *Public Expenditure Statistical Analyses 2010* ([http://www.hm-treasury.gov.uk/pespub\\_pesa10.htm](http://www.hm-treasury.gov.uk/pespub_pesa10.htm)).



Indeed, Treasury figures from the Spending Review indicate that total spending by local authorities in England will fall by only 14% in real terms between 2010–11 and 2014–15.<sup>13</sup>

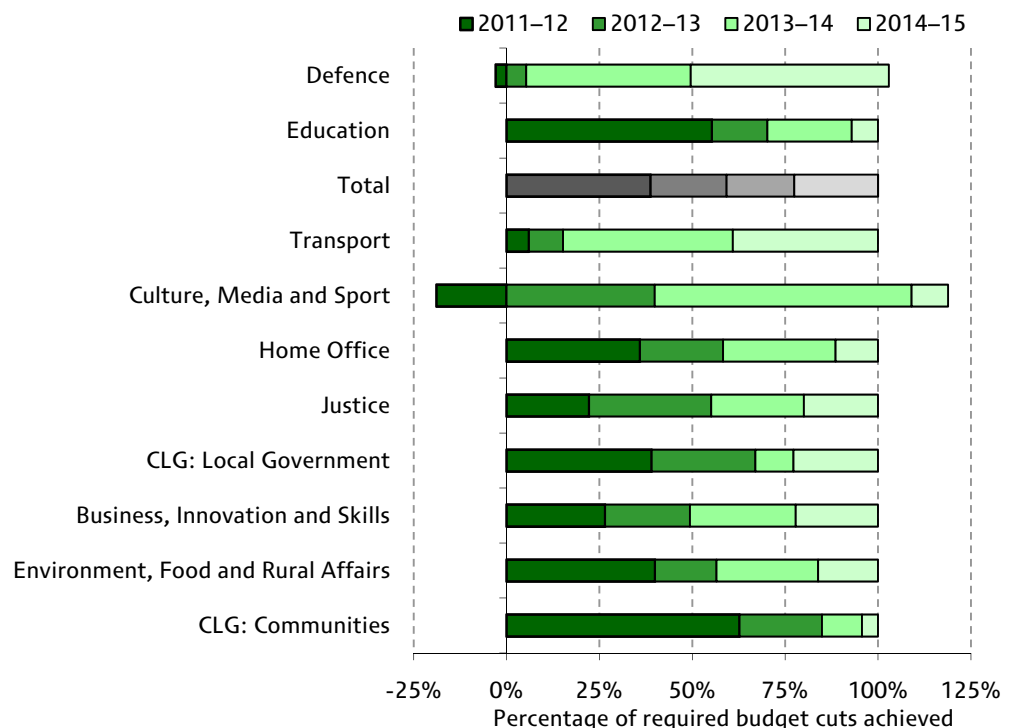
The relative protection of health spending continues a long-term trend for NHS spending to constitute an ever-increasing share of total public spending. This and other longer-term trends in the composition of public spending are briefly discussed in Box 6.1.

### The timing of spending cuts

The plans set out in the Spending Review do not imply the same growth rate for departments' budgets each year between 2011–12 and 2014–15. DfID, for example, is set to receive most of its budget increase in 2013–14; this is consistent with the government meeting its target for ODA spending in 2013 without putting pressure on other departments' budgets in the previous two financial years. DECC will see most of its budget increase in 2012–13; the major new spending commitment that DECC has is to build a commercial-scale CCS demonstration plant, for which the contract is not planned to be awarded until December 2011.

Figure 6.6 shows the profile of the spending cuts over the next four years for the main departments experiencing cuts. If the profile were completely smooth, 25% of the required budget cuts would be achieved in each of the four years. If less than 25% of the required cuts are achieved in 2011–12, or less than 50% achieved during 2011–12 and 2012–13, then the cuts are 'back-loaded': in other words, the budget cuts are delayed towards the end of the period. Conversely, if more than 25% is done in the first year, or more than 50% in the first two years combined, then the cuts are 'front-loaded' and the

Figure 6.6. Time profile of departmental spending cuts



Notes: Departments are ordered by increasing size of real budget cut (from top to bottom), as in Figure 6.4. Sources: As Figure 6.4.

<sup>13</sup> Table 1 of the 2010 Spending Review ([http://www.hm-treasury.gov.uk/spend\\_sr2010\\_documents.htm](http://www.hm-treasury.gov.uk/spend_sr2010_documents.htm)).

department's budget is being cut more at the beginning of the period. The bar for total departmental spending shows that, overall, the departmental cuts are front-loaded, with nearly 40% of the total tightening being achieved in the first year. The rest of the tightening is achieved fairly evenly across the remaining three years.

The cuts to Education and CLG Communities are very front-loaded: in both cases, more than half of their total budget cut is set to occur in 2011–12. These two departments have the majority of their budget cuts coming from cuts to capital spending (68.2% and 81.8% respectively). It is perhaps relatively easy to cut capital spending quickly simply by no longer going ahead with previously planned (but not yet commissioned) capital projects. CLG Local Government also has its cuts front-loaded.

The MoD and Department for Transport, by contrast, have their budget cuts very back-loaded, and are set to experience only relatively small real cuts to their budgets before 2013–14. The armed forces are currently deployed in overseas conflict, and so budget cuts that reduce the capabilities of the armed forces would be particularly difficult to implement before these activities have been reduced. The Department for Transport is capital intensive, but the nature and scale of its investment projects might mean that many of those for 2011–12 are already under way and therefore less appropriate to cut back; the government's investment in Crossrail is perhaps the most high-profile example.

## Public spending in Scotland, Wales and Northern Ireland

The total spending budgets of the devolved administrations depend on the spending decisions made by the UK government, as set out in the previous subsection, but the devolved administrations have considerable leeway over how to spend their budgets and they need not adhere to the same priorities as chosen for England. Therefore, the cuts to many areas of public spending just described refer to spending in England only.

We now turn to examine how the budget allocations to the devolved administrations are determined, what the 2010 Spending Review settlement for each of the nations is, and how the devolved administrations are planning to spend their budgets. Where possible, we provide comparisons across the nations, though this is difficult in many cases.

### *Allocating resources to the nations: the Barnett formula*

The devolved administrations in Scotland, Wales and Northern Ireland are funded largely through block grants from the Treasury; it is then up to the administrations to decide how this funding is allocated to different public services and departments (except for a small number of exceptional items that are ring-fenced by Whitehall).

Changes in (but not the levels of) the Treasury-assessed DEL for the devolved administrations are determined by the Barnett formula (the levels of spending are determined by the levels of spending that existed before the introduction of the Barnett formula). The formula is designed to apply the same pounds-per-head change in 'comparable' (a term we define below) English spending automatically to Scotland, Wales and Northern Ireland.<sup>14</sup>

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<sup>14</sup> For example, if there is a £1 billion cash increase in comparable English spending, the Scottish government would see a £100.3 million increase in its block grant, the Welsh Assembly government a £57.9 million increase and the Northern Ireland Executive a £34.5 million increase, since the populations of Scotland, Wales and Northern Ireland are 10.03%, 5.79% and 3.45% of the English population (respectively) according to the mid-2009 population estimates (<http://www.statistics.gov.uk/statbase/product.asp?vlnk=15106>). The level of spending per head is higher in the devolved administrations than in England; hence one of the implications of the Barnett formula is that, as cash spending per head in England rises (falls), spending levels per capita will converge (diverge) across the UK. This is termed the 'Barnett squeeze'.

### Box 6.2. Calculating the changes in the devolved governments' DELs

Not all functions of the various departments in Whitehall are devolved to Scotland, Wales and Northern Ireland, and the functions that are devolved vary by nation. To take account of this, the various sub-programmes of each department are given a weight that reflects whether the function is fully devolved (100%) or not devolved (0%). For example, the Rail Network Grant is devolved to Scotland and Northern Ireland (so is given a weight of 100% for these nations), but not devolved at all to Wales (so is assigned a 0% weight). A weighted sum of the individual percentages for each departmental sub-programme is used to calculate an overall percentage of a department's expenditure that is devolved; this will vary by nation. This departmental average is used to determine how changes in Whitehall departmental spending affect grants to the devolved administrations. For transport, for example, the overall percentages for the Department for Transport are 100% for Northern Ireland, 98.0% for Scotland and 73.1% for Wales. Therefore a £1 per head increase in the budget of the Department for Transport would boost grants to Northern Ireland by £1 per head, Scotland by 98p per head and Wales by 73.1p per head. A list summarising the areas (called comparable functions) devolved to each of the nations can be found in the Spending Review's supporting documents.<sup>a</sup>

Changes in grants to the devolved administrations are calculated using departmental average percentages because changes at the level of the sub-programme are generally not known at the time grants are determined (i.e. at the Spending Review). If all sub-programmes see their spending change by the same proportion, then using the departmental average generates an appropriate change in grants to the devolved administrations to cover comparable functions. However, if the proportional changes in spending differ by sub-programme, then the changes in funding for the devolved administrations may not reflect the changes in the amount spent on comparable functions in England.

The October 2010 Spending Review provides a fairly extreme example of this. Overall, the Local Government (LG) portion of the budget for DCLG was cut in the Spending Review by 19.6% in cash terms (equivalent to the 27.3% real-terms cut mentioned in Figure 6.4). The largest sub-programme of this is national non-domestic rates payments (comprising 82.7% of the budget). Because this tax is fully devolved to Scotland and Northern Ireland, and is set and collected by these devolved administrations, one would not want changes in non-domestic rates revenues in England to generate changes in grants to the devolved administrations. For this reason, Scotland and Northern Ireland are given a weight of 0% for this item. In contrast, non-domestic rates are not fully devolved to Wales so the item is given a weight of 100%. This translates into the overall weight for DCLG:LG budget changes being 17.3% for Scotland and Northern Ireland but 100% for Wales.

At the sub-programme level, the overall cut to the DCLG:LG budget is made up of cash *increases* in national non-domestic rates payments, which are more than offset by cash cuts to other sub-programmes. Because the changes in grants to the devolved administrations are calculated at the department level, this means Scotland and Northern Ireland will see a cut of only 17.3% of the overall (19.6%) cash cut in DCLG:LG, rather than a combination of 0% of the increase from national non-domestic rates receipts and 100% of the larger cash cut to other sub-programmes, which together would have resulted in a much larger cut.

As a result, Scotland and Northern Ireland will receive approximately £400 million and £150 million, respectively, more a year by 2014–15 than if the Barnett formula were applied at the sub-programme level within the DCLG:LG budget. Given that forecasts are already made for non-domestic rates revenue, it is feasible, and almost certainly fairer, to apply the Barnett formula in this instance separately for the DCLG:LG spending from non-domestic rates payments (using a 0% weight) and the other programmes covered by DCLG:LG (using a 100% weight) when calculating how much the Scottish and Northern Irish budgets should be affected by changes in the DCLG:LG budget.

a. See page 15 and annex B of HM Treasury, *Funding the Scottish Parliament, National Assembly for Wales and Northern Ireland Assembly: The Statement of Funding Policy*, 2010 ([http://cdn.hm-treasury.gov.uk/sr2010\\_fundingpolicy.pdf](http://cdn.hm-treasury.gov.uk/sr2010_fundingpolicy.pdf)).

The Barnett formula is applied to changes in ‘comparable’ English spending: that is, spending in England on functions that are devolved to Scotland, Wales and Northern Ireland. It is, therefore, not applied to any changes in spending by Whitehall departments that is deemed to benefit the whole of the UK (for example, defence), and, for a given nation, it is not applied to increases in spending on functions that are not devolved to that nation since spending by Whitehall will cover both England and that nation (for example, changes to spending on benefit administration by the Department for Work and Pensions (DWP) affect only Northern Ireland, as DWP’s spending covers England, Scotland and Wales).<sup>15</sup> Because many Whitehall departments fund a mix of programmes – some of which are devolved and others not – calculating how much funding should be given to the devolved governments is not as simple as might be expected; this is discussed in more detail in Box 6.2.

The Barnett formula was intended to be a temporary solution, in place until a formula that went beyond population weighting and paid more attention to the differing needs of the various parts of the UK could be designed and agreed.<sup>16</sup> Despite the Conservative Party stating that it was committed to a review of the needs of the nations<sup>17</sup> and the Liberal Democrat 2010 election manifesto<sup>18</sup> pledging replacement of the Barnett formula, the UK government currently has no plans to reform this system. Perhaps unsurprisingly – given that Wales is thought to lose from the status quo while Scotland and Northern Ireland are thought to benefit – the Welsh Assembly government supports the

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<sup>15</sup> Determining what spending counts as benefiting the whole of the UK involves an element of discretion that can lead to disagreements between the UK government and the devolved governments. For instance, all spending on the London 2012 Olympics (including that used for regeneration and transport in East London) is counted as UK-wide, so no additional money is provided to Scotland, Wales or Northern Ireland under the Barnett formula. Similarly, expenditure on the Royal Botanic Gardens in Kew (London) is counted as UK-wide, whilst spending on the Royal Botanic Garden in Edinburgh and the National Botanic Garden of Wales must be financed by the devolved administrations.

<sup>16</sup> Assessments of needs were conducted in 1979, 1993 and 2009 but were not acted upon (with the 1993 estimate unpublished until 2009). The most recent assessment of needs was the Holtham Commission on government funding for Wales, which found that Wales receives less and Scotland and Northern Ireland more than if a needs-based formula were used. See Independent Commission on Funding and Finance for Wales, *Fairness and Accountability: A New Funding Settlement for Wales*, 2010 (<http://wales.gov.uk/docs/icffw/report/100705fundingsettlementfullen.pdf>).

<sup>17</sup> This commitment was stated in an interview by Philip Hammond for the BBC (discussed at [http://www.bbc.co.uk/blogs/davidcornock/2010/04/welsh\\_policies\\_fail\\_to\\_make\\_th.html](http://www.bbc.co.uk/blogs/davidcornock/2010/04/welsh_policies_fail_to_make_th.html)) and set out in a similar pledge made by David Cameron at the launch of the Conservatives’ Welsh manifesto (see <http://tinyurl.com/cameron-barnett-wales>).

<sup>18</sup> *Liberal Democrat Manifesto 2010* ([http://network.libdems.org.uk/manifesto2010/libdem\\_manifesto\\_2010.pdf](http://network.libdems.org.uk/manifesto2010/libdem_manifesto_2010.pdf)).

replacement of the Barnett formula, but the Scottish government would rather the Barnett formula be retained than reformed.<sup>19</sup>

### *Spending Review 2010: devolved administrations' allocations*

Table 6.3 shows Treasury figures for DEL allocations to each of the devolved governments for each year between 2010–11 and 2014–15, and the cumulative real-terms cut relative to the 2010–11 baseline.<sup>20</sup> It should be noted that the DEL allocations are not the same as total departmental spending in the nations, as some spending by other central government departments covers England and Wales, Great Britain or the entire United Kingdom. In other words, the Welsh DEL budget is required to fund a different set of public services from the Scottish budget, which in turn covers different public services from the Northern Irish budget. In addition, this means it is not possible to compare changes in DEL grants to the devolved administrations with changes in DEL spending in England.

**Table 6.3. Planned DEL allocations to the devolved administrations**

Department	2010–11 £ billion	2011–12 £ billion	2012–13 £ billion	2013–14 £ billion	2014–15 £ billion
<b>Scotland</b>					
Resource DEL	24.8	24.8	25.1	25.3	25.4
Capital DEL	3.4	2.5	2.5	2.2	2.3
<i>Total DEL</i>	<i>28.2</i>	<i>27.3</i>	<i>27.6</i>	<i>27.5</i>	<i>27.7</i>
Real DEL cut relative to 2010–11	–	–5.6%	–6.6%	–9.4%	–11.1%
<b>Wales</b>					
Resource DEL	13.3	13.3	13.3	13.5	13.5
Capital DEL	1.7	1.3	1.2	1.1	1.1
<i>Total DEL</i>	<i>15.0</i>	<i>14.5</i>	<i>14.5</i>	<i>14.5</i>	<i>14.6</i>
Real DEL cut relative to 2010–11	–	–5.7%	–7.7%	–10.1%	–11.9%
<b>Northern Ireland</b>					
Resource DEL	9.3	9.4	9.4	9.5	9.5
Capital DEL	1.2	0.9	0.9	0.8	0.8
<i>Total DEL</i>	<i>10.5</i>	<i>10.3</i>	<i>10.3</i>	<i>10.3</i>	<i>10.3</i>
Real DEL cut relative to 2010–11	–	–4.3%	–6.4%	–8.8%	–11.2%

Notes: Real DEL cuts relative to 2010–11 refer to cumulative real-terms reductions in DELs between the 2010–11 baseline and any given year.

Sources: Authors' calculations using the 2010 Spending Review ([http://www.hm-treasury.gov.uk/spend\\_sr2010\\_documents.htm](http://www.hm-treasury.gov.uk/spend_sr2010_documents.htm)) and GDP deflator forecasts from Office for Budget Responsibility, *Economic and Fiscal Outlook: November 2010* (<http://budgetresponsibility.independent.gov.uk/econ-fiscal-outlook.html>).

<sup>19</sup> See <http://wales.gov.uk/newsroom/improvingpublicservices/2010/100525spending/?lang=en> and page 97 (of the PDF) at <http://www.publications.parliament.uk/pa/ld200809/ldselect/ldbarnett/139/139.pdf>: 'If you are saying to me would I prefer to go from where we are just now to a needs-based formula, I think we are better to stay with where we are'.

<sup>20</sup> As explained in the previous subsection, changes to the DELs for the devolved administrations were determined in the 2010 Spending Review using the Barnett formula and the UK government's decisions on spending on Whitehall departments.

The next three subsections consider the spending decisions that have been made by the devolved administrations in Scotland, Wales and Northern Ireland respectively. Where possible, comparisons are made between countries. However, this is not an easy task, for two reasons. First, departmental structures are different in the different nations. For example, higher education is funded through the Department for Business, Innovation and Skills in England, but is part of the education departments in the other nations. Second, information on future spending plans in Scotland and Wales is less complete than in England: Wales has produced draft plans until 2013–14, and Scotland only for 2011–12. Northern Ireland, like the UK government, has plans up to 2014–15.

### Spending in Scotland

The block grant from Whitehall for services managed or funded by the Scottish government is to be cut in real terms by 11.1% between 2010–11 and 2014–15 (made up of a 7.3% cut in current expenditure and a 38.8% cut in capital expenditure), as shown in Table 6.3. Table 6.4 shows the Scottish government’s planned DELs by department for 2011–12, the only year for which a detailed budget has been produced.

Table 6.4. Planned departmental expenditure limits in Scotland

Department	2010–11 £ million	2011–12 £ million	% change (real terms)
Other Health & Wellbeing portfolio	581	486	–18.3%
Justice	1,435	1,267	–13.8%
Finance & Sustainable Growth	2,473	2,219	–12.5%
Administration	262	236	–12.1%
Rural Affairs & the Environment	594	539	–11.5%
Office of the First Minister	280	255	–11.1%
Education and Lifelong Learning	2,715	2,481	–10.8%
Crown Office & Procurator Fiscal	118	108	–10.7%
Local Government	9,585	9,046	–7.9%
Scottish Parliament & Audit Scotland	99	96	–5.2%
Health	11,082	11,272	–0.8%
<b>Total</b>	<b>29,224</b>	<b>28,007</b>	<b>–6.5%</b>

Notes: The 6.5% real-terms cut reported here is larger than the 5.6% reported in Table 6.2 because the Scottish government has decided to delay the in-year cuts made by the Treasury in 2010–11 until 2011–12. Furthermore figures for total DELs do not correspond to those in the 2010 Spending Review as the Scottish Budget includes an over-allocation of £100 million per year.

Sources: Scottish Draft Budget 2011–12, <http://www.scotland.gov.uk/Publications/2010/11/17091127>. GDP deflator forecasts from Office for Budget Responsibility, *Economic and Fiscal Outlook: November 2010* (<http://budgetresponsibility.independent.gov.uk/econ-fiscal-outlook.html>). Authors’ calculations.

The largest department – the Department of Health – is, as in England, a relative winner, suffering by far the smallest cut in real expenditure. The only other departmental budget seeing smaller-than-average cuts is the budget for the Scottish Parliament and Audit Scotland. Similar to England, spending on each of housing and regeneration (within the Wellbeing portfolio), justice, and further and higher education (within the Education and Lifelong Learning portfolio) is being cut significantly (by 21.3%, 13.8% and 14.2% respectively, in real terms).

At present, Scottish students and students from non-UK EU countries studying in Scotland do not make any contribution to the cost of their university education, though students from England, Wales and Northern Ireland pay £1,820 in fees per year. The Scottish government is now consulting on how best to increase universities’ sources of



revenue as it implements the significant cuts that it has announced for the higher education budget in 2011–12. A Green Paper has been published which outlines options, including the option of graduate contributions from Scottish students and higher fees for students from the rest of the UK.<sup>21</sup>

Central government grants to local authorities in 2011–12 are planned to be £11,548 million (£322 million of this coming from the budgets of other departments and £2,180 million from non-domestic rates revenue<sup>22</sup>), down from £11,986 million in 2010–11 (of which £324.5 million was from the budgets of other departments and £2,071 million from non-domestic rates revenue).<sup>23</sup> This represents a real-terms cut of 6.0%, slightly less than the average cut to DELs (but slightly higher than the cuts planned to overall spending managed by the Scottish government including Annually Managed Expenditure). The Scottish government has said that this settlement is more generous than the settlements given to English local authorities; it is true that it is a smaller percentage cut, but the local government budget in Scotland covers a broader range of functions than that in England. In particular, the local government budget in Scotland covers most spending on schools, spending that in England is counted as part of Department for Education spending, which faces smaller cuts than local government in 2011–12 (and over the Spending Review period as a whole).

### Spending in Wales

The Welsh Assembly government's DEL (consisting of a grant provided by Westminster and non-domestic rates revenues) is due to be cut in real terms by 11.9% (consisting of a real-terms cut of 8.1% in current spending and 41.4% in capital spending), as shown in Table 6.3. The Welsh Assembly government presented a draft budget in November 2010 which included draft spending plans for the three years to 2013–14. Table 6.5 shows the planned DEL budgets by department.<sup>24</sup>

Planned spending cuts in Wales are distributed more equally across departments than in either England or Scotland. This is primarily because the Welsh government has chosen not to protect health from spending cuts: health spending is due to fall by 8.1% in real terms by 2013–14, compared with a fall of just 0.2% in England by this date (a fall which, as we discussed above, is arising only because estimates of economy-wide inflation have risen since the UK government set out cash spending plans for the NHS). This is an important policy difference, and, given the size of the health budget (41% of spending by the Welsh Assembly government in 2010–11), means that cuts in other departments are significantly smaller than they would be if the health budget were instead protected to the extent it is in England. For example, if the Welsh health budget were to be frozen in real terms, cuts to other departmental budgets of 16.9% would be required by 2013–14, rather than the 11.4% planned in the draft budget.<sup>25</sup>

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<sup>21</sup> Scottish Government, *Building a Smarter Future: Towards a Sustainable Scottish Solution for the Future of Higher Education*, 2010 (<http://www.scotland.gov.uk/Resource/Doc/335256/0109656.pdf>).

<sup>22</sup> Transfers to local government funded by non-domestic rates are counted as part of Annually Managed Expenditure in Scotland (and therefore do not appear in Table 6.4), whereas in England they are included in DCLG's Local Government DEL.

<sup>23</sup> As in England, the Scottish government threatened local authorities with larger cuts to their budgets if they did not agree to a council tax freeze.

<sup>24</sup> The draft budget is due to be revised on 1 February, after the Green Budget goes to print; the following figures are correct at the time of writing but may not be fully consistent with the revised budget plans.

<sup>25</sup> Perhaps surprisingly given the scale of these cuts, the Welsh Assembly government has maintained its commitment to free prescriptions and free hospital car parking for all.

Table 6.5. Planned departmental expenditure limits in Wales

Department	2010–11 £ million	2013–14 £ million	% change (real terms)
Public Services and Performance	70.4	57.0	–24.7%
Environment and Housing	801.7	678.1	–21.4%
Economy and Transport	973.7	846.9	–19.2%
Central Services and Administration	365.6	318.7	–19.0%
Heritage	157.6	147.0	–13.3%
Rural Affairs	143.3	133.9	–13.1%
Children, Education, Skills	1,878.0	1,849.0	–8.5%
Social Justice and Local Government	4,459.9	4,417.5	–8.2%
Health	6,170.8	6,101.1	–8.1%
<b>Total</b>	<b>15,021</b>	<b>14,549</b>	<b>–10.0%</b>

Notes: The % change (real terms) column refers to the cumulative real-terms change in departmental budgets between the 2010–11 baseline and 2013–14. Figures for total DELs do not correspond to those produced by the Treasury because the Treasury excludes non-cash items (such as depreciation) which are included in the figures constructed by the Welsh Assembly government.

Sources: Welsh Draft Budget 2011–12, <http://wales.gov.uk/about/budget/draftbudget2010/?lang=en>. GDP deflator forecasts from Office for Budget Responsibility, *Economic and Fiscal Outlook: November 2010* (<http://budgetresponsibility.independent.gov.uk/econ-fiscal-outlook.html>). Authors' calculations.

The Department for Social Justice and Local Government and the Department for Children, Education, Lifelong Learning and Skills also see cuts of just over 8%. Within the latter department, spending on higher education and student support faces the largest cuts (12.8% in real terms), although these cuts are significantly smaller than those planned in England and Scotland; in Scotland, spending on higher education is due to fall by more in one year than in three years in Wales.

The Welsh Assembly government has chosen to implement a similar system of student fees, maintenance loans and grants, and loan repayment to England, with the exception that Welsh-domiciled students will continue to pay the current level of fees wherever they study in the UK. This means Welsh higher education institutions will be able to charge up to £6,000 per annum, or £9,000 per annum if they can demonstrate a commitment to widening access, but that Welsh students will pay only £3,290 per annum (in real terms). The income repayment threshold will increase to £21,000 for students who start their courses in September 2012 or later, with the real interest rate increasing with income as in England. Because the Assembly will pay part of the fees for Welsh-domiciled students, spending on student support is likely to rise, meaning that the cuts in teaching grants to universities will likely exceed the planned overall 12.8% real-terms cut in higher education spending.

Relative losers include the Economy and Transport department, particularly transport capital spending, which will fall by around 36% in real terms by 2013–14 as opposed to a cut of only 9.5% in the capital spending of the Whitehall Department for Transport by this date. The Environment and Housing department is also to see relatively large cuts, particularly the regeneration and housing budgets (which see real-terms cuts of 34% and 23%, respectively, by 2013–14), although by less than in England (where the Communities element of DCLG, which covers housing and large parts of regeneration spending in England, sees a real-terms cut of 65% by this date). The Public Services and Performances unit, which funds independent institutions such as Estyn (Wales's school inspectorate), and Central Services and Administration spending are also relative losers.



However, as we said above, the cuts to these relative losers are, in general, smaller than the cuts to the departments that are relative losers in Whitehall, because planned cuts to NHS spending in Wales mean smaller cuts are needed elsewhere.

Welsh Assembly government grants to local authorities (including redistributed non-domestic rates) are due to be £4,302 million in 2013–14, down from £4,309 million in 2010–11 – a real-terms cut of 7.2% over the three years. The Welsh Local Government Settlement contains detailed breakdowns of spending by function only for 2011–12, when there is to be an overall real-terms cut of 4.0%.<sup>26</sup> In addition to the Local Government Settlement, a further £487 million will be provided for capital investment to be managed by local authorities from the budgets of other departments, down from £568 million in 2010–11 (a real terms cut of 16.3%). This funding is to finance things such as housing maintenance, schools maintenance and transport investment.

The Welsh Assembly government compiles figures on the planned spending of local authorities, so it is possible to say more than we can about such spending than in England or Scotland. Including spending financed by council tax revenues (estimated at £1,096 million in 2011–12), but excluding the additional capital investment described above, Welsh local authorities are expected to distribute funding in 2011–12 as follows:

- Education spending is to be £2,181 million, down from £2,194 million (a real-terms cut of 3%). Within the education budget, spending on primary and nursery schools is due to rise from £947 million to £958 million, secondary school spending is due to fall from £813 million to £793 million, and special education spending to rise from £225 million to £232 million.
- Social services spending is to be £1,296 million, an increase from £1,267 million (a real-terms cut of 0.2%).
- Spending on roads and transport is to be £225 million, down from £231 million (a real-terms cut of 5.0%).
- Spending on the fire service is due to be £139 million, down from £155 million (a real-terms cut of 12.5%).
- Spending on other services and deprivation is due to be £957 million, up from £947 million (a real-terms cut of 1.4%).
- Spending on capital finance (repayments and interest) is due to be £302 million, down from £304 million (a real-terms cut of 3.1%).

### *Spending in Northern Ireland*

The block grant provided by Westminster for services managed or funded by the Northern Irish Executive is to be cut in real terms by 11.2% by 2014–15 (as shown in Table 6.3), consisting of a real-terms cut of 7.5% in current spending and 39.7% in capital spending.<sup>27</sup> The Northern Ireland Executive has published draft spending plans for the four years to 2014–15.

Table 6.6 shows planned spending by department. Unlike for Wales and Scotland, the planned spending figures include resources raised from part of local domestic taxation

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<sup>26</sup> For details, see <http://wales.gov.uk/docs/dsjlg/publications/localgov/101123setkeytablen.xls>.

<sup>27</sup> The Northern Ireland Executive is also able to borrow up to £200 million per year from the Treasury for capital spending under the Reinvestment and Reform programme, sums on which it pays interest.

(regional rates in the case of Northern Ireland), so the figures are not consistent with those published by the other nations of the UK.

Because of lumpy capital investment (or disinvestment) in 2010–11, the figures for the departments of Agriculture and Rural Development and the Environment should be interpreted with caution; the current budgets for these departments show real-terms cuts between 2010–11 and 2014–15 of 11.9% and 15.1%, respectively.

Like England and Scotland, the health budget is largely protected from cuts. Other relative winners include the Department of Culture, Arts and Leisure, the Department of Finance and Personnel, and the Office of the First Minister and Deputy First Minister, with all facing relatively small real-terms cuts. There are large cuts to the Northern Ireland Audit Office; Enterprise, Trade and Investment; the Northern Irish Assembly and Ombudsman; and the Department for Social Development (which has responsibility for, amongst other things, housing and the management of the benefits system<sup>28</sup>). Unlike England and Scotland, there is a larger cut to the department responsible for schools spending (Education) than to that responsible for further and higher education (Employment and Learning).

Table 6.6. Planned departmental spending in Northern Ireland (including DEL and that funded from regional rates)

Department	2010–11 £ million	2014–15 £ million	% change (real terms)
Environment	312.0	129.1	–62.5%
NI Audit Office	9.8	8.0	–26.1%
Enterprise, Trade & Investment	273.0	234.3	–22.3%
NI Assembly & Ombudsman	53.6	46.6	–21.3%
Social Development	790.7	713.7	–18.3%
Regional Development	1,073.5	1,012.8	–14.6%
Education	2,084.1	1,987.1	–13.7%
Food Standards Agency	9.7	9.3	–13.2%
Justice & Public Prosecution	1,341.4	1292.5	–12.8%
Authority for Utility Regulation	0.5	0.5	–9.5%
Employment & Learning	836.5	842.1	–8.9%
Finance & Personnel	198.1	209.3	–4.4%
Health, Social Services & Safety	4,504.6	4,792.5	–3.7%
OFMDFM	92.2	99.3	–2.5%
Culture, Arts & Leisure	173.2	188.8	–1.3%
Agriculture & Rural Development	51.4	248.3	337.2%
Total	11,804.3	11,814.2	–9.4%

Notes: The % change (real terms) column refers to the cumulative real-terms change in departmental budgets from the 2010–11 baseline to 2014–15. Figures for total departmental spending in each year do not correspond to DELs produced by the Treasury because they include spending financed by borrowing and revenue from the regional component of domestic rates (the Northern Irish equivalent of council tax).

Sources: Northern Ireland Draft Budget 2011–15, <http://www.northernireland.gov.uk/index/budget2010.htm>. GDP deflator forecasts from Office for Budget Responsibility, *Economic and Fiscal Outlook: November 2010* (<http://budgetresponsibility.independent.gov.uk/econ-fiscal-outlook.html>). Authors' calculations.

<sup>28</sup> The expenditure figures for the Department of Social Development do not include expenditure on welfare benefits, which are funded directly by the UK Treasury.

The settlement for local authorities (called district councils) has yet to be determined. It should be noted that district councils in Northern Ireland have significantly fewer responsibilities than local authorities in Scotland and Wales. In particular, they are not responsible for education and library services (which are handled by regional education and library boards) or social services (which are managed by health and social service trusts).

## Summary

Spending Review 2010 announced that overall departmental spending will be cut by 11.7% in real terms over the period from 2010–11 to 2014–15. However, the spending cuts that were announced were not equally divided across the functions of government. Overseas aid spending will increase substantially over the next four years, in order to meet international commitments. In England, Scotland and Northern Ireland, health spending is, unlike most other departments, protected from deep cuts, though in Wales it is set to experience a larger cut than in the other regions. Meanwhile, spending on higher education teaching and social housing, for example, is – across most regions of the UK – to experience relatively large cuts.

## 6.4 Did previous spending cuts go to plan?

One key risk to the future strength of the public finances is that the government is not able to deliver the planned squeeze on public spending.<sup>29</sup> This risk could materialise in at least three different ways:

- the government might not be able to pass the legislation required to introduce a cut through parliament;
- a change to the delivery of public services might not bring about the spending reduction that is expected;
- the quality and quantity of public services delivered might be lower than the government – or voters – are prepared to tolerate and the government might choose, or be forced into, revising its plans.

This section therefore looks back to the mid-1990s, the last time a UK government tried to cut public spending substantially, to see what lessons this experience can teach us.

Public borrowing increased dramatically during the recession of the early 1990s. Discretionary tax cuts and spending giveaways in the Conservative government's Budget immediately preceding the 1992 general election further worsened the state of the public finances, but after being returned to power in 1993, the government announced a large fiscal tightening, of which about half was planned to come from restraining the growth of public spending.<sup>30</sup> Between Autumn 1991 and Autumn 1992, the government had revised

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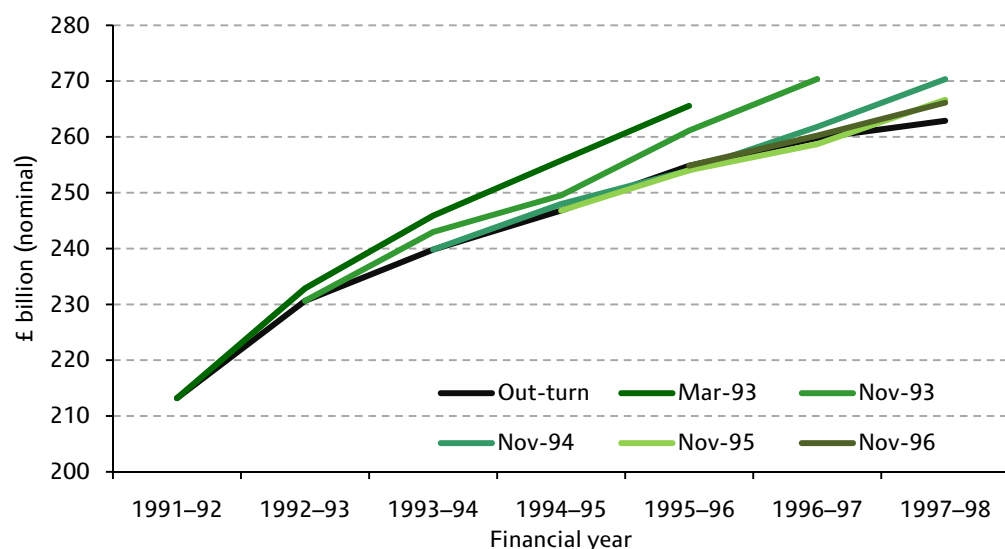
<sup>29</sup> Other key risks to the strength of the public finances are that economic growth turns out to be weaker than expected or that – even with the expected level of growth – the economy nonetheless generates lower tax revenues than expected. These are discussed and quantified in Chapter 2. The outlook for the economy is discussed in Chapters 1 and 4, while Chapter 5 sets out alternative forecasts for tax revenues and borrowing.

<sup>30</sup> The Chancellor at the time, Norman (now Lord) Lamont, has since written 'My second budget was on the eve of the 1992 election, which put me in an impossible position. It was the most political of all my budgets, and it completely wrong-footed Labour, who were not sure whether to oppose or support a low rate band, because of its appearance of help for the lower paid. Looking back on it, it was not a very good budget. But it did help us to win the 1992 election. My next budget, my third budget, helped to lose the 1997 election for the Conservatives, but it was definitely my best budget' (pages 149–150 of Lord Lamont, 'Out of the ashes', in H. Davies (ed.), *The Chancellors' Tales: Managing the British Economy*, Polity Press, London, 2006).

down its planned growth in spending, but it was not until the November 1993 Budget – then Chancellor Ken Clarke’s first – that a significant real-terms cut in spending was planned (for 1994–95).

Figure 6.7 shows the out-turn for the New Control Total, the measure of public spending targeted by the then government, and how this compares with the plans set out in various Budgets over the period. The government was actually very successful at meeting its cash spending plans over this period, in many cases actually underspending relative to what had been planned.

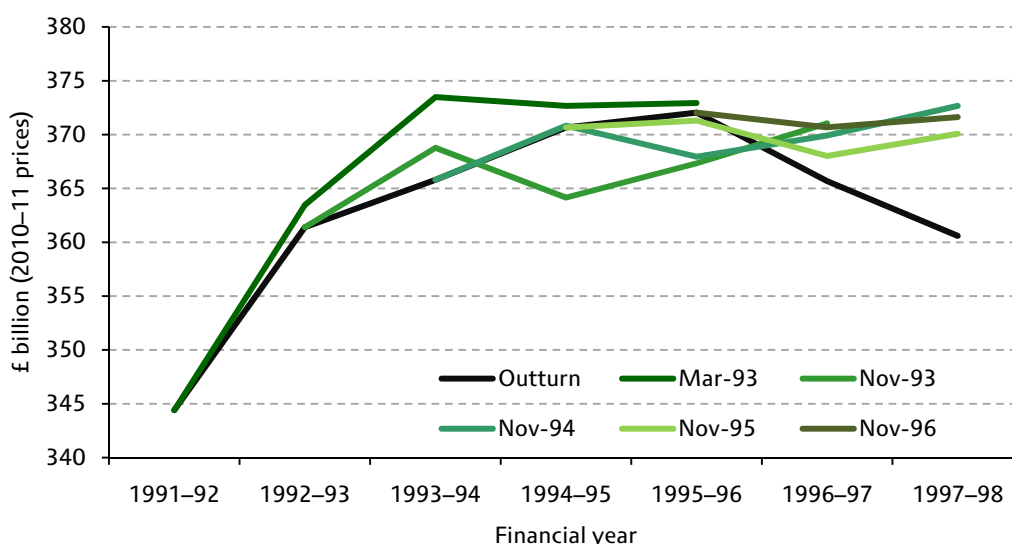
Figure 6.7. Control Total: plans and out-turn, nominal terms



Note: Figures for each Budget ‘plan’ show the nominal growth planned in each statement, applied to the actual out-turn for spending in the relevant base year.

Sources: Out-turn data are from HM Treasury, *Public Expenditure Statistical Analysis*, various years. Budget plans are authors’ calculations using HM Treasury, *Financial Statement and Budget Report*, various years.

Figure 6.8. Control Total: plans and out-turn, real terms (2010–11 prices)



Note: Figures for each Budget ‘plan’ show the real-terms growth planned in each statement, applied to the actual out-turn for spending in the relevant base year.

Sources: As Figure 6.7.

However, it was much less successful at meeting its real spending plans. Figure 6.8 compares the out-turn for the New Control Total with the plans in real terms; the out-turn data account for inflation as it turned out, and each Budget line assumes that inflation turned out to be what was forecast at the time of that Budget. The plans therefore differ from the out-turn both if the cash spending differed from the plans (as was shown in Figure 6.7) and because inflation turned out to be different from what was forecast.

The November 1993 Budget had planned a real-terms cut in spending for 1994–95, but by the time of the November 1994 Budget this real cut was delayed by a year to 1995–96. The November 1995 Budget again delayed the real-terms cut by a further year until 1996–97. The out-turn data show that a real cut was finally achieved in this year. A further large cut to public service spending was also delivered in 1997–98 (the first year of the new Labour government, which had pledged in its election campaign to implement the previous government's spending plans for that year and the next).

In the 1990s, the government successfully met its cash spending plans, but, with inflation repeatedly turning out lower than expected, it failed to achieve real cuts in spending as quickly as it had initially planned. Perhaps the lesson from this period, therefore, is that while real cuts to public service spending can be delivered – they were in 1996–97 and 1997–98 – to do so requires not only an ability to implement cash spending plans but also that inflation turns out as expected.

However, there is an important difference between the Conservative plans in the 1990s and the plans of the current government: the magnitude of the planned spending cuts is very different. The Clarke and Lamont Budgets of 1993 aimed for a fiscal tightening of 3.8% of national income, with roughly a 50:50 split between spending and tax.<sup>31</sup> This therefore implied a far smaller squeeze on public spending than the government's current plans, which aim for a much bigger overall tightening (6.6% of national income), with a greater proportion (73%) to come from spending cuts. The real cuts planned in the 1990s never implied any cash cuts in the Control Total (as shown in Figure 6.7), while those planned for the next parliament do imply cash cuts to DELs. The scale of the task facing the current government is, therefore, far greater than that tackled by the previous Conservative government, and this will clearly make it harder to deliver its cash spending plans.

If the current government is able to keep to its cash spending plans, as was the case for its predecessor during the 1990s, then one risk to deficit reduction will be the possibility that inflation over the next four years undershoots the OBR's forecast. Should this occur, then, in real terms, spending on public services would turn out to be higher than intended by the government, and receipts would be likely to turn out to be lower than intended, with the deficit likely to be commensurately higher.<sup>32</sup> Conversely, were inflation to overshoot the OBR's forecasts, then, assuming the government kept to its cash spending

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<sup>31</sup> The Spring 1993 Budget (Norman Lamont's last) and the Autumn 1993 Budget (Kenneth Clarke's first) combined set out discretionary measures that were projected to increase tax revenues by 2.0% of national income in 1996–97. An extrapolation of the data in chart 5.2 (page 87) of the November 1993 Budget reveals that discretionary spending (as measured by the New Control Total) in 1996–97 was cut by around £13 billion in 1992–93 prices, which is 1.8% of national income.

<sup>32</sup> Indeed, as we pointed out in Section 6.2, lower-than-expected inflation and commensurately higher-than-expected real-terms spending is one of the key reasons why the deficit is currently higher than forecast at the time of the October 2007 CSR.

plans, the deficit would be more likely than not to undershoot the latest forecasts, at the cost of real spending on public services being lower than intended by the government.

## **6.5 The system for planning public spending**

Delivering the large cuts to public spending planned for this parliament will require the government to be able to control public spending adequately. The 2010 Spending Review acknowledged the need for 'a robust framework to control spending' and suggested that some changes may be made to the system that was inherited from the last Labour government.<sup>33</sup> This section discusses the issues involved in designing a system for planning public spending and the desirable features such systems should have, before briefly describing the existing spending framework and going on to discuss what problems there have been with the current system and how these might be addressed.

### **Issues in designing a framework for planning public spending**

There are a number of important issues that need to be considered when designing a system for planning public spending.

#### ***Time horizon***

Setting out fixed departmental spending plans for a longer time horizon gives more certainty to departments, and will make it easier for them to make long-term spending decisions and programme commitments. It also enables multi-year pay deals, which might make it easier to attract and retain appropriate public sector workers. The downside is that governments are then less able to alter (in particular, reduce) public spending if the economic situation turns out to be different from that forecast some years earlier.

#### ***Distinguish between cyclical and non-cyclical spending***

A helpful distinction in spending is between non-cyclical spending, which the government can reasonably be expected to plan accurately in advance (because it has more direct control over when it is spent), and cyclical spending, which is typically more affected by economic conditions in the short run and so is much less easy for the government to commit to in advance (for example, spending on unemployment benefits and debt interest payments). A system that sets fixed plans for only non-cyclical spending rather than total spending helps to prevent non-cyclical departmental spending creeping up during good times, when cyclical spending is low, and being crowded out in bad times, when cyclical spending is high.

#### ***Distinguish between investment and non-investment spending***

Providing separate non-transferable budgets for investment and non-investment spending can protect investment spending from being poached for current spending when budgets are tight. (This might be something departments are tempted to do because it might take longer for the electorate to perceive the ill effects of lower investment spending than lower non-investment spending.) It is also a requirement if the government has a fiscal target for the current budget (the difference between total receipts and non-investment spending), which was the case for the previous Labour

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<sup>33</sup> Page 18 of HM Treasury, *Spending Review 2010*, Cm 7942, 2010 ([http://cdn.hm-treasury.gov.uk/sr2010\\_completereport.pdf](http://cdn.hm-treasury.gov.uk/sr2010_completereport.pdf)).

government and is the case with the forward-looking fiscal mandate adopted by the coalition government (see Chapter 2 for a discussion). However, if the division of a department's budget into investment and non-investment spending is done poorly, it could result in low-value capital projects being commissioned while higher-value current spending is not.

### *Real or cash plans?*

Setting plans in cash terms gives departments greater certainty over their future budgets, in the sense that their cash allocations will not change each time official forecasts for inflation change. If they are able to agree with their suppliers and employees the 'prices' that they will face for the period covered by the budget plans, they will also have greater certainty over their future costs and therefore over what they can supply with their budget. Alternatively, setting plans in real terms might give departments greater certainty over the services they will be able to supply from their future budget without the need for long-term contracts with pre-agreed prices. However, setting real plans accurately requires forecasts of inflation specific to each department (so as to reflect adequately the price changes they face), which is impractical. On balance, then, departments may prefer cash plans to real-terms plans based on economy-wide inflation. From the government's point of view, the disadvantage of fixing plans in cash terms, as we explained in Section 6.2, is that, if inflation turns out to be higher or lower than forecast (particularly if this occurs for a number of years in succession), then total spending could turn out to be lower or higher in real terms than intended.

### *Carrying forward underspends*

If departments cannot carry over unspent portions of their budgets for use in future years, they are likely to develop a 'use it or lose it' mentality, resulting in spending splurges as the end of the financial year approaches. Having in place a system by which departments can carry over underspends should discourage this. The disadvantage is that if a certain department consistently underspends its allotted budget, it may imply that the settlement for that department was too high, and the government may instead want to use some or all of that underspend to deliver other spending priorities.

### *Try to align incentives appropriately*

It is desirable that overall government spending is allocated as efficiently as possible. In many areas of government spending, there may be considerable spillovers between different activities, with additional spending on one item leading to lower spending elsewhere, in the same or a different department, and either immediately or at some point in the future. Therefore, when deciding whether or not to do a little more of one activity, it is essential that the potential savings made elsewhere (both immediate and future) are taken into account. This is a role that the Treasury plays in its monitoring of public spending.

## **The existing spending framework: DEL/AME system**

The current method of planning public spending was introduced by the previous Labour government in 1998. TME is split into two components:

- Departmental Expenditure Limits (DELs), which are annual limits for departmental programme expenditure; these can be broadly thought of as the amount central government spends delivering and administering public services;



- Annually Managed Expenditure (AME), which is expenditure that the previous Labour government argued was not easily subject to firm limits set several years in advance, such as spending on social security benefits and debt interest payments.

The system that has existed since 1998 is that (supposedly ‘firm and fixed’) cash plans for DELs by department are formally set for several years in advance in periodic Spending Reviews (although they can be, and often were under the previous government, subsequently revised). For example, the October 2007 CSR set DEL spending plans for the three years 2008–09, 2009–10 and 2010–11. Meanwhile, AME forecasts are revised biannually in light of the economic situation.

Within each of the DEL and AME budgets, spending is further subdivided into capital and current (also known as resource) spending. Capital spending can only be used for investment projects, while resource spending is intended to cover day-to-day expenditure but can be used for additional investment if a department so desires.

The Labour government also introduced a system for carrying forward underspends known as end-year flexibility (EYF), which allowed departments to carry over all unspent portions of their budgets for use in future years. Under the EYF system, when departments underspend in a given year, DEL (and thus TME) will be lower than planned by the government, leading to government borrowing being lower than what was planned. Departments can subsequently ask the Treasury for permission to use some of their EYF entitlement. Where permission is granted, the department’s DEL will be increased, subject to parliamentary approval of any necessary Supplementary Estimates.<sup>34</sup> Of these increases in DEL, some may be charged to the DEL reserve, while some may require an increase in total public spending. If total public spending is increased, all other things being equal, the take-up of the EYF entitlement will require an increase in government borrowing in that year.

The system introduced by the Labour government has many good features, but there remain some problems. In particular, the division between DEL and AME creates some undesirable effects:

- Spending Reviews are intended to set DEL spending plans after weighing up the relative merits of alternative items of spending across the whole of public services, but they did not (prior to the 2010 Spending Review) explicitly weigh up the relative merits of AME spending at the same time.
- In many cases, actions by departments have an impact on AME spending. To pick a direct example, spending by DWP on employment programmes for the unemployed is intended to reduce future social security expenditure. However, to the extent that DWP cares only about its DEL spending, it is not clear that it would face the correct incentives to spend money on such programmes.

Some of the problems surrounding AME spending under the existing system were highlighted by the Chancellor, George Osborne, in oral evidence to the Treasury Select Committee’s inquiry on the Spending Review:

I think that’s one of the big challenges facing the Treasury, the annually managed expenditure bill, because there has been no incentive on

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<sup>34</sup> Supplementary Estimates are the means by which the government seeks from parliament sufficient funds and authority for the bulk of departmental expenditure. The Main Estimates are presented to parliament in the Budget each year. Supplementary Estimates are then used to seek additional resources, or to reallocate existing resources to new activities, and are presented in June, November and February as required.



Government Departments to control those budgets. We are looking at whether this whole framework of DEL-AME needs to be revisited, particularly the AME part of it, because this is a very large budget – I think virtually half of Government spending. Although it's called 'annually managed expenditure', it's not really managed. So we are looking at a new framework and I hope to say more about that in the Budget on 23 March.<sup>35</sup>

The current system also exhibits two potential obstacles to achieving properly aligned incentives. First, to the extent that departments' budgets are not entirely fungible across years, they might not be able to take full account of potential future savings when deciding whether or not to spend more on a particular item up-front. Second, without creating prohibitively large departments, it is not possible to assign all activities between which there are spillovers to single departments; therefore, a given department may not take full account of savings made to another department's budget when setting its own spending plans. Therefore, it will always be sensible for the Treasury (or similar) to play a role in ensuring that such spillovers are taken into account when spending decisions are made.

### **Potential improvements to the existing system**

The 2010 Spending Review mentioned particular aspects of the existing system for planning public spending that could be improved upon. The two most important were improving the incentives to control AME spending and replacing the existing EYF system. These and other possible improvements to the system are discussed in more detail below.

#### ***Greater control of AME spending?***

Since AME spending is not subject to firm limits, departments that are responsible for some AME spending may not have the same incentives to manage it as they do their fixed DEL budgets. If there is reasonably large scope for departments to engage in activities that could reduce their AME spending, then there could be an argument for including these parts of the AME budget within DEL instead. For example, additional monitoring by DWP might reduce fraudulent benefit claims. If such elements of AME were included in departments' DELs instead, departments would have a greater incentive to undertake activities that reduced their AME spending. However, the difficulty with assigning some elements of AME spending to DELs is that they also depend on factors that are outside a department's control. It may not be possible or desirable for departments to have to bear the risk of fluctuating spending needs from within their DEL when such fluctuations are beyond their control. Therefore, it is probably only feasible to allocate to DELs those components of AME that can reasonably be planned in advance.<sup>36</sup> These include the following, for example:

- State pensions: In June 2010, the Department for Work and Pensions forecast that spending on the basic state pension, the State Earnings-Related Pension Scheme and

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<sup>35</sup> <http://www.publications.parliament.uk/pa/cm201011/cmselect/cmtreasy/544/10110402.htm>.

<sup>36</sup> Under the previous Conservative government, the measure of spending known as the '[New] Control Total' (for which the government set three-year plans) included not just departmental spending but also all non-cyclical social security spending, which included spending on the state pension, Child Benefit and non-means-tested payments to lone parents and those with disabilities.

the State Second Pension would amount to £70 billion in Great Britain in 2010–11, which is over one-fifth of all AME.<sup>37</sup> As the government determines the generosity of payments and the eligibility criteria, the number of recipients of the state pension and the value of their entitlements should be relatively easy to predict for the next few years, given current National Insurance records of those approaching the state pension age.

- **Child Benefit:** Spending on Child Benefit is forecast by HM Revenue and Customs to be £12.2 billion in 2010–11, which is 4% of all AME.<sup>38</sup> The government determines the generosity of payments and the eligibility for Child Benefit, and the number of recipients is relatively easy to predict, and so spending on Child Benefit over the next few years could be planned in advance. However, the plan to withdraw Child Benefit from families containing a higher-rate income tax payer from January 2013 will make this harder to forecast in the future.
- **Employer contributions to public service pensions:** At the moment, public sector employers and employees make contributions towards the cost of the occupational pensions that the employees accrue an entitlement to each year. However, these contributions are currently insufficient to cover the estimated true cost of the pension provided.<sup>39</sup> As a result, the Treasury each year implicitly makes an additional contribution towards the pension. This arrangement is likely to lead to departments underestimating the true cost to the taxpayer of a public sector worker and, potentially, lead to an inefficient mix of inputs. It would be better if the implicit Treasury subsidy were instead included in the departments' budgets (with an offsetting increase in those budgets). If this were the case, departments would be more likely to allocate resources efficiently between additional staff and additional spending on other items than is currently the case.

However, it is not clear that overall spending on many of these more easily predictable components of AME is actually particularly responsive to the activities of departments. For example, given the rules of the state pension system, DWP (the government department that most obviously has a stake in this element of spending) would probably only be able to reduce spending on this item if there were a high level of fraudulent claims, which seems unlikely to be the case; similarly for Child Benefit. Thus it is not clear that doing this reallocation would result in more efficient use of AME spending.

The areas that would remain in AME, which are genuinely hard to plan because they depend on uncertain factors such as levels of employment or earnings (in the case of in-work and out-of-work benefits) or interest rates (in the case of debt interest payments), are those where control over spending is less good. But, in many cases, this results from the same uncertainty that will make incentivising departments to control such spending hard.

However, even if including in a department's DEL that spending that can reasonably be expected to be influenced by its activities did not result in any greater control over AME spending, it would make it clearer how much AME spending is genuinely out of the

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<sup>37</sup> Department for Work and Pensions, *Benefit Expenditure Tables: Medium Term Forecast*, June 2010 ([http://research.dwp.gov.uk/asd/asd4/index.php?page=medium\\_term](http://research.dwp.gov.uk/asd/asd4/index.php?page=medium_term)).

<sup>38</sup> Public finances supplementary table 1.4 of Office for Budget Responsibility, *Economic and Fiscal Outlook: November 2010* (<http://budgetresponsibility.independent.gov.uk/econ-fiscal-outlook.html>).

<sup>39</sup> Source: Table D.1 (page 180) of HM Treasury, *Public Expenditure Statistical Analysis 2010* ([http://www.hm-treasury.gov.uk/d/pesa\\_2010\\_complete.pdf](http://www.hm-treasury.gov.uk/d/pesa_2010_complete.pdf)).

government's immediate control, which would help to give a more accurate picture of the uncertainties in the government's spending projections. Furthermore, it seems that in the case of public service pensions, mentioned above, such a reallocation would better align incentives and therefore lead to an improved allocation of public spending overall.

### *A broader remit for Spending Reviews*

Even if some components of AME cannot be included in departments' DELs for the purposes of managing money on a year-by-year basis, there are strong arguments for considering a broad measure of public spending when conducting Spending Reviews. In this respect, Spending Review 2010 was a welcome improvement on previous practice under the Labour government, since it considered not just DELs but also the vast majority of AME spending.<sup>40</sup>

Considering AME spending alongside DELs in Spending Reviews enables the government to consider the whole package that individuals are receiving from the state, rather than just some components. Two examples perhaps illustrate this point:

- When deciding on the optimal package of support for children, it might be better to choose a level of schools spending at the same time as deciding what level of benefits to offer to families with children, rather than making the two decisions separately.
- The DEL for DWP includes the cost of running Jobcentre Plus and administering benefit payments, while its AME budget includes the actual value of benefit payments. A concern with this arrangement is that, if DWP were to employ additional advisers to encourage those on out-of-work benefits to move off benefits and into paid employment, then the direct costs of these advisers would count against the department's DEL but any subsequent reduction in benefit spending would not (since it is in AME). So it would be desirable during Spending Reviews to take account of both these considerations when determining the priorities for government spending.

### *Reforming end-year flexibility?*

The government has said it wants to replace the existing EYF system. Departments have taken advantage of the existing EYF facility since its introduction in 1998. It is estimated that their combined cumulative underspend at the end of 2009–10 was £18.9 billion, or 5.0% of total DEL for 2010–11. The top five cumulative underspenders (in £ billion) are shown in Table 6.7.

In the 2010 Spending Review, the government announced that the EYF scheme – and all the accumulated stocks of underspends – would be abolished at the end of 2010–11. The Treasury's stated reason was that if departments attempted to spend their EYF entitlements, this would further increase the deficit and harm the government's fiscal consolidation plans over the parliament. The government said that EYF would be replaced 'with a new system from 2011–12 which will retain an incentive for departments to avoid wasteful end-year spending and strengthen spending control'.<sup>41</sup>

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<sup>40</sup> One caveat to this is that there were some components of spending that were theoretically included in the Spending Review envelope but where pre-existing government commitments suggested cuts were unlikely. One notable example is spending on state pensions: this comprises almost half of social security spending but the increases in the generosity of state pensions committed to in the coalition agreement, and announced in the Budget of June 2010, made it very unlikely that the government would then cut this spending in the October 2010 Spending Review.

<sup>41</sup> Page 18 of the 2010 Spending Review.

Table 6.7. Cumulative underspending by five departments with the largest EYF ‘carry-forward’ to 2010–11

Department	Cumulative DEL underspending, £bn:			Total planned DEL 2010–11, £bn	Underspend as a % of 2010–11 DEL
	Resource	Capital	Total		
Health	3.7	1.8	5.5	103.8	5.3%
Education	0.8	2.2	2.9	58.4	5.0%
Business, Innovation & Skills	1.0	0.5	1.4	18.6	7.6%
Energy & Climate Change	1.0	0.2	1.2	2.9	42.3%
CLG Communities	0.3	0.9	1.2	9.0	13.2%
Other departments	4.6	2.0	6.6	185.5	3.6%
<b>Total</b>	<b>11.5</b>	<b>7.4</b>	<b>18.9</b>	<b>378.2</b>	<b>5.0%</b>

Note: Planned DEL for 2010–11 is on a Spending Review baseline basis, which excludes one-off and time-limited expenditure.

Source: Underspending figures are from table 6 of HM Treasury, *Public Expenditure 2009–10: Provisional Outturn* (<http://www.hm-treasury.gov.uk/d/peowp200910.pdf>); 2010–11 planned DELs are from the 2010 Spending Review.

As we said earlier, some ability to carry forward money from one year to the next is desirable to reduce incentives for departments to spend money wastefully at the end of the financial year. That is, an implicit tax rate on departmental underspends of 100% is too high. However, the implicit tax rate of 0% that existed under the EYF system may be too low – at least for some elements of spending. If a department fails to spend all of its capital budget in one year, then it might be best to allow it to roll forward all of this underspend into the next year; such underspends may reflect delays in the commissioning process for an investment project, rather than reflecting that the project is no longer needed. Conversely, if a department fails to spend all of its current budget – which is intended to cover day-to-day running costs of departmental programmes – in one year, it is less clear that it will need to spend all of that money the following year. It might, therefore, be sensible for the Treasury to apply a tax rate greater than 0%, but less than 100%, to current budget underspends and apply a 0% tax rate to capital underspends. In any case, the ‘problem’ of significant underspending by government departments is likely to be far less of an issue during the current era of deep spending cuts than it was during the previous 10 years.

### ***Balancing certainty on spending for departments with certainty for government***

The current government chose in its 2010 Spending Review to set firm spending plans for the four years from April 2011 to March 2015. This has the advantage discussed above of enabling departments confidently to sign up to longer-term contracts, which will typically be denominated in cash terms, but the disadvantage of exposing the government’s real spending plans to the risk of inflation being different from what is forecast.

One option to balance the interests of departments and central government might be, in Spending Reviews, to set firm cash spending plans for the early years covered by the review, while setting real-terms spending plans for later years. These real-terms plans could then later be converted into firm cash plans. This is similar to how the existing spending framework used to operate: originally, Spending Reviews set spending plans for three years, but the third year became the first year of the subsequent Spending Review, and spending plans for that year could therefore be revised if required.

The government's decision to set out a plan for spending for each of the next four years was a good idea, as having detailed plans should make the government's commitment to reducing public borrowing more credible, not least with investors (see Chapter 3 for a discussion of the UK's susceptibility to a fiscal crisis). However, there are additional reasons why it might be sensible to review the current plans in a couple of years' time. First, the cuts to some areas of spending are of such a magnitude that there is a risk that they lead to unacceptably large reductions in the quantity or quality of the public services delivered in some areas. The government would be sensible to review the plans alongside the latest information at, say, the halfway stage, in order to assess whether they remain its preferred allocation. Second, the economic outlook remains uncertain and it is possible that the economy and public finances will perform better or worse than the OBR's current forecast. If this happens, the government's fiscal stance may end up being tighter or looser than currently intended, in which case the government may again want to review its spending plans.

## 6.6 Conclusion

Probably the defining domestic policy challenge for this parliament will be returning the public finances to a sustainable footing. The new government has announced a six-year borrowing reduction plan, which relies heavily on cuts to public spending – public spending as a share of national income is forecast to be brought down from 47.4% in 2009–10 to 39.3% by 2015–16.

The pain of these spending cuts will not be shared equally among departments, and the 2010 Spending Review set out broadly where the axe will fall over the next four years. Two departments that fared particularly well are the Department for International Development and the Department of Energy and Climate Change, both of which are due to see relatively large real increases in their budgets. The NHS budget also fared better than other departments, and is set to continue its trend over the past 25 years of taking up an increasing proportion of public service spending.

The decisions made about spending levels for Whitehall departments had implications (through the Barnett formula) for the total grants received by the devolved administrations, but the devolved administrations are able to prioritise spending differently from the choices made for England within their overall budgets. A complete like-for-like comparison is not possible due to differences in, for example, departmental responsibilities, but it appears that the choices made by the Scottish parliament are similar to those made in England, with the NHS being protected from deep spending cuts and significant cuts to spending on housing, justice, and further and higher education. A different pattern emerges in Wales, where NHS spending is being cut, meaning that the cuts elsewhere are, on average, considerably lower than they would otherwise have been (and lower than the cuts to equivalent departments in England). Northern Ireland – like England and Scotland – has chosen not to cut the NHS budget significantly, but – unlike in England and Scotland – does appear to have chosen to cut spending on schools by more than spending on further and higher education.

Some good news for the UK government could be garnered from the fact that the last time a UK government attempted to limit the growth of public spending (in the early 1990s), it was quite successful at sticking to its cash spending plans. However, history also suggests that unexpectedly low out-turns for inflation can mean those same cash plans can result in higher-than-planned spending in real terms, meaning they do not necessarily deliver as

much of a reduction in borrowing as was expected. Therefore, one risk to the deficit reduction plan is that the cash spending limits are adhered to but inflation comes in lower than forecast by the OBR. Given that the government's spending cuts imply the tightest five years for public spending growth since at least the Second World War, the impact in different areas is inevitably uncertain and the government is likely to come under pressure to increase spending on areas where people become particularly unhappy about the effects the cuts are having. A review of the Spending Review allocations in 2012 would be sensible.

Delivering the tight spending plans set out by the government is likely to require close control of public spending, and the 2010 Spending Review recognised the need for 'a robust framework to control spending'. There are a number of ways in which the new government could seek to build on the improvements in public spending management that began with the introduction of the New Control Total in 1992. Ensuring that the widest possible set of spending areas are considered alongside one another when setting spending priorities in Spending Reviews should be a first step, and Spending Review 2010 was a welcome move in that direction. Beyond that, the government should ensure that departments' incentives to allocate spending most efficiently are aligned as well as possible, including through a new system for handling departmental underspends. The case for allowing departments to carry forward most, if not all, of any unspent allocation remains strong, and particularly so in the case of capital spending.

## 7. Public sector pay and pensions

Antoine Bozio (IFS) and Richard Disney (IFS and University of Nottingham)

### Summary

- The public sector pay bill totalled £182 billion in 2009. It rose steadily as a share of national income from 2000 to 2005 and, after a pause, increased again in 2009. Spending plans set out in the October 2010 Spending Review imply a significant public pay freeze and large employment cuts.
- Before the financial crisis, public sector employees were, on average, paid at levels roughly in line with their private sector counterparts once observed differences in skill composition were taken into account. Since 2008, a significant public pay premium has appeared. We do not therefore believe that the planned two-year pay freeze will lead to widespread recruitment problems in the public sector in the near future. However, the average pay differential hides large variations in relative pay between different areas of the country. Consequently, some public sector vacancies, especially in London and the South-East, will remain hard to fill.
- In certain parts of the public sector, such as education and health, the downsizing of the workforce implied by the Spending Review could be achieved using ‘natural exits’ and a freeze in recruitment, but this does not appear to be true of areas where exit rates are low and the spending cuts are deeper, such as the police. Given that redundancies and early retirement schemes are costly ways of reducing the size of the workforce, achieving spending targets within the timing set by the Spending Review will be difficult in these areas.
- The government has already made changes to public sector pensions, including a change in the way they are indexed which will affect existing workers as well as new entrants. Further reforms are likely as a result of the review by Lord Hutton. Public sector pensions continue to be more generous than their private equivalents for most workers. Reforms should consider not simply issues of generosity and long-term affordability, but also what incentive structures would help promote flexibility in the labour market.

### 7.1 Introduction

The public sector pay bill amounted to £182 billion in 2009, representing 30% of all government expenditure or 13.1% of national income.<sup>1</sup> With large public spending cuts planned for at least the next four years, policy decisions on public sector pay, employment and pensions are going to be crucial. They will impact not only on the stability of the public finances, by helping (or not) to deliver the announced cuts, but also on the functioning of public sector organisations and their ability to deliver public services.

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<sup>1</sup> ONS, *United Kingdom National Accounts: Blue Book*, 2010 (<http://www.statistics.gov.uk/statbase/tsdtables1.asp?vlnk=bb>).



In this chapter, we analyse the strategies the government could follow to reduce the public sector pay bill: cutting pay levels, cutting the size of the workforce and reforming public sector pensions:

- Reducing public sector pay is a natural first option given that earnings in the private sector have been hit by the recession. But it is not a magic bullet. Reducing public sector pay by too much over too prolonged a period might lead to a fall in the average skill level of public sector employees, making it more difficult to provide efficiently public services of the desired quality.
- Reducing public sector employment might therefore appear to be inevitable in order to reach the public spending targets set by the October 2010 Spending Review. But reducing public sector employment quickly is not that easy, nor that cheap. Using the natural turnover rate is not costly, but the pace of associated employment reduction is bound to be limited in areas of the public sector where the turnover rate is low. Using redundancies is bound to lead to severance payments which will impede spending cuts in the short term. Moreover, in some parts of the public sector, non-voluntary redundancies are illegal. Another option would be to encourage early retirement. This would certainly allow a quick reduction in the public sector workforce without major unrest. It would, however, ultimately be costly to the public finances, as, in addition to increasing public pension liabilities, it would tend to depress labour force participation, thus reducing the growth capacity of the economy. The already-increasing liabilities of public sector pensions – largely the result of increasing life expectancy – should deter policymakers from the lure of early retirement policies.
- Cuts to public pensions are an additional option for reducing the public sector pay bill as public sector pensions are, on average, more generous than private ones. But here again short-term savings are hard to find beyond the change from retail price index (RPI) to consumer price index (CPI) indexation and the increase in member contributions already announced. Reforming public pensions is likely to reduce long-term public liabilities but, in the short run, it will not reduce spending. Increasing Normal Pension Ages (NPAs) is actually likely to make it harder to reduce public sector employment as increasing the retirement age lowers the turnover rate.

For each of the policy options available to the government, the general trade-off is between short-term savings that will lead to increased costs later on and long-term efficiency gains that might not bring the required spending cuts soon enough. Reducing the public sector pay bill quickly and efficiently will prove to be a major challenge.

This chapter starts by setting out the size of the public sector pay bill and workforce and how this has changed in recent years (Section 7.2). Section 7.3 presents new estimates of regional public sector pay premiums and discusses policy options. Section 7.4 gives evidence on the turnover rate of employees in the public sector and compares the relative attraction of various options to reduce public sector employment. In Section 7.5, public sector pensions are considered; in particular how they change the overall judgement on the public–private remuneration gap and, looking forward, how they are likely to change. Section 7.6 concludes.

## 7.2 The total public sector pay bill

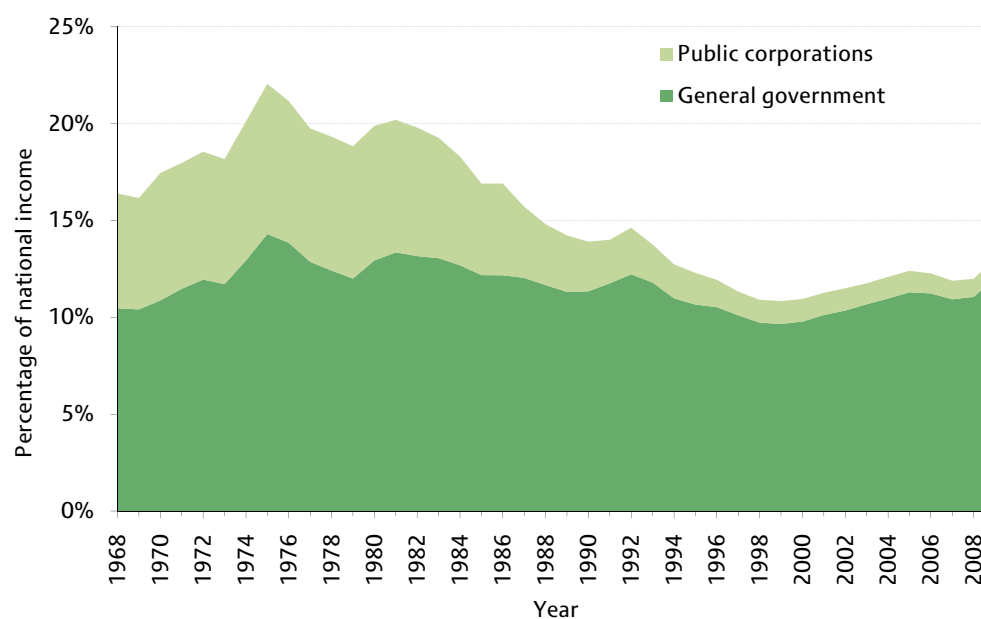
The total public sector pay bill is the sum of pay bills across public corporations and general government. Public corporations, previously an endangered species, have seen a marked revival in the last two years with the effective nationalisation of a number of large UK financial institutions. Although they represent a substantial addition to the public sector, only limited information is available about their pay bill, so we will exclude these recently nationalised institutions from our analysis.

This section looks at trends in the public sector pay bill, and then examines the forecasts for public sector pay and employment implied by the latest fiscal projections from the Office for Budget Responsibility (OBR).

### Past evolution and recent trends

Figure 7.1 shows the evolution of public sector compensation<sup>2</sup> as a share of national income over the last 40 years. From a peak of 22% of national income in 1975, total public sector compensation (the two shaded areas combined) declined to a low in 1999 of 11%, in large part reflecting the privatisation of public corporations. Between 1999 and 2005, the pay bill grew steadily and, after a small decline between 2005 and 2007, the total pay bill increased again to reach 13.1% of national income in 2009, which is its highest level since 1993. The reason behind the large increase between 2008 and 2009 was the continued real increase in the public pay bill at a time when national income was declining (see Section 6.2 for more details).

Figure 7.1. Public sector compensation



Note: Public financial corporations recently nationalised are not included.

Source: ONS, *United Kingdom National Accounts: Blue Book*, 2010

(<http://www.statistics.gov.uk/statbase/tsdtables1.asp?vlnk=bb>).

<sup>2</sup> This includes wages and salaries and employers' social contributions, in accordance with the National Accounts definitions.

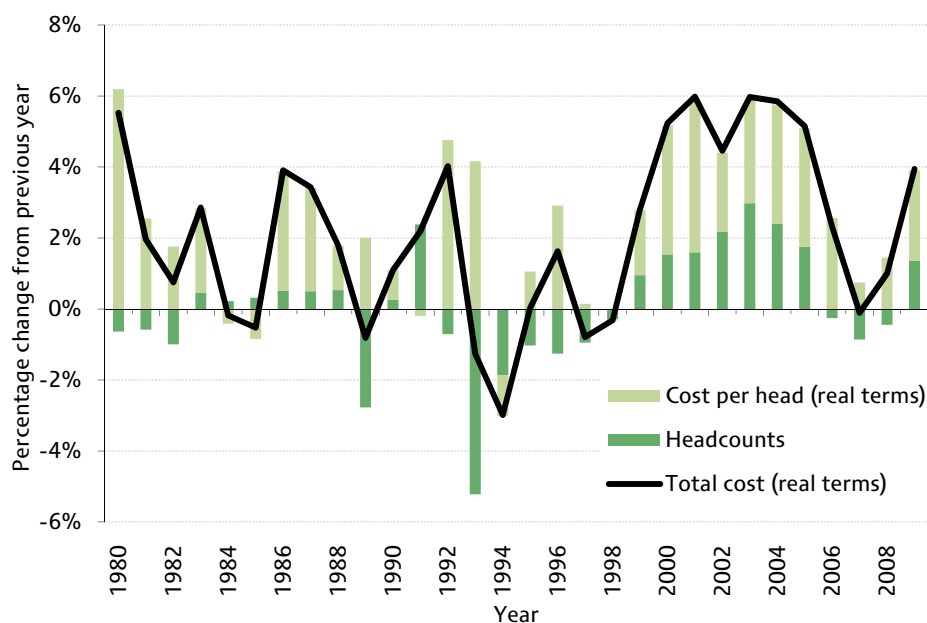
The general government pay bill (i.e. excluding public corporations) grew from a low of £111 billion (in 2009 prices) in 1998 to £160 billion in 2006, i.e. between 4% and 6% each year in real terms over this period. In the years 2007 and 2008, it grew at a much slower rate – below 1% per annum – before growing more quickly again between 2008 and 2009, reaching £168 billion in 2009.

Changes in the public sector pay bill can be decomposed into changes in the size of the workforce and changes in the cost of employing them (i.e. their gross earnings, employers’ pension provision and employers’ social contributions.)

Figure 7.2 shows the percentage increase in the general government pay bill (in real terms) split between the increase in headcount and the increase in cost per head since 1980. The Conservative governments, from 1979 to 1997, reduced headcounts on average by 0.6% each year while increasing real cost per head by 1.9% a year. The Labour governments, on the other hand, increased headcounts by 1.1% a year as well as increasing cost per head by 2.4% a year over the period from 1997 to 2009. However, most of the increase in the general government pay bill was concentrated during 2000–05, with costs per head rising by 3.3% per year in real terms over this period. As shown in Chapter 6, this was the period when public spending was growing at its fastest rate under the previous Labour administrations. In the years before the financial crisis, the Labour government started to reduce this growth both by limiting increases in costs per head and by reducing the employment level slightly. After 2008, this tightening of the public sector pay bill ceased, with a significant increase occurring in 2009.

Changes in the size of the public sector workforce over the last decade have been far from evenly spread across professions. Table 7.1 describes these changes for some of the key groups between 1997 and 2009. Compared with the rest of the public sector, the numbers of teaching assistants, police, doctors and nurses have risen relatively quickly. The number of administrators in the public sector has risen relatively slowly. In the civil service, recent reductions in numbers have almost entirely reversed the growth in the

Figure 7.2. Changes in the general government pay bill



Sources: ONS, *United Kingdom National Accounts: Blue Book*, 2010 (<http://www.statistics.gov.uk/statbase/tsdtables1.asp?vlnk=bb>); authors’ calculations.

Table 7.1. Selected groups of general government workforce in the UK

	1997	2009	% change, 1997–2009
National Health Service	1,190,000	1,578,000	+33%
<i>Of which:</i>			
<i>Doctors (England)</i>	89,619	140,897	+57%
<i>Nurses (England)</i>	318,856	417,164	+31%
Police	230,000	294,000	+28%
<i>Of which:</i>			
<i>Police community support officers</i>	–	16,631	–
Education	1,131,000	1,410,000	+25%
<i>Of which:</i>			
<i>Teachers (England)</i>	400,300	442,700	+11%
<i>Teaching assistants (England)</i>	60,600	183,700	+203%
Public administration	1,139,000	1,207,000	+6%
<i>Of which:</i>			
<i>Civil service</i>	516,000	527,000	+2%
HM Forces	220,000	197,000	–10%
Other health and social work	436,000	374,000	–14%
Construction	124,000	54,000	–56%
<b>All general government</b>	<b>4,835,000</b>	<b>5,494,000</b>	<b>+14%</b>

Note: Headcounts, not seasonally adjusted.

Sources: ONS, *Public Sector Employment, Q1 2010* (<http://www.statistics.gov.uk/pdfdir/pse0610.pdf>); DCSF, *School Workforce in England, January 2009* ([http://www.education.gov.uk/rsgateway/DB/SFR/s000874/SFR23\\_2009v2.pdf](http://www.education.gov.uk/rsgateway/DB/SFR/s000874/SFR23_2009v2.pdf)); NHS data from the Information Centre (<http://www.ic.nhs.uk/statistics-and-data-collections/workforce>); police workforce data from the Home Office Statistical Bulletin (<http://www.homeoffice.gov.uk/about-us/non-personal-data/data-police/>).

early years of the decade. Numbers in the armed services have fallen in absolute terms over the period, although the conflict in Iraq led to a large increase in 2003, which was reversed thereafter.

## The impact of the Spending Review

In its November 2010 projection, the OBR produced a forecast for growth in general government employment and in public sector pay per head for the next four years,<sup>3</sup> which can be contrasted with past numbers presented in Figure 7.2.

One of the implications of these forecasts is a cut of 320,000 public sector jobs by 2013–14. This number was commented on in the press, as it contrasted with the 490,000 job losses that the OBR estimated were implied by the June 2010 Budget.<sup>4</sup> The change in the estimate is mostly due to the less severe squeeze on public services, and therefore on the

<sup>3</sup> Office for Budget Responsibility, *Economic and Fiscal Outlook*, November 2010 (<http://budgetresponsibility.independent.gov.uk/econ-fiscal-outlook.html>).

<sup>4</sup> See *OBR Forecast: Employment*, 30 June 2010 ([http://budgetresponsibility.independent.gov.uk/d/employment\\_forecast\\_300610.pdf](http://budgetresponsibility.independent.gov.uk/d/employment_forecast_300610.pdf)).

public sector wage bill, that the welfare cuts announced in the Spending Review have made possible.<sup>5</sup>

Table 7.2 retraces the assumptions made by the OBR in order to obtain the 320,000 figure for employment reductions. The OBR uses projections for spending on public services (specifically, spending by Whitehall departments, local authorities and the BBC), excludes investment spending, and then estimates pay bill per head growth. This is done by forecasting, or making assumptions about, different components of growth in the total pay bill growth per head (basic settlements, pay drift,<sup>6</sup> employer pension contributions and other costs such as employer National Insurance contributions (NICs)). By assuming that the growth rate in the total pay bill will be the same as the growth rate in total spending, the OBR can calculate a growth rate of public employment. Using the latest data from the ONS for government employment in 2010–11 (5.49 million), the last line of Table 7.2 computes the implied cumulative job losses over the next four years.

Table 7.2. OBR estimation of general government job losses

	2011–12	2012–13	2013–14	2014–15
<b>A) Non-investment spending on public services<sup>a</sup></b>	<b>0.3%</b>	<b>0.4%</b>	<b>1.6%</b>	<b>-0.3%</b>
Basic settlement	0.4%	0.4%	2.7%	2.7%
Pay drift	0.4%	0.4%	0.4%	0.4%
Employer pension contributions	0.2%	0.0%	0.0%	0.0%
Other (incl. NICs)	0.1%	0.0%	0.0%	0.0%
<b>B) Total pay bill per head growth</b>	<b>1.2%</b>	<b>0.8%</b>	<b>3.1%</b>	<b>3.1%</b>
<b>C) Implied GG employment growth (i.e. C = A–B)</b>	<b>-0.9%</b>	<b>-0.4%</b>	<b>-1.5%</b>	<b>-3.4%</b>
<b>D) Implied cumulative GG employment losses</b>	<b>-40,000</b>	<b>-70,000</b>	<b>-150,000</b>	<b>-320,000</b>

a. Sum of growth in resource Departmental Expenditure Limits (RDELs), i.e. central government expenditure, Local Authority Self-Financed Expenditure (LASFE) and BBC current expenditure.

Note: GG stands for general government.

Source: Pages 64–66 of OBR, *Economic and Fiscal Outlook*, November 2010

([http://budgetresponsibility.independent.gov.uk/d/econ\\_fiscal\\_outlook\\_291110.pdf](http://budgetresponsibility.independent.gov.uk/d/econ_fiscal_outlook_291110.pdf)) and table 1.8 of [http://budgetresponsibility.independent.gov.uk/d/fiscal\\_supplementary\\_tables\\_291110.xls](http://budgetresponsibility.independent.gov.uk/d/fiscal_supplementary_tables_291110.xls).

According to these forecasts, public sector job cuts are going to be limited in the first two years covered by the Spending Review but become much more important in 2013–14 and 2014–15. One of the key assumptions behind this pattern is the evolution of pay bill per head growth. According to the assumption from the OBR, growth in pay bill per head is going to be limited in the first two years, with basic settlements at 0.4%, before reverting to higher growth in 2013–14 and 2014–15, at 2.7%, in line with expected earnings growth in the private sector. These assumptions rely on the June 2010 Budget announcement that public sector pay is going to be frozen for two years in nominal terms for all workers except those earning less than £21,000. This implies a real-terms pay cut

<sup>5</sup> According to the OBR, changes in methodology account for 30,000 of the 160,000 reduction in job losses between the two estimates, while changes in spending plans can account for 130,000 jobs (page 65 of the OBR's November 2010 *Economic and Fiscal Outlook*).

<sup>6</sup> Pay drift is the difference between growth in earnings and growth in basic pay. For instance, if basic pay is growing at 1% but earnings at 2%, pay drift will be estimated at 1%. We come back to this notion in the next section.

of 4.7% over the next two years for most public sector workers as inflation (CPI as forecast by the OBR<sup>7</sup>) is forecast to run at around 3.1% in 2011–12 and 1.8% in 2012–13. We discuss the implications of this policy in the next section.

## 7.3 Public sector earnings

### Comparing public and private sector pay

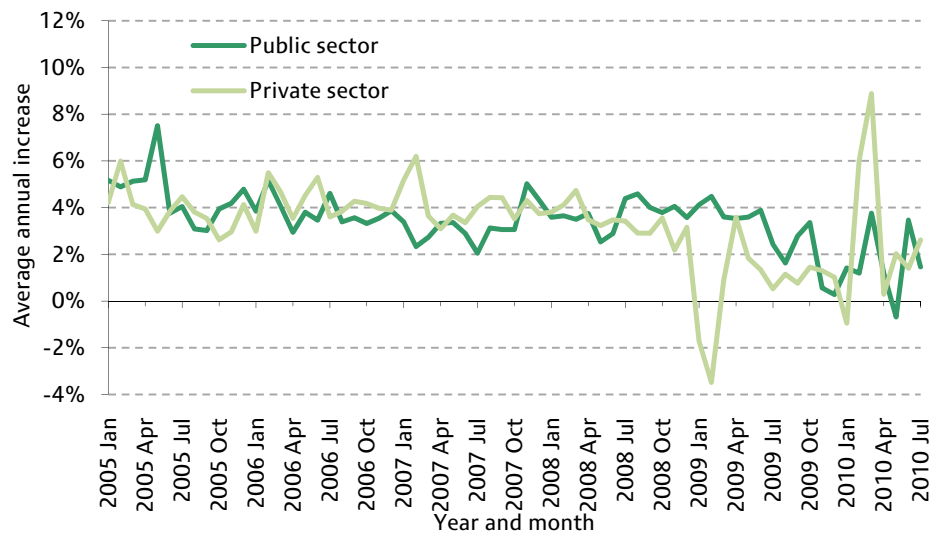
We present two types of evidence on pay in the public and private sectors in recent years. First, we document average earnings growth, which highlights the differential impact of the recent financial crisis on the remuneration of private and public sector employees. Second, we present estimates of the relative levels of pay between the two sectors that allow for the composition difference of the two sectors.

#### Trends in average earnings

Figure 7.3 presents average annual earnings growth in the public and private sectors in each month between January 2005 and July 2010. These numbers include all forms of earnings, including bonuses.

In 2006 and 2007, before the crisis started, earnings growth in the two sectors generally followed similar patterns, but in early 2009 private sector earnings were hit by the recession, experiencing drops in average earnings of 2–3% for a couple of months – during the months when bonuses are usually paid – with a stabilisation thereafter. In contrast, average earnings in the public sector continued to grow at a similar rate to that before the crisis. In early 2010, we can see a peak in the growth rate of private sector earnings, reflecting a catch-up on bonuses that had been slashed in 2009.

Figure 7.3. Growth in public and private sector pay



Source: ONS, <http://www.statistics.gov.uk/STATBASE/Product.asp?vlnk=9537a>. Average earnings indices not seasonally adjusted and including bonuses (series LNNI for the public sector and LNKX for the private sector).

<sup>7</sup> Page 83 of OBR, *Economic and Fiscal Outlook*, November 2010 ([http://budgetresponsibility.independent.gov.uk/d/econ\\_fiscal\\_outlook\\_291110.pdf](http://budgetresponsibility.independent.gov.uk/d/econ_fiscal_outlook_291110.pdf)).

### Public–private sector wage gap

The average earnings growth figures just presented do not provide information on the public–private pay differential; one needs to look at the difference in pay levels to consider this.

One often-quoted statistic is the difference between the mean wage in the public and private sectors. As was highlighted in last year’s Green Budget, drawing conclusions on the public sector pay premium from such raw comparisons is not appropriate.<sup>8</sup> The raw differential does not take into account the fact that the skill compositions of the two sectors are markedly different: it is like using the average pay of neurosurgeons and the average pay of bartenders to conclude that neurosurgeons are overpaid!

The approach taken in last year’s Green Budget was to use the Labour Force Survey (LFS), a representative sample of the UK population with detailed information on labour market situations, to estimate the public sector pay premium controlling for a limited set of important characteristics such as education, qualifications and age. We have updated these estimates using the most recent LFS and present the results in Table 7.3 for 2009 and 2010.

**Table 7.3. Estimating public–private wage differentials (2009 and 2010)**

	Men	Women	All
Mean difference in wages	+0.207 (0.012)	+0.276 (0.009)	+0.246 (0.007)
Controlling for education	+0.098 (0.011)	+0.153 (0.009)	+0.124 (0.007)
Controlling for education, age and qualifications	+0.052 (0.011)	+0.096 (0.009)	+0.075 (0.007)

Notes: The wage differentials controlling for various factors are estimated by ordinary least squares (OLS), regressing log hourly wages on control variables for public sector, age left full-time education, highest qualification, age, age squared and interactions between age and age squared with age left full-time education. Hourly wages are computed using actual hours reported by survey respondents. Standard errors are reported in parentheses.

Source: Authors’ calculations using data from the quarterly LFS, 2009 and 2010 up to September 2010.

The first row of Table 7.3 presents the raw difference between the mean hourly wage in the public sector and the mean hourly wage in the private sector. On average, hourly wages are 24.6% higher in the public sector, with a greater gap for women (27.6%) than for men (20.7%). The second row shows the estimates of public sector wage differentials once education is controlled for: the raw estimates are immediately halved, reflecting the fact that public sector workers tend to be, on average, more educated than private sector workers. This is due to the fact that a large part of public sector services are very intensive in high-skilled labour (health and education, for example). The final row presents the estimated public sector premium once education, age and qualifications are taken into account. For men, the estimated premium is 5.2%, while it is 9.6% for women and 7.5% on average. All of these estimates are statistically different from zero at conventional levels.

However, this methodology has limitations. Although controlling for differences in observed characteristics between public and private sector pay removes some of the

<sup>8</sup> A. Bozio and P. Johnson, ‘Public sector pay and pensions’, in R. Chote, C. Emmerson, and J. Shaw (eds), *The IFS Green Budget: February 2010*, IFS Commentary 112 (<http://www.ifs.org.uk/budgets/gb2010/10chap9.pdf>).



issues present in raw comparisons, these estimates should not be interpreted as a measure of the public pay premium without some care. More specifically, this methodology misses five potentially important drivers of public–private pay differentials:<sup>9</sup>

- First, pay is only one part of the total remuneration package. A full comparison of public and private sector workers should also consider elements such as pensions (see Section 7.5), fringe benefits, annual leave and health insurance.
- Second, this methodology misses the impact of unobserved ability, as education, experience and qualifications are crude measures of workers' productivity.<sup>10</sup>
- Third, the methodology does not account for the marked differences in the age–earnings profile between the two sectors, with these being steeper in the private sector than in the public sector for young men but declining at older ages when they are still increasing in the public sector. Recent research has therefore argued that any comparison between public and private sector remuneration should take account of these life-cycle variations.<sup>11</sup>
- Fourth, individuals are going to self-select into different occupations based on preferences, which are unobserved to the statistician. If doctors, nurses or teachers receive some non-monetary satisfaction in doing a socially useful job in the public sector, they might be paid less for a given skill level than if they were doing a less rewarding job in the private sector. As a result, our pay differential estimates might have, in this case, an upward bias. On the other hand, if some public sector jobs are particularly painful, this would lead to a downward bias in our estimates.
- Fifth, this methodology relies on assuming that private sector pay reflects underlying productivity. If, say, women (or any other group) are discriminated against in the private sector but not in the public sector, then the estimated public–private pay differential for women (or whichever group) will also reflect private sector discrimination.

With these caveats in mind, it is nonetheless interesting to see how estimates of the public pay premium using this methodology have evolved over time in the UK. Figure 7.4 reproduces the estimated pay gap for men and women for each year since 1995. Confidence intervals at 95% are shown with dotted lines. Estimated pay differentials for men were negative in 2001 and 2002, and were not significantly different from zero in subsequent years after some higher public pay growth allowed a form of catch-up on the private sector. In 2009, the picture changes dramatically, with the emergence of a significant estimated pay gap in favour of the public sector, which reached 6% in 2010. For women, the estimated pay gap follows a similar trend, albeit at a higher level, with an increase in the estimated pay differential from 6% in 2008 to 11% in 2010. Even if the level of the public pay premium is not properly estimated with our methodology due to

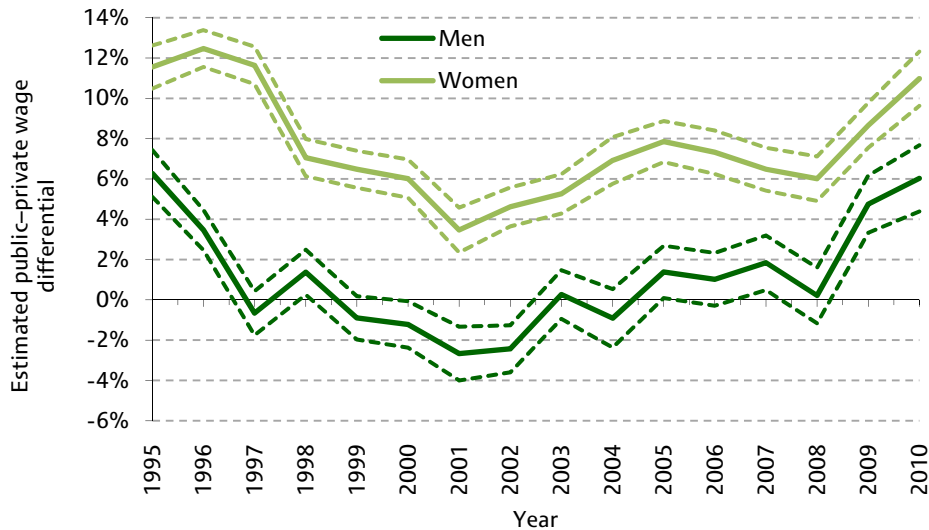
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<sup>9</sup> For a critical assessment of the literature estimating public sector pay premiums, see R. Disney, 'The future of public sector pay in Britain', in D. Marsden (ed.), *Labour Market Policy for the Twenty-First Century*, Oxford University Press, forthcoming, 2011.

<sup>10</sup> For evidence on the impact of pay on teachers' quality, see e.g. S. Nickell and G. Quintini, 'The consequences of the decline in public sector pay in Britain: a little bit of evidence', *Economic Journal*, 2002, 112, F107–F118.

<sup>11</sup> F. Postel-Vinay and H. Turn, 'The public pay gap in Britain: small differences that (don't) matter?', *Economic Journal*, 2007, 117, 1460–1503.

Figure 7.4. Estimated public–private wage differentials



Notes and sources: As for Table 7.3. Estimates control for education, age and qualifications.

omitted variables, the change over time of these estimates requires less stringent assumptions in order to be interpreted as the change in the public pay premium.

### Regional disparities

Given that public sector pay is largely set nationally, average pay differentials are likely to vary substantially by region. In order to highlight these regional variations, Table 7.4 presents similar estimates by large regions of the UK. In regions where the private sector offers high average pay, i.e. in London and the South-East, the estimates of public–private pay differential are not significantly different from zero for men or women, even in 2009 and 2010. This means that in these regions, for a given level of education and qualification, public and private sector workers command the same hourly wage, on average. In the rest of the country, the estimated pay differential is substantial, at around

Table 7.4. Estimating public–private wage differentials by region (2009 and 2010)

Region	Men		Women	
	Raw differential	Estimated differential	Raw differential	Estimated differential
London	+0.106 (0.042)	+0.021 (0.038)	+0.193 (0.034)	+0.022 (0.032)
South-East	+0.145 (0.030)	+0.013 (0.026)	+0.228 (0.021)	+0.034 (0.020)
South-West	+0.242 (0.038)	+0.086 (0.035)	+0.259 (0.028)	+0.128 (0.028)
East of England and Midlands	+0.225 (0.025)	+0.079 (0.023)	+0.325 (0.019)	+0.145 (0.018)
North of England	+0.266 (0.023)	+0.076 (0.021)	+0.326 (0.017)	+0.141 (0.016)
Wales, Scotland, Northern Ireland	+0.275 (0.027)	+0.106 (0.024)	+0.326 (0.021)	+0.155 (0.020)
All UK	+0.207 (0.012)	+0.052 (0.011)	+0.276 (0.009)	+0.096 (0.009)

Notes and sources: As for Table 7.3.

8% for men in the rest of England and over 10% in Wales, Scotland and Northern Ireland, and between 13% and 16% for women.

## How can the government reduce public sector earnings?

Broadly speaking, the overall change in the average earnings of public sector workers will depend on three factors:

- changes in negotiated pay rates over time (basic pay settlements);
- ‘pay drift’ arising from changes in the composition of the public sector workforce as it affects the relative proportions of high-paid and low-paid workers;
- changes in earnings that are not directly determined by changes in basic pay rates such as changes in overtime payments and shift premiums (especially in non-supervisory grades), performance-related pay, recruitment and retention premiums and one-off payments (notably among senior managerial grades).

The issues involved in each of these three factors – basic pay settlements, pay drift and pay incentives policy – are now considered in turn.

### *Basic pay settlements*

Pay rates in the UK public sector are normally set at the national level by centralised negotiating procedures. Roughly 2 million of the 6 million workers in the public sector have pay rates set through the system of publicly-established but independently-constituted Review Bodies.<sup>12</sup> Other public sector workers negotiate directly with employers (local government workers and firefighters, for example) or through negotiation procedures that allow explicitly for arbitration (in the case of the police).

Recommendations made by Review Bodies (and indeed arbitrators) are not always accepted by government, and recommended awards may be staged or rejected. Indeed, the period from 2008 onwards has seen the Cabinet Office and HM Treasury taking a more prescriptive and interventionist role in public pay-setting, with a number of Review Body recommendations rejected outright, superseded by direct negotiation of multi-year pay agreements with public sector unions (as in the case of the NHS three-year settlement from 2008–09 to 2010–11) or superseded by pre-announced partial or complete freezes of pay scale rates.

### **The impact of freezing public sector pay awards in aggregate**

A general pay freeze in the public sector is seen as an attractive option by government and public sector employers when affordability is the dominant factor in public sector pay determination. Indeed, a pay freeze might be economically desirable in itself if public sector workers have been generously treated relative to private sector workers, as suggested in the previous subsection.

The pay awards of the last year of the previous Labour government (for the period 2009–10) reflected a *partial* and somewhat ad hoc pay freeze. Some groups of public sector workers were awarded zero increases in pay rates across-the-board (senior

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<sup>12</sup> Review Bodies cover workers in the NHS (other than GPs), school teachers, the armed forces, prison officers and some senior salaried staff. They make recommendations concerning changes in public pay scale rates to the government, based on evidence submitted by staff, employers and the relevant government departments, as well as independent evidence on pay trends in the private sector, on prospective changes in the cost of living, on workforce recruitment and retention and on the criterion of ‘affordability’. They may also be invited by government to consider other facets of public sector remuneration and they have in the recent past made recommendations concerning public sector pensions, performance-related pay and pay structure (grades). For more details, see [http://www.ome.uk.com/Review\\_Bodies.aspx](http://www.ome.uk.com/Review_Bodies.aspx).

administrators in central government and workers in local government, for example). For some public sector groups, the recommendations of Review Bodies for pay increases were accepted (such as for the armed forces), while others were rejected. And some multi-year settlements in existence were honoured (such as those for NHS staff, teachers and police officers) while others were abandoned in favour of freezes in pay scales (as in the case of senior civil servants).

The current background to public sector pay negotiations is the *overall* two-year freeze in public sector pay rates announced by the coalition government in the June 2010 Budget, to cover the period 2011–12 to 2012–13. However, even this overall pay freeze contains an important exemption – workers earning less than £21,000 will receive a lump-sum increase of £500 over the two years – which will cover 1.7 million workers, or 28% of the public sector workforce, according to the Chancellor.<sup>13</sup> A more significant fraction of workers earn less than this in some parts of the public sector, such as the NHS. Using the OBR forecast of average earnings growth and the current pay policy, we estimate in Table 7.5 the impact of the pay freeze on public–private pay differentials.

Under current policy, the public sector premium would be reduced on average by 6.6 percentage points by 2014–15. This would lead to a reduction in the mean wage difference between the two sectors from 24.6% (from Table 7.3) to 18.0%. If one assumes that the sector composition by age, education and qualifications is not changing differentially, the estimated public pay premium would go from 7.5% to 0.9%. If our estimates of public sector pay premium are to be interpreted as such, this would suggest

**Table 7.5. Implications of the pay freeze for public–private pay differentials**

	2011–12	2012–13	2013–14	2014–15
<i>OBR assumptions</i>				
GG employment (million) <sup>a</sup>	5.5	5.4	5.3	5.2
Total employment (million) <sup>b</sup>	29.1	29.4	29.7	29.9
Share of public sector	18.7%	18.4%	18.0%	17.3%
Average earnings growth <sup>b</sup>	2.1%	2.6%	4.1%	4.4%
Average public sector pay growth <sup>c</sup>	1.2%	0.8%	3.1%	3.1%
Average private sector pay growth <sup>d</sup>	2.3%	3.0%	4.3%	4.7%
<i>Implied reduction in pay differential (cumulative percentage points)</i>				
Current policy (2-year pay freeze)	1.1	3.4	4.8	6.6
Option 1 (3-year pay freeze)	1.1	3.4	7.1	9.1
Option 2 (4-year pay freeze)	1.1	3.4	7.1	12.2

a. Page 65 of OBR, *Economic and Fiscal Outlook*, November 2010

([http://budgetresponsibility.independent.gov.uk/d/econ\\_fiscal\\_outlook\\_291110.pdf](http://budgetresponsibility.independent.gov.uk/d/econ_fiscal_outlook_291110.pdf)).

b. Page 83, idem as above.

c. Table 1.8 of [http://budgetresponsibility.independent.gov.uk/d/fiscal\\_supplementary\\_tables\\_291110.xls](http://budgetresponsibility.independent.gov.uk/d/fiscal_supplementary_tables_291110.xls).

d. We calculate this line from the three lines above assuming that the share of general government in the UK workforce will follow OBR employment assumptions.

Note: Option 1 corresponds to one more year of pay freeze, leading to a 0.8% increase in the public pay bill per head in 2013–14, while option 2 corresponds to two more years of pay freeze, leading to a 0.8% pay increase in 2013–14 and 2014–15.

<sup>13</sup> See the Chancellor's Budget statement, available at [http://www.hm-treasury.gov.uk/junebudget\\_speech.htm](http://www.hm-treasury.gov.uk/junebudget_speech.htm). A lump sum of £500 over two years for an individual earning £21,000 represents a 1.2% annual nominal pay increase.

that one more year of pay freeze in the public sector would not significantly endanger public sector recruitment: it would cut the public–private pay differential by 9.1 percentage points (option 1 in Table 7.5), which would reduce the estimated public pay premium to –1.6%, although it would still be a very harsh settlement. Option 2 – two more years of pay freeze in the public sector – would, at least according to our estimates, lead public sector pay further into the zone of a negative average pay premium.

All the caveats previously mentioned should be kept in mind when interpreting these numbers. For instance, if the estimated pay differential for women is biased upwards due to discrimination or other preference differences, the true pay premium would be better estimated on men only. From Table 7.3, the current pay freeze policy would lead to a negative pay premium for men of –1.4 percentage points (–3.9 percentage points with a three-year pay freeze). These estimates suggest that the current two-year pay freeze policy is broadly in line with removing the current average public sector pay premium but that there is only limited scope for further pay reductions.

Although the four countries of the UK may have different negotiated outcomes, the scope for regional variation in pay scale rates within countries is highly limited in the public sector. Consequently, there is generally much less variation in public sector pay across local labour markets than there is in private sector pay. Hence local imbalances in supply and demand can easily arise for public sector jobs. In that respect, the national pay freeze policy might lead to a different judgement depending on which part of the country we look at. Using our estimates from Table 7.4, we can see that current policy will lead to a large negative pay gap in London and the South-East, as there does not seem to be a significant public pay premium in these regions. This is bound to create recruitment issues, especially for skills in high demand, and it might lead to a deterioration of the quality of public services in these areas.<sup>14</sup> In the rest of the country, however, there still seems to be room for further freezes without endangering the recruitment process. Given the difficulty of reducing nominal pay, it is particularly hard for the government to reduce regional disparities when overall earnings growth is low. It is usually thought that this type of policy is one that should be implemented in good times, when it is possible to offer differentiated positive pay awards. If the earnings forecasts of the OBR turn out to be correct, i.e. with a return to more normal earnings growth from 2013–14 onwards, there might then be a case for higher public sector pay growth in London and the South-East than in the rest of the country in those years.

Although the approach we have adopted so far suggests that a two-year public sector pay freeze might be appropriate in aggregate, the implications of such a policy at the microeconomic level are much less straightforward.

### The microeconomics of public sector pay freezes

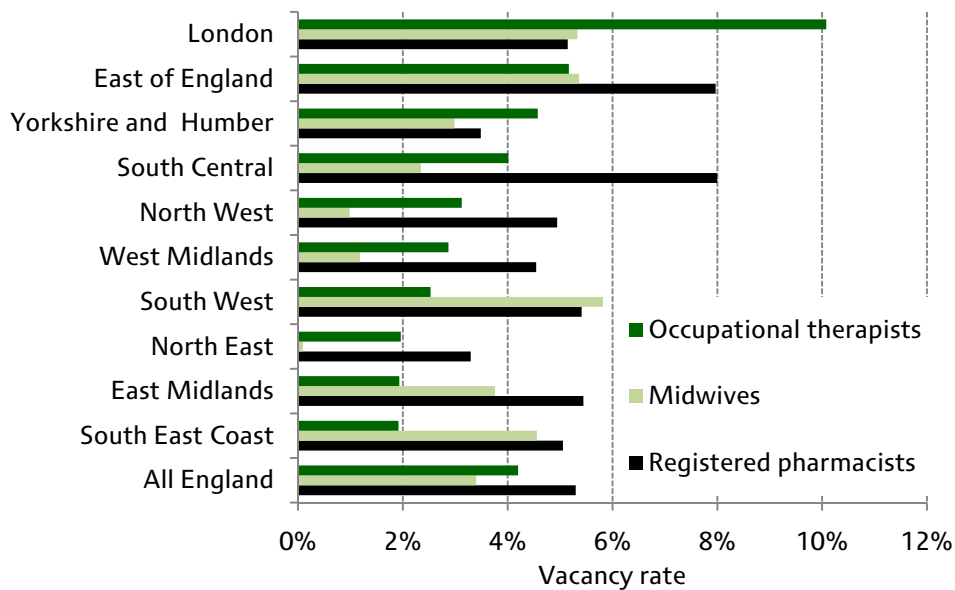
Pay freezes ultimately cause labour market distortions, with implications for the quality and composition of the public sector workforce. If private sector employment does begin to increase, recruitment of more able workers from the public sector will be easier when public sector pay is relatively less attractive; moreover, any difficulties that arise in recruiting new staff to the public sector (or, indeed, freezes in recruitment, as discussed in the next section) will lead to a public sector workforce that is ageing and losing its most able employees to the private sector.

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<sup>14</sup> A controversial implication from this is drawn by C. Propper and J. Van Reenen, ‘Can pay regulation kill? Panel data evidence on the effect of labor markets on hospital performance’, *Journal of Political Economy*, 2010, 118, 222–273.

Statistics suggest that, even during a period when the overall number of public sector job openings was low, there have still been significant levels of vacancies in selected occupations within the public sector – existing public sector pay levels and pay structures have not led to a convergence of vacancy rates. This can be illustrated in the case of the NHS by data on vacancies reported by English Strategic Health Authorities, depicted in Figure 7.5. These data exclude frozen posts and vacancies that are no longer being advertised. Although some of these vacancy rates might seem relatively low – and NHS-defined ‘hard-to-fill’ rates (open for three months or longer) are typically even lower, at 1–2% of the workforce – vacancy rates for some groups remain relatively high and have recently often been at double-digit levels in areas such as London and the surrounding regions where private pay levels are relatively high.

Figure 7.5. Vacancies in the NHS in England by Strategic Health Authority: selected occupations, 2009



Note: ‘Vacancy rate’ defined as vacancies as a percentage of the total workforce plus total vacancies.

Source: NHS Information Centre, <http://www.ic.nhs.uk/statistics-and-data-collections/workforce/nhs-and-gp-vacancies>.

For some NHS occupations, the public sector is the dominant employer and further supply comes primarily through training extra staff, with a predictable time lag. However, even in these occupations, higher pay may induce trained individuals who are employed elsewhere or not currently in paid work to rejoin the NHS workforce. Lower pay will induce the opposite effect. In other occupations, such as physiotherapy and pharmacy, there is a substantial private sector workforce and the supply of workers to the public sector is much more likely to be sensitive to relative wage rates between the two sectors. Either way, however, a centralised pay structure coupled with a universal public sector pay freeze maintained for several years will ultimately induce distortions in the labour market, which will be reflected in disproportionate shortages in specific occupations coexisting with adequate recruitment in other areas. Allowing pay increases for earners below a particular level of earnings, as in the current two-year pay freeze, is irrelevant to this problem unless it happens to be the case that vacancy rates are higher for workers on lower levels of pay (which is not, in fact, the case).

One solution would be for HM Treasury to set a strict pay bill envelope for departments over a target period whilst allowing greater discretion for pay rate changes within the

envelope, rather than to impose a limit on scale rates per se. For example, in the NHS case, a ceiling on pay growth could be set (which might or might not be zero) whilst allowing for national or local recruitment premiums for occupations with hard-to-fill vacancies. The scope for such premiums already exists in the pay-setting arrangements, but for one reason or another employers and the Department of Health are reluctant to encourage the use of such pay flexibility.<sup>15</sup>

The distortions that tend to accumulate during periods of pay freezes are exacerbated by *partial* pay freezes. The current policy of a pay freeze for all workers except those earning less than £21,000 provides an illustrative example. Does the £21,000 apply only to full-time workers or to full-time equivalent salaries? Will a worker earning £20,700 'leapfrog' a worker earning £21,000? No doubt the answers to these questions are currently being worked out by HM Treasury, the relevant government departments and Review Bodies. However, previous experience suggests that anomalies develop and persist in response to such interventions. For example, the previous Labour administration decided to reduce the pay increases of very senior managers in the NHS below Review Body recommendations whilst allowing managers below them in the hierarchy to receive the full three-year pay settlement negotiated for the period 2008–10. This has led to the position that senior managers in the NHS can be earning less than their deputies.

All these factors tend to suggest that interventions on public pay rates, motivated primarily by macroeconomic factors (i.e. cutting public spending), have microeconomic implications for pay structure and thereby for recruitment and retention. Long periods of pay constraint also tend to exacerbate existing anomalies. This suggests that the government will ultimately have to think more carefully about flexibility in the public sector pay structure, so that workforce planning can be more carefully managed.

### *Pay drift*

A freeze of public sector pay rates does not of itself guarantee that the total public sector wage bill remains constant. Indeed, the total public sector pay bill could rise or fall even if all pay rates were frozen. The reason for this is simple: the total pay bill depends not just on pay rates, but also on the composition of the public sector workforce. Changes in the composition of the public sector workforce are a key factor in public sector 'pay drift', defined as the difference between growth in basic pay and growth in earnings.

Many public sector workers are on broadly incremental pay scales, starting at a low salary and ending on a high salary. Therefore in periods of high recruitment of young workers, or in periods when large numbers of older and higher-paid workers retire, the pay bill per head can actually fall. Public sector pension schemes (discussed in Section 7.5) encourage individuals to retire at the earliest age at which normal pension benefits are available, but they also encourage workers in later middle age to remain in post in order to be eligible for retirement benefits, especially when the rate at which the pension accrues accelerates after a certain number of years' service (as in the Police Pension Scheme for those who joined before 2006<sup>16</sup>).

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<sup>15</sup> Foundation Trusts (not hospitals) do have the freedom to diverge from NHS pay rates, which are set within the Agenda for Change pay structure, but so far only a few have chosen to do so.

<sup>16</sup> Since April 2006, new joiners to police forces are not eligible to join the Police Pension Scheme. New entrants are enrolled in the New Police Pension Scheme which, whilst still relatively generous, does not have this accelerated accrual-with-service feature.



The impact of a broad pay freeze accompanied by measures to 'downsize' the public sector workforce on the growth of the public sector pay bill is therefore difficult to predict. Recruitment freezes will tend to raise pay per head, but measures to encourage early retirement are likely to have the opposite effect. The lack of job opportunities elsewhere may encourage older public sector workers to remain in their posts until eligible for pension benefits, but the lump-sum £500 pay increase to lower earners (who will typically be younger workers) will also reduce the incentives for lower earners to quit. Finally, incremental scales in the public sector typically have a limited number of grade points, with promotion or transitions to higher grades at the discretion of the employer; a cost-cutting public sector employer may seek to postpone or limit such transitions to save money, so that an increasing number of workers are thereby at the top of their particular pay scales and not eligible for pay increments. Given that moving up pay scales is usually a function of tenure but moving to a higher scale is a function of performance, it is more likely that controls on pay bills would reduce only the performance-related component of pay, with possible negative implications on the motivation of the best-performing staff.

### *Pay incentives policy in the public sector*

In addition to changes in basic pay rates, there have been major reorganisations to public sector pay – notably the introduction in the NHS of the Agenda for Change pay structure between 2005 and 2007 that implied an additional upward boost to pay for some groups.

An important component of 'pay drift' in the private sector is that earnings tend to rise faster than pay rates in periods of economic upturn, with greater working of overtime and payment of profit-related bonuses, and the reverse tends to happen in a recession. Both overtime pay and the payment of 'bonuses' – in the form of performance-related pay, since the public sector is not-for-profit – are also present, albeit to a somewhat lesser degree, in the public sector. We now discuss these in turn.

Although overtime work in the public sector sometimes reflects staff shortages, it is generally less susceptible to macroeconomic fluctuations than in the private sector, and instead it is generally the outcome of union-negotiated agreements concerning work practices and shift patterns. There has been a systematic effort to eliminate 'excessive' overtime in the past decade in the public sector by renegotiating pay structures, and significant overtime pay is now generally common only among a minority of public sector occupations such as the police, paramedics, postal workers and some health-related occupations. Constraints on spending are likely to lead employers to restrict the opportunities for overtime still further.

Pay incentives for senior grades in the public sector, such as bonuses, performance-related pay and one-off payments, have become a political issue. The issue arose from concern over bonuses paid to senior managers (in both the public and private sectors) and David Cameron's express desire to limit the ratio of high to low pay in the public sector.<sup>17</sup> The issue of what the appropriate range of pay is in the public sector is a complex one since measurable outputs are limited and pay cannot typically be linked to explicit measures of performance (such as profitability) in any credible fashion.

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<sup>17</sup> Following the Prime Minister's pre-election commitment that the ratio of highest to lowest pay in any public sector organisation should not exceed 20 to 1, Will Hutton was appointed to lead a review of fairness in public sector pay and an interim report was published in December 2010; see *Hutton Review of Fair Pay in the Public Sector: Interim Report* ([http://www.hm-treasury.gov.uk/indreview\\_willhutton\\_fairpay.htm](http://www.hm-treasury.gov.uk/indreview_willhutton_fairpay.htm)).

The expressed rationale for payment of ‘bonuses’ to senior managers in the public sector is quite distinct from that for those paid in the private sector, since the former arise from attempts to ‘incentivise’ senior managers in public sector organisations on an individual basis so as to improve public sector performance, rather than being linked in any manner to turnover or profitability. Attempts to improve public sector performance by recruitment of high-performing individuals from the private sector have often also led to high pay levels for particular individuals and one-off recruitment bonuses. There is also some evidence that tenure of high-profile senior officials in sectors such as NHS Trusts and local government has increasingly been linked to potential indicators of performance, with early exits requiring one-off severance payments, which naturally attract public opprobrium as ‘rewarding failure’.<sup>18</sup> Earnings of particular individuals may therefore be excessive and ‘unfair’, but if differential remuneration is no longer going to be used as an instrument for improving performance of public sector managers, some thought needs to be given to how the performance of public sector institutions is going to be improved in the future.

## 7.4 Public sector employment

We have seen in the previous section that, although there is room for some public pay reduction, the use of further pay cuts may be limited. According to the OBR’s forecasts, and even with the planned pay freeze, 320,000 public sector jobs will have to be cut by 2014–15.

This section attempts to answer questions related to this headline number. How easy will achieving the implied job losses be in different areas such as the police, the NHS, education and other parts of the public sector? What is the best way for the government to cut 320,000 jobs?

### How many public sector jobs will have to go?

The OBR has not estimated the number of job losses by department as it would require information or assumptions on departmental pay bill growth and pay bill per head. For instance, it is difficult to infer pay bill growth from spending growth in the Department for Business, Innovation and Skills, as cuts in spending could be offset by increases in student fees. It is also likely that components of earnings growth vary by occupation: pay drift is likely to be different in the police from that for teachers or for NHS staff. It is unfortunately, and perhaps surprisingly, difficult to find comparable and reliable measures of these departmental differences.

As an illustrative exercise, we have computed in Table 7.6 the growth rate of employment for a selection of departments, using the same methodology as the OBR, assuming that the growth of pay bill per head is the same in every department, and using the non-investment spending plans for each department from the October 2010 Spending Review. But one should question these assumptions, as departments might be able to cut other areas of spending by more than they cut the pay bill.

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<sup>18</sup> See House of Commons, Public Administration Committee, *Top Pay in the Public Sector*, Sixth Report, HC-172, Session 2009–10  
<http://www.publications.parliament.uk/pa/cm200910/cmselect/cmpubadm/172/17202.htm>.

Table 7.6. Illustrative example of potential job losses in some departments

	2011–12	2012–13	2013–14	2014–15
Education	–0.4%	+1.0%	–1.6%	–1.2%
NHS (Health)	+1.6%	+1.7%	–0.3%	–0.4%
Home Office	–5.5%	–5.3%	–7.8%	–6.8%
Justice	–3.6%	–5.8%	–7.0%	–8.5%
Defence	+1.3%	+0.4%	–4.4%	–3.9%
All general government	–0.9%	–0.4%	–1.5%	–3.4%

Notes: We use the projection of the departmental RDEL from the Spending Review and assume the same pay bill growth per head for each department as the OBR does for the general government sector as a whole. Departments wishing to cut employment by less than these numbers suggest would need to cut other budgets by more than the pay budget. Negative numbers indicate job losses.  
Sources: Table A.5 (page 81) of HM Treasury, *Spending Review 2010* ([http://cdn.hm-treasury.gov.uk/sr2010\\_completereport.pdf](http://cdn.hm-treasury.gov.uk/sr2010_completereport.pdf)). Authors' calculations.

Table 7.6 simply translates the choices that were made in the Spending Review, detailed in Section 6.3, into employment losses taking into account the likely evolution of pay. Relatively protected departments, such as the NHS and Education, will, at least according to these calculations, face limited job losses. The Home Office and the Justice department, on the other hand, will have to carry out severe reductions in their workforce if they are to achieve their spending cuts targets, or reduce other parts of their budgets even more (as pay forms the majority of their expenditure). By 2014–15, according to these estimates, the Home Office and the Justice department would have to cut employment by 23%. Defence will be protected in the first two years, but face significant cuts likely in 2013–14 and 2014–15.

These employment implications should be taken with great care as department spending cuts might disproportionately affect other parts of spending than the pay bill. For instance, the Spending Review announced that within the 23% real cuts in Home Office spending, a larger share will be borne by non-police budgets, with police budgets being reduced by 20%. If the Police Authority decided to increase its precept on council tax, it would lead to a smaller reduction in its budget, thus reducing the need for employment cuts.<sup>19</sup> Even if these numbers do not end up being the number of jobs departments will cut, they provide rough estimates of the scale of workforce reductions implied by the Spending Review under the assumptions that the spending plans are adhered to and that non-pay costs are not cut disproportionately.

## How to cut public sector employment?

Once the targets for spending cuts, the level of pay growth and the implied cuts in public sector workforce have been established, one has to face the question of how to deliver these job cuts. The most straightforward way – but not necessarily the optimal way – of reducing employment is freezing recruitment and using natural exits to reduce the number of employees. We first consider this policy option, providing evidence on the turnover rate in various parts of the public sector, and then consider the alternative policies of redundancies and early retirement.

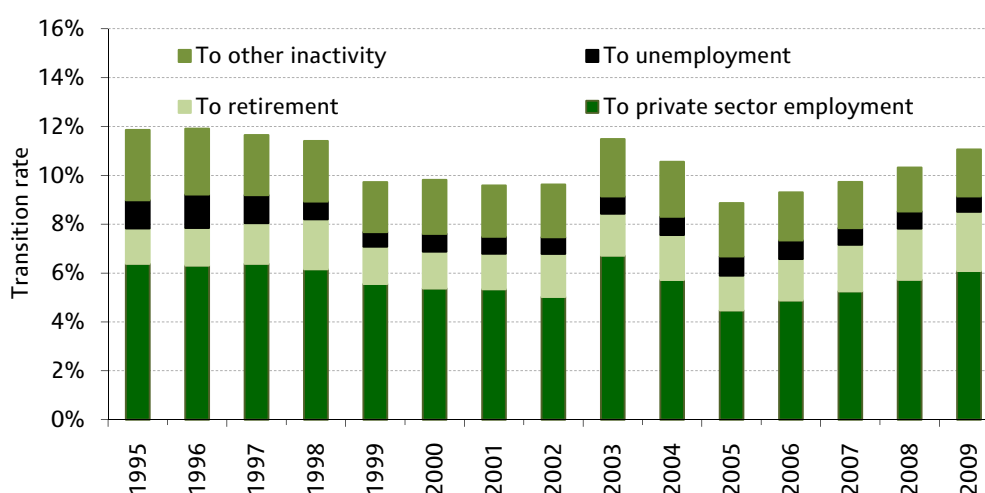
<sup>19</sup> Page 54 of the October 2010 Spending Review ([http://cdn.hm-treasury.gov.uk/sr2010\\_completereport.pdf](http://cdn.hm-treasury.gov.uk/sr2010_completereport.pdf)).

### Using ‘natural’ exits

The number of job losses that can be achieved by using ‘natural’ exits from the public sector depends on the turnover rate, i.e. on the fraction of public sector employees who voluntarily leave public sector employment in a given period.

Figure 7.6 presents estimates of the annual transition rate from public sector employment to employment elsewhere or economic inactivity for each year since 1995. Some of the exits from public sector employment to inactive states other than retirement might allow for employment cuts, but some will not if there is an expectation that the employee will return (or a legal requirement for this to happen), such as exits to maternity leave or short-term sickness. However, the sum of the retirement rate and the exit rate to private sector employment is around 6–9%; this is considerably greater than what is required to achieve the scale of cuts suggested by the OBR (see Table 7.2, i.e. between 0.4% and 3.4% annual employment reductions).

Figure 7.6. Transition rate out of public sector employment



Note: Transitions are yearly estimates based on the individual transitions between the first and fifth waves of the quarterly LFS.

Source: Authors' calculations using data from the Labour Force Survey, 1994–2009.

However, the problem with looking at turnover rates at the aggregate level is that they hide the large heterogeneity within the public sector: some groups or institutions tend to have higher turnover rates while others have much lower exit rates.

Table 7.7 presents transition rates out of the public sector,<sup>20</sup> computed for different categories of public sector workers averaged over the years 2006–09. Some groups, such as doctors and teachers, have high transition rates, either with significant private employment possibilities or through retirement. On the other hand, the police, nurses and prison officers have much lower overall transition rates.

<sup>20</sup> Turnover rates presented by public organisations or departments measure the exit rate out of a given organisation, which might imply that the employee has switched to a different public sector job. Transition rates presented in Table 7.7 from the Labour Force Survey show the net rate of exit out of the public sector. It is likely that the transition rate out of the public sector is lower than the transition rate out of a given public organisation and it cannot be higher than that.

### Box 7.1. Spending cuts and turnover in the police force

The plans in the 2010 Spending Review envisage the Home Office seeing overall resource spending reduced by 24.6% in real terms by 2014–15, with a predicted 20.7% real cut in police budgets (see also Chapter 6).<sup>a</sup> Although ministers have argued that ‘front-line’ police services will be protected<sup>b</sup> and that local budgets may make up some of the shortfall in central resources, it is hard to see how such a large real cut in police budgets can be achieved in such a short period, even with significant workforce reductions.

We therefore model a scenario in which the police pay budget is cut by 20%, with the consequent implications for workforce size, and assess the scope for achieving such reductions using ‘natural’ attrition through natural exit and normal retirement. In fact, with zero real wage growth, such a target can be achieved, but there are strong reasons for thinking that real wages will grow, even with a pay freeze, due to ‘wage drift’ (see Section 7.3). This makes the achievement of the target unlikely without discretionary measures – primarily early retirement.

The bulk of the police budget is spent on workforce. There were about 144,000 police officers in post in England and Wales as of March 2010 and a further 91,000 support staff including community support officers and civilian support staff. Police officers’ salaries in the financial year 2010–11 will total £7.9 billion and support staff salaries £2.7 billion, plus £1.2 billion in employer pension contributions, out of total operating expenditure for police forces of £13.8 billion.

On average, 4–5% of police officers quit the police every year. These are ‘voluntary’ exits – there is no procedure for involuntary redundancy for police officers. These exits will typically be younger members of the force since the accelerated accrual of pension benefits in the Police Pension Scheme after 20 years gives a strong incentive for older officers to remain in service to retirement. Turnover rates among non-officer staff are likely to be higher, since turnover rates in comparable public sector clerical grades are typically double those of police officers. We therefore assume annual exit rates of 4.5% and 9% for police officers and non-uniformed staff respectively. These numbers are consistent with Chartered Institute of Public Finance and Accountancy (CIPFA) data on turnover rates among police staff in recent years.

Making the strong assumptions of zero recruitment and zero real wage growth per head, a 20% budget cut could be achieved by 2014–15 through natural exits resulting in 26,000 fewer police officers and 22,000 fewer support officers. Assuming real earnings growth of 2%, however (since zero recruitment will tend to push up the average age, and earnings, of police officers), the real budget cut would not be achieved until midway through the early part of 2016–17, with 35,000 fewer officers and 30,000 fewer support staff. Faster workforce reduction could then only be achieved by forced early retirement. Some 7,000 police officers are over age 50 – the Normal Pension Age under the Police Pension Scheme – but this is the only scope for tenure flexibility given the police’s contractual conditions. And this scenario assumes zero recruitment – a state of affairs that Chief Police Officers would be unlikely to accept.

Without real cuts in earnings, or other sources of police finance, or disproportionate cuts in the non-police Home Office budget, therefore, a 20% cut in the police pay budget looks very ambitious given the low rate of turnover in UK police forces.

a. Page 54 of the October 2010 Spending Review, taking into account changes in the inflation forecast in the OBR’s November 2010 *Economic and Fiscal Outlook*.

b. See, e.g., Hansard, 6 December 2010, column 10

(<http://www.publications.parliament.uk/pa/cm201011/cmhansrd/cm101206/debtext/101206-0001.htm#1012067000510>).

Table 7.7. Transitions out of public employment by public sector groups (2006–09)

	Private emp.	Retired	Unemp.	Other inactive	Total
Doctors	6.9%	0.6%	0.6%	0.8%	8.9%
Nurses	2.1%	0.9%	0.5%	0.9%	4.3%
NHS PAM	1.8%	1.7%	0.2%	0.8%	4.5%
Other health	4.3%	2.1%	0.8%	2.2%	9.4%
Police	1.7%	0.5%	0.3%	0.4%	3.0%
Prison officers	3.2%	0.5%	0.6%	1.7%	6.1%
Teachers	4.0%	3.2%	0.5%	2.1%	9.8%
Other education	3.8%	2.1%	0.7%	2.7%	9.4%
Civil service	2.7%	1.5%	1.1%	1.8%	7.0%
Other admin	4.3%	1.7%	0.7%	1.6%	8.4%
HM Forces	7.8%	0.0%	0.0%	0.9%	8.7%
Other	4.3%	1.5%	0.7%	2.4%	8.9%

Notes: Transitions are averages over four years of annual transition rates (between wave 1 and wave 5) of the quarterly LFS. NHS PAM designates NHS practices allied to medicine.

Sources: Labour Force Survey, 2006–09; authors' calculations.

Unfortunately for the government, the categories with very low turnover rates include those where the required employment cuts appear to be the largest. If one compares the last column of Table 7.7 with the estimates of Table 7.6, one can see immediately that the 'natural exit' policy will face a problem for the police (within Home Office) and, to a lesser extent, for prison officers (within Ministry of Justice). We discuss in detail in Box 7.1 the case of the police, where the gap between the announced spending cuts and the speed of possible employment adjustment is striking.

The problem of looking at aggregate estimates is not only an issue when comparing different parts of the public sector; it is also an issue between different organisations within the public sector. Some schools or hospitals have very high turnover rates, while others have much lower rates of exit. Even if, at the aggregate level, it is possible to use exit rates to reduce public sector employment, some organisations with low turnover rates may encounter real difficulties. Box 7.2 discusses the case of nurses in the NHS to illustrate the issues at stake. Organisations that have high turnover rates will have less of a problem reducing the number of staff, but this high turnover rate might be due to the fact that they have less attractive conditions of service. Hospitals or schools in London and the South-East that struggle to recruit qualified staff might end up cutting employment easily, while organisations in the rest of the country where the turnover rate is much lower will find it much harder to achieve employment targets.

Another problem with this 'natural exit' policy is that it assumes no recruitment at all, which is an extreme assumption. A freeze in recruitment for the public sector at large would distort the age and experience distribution of staff, and would, in some organisations, lead quickly to severe disruptions of service. As a result, it is more reasonable to assume that recruitment will be reduced, but not frozen. This will make squaring the circle in departments such as the Home Office and the Ministry of Justice even harder, if not impossible, without using other policies.

**Box 7.2. Turnover in the National Health Service**

The NHS has been protected from deep spending cuts by the government. Nevertheless, given cost pressures, even constant real spending can only be achieved with workforce reductions in some areas. In the example of police spending, illustrated in Box 7.1, the problem with relying on ‘natural’ exits is the relatively low (but relatively uniform) rates of turnover of police staff, especially police officers, across police forces. In the case of the NHS, however, the problem of relying on ‘natural wastage’ to achieve workforce reductions is the high variation in turnover rates across NHS Trusts. Recruitment freezes coupled with ‘normal’ exit rates would soon leave some Trusts with serious shortfalls in workers, while other Trusts would have seen little change in workforce. A high degree of local discretion would therefore be needed in determining how specific NHS Trusts should attempt to stay within a fixed real budget.

Table 7.8 shows the range of variation of turnover rates between September 2007 and September 2008 across NHS Trusts in England for qualified nurses.

**Table 7.8. Range of turnover rates for qualified nurses across English NHS Trusts, 2007–08**

Organisation name	Number of staff in Sept 2007	% of staff exiting Sept 2007 to Sept 2008
<i>Low turnover</i>		
Humber Mental Health Teaching NHS Trust	587	5.9%
North Staffordshire Combined Healthcare NHS Trust	663	6.2%
Doncaster and South Humber Healthcare NHS Trust	647	6.3%
Shrewsbury and Telford Hospital NHS Trust	1,351	6.5%
North Cumbria Acute Hospitals NHS Trust	1,421	6.5%
<i>High turnover</i>		
Salford PCT	400	24.4%
Somerset Partnership NHS and Social Care Trust	419	24.5%
Surrey Primary Care Trust	1,247	21.3%
Royal Marsden Hospital NHS Foundation Trust	675	20.5%
Bradford District Care Trust	503	20.3%

Source: NHS Information Centre, <http://www.ic.nhs.uk/statistics-and-data-collections/workforce>. These figures are for Trusts of at least 400 staff at the start of the period and that were not subject to reorganisation during the period.

In the five ‘low turnover’ Trusts, exit rates of qualified nurses were around 6% on an annual basis; for the five ‘high turnover’ Trusts, exit rates exceeded 20% in a single year. Of course, exit rates vary from year to year, but NHS data suggest that certain Trusts – in London, its surrounding regions and the larger municipalities – tend to have consistently higher average exit rates.

Faced with budget cuts, managers are tempted to use natural turnover and partial or complete recruitment freezes as lines of least resistance in achieving budget reductions. However, reliance on such strategies in the NHS will cause imbalances that will have to be rectified within a relatively short period.



### Redundancies

An obvious alternative to the ‘natural exit’ strategy is to make public sector workers redundant. The problem with this method is that it is usually costly, as it tends to require large severance packages. It is also not an option for some public sector workers (for example, it is legally impossible to engage in involuntary redundancies with police officers).

In July 2010, the government announced a reduction in the generosity of redundancy packages for the civil service, in a move to reduce pre-emptively the cost of forthcoming redundancies.<sup>21</sup> Current rules imply that civil servants made redundant can receive one month of pay per year of service, doubled after five years, up to six years of pay (for 38.5 years of tenure). The government proposal is to reduce the maximum amount of severance pay to two years of pay, which could mean some civil servants qualifying for four years’ less pay than they would under the current system. The government’s proposal would also bring the civil service closer to other parts of the public sector, where the general rule is one month of pay per year of service up to two years of pay. But even with the government’s proposed reduction in severance pay, reducing the public sector workforce through redundancies is costly, limiting its ability to help curb spending in the short term. It would also risk creating tensions and possible disruptions in the way the public sector operates.

### Early retirement policies

The final option for policymakers wishing to reduce public sector employment is to set up early retirement plans.

Such schemes have been used extensively in the past both by private sector firms and by public sector employers. They are usually perceived positively by unions and employers and therefore typically allow large workforce reductions in a smooth way. In the 1970s and 1980s, it was thought that early retirement policies could reduce unemployment, and some European countries (notably France, Belgium and the Netherlands) carried out large-scale early retirement policies with that intent. In the UK, a Job Release Scheme was implemented between 1977 and 1988, with the intention of freeing up jobs occupied by older workers for younger workers.

But these early retirement policies have not been very successful: they have had a direct cost to the public finances of the countries that carried them out, with no significant fall in unemployment. On the contrary, they have contributed to lower employment of older workers and lower total employment.<sup>22</sup> As a result, these policies end up being costly – much more so than redundancy packages – because they have a doubly negative effect on the public finances: they represent a direct cost through the additional pension payments, and they lead to lower labour force participation and thus reduce tax revenues.

Given how expensive and inefficient early retirement schemes are, we do not recommend that they are pursued to any great extent. We consider this final part of public sector cost – pensions – in the next section.

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<sup>21</sup> The story of the changes to the civil service redundancy package is more complex – it was started by the Labour government in July 2009 and subsequently stopped by the High Court before the coalition government proposed new legislation. The new legislation is subject to further legal challenges at the time of writing.

<sup>22</sup> See, for example, the UK case within a cross-country study of these policies: J. Banks, R. Blundell, A. Bozio and C. Emmerson, ‘Releasing jobs for the young? Early retirement and youth unemployment in the United Kingdom’, in D. A. Wise and J. Gruber (eds), *Social Security Programs and Retirement around the World: The Relationship to Youth Employment*, University of Chicago Press, 2010.

## 7.5 Public sector pensions

The total public sector pay bill also includes the cost of providing pensions to public sector workers. We discuss this component of the public sector pay bill separately from earnings, as a large amount of current pension liabilities correspond to past promises from public employers, meaning that pension reforms typically have only small impacts on the public finances in the short run.

In this section, we first compare typical public and private pension provisions, in a similar way to the comparison of pay levels in Section 7.3. We then discuss options for reforming public sector pensions.

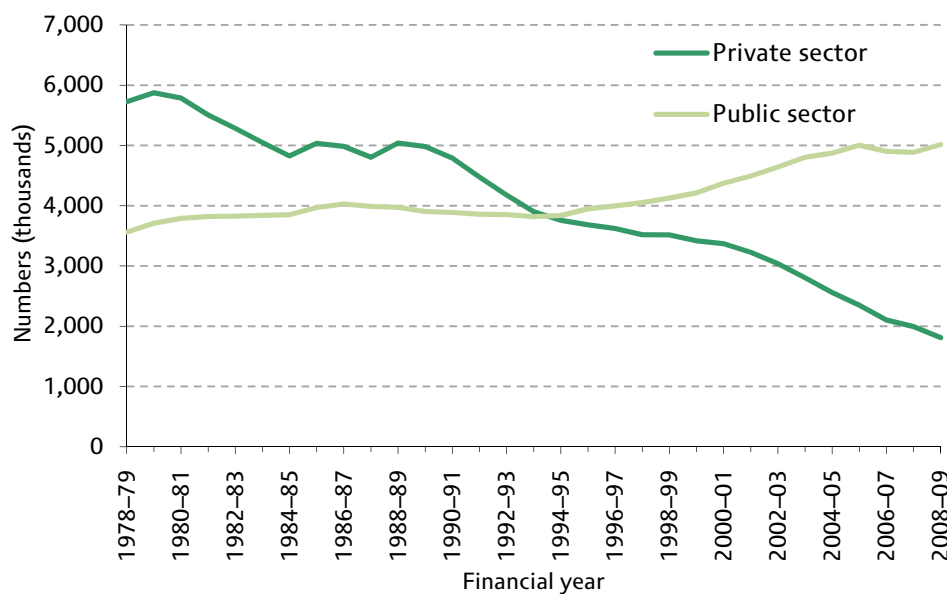
### Comparing public and private pension provisions

Pension schemes are markedly different in the public and private sectors and have become more so over time. Three main characteristics underlie the differential provision:

- Public sector workers are more likely than those in the private sector to enjoy membership of an occupational pension scheme, and particularly of a defined benefit (DB) pension scheme.
- Public sector DB schemes have, on average, more generous benefit rules than private sector DB schemes.
- Public sector workers enrolled in defined contribution (DC) schemes have, on average, higher level of contributions to these schemes than private sector workers enrolled in DC schemes.

The reduction in coverage of DB schemes in the private sector relative to the public sector is a long-term trend. This is illustrated in Figure 7.7.

Figure 7.7. Principal membership of contracted-out defined benefit pension schemes, by sector



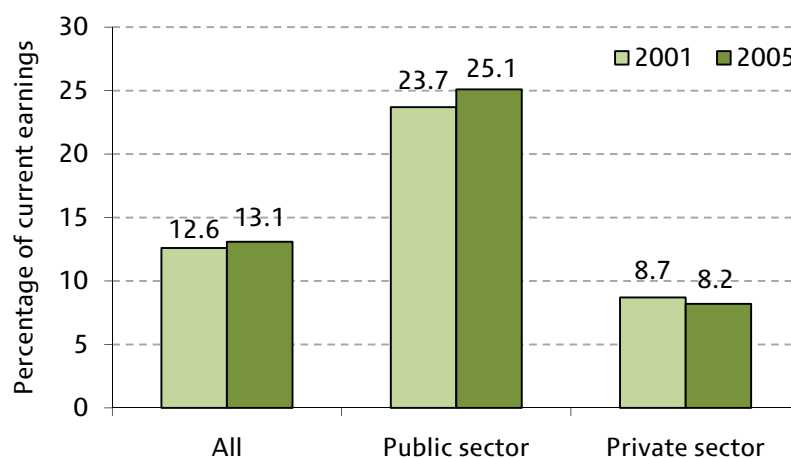
Note: Recently nationalised financial corporations are not included in these data.

Source: Department for Work and Pensions, *Second Tier Pension Provision Statistics*, available at <http://research.dwp.gov.uk/asd/tabtool.asp>.

The increase in the number of public sector employees covered by a DB scheme between 1997 and 2009 is largely explained by an increase in the number of public sector employees over that period, in particular in the NHS (as shown in Table 7.1).

Researchers at IFS have recently estimated the advantage public sector workers enjoy with their pension arrangements over their counterparts in the private sector.<sup>23</sup> This shows not only that the coverage of DB pensions is more extensive in the public sector, but also that the generosity of these pension schemes is higher. In Figure 7.8, we reproduce estimates of the mean value of total pension accrual across the public and private sectors. Not only are public pensions overall more generous than their private counterparts but also the two are on a diverging trend: mean public sector pension accrual actually rose between 2001 and 2005, from 23.7% to 25.1% of current earnings, while mean private pension accrual decreased from 8.7% to 8.2% over the same period.

Figure 7.8. Mean value of total pension accrual across all employees



Source: Figure 3.3 (page 15) of R. Crawford, C. Emmerson and G. Tetlow, 'Occupational pension value in the public and private sectors', IFS Working Paper W10/03, 2010 (<http://www.ifs.org.uk/wps/wp1003.pdf>).

The numbers in Figure 7.8 do not take account of the compositional difference between the two sectors (they are therefore raw comparisons similar to the ones made for pay in the first row of Table 7.3). To estimate a public pension premium, one would face the same issues as those mentioned in Section 7.3 for estimating a public pay premium. Crawford et al. (2010) attempt to measure this public sector pension premium, controlling for a small set of observed characteristics (age, sex, broad education categories). They find that public sector workers tend to have 14.1 percentage point higher pension accrual after accounting for these characteristics. Unlike the estimates of a public pay premium presented in Section 7.3, this adjusted public sector pension premium is only slightly smaller than the raw differential. One reason that could explain why controlling for such characteristics does not reduce the estimated public sector pension premium is the difference in age-earnings profiles between the private and public sectors, which also affects the generosity of final salary arrangements.

<sup>23</sup> R. Disney, C. Emmerson and G. Tetlow, 'What is a public sector pension worth?', *Economic Journal*, 2009, 119, issue 541 (<http://www.ifs.org.uk/publications/4666>) and R. Crawford, C. Emmerson and G. Tetlow, 'Occupational pension value in the public and private sectors', IFS Working Paper W10/03, 2010 (<http://www.ifs.org.uk/wps/wp1003.pdf>). They use data from the British Household Panel Survey (BHPS) for the years 2001 and 2005, as well as Labour Force Survey data (to simulate earnings profiles).

## Looking forward: Lord Hutton's Commission

In order to shape public sector pension reforms, the government asked Lord Hutton to chair an Independent Public Service Pensions Commission, which is expected to release a final report by Budget 2011. An interim report was published in October 2010.<sup>24</sup> The Hutton Commission is addressing three questions: are public sector pension liabilities affordable? are public sector pensions too generous? and are they structured in an adequate way to reward public sector workers at the lowest cost for the taxpayer?

### *Affordability of public sector pensions*

The first issue that the Hutton Commission Interim Report stresses is that public sector pensions in the UK are affordable in the long run, in the sense that pension payments are set to fall as a share of national income over the next 50 years (see chart 4.B on page 66). From 2020 to 2050, pension payments are expected to fall from 1.8% of national income to 1.4%. In large part, this cut is due to two recent reforms:

- First, the previous Labour government increased the NPA from 60 to 65 for most new entrants to public sector schemes, which is a very large change for those who were affected.
- Second, the coalition government announced in the June 2010 Budget that pensions in payment would be indexed in line with a measure of inflation that is typically lower (CPI rather than RPI), which reduced the value of not just future pension accruals but also rights already accumulated. Some commentators have suggested that this change alone will reduce the value of pensions to scheme members by around 15% on average.<sup>25</sup>

This second change has two important characteristics that should receive further attention. First, it is retrospective, in the sense that it applies to pension rights already accrued as well as to future accumulated rights. Second, it disproportionately affects members of schemes with earlier NPAs (such as the police and armed forces) and also, by changing the procedure by which earnings are revalued before retirement, disproportionately affects schemes that utilise career averaging (such as the civil service Nuvo scheme) relative to final salary schemes.

Although these changes led Lord Hutton's Interim report to be relatively sanguine concerning the long-term affordability of public pension schemes, such a conclusion might need to be modified if earlier retirement is used to downsize the public sector.

### *Generosity of public sector pensions*

The second question underlying Lord Hutton's Interim Report relates to the generosity of public sector pensions within the total remuneration package of public sector workers. At a time when spending cuts are about to be enacted with large implications for public pay and employment cuts, it would be strange to leave out of consideration the generosity of public sector pensions. As we have seen in the previous subsection, public sector pensions are more generous than their private sector equivalents, and are becoming more so.

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<sup>24</sup> The Interim Report and evidence received by the Commission can be found at [http://www.hm-treasury.gov.uk/indreview\\_johnhutton\\_pensions.htm](http://www.hm-treasury.gov.uk/indreview_johnhutton_pensions.htm).

<sup>25</sup> Analysis done by the Pensions Policy Institute, quoted on page 44 of Lord Hutton's Interim Report ([http://www.hm-treasury.gov.uk/d/hutton\\_pensionsinterim\\_071010.pdf](http://www.hm-treasury.gov.uk/d/hutton_pensionsinterim_071010.pdf)).

Of course, there is no reason why public sector workers might not choose to take a higher share of their total remuneration package in pension than in pay. But, given that our estimates in Section 7.3 suggest that public sector pay is not lower than private sector pay to compensate for these more generous pension benefits, there does seem to be a case for either reducing public sector pay, or reducing public sector pension benefits, or increasing employee pension contributions. In his Interim Report, Lord Hutton suggests that increasing employee contributions is the most effective way to reduce the anomaly of public sector pensions. His argument is that public sector workers should have a better view of how much their pension benefits are worth in order to make future choices on their level of pension provision. It also happens that increasing pension contributions has a direct short-term benefit to the public finances that long-term changes to pension entitlements do not have. Of course, for the majority of public sector workers, who are members of a public sector occupational pension, an increase in employee contributions has an almost identical impact on their disposable income right now as a cut in pay (although the two are not identical in the long run, as a pay cut would also lead to lower DB pension entitlements, whereas an increase in employee contributions would not).

Lord Hutton's report does not give recommendations for the size of the increase in contributions, leaving the decision to the government. In the Spending Review, the government decided to increase employees' pension contributions by 3 percentage points on average, for a total estimated saving of £1.8 billion by 2014–15. The government has also announced that the average increase will be implemented in a progressive way, and that the armed forces will be exempted.<sup>26</sup> Of course, when assessing the total impact of the government's reforms on public sector pensions, one must consider not just the effect of increased contributions, but also the impact pay cuts will have on the level of pensions, and the differential impact of the recent indexation change on different public sector pension schemes (as mentioned earlier).<sup>27</sup>

One further issue with a policy of increasing employee pension contributions is that public pension reforms have already been enacted for new entrants. If the increase in contributions applies both to new cohorts of public sector workers (who will not benefit from such generous public sector pensions) and to their longer-serving colleagues, one could question the fairness of the approach. Aligning pension contributions to the level of pension benefits would require further reforms to the structure of public sector pensions, which we do not discuss further here.

### *Structure of public sector pensions*

Lord Hutton's recommendations for more fundamental reform to public service pensions will be published in his final report. The key issue should be how cost-effectively public service pensions fulfil the role of attracting and retaining the desired calibre of staff in the public sector. A number of features of the current schemes, for a given pension level, are difficult to justify, and reform could potentially enhance value for money for the taxpayer.

First, final salary schemes embody a particular set of incentives. They benefit long-stayers more than short-stayers, and are much more generous to those who receive pay increases towards the end of their career than those who do not. Arguments justifying such an incentive structure include the desire to reward loyalty to the public sector. But

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<sup>26</sup> Page 37 of the October 2010 Spending Review.

<sup>27</sup> For more details, see R. Disney, C. Emmerson and G. Tetlow, 'What is a public sector pension worth?', *Economic Journal*, 2009, 119, issue 541 (<http://www.ifs.org.uk/publications/4666>).

given the increased flexibility of labour markets, and the increased flows of workers between private sector organisations and public sector institutions, it seems an inappropriate way of rewarding public sector workers.

Second, a fixed Normal Pension Age of 65 (or lower) seems inconsistent with continued rising life expectancy and the planned increase in the State Pension Age (SPA) for men and women to 68. Parts of the public sector – the police, firefighters and the armed forces – continue to enjoy a much lower NPA with substantially more generous pension conditions. Further analysis is needed of, for example, whether these lower NPAs are justified by lower life expectancies.

Third, reforms introduced in 2007 mean that many who joined before that date are accruing substantially more generous pension entitlements than those who have joined since. This means that within public sector organisations, for similar pay and conditions of service, some individuals will be rewarded much more than others on no other basis than when they joined. This is unfair and inefficient.

An example of a possible improvement to the structure of defined benefit pensions that could retain the average generosity would be, for future accrual only, a shift from final salary to career average earnings schemes and an equalisation of NPAs with the SPA, combined with an offsetting increase in accrual rates (the implications of the shift to CPI indexation would need careful analysis in this scenario). Alternatively, compensation for pension cuts could be provided through pay increases. However, this latter option might prove unattractive in the current circumstances: the unfunded nature of most public service pension schemes (the most notable exception being the Local Government Pension Scheme) means that pension cuts lead to lower spending (and therefore borrowing) in the future, while increases in public sector pay would increase spending (and therefore headline borrowing) immediately. The issue of public service pensions and the government's fiscal targets is discussed in Chapter 2.

## 7.6 Conclusion

Public sector pay and pensions are a key issue for this government as the spending cuts announced in the Spending Review imply significant reductions in public sector pay and employment and increases in pension contributions. None of these three policies is without consequences for the provision of public services.

The government has announced a two-year pay freeze for the majority of public sector workers. On average, this implies a significant real pay cut that will remove most of the estimated average public sector pay premium. But this evidence should be treated with care, both because of measurement issues and because the average public pay premium hides significant discrepancies between regions and occupations: no positive public sector pay premium is currently detected in London and the South-East, and some public sector vacancies remain hard to fill.

Unfortunately, a two-year pay freeze will not be enough to achieve the spending cuts envisaged in the Spending Review, so reducing the workforce will be inevitable in some parts of the public sector. We have analysed how much employment can be cut through 'natural exits'. In the parts of the public sector where spending cuts are relatively small and the turnover rate is relatively high (education and parts of the NHS), these employment reductions, at least in aggregate, could be achieved in the timescale implied by the Spending Review. In other parts of the public sector, where the required cuts are

larger and turnover rates lower (the police force and prison service), 'natural exits' will not be nearly enough to achieve the scale and speed of employment reductions implied by spending cuts unless non-pay budgets are cut disproportionately. Variation in turnover rates across organisations will also make it harder to achieve these employment targets at the level of individual organisations. The options of compulsory redundancies and early retirement schemes are costly for the public finances. Given that the ultimate goal is to reduce public spending, the scale and timing of some spending cuts combined with the constraints of workforce management in some areas of the public sector will make the task of policymakers an impossible one.

Public sector pensions are an area where long-term gains for the taxpayer could be found by reforming the structure of pension incentives for a given level of generosity and, perhaps, by reducing public sector pension generosity. The gains for the public finances from any reduction in average generosity would, however, accrue mostly in the long run, which would not help the government's immediate goals. On the other hand, the gains from getting the incentives right would start to accrue almost immediately.

Overall, the issue of reducing the public sector pay bill highlights a general conundrum with the timing of public spending cuts. The easiest reforms to implement often involve substantial long-term costs for the public finances, while efficiency-improving reforms have mainly long-term gains. The risk is that by cutting the public sector pay bill too fast, the government ends up using policies that increase longer-term public liabilities.



# 8. Measuring the distributional impact of public service cuts

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## Summary

- The fiscal tightening currently under way will rely on cuts to spending on public services to a greater extent than on cuts to social security spending or increases in taxation.
- Distributional analyses of changes to spending on public services are not common. This is because, unlike with changes to taxation and cash benefits (which directly affect the income of taxpayers and recipients), there is no readily calculable *quantitative* measure for valuing the benefit the public get from services that are provided in kind rather than in cash (such as hospitals, schools, the army and government administration).
- In spite of the unavoidable difficulties associated with carrying out this type of analysis, the imminent deep cuts in public service spending have provoked a good deal of interest in evaluating the distributional impact that they will have.
- The studies that have aimed to evaluate these distributional impacts (including that published by the Treasury alongside the Spending Review) typically assume that the value of a public service is equal to the cost of providing it. But the problems implicit in this approach (problems that are typically noted by those carrying out the studies) mean that the results should be interpreted extremely cautiously.
- It is certainly to be welcomed that the Treasury has considered the distributional impact of changes to spending on public services. However, we make a number of recommendations for any future analyses. In particular, given the absence of an established methodology for carrying out this type of analysis, it is crucial that details are published of how distributional impacts are estimated. Without such details, the robustness of the analysis cannot be assessed. It is also important that the Treasury take a more consistent approach to determining which measures are included in a distributional analysis.

## 8.1 Introduction

The fiscal tightening that is currently under way will, by 2014–15, be composed as follows: 27.2% net increases in taxation, 15.3% cuts to spending on cash benefits and 57.4% cuts to spending on public services. These measures, as they reduce government borrowing, will inevitably involve a reduction in the resources available to households. Given their scale,<sup>1</sup> an understanding of how the impact of each is distributed across the population is important.

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<sup>1</sup> For a discussion, see Chapter 6.

Distributional analyses of changes to taxation and the payment of cash benefits are frequently produced in the aftermath of Budgets<sup>2</sup> and follow an established methodology.<sup>3</sup> For reasons that we discuss in this chapter, distributional analyses of changes to spending on public services (health, education, defence, government administration etc.) are much less common. However, the prospect of large cuts to departmental budgets has sparked a good deal of interest in this sort of analysis recently – with studies claiming to show the distributional impact of these cuts being produced both inside and outside government. The issue is not, however, new: the distributional impact of changes to public service spending was just as much an omission in the evaluation of fiscal plans during earlier times of expanded public expenditure.

This chapter proceeds as follows. Section 8.2 outlines the considerable difficulties in evaluating precisely the distributional impact of public services that are provided in kind rather than in cash. Section 8.3 uses evidence from studies that examine how usage of public services varies over the income distribution to discuss the distributional impact of those services. Informed by these studies and the analysis published by the Treasury alongside the Spending Review, we discuss what the distributional impact of those cuts in spending that have been announced over the past six months might be. Section 8.4 concludes.<sup>4</sup>

## 8.2 Can we measure the distributional impact of spending on public services?

What is the monetary value to a household of spending on a local school? Or a local hospital? Or the armed forces? Or the Treasury? These are the type of questions that must be answered *in quantitative terms* if one wants to evaluate *quantitatively* and compare the distributional impact of spending on schools, hospitals, the armed forces or the Treasury.

The impact of public spending decisions is substantially harder to document precisely than the impact of decisions that relate to taxation or the payment of cash benefits. To see why, consider the following two questions:

1. Who loses most, and how much do they lose, from a cut to Child Benefit?
2. Who loses most, and how much do they lose, from a cut to spending on the NHS?

The part of the question that asks ‘how much do they lose?’ calls for the answer to be expressed in quantitative terms. The first of these questions is much easier to answer precisely. In assessing the effect of a cut in Child Benefit on households, the obvious answer is a quantitative one – the amount (in pounds per week, for example) that the household has lost. In assessing the effect of a cut in spending on the NHS, on the other

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<sup>2</sup> For a recent example, see J. Browne and P. Levell, *The Distributional Effect of Tax and Benefit Reforms to be Introduced between June 2010 and April 2014: A Revised Assessment*, IFS Briefing Note 108, 2010 (<http://www.ifs.org.uk/publications/5246>). See also Chapter 12 in this Green Budget, which gives the distributional impact of changes that will take effect in April 2011.

<sup>3</sup> For an overview of this methodology, see R. Hancock and H. Sutherland (eds), *Microsimulation Models for Public Policy Analysis: New Frontiers*, STICERD Occasional Paper 17, London School of Economics, 1992, and G. Redmond, H. Sutherland and M. Wilson, *The Arithmetic of Tax and Social Security Reform: A User's Guide to Microsimulation Methods and Analysis*, University of Cambridge, Department of Applied Economics, Occasional Paper 64, Cambridge University Press, 1998.

<sup>4</sup> A more detailed treatment of the same issues is considered in C. O’Dea and I. Preston, *The Distributional Impact of Public Spending in the UK*, 2020 Public Services Trust, London, 2010 (<http://www.ifs.org.uk/publications/5234>).

hand, it may be possible to identify who has been affected but there is no uncontroversial or readily calculable quantitative measure of the loss each household experiences. Cuts to spending on public services typically have no direct cash impact on households, but the welfare of households will, of course, be affected. The size of the impact will depend on, among other things, the amount of the service a household uses and how much they value the service. If a quantitative assessment of the distributional impact of that spending cut is required in a way that allows comparison with other budgetary changes, then that reduction in welfare must be expressed in cash terms.

This raises the question of why one would want to express quantitatively something (such as the value of public services) that has no simple quantitative interpretation.<sup>5</sup> There are a number of reasons. First, it is necessary if one wants to compare the distributional impact of cuts to spending on public services with cuts to benefit payments or increases in taxation. Second, it allows a comparison of the distributional impact of changes to various types of public spending (e.g. closing libraries compared with closing hospitals). Putting these together, it would allow a distributional analysis of the *entire* fiscal consolidation, i.e. an assessment of the progressivity or regressivity of all measures introduced (including both those with a cash effect and those with an in-kind effect).

In the rest of this section, we first discuss a relatively intellectually satisfying (but perhaps impractical) approach to the valuation of public services. This equates a user's value of a public service with what their willingness to pay for it would be were it not provided publicly. We then discuss a less-than-ideal (but more practical and therefore more common) approach to the valuation of public services. This equates a user's value with the cost of provision.

### Value as 'willingness to pay'

A natural way to think about valuation, we suggest, is to think about the willingness to pay. To value the services provided by a library, for example, we could evaluate how much households would have been willing to pay for its services if it were not provided by the government. Or if we want to assess the impact of a cut in the library's funding, we could evaluate how much households would have been willing to pay to avoid that funding cut.

There are a variety of methods that could be informative about the willingness to pay for some public services. For example:

- The premium paid for a house with easy access to a public amenity (e.g. a public park or transport hub) relative to a similar house with no such access can be used to assess willingness to pay for that amenity.
- For some publicly provided goods, relatively close substitutes exist whose market price can be used to assess valuations. A leading example of this is health insurance, the price of which can be used to inform an exercise that aims to value public healthcare.

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<sup>5</sup> The danger of thinking that 'any number is better than no number' is an obvious one. For a perspective that argues that, in the context of goods that are consumed collectively, no number might often be better than some number, see P. Diamond and J. Hausman, 'Contingent valuation: is some number better than no number?', *Journal of Economic Perspectives*, 1994, 8(4), 45–64.

- Some surveys contain questions that try directly to elicit valuation by asking respondents how much they would be willing to pay for some hypothetical expansion of government spending on some public service.

There are issues, which we do not discuss here, that make each of these strategies far from perfect. However, if the aim is to value the overall distributional impact of public spending, their greatest weakness is their limited applicability. None of these methods can easily be applied to place a value on every public service, nor can they be applied to assess the distributional impact of a package of spending cuts at the level of detail announced in the recent Spending Review. Spending Reviews typically set out the budgets available to departments rather than the programmes and services on which those budgets will ultimately be spent. However, it is those programmes and services that can (potentially) be valued using a willingness-to-pay measure, rather than the budgets themselves.

### **Value as the cost of provision**

In light of the absence of any method to estimate willingness to pay for all public services, it is perhaps unsurprising that all the studies that have recently attempted to assess the value of spending on public services equate the value to the cost of provision. The approach typically taken is as follows. An estimate of which types of households use a particular public service is made. The cost is then divided equally between the users; the resulting cost per user is assumed equal to the value per user. This approach, while certainly feasible, is problematic. We now outline two problems with it.

#### *Value and cost diverge*

The fact that value and cost diverge can be illustrated by stark examples. At one extreme, there is likely to be some government spending that is considered to be worthless or even destructive by some households. For example, there has been much discussion recently about the possibility of cutting ‘wasteful’ expenditure.<sup>6</sup> Since waste is costly, defining value based on cost would lead to the conclusion that cutting waste in the provision of public services reduces their value to the end-user. In this case, the notion of value as willingness to pay seems more sensible as, presumably, households will have little or no willingness to pay for waste, and it would therefore be assigned a low value.

At the other extreme, some government spending could have a value far in excess of the cost of providing it. There is a range of types of spending that could be considered to fall into this category. For example, in spending money to correct market failures, governments can generate value far in excess of the cost. Natural monopolies are a case in point – in many cases, some essential service (e.g. piped water or the national grid) might either not be provided or be provided at much higher cost in the absence of the government either providing it directly or regulating the market so that private provision can occur. Once again, in this context, the notion of value as willingness to pay seems more sensible. In the absence of the provision of piped water, households would be willing to pay quite a lot for it – likely more than the average cost of providing it to them through public intervention.

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<sup>6</sup> We can distinguish between two different types of waste. First, there is ‘pure waste’ (e.g. leaving the lights on in government offices at night), which benefits nobody. Second, there is paying people to do things that are not considered socially valuable. The latter type of expenditure is often labelled ‘waste’ and, while it does not create any value for users of public services, it does benefit the recipient of the payment. Its effect, therefore, is rather like that of a transfer payment. The discussion in the text here relates primarily to ‘pure waste’.

*The value of public services will not be the same for all users*

The second concern with directly equating cost and valuation is that it implies that the value is the same to all those who use a public service of similar cost. In fact, there is good reason to believe that the valuation of certain public services will vary with household characteristics and, in particular, household income. This is a crucial issue when the question at hand relates to the extent to which government spending has a different impact on those at different points of the income distribution. If users with different incomes value the (similar) service they receive differently, then assigning everyone the same value will yield misleading results. This can be illustrated with two examples that highlight why intuitive and apparently innocuous assumptions can lead to results that seem questionable.

First, consider the case of military spending. Without any obvious way of differentiating 'usage' of the military, the approach under discussion would naturally assume that everyone benefits to the same extent. If everyone is assigned the same cash valuation, those at the bottom of the income distribution get more value from the military as a proportion of their income. Military spending therefore will seem to be progressive<sup>7</sup> and any cut in military expenditure will appear regressive assessed against conventional criteria. The combination of this conclusion (military spending is progressive) and the initial assumption (all individuals benefit equally) highlights the fact that equal cash valuation of some public service across the income distribution is *not* the same as saying that the impact of spending on that service is distributionally neutral. On the contrary, distributional neutrality is more conventionally associated with proportionality to income.<sup>8</sup>

The second example is one where the concept of usage is easier to define than in the case of spending on the military. Consider two families with different income levels, both with a child in a local maintained school that is facing a funding cut. Both families can be considered to be 'using' the school to the same extent. However, it is quite possible that, even if both sets of parents have the same sense of the importance of education to their children, the richer family will be willing to pay more than the poorer family to avoid the cut in the school's funding, simply because it can afford to.

These examples suggest that if one is satisfied to put a value on public service spending that is informed by the notion of willingness to pay, then cash valuations should rise with income, at least up to some particular level of income. This is not to suggest, however, that valuation increases with income throughout the income distribution. As incomes continue to rise, individuals become more likely to supplement public provision with private provision of a close substitute and, in a more extreme case, opt out of public provision altogether and rely entirely on privately provided alternatives. Once incomes get to the level that individuals start supplementing public provision with private alternatives, valuations will stop rising. If individuals opt out of public provision altogether – say by sending their children to a private school rather than the local maintained school – then their valuation of spending on maintained schools could well be zero.

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<sup>7</sup> Where the definition of progressivity is taken to be that the value of the benefits as a proportion of income falls as income rises. The definition of neutrality is that the value of the benefits as a proportion of income is constant, and that of regressivity is taken to be that the value of the benefits as a proportion of income rises as income rises.

<sup>8</sup> Another way to think about this is to note that 'progressivity' in spending is not the same as 'equal benefits', any more than progressivity in taxes is the same as equal tax payments.

To summarise this discussion: we have outlined that cash valuations placed on public services are likely to vary over the income distribution; even with the same preferences, those with more income will be willing to pay more. Assuming that value and cost are equal will mean that this variation in value will be missed.

### *Some 'mitigating factors' to the equating of cost and value*

The previous discussion outlined many reasons *not* to use cost as the basis for valuation. However, the practical difficulty of adequately ascertaining willingness to pay means that if the aim is to value either the current level of, or the change in, spending on a variety of different public programmes (such as the decisions contained in the Spending Review), cost is perhaps the only feasible starting point.<sup>9</sup>

Given the fact that the previous discussion was quite clear on the problems associated with using the cost of provision as a measure of value, here we note three of the ways in which the problems that are associated with such an approach might be mitigated.

First, studies that take this approach typically correct for differential usage of public services across the income distribution. Differential usage is one (though only one) of the reasons why value might differ across the income distribution.<sup>10</sup>

Second, under certain assumptions, there is likely to be a point in the income distribution where the cost of provision is equal to the willingness to pay.<sup>11</sup> This insight, combined with evidence gleaned from other sources on how valuations vary with income, could, in principle, be used to estimate a valuation for all households that, while depending on the cost of provision, is not exactly equal to that cost. However, the studies that we have seen and that we discuss in Section 8.3 do not attempt anything like this. They typically divide the cost of provision by the number of users and assign the same cash valuation to each user.

Third, some studies attempt to estimate the value of a *change* in spending on public services rather than the current level of public spending. Unless the political system is considered to be completely dysfunctional, it is probably the case that the average valuation of a particular change is not too far from the average change in the cost of provision. Information from other sources on the relationship between cost and value can then be used in conjunction with this (roughly correct) average figure to estimate the distributional impact.

## **The value of spending on public services versus the value of changes to spending on public services**

Before discussing results, it is worth emphasising one further point on how the methods of valuation discussed above can – or cannot – be used to evaluate the distributional impacts of *changes* in spending on public services, such as those announced in the recent

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<sup>9</sup> At least the cost of everything is relatively amenable to measurement. The economist may be in danger of being someone who miscalculates the value of everything because he is not satisfied with knowing the cost of everything.

<sup>10</sup> Defining and estimating usage of public services is itself not free from difficulties. Issues include whether to define the benefits of certain public services (healthcare, for example) as accruing to those who access them in a particular period or as insurance benefits that accrue to everyone in each period, and whether to measure use of public services over the life cycle or in a particular period. We do not discuss these issues here, but a detailed discussion is contained in section 2.5 of C. O'Dea and I. Preston, *The Distributional Impact of Public Spending in the UK*, 2020 Public Services Trust, London, 2010 (<http://www.ifs.org.uk/publications/5234>).

<sup>11</sup> See section 2.1 of C. O'Dea and I. Preston, *The Distributional Impact of Public Spending in the UK*, 2020 Public Services Trust, London, 2010 (<http://www.ifs.org.uk/publications/5234>).



Spending Review. If the distributional impact of a change in spending on public services is of primary interest, then every possible effort should be made to estimate the impact of that change directly, rather than it being informed by estimates of the distributional effects of the existing level of spending on public services. It may be possible to determine a reasonable estimate of the distributional impacts of aggregate spending on a particular public service. However, it will not necessarily be the case that the distributional impact of the *change* in spending on that service will mirror the distributional impact of the existing *level* of public expenditure on it. For example, simply because health spending tends to be progressive does not mean that every conceivable reduction in health spending is regressive. There are likely to be individual parts of health spending that are regressive, or at least less progressive than health spending as a whole. It is therefore clearly possible for the distributional impact of a *change* in health spending to bear little relation to the distributional impact of the *current level* of health spending.

The precise composition and manner of implementation of a package of spending cuts will be of crucial importance in determining how progressive or regressive it is. This level of detail will not generally be included in a fiscal statement such as the Spending Review, in part because much of the requisite detail might not be decided for some time. This fact should warn against estimating the value of the current level of public expenditure and then inferring from this estimate the distributional impact of a package of changes to spending on public services.

### 8.3 What can existing studies tell us about the distributional impact of planned cuts?

This section discusses two recent analyses of the distributional impacts of spending on public services. The first is the most recent edition of an annual study carried out by the Office for National Statistics (Barnard, 2010)<sup>12</sup> that evaluates the impact of government taxes, cash transfers and certain transfers in kind on household income. The second is an analysis published by the Treasury alongside the Spending Review in October 2010, which also estimated the distributional impact of some of the measures that were announced at that time.<sup>13</sup> The ONS analysis is of the distributional impact of the current level of spending on public services, while the Treasury analysis is of the impact of the planned cuts in spending on public services announced in the Spending Review.

There are a number of other studies that we do not discuss that similarly attempt to value elements of public expenditure. These include Sefton (2002), Volterra Consulting (2009) and Horton and Reed (2010),<sup>14</sup> which report findings broadly similar to those discussed below. Additionally, there is a wealth of research that looks at the distributional impact of

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<sup>12</sup> A. Barnard, *The Effects of Taxes and Benefits on Household Income, 2008/09*, Office for National Statistics, 2010 (<http://www.statistics.gov.uk/CCI/article.asp?ID=2440>).

<sup>13</sup> Annex B of HM Treasury, *Spending Review 2010*, Cm 7942, 2010 ([http://cdn.hm-treasury.gov.uk/sr2010\\_completereport.pdf](http://cdn.hm-treasury.gov.uk/sr2010_completereport.pdf)).

<sup>14</sup> T. Sefton, *Recent Changes in the Distribution of the Social Wage*, CASEpaper 62, London School of Economics, 2002 (<http://sticerd.lse.ac.uk/dps/case/cp/CASEpaper62.pdf>); Volterra Consulting, *The Fiscal Landscape: Understanding Contributions and Benefits*, 2020 Public Services Trust, London, 2009 (<http://www.2020publicservicestrust.org/publications/item.asp?d=1528>); T. Horton and H. Reed, *Where the Money Goes: How we Benefit from Public Services*, Trades Union Congress, London, 2010 (<http://www.tuc.org.uk/extras/wherethemoneygoes.pdf>).



individual public services (e.g. health, education and police). For a summary of this literature, see section 3 of O’Dea and Preston (2010).<sup>15</sup>

### ONS study (Barnard, 2010): the effects of taxes and benefits on household income, 2008/09

This (annual) study investigates what the distribution of income would look like if the cost of provision of certain transfers in kind used by a particular household is taken to be effectively part of that household’s income. Households are divided into 10 equally sized groups on the basis of their equivalised income (these groups are called ‘deciles’) and the extent of the net transfer from the state to households in each of these deciles is compared.

Taxes, benefits and spending on public services are included in the study if the household that is the payer of the tax, the recipient of the benefit or the user of the service can be satisfactorily identified. So, for example, corporation tax is not included since the extent to which its ultimate incidence falls on different households is unclear. Similarly, expenditure by the Ministry of Defence is not included as differential usage of the military cannot be identified. Those taxes that *are* allocated account for 55% of general government expenditure and the cash and non-cash benefits that are allocated account for 52% of general government expenditure.<sup>16</sup>

This tax and spending is allocated to households across the income distribution (using the Family Resources Survey and the Living Costs and Food Survey – surveys of representative samples of the household population) on the basis of their payment of taxes, their receipt of benefits and their estimated usage of government services in kind. The vast majority (97%) of the spending on transfers in kind that is included is comprised of spending on health and education.<sup>17</sup> Health service usage for each household is estimated on the basis of the age and sex of its members. Education spending is allocated to households according to how many members of that household are currently enrolled in state-funded primary, secondary or tertiary education.

Figure 8.1 presents a decile chart using data from Barnard (2010) that illustrates some of the findings. For each decile, the left bar shows the average transfer of benefits in kind provided to the households in that decile as a percentage of income, where income is net of all modelled state transfers (whether in cash or in kind). The bar to the right shows the average net transfer of the total of taxes, cash benefits and benefits in kind as a percentage of income. Note that while the measure of income used in the denominator (for both bars) here *includes* benefits in kind, the income deciles are constructed using a measure of income that *excludes* benefits in kind; a similar analysis that ranked households based on their income inclusive of the value of benefits in kind would have been informative but was not included in Barnard (2010).

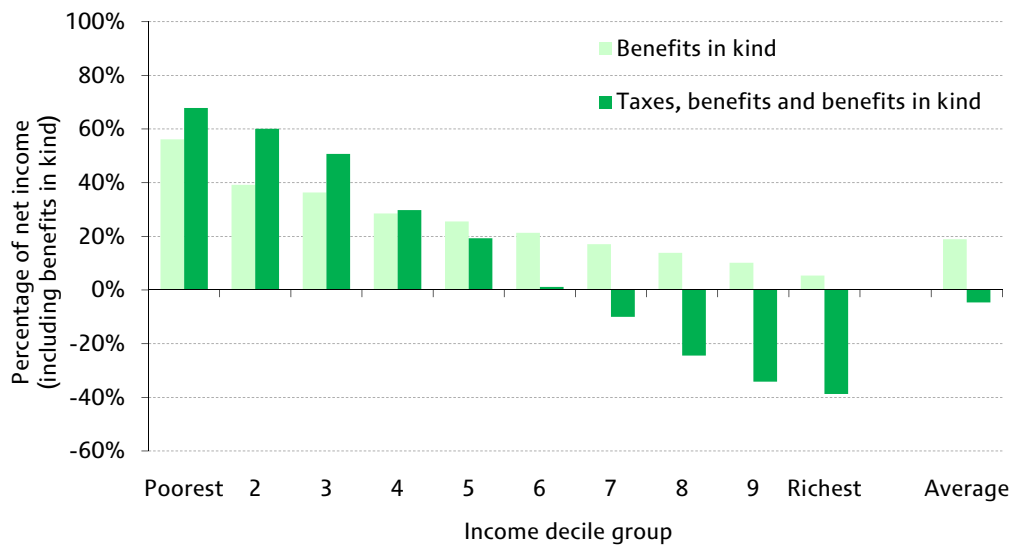
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<sup>15</sup> C. O’Dea and I. Preston, *The Distributional Impact of Public Spending in the UK*, 2020 Public Services Trust, London, 2010 (<http://www.ifs.org.uk/publications/5234>).

<sup>16</sup> See page 3 of Barnard (2010) and additionally table 13.

<sup>17</sup> Other than health and education spending, other smaller items included are some housing expenditure, transport subsidies and spending on school meals and welfare milk.

Figure 8.1. An estimate of the distributional impact of some taxes, benefits and benefits in kind in 2008–09



Notes: Income decile groups are derived by dividing all households into 10 equal-sized groups according to income adjusted for household size using the McClements (before-housing-costs) equivalence scale. Decile group 1 contains the poorest tenth of the population, decile group 2 the second poorest, and so on up to decile group 10, which contains the richest tenth. Columns represent net transfer from state expressed as a percentage of a measure of income that *includes* that net transfer.  
Source: Table 14 of Barnard (2010).

The fact that the modelled benefits in kind have a marked progressive effect is a result of three factors. First, those at the bottom of the income distribution are more likely to have children than those further up, so are more likely to be using and benefiting from state spending on education.<sup>18</sup> Second, even conditional on having children, those at the bottom of the income distribution are more likely to be using the state education system than those further up, who are more likely to opt out and use private education. Third, the heaviest users of the health services are the elderly, who are more likely than younger people to be in the bottom half of the income distribution.<sup>19</sup>

Together, these factors result in the absolute (i.e. pounds) value of modelled benefits in kind falling over the income distribution, from approximately £6,600 per year on average for those in the bottom income decile to £3,600 on average for those in the top income decile. Expressing these values (or costs) of services received as a proportion of income, this decline is even more marked.

Notwithstanding the caveats noted in the previous section about interpreting distributional analyses that rely on assuming that value is equal to cost, the redistributive impact of the government interventions modelled here is clear. Those at the bottom of the income distribution receive, on average, a substantially greater share of their total access to resources from the state. Those at the top of the income distribution receive, on average, only a very small proportion of their total income in terms of services in kind

<sup>18</sup> This effect partly comes from the fact that households tend to have lower income when they have young children than later in life. If the income measure were a broader one that sought to measure income over the life cycle, then this effect, if evident at all, would be much weaker. It also comes from the use of equivalised incomes, which means that a household’s assumed standard of living falls when children arrive.

<sup>19</sup> Once again, this effect is partly driven by the measure of income being a current rather than lifetime income measure. Clearly, everyone who is old was young once, and everyone who is young has an expectation of being old. So the distributional impact of health expenditures could look very different once a life-cycle perspective is brought to the analysis.

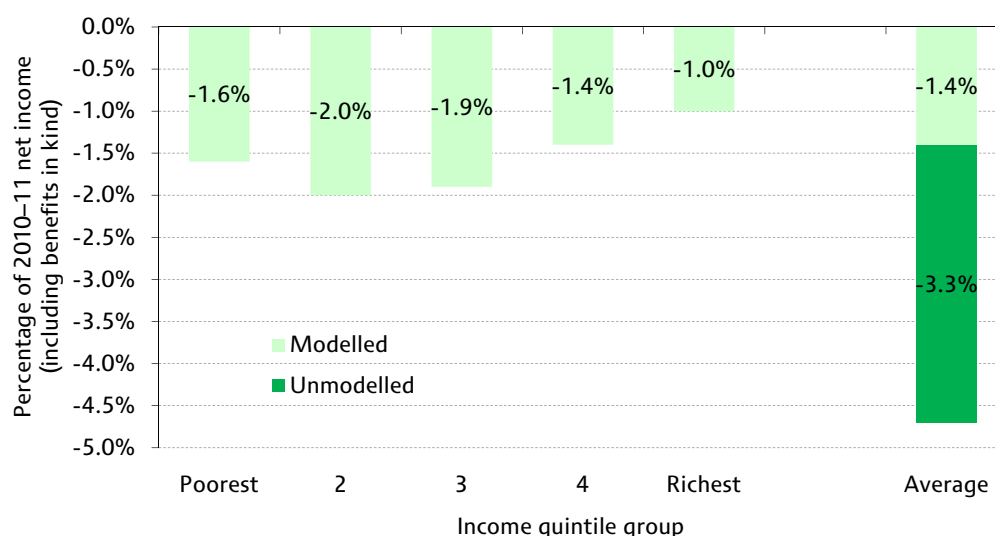
from the state. Of course, adding in the effect of taxation (which is mildly progressive on average) and cash benefits (which are strongly progressive on average) makes the overall picture even more progressive than that found by looking at the effect of benefits in kind in isolation.

## HM Treasury’s distributional analysis of decisions announced in the 2010 Spending Review

The Spending Review announced substantial cuts in spending on public services to take place over the next four years. Annex B to the 2010 Spending Review document contained estimates of the distributional impacts of some of the measures that were announced as part of the Review. The decisions for which impacts were modelled included some changes to welfare benefits, some changes to taxes and, of primary interest here, some changes to spending on public services.

The approach taken by the Treasury shares many features with that taken in the ONS study discussed above. In particular, value is assumed to be equal to the cost of provision, and only expenditure on items where it was considered that the end-user could be identified were modelled. As a result of the latter restriction, approximately half of Departmental Expenditure Limits (DELs) were included in the analysis carried out, over 80% of which was spending on either health or education.<sup>20</sup> The modelled components, however, account for only about one-third of the *changes* in DELs.<sup>21</sup>

Figure 8.2. HM Treasury analysis of the distributional impact of planned cuts in spending on public services, by 2014–15



Notes: Income quintile groups are derived by dividing all households into five equal-sized groups according to income adjusted for household size using the McClements (before-housing-costs) equivalence scale. Quintile group 1 contains the poorest fifth of the population, quintile group 2 the second poorest, and so on up to quintile group 5, which contains the richest fifth.

Sources: Data on modelled expenditure are from chart B.6 of Spending Review 2010. Unmodelled expenditure is from authors’ calculations using data from annexes A and B of Spending Review 2010 and private communication with HM Treasury officials.

<sup>20</sup> Excluded were almost all capital expenditure, spending on ‘pure public goods’ such as defence and environmental protection, and central government administration costs.

<sup>21</sup> The proportion of the *change* in expenditure modelled is substantially less than the proportion of the current *level* of expenditure modelled because health expenditure makes up over 50% of the level of expenditure that *is* modelled but was an area that was protected from real cuts in the Spending Review.

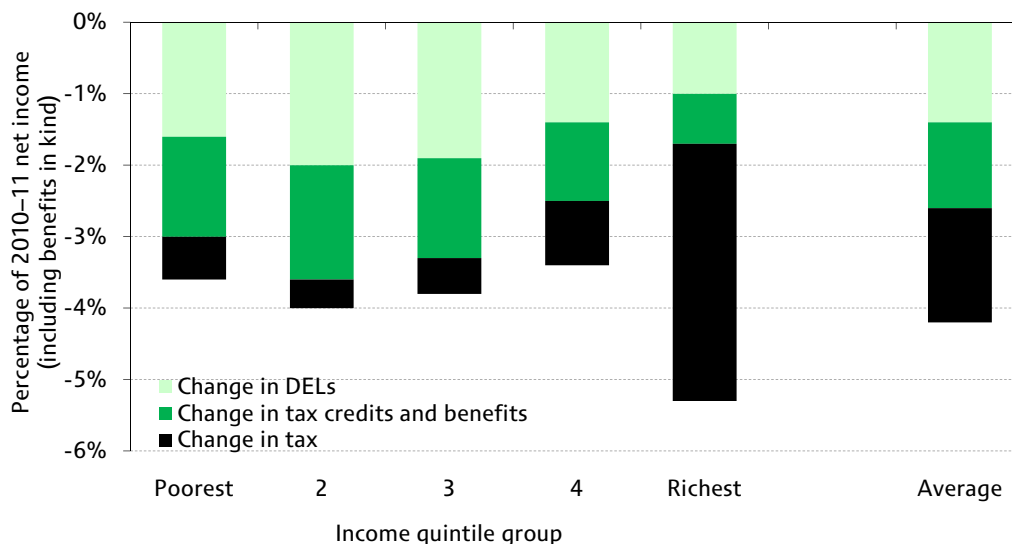
Figure 8.2 shows the Treasury’s analysis of the distributional impact of the modelled cuts to spending on public services. It gives the fall in value obtained from the modelled components as a percentage of households’ total income (defined as net cash income plus the value of modelled public spending) relative to a baseline of no real change in DELs. The importance of the components whose distributional impact has not been modelled is clear from the size of the ‘unmodelled’ bar in the column labelled ‘average’.

The biggest proportionate losers are those in the second income quintile. The proportionate impact of the spending cuts then falls as income increases, making the modelled cuts appear broadly regressive over the richest 80% of the population. The poorest fifth, however, lose less on average than those in the second and third income quintiles.

As an analysis of the distributional impact of the package of planned cuts to spending on public services, this picture is, of course, incomplete since the effect of two-thirds of the cuts in DELs is missing. The modelled elements include some clearly progressive elements – for example, the introduction of the pupil premium (which benefits households with poor children) and the deep cut in taxpayer subsidies for the teaching budgets of higher education institutions (which are one of the areas of public spending where the ‘users’ of the service tend to be better off).<sup>22</sup> But without any analysis of the progressivity or otherwise of the unmodelled elements, we cannot make any concrete assessment of the overall distributional impact of the cuts to spending on public services announced in the Spending Review.

In addition to its estimation of the distributional impact of the planned cuts to spending on public services, the Treasury estimated the distributional impact of changes to tax and cash benefits. Figure 8.3 shows the combined impact of the changes to spending in kind

**Figure 8.3. HM Treasury analysis of the distributional impact of changes in taxation, benefits and spending on public services, by 2014–15**



Notes: As Figure 8.2  
Source: Chart B.6 of Spending Review 2010.

<sup>22</sup> For an evaluation of the reforms to the funding of higher education, see H. Chowdry, L. Dearden and G. Wyness, *Higher Education Reforms: Progressive but Complicated with an Unwelcome Incentive*, IFS Briefing Note 113, 2010 (<http://www.ifs.org.uk/publications/5366>).

discussed above and the changes to taxation and social security payments. The latter include measures announced in the Spending Review, those announced in the June Budget and measures pre-announced by the previous government on which the current government is intending (broadly) to legislate. Adding in these changes to those whose impact was shown in Figure 8.2 does not substantially alter the relative positions of the quintiles that make up the bottom 80% of the population. Here, however, the income quintile that, on average, loses the most is the richest quintile. This fact is largely due to a reduction in the generosity of tax relief on pension contributions, a measure pre-announced by the previous government (although the coalition government has altered the precise form this restriction will take) that will only affect a small number of rich individuals who contribute more than £50,000 a year to a private pension.

One further comment is worth making on Figure 8.3. The Treasury only includes 'measures where there is sufficiently robust data available to attribute changes in tax, tax credits or benefits to individuals'.<sup>23</sup> For this reason, recent changes to Housing Benefit, among other decisions, are not considered. Neglecting to include the changes to Housing Benefit makes the package of changes recently announced look more progressive, as those who have been affected by changes to Housing Benefit are located largely towards the bottom of the income distribution.<sup>24</sup> It is certainly harder to estimate precisely the distributional impact of changes to Housing Benefit than that of many of the other forthcoming changes to taxes and benefits, but it is most certainly easier to do so than to estimate the distributional impact of changes in spending on public services. It is odd, therefore, to produce an analysis that *includes* the distributional impact of some of the changes to spending on public services but that *excludes* the distributional impact of measures that are substantially easier to model. We suggest, therefore, that the next time the Treasury publishes an analysis showing the distributional impact of decisions that transfer resources in cash and those that transfer resources in kind, it models a more comprehensive set of the former type of decisions than previously. At the very least, for those decisions for which it is felt that a distributional breakdown simply is not possible, we suggest that the Treasury should be very clear about their size. One way to do this is to include them in the 'average' column so that their magnitude is clear, even if their distributional impact is not (along the lines of the 'unmodelled' bar shown in Figure 8.2). Further detail should also be provided: for example, breaking down the percentage of the overall fiscal consolidation package that has been modelled into the percentage of tax rises, the percentage of welfare cuts and the percentage of cuts to public service spending that have been included.

Finally, it is important to note that the Treasury has revealed very little detail on precisely how these estimates were obtained. Much of the variation in distributional impact is coming from its estimates of differential 'usage' of public services by those with different incomes. The manner in which this 'usage' is estimated has not been forthcoming, making any evaluation of the robustness, or otherwise, of the distributional analysis impossible.

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<sup>23</sup> Paragraph B.34 of Spending Review 2010.

<sup>24</sup> For a distributional analysis of recent changes to taxes and benefits that includes the changes to Housing Benefit, see J. Browne, 'Distributional analysis of tax and benefit changes', presentation at IFS 2010 Spending Review Briefing, 21 October 2010 (<http://www.ifs.org.uk/publications/5313>).

## **A questionable rationale for omitting certain expenditure?**

Of course, the distributional impact of public services estimated both by Barnard (2010) and by the Treasury is incomplete as the distributional impact of much of government activity is not modelled. Both model only the value of expenditure where usage of the service varies across the income distribution (though both are very clear about this fact).<sup>25</sup>

The rationale for omitting items where usage does not differ across the population is not clear. There are two principal requirements for evaluating the distributional impact of public services. First, differential usage must be identified, where this is relevant. Second, conditional on usage, valuation must be assessed. The difficulties inherent in the first step (measuring usage) are avoided completely among those services such as defence and environmental protection where usage is (presumably) the same across the population. These are exactly the items that are omitted from the distributional analyses discussed here. Of course, the second requirement (measuring valuation) must be addressed, but there is no reason to believe this step is harder for items where usage is uniform than where it is not.

In short, there is a danger in assuming that the methodology for valuation applied here (which assumes value equals cost, and that value is the same across all households that use the service) is any more reliable for public services that are used to different extents by different households. Allocating defence spending or spending on environmental protection uniformly across all households could be just as good (or just as bad) as allocating other spending uniformly across all households that use them.

## **How progressive or regressive will the planned cuts to public service spending be?**

The issues outlined in Section 8.2 show that there are too many difficulties to allow a precise, quantitative assessment of how progressive or regressive the planned cuts to spending on public services will be. However, we can draw on the research discussed earlier to make some tentative statements about the distributional impact of the spending cuts that have been announced and will be implemented over the current parliament.

Given that the use of public services is concentrated on those with lower incomes, it will be uncontroversial to assert that government spending (or at least spending on those public services where use can be satisfactorily defined) is, broadly speaking, progressive. A cautious initial presumption has to be, then, that cutting government expenditure is more likely to be regressive than progressive.

Even this tentative assessment, however, merits a couple of qualifications. First, the precise distributional impact of the planned cuts will largely be determined by the manner in which the cuts in Departmental Expenditure Limits are dealt with by individual departments – and it will be some time before this will be clear. The extent to which the pain falls largely on services that are used to a greater extent by those further

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<sup>25</sup> There have been two recent attempts to allocate the remainder of government expenditure to households: Volterra Consulting, *The Fiscal Landscape: Understanding Contributions and Benefits*, 2020 Public Services Trust, London, 2009 (<http://www.2020publicservicestrust.org/publications/item.asp?d=1528>); T. Horton and H. Reed, *Where the Money Goes: How we Benefit from Public Services*, Trades Union Congress, London, 2010 (<http://www.tuc.org.uk/extras/wherethemoneygoes.pdf>).

up the income distribution will limit the presumption towards the regressivity of the spending cuts. Second, we focused here on the extent to which *use* of public services is concentrated towards the bottom of the income distribution. As discussed in Section 8.2, differential usage is only one reason that the value of public services might be different at different points of the income distribution. If those users higher up the income distribution have a higher willingness to pay for public services, this will once again limit the presumption towards the regressivity of the spending cuts.

## 8.4 Conclusion

This chapter has outlined the considerable difficulties in establishing precisely the distributional impact of changes to spending on public services such as those announced in the Spending Review. The difficulties come from three sources in particular:

1. It is often not clear to what extent people with different incomes use public services differentially.
2. It is not clear how much people with different incomes value the services they receive from the state, or to what extent they would be affected if the service were removed or curtailed.
3. The link between any change in funding available to individual departments and exactly which individual services will be removed or curtailed will not always be clear at the time of the announcement of the cuts to departmental budgets.

Each of these difficulties is either not relevant or substantially less acute when the aim is to establish precisely the distributional impact of changes to taxation or cash benefits. This means that an evaluation of the distributional impact of changes to cash transfers can be undertaken with substantially greater precision than a similar evaluation of changes to spending on public services.

In spite of these difficulties, existing research on public spending can inform an understanding of what effect the planned spending cuts might have. Use of public services (or at least those public services where 'use' can be defined and can be thought of as different among different households) is more concentrated at the bottom of the income distribution. As a result, while the ultimate distributional impact will depend on precisely how the planned spending cuts are implemented, it is fair to say that those towards the bottom of the income distribution have more to lose from spending cuts. Indeed, the Treasury's distributional analysis shows the planned cuts to public service spending having a regressive effect over the 80% of the population with the highest incomes (including assessed benefits in kind), with those in the poorest 20% losing a little less in proportionate terms than those who are slightly richer. However, that analysis only includes approximately one-third of the change in spending on public services.

The challenge of limiting the impact of cuts to public service spending on those at the bottom of the income distribution would have been faced by *any* government planning to bring borrowing back to sustainable levels through large cuts to spending on public services. It is worth noting that the plans in the final Budget of the previous government also suggested substantial falls in departmental spending.<sup>26</sup>

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<sup>26</sup> See Office for Budget Responsibility, *Pre-Budget Forecast: June 2010* ([http://budgetresponsibility.independent.gov.uk/d/pre\\_budget\\_forecast\\_140610.pdf](http://budgetresponsibility.independent.gov.uk/d/pre_budget_forecast_140610.pdf)) and R. Chote, R. Crawford, C. Emmerson and G. Tetlow, *Filling the Hole: How Do the Three Main UK Parties Plan to Repair*



This chapter started by noting the importance of attempting to assess the distributional impact of changes to spending on public service. Given the magnitude of the spending cuts announced in the recent Spending Review, an awareness of their distributional consequences is essential. As such, it is to be welcomed that the Treasury published a distributional analysis of some of the changes in expenditure announced in the Spending Review. However, we make three specific recommendations relevant to its analysis.

- First, we agree wholeheartedly with the Treasury Select Committee's recommendation that 'the Treasury publish not just the sources but additional information on the calculations underpinning their distributional analysis to provide further transparency and encourage debate on how the methodology of such analysis might be improved'.<sup>27</sup> Such calculations were not published alongside the distributional analysis in the Spending Review. The type of analysis carried out does not have an established methodology (unlike the distributional analysis of changes to taxation and cash transfers) and, as a result, the credibility of the published results relies crucially on how they are derived.
- Second, the many issues discussed in this chapter imply that the results on the impact of benefits in kind should be interpreted cautiously. Any single result on the overall distributional impact of a package of spending cuts, whether produced by the Treasury or other authors, should be interpreted with care and, while informative, should not be considered definitive. In future official distributional analyses, it would be good to see an assessment of how sensitive the headline result is to changes in the underlying assumptions.
- Third, more care should be taken and explanation given regarding why certain elements of public spending (either on cash transfers or public services) are excluded from the distributional analysis. In particular, the Treasury only models the distributional impact of public services where differential usage across households can be ascertained. The case has not been made for why their method of valuation is any more reliable for those services that are used differentially than for those that are used to the same extent by all residents (such as spending on environmental protection). Additionally, in its broadest distributional analysis, the Treasury *excludes* the consideration of certain decisions (changes to Housing Benefit, for example), on the basis that the distribution of valuations is hard to model, but *includes* other decisions that are certainly harder to model (changes to education spending, for example). We recommend that future analyses of this type take a more consistent approach to determining which measures are included.

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*the Public Finances?*, IFS 2010 Election Briefing Note 12 (IFS Briefing Note 99), 2010 (<http://www.ifs.org.uk/publications/4848>).

<sup>27</sup> Paragraph 83 of House of Commons Treasury Committee, *Spending Review 2010*, Sixth Report of Session 2010–11, 2010 (<http://www.publications.parliament.uk/pa/cm201011/cmselect/cmtreasy/544/544i.pdf>).

## 9. Defining a tax strategy

Paul Johnson (IFS)

### Summary

- Much tax policymaking over the past 20 years has lacked a coherent long-term strategy. It has often been harder to describe government tax strategy than the strategy for the major public services such as health and education and, indeed, the strategy for welfare benefits. Partly as a result, tax changes have tended to be piecemeal, have often lacked transparency and have not formed part of a long-term direction.
- As the Mirrlees Review has pointed out, it is extremely important that the tax system (and the benefit system as well) is seen as just that – a system. It is the overall effect of the system on outcomes such as efficiency, progressivity and the environment that matters. It is perfectly reasonable to have particular taxes that are regressive, or which don't help the environment, so long as the system as a whole meets objectives in these areas.
- The economic and welfare costs associated with a poorly designed tax system may not be obvious, but they are very large. As the tax system does more work as part of the current fiscal tightening, the costs of poor design will only grow.
- Lack of clear objectives and strategy can also contribute to unnecessary complexity in the tax system.
- Still near the start of a parliament, now is a good time for the government to set out its strategy. It should make clear where it sees the shape of the system in the medium term and the purpose and direction of each of the major taxes.
- This government has made an encouraging start in setting out its ambition for an improved tax system and tax policymaking process. But there is further to go in ensuring robust and accountable policymaking, and further review of the ways in which HM Treasury and HMRC work together and of the extent of parliamentary scrutiny may be in order.

### 9.1 Introduction

The UK government takes in tax just under four pounds in every ten generated in the economy (see, for example, Figure 2.1 in Chapter 2). Inevitably, the way it does that matters for the success of the economy and for the distribution of welfare across citizens. Yet governments have historically been less clear about their tax strategy than they have about many other areas of policy. This makes discussion about the tax system and its effects hard. It makes planning more difficult. And it makes coherent policymaking less likely. There is an evident need for government to set out its view of what it wants from a tax system and hence the direction of tax policy. This is something the previous government signally failed to do. The opportunity is now there for the current government.

In addition, tax policy is arguably subject to less robust policymaking processes within government, and less effective scrutiny in parliament, than is the case for other areas of

public policy. This makes the elucidation of a strategy more important, though may also help explain the historic lack of such a strategy.

In fact, the new government has recognised many of these criticisms and has taken initial steps in the right direction. There is much to welcome in the document it published in June on tax policymaking<sup>1</sup> where it set out its desire to increase predictability, to increase stability and to increase simplicity in tax policy and in tax code. It also expressed a desire to increase scrutiny and transparency in the policymaking process, including a very welcome commitment to do more to evaluate the impact of significant changes after implementation. But there is much to do to ensure this happens and to clarify the direction of policy.

In this chapter, we start in Section 9.2 by setting out the case for government having a tax strategy. We argue that the lack of a clearly articulated sense of direction leads to a range of problems for taxpayers. We also identify a number of problems with the current tax system that might be attributed to a lack of overall vision driving policy. In Section 9.3, based on the recently published conclusions of the Mirrlees Review,<sup>2</sup> we illustrate what a long-term strategy might be based on and what its elements might consist of. Section 9.4 provides some illustrations of how getting tax right in the long run can make a big difference to welfare, output and employment levels. This is not an issue of merely academic interest: there is good evidence that the structure of tax policy matters a great deal. Finally, in Section 9.5, we consider briefly the issue of how tax policy is made and scrutinised. Section 9.6 concludes.

## 9.2 The need for a tax strategy

In previous Green Budgets, and in numerous other publications, IFS researchers have had frequent cause to be critical of tax policy decisions. Indeed, IFS was originally set up, more than 40 years ago, by a group of tax experts despairing of the quality of tax policymaking. The former IFS director, Dick Taverne, put it this way when launching the Meade Report (the predecessor of Mirrlees) in 1978:<sup>3</sup>

For too long, ... tax reforms have been approached ad hoc, without regard to their effects on the evolution of the tax structure as a whole. As a result many parts of our system seem to lack a rational base. Conflicting objectives are pursued at random; and even particular objectives are pursued in contradictory ways.

The same holds true today. There have been useful reforms since the Meade Report was published, but more often the story has been one of drift punctuated by poorly thought-out changes – sins both of commission and omission. At times, there have been clear political calculations associated with poor policymaking. One example of many is the continued unwillingness to revalue properties in England and Scotland for council tax purposes, resulting in a tax base that is already 20 years out of date. This presumably will

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<sup>1</sup> HM Treasury and HM Revenue & Customs, *Tax Policy Making: A New Approach*, 2010 ([http://www.hm-treasury.gov.uk/d/junebudget\\_tax\\_policy\\_making.pdf](http://www.hm-treasury.gov.uk/d/junebudget_tax_policy_making.pdf)).

<sup>2</sup> J. Mirrlees, S. Adam, T. Besley, R. Blundell, S. Bond, R. Chote, M. Gammie, P. Johnson, G. Myles and J. Poterba, *Tax by Design: The Mirrlees Review – Conclusions and Recommendations for Reform*, Institute for Fiscal Studies, London, 2010 (<http://www.ifs.org.uk/mirrleesreview/pamphlet.pdf>).

<sup>3</sup> J. E. Meade, *The Structure and Reform of Direct Taxation*, George Allen & Unwin, London, 1978 (<http://www.ifs.org.uk/docs/meade.pdf>).

have to be rectified at some point. Another example is the now infamous introduction of the 0% starting rate for small companies' corporation tax, which, as predicted, led to a large increase in tax-motivated incorporations and was later scrapped.<sup>4</sup>

Other elements of incoherence have had rather less benign political consequences. The last government introduced and then, at considerable political cost, abolished a lower 10% rate of income tax.<sup>5</sup> It introduced a poorly thought-out reform of capital gains tax (CGT) which it then re-reformed, also at considerable political cost. Much, if not all, of poor tax policy is also poor politics in the long run. Though of course one can see why some poor policy, such as the failure to do a council tax revaluation, is probably good politics.

The pervasive problem has been a reluctance to step back and look at the impact of the tax and benefit system as a whole, both in its effects on people's behaviour and its distributional impact, and to define and follow a clear way forward.

The lack of a clear strategy and objectives can contribute to numerous problems:

- increased uncertainty over the direction of policy, and associated costs in decision-making over investments, savings etc.;
- increased complexity, as policy is made and changed without reference to long-term effects or interactions with other taxes, and different parts of the system fail to work well together;
- increased opportunities for avoidance and evasion;
- lack of transparency over the actual and intended effects of particular changes and of the system as a whole;
- increased costs of compliance, as firms and individuals are less certain of the intention of particular aspects of the system and of reform;
- higher-than-necessary economic and welfare costs from a poorly designed system;
- lack of clarity over the role and purpose of particular parts of the system, and hence further scope for poor policymaking.

Crucially, setting out a clear strategy and high-level vision for the tax system as a whole, alongside a sense of direction for each major tax, would allow consultation over direction and principles. It would also allow future policy changes to be assessed against an overall view of where the tax system is headed. At present, HMRC and the Treasury engage in consultation over specific tax policies, but it is often very hard for respondents to engage in anything other than the minutiae of specific reforms. And not having a clear sense of direction, they make responses in something of a vacuum. If we do not know what a particular tax is intended to achieve or how it is supposed to fit into the system as a whole, then we are bound to have difficulty assessing any particular change to it.

In this context, we do welcome the government's recent consultation on corporate taxes which, as discussed in Chapter 10, does set out a road map. Whilst not perfect or

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<sup>4</sup> Section 9.4 of S. Bond, 'Company taxation', in R. Chote, C. Emmerson, R. Harrison and D. Miles (eds), *The IFS Green Budget: January 2006*, IFS Commentary 100 (<http://www.ifs.org.uk/budgets/gb2006/06chap9.pdf>).

<sup>5</sup> Though even that still exists for savings income – an incoherent leftover illustrating the way in which policy mistakes can have long-lasting consequences for the shape of the tax system.

comprehensive, it does provide a direction for a range of corporate tax issues and hence a context for policy.<sup>6</sup>

Still being close to the start of a parliament, there is now an ideal opportunity for the government to take this further and set out a broader strategy. And lest we believe that such strategic vision is beyond government, it is worth saying that in many areas of public policy, governments have habitually set out long-term strategies for change – in health and education, for example.

This lack of coherence in long-term tax policymaking matters. The Mirrlees Review has identified seven broad flaws in the current system, flaws that arguably result directly from the failure to set out and follow a strategy for the system as a whole. Others might arrive at a different list, but this one encapsulates some of the most substantial failures of the current system:<sup>7</sup>

1. The current system of income taxes and welfare benefits creates serious disincentives to work for many with relatively low potential earning power. The benefit system, in particular, is far too complex.
2. Many unnecessary complexities and inconsistencies are created by the fact that the various parts of the tax system are poorly joined up.
3. The present treatment of savings and wealth transfers is inconsistent and inequitable. There is no consistent tax base, saving is discouraged for many and different forms of saving are taxed differently.
4. We remain some way short of having a coherent system of environmental taxes to address imperatives around climate change and congestion.
5. The current system of corporate taxes discourages business investment more than necessary and favours debt finance over equity finance. Its lack of integration with other parts of the tax system also leads to distortions over choice of legal form.
6. Current taxation of land and property is inefficient and inequitable. There is a tax on business property – a produced input – but not on land, which is a source of rents. Taxation of housing involves both a transactions tax and a tax based on valuations now 20 years out of date.
7. Distributional goals are pursued in inefficient and inconsistent ways. For example, zero and reduced rates of VAT help people with particular tastes, rather than being targeted at those with low overall resources; and council tax is regressive for no obvious efficiency-improving reason.

Of course, it would be foolish to blame the lack of a long-term strategy for every problem with the tax system. But there can be little doubt that the lack of such a strategy renders coherent policymaking harder, makes mistakes easier and reduces the chances for sensible debate and effective accountability. And doing economic policymaking well is difficult enough without these additional hindrances.

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<sup>6</sup> See HM Treasury, *Corporate Tax Reform: Delivering a More Competitive System*, 2010 ([http://www.hm-treasury.gov.uk/corporate\\_tax\\_reform.htm](http://www.hm-treasury.gov.uk/corporate_tax_reform.htm)).

<sup>7</sup> See pages 8–9 of Mirrlees et al., *Tax by Design: The Mirrlees Review – Conclusions and Recommendations for Reform*, Institute for Fiscal Studies, London, 2010 (<http://www.ifs.org.uk/mirrleesreview/pamphlet.pdf>).

## 9.3 The elements of a strategy

It may not have been done before, but the case for this and future governments setting out some direction for tax policy seems to us unarguable. What is bound to be more controversial is the shape of the strategy. To be valuable, a strategy is likely to need an overall, high-level vision and a set of directions for individual elements of the system. The Mirrlees Review set out to provide these elements, and it is worth reviewing here what those elements were. They provide a good illustration of what we mean by setting out a strategy, as well as providing a good starting point for government.

At a high level, the Review suggested that we should aim for a progressive, neutral tax system. That may not sound like a terribly prescriptive vision, and indeed there are different amounts and kinds of progressivity and neutrality at which one might aim. But just taking those three words – progressive, neutral and system – as the core of a vision for tax has the potential to take us a long way in policy terms.

### First, consider the system as a whole

As we have already stressed, it is important to consider the tax system as a whole. We mean that in two main senses. First, not all taxes need to address all objectives. Not every tax needs to be ‘greened’ to tackle climate change, as long as the system as a whole does so. And not all taxes need be progressive as long as the overall system is. In general, one should think of direct personal taxes and benefits as being the part of the system best suited to achieving distributional objectives. Other aspects of the tax system can be focused on achieving efficiency.

Second, the tax system needs to work as a system in the sense that the different forms of taxes fit sensibly together. For example, personal and corporate taxes need to fit together such that the form in which income is received does not imply very different amounts of tax paid. It is simply not possible to consider the appropriate rates and structures for taxes on earnings without taking account of the taxes on savings, profits and consumption.

### Second, seek neutrality

Neutrality – meaning treating similar activities similarly – is a powerful starting point for designing a tax system. In general, a system that treats similar economic activities in similar ways for tax purposes will tend to be simpler, avoid unjustifiable discrimination between people and economic activities, and help to minimise economic distortions. Treating different sorts of saving differently results in much effort being put into choosing savings vehicles on the basis of tax treatment rather than on the basis of underlying merits. Treating different forms of corporate finance differently distorts companies’ choices over how to raise finance. Taxing different goods and services at different rates distorts the choices that consumers make.

Now, neutrality is not always desirable, and is not always a good in itself. It can be efficient to discriminate between different activities for tax purposes – for example, higher taxes on alcohol and tobacco and on activities that damage the environment are clearly justifiable. Arguments can also be made for taxing pensions more favourably than other forms of saving, for providing tax advantages for research and development (R&D) activity (as we discuss in Chapter 10) and so on.

But deviations such as these should be kept to a minimum, and arguments for further deviations from neutrality should be treated with healthy caution. Defining and policing boundaries between differently-taxed activities is fraught with difficulty: it increases administrative and compliance costs, and creates perverse incentives to dress up one kind of activity as another. Lack of neutrality can also lead to unfairness. If the tax system subsidises goods I prefer to consume but, without good reason, taxes those you prefer, then it may not be treating us fairly.

The key principle for policymaking is that the hurdle for departing from neutrality should be high, requiring a strong and clear justification. This test is only likely to be passed by a handful of headline items such as environmentally harmful activities, 'sin taxes', pensions, R&D, educational investments and childcare. This is a far narrower list than the exceptions that we observe in practice. The tax system discriminates between the employed and self-employed, more and less profitable companies, many different forms of spending, many different forms of saving and different sources of carbon emissions (as discussion in Chapter 11), to name but a few.

It would be hugely valuable if current and future Chancellors were to spell out their view of the degree of importance that should be attached to neutrality and then review current tax policy in that light. Again, we acknowledge the progress of the current government in going at least part of the way towards that in the consultation on corporate taxes published last autumn (see Chapter 10).

Crucially, Chancellors should set a clear marker, or hurdle, for what should be required before future policy creates new non-neutralities. Much of our discussion in Chapter 10 on corporate taxes and Chapter 11 on environmental taxes is, for good reason, focused on the ways in which recent tax changes have either increased, or failed to reduce, the lack of neutrality in the relevant system.

### **Third, achieve progressivity as efficiently as possible**

There are three issues on which a sense of direction under the heading of progressivity<sup>8</sup> would be helpful:

- How does government understand the concept?
- How much of it does the government want?
- What does it see as the best method for achieving it?

The government setting out some view on what it thinks about progressivity would be very valuable. There is a need for a much clearer and better debate. For example, progressivity can be understood in relation to income or spending, lifetime income or a snapshot, the impact of the tax and benefit system across the whole income distribution or just on the poorest or richest. These apparently arcane points matter. As IFS researchers have shown many times (and Chapter 12 mentions), increases in the main rate of VAT appear regressive if measured against a snapshot of the income distribution, but mildly progressive when measured against spending, which might be considered a better indicator of lifetime income. There seem to us to be strong reasons for preferring

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<sup>8</sup> We use the word in its classic economic meaning, where a progressive tax takes a higher proportion of a richer person's income than a poorer person's, but we use the term to describe the impact of the tax and benefit system overall. Overall, then, progressivity is a measure of the extent to which the tax and benefit system reduces inequality.



to think about progressivity in this lifetime context, but it would be useful to know the government's view.

The question of how much progressivity to aim for is at the heart of political debate. Reasonable people can and do disagree. There are costs associated with greater progressivity. Some people would be willing to accept a high price for achieving greater equality. Others would not. It is hard to assess policy against the government's own objectives without knowing its view about this.

The third issue is that of how to achieve a given degree of progressivity as efficiently as possible. Here, one can say a great deal without knowing the details of government objectives. Whatever degree of progressivity we plump for, it is important to go about achieving it at least cost.

There is an inevitable trade-off between redistribution and work incentives. One cannot tax the rich, or top up the incomes of the poor, without affecting behaviour. But one can design the system carefully to minimise the efficiency loss associated with achieving progressivity. The reason that any desired level of progression is best achieved through the rate schedule for personal taxes and benefits is that that tends to be the most efficient route to progression. But the rate schedule still needs to be designed to minimise efficiency costs. This can be achieved by designing a rate schedule that reflects knowledge of the shape of the income distribution and the responsiveness of people to taxes and benefits at different income levels. It also implies taking into account decisions over both whether to work (including when to retire) and how much to work, in addition to other responses such as tax avoidance and migration.<sup>9</sup>

There are ways in which we can achieve progressivity more efficiently in the tax system. For example, ending differential VAT rates and compensating through changes in the direct tax and benefit system would achieve this. Reforming the income tax and benefit system to improve work incentives for mothers with school-age children and for those around retirement age – two groups that are particularly responsive to incentives – is another route.

Starting with this high-level view of the desirability of a progressive, neutral tax system – and without taking any stance on the desirable degree of progressivity – the Mirrlees Review arrived at a series of recommendations for the shape of a 'good' tax system. These are set out in the left hand column of Table 9.1. The detailed arguments behind these recommendations are set out in the Review's conclusions, and it should be clear how most of them are coherent with the broad principles we have just enumerated.

Of course, this is by no means the only possible set of desiderata for a system, nor the only possible set of criticisms of the one we have. But, as a starting point, these lists suggest numerous areas where a clearer understanding of policy direction would be helpful.

For example, it would be helpful to know whether the Chancellor believes that an income tax schedule that has a marginal rate of 60% on incomes between £100,000 and £114,950, but of 40% on incomes just below and just above this range, is appropriate, and if so why, or whether this is something he would like to reform.

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<sup>9</sup> See, for example, M. Brewer, E. Saez and A. Shephard, 'Means-testing and tax rates on earnings', in J. Mirrlees, S. Adam, T. Besley, R. Blundell, S. Bond, R. Chote, M. Gammie, P. Johnson, G. Myles and J. Poterba (eds), *Dimensions of Tax Design: The Mirrlees Review*, Oxford University Press for IFS, 2010 (<http://www.ifs.org.uk/mirrleesreview/dimensions/ch2.pdf>).

Table 9.1. A good tax system and the current UK tax system

A good tax system	The current UK tax system
<b>Taxes on earnings</b>	
A progressive income tax with a transparent and coherent rate structure	An opaque jumble of different effective rates as a result of tapered allowances and a separate National Insurance system
A single integrated benefit for those with low income and/or high needs	A highly complex array of benefits [though note that the system is due to be much improved following reforms to be put in place by 2013]
A schedule of effective tax rates that reflects evidence on behavioural responses	A rate structure that reduces employment and earnings more than necessary
<b>Indirect taxes</b>	
A largely uniform VAT – with a small number of targeted exceptions on economic efficiency grounds – and with equivalent taxes on financial services and housing	A VAT with extensive zero rating, reduced rating, and exemption – financial services exempt; housing generally not subject to VAT but subject to a council tax not proportional to current property values
No transactions taxes	Stamp duties on transactions of property and of securities
Additional taxes on alcohol and tobacco	Additional taxes on alcohol and tobacco
<b>Environmental taxes</b>	
Consistent price on carbon emissions	Arbitrary and inconsistent prices on emissions from different sources, set at zero for some
Well-targeted tax on road congestion	Ill-targeted tax on fuel consumption
<b>Taxation of savings and wealth</b>	
No tax on the normal return to savings – with some additional incentive for retirement saving	Normal return taxed on many, but not all, forms of savings – additional but poorly designed incentives for retirement saving
Standard income tax schedule applied to income from all sources after an allowance for the normal rate of return on savings – with lower personal tax rates on income from company shares to reflect corporation tax already paid	Income tax, NICs, and CGT together imply different rates of tax on different types of income—wages, profits, capital gains, etc. – some recognition of corporation tax in dividend taxation but not in CGT
A lifetime wealth transfer tax	An ineffective inheritance tax capturing only some assets transferred at or near death
<b>Business taxes</b>	
Single rate of corporation tax with no tax on the normal return on investment	Corporation tax differentiated by company profits and with no allowance for equity financing costs
Equal treatment of income derived from employment, self-employment, and running a small company	Preferential treatment of self-employment and distributed profits
No tax on intermediate inputs – but land value tax at least for business and agricultural land	An input tax on buildings (business rates) – no land value taxes

Note: NICs = National Insurance contributions.

Source: Table 20.1 of Mirrlees et al., *Tax by Design: The Mirrlees Review – Conclusions and Recommendations for Reform* (<http://www.ifs.org.uk/mirrleesreview/pamphlet.pdf>).

Public debate would be helped immeasurably by a statement setting out the direction of travel on VAT, and whether there is to be any presumption in favour of greater uniformity. This does not simply mean addressing the age-old issue of whether VAT should be levied on goods such as food and children's clothing, or charged at a reduced rate on domestic fuel. Although the economic and equity case for zero-rating these is very weak, and having a reduced rate on domestic fuel is positively detrimental to environmental concerns, it is clear to us why change in these areas has always been seen as politically difficult. Having a future direction of VAT policy would also require thinking carefully about how to tax housing and financial services (both are currently exempt from VAT).

We have already mentioned the absurdity of having a tax on housing based on values as of 20 years ago. Is this to become a tax based on 30-year-old values or is a rational reform part of the agenda? On housing, it would also be nice to see whether this government can provide a clear rationale for stamp duty – something the last government signally failed to do as it increased it very dramatically – or whether it agrees with us that it would form no part of a good tax system.

As Chapter 11 discusses, a clearer explanation by government of the different tax rates applicable to carbon, and the extent to which greater uniformity is an aim of policy, would illuminate the discussion of environmental tax policy. And a clear sense of direction on road pricing must be a priority if only because government targets for greenhouse gas emissions mean that petrol will have to be phased out as a fuel for motor vehicles within the next couple of decades, leaving us with no taxes that could capture the very large congestion externalities created by driving.

The structure of savings taxation has developed piecemeal over many decades, and continued to change in the June 2010 Budget with reforms to CGT and to pension tax relief. The pension tax changes tidied up some of the mess left by proposals from the previous government, proposals which themselves illustrated very well the problem of lack of long-term direction. After years of careful work, much of the pensions tax regime was reformed quite sensibly in April 2006 only for much of that work to be undone in one fell swoop by a single Budget announcement in 2009. We are left with no sense where the savings tax regime will go next. One symptom of the lack of clear direction is the continuing reforms to CGT. What direction will this government take?

And where does the government propose to go on business taxes? As highlighted above, it produced a corporate tax road map last autumn, which does set out that the UK will continue to move towards a more territorial system (i.e. one where the tax base is the profits created from UK-based activity and not the worldwide profits of UK companies), with lower tax rates alongside a broader tax base and a reduced tax burden on the income derived from intellectual property. Each of these directions can be seen as attempts to encourage firms to keep activity in the UK in the face of increased globalisation. (See Chapter 10 for a discussion.) However, there are important issues that are not addressed, such as 'Are we to maintain a corporation tax that discriminates in favour of debt financing and against equity finance and that taxes companies at different rates?'. This is an area where continuing consultation on very specific policy proposals is rendered relatively ineffective by an ongoing lack of clarity about the ultimate objectives.

Table 9.2. Main recommendations of the Mirrlees Review

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<b>Taxes on earnings</b>
Merge income tax with employee (and ideally employer) NICs
End the opaque practice of tapering personal allowances and move to a transparent, coherent rate schedule
Introduce a single integrated benefit, getting rid of the very highest effective marginal tax rates (90% and more) faced by some low earners [as is now effectively planned]
Strengthen work incentives for those whose youngest child is of school age and for 55- to 70-year-olds relative to others

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<b>Indirect taxes</b>
Remove nearly all the current zero and reduced rates and, where possible, exemptions from VAT. Introduce a comprehensive package compensating the less well-off on average whilst maintaining work incentives.
Retain a destination basis for VAT while ending the zero-rating of exports
Introduce a tax equivalent to VAT on financial services
Replace council tax and stamp duty land tax on housing with a tax proportional to the current value of domestic property, to stand in place of VAT on housing

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<b>Environmental taxes</b>
Introduce a consistent price on carbon emissions, through a combination of extended coverage of the EU Emissions Trading Scheme and a consistent tax on other emission sources. This would include a tax on domestic gas consumption.
Replace much of the current tax on petrol and diesel with a national system of congestion charging

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<b>Taxation of savings and wealth</b>
Take interest on bank and building society accounts out of tax altogether
Introduce a Rate of Return Allowance for substantial holdings of risky assets (e.g. equities held outside ISAs, unincorporated business assets, and rental property) so that only 'excess' returns are taxed
Tax capital income and capital gains above the Rate of Return Allowance at the same rate schedule as earned income (including employee and employer NICs), with reduced rates for dividends and capital gains on shares to reflect corporation tax already paid
Maintain and simplify the current system of pensions taxation, ending the excessively generous treatment of employer contributions and replacing the tax-free lump sum with an incentive better targeted at the behaviour we want to encourage
At least remove the most obvious avoidance opportunities from inheritance tax and look to introduce a comprehensive lifetime wealth transfer tax

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<b>Business taxes</b>
Introduce an Allowance for Corporate Equity into the corporation tax to align treatment of debt and equity and ensure that only 'excess' returns to investment are taxed
Align tax treatment of employment, self-employment, and corporate-source income
Replace business rates and stamp duty land tax on business property with a land value tax for business and agricultural land, subject to confirming practical feasibility

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Note: ISAs = Individual Savings Accounts; NICs = National Insurance contributions.

Source: Table 20.2 of Mirrlees et al., *Tax by Design: The Mirrlees Review – Conclusions and Recommendations for Reform* (<http://www.ifs.org.uk/mirrleesreview/pamphlet.pdf>).

All that said, there is one area where the current government has made real progress: its proposal for a single integrated benefit for working-age adults, the Universal Credit.<sup>10</sup> A strategy was set out and a policy developed. We also note, without passing judgement, that it is the one area of policy in Table 9.1 which is not fully part of the tax system, and where the policy lead has come from DWP rather than from the Treasury and HMRC alone.

The Mirrlees Review goes on to make a range of specific policy proposals, which are summarised in Table 9.2. They are deliberately couched as recommendations for long-term reform, and most are not changes that could be made rapidly. We would not expect any government to agree with all of these, but it would be helpful for all concerned with tax to have a much better idea than we do of what sort of long-term reforms the Chancellor would sign up to.

## 9.4 The prize

So there seems to be a clear case for a tax strategy. As we have already observed, the lack of clarity over direction contributes towards uncertainty, complexity, high compliance costs and poor policymaking. A poorly designed tax system can also create substantial economic costs. International evidence seems to suggest that design matters more than the total size of the tax take.<sup>11</sup>

This is not surprising, but it is often hard to demonstrate and quantify. Some estimates do exist, however, of the extent to which individual changes in design can impact on employment, welfare or economic output. Here we present just a few of the areas where estimates exist of the potential benefits associated with reform.

- Take the idea that work incentives should be strengthened for families whose youngest child is of school age. Mothers of school-age children are particularly responsive to incentives in the tax and benefit system. One reform that would strengthen their incentives, in a cost-neutral way, would be to make Child Tax Credit more generous (and so means-testing more extensive) for families whose youngest child is aged under 5, and less generous (with less means-testing) for families whose youngest child is aged 5 or over. A best estimate is that such a reform could lead to a net increase in employment of around 52,000 (or roughly 0.2% more workers) and an increase in aggregate annual earnings of around £0.8 billion.<sup>12</sup>
- Or consider strengthening work incentives for those in their later working life, aged 55–70 – a group that is highly responsive to incentives. We could do this by reducing the age at which employee and self-employed National Insurance contributions stop being payable from State Pension Age to age 55, reducing the age at which a higher tax-free personal allowance is available from 65 to 55 and increasing the age of eligibility for Pension Credit to 70, whilst recouping the cost in higher income taxes for younger groups. These relatively limited changes could lead to an increase in

<sup>10</sup> For more details of this reform, see M. Brewer, J. Browne and W. Jin, *Universal Credit: A Preliminary Analysis*, IFS Briefing Note 116 (<http://www.ifs.org.uk/publications/5415>).

<sup>11</sup> For example, see G. Myles, 'Economic growth and the role of taxation', prepared for the OECD, 2007 (<http://people.exeter.ac.uk/gdmyles/papers/pdfs/OECDfin.pdf>).

<sup>12</sup> Page 10 of Mirrlees et al., *Tax by Design: The Mirrlees Review – Conclusions and Recommendations for Reform* (<http://www.ifs.org.uk/mirrleesreview/pamphlet.pdf>).

employment of about 157,000 (or 0.6% of the workforce) and an increase in aggregate annual earnings of just under £2 billion.<sup>13</sup>

- The economic costs of having a narrow VAT base are also large. Considering just the distortion to spending patterns – ignoring the costs of complexity – simulations suggest that, if uniformity were optimal, extending VAT at 17.5% to most zero-rated and reduced-rated items would (in principle) allow the government to make each household as well off as it is now and still have around £3 billion of revenue left over.<sup>14</sup>
- There are also considerable costs associated with the structure of the current corporation tax. It has been estimated that a revenue-neutral reform package introducing an Allowance for Corporate Equity (ACE), effectively allowing equity finance the same treatment currently afforded debt finance, with an offsetting increase in a broad-based tax on consumption would, for the UK, deliver long-run increases of 6.1% in investment, 1.7% in wages, 0.2% in employment and 1.4% in national income.<sup>15</sup> These simulations are subject to wide margins of error, but they confirm (using a rigorous empirical framework) that eliminating the taxation of the normal return to equity-financed corporate investment could result in a significant increase in capital per worker, which in turn could produce worthwhile gains in wages, employment, output, and welfare. Crucially, this does depend on using another part of the tax system to recoup the revenue cost of the ACE. Offsetting the revenue loss by increasing the corporate tax rate would be much less attractive, inducing multinational firms to shift both real activity and taxable profits out of the country.
- It is harder to come up with a single number to put on the costs of the distortions in the current system of savings taxation. However, recent work undertaken as part of the Mirrlees Review suggests that, even on a conservative reading of the economic literature, reducing taxation of the normal return to saving would have significant effects on the quantity and distribution of savings over the life cycle, thereby raising lifetime welfare.<sup>16</sup>
- Even bigger welfare gains are potentially available from a national system of road pricing designed to reflect congestion costs. The government estimates that annual welfare benefits of up to 1% of national income are available from a road pricing scheme that varies charges by place and time of day to reflect actual congestion levels and costs accurately. Introducing such a scheme would be expensive and controversial but the scale of benefits suggested is huge.

Estimating the economic and welfare gains available from better tax policy is fraught with difficulty. The fact that these potential gains are hard to quantify reduces the pressure for better policymaking. The gains from a more uniform VAT system or from a more effective

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<sup>13</sup> Page 10 of the Mirrlees Review's *Conclusions and Recommendations for Reform*.

<sup>14</sup> Page 10 of the Mirrlees Review's *Conclusions and Recommendations for Reform*.

<sup>15</sup> See table B.4 of R. de Mooij and M. Devereux, 'Alternative systems of business tax in Europe: an applied analysis of ACE and CBIT reforms', European Commission, DG Taxation and Customs Union, Taxation Paper 17, 2009. Using a similar approach, D. Radulescu and M. Stimmelmayer, 'ACE versus CBIT: which is better for investment and welfare?', *CEifo Economic Studies*, 2007, 53, 294–328, estimated somewhat larger gains for Germany from a revenue-neutral introduction of an ACE combined with an increase in the rate of VAT.

<sup>16</sup> O. Attanasio and M. Wakefield, 'The effects on consumption and saving of taxing asset returns', in Mirrlees et al. (eds), *Dimensions of Tax Design* (<http://www.ifs.org.uk/mirrleesreview/dimensions/ch7.pdf>).

corporate tax system, for example, would be felt across the economy. But the effects would be much more obvious on those losing in cash terms in the first instance. Some of the costs of poor tax policy manifest themselves in high compliance costs for businesses that have to distinguish between different sorts of activity for tax purposes. They also show up in opportunities for tax avoidance. These are symptoms of a system creating much wider costs.

## 9.5 The policymaking process

If we are to think about how we might end up with a more rational tax strategy, we also need to consider the way in which tax policy is made. In Chapter 2, IFS researchers welcome the creation of the Office for Budget Responsibility as a way of helping to ensure that the underlying health of the public finances is transparent and sustainable. Here, we consider briefly some of the institutional barriers that might stand in the way of better and more transparent policymaking in the sphere of taxation. In particular, we ask whether the current split in responsibilities between the Treasury and HMRC is the right one and whether it works effectively to produce good tax policy. We also briefly address the issue of whether there is adequate parliamentary scrutiny of the tax policymaking process.

Since the O'Donnell Review of 2004,<sup>17</sup> responsibility for tax policymaking has been split between HMRC and HM Treasury, with the latter taking lead accountability and responsibility for policymaking and the former being responsible for 'policy maintenance'. Work for the Tax Law Review Committee (TLRC)<sup>18</sup> concluded that 'the experience of the past five years has shown that the current organisation of tax policymaking is not working as effectively as it should to produce clear, effective tax policies and a coherent, competitive tax system' (page 1). In an echo of our earlier discussion, the report goes on to say that 'at times, it can appear that those involved are solely focused on the immediate tax problem they are tackling and the wider implications of a measure are not considered' (page 2).

In common with other commentators, the TLRC Discussion Paper stresses concerns that HM Treasury, where there can be a lack of knowledge and continuity in tax policy, is too much the senior partner in the policymaking process, with inadequate input from those at HMRC who really understand how the system works. The paper suggests that this has led to a number of problems:

- A disconnect between those responsible for tax policy and those operating in the field. There is a perception that tax policy expertise is undervalued in HMRC, which consequently does not contribute as effectively as it could to policymaking, whilst policymakers in the Treasury understand too little of the effects of their decisions. Alt, Preston and Sibieta report an interviewee as saying: '... the reallocation weakened the link between HMT and assessment of what happened in the field. Now the process has a clear divide with policy in HMT, but real-world experience is at HMRC and they don't communicate as well as if they were all in one organization. It

<sup>17</sup> G. O'Donnell, *Financing Britain's Future: Review of the Revenue Departments*, Cm 6163, HM Treasury, 2004 ([http://webarchive.nationalarchives.gov.uk/+/hm-treasury.gov.uk/budget/budget\\_04/associated\\_documents/bud\\_bud04\\_odonnell\\_index.cfm](http://webarchive.nationalarchives.gov.uk/+/hm-treasury.gov.uk/budget/budget_04/associated_documents/bud_bud04_odonnell_index.cfm)).

<sup>18</sup> T. Bowler, 'Tax policymaking in the UK', Tax Law Review Committee, Discussion Paper 8, 2010 (<http://www.ifs.org.uk/comms/dp8.pdf>).



also affects career structures: now, if you are interested in tax policy, you go to HMT. If you start there the chance you will understand what happens in the field or on the ground is low. Policy becomes divorced from an understanding of how it is affecting behaviour in the field'.<sup>19</sup>

- An inadequately-unified approach to the tax system, leading to an increasingly disjointed tax policy and contributing to the complexity and inaccessibility of the tax system. The TLRC paper suggests that 'experience indicates that this previous structure<sup>20</sup> in fact brought greater control over the interaction of changes and a more unified approach to management of the tax system' (page 5) and that HMRC has become narrowly focused on revenue protection and reducing avoidance within the system, rather than helping to create a system that works effectively in itself.
- A lack of clarity of responsibility for policy, which affects stakeholders. Numerous stakeholders have reported concerns that lack of clarity over where policymaking responsibility lies has led to confused consultations and poor policymaking. The Tax Faculty of the Institute of Chartered Accountants in England and Wales (ICAEW) has made this point forcefully to the Treasury Select Committee.<sup>21</sup> Witnesses also highlighted concerns about working relationships between HM Treasury and HMRC in evidence to the Select Committee on Economic Affairs when it reviewed the consultation on CGT and residence and domicile. The Committee's report noted that some witnesses highlighted what they saw as a 'difficulty in lack of coherent communication and understanding between HMT and HMRC'.<sup>22</sup>
- An undervaluing of technical tax knowledge and a lack of experience at HM Treasury causing problems with the effective development of tax policy. In particular, Treasury officials are often seen as clever, but inexperienced in tax, and with little idea about issues faced in implementing tax policy. There is a more general concern about the very high turnover of Treasury officials and the problems that creates both for coherent policymaking and for building relationships.

It is difficult to be certain what division of responsibilities would be optimal, but the persistence of the concerns raised above – similar issues have been raised by numerous stakeholders over a significant period – suggests the need for an extensive and public review.

A separate concern over tax policymaking is created by the relative lack of accountability to parliament. Part of this arises from the particular nature of the Finance Bill. In addition, the Treasury Select Committee is poorly resourced to scrutinise the whole of Treasury activity, in particular complex issues of taxation. The lack of an established policy direction against which to hold the Treasury to account makes this harder. As Sir Alan Budd said in a 2003 Tax Law Review Committee report, 'the truth of the matter is that the House of Commons has neither the time nor the expertise nor, apparently, the inclination

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<sup>19</sup> J. Alt, I. Preston and L. Sibieta, 'The political economy of tax policy', in Mirrlees et al. (eds), *Dimensions of Tax Design* (<http://www.ifs.org.uk/mirrleesreview/dimensions/ch13.pdf>).

<sup>20</sup> That is, the structure before the O'Donnell Review in which tax policymaking was more firmly entrenched in the revenue departments.

<sup>21</sup> At paragraphs 32–34 of Memorandum submitted by Tax Faculty of the Institute of Chartered Accountants in England and Wales, 17 January 2007 (<http://www.publications.parliament.uk/pa/cm200607/cmselect/cmtreasy/192/7012413.htm>).

<sup>22</sup> At paragraphs 16 and 18 of Select Committee on Economic Affairs, *2nd Report of Session 2007–08: The Finance Bill 2008*, vol. I, Report (quoted in the TLRC Discussion Paper).

to undertake any systematic or effective examination of whatever tax rules the government of the day places before it for its approval'.<sup>23</sup>

The fact that the House of Lords is not involved with Finance Bills reduces scrutiny further. This ban on involvement looks increasingly like an undesirable anachronism.

There are clearly ways of improving the scrutiny of tax policy. The establishment of a tax policy select committee, as recommended by Lord Howe in his 2008 report *Making Taxes Simpler*, is one option.<sup>24</sup> Providing parliament with significantly more expertise and resources than are currently available is another – perhaps modelled in part on the US Congressional Budget Office. Involving the House of Lords would provide a third leg to increased accountability.

This relative lack of parliamentary oversight lies on top of a relative lack of checks and balances within the executive. Spending decisions by other departments are challenged and to some extent overseen by the Treasury. There is nobody playing that role with respect to the Treasury itself. Indeed, Chancellors have historically taken delight in keeping even the Prime Minister uninformed about tax policy decisions until the last possible moment – a practice that may be falling into abeyance in the context of the coalition government, but one that, when implemented, ensures a minimum of challenge and input into some of the most important decisions facing any government.

One innovation of the new government, which followed from recommendations in Lord Howe's report, is the establishment of the Office of Tax Simplification (OTS). The aim of the Office is 'to provide independent advice to the Chancellor on simplifying the UK tax system, with the objective of reducing compliance burdens on both businesses and individual taxpayers. To do this, the Office will:

- 'provide the Government with independent advice on where there are areas of complexity within the UK tax system with the potential for simplification; and
- 'conduct inquiries into complex areas of the tax system, to collect evidence and advise the Government on options for reform.'<sup>25</sup>

In principle, this could be a valuable innovation. In practice, the OTS appears to be rather lightly staffed, and whether it can achieve traction on the real elements of the tax system which are at the root of much complexity remains to be seen.

The making of tax policy is too important for it not to be subject to improved processes within the executive and greater scrutiny from the legislature. There is a clear case for further official review of the ways of working between HMRC and HM Treasury, of the scope for greater challenge and accountability within the executive and of the nature and degree of parliamentary accountability.

## 9.6 Conclusion

There has been much to welcome in the new government's stated approach to tax policymaking. It has set itself the ambitions to be more open and accountable and to

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<sup>23</sup> Page 5 of 'Making tax law', Tax Law Review Committee, Discussion Paper 3, 2003 (<http://www.ifs.org.uk/publications/1902>).

<sup>24</sup> See *Making Taxes Simpler*, Final Report of a Working Party chaired by Lord Howe of Aberavon, July 2008.

<sup>25</sup> Page 1 of 'Office of Tax Simplification Framework Document' ([http://www.hm-treasury.gov.uk/d/ots\\_framework\\_document\\_jul10.pdf](http://www.hm-treasury.gov.uk/d/ots_framework_document_jul10.pdf)).

reduce complexity and the rate of change. The Office of Tax Simplification has the potential to improve both process and outcome of policymaking. And Mr Osborne's promise to publish draft Finance Bills containing as much as possible of what is coming in the next financial year three months before the Budget is another welcome innovation.

But we start from a rather poor position. There has been a long tradition of governments failing to state a strategy in the field of tax policy. Chancellors have taken rather a delight in producing rabbits from hats rather than setting out longer-term directions. This has exacerbated the problems created by the lack of accountability mechanisms for tax policymaking, within both the executive and the legislature. And problems may still remain in the ways that HMRC and HM Treasury work together.

Just as this government has set a direction in welfare policy, and indeed in health and education policy, it would be a great boon to the tax policymaking process if it could go further than it has so far done, and further than its predecessor ever managed, in setting out a direction for tax policy and solving some of the entrenched problems in the tax system. This will require the government to meet all the aspirations it has set out for a better policymaking process, and to show considerable courage in shaping the policy itself.

# 10. Corporate taxes and intellectual property

Rachel Griffith and Helen Miller (IFS)

## Summary

- The statutory corporate tax rate is due to fall gradually from 28% in 2010–11 to 24% in 2014–15, a rate lower than currently in most EU15 countries. Increases in the tax base will partially offset this reduction in firms' tax burden.
- The tax rate on small business will be reduced to 20% from April 2011. This is the latest in a series of changes over the last decade that has seen the rate cut, then increased and now cut again. There is little justification for taxing firms that earn low profits differently from those that earn high profits or from unincorporated businesses.
- A Patent Box that reduces the corporate tax rate on the income derived from patents to 10% is to be introduced from April 2013. The policy is poorly targeted at promoting research and will add unnecessary complexity to the tax system. In addition, the government's own estimates predict that the policy will lead to a large reduction in UK tax receipts.
- Consultation on reforms to the Controlled Foreign Companies regime continues with a view to legislating in Finance Bill 2012. The extent to which the government attempts to tax the intellectual property UK firms hold offshore in order to address tax avoidance will be an important aspect of the debate.
- The government intends to consult on reforms to research and development (R&D) tax credits with an aim to make them more narrowly targeted at research activity. It seems likely that reforms will result in a narrowing of the costs eligible for R&D tax credits, and not an increase in the generosity of the small companies' element.
- If all these reforms are enacted, the UK will have a corporation tax rate lower than most European countries currently have, but a system with significant additional complexity and which provides an expensive and distortionary tax break to a handful of firms, largely for activity that would have occurred in the absence of the policy.

## 10.1 Introduction

Corporate taxes and, in particular, the tax treatment of income that arises from intellectual property are currently at the centre of a package of reforms due to be introduced over the current parliament. These were set out in November 2010 when the government published *Corporate Tax Reform: Delivering a More Competitive System*, henceforth its 'November 2010 document'.<sup>1</sup>

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<sup>1</sup> See HM Treasury, *Corporate Tax Reform: Delivering a More Competitive System*, 2010 ([http://www.hm-treasury.gov.uk/corporate\\_tax\\_reform.htm](http://www.hm-treasury.gov.uk/corporate_tax_reform.htm)).

The four key planks of the proposals are:

- reductions in statutory corporate rates alongside an increase in the tax base;
- the introduction of a Patent Box – a policy that reduces the corporate tax rate on the income derived from patents to 10%;
- a potential refocusing of the research and development (R&D) tax credit;
- reforms to the Controlled Foreign Companies (CFC) regime.

Consultations on the detail of the latter three will follow during 2011. The government's November 2010 document sets out the broad ambition for the UK corporate tax system to be more competitive, by which it means to offer firms a lower tax burden than other countries, specifically other G20 countries. The proposals, in particular the reductions in the main corporate tax rate and potential refocusing of R&D tax credits, draw on suggestions made in a report by Sir James Dyson for the Conservative Party when in opposition.<sup>2</sup> The Patent Box and CFC reforms also build on initiatives from the previous Labour government. Specifically, the Patent Box was originally announced by Labour in the November 2009 Pre-Budget Report<sup>3</sup> and the reform to CFC rules is a necessary extension of a process started by Labour following the UK's move to an exemption system for the taxation of foreign-source income.

In this chapter, we set out some key issues in designing corporate taxes (Section 10.2) before commenting on the forthcoming rate cuts and base broadening of corporate income tax (Section 10.3), the introduction and implementation of a Patent Box (Section 10.4) and the taxation of offshore intellectual property in relation to CFC reforms (Section 10.5). Section 10.6 concludes.

## 10.2 Issues in designing corporate taxes

The design of corporate tax is complex. The Mirrlees Review sets out the issues and key areas of reform necessary to bring the UK system into line with current best practice.<sup>4</sup> One of the difficulties in designing corporate taxes arises because many firms operate globally, which means that they have the ability to shift activity in response to tax and that the taxes set by other governments also affect their decisions. Indeed, governments may use taxes to compete to attract mobile activity.

In theory, there is a set of key principles to which corporate taxes should adhere. Among them are neutrality and stability. Neutrality is the notion that the tax system should not distort firms' decisions over how to organise their activities, how much activity to undertake and where that activity is located, because to do so creates inefficiencies and is therefore costly. However, there are a number of different forms of neutrality, as Box 10.1

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<sup>2</sup> See J. Dyson, *Ingenious Britain: Making the UK the Leading High Tech Exporter in Europe*, 2010 ([http://media.dyson.com/images\\_resize\\_sites/inside\\_dyson/assets/UK/downloads/IngeniousBritain.PDF](http://media.dyson.com/images_resize_sites/inside_dyson/assets/UK/downloads/IngeniousBritain.PDF)).

<sup>3</sup> For details on the initial proposals see R. Griffith and H. Miller, 'Support for research and innovation', in R. Chote, C. Emmerson and J. Shaw (eds), *The IFS Green Budget: February 2010*, IFS Commentary 112, 2010 (<http://www.ifs.org.uk/budgets/gb2010/10chap10.pdf>).

<sup>4</sup> For a discussion of the conclusions and recommendations drawn by the Mirrlees Review, see chapters 17 and 18 of J. Mirrlees, S. Adam, T. Besley, R. Blundell, S. Bond, R. Chote, M. Gammie, P. Johnson, G. Myles and J. Poterba, *Tax by Design: The Mirrlees Review*, Oxford University Press for IFS, 2011 (<http://www.ifs.org.uk/mirrleesReview/design>).

### Box 10.1. Neutrality in the tax system

Three types of neutrality relevant to the design of corporation tax in an international setting are capital export neutrality, capital import neutrality and capital ownership neutrality.

*Capital export neutrality* says that investors from a single location (e.g. the UK) should face the same effective tax rate regardless of where they invest (e.g. in the UK or abroad). *Capital import neutrality* says that investments in a location should face the same effective tax rate regardless of where the investor is located. *Capital ownership neutrality* says that tax should not distort the pattern of ownership; this requires that investments be treated the same for tax purposes regardless of who owns them.

There are many other important ways in which the tax system should be neutral, including with respect to the type of finance firms choose, the legal form they adopt and the types of investments they make.

In practice, it is difficult to achieve all of these forms of neutrality.

discusses. As governments do not set taxes in isolation, it is generally not possible to achieve all of them unilaterally.<sup>5</sup>

Many of the forthcoming tax changes – the cuts to the main statutory rate, the introduction of a Patent Box and modifications to the CFC rules – and the previous move to an exemption system are related to trying to encourage firms to keep activity in the UK instead of moving it to lower-tax jurisdictions. There are some good reasons to want to keep activity in the UK, such as the spillover benefits that arise from research. However, these need to be offset against the costs of distorting firms' decisions; the UK benefits from firms choosing the best place to conduct their activities, if in doing so they become more productive.

Corporate taxes, as with almost all taxes, distort choices. In particular, a source-based corporate income tax (i.e. where the tax base is income earned in the country where productive activity takes place) increases the required pre-tax rate of return<sup>6</sup> and, in so doing, reduces capital investment. The effect of this is borne largely by domestic workers, who experience a fall in labour productivity and therefore wages. Indeed, the ultimate incidence of corporate tax always lies with households and is borne either by the owners of capital (in the form of lower dividends), by workers (in the form of lower wages) or by consumers (in the form of higher prices). Capital tends to be much more mobile than workers or consumers, and so corporate tax tends to get shifted to domestic factors – and specifically labour – but with a higher associated deadweight cost than if those factors had been taxed directly.<sup>7</sup>

<sup>5</sup> For a discussion of corporate taxes in an open economy, including type of neutrality and issues surrounding tax competition, see sections 10.3 and 10.4 of R. Griffith, J. Hines and P. Sørensen, 'International capital taxation', in J. Mirrlees, S. Adam, T. Besley, R. Blundell, S. Bond, R. Chote, M. Gammie, P. Johnson, G. Myles and J. Poterba (eds), *Dimensions of Tax Design: The Mirrlees Review*, Oxford University Press for IFS, 2010 (<http://www.ifs.org.uk/mirrleesreview/dimensions/ch10.pdf>).

<sup>6</sup> Broadly, because capital is mobile, after-tax returns will equalise across countries. A higher tax rate requires a higher pre-tax return which, given a diminishing return to investment, implies a lower level of investment.

<sup>7</sup> See, for example, W. Arulampalam, M. Devereux and G. Maffini, 'The direct incidence of corporate income tax on wages', Oxford University Centre for Business Taxation, Working Paper 07/07, 2007 (<http://www.sbs.ox.ac.uk/centres/tax/papers/Pages/PaperWP0707.aspx>), which includes a discussion of relevant research to date and estimates that a corporate tax is largely shifted to wages.

There are, however, some reasons that we may want to levy a corporate tax (rather than simply tax households in a more direct form). The corporate tax plays a withholding role, acting as a backstop to the personal income tax system<sup>8</sup> and providing the only feasible way of taxing the returns that non-UK shareholders make on UK investments. In addition, a corporate tax can be seen as a charge for location-specific rents – that is, profits that are made as a direct result of being in the UK and accessing services, some of which are provided by the government.

In addition to neutrality, there are benefits from having a stable tax system. Uncertainty over the level or trajectory of taxes can weaken firms' incentive to invest and make them inappropriately cautious.<sup>9</sup> Since firms' investment decisions are taken with a long-term view that includes expectations about the tax burden, consistency of policy is important.

## 10.3 UK corporate income taxes

### Statutory rates

The main UK rate of statutory corporate tax is currently 28%. This is almost the lowest currently among the G7 countries (Italy has a rate of 27.5%) but at the high end in comparison with many other European countries, as shown in Figure 10.1. Under plans announced by the government in the June 2010 Budget, the statutory rate will be reduced to 27% in April 2011, 26% in 2012, 25% in 2013 and 24% from April 2014.<sup>10</sup> If no other country changed its rate, the UK would have the lowest rate in the G7 when the rate falls to 27% in April 2011 and would be one of the lowest in the EU15 when the rate reaches 24% in April 2014.

The Treasury estimates that, before accounting for any behavioural response, this series of cuts in the corporate tax rate would reduce revenue by £3.5 billion in 2014–15. After accounting for direct behavioural response, namely the UK becoming a more attractive location for profits, the cost is lower, at £2.7 billion.<sup>11</sup> A more complete behavioural estimate would also account for the possibility that other countries might respond by also lowering their tax rates, thus offsetting the extent to which the rate cuts make the UK more attractive. We return to this discussion in Section 10.4 in relation to the introduction of Patent Boxes.

The official estimate of the cost of the lower tax rate does not include any impact on tax revenues of firms carrying out more investment as a result of the tax cuts.<sup>12</sup> However, the Office for Budget Responsibility (OBR) forecasts, which do account for such indirect

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<sup>8</sup> Without a corporate tax, companies' earnings would not be taxed until they became dividends or capital gains, providing shareholders with opportunities to shelter such income from tax.

<sup>9</sup> See, for example, N. Bloom, S. Bond and J. Van Reenen, 'Uncertainty and investment dynamics', *Review of Economic Studies*, 2007, 74, 391–415, which shows that uncertainty reduces the responsiveness of investment to demand shocks, and B. Hall, 'R&D tax policy during the eighties: success or failure?', *Tax Policy and the Economy*, 1993, 7, 1–36, which shows that US R&D tax credits only had an impact when permanent.

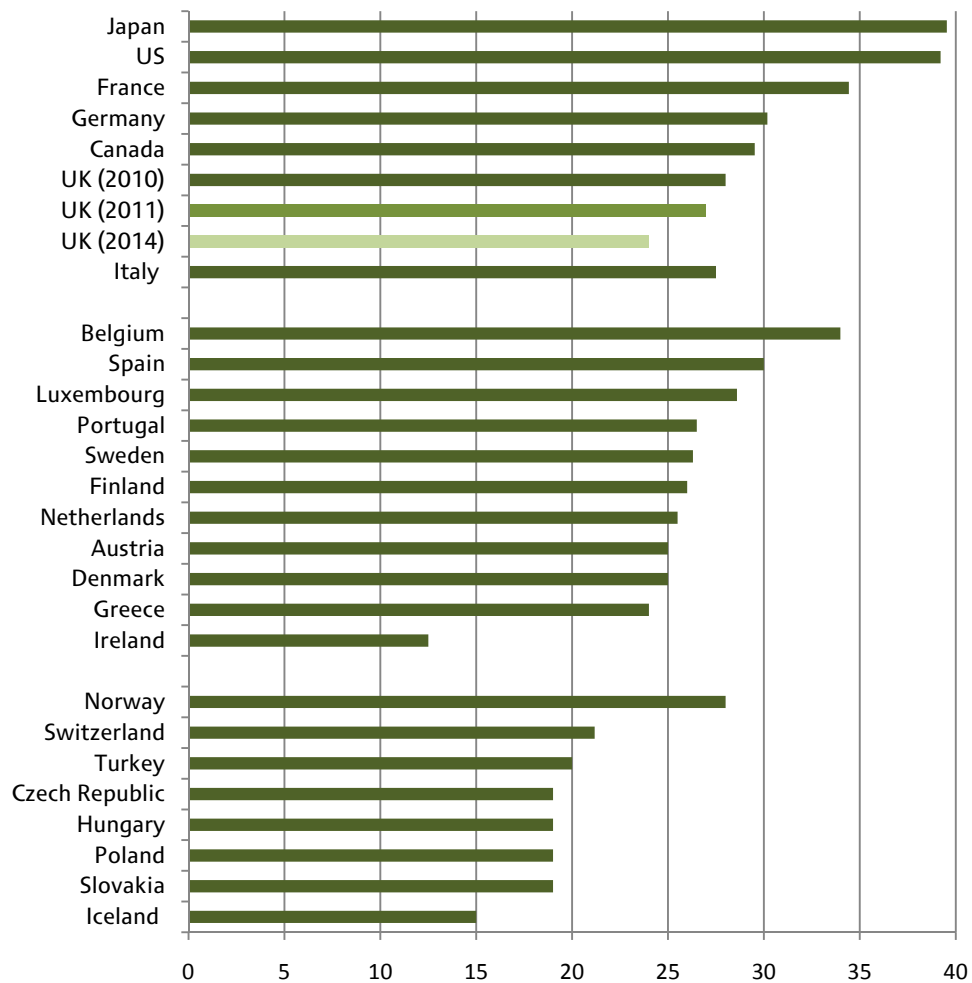
<sup>10</sup> See table 2.1 of HM Treasury, *Budget 2010*, June 2010 ([http://www.hm-treasury.gov.uk/d/junebudget\\_complete.pdf](http://www.hm-treasury.gov.uk/d/junebudget_complete.pdf)).

<sup>11</sup> See pages 12–13 of HM Treasury, *Budget 2010 Policy Costings*, June 2010 ([http://www.hm-treasury.gov.uk/d/junebudget\\_costings.pdf](http://www.hm-treasury.gov.uk/d/junebudget_costings.pdf)).

<sup>12</sup> This does not mean that the Treasury made a mistake with their costing. Their method for producing these costings intentionally excludes any change in revenue arising from 'indirect behaviour changes' by holding constant the post-reform state of the economy. But these indirect effects are then included in the overall fiscal forecast (previously by the Treasury and, under the new arrangements, by the Office for Budget Responsibility) by adjusting the macroeconomic forecast.



Figure 10.1. Corporate tax rates (%), 2010



Notes: This figure shows the statutory corporate tax rate including, where relevant, local corporate income tax rates. Where a progressive (as opposed to flat) rate structure applies, the top marginal rate is shown. The first group of countries is the G7, including the UK's planned rate as of April 2011 and April 2014. The second group is other EU15 countries and the third other European countries included in the OECD Tax Database. Source: Table II.1 (Taxation of Corporate and Capital Income) of OECD Tax Database, 2010 (<http://www.oecd.org/ctp/taxdatabase>).

behavioural effects, state that business investment will be 'around 1 per cent higher in 2014 than in the pre-Budget forecast' as a result of 'measures to reform corporation tax, which are estimated to reduce the cost of capital faced by firms by about 3 per cent'.<sup>13</sup> Accounting for this would further reduce the estimated cost of the policy.

The reductions in the statutory corporate tax rate are in line with the trend of falling rates across Europe in recent years.<sup>14</sup> Research suggests that part of this fall in rates can be attributed to governments lowering tax rates in response to lower rates elsewhere, in an attempt to attract and retain increasingly mobile capital.<sup>15</sup> The government currently raises a non-trivial amount of revenue from corporate tax – around £43 billion, or 8% of

<sup>13</sup> For OBR quotes, see paragraphs C.25 and C.26 of the June 2010 Budget.

<sup>14</sup> See section 9.3 of A. Auerbach, M. Devereux and H. Simpson, 'Taxing corporate income', in Mirrlees et al. (eds), *Dimensions of Tax Design* (<http://www.ifs.org.uk/mirrleesreview/dimensions/ch9.pdf>).

<sup>15</sup> See M. Devereux, B. Lockwood and M. Redoano, 'Do countries compete over corporate tax rates?', *Journal of Public Economics*, 2008, 92, 1210–35.

total revenue.<sup>16</sup> Over time, in the face of even more mobile capital and potentially greater tax competition, governments should expect to raise less revenue from corporate tax.

### *Small profits rate*

Businesses with profits below £300,000 per year are currently taxed at a lower *small profits rate* of 21%. In April 2011, the small profits rate will be cut to 20%. The rate of this preferential treatment for companies with low profits – previously called the *small companies' rate* – has changed almost continuously over the last decade. Under the previous Labour governments, it was incrementally reduced from 24% in 1997 to 19% in 2002 (with a now infamous 0% starting rate being introduced in 1999 and scrapped in 2006).<sup>17</sup> In 2008, it changed course and was increased to its current level, 21%. The latest change will therefore see the rate again reverse course.

The oft-cited justification for having a separate and lower small profits rate is to encourage new business formation and, in particular, entrepreneurship. However, there is a lack of compelling evidence that levying a lower rate of corporate tax on the basis of companies' profits achieves this aim. In addition, any benefits associated with additional entrepreneurial activity must be weighed against the revenue forgone by having a lower rate and as a result of tax-motivated incorporations.

Incorporation allows the conversion of labour income into income from capital. The trading profits of unincorporated businesses are essentially earnings of self-employed owner-managers and are therefore subject to income tax and National Insurance. The profits generated by small incorporated firms can be paid as wages to an owner-manager (to take advantage of the tax-free personal allowance) or be subject to the small profits rate. When profits are then taken as dividends, they will be subject to tax, but not to National Insurance, and with a credit given for any corporation tax already paid.<sup>18</sup> A change in legal form can therefore affect the tax burden with no change in economic activity. The relative effective tax rates paid on income earned from unincorporated and incorporated business will depend on the relative statutory tax rates and the circumstances of the taxpayer (for example, whether they are a higher-rate taxpayer). The UK system has provided a long-running tax incentive to be a small incorporated firm, which distorts the choice over organisational form.<sup>19</sup>

There is no compelling reason for the tax system to encourage one legal form over another. Therefore, within the tax system as a whole, income derived by operating either a small company or an unincorporated business should face the same tax burden. This in turn requires some alignment of (total) corporate and personal tax rates across different

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<sup>16</sup> In 2010–11, total government receipts are due to be £548 billion, of which £43 billion (8%) is attributable to corporation tax. See chart 2 of the June 2010 Budget. The trend in corporate tax revenue is shown in figure 9.3 of Auerbach, Devereux and Simpson, 'Taxing corporate income', in Mirrlees et al. (eds), *Dimensions of Tax Design* (<http://www.ifs.org.uk/mirrleesreview/dimensions/ch9.pdf>).

<sup>17</sup> For further information, see page 16 of R. Griffith and H. Miller, *Productivity, Innovation and the Corporate Tax Environment*, IFS Briefing Note 96, 2010 (<http://www.ifs.org.uk/publications/4839>). For details on the 0% starting rate, see section 9.4 of S. Bond, 'Company taxation', in R. Chote, C. Emmerson, R. Harrison and D. Miles (eds), *The IFS Green Budget: January 2006*, IFS Commentary 100, 2006 (<http://www.ifs.org.uk/budgets/gb2006/06chap9.pdf>).

<sup>18</sup> Dividend income is taxed at 10% up to the higher-rate income tax threshold and at 32.5% thereafter. Accounting for the dividend tax credit effectively reduces these rates to 0% and 25% respectively. Profits can also be retained in the business for reinvestment and therefore sheltered from (higher) personal income taxes. Income gained from the sale of a company is taxed as a capital gain, at 18%.

<sup>19</sup> For a full discussion, see C. Crawford and J. Freedman, 'Small business taxation', in Mirrlees et al. (eds), *Dimensions of Tax Design* (<http://www.ifs.org.uk/mirrleesreview/dimensions/ch11.pdf>). See, in particular, section 11.3.3 for a discussion and appendix 11C for precise calculations of the tax incentives to incorporate.

legal forms to conform to the broad underlying principle that different forms of employment should attract the same overall level of taxation. The Mirrlees Review sets out a number of options for reform.<sup>20</sup>

The uncertainty over both the level and trajectory of the small profits rate caused by constant changes is unlikely to encourage business and entrepreneurship, and is an unwelcome feature of the tax system. Reducing the rate increases the existing tax incentive to be incorporated rather than unincorporated and is therefore an unwelcome step. Alternatively, an increase in the small profits rate would have been one way to reduce the distortion within the current system, and may have been relatively easy to do politically as part of a wider efficiency and simplification package that included reductions in the main rate.

## Base broadening

The cuts in both the statutory and small profits rates will reduce the tax burden faced by firms. However, this is partly offset by restrictions in some allowances, which effectively broaden the tax base. From April 2012, the main rate of capital allowances will fall from 20% to 18%, the special rate from 10% to 8% and the Annual Investment Allowance from £100,000 to £25,000. These changes operate to reduce the proportion of the previous year's capital expenditure that can be deducted from revenue to calculate taxable profits. Broadening the tax base alongside cuts to the rate is a trend we have seen across developed countries for the last 30 years. The Treasury estimates that the 2014–15 revenue gain from reducing allowances, allowing for some changes in behaviour but not accounting for any change in the level of investment, will be £2.8 billion, almost exactly offsetting the estimated cost of reducing the main rate.<sup>21</sup>

The OBR forecast included in the June 2010 Budget sets out its judgement that the cuts in the corporation tax rate will more than offset the reduction in investment allowances such that the 'cost of capital for new investment is lower for all non-financial companies, and the rate of return from the existing capital stock is higher'.<sup>22</sup>

The largest beneficiaries from the package of measures will be high-profit, low-investment firms (excluding those subject to the Bank Levy also announced in the June 2010 Budget), which gain more from the rate cuts than they lose from the base broadening. Similarly, the base broadening will have the largest impact on those firms with capital-intensive operations – with long-lasting equipment and machinery – that currently benefit most from the capital allowances. This is likely to apply more to firms in the manufacturing sector, but it may also be true for some capital-intensive service sectors such as transport.

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<sup>20</sup> For a discussion of the options for aligning the taxation of income across different forms of employment, see chapter 19 of Mirrlees et al., *Tax by Design* (<http://www.ifs.org.uk/mirrleesreview/design/ch19.pdf>).

<sup>21</sup> This figure is composed of £1.8 billion from reducing capital allowances and £1.0 billion from reducing the Annual Investment Allowance. See page 15 of HM Treasury, *Budget 2010 Policy Costings*, June 2010 ([http://www.hm-treasury.gov.uk/d/junebudget\\_costings.pdf](http://www.hm-treasury.gov.uk/d/junebudget_costings.pdf)).

<sup>22</sup> See paragraph C.57 of the June 2010 Budget. Financial companies are an exception due to the introduction on 1 January 2011 of the bank levy.

## 10.4 The taxation of innovation and the Patent Box

The government plans to introduce a Patent Box from April 2013 which will reduce the rate of corporation tax levied on the income derived from patents, net of development costs, to 10%. There is now a consultation under way on the form and implementation of the Patent Box with a view to legislating in Finance Bill 2012.<sup>23</sup> The main details of the policy, such as which patents will be eligible and how patent income will be ascertained, are yet to be decided, but indications of the broad approach were set out in the government's November 2010 document.

Intellectual property and the associated innovations represent a key input into production for many firms and are important drivers of growth. There is a clear rationale

### Box 10.2. R&D tax credits

The UK currently operates a system of R&D tax credits which reduce firms' tax liability by allowing them to deduct an amount greater than actual R&D expenditure from taxable profits, and thereby reduce their corporation tax bill. The main rate of tax relief is 130%; that is, for each £100 of qualifying costs, a company can reduce the income on which corporation tax is paid by £130. For small and medium-sized enterprises (SMEs), the tax relief is more generous, at 175%.<sup>a</sup> In addition, SMEs with insufficient taxable profits can claim a cash payment equal to 24.5% of eligible R&D expenditure. In 2008–09, 8,540 firms claimed R&D tax credits at a direct cost to the Exchequer of £980 million.<sup>b</sup>

The June 2010 Budget contained a commitment to review R&D tax credits in light of the following recommendations put forward in the Dyson Review: (i) refocus the scheme towards hi-tech companies, small businesses and start-ups; (ii) increase the rate to 200%, once the public finances allow; and (iii) improve the ease with which credits can be claimed. Underlying these recommendations – the first in particular – is the sentiment that R&D tax credits be 'refocused to those companies where the barriers to a sustained R&D programme are greatest and the potential spillovers to the rest of the economy are greatest'.<sup>c</sup> This is in line with the rationale for operating R&D tax credits.

There are currently few details on the likely form of the changes. The government's November 2010 document said that the tax credits will not be restricted to small firms or firms in specific sectors. However, there will be consideration of whether the 'relief is appropriately targeted at those costs that are most closely linked to genuinely innovative activity'.<sup>d</sup> In addition, the government has set out the aim to enhance the 'effectiveness of the schemes in addressing the market failure in the provision of R&D' while ensuring that the reforms do not result in additional costs to the Exchequer.<sup>e</sup> It looks likely, then, that reforms will seek to reduce the scope of the eligible costs, which currently include expenditure on staff, materials, power and software development.

a. SMEs are defined as those with fewer than 500 employees and either an annual turnover not exceeding €100 million or a balance sheet not exceeding €86 million.

b. See tables RD1 and RD2 respectively at [http://www.hmrc.gov.uk/stats/corporate\\_tax/randdtcmenu.htm](http://www.hmrc.gov.uk/stats/corporate_tax/randdtcmenu.htm).

c. See page 54 of J. Dyson, *Ingenious Britain: Making the UK the Leading High Tech Exporter in Europe*, 2010 ([http://media.dyson.com/images\\_resize\\_sites/inside\\_dyson/assets/UK/downloads/IngeniousBritain.PDF](http://media.dyson.com/images_resize_sites/inside_dyson/assets/UK/downloads/IngeniousBritain.PDF)).

d. See paragraph 4.16 of part IIB of the government's November 2010 document.

e. See paragraph 4.12 of part IIB of the November 2010 document.

<sup>23</sup> See section 3 of part IIB of the government's November 2010 document.

for governments to enhance the incentives for firms to engage in research: some of the benefits accrue to third parties and, because of this, firms tend to underinvest in research from society's point of view, especially basic research. That the market fails to provide firms with the correct incentives to invest in the optimal amount of research is a justification for government intervention (in cases where the government is able to improve the situation). This rationale is currently explicitly recognised in the corporate tax system through R&D tax credits, which are well targeted at research.<sup>24</sup>

R&D tax credits are also part of the consultation on the taxation of innovation and intellectual property. One of the key aims of the consultation is to produce reforms that refocus R&D tax credits on hi-tech companies.<sup>25</sup> See Box 10.2.

### Introducing a Patent Box: not justified

In contrast to R&D tax credits, a Patent Box is poorly targeted at research activity that generates spillovers; the policy targets the income that results from patented technology, not the research itself. The Patent Box will provide only weak incentives for firms to undertake additional research with a view to creating new patentable technologies. In addition, as firms can separate patent income from real activity, it is entirely possible that little additional research will take place in the UK as a result of this policy. As a policy to spur innovation, government intervention using a Patent Box is poorly justified. We have set this out in previous publications.<sup>26</sup>

Labour's original justification for the Patent Box focused heavily on the desire to 'strengthen the incentives to invest in innovative industries'.<sup>27</sup> Under the coalition government, there has been an emphasis on the potentially positive revenue impacts and on encouraging development activities by 'reward[ing] successful technical innovation'.<sup>28</sup> Both the Labour and coalition government announcements of a Patent Box highlighted that firms' intellectual property is highly mobile and that a Patent Box would make the UK a more attractive location for holding patents. We consider each of these issues – the likely revenue impact, the type of activity the Patent Box would encourage and making the UK a more attractive location for patents – in turn.

#### *The likely revenue impact*

The government's November document suggests that the UK will benefit from the 'additional tax on the consequential profits' associated with patents as a result of the Patent Box.<sup>29</sup> However, the revenue gains from increased patenting (and related activities) and attracting patent income to the UK must be weighed against the revenue lost from levying a lower rate.

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<sup>24</sup> For more information, see section 10.4 of R. Griffith and H. Miller, 'Support for research and innovation', in the February 2010 Green Budget (<http://www.ifs.org.uk/budgets/gb2010/10chap10.pdf>).

<sup>25</sup> See section 4 of part IIB of the government's November 2010 document.

<sup>26</sup> These arguments were made in R. Griffith and H. Miller, 'Support for research and innovation', in the February 2010 Green Budget (<http://www.ifs.org.uk/budgets/gb2010/10chap10.pdf>) and summarised in R. Griffith and H. Miller, *Productivity, Innovation and the Corporate Tax Environment*, IFS Briefing Note 96, 2010 (<http://www.ifs.org.uk/publications/4839>).

<sup>27</sup> See paragraph 4.40 of HM Treasury, *Pre-Budget Report 2009*, December 2009 ([http://www.hm-treasury.gov.uk/prebud\\_pbr09\\_repindex.htm](http://www.hm-treasury.gov.uk/prebud_pbr09_repindex.htm)).

<sup>28</sup> See paragraph 3.5 of part IIB of the government's November 2010 document.

<sup>29</sup> See paragraph 2.6 of part IIB.

The government's forecast of the policy cost in the June 2010 Budget predicted a revenue loss of £1.1 billion a year.<sup>30</sup> We also estimate that the introduction of a Patent Box would lead to a substantial reduction in tax revenues: even though the UK would become a more attractive location for patents, the boost to revenue this would provide would be outweighed by the lower tax rate.<sup>31</sup> Both these estimates account for the fact that the UK would become a more attractive location for patent income, but neither includes the effect of a potential increase in patenting – which would make the reduction in revenue smaller – or the likely response of other countries, which might also introduce a Patent Box – which would make the reduction in revenue larger. But taking both pieces of evidence together, it seems likely that the policy will entail a significant revenue cost.

### *Encouraging successful innovation*

Much has been made of the Patent Box as a mechanism to encourage the development of patented technologies and, in doing so, promote growth. Two important questions are whether the policy is likely to succeed in this and whether, regardless of the outcome, this is a well-justified policy on these grounds.

The Patent Box will provide firms with an additional incentive to maximise the amount of profit derived from patented technologies and, in doing so, is likely to spur additional development and commercialisation activities. These may include, for example, further R&D on the processes required to manufacture a product that uses a patented technology or advertising to promote sales of a new product.

However, these are activities for which firms currently capture all of the returns. Indeed, a key justification for the system of patents, which provide firms with a legally sponsored monopoly on the use of patented technology, is to ensure that this is the case. Firms will therefore carry out commercialisation activities that maximise the related income stream; a tax incentive to this end is not required. With no market failure, government intervention is not justified.

Of course, any policy that effectively cuts corporate tax will lead to more profit-generating activities taking place. But there are myriad ways in which the government could spend £1.1 billion to encourage activity and support growth. For example, it could cut the corporate tax rate for all businesses.<sup>32</sup> The Patent Box is not a sensible choice for at least three reasons. First, the policy unnecessarily distorts the decision to invest in patentable technologies rather than in other activities, including those that result in other valuable forms of intellectual property. Second, to the extent that a Patent Box reduces the tax rate for activity that would have occurred in the absence of government intervention, the policy includes a large deadweight cost. Third, the Patent Box introduces additional complexity to the tax system.

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<sup>30</sup> See table 2.4 of the June 2010 Budget. The £1.1 billion policy costing includes the effect of the Patent Box in making the UK a more attractive location for patent income but not any indirect behavioural effects (such as increase in the number of patents), which are captured in the OBR's economic forecast.

<sup>31</sup> See R. Griffith, H. Miller and M. O'Connell, *Corporate Taxes and Intellectual Property: Simulating the Effect of Patent Boxes*, IFS Briefing Note 112, 2010 (<http://www.ifs.org.uk/publications/5361>). This analysis also accounts for the fact that the Benelux countries already operate Patent Boxes and shows that the UK can expect to lose revenue from patent income simply because firms will choose to hold patents in these countries rather than the UK. We estimate that a UK Patent Box will lead to an additional loss in revenue. Accounting for all four of these Patent Boxes, we estimate that the UK would see revenue from patent income halved.

<sup>32</sup> As a point of comparison, the 2013–14 revenue cost of a 1% fall in the statutory corporate tax rate in 2011 would be £900 million. See table 1.6 at [http://www.hmrc.gov.uk/stats/tax\\_expenditures/menu.htm](http://www.hmrc.gov.uk/stats/tax_expenditures/menu.htm).

However, there is a distinction between saying that a policy is poorly justified and saying that no one will benefit. Indeed, those firms that earn a significant profit from patents will benefit from a significant reduction in corporate taxes. However, the holdings of patents are highly skewed, so the largest share of the tax savings entailed in a UK Patent Box will accrue to a small number of firms that account for the majority of patents and are likely to be most able to generate large associated revenue streams from their technologies.<sup>33</sup>

Indeed, the Patent Box is predominately a tax break for activity that has been successful and is now making profits. This amounts to a tax break on economic rents – profits from factors of production (land, labour or capital) that are in excess of those needed to keep the factors in their present use. Economic rents mainly arise as the result of market power or entrepreneurial skill. Since they are profits in excess of the required normal return, levying tax on them does not create any efficiency losses. On this basis, it is efficient to tax economic rents. However, this must be balanced against the fact that corporate tax, including on economic rents, can influence corporations' decisions over earning income in high- or lower-tax jurisdictions and can act to discourage foreign investment. We look further at the impact on location choices in the next subsection.

### *Making the UK an attractive location for intellectual property*

The final tenet of the justification of a Patent Box is that the policy should help prevent patents moving offshore. This issue is particularly acute in light of the fact that some other countries in the European Union – currently Belgium, Luxembourg, the Netherlands and Spain – already operate Patent Boxes which incentivise some UK multinational firms to hold patent income offshore. This is a genuine concern for the government, and is an issue with which it will need to engage. To be clear, this issue is not about how much activity firms undertake, but where they conduct it. In light of the mobility of intellectual property and the low tax rates offered by some other countries, is a Patent Box a reasonable way to dissuade firms from holding intellectual property offshore?

To answer this, one must first be clear about why the UK would want to encourage firms to hold patents in the UK. The government's November 2010 document suggests that a Patent Box is justified on the grounds that, while R&D tax credits support research activity, there are 'no specific incentives for companies to retain IP [intellectual property] in the UK during commercialisation'.<sup>34</sup> But the fact that there is no special tax treatment for any given activity is certainly not a justification for introducing one.

We explained above that a Patent Box would not prevent the UK from losing tax revenue: even after allowing for firms to respond to the lower tax rate by changing where patents are held, we and the Treasury both think that the policy would entail a significant revenue cost. We therefore assume that the desire to encourage intellectual property holdings in the UK is really a desire to retain and/or attract real activity, including both research and commercialisation activities.<sup>35</sup> In light of this, the pertinent question is whether a Patent Box would succeed in preventing firms from holding real activity offshore and, importantly, whether it is the best policy mechanism to achieve this.

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<sup>33</sup> See table 1 of R. Griffith, H. Miller and M. O'Connell, *Corporate Taxes and Intellectual Property: Simulating the Effect of Patent Boxes*, IFS Briefing Note 112, 2010 (<http://www.ifs.org.uk/publications/5361>).

<sup>34</sup> See paragraph 2.5 of part IIB.

<sup>35</sup> A relatively high tax rate operates to deter mobile activities. To the extent that the Patent Box is successful in encouraging real activity that would have located offshore in the absence of the policy to remain or locate in the UK, it could have a positive effect on the overall revenue from corporation tax.



The answer to whether the Patent Box will succeed in attracting real activity will depend crucially on the extent to which firms co-locate intellectual property alongside real activities. There can be both commercial and tax-motivated reasons for doing so.<sup>36</sup> However, firms can and do separate intellectual property and associated income from real activity, as the government explicitly recognised in its November document.<sup>37</sup> This means that it is far from clear how much real activity would leave the UK in the absence of a Patent Box, and how much activity would be attracted to the UK in the presence of a Patent Box. The decision to conduct activity in the UK is based on many factors aside from tax, including the quality and availability of skills, infrastructure and the regulatory environment. Many of these will be funded from taxation, and firms will be willing to, in effect, pay a tax cost in order to operate in the UK. This also highlights that there are other ways to encourage firms to conduct activity in the UK or dissuade them from leaving, such as investing in high-skilled workers and a strong science base.

The recent introduction of Patent Boxes in other European countries and the forthcoming introduction in the UK raise questions relating to tax competition. Specifically, are European governments using favourable tax policies to attract mobile income, potentially at the expense of other countries, and, if so, what are the consequences? Recent work by IFS researchers shows that if other countries, in addition to the UK and Benelux countries, introduced Patent Boxes, all countries would lose further revenue from patent income.<sup>38</sup> This suggests that the successive introduction of Patent Boxes could amount to a 'race to the bottom' in which firms move income in response to lower rates but no government sees revenue gains. Again, for governments to be net beneficiaries, there would need to be real activity that accompanied income. However, as more governments introduce preferential tax regimes, the relative benefit to firms of choosing any given country is eroded. In the longer run, the series of policy reforms could amount to little more than a reduction in tax revenues.

### **Summary**

To answer whether the Patent Box is the best policy, the beneficial effects of any potential increase in UK activity must be weighed against the costs of the policy, as discussed above. In summary:

- The Patent Box will lead to a loss in revenue from patent income, largely to subsidise activity that would have occurred anyway.
- It distorts the decision to invest in patentable technologies and adds additional complexity to the tax system.
- It is unclear how the Patent Box will alter where firms choose to locate real activity.
- Any beneficial effects in terms of being an attractive location for patents could be eroded if other European countries introduced similar preferential tax regimes.

On balance, then, it seems hard to justify the Patent Box on these grounds.

There are concerns that some firms artificially locate intellectual property offshore, but there are already Controlled Foreign Companies rules in place which aim to prevent this.

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<sup>36</sup> The key elements of the corporate tax system that can produce incentives for firms to co-locate real activity alongside intellectual property are CFC rules, withholding rates, transfer pricing rules and exit taxes.

<sup>37</sup> See paragraph 3.3 of part IIB.

<sup>38</sup> See R. Griffith, H. Miller and M. O'Connell, *Corporate Taxes and Intellectual Property: Simulating the Effect of Patent Boxes*, IFS Briefing Note 112, 2010 (<http://www.ifs.org.uk/publications/5361>).

Indeed, the government is currently consulting on how to modify the CFC regime to ensure that intellectual property genuinely created in the UK continues to be taxed here; we return to this issue in Section 10.5. Our research shows that the government could mitigate the effects of the Benelux Patent Boxes by operating a CFC regime that taxed income held in these countries. By subjecting patent income held in low-tax countries to UK taxation, the UK could remove the incentives for firms to locate offshore in the first place. In reality, it is unlikely that legislation could prevent all tax-related income shifting, but it would lessen the problem.

## Implementing a Patent Box: hard to do

The government is consulting on some specific implementation issues. Notably, operating a Patent Box will require HM Revenue and Customs to define which patents are eligible and, more difficult, to measure the income derived from patents. These are challenging issues. The legislation that implements a Patent Box policy is likely to add significant complexity to the tax system and require policing to ensure that both income and costs are being appropriately assigned to patents.<sup>39</sup>

### *Which patents?*

The government's November document sets out that the Patent Box will apply from 1 April 2013. It is widely expected that all UK-registered companies will be eligible to make use of the Patent Box. This would include patents filed at patent offices other than the UK Intellectual Property Office (UKIPO), patents that have been invented outside the UK and patents held by UK subsidiaries of foreign multinationals.<sup>40</sup> Eligibility criteria will need to set out the date from which patents become eligible and which patents can be included.

### **Date defining eligibility**

When originally announced by the previous government, eligible patents were due to be those granted after April 2013. The consultation will now consider basing eligibility on either the date of grant or the date when a patent is first commercialised. The former is a clearly defined date which can be verified by examining the patent document. The date of commercialisation would need to be determined; this would be more straightforward for some patents (e.g. those that protect a new product with a clear launch date) than others (e.g. those that protect a modification to a pre-existing production process). In addition, the government announced that patents commercialised after 29 November 2010 will be included.<sup>41</sup>

There are significant lags between creating a new idea, filing a patent, having the patent granted and then commercialising the resulting technology. Even if firms do respond to the Patent Box by creating more patentable technology, it will be many years, and certainly after 2013, before income eligible for the Patent Box results. Including patents from 2013 will therefore mean that the Patent Box will spend the initial years almost exclusively subsidising activity that would have occurred in the absence of the tax break.

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<sup>39</sup> The Benelux countries' Patent Boxes are implemented with a number of complex caveats and restrictions on the type and amount of income that can be included.

<sup>40</sup> For a discussion of potential definitions of eligible patents and the distinctions between the location of patent offices, where patents are held for legal purposes (i.e. the location of the firm that holds the patent) and where patents are invented, see page 241 of R. Griffith and H. Miller, 'Support for research and innovation', in the February 2010 Green Budget (<http://www.ifs.org.uk/budgets/gb2010/10chap10.pdf>).

<sup>41</sup> See paragraph 3.12 of part IIB of the government's November 2010 document. This is largely a transitional measure; eventually, all granted and commercialised patents will be included.

This represents a large deadweight cost of the policy, which, in the short term, has been worsened by the inclusion of already-granted patents commercialised after 29 November 2010. As mentioned above, to the extent that the Patent Box covers innovations that would have occurred in the absence of the policy, the deadweight cost will continue throughout the life of the policy. However, introducing the policy at a later date would have the drawback that it might cause firms to delay investment and commercialisation to ensure that their patents were eligible.

### **Which patents are included**

Under European law, eligibility criteria for inclusion in the Patent Box cannot include restrictions that patents must have been created in the UK. It will therefore be possible to hold a patent and associated income in the UK without co-locating any associated real activity. Indeed, although patent ownership is frequently co-located with research, there is an increasing trend towards holding intellectual property separately from real activity, and this type of arrangement is encouraged by tax incentives such as the Patent Box.<sup>42</sup>

The government has noted the potential and undesirability of purely tax-motivated income holding: 'The Government does not wish to incentivise purely passive holding of IP, or to encourage artificial tax avoidance behaviours'.<sup>43</sup> The November document indicates a desire to implement a system that will prevent such abuse. At this stage, there are no precise details of what this will mean in practice. One suggestion is to link 'the amount of income which can be attributed to the Patent Box to the level of ongoing R&D or associated manufacturing activity'.<sup>44</sup> However, it is unclear how such a measure would be designed or implemented.

### **How to define patent income?**

For the policy to be operational, the government will need to specify how the income derived from patents is to be measured and set out the costs that are to be deducted from gross income to get eligible net income. In doing so, it will need to be mindful that firms will face an incentive to attribute as much income as possible to their patents while allocating costs to activities that are taxed at higher rates.

### **Attributing income to patents**

Perhaps the largest challenge in administering a Patent Box comes in determining how to attribute income to specific patents in order to identify which income qualifies for the reduced rate of corporation tax. When a firm licenses out a patented technology, the income received in licence fees can be clearly identified. This is not true of 'embedded income' – income earned when firms use a technology in the production and sale of goods – which will also be eligible. In such cases, it is non-trivial to determine how much of firms' total income can be attributed to a patent, as opposed to the many other factors that will have contributed to profits. This is especially difficult when a firm creates a product with multiple patents, not all of which are likely to be eligible, or with other intangible assets such as company brands. The government has highlighted two possible

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<sup>42</sup> In the case of a patent, this means that the firm that holds the patent for legal purposes – and is therefore eligible to collect associated income and liable for the resulting tax – can be located in a different country from the inventor(s) who created the underlying technology.

<sup>43</sup> See paragraph 3.19 of part IIB of the government's November 2010 document.

<sup>44</sup> See paragraph 3.20 of part IIB of the government's November 2010 document.

mechanisms for calculating embedded income – the arm’s length principle and a formulaic approach – but has said it currently favours the second.<sup>45</sup>

An *arm’s length principle* aims to measure patent income by determining the value a patent would have if licensed to a third party. Consider the following example. A firm uses a patented technology, say a new microchip, to make and sell mobile phones. How much of the resulting revenue the firm receives can be attributed to the microchip? This can be thought of as asking ‘How much would the firm receive in royalties if it licensed the technology to an unrelated firm?’. In answering this, the arm’s length principle aims to ascertain the true value of the technology, independently of other, often related, intangible assets and processes.

This is obviously a difficult exercise. When technology is not traded on the market, there is no observable price. Calculating the related arm’s length price is both difficult and open to manipulation by firms, which have much more information about their patented technologies than the government. In addition, there can be a more fundamental problem with this approach. Even conceptually, the arm’s length price may not exist. Consider again the example above and say that our firm also has a patent crucial for the production technology that creates the microchip. Each patent is worthless without the other. One could argue that the arm’s length price of both patents is therefore zero – a third party would not be prepared to pay for either one individually. Alternatively, one could calculate the price, conditional on owning the other patent. The problem here is that, if both prices are calculated in this way, the combined price could outweigh the value of the final output. To consider another problem, let’s say our firm is a monopolist supplier of a specific type of mobile technology. This means that there are currently no third parties that would buy the technology and, further, if there were (and the firm no longer had monopoly power), the value of the patents would be different.<sup>46</sup>

Despite such difficulties, the arm’s length principle is currently used in other parts of the tax system, notably to determine transfer prices of transactions made between related entities.<sup>47</sup> It is also used by the Benelux countries, which require firms to calculate the amount of income eligible for the Patent Box based on the arm’s length principle. The burden of proof is on firms to be able to demonstrate that the embedded income (also often called deemed income) represents the hypothetical amount that a third party would pay to license the technology in order to produce the same product (or provide the same service). This implicitly includes the notion that the product could not be created without the patented technology.

There are currently no details of how the favoured *formulaic approach* would work. We assume it would need to include a mechanism that accounted, at least roughly, for the extent to which patented technologies created income. The government will presumably be keen to ensure that firms are not able to overstate the amount of income created by a patented technology.

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<sup>45</sup> See paragraph 3.15 of part IIB of the government’s November 2010 document.

<sup>46</sup> As another example, consider a firm that has a strong brand image and a patent on a new product. Without the brand image, third parties may place a very low value on the patent, even though the firm that holds the patent will create large amounts of income as a direct result of the patent-protected product.

<sup>47</sup> In relation to transfer prices, there are government guidelines for valuing intellectual property via the arm’s length principle; see <http://www.hmrc.gov.uk/manuals/intmanual/intm467160.htm>. The OECD also discusses the arm’s length pricing of intangibles; see chapter 6 of OECD, *Transfer Pricing Guidelines for Multinational Enterprises and Tax Administrations*, 2010 (<http://www.oecd.org/ctp/tp/guidelines>).

The government's initial intention to adopt the formulaic approach is based on the complexity, both for business and for HMRC, of administering arm's length pricing. Since there is no standard or straightforward way of valuing patents accurately, attempting to do so imposes large costs on businesses in making such calculations and on government in having to assess the accuracy of claims. Depending on its form, the formulaic approach could make it easier to calculate an estimate of income from patents and provide firms with more certainty over how much income would be eligible. However, since the formulaic approach will provide only an approximation of the actual income received, the drawback would be a less accurate measure of the income derived from patents.

### **Defining net income**

The Patent Box will apply to income net of expenses and deductions.<sup>48</sup> The government will therefore need to define which costs are to be deducted from gross patent income. In practice, firms will face an incentive to understate the level of costs associated with patent income and instead attribute them to other activities which are subject to the higher statutory corporate tax rate. The November document sets out that the expenses will include those incurred before commercialisation, noting that their exclusion would give firms an incentive to delay commercialisation such that the initial costs could be offset against a higher tax rate. However, full-rate relief will be available for the additional deduction offered by R&D tax credits.

### **Summary**

The issues discussed here illustrate that implementing a Patent Box will be difficult and that the choices made have consequences for the effect of the policy. In summary:

- The date from which a patent becomes eligible for the Patent Box will be either the grant date (which is easily verifiable) or the date of commercialisation (which would need to be determined).
- As a result of patents being eligible from April 2013, the Patent Box will spend the initial years almost exclusively subsidising activity that would have occurred in the absence of the tax break.
- The restrictions placed on UK legislation by European law will mean that it is possible to hold a patent and associated income in the UK without co-locating any associated real activity. While the government has expressed a desire to prevent this, it is not clear how it will do so.
- The computation of how much income is derived from a patent will likely be achieved using an (unspecified) formulaic approach, rather than the alternative arm's length approach.

## **10.5 How to tax offshore intellectual property**

The UK recently moved to an exemption system for the taxation of companies' foreign profits wherein offshore income is exempt from UK tax. This reform helps to put UK firms on an equal footing with other firms when operating offshore. In theory, we would like the tax system to treat income earned from the application of intellectual property the same as income from the application of a piece of physical property. However, there are

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<sup>48</sup> The Benelux countries also apply the Patent Box to net income. In Spain, the Patent Box is applied to gross income, before deductions.

concerns that firms might artificially locate intellectual property offshore with a view to reducing tax payments. The legislation that sets out to prevent this is encompassed in the Controlled Foreign Companies regime (anti-avoidance rules that determine how offshore income is taxed).

A broad set of reforms to the current CFC regime was instigated by the UK's 2009 move to an exemption system.<sup>49</sup> The CFC regime defines which income is taxable in the UK with a view to preventing firms from moving income offshore and then remitting it back to the UK tax-free.

The introduction of the Patent Box has implications for the CFC regime. A Patent Box would reduce the tax incentives firms face to shift patent holdings offshore, thereby reducing the burden on the CFC rules, at least related to that form of intellectual property. Indeed, the government has noted its desire to deter, rather than punish, exit of intellectual property from the UK: 'rather than tightening exit rules, ..., the Government would prefer to encourage businesses to retain and exploit IP in the UK through the introduction of the Patent Box'.<sup>50</sup>

## Reforms to Controlled Foreign Companies rules

Broadly, CFC rules define the set of subsidiaries that are located offshore in low-tax countries and deemed to be subject to tax in the UK. The UK regime, as well as those of most countries, focuses on identifying passive income – income resulting from non-commercial activities that can be divorced from real activity and easily moved for tax purposes; this includes patent royalties.

Temporary modifications to the CFC regime will be introduced in Finance Bill 2011. These will outline exemptions for certain kinds of activity and CFCs, and set out some transitional provisions for 2011–12.<sup>51</sup> Looking forward, a full set of reforms will be considered (after a consultation) with a view to introduction from April 2012. The taxation of offshore intellectual property will be a key, although not sole, aspect of the final reforms. That is, in the face of potential tax-motivated income shifting, the government will write legislation (as part of the CFC rules) such that the UK will continue to tax some income from intellectual property held offshore.

### Intellectual property

The government explicitly recognises the trade-off between not distorting firms' commercial decisions over where to hold intellectual property on the one hand, and preventing tax-motivated income shifting which erodes the UK tax base on the other. A 2010 discussion document on proposals for CFC reform sets out the objective of exempting intellectual property that is actively managed offshore while mitigating the 'risk that UK tax can be avoided through the artificial movement of IP into a low tax

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<sup>49</sup> The previous government initiated a consultation on proposals for reforms to the CFC regime following the move to exemption. Initial proposals proved contentious; therefore the current government inherited an ongoing consultation. For more details, see R. Griffith, H. Miller and M. O'Connell, 'Business taxation', in R. Chote, C. Emmerson, D. Miles and J. Shaw (eds), *The IFS Green Budget January 2009*, IFS Commentary 107, 2009 (<http://www.ifs.org.uk/budgets/gb2009/09chap12.pdf>) and M. Gammie, R. Griffith and H. Miller, 'Taxation of companies' foreign profits', in R. Chote, C. Emmerson, D. Miles and J. Shaw (eds), *The IFS Green Budget: January 2008*, IFS Commentary 104, 2008 (<http://www.ifs.org.uk/budgets/gb2008/08chap12.pdf>).

<sup>50</sup> See paragraph 2.6 of part IIB of the government's November 2010 document.

<sup>51</sup> Draft clauses have been published; see page 217 of <http://www.hmrc.gov.uk/budget-updates/autumn-tax/clauses-explan-notes.pdf>. These are also discussed on page 69 of the government's November 2010 document. The document also covers other notable areas of CFC reform which we do not discuss here, including the treatment of monetary assets, interest deductibility and foreign branch taxation.



jurisdiction'.<sup>52</sup> The interim changes set out to exempt CFCs that exploit intellectual property that can be shown to have a minimal connection to the UK, i.e. where there is a low risk that intellectual property is being held offshore as a mechanism for avoiding UK taxation.

The final workings of the CFC rules are yet to be determined, but the government has provided some indications of the principles on which they will be based in relation to intellectual property.<sup>53</sup> Continuing the theme of exemption, the underlying approach will be to define the tax base as the profits from UK activity, rather than the worldwide income of a UK-owned group. Accordingly, the CFC rules will aim to tax intellectual property that has been diverted offshore, rather than all of the intellectual property that UK firms hold offshore.

The key challenge is to define when, and if so how much, income from intellectual property has been artificially diverted. This is especially difficult when there is a connection to the UK (for example, part of the technology was developed here), but also to other countries. Broadly, it seems likely that the CFC rules will operate in the following way. There will be an attempt to identify potentially high-risk entities – i.e. those that may be artificially holding intellectual property offshore – that are located in low-tax jurisdictions. This is in a similar vein to the current rules, which define low-tax jurisdictions as those with a tax rate of less than 75% of the UK's. The CFC rules will set out a framework to ascertain cases where intellectual property has a significant UK connection – i.e. where intellectual property was previously held or was created in the UK – and, in such cases, assess the proportion of profits that have been artificially diverted from the UK and levy the UK corporation tax. In practice, it will be difficult to design a system that only applies UK tax to intellectual property that has been located offshore for tax purposes.

## 10.6 Conclusion

The coalition government's November 2010 document, which set out a package of corporate tax reforms, starts with a 'Corporate Tax Road Map' which emphasises the aim to create a simpler tax system and 'to ensure greater stability and certainty'.<sup>54</sup> This sentiment is to be welcomed, as is the attempt to set out the direction of the corporate tax system over the next five years. We now know that the government's view is that the tax system will evolve in the following ways. The corporate tax rate will be lowered and the base broadened (allowances reduced). The CFC regime will be reformed to produce a more territorial system, i.e. the focus of the tax base will be the profits created from UK-based activity and not the worldwide profits of UK companies. And there will be attempts to reduce the tax burden on income derived from intellectual property, with the introduction of a Patent Box and specific modifications to the CFC regime to exempt intellectual property that is held offshore for commercial reasons.

There are often balances to strike in setting corporate taxes. A single government cannot unilaterally achieve neutrality with respect to all firms' decisions. Distortions will remain

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<sup>52</sup> See chapter 4 of HM Treasury and HM Revenue and Customs, *Proposals for Controlled Foreign Companies (CFC) Reform: Discussion Document*, January 2010 ([http://www.hm-treasury.gov.uk/d/cfc\\_discussiondoc\\_260110.pdf](http://www.hm-treasury.gov.uk/d/cfc_discussiondoc_260110.pdf)).

<sup>53</sup> Chapter 3 of part IIA of the government's November 2010 document.

<sup>54</sup> See paragraph 1.4 of part IA of the government's November 2010 document.



and the benefits of stability and certainty should be weighed against the desire for reform and consultation. Even with this in mind, the package of reforms that will be introduced over the coming parliament has some unwelcome characteristics. The Patent Box in particular will significantly increase the complexity of the tax system, while doing little to promote real research activity in the UK. The small profits rate – which will have changed seven times since 1997 – will continue to distort decisions over organisational form.

The key changes and how each measures up against the broad principles that underlie good corporate tax policy can be summarised as follows:

- Over the next four years, the statutory corporate rate will be reduced incrementally from 28% in 2010 to 24% in 2014, lower than rates currently in place in many EU countries. Broadening of the tax base will partially offset this reduction in firms' tax burden. This is in line with long-term trends of falling statutory tax rates and broadening tax bases in developed countries, and will help reduce some of the distortions inherent in levying a corporation tax on mobile capital.
- The small profits rate will be reduced from 21% to 20% in 2011. There is no compelling reason to either (i) tax profits differently according to whether they are earned by a low- or high-profit firm or (ii) tax the income earned in an unincorporated business differently from that earned in an incorporated business. The cut in the small profits rate will increase the incentive to be incorporated rather than unincorporated, thereby increasing the distortion with respect to organisational form. The large number of recent changes to the small profits rate creates uncertainty; if a change was to be made, an increase in the rate to bring it closer to the tax rate on labour income would have been better.
- Under a Patent Box to be introduced in 2013, the rate of corporation tax levied on the net income derived from patents will be reduced to 10%. This policy is poorly targeted at promoting research, and unnecessarily distorts the decision to invest in patentable technologies rather than in other forms of intellectual property. A substantial part of the cost of the Patent Box represents a subsidy to activity that would have occurred in the absence of the policy and which will accrue to a handful of large firms. The legislation required to operate and police the policy will add significant additional complexity to the tax system.
- Reforms to the CFC regime, which are required following the UK's move to an exemption system, are under way. It is too early to pass judgement on the treatment of intellectual property, where the government is trying to strike a balance between preventing tax-motivated income shifting and not distorting firms' genuine commercial decisions to locate intellectual property offshore.

# 11. Environmental policy

Andrew Leicester and Peter Levell (IFS)<sup>†</sup>

## Summary

- The government inherited targets to reduce emissions of greenhouse gases and increase the share of renewable energy. A number of initiatives have been proposed to help meet these objectives. Emissions fell markedly during the recession but it is not clear how much of the fall is permanent.
- The government is on track to meet its pledge to increase the share of green taxes in total receipts: green taxes are forecast to rise from 7.9% of receipts in 2009–10 to 8.3% in 2014–15. It is not certain that this is a good measure of a government's environmental credentials.
- Revenues from the Carbon Reduction Commitment will be kept by the Treasury rather than redistributed back to participating firms. This may be a more efficient way to raise revenue than increasing other taxes. Although the change may reduce incentives for firms to abate their emissions, this effect should be modest.
- Proposed reforms to the climate change levy would introduce an additional tax based on the carbon content of fuels. Taxing on the basis of carbon is desirable and may help improve certainty about the future carbon price. However, the proposal will add another layer of complexity to carbon pricing and, despite this change, the range of carbon prices for different users of different fuels is likely to widen rather than narrow in the years ahead.
- A new 'Green Deal' will offer households and businesses investment in energy efficiency measures at no up-front cost, paid for by higher energy bills over a number of years. It will better target energy-inefficient properties than the Warm Front scheme which it replaces, but will be of less benefit to poorer households.
- The government is likely to revisit the idea of a per-plane tax to replace air passenger duty, consulted on but rejected by the previous government. This would be desirable since the relevant externalities of aviation are not directly related to passenger numbers.
- There is continued debate about a 'fair fuel stabiliser' for fuel prices that would see duty rates cut when the pre-tax price rose and vice versa. This would help stabilise household finances, but official estimates suggest that it would make the public finances more uncertain. It would also be very difficult to implement in practice.

## 11.1 Introduction

The government inherited a number of environmental policies and targets from Labour, and it is clear that the environment will be a considerable area of future policy focus. The coalition agreement included a set of commitments on energy, climate change, the

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<sup>†</sup> The authors would like to thank Paul Johnson (IFS) for comments on earlier drafts of this chapter.

environment and transport.<sup>1</sup> This chapter considers the policy background facing the government and looks ahead to discuss a number of the more significant reforms that have been suggested or have begun to be implemented.

Economists have long advocated the need for a clear, consistent carbon price as one of the main weapons to reduce emissions, not least Lord Stern in his 2006 review.<sup>2</sup> In advance of the 2010 general election, IFS researchers<sup>3</sup> showed that policies aimed at reducing greenhouse gas (GHG) emissions in recent years have developed in many different directions, generating a range of complex abatement incentives for different sectors of the economy and a number of different carbon prices. This is perhaps somewhat inevitable given that policy operates at regional, national and supranational levels, the complicated nature of the underlying problem, the range of different targets in place (both national and international) and the number of different interest groups involved. However, the greater the complexity and the more noisy the different environmental signals given by different policies, the less likely it is that the desired outcomes will be reached at the lowest cost. A key challenge for the government will be to try to rationalise these policies into something more coherent.

Section 11.2 discusses progress towards environmental targets for greenhouse gas emissions and renewable energy. Section 11.3 looks at environmental fiscal policy, including overall green tax receipts and environmental spending, and asks whether the government is likely to meet its own commitment to increase the share of revenues accounted for by environmental taxes. Section 11.4 then considers a number of policies that have been implemented by the government, or that were suggested as part of the coalition agreement or the individual party manifestos. These are divided into two main areas: energy policy (reforms to the Carbon Reduction Commitment (CRC), the climate change levy (CCL), the electricity market and the introduction of the 'Green Deal') and transport policy (reforms to aviation taxes and a possible 'fair fuel stabiliser'). Section 11.5 assesses what may happen to implicit carbon tax rates applied to different fuels and consumers based on policy reforms announced so far. Section 11.6 concludes.

## 11.2 Environmental targets

### Emissions

The coalition government inherited two main emissions targets:

- a target under the Kyoto Protocol to reduce GHG emissions by 12.5% compared with 1990 levels over the period 2008–2012;
- a series of rolling 'carbon budgets' that are enshrined in law and set by the independent Committee on Climate Change (CCC), designed to take the UK to a long-term objective of an 80% emissions reduction in 2050 compared with 1990 levels.

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<sup>1</sup> See HM Government, *The Coalition: Our Programme for Government*, 2010 ([http://www.direct.gov.uk/prod\\_consum\\_dg/groups/dg\\_digitalassets/@dg/@en/documents/digitalasset/dg\\_187876.pdf](http://www.direct.gov.uk/prod_consum_dg/groups/dg_digitalassets/@dg/@en/documents/digitalasset/dg_187876.pdf)).

<sup>2</sup> See Stern Review on the Economics of Climate Change ([http://www.hm-treasury.gov.uk/sternreview\\_index.htm](http://www.hm-treasury.gov.uk/sternreview_index.htm)).

<sup>3</sup> P. Johnson, A. Leicester and P. Levell, *Environmental Policy since 1997*, IFS 2010 Election Briefing Note 7 (IFS Briefing Note 94), 2010 (<http://www.ifs.org.uk/bns/bn94.pdf>).

The first three carbon budgets commit to GHG reductions of 22% in 2008–12, 28% in 2013–17 and 34% in 2018–22 relative to 1990 levels.<sup>4</sup>

Analysis by IFS researchers ahead of the 2010 general election showed that the UK was ahead of its Kyoto target for 2008–12 and broadly on track to meet its 2018–22 carbon budget target.<sup>5</sup> This analysis was based on emissions data up to 2008. First estimates of emissions for 2009, the first full year following the financial crisis, have recently been published by the Department of Energy and Climate Change (DECC) and show a marked fall in emissions.<sup>6</sup> Total GHG emissions fell by 8.6% from 628.3 million tonnes of CO<sub>2</sub> equivalent (mtCO<sub>2</sub>e) to 574.6mtCO<sub>2</sub>e. CO<sub>2</sub> emissions alone fell even more sharply, down by 9.7% from 532.8 million tonnes to 480.9 million tonnes. The recession therefore had a substantial impact, particularly on emissions generated by power stations (which fell 13% between 2008 and 2009), business emissions (down 15%) and emissions from industry (down 19%). However, the fall in emissions also meant that UK organisations participating in the EU Emissions Trading Scheme (ETS) held surplus emissions permits, such that in 2009 the UK became, for the first time, a net seller of ETS permits rather than a net buyer. In 2009, the UK sold a net 13.7 million tonnes of CO<sub>2</sub> permits compared with purchasing a net 19.9 million tonnes in 2008. For purposes of emissions targets, this net sale of permits is treated as if UK emissions were 13.7 million tonnes higher (since they allow emissions elsewhere to rise). This offsets the decline somewhat: including net ETS sales, emissions fell by 3.3% between 2008 and 2009. Despite this, one side effect of the recession seems to be that emissions targets look more easily achievable: UK emissions in 2009 were around 14% below their Kyoto target level, and 4% below the trend levels consistent with meeting the medium-term carbon budget for 2018–22. Of course, neither the previous nor current government would have wished to meet emissions targets only as a result of a deep recession. And emissions could rebound as the economy recovers, though at least some of the fall is likely to be sustained to the extent that the impact of the recession on economic output is permanent rather than temporary (see Chapter 1) and that the fall reflects a longer-term downward trend in emissions.

The CCC also considered the impact of the recession on future carbon budgets. In December 2010, it published its advice for the fourth carbon budget period covering 2023–27.<sup>7</sup> The CCC suggested a target to reduce emissions in 2025 to 50% below 1990 levels and to 60% below by 2030, with the reductions coming entirely from domestic action (i.e. excluding net purchases of emissions trading permits). Partly as a result of lower emissions following the recession, it also suggested tightening the second and third budgets; in particular, that the 2018–22 target be tightened to an emissions reduction of 37% below 1990 levels compared with the initial 34%, with the additional reductions required of emissions not currently part of the EU ETS (the ‘non-traded’ sector). The government will decide in Spring 2011 whether to accept these recommendations and will propose legislation for future carbon budgets.

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<sup>4</sup> See <http://www.theccc.org.uk/carbon-budgets>. Note that the carbon budget target is based on a slightly different definition of GHG emissions than the Kyoto target (in particular, carbon budgets exclude emissions from UK Overseas Territories, which are included in the Kyoto totals) but in practice they are similar.

<sup>5</sup> P. Johnson, A. Leicester and P. Levell, *Environmental Policy since 1997*, IFS 2010 Election Briefing Note 7 (IFS Briefing Note 94), 2010 (<http://www.ifs.org.uk/bns/bn94.pdf>).

<sup>6</sup> Figures available from [http://www.decc.gov.uk/media/viewfile.ashx?filepath=statistics/climate\\_change/1\\_20100325084230\\_e\\_@@\\_2009provisionaldataables.xls&filetype=4&minwidth=true](http://www.decc.gov.uk/media/viewfile.ashx?filepath=statistics/climate_change/1_20100325084230_e_@@_2009provisionaldataables.xls&filetype=4&minwidth=true).

<sup>7</sup> See Committee on Climate Change, *The Fourth Carbon Budget: Reducing Emissions through the 2020s*, 2010 (<http://www.theccc.org.uk/reports/fourth-carbon-budget>).

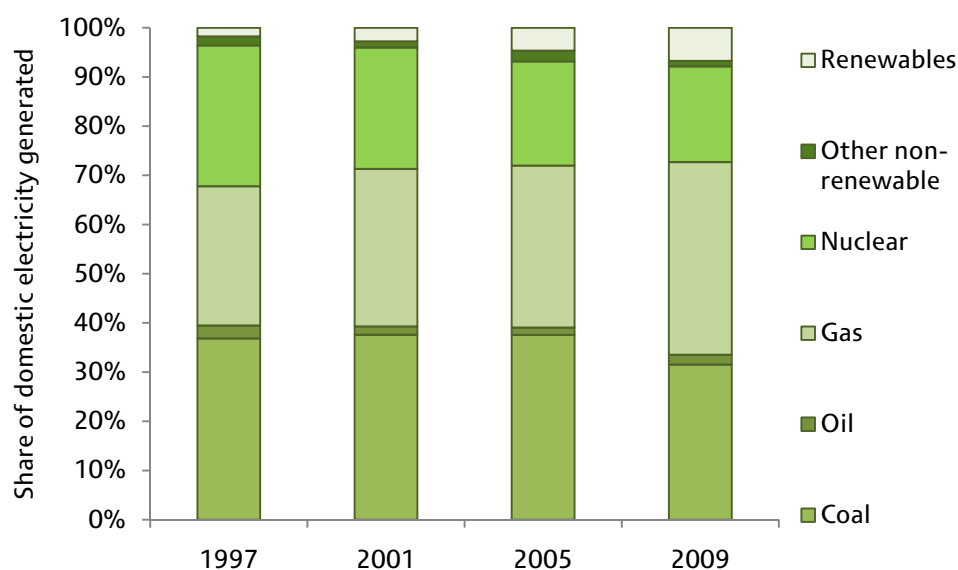
## Renewable energy

The government has also inherited European-level targets on renewable energy. Under the European Renewable Energy Directive 2009, member states were given legally-binding targets to increase the proportion of total energy (including transport fuels) supplied from renewable sources by 2020. The UK's target is 15%.<sup>8</sup> To deliver this, the previous government set itself a goal under the 2009 Renewable Energy Strategy to generate 30% of electricity from renewables by 2020 amongst other measures.<sup>9</sup>

As part of the coalition agreement, the government suggested it would seek to set the renewables target above 15%, and the Secretary of State at DECC, Chris Huhne, asked the CCC to consider the case for a change. In September 2010, the CCC suggested that the overall target should remain unchanged and that the 30% target for renewable electricity generation was also appropriate.<sup>10</sup> Thus it seems likely that the medium-term renewables targets will remain the same as those inherited from Labour.

Although the share of electricity generated from renewables has increased, there is still some way to go to meet the 30% objective (see Figure 11.1). In 1997, just 1.8% of domestic electricity was generated from renewable sources, increasing to 6.7% in 2009. Over the same period, there was a large decline in the share generated by nuclear, from 29% to 20%, and a smaller decline in the share generated by coal, from 37% to 32%. The share generated by gas rose markedly from 28% to 39%.

Figure 11.1. Share of domestic electricity generation by fuel source



Source: Calculated from table 5.4 of *Digest of UK Energy Statistics* ([http://www.decc.gov.uk/media/viewfile.ashx?filepath=statistics/source/electricity/dukes5\\_4.xls&filetype=4&minwidth=true](http://www.decc.gov.uk/media/viewfile.ashx?filepath=statistics/source/electricity/dukes5_4.xls&filetype=4&minwidth=true)).

<sup>8</sup> See [http://ec.europa.eu/energy/renewables/index\\_en.htm](http://ec.europa.eu/energy/renewables/index_en.htm).

<sup>9</sup> See [http://www.decc.gov.uk/en/content/cms/what\\_we\\_do/uk\\_supply/energy\\_mix/renewable/res/res.aspx](http://www.decc.gov.uk/en/content/cms/what_we_do/uk_supply/energy_mix/renewable/res/res.aspx).

<sup>10</sup> See <http://www.theccc.org.uk/news/latest-news/747-committee-advises-government-to-focus-on-meeting-current-2020-renewable-energy-target-rather-than-raising-it-10-september-2010>.

The government's Renewable Energy Action Plan contained some details of measures inherited from Labour and planned future measures that would help the UK meet its renewables target.<sup>11</sup> New measures, not discussed in depth in this chapter, include a new Renewable Heat Incentive, announced as part of the October 2010 Spending Review but planned by the previous government. It will provide a total of around £860 million of support to the domestic and non-domestic sectors over the period from June 2011 to March 2015 for installation of renewable heat measures such as solar panels and biomass boilers.<sup>12</sup> The Spending Review also announced plans for a 'Green Investment Bank' (pledged in the coalition agreement), capitalised with an initial £1 billion of resources from public expenditure in 2013–14, to help support private investment in environmental technologies including renewable generation. Details of precisely how this will operate are as yet unclear.

## 11.3 Fiscal policy and the environment

### Environmental taxes

The coalition agreement contained a pledge to 'increase the proportion of tax revenue accounted for by environmental taxes'. This commitment resembles a 'statement of intent' made by Labour shortly after coming to power in 1997 to 'explore the scope for using the tax system to deliver environmental objectives' and to 'shift the burden of tax from "goods" to "bads"'. Interestingly, this statement remains live on the Treasury website, suggesting the principle is adhered to by the current government.<sup>13</sup> Despite this statement, the share of receipts from environmental taxes fell under Labour from 9.5% in 1997 to 7.9% in 2009 (and as low as 7.1% in 2008). This fall was not unique to the UK: amongst OECD countries, the (weighted) average share of receipts from green taxes fell from 5.8% to 5.2% between 1997 and 2007.<sup>14</sup>

An obvious question to ask is whether having a target to raise a minimum proportion of revenues from green taxes is desirable. In general, the answer is 'no': ideally, revenues should be raised as efficiently as possible, whether or not this means a greater reliance on environmental taxes (see Chapter 9). To the extent that environmental damage from carbon or congestion, say, is underpriced in the current tax system, there may well be scope to raise green taxes, but this would not suggest doing so in an indiscriminate manner just to meet an arbitrary revenue target. Optimal policy may well imply environmental tax rates that are different from those that would maximise revenues. Nor is it clear that the green tax share of receipts is a good signal of a government's environmental credentials, for the following reasons:

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<sup>11</sup> See <http://www.decc.gov.uk/assets/decc/what%20we%20do/uk%20energy%20supply/energy%20mix/renewable%20energy/ored/25-nat-ren-energy-action-plan.pdf>.

<sup>12</sup> See [http://www.decc.gov.uk/en/content/cms/what\\_we\\_do/uk\\_supply/energy\\_mix/renewable/policy/renewable\\_hat/incentive/incentive.aspx](http://www.decc.gov.uk/en/content/cms/what_we_do/uk_supply/energy_mix/renewable/policy/renewable_hat/incentive/incentive.aspx).

<sup>13</sup> [http://www.hm-treasury.gov.uk/tax\\_environment\\_statement\\_of\\_intent.htm](http://www.hm-treasury.gov.uk/tax_environment_statement_of_intent.htm).

<sup>14</sup> See <http://www2.oecd.org/ecoinst/queries/index.htm> for figures for all OECD countries. Note that the OECD uses a slightly different definition of environmental receipts from that used by the UK Office for National Statistics (ONS). On the OECD measure, UK receipts from green taxes fell from 8.5% to 6.8% of the total between 1997 and 2007.

- Environmental incentives in the tax system can be sharpened without raising revenues – tailoring vehicle excise duty payments to vehicle emissions, for example, or reforming the taxation of air travel to a per-plane rather than per-passenger basis.
- If green taxes do change behaviour and reduce the extent to which the taxed activity (emitting GHGs, burning vehicle fuel, and so on) is carried out, this reduces the size of the green tax base, and could, in some cases, lead to a fall in total receipts.
- The green tax share of receipts is sensitive to the size of non-environmental revenues: between 2008 and 2009, the share rose markedly because of a drop in other receipts, not because the tax system became suddenly more ‘environmental’.
- Governments may make use of non-tax instruments – for instance, direct regulation – to achieve environmental goals.

Thus it is important to consider a government’s environmental policy in a wider context than its use of green taxes and the proportion of revenue they account for. However, as the government has made this pledge, it is worth assessing whether it is likely to meet it. To answer this, we need first to define the set of environmental taxes. The ONS’s *Environmental Accounts* includes a particular set of taxes based on international agreements on the definition of environmental taxes, but it is not clear whether the policy will be judged against the same set of taxes – the current classification is subject to an ongoing review.<sup>15</sup> We choose to define environmental taxes as those in the ONS definition and also include a set of ‘environmental levies’ as defined in the latest Office for Budget Responsibility (OBR) forecasts for tax receipts. This includes the Renewables Obligation (RO), the Carbon Reduction Commitment (see Section 11.4), feed-in tariffs under the Clean Energy Cash Back Scheme,<sup>16</sup> and social tariffs for energy supply. We also include forecast receipts from the auctioning of EU ETS permits. To assess the government’s likelihood of meeting its objective, we need to define the target share for green tax receipts. A reasonable interpretation of the coalition agreement’s pledge is that the share in 2014–15 (the end of the current parliament if it runs for a full term) should be at least as high as it was in 2009–10 (the last full year of the previous parliament). On this basis, the pledge looks likely to be met, based on the most recent OBR forecasts for receipts. In 2009–10, total receipts were £513.8 billion, of which green taxes made up £40.7 billion or 7.9%. In 2014–15, total receipts are forecast to be £698.0 billion, of which green taxes are £57.9 billion or 8.3%. This would allow the government to meet its objective with around £2.6 billion to spare. Looking at green tax receipts as a share of national income rather than total receipts, the forecast is an increase from 2.9% in 2009–10 to 3.2% in 2014–15.

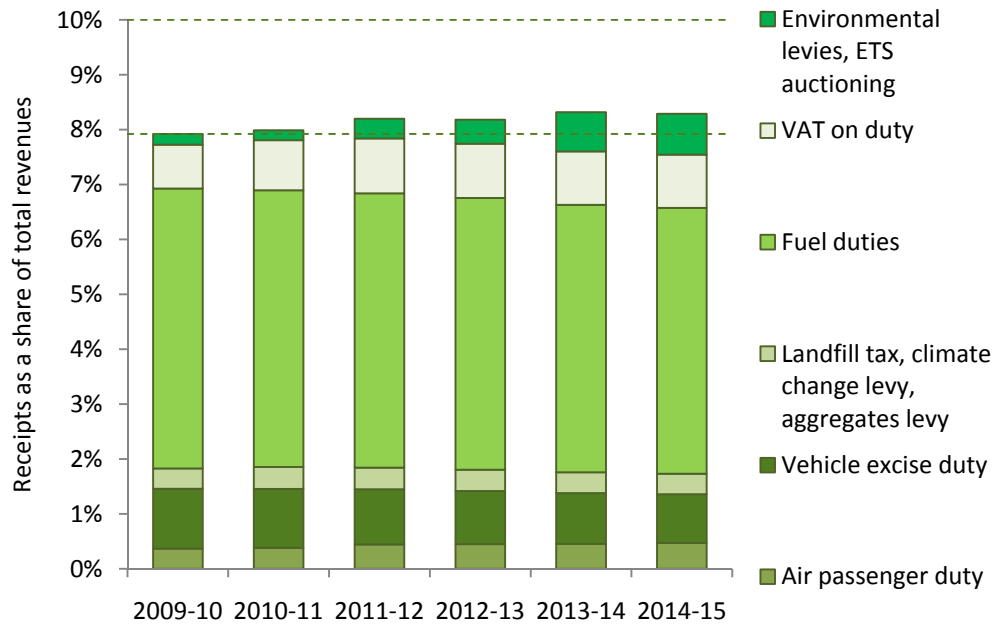
Figure 11.2 shows a breakdown of green tax receipts as a share of total receipts between 2009–10 and 2014–15. There is little change in the level or composition of receipts forecast over the current parliament. Indeed, it is clear that the share of green taxes rises only because of the new ‘environmental levies’ and emissions trading revenues – measures introduced by the previous government – that will start to come on stream in the near future. Together, revenues from these sources will rise from around £1.0 billion (0.2% of receipts) in 2009–10 to £5.2 billion (0.7%) in 2014–15. This increase offsets a forecast decline in the share of revenues from duties on fuel, by far the most important green taxes, and from vehicle excise duty.

<sup>15</sup> See <http://www.statistics.gov.uk/pdffdir/ea0610.pdf> for the latest figures.

<sup>16</sup> Not to be confused with proposals for a general system of feed-in tariffs (see Section 11.4).



Figure 11.2. Green tax receipts as a share of total revenues



Notes: Figures for 2009–10 are out-turns; those for other years are forecasts. VAT on duty calculated by assuming fuel duty receipts spread evenly within calendar years and applying appropriate VAT rates. Lower dashed line shows target level for 2014–15 to match 2009–10 out-turn. Upper dashed line shows target of 10% for 2014–15 as voted on at the Liberal Democrat 2010 conference.

Sources: Office for Budget Responsibility (<http://budgetresponsibility.independent.gov.uk/econ-fiscal-outlook.html>); authors' calculations.

It may be, of course, that some in the government would regard an increase in the green tax share from 7.9% to 8.3% as something of a disappointment. For example, the Liberal Democrats' 2010 party conference passed a motion calling for the share of receipts to reach 10%.<sup>17</sup> Raising the share of green tax receipts to 10% by 2014–15 (assuming that all additional green tax receipts are offset by cuts in other taxes, leaving total revenues unchanged) would require green tax revenues in 2014–15 to rise by £11.9 billion in cash terms, or by just over one-fifth above the £57.9 billion forecast receipts that year.

How could the government increase the share of green tax receipts to 10%? It would appear almost impossible to do so with the current green tax system. As fuel duty and associated VAT account for around three-quarters of all green tax receipts, raising significantly more revenue would, in practice, require higher fuel taxes. The government estimates that increasing fuel duties by 1% raises around £295 million,<sup>18</sup> so even a 10% increase in fuel duties would still leave a significant gap. The Liberal Democrats put forward plans in its manifesto to reform air passenger duty into a per-flight tax and introduce a supplementary tax on short domestic flights, expecting them to raise an additional £3.3 billion per year.<sup>19</sup> Even if introduced together with large fuel tax

<sup>17</sup> See <http://www.libdems.org.uk/siteFiles/resources/PDF/Conference%202010/CD%20mon.pdf>.

<sup>18</sup> Source: HMRC, *Tax Expenditures and Ready Reckoners*, December 2010 update ([http://www.hmrc.gov.uk/stats/tax\\_expenditures/table1-6.pdf](http://www.hmrc.gov.uk/stats/tax_expenditures/table1-6.pdf)). Revenue estimate based on 1% increase in duties on diesel, petrol and rebated oils.

<sup>19</sup> See *Liberal Democrat Manifesto 2010* ([http://network.libdems.org.uk/manifesto2010/libdem\\_manifesto\\_2010.pdf](http://network.libdems.org.uk/manifesto2010/libdem_manifesto_2010.pdf)). We discuss reforms to aviation taxation in Section 11.4.

increases, however, green tax receipts would still be some way short of 10% of total revenues.

It therefore seems likely that a more ambitious target could be hit only by introducing new green taxes, the likeliest being new taxes on road congestion and carbon emissions.

Motoring taxes at present are based on fuel consumption (fuel duties) and the type of vehicle chosen (vehicle excise duty, VED). In the long term, increases in these taxes, along with tighter regulation and changing vehicle manufacturing technology, are likely to see consumers choosing more fuel-efficient vehicles, which limits the potential growth in revenues from these taxes. Ultimately, there may be widespread adoption of electric vehicles, which, under the current system, would see receipts from fuel taxes and VED fall substantially. This, of course, would be desirable in the context of climate change policy. However, current rates of fuel duty can really only be justified in the light of the congestion costs of motoring, and these costs would remain even were all vehicles electric. This illustrates the fact that fuel taxes are particularly poor at targeting congestion costs. Thus there is a strong case for pricing congestion separately from the other environmental costs associated with motoring.<sup>20</sup> The coalition agreement included plans to 'work towards the introduction of a new system of HGV road user charging', though the previous government had also considered and abandoned plans for road pricing for lorries; there is no sign of any intention to introduce road pricing for private vehicles.

Additional taxes on carbon may therefore be the most likely source of substantial new green tax revenues. Analysis of the revenue potential of a broad-based carbon tax from last year's IFS Green Budget<sup>21</sup> suggests that full auctioning of all permits in the EU ETS with a simultaneous carbon tax applied on non-ETS emissions at the same price could raise £13.4 billion, before behavioural responses. This analysis was based on emissions as they were in 2007 and estimates of the likely carbon price in the traded sector at the time of the 2010 Green Budget. A new analysis of these figures suggests the yield of such a tax could be substantially lower than previously estimated for two (related) reasons:

1. The recession was partly responsible for a fall in GHG emissions from 636.2mtCO<sub>2</sub>e in 2007 to 627.6mtCO<sub>2</sub>e in 2008.<sup>22</sup>
2. The scale of the recession has seen emissions fall across Europe, meaning the caps placed on EU-wide emissions under the ETS now appear much less stringent than before. This, coupled with some methodological changes, has led to a fall in DECC's assessment of the likely price of permits going forward. Permits sold in 2010 would fetch on average £14.10 per tonne of CO<sub>2</sub> according to the most recent estimates,<sup>23</sup>

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<sup>20</sup> See section 5.6 of D. Fullerton, A. Leicester and S. Smith, 'Environmental taxes', in J. Mirrlees, S. Adam, T. Besley, R. Blundell, S. Bond, R. Chote, M. Gammie, P. Johnson, G. Myles and J. Poterba (eds), *Dimensions of Tax Design: The Mirrlees Review*, Oxford University Press for IFS, 2010 (<http://www.ifs.org.uk/mirrleesreview/dimensions/ch5.pdf>).

<sup>21</sup> See M. Brewer, J. Browne, A. Leicester and H. Miller, 'Options for fiscal tightening: tax increases and benefit cuts', in R. Chote, C. Emmerson and J. Shaw (eds), *The IFS Green Budget: February 2010*, IFS Commentary 112, 2010 (<http://www.ifs.org.uk/budgets/gb2010/10chap7.pdf>).

<sup>22</sup> Note that this is the estimate of emissions from the UK and Crown Dependencies. This is slightly different from the 628.3mtCO<sub>2</sub>e emissions figure for 2008 quoted in Section 11.2, which is based on the Kyoto Protocol emissions definition which also includes UK Overseas Territories.

<sup>23</sup> See [http://www.decc.gov.uk/assets/decc/what%20we%20do/a%20low%20carbon%20uk/carbon%20valuation/1\\_20100610131858\\_e\\_@\\_@\\_carbonvalues.pdf](http://www.decc.gov.uk/assets/decc/what%20we%20do/a%20low%20carbon%20uk/carbon%20valuation/1_20100610131858_e_@_@_carbonvalues.pdf).

lower than the £22 per tonne according to previous estimates (and the 2008 figure of £21 per tonne on which our previous assessment of the likely tax yield was based).<sup>24</sup>

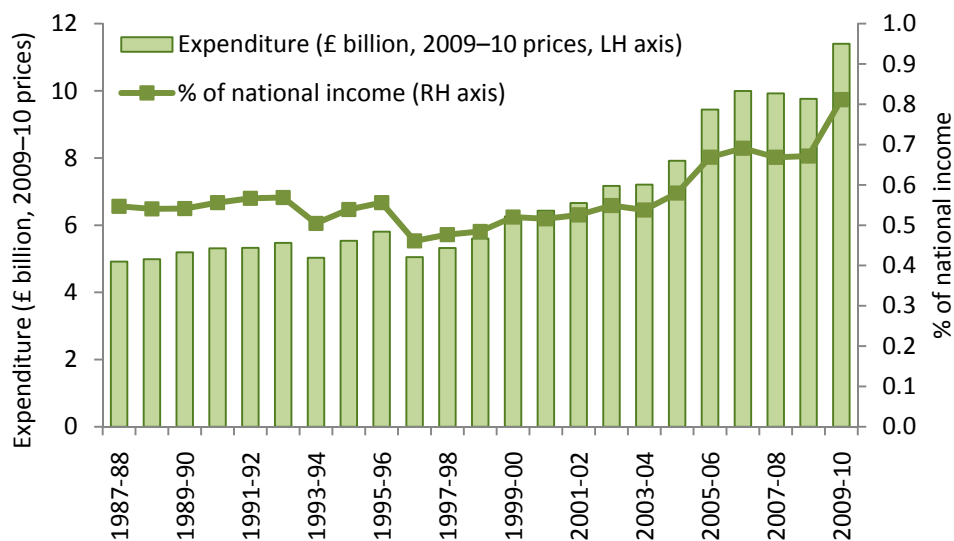
Taken together, our revised estimate is that a broad-based carbon tax introduced now at £14.10 per tonne (assuming that emissions as part of the ETS were covered by auctioned permits sold at this value) would raise £8.8 billion a year, falling to £6.5 billion a year once offsetting cuts were made to fuel duty (which would no longer play a de facto carbon tax role) and the CCL abolished (since emissions in energy use would be priced). These estimates are based on detailed emissions patterns in 2008, but as we noted in Section 11.3, total emissions also fell markedly in 2009. Applying a tax rate of £14.10 per tonne to estimated total 2009 emissions gives revenues of £8.1 billion, though as yet it is not possible to determine what receipts would be once particular sectors were exempted.

## Environmental expenditures

Having explored environmental taxes, it seems natural to consider the other side of the fiscal balance sheet and look at spending on the environment. In particular, how did the environment fare in the October 2010 Spending Review in the face of sharp reductions in planned real expenditures on public services?

This is a difficult question to answer since it is not clear how to measure public spending on the environment. We can look at past spending by function based on the UN Classification of the Functions of Government (COFOG) groups, one of which is 'environmental protection'.<sup>25</sup> This includes spending on waste management (street cleaning, refuse collection, landfill costs and so on), waste water management (including

Figure 11.3. Environmental protection expenditure



Note: Figures for 2009–10 are estimates.

Source: Tables 4.2 and 4.4 of HM Treasury, *Public Expenditure Statistical Analyses 2010* ([http://www.hm-treasury.gov.uk/pespub\\_pesa10.htm](http://www.hm-treasury.gov.uk/pespub_pesa10.htm)). Nominal expenditure figures are converted to 2009–10 prices using GDP deflators from HM Treasury ([http://www.hm-treasury.gov.uk/data\\_gdp\\_fig.htm](http://www.hm-treasury.gov.uk/data_gdp_fig.htm)).

<sup>24</sup> See Department of Energy and Climate Change, *Carbon Valuation in UK Policy Appraisal: A Revised Approach*, 2009

([http://www.decc.gov.uk/assets/decc/what%20we%20do/a%20low%20carbon%20uk/carbon%20valuation/1\\_20090715105804\\_e\\_@@\\_carbonvaluationinukpolicyappraisal.pdf](http://www.decc.gov.uk/assets/decc/what%20we%20do/a%20low%20carbon%20uk/carbon%20valuation/1_20090715105804_e_@@_carbonvaluationinukpolicyappraisal.pdf)).

<sup>25</sup> See [http://www.hm-treasury.gov.uk/d/cofog\\_definitions\\_coins250609.xls](http://www.hm-treasury.gov.uk/d/cofog_definitions_coins250609.xls).

sewer systems and water treatment), pollution abatement, biodiversity protection and R&D expenditures related to the environment. Using this measure, Figure 11.3 shows expenditures on environmental protection both in real terms (2009–10 prices) and as a share of national income since 1987–88. In the 1980s and 1990s, environmental protection spending was typically stable at around 0.5–0.6% of national income, but it began to rise in the 2000s to reach more than 0.8% in 2009–10.

Over the period shown, real expenditures more than doubled, from £4.9 billion to £11.4 billion. As a share of total public spending, spending on environmental protection rose from 1.3% to 1.7%. The increase in real spending in recent years has been driven mostly by capital expenditure. In 2004–05, real current environmental protection spending was £6.9 billion and capital spending £1.0 billion. By 2009–10, these figures were £8.4 billion and £3.0 billion respectively. Capital spending on environmental protection rose from around one pound in eight of the total to one pound in four.

It is hard to estimate how environmental protection spending is likely to change in the years ahead, since the Spending Review does not set out future planned expenditure by function. However, environmental protection expenditure is dominated by two departments. In 2008–09, around two-thirds of the total spent on environmental protection (£6.0 billion out of £9.3 billion) came from the Department for Environment, Food and Rural Affairs (DEFRA) – this represented some 57% of total DEFRA expenditures that year. Just under a fifth of environmental protection spending (£1.5 billion) came from DECC, amounting to 59% of total DECC expenditures. The rest of environment spending came largely from the devolved administrations (in total contributing 17% of environmental protection expenditure, but in all cases accounting for 3% or less of the total departmental budget) and the Department for Business, Innovation and Skills (BIS), which contributed 4% of environmental protection spending (£0.4 billion) which made up only 2% of the departmental total budget.<sup>26</sup>

Thus, future environmental protection spending is likely to be highly correlated with future spending by DEFRA and DECC. Table 11.1 summarises the settlements for these departments, as set out in the 2010 Spending Review and taking into account the most recent forecasts for inflation from the OBR, compared with the average across all departments. The most striking point is the large real increase of almost 44% in DECC's capital budget, compared with a 40% decline in the DEFRA capital budget and an average 30% real reduction in capital spending across departments. By 2014–15, capital

**Table 11.1. Real cumulative change in departmental budgets, 2010–11 to 2014–15**

Department	Current budget	Capital budget	Total
DECC	–24.6%	+43.7%	+15.5%
DEFRA	–27.6%	–39.7%	–31.3%
Total DECC and DEFRA	–26.6%	+22.0%	–7.0%
Average across total DELs	–8.1%	–29.5%	–11.7%

Source: Authors' calculations from HM Treasury, *Spending Review 2010*, Cm 7942, 2010 ([http://cdn.hm-treasury.gov.uk/sr2010\\_completereport.pdf](http://cdn.hm-treasury.gov.uk/sr2010_completereport.pdf)) and inflation forecasts from the OBR November update. Current budget includes depreciation. Capital budget is gross.

<sup>26</sup> Calculated from table 5.1 of HM Treasury, *Public Expenditure Statistical Analyses 2010* ([http://www.hm-treasury.gov.uk/d/pesa\\_2010\\_tables\\_chapter5.xls](http://www.hm-treasury.gov.uk/d/pesa_2010_tables_chapter5.xls)).

expenditure is planned to account for more than 70% of DECC's total departmental spending compared with less than 60% in 2010–11. Both departments face much-larger-than-average real cuts to current expenditures (which in large part arise from the decision to protect the NHS and schools budgets from deep real cuts in spending). However, the sharp increase in DECC capital expenditure means that there will be an increase in the two departments' combined capital budgets of 22%.

The large increase in DECC's capital budget appears to be driven mainly by investment of up to £1 billion in carbon capture and storage (CCS) demonstration plants, which featured as part of the coalition agreement. The idea behind CCS is to remove carbon emissions at source from fossil-fuel-fired power stations and to store the carbon for the long term so that it does not enter the atmosphere. The Spending Review document (paragraph 2.101) noted the possibility that further CCS investment could be funded through a levy on electricity supplies, though no decision has yet been made on this.

## 11.4 Environmental policy reforms: enacted, planned and potential

### Energy policy

During the previous government's period of office, a number of policies were enacted with the intention of reducing the emissions associated with energy use.<sup>27</sup> By and large, these policies focused on business and industrial energy generation and consumption rather than domestic energy use: for example, the CCL, the EU ETS, the RO and the CRC. Policy on domestic energy focused largely on encouraging energy efficiency improvements, either through direct subsidies (such as the Warm Front scheme) or through regulations on energy suppliers (such as the Carbon Emissions Reduction Target). Indeed, the most striking policy change affecting domestic energy prices directly during Labour's tenure was to reduce the VAT rate on domestic energy from 8% to 5%. This means that domestic fuel prices are now in effect subsidised by almost 15% through reduced VAT<sup>28</sup> and vastly offsets increases in domestic energy bills that are estimated to result from the various policies imposed on the non-domestic sector (for example, through energy suppliers passing on the costs of the ETS and RO to final bills).<sup>29</sup> Recent DECC estimates suggest that energy and climate change policies in 2010 increased combined household gas and electricity energy bills on average by around £42 per year, or 4% of the bill without the policies. The average bill was estimated at £1,103; had VAT been charged at 20% instead of 5%, the bill would have been £1,261, suggesting the implicit VAT subsidy on domestic energy bills is about £158 per household per year.

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<sup>27</sup> For a summary, see section 3 of P. Johnson, A. Leicester and P. Levell, *Environmental Policy since 1997*, IFS 2010 Election Briefing Note 7 (IFS Briefing Note 94), 2010 (<http://www.ifs.org.uk/bns/bn94.pdf>).

<sup>28</sup> For a discussion of why the extensive use of reduced- and zero-rating in VAT is undesirable and why distributional objectives may be better met through changes to income taxes, see chapters 7 to 9 of J. Mirrlees, S. Adam, T. Besley, R. Blundell, S. Bond, R. Chote, M. Gammie, P. Johnson, G. Myles and J. Poterba, *Tax by Design: The Mirrlees Review*, Oxford University Press for IFS, 2011 (<http://www.ifs.org.uk/mirrleesReview/design>). Chapter 9 of this Green Budget contains a summary.

<sup>29</sup> Some of the incidence of business energy tax and regulation policies may also be felt by consumers in the form of higher prices for other, non-energy goods and services. For figures that follow, see Department of Energy and Climate Change, *Estimated Impacts of Energy and Climate Change Policies on Energy Prices and Bills*, 2010 ([http://www.decc.gov.uk/en/content/cms/what\\_we\\_do/uk\\_supply/markets/impacts/impacts.aspx](http://www.decc.gov.uk/en/content/cms/what_we_do/uk_supply/markets/impacts/impacts.aspx)).

So far, the current government appears likely to continue the trend of focusing direct price policies on the non-domestic sector while encouraging energy efficiency improvements in the domestic sector. In this subsection, we discuss three main energy reforms that have been announced by the government:

- a change to the way revenues are distributed in the CRC, which was announced in the Spending Review;
- reforms to the supply of electricity, including a possible carbon tax on generation;
- the 'Green Deal' for domestic energy, which will enable energy efficiency measures to be installed at no up-front cost.

Common to each is the issue of how they interact with the EU ETS. If the reforms reduce the overall demand for energy, then power suppliers will be able to reduce their demand for emissions permits in the ETS. However, in the short term, this will simply allow other ETS participants to raise their emissions, since the overall emissions cap is set at a supranational level. Since emissions have the same impact regardless of where they are generated, domestic energy policy can only have an impact in a global sense if, in the long run (i.e. in future phases of the ETS), the emissions cap is reduced to take account of the reduction in UK emissions.

### *Reform of the Carbon Reduction Commitment*

The CRC is a carbon trading scheme which was announced by the previous government and began in April 2010.<sup>30</sup> It covers both private firms and public sector organisations (including hospitals and local authorities) that are relatively large consumers of energy but are not covered by the EU ETS.<sup>31</sup> Organisations covered by the CRC are required to report on their carbon emissions each year (imputed by their use of different fuels and energy consumption) and to buy enough permits to cover their total emissions. Initially, these permits will be sold at a fixed price (£12 per tonne of CO<sub>2</sub> for 2011–12), although it is expected the permits will be sold through an auction from 2014–15. Participants will buy these permits at the beginning of each year on the basis of their expected emissions, and then trade in a secondary market to ensure they have enough to cover their actual emissions at the end of the year. A league table that ranks each organisation's overall performance on various dimensions will also be published.

The 2010 Spending Review announced two major changes to the CRC:

- First, the sale of allowances for the first year (2011–12) is to be delayed to April 2012 rather than being held in April 2011 as originally envisaged. This means that firms will be able to purchase allowances for their actual emissions rather than for their expected emissions in 2011–12, and that there will be no need for trading in the secondary market in that year.
- Second, revenues from the sale of carbon allowances are to be kept by the government as part of general revenues rather than, as previously planned,

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<sup>30</sup> Further details of the CRC are available at <http://www.environment-agency.gov.uk/business/topics/pollution/98263.aspx>.

<sup>31</sup> Only certain sectors are covered by the ETS (see the UK's National Allocation Plan, [http://www.decc.gov.uk/assets/decc/what%20we%20do/global%20climate%20change%20and%20energy/taclling%20climate%20change/emissions%20trading/eu\\_ets/euets\\_phase\\_2/phase\\_2\\_nap/nap-phase2.pdf](http://www.decc.gov.uk/assets/decc/what%20we%20do/global%20climate%20change%20and%20energy/taclling%20climate%20change/emissions%20trading/eu_ets/euets_phase_2/phase_2_nap/nap-phase2.pdf)).



redistributed to firms taking part. This is expected to raise around £1 billion or so per year by 2014–15.<sup>32</sup>

Perhaps unsurprisingly, there was criticism of the latter change from business groups and other bodies representing those affected. The CBI argued that the change ‘effectively [turns the CRC] into a new green tax’ and ‘reduces the incentives for good behaviour’.<sup>33</sup> The Local Government Association also criticised the move, but suggested that ‘the changes would give a greater incentive to reduce energy consumption’.<sup>34</sup>

What can we say about the impact of the decision not to recycle revenues to participants? First, some of the revenues would have gone to public sector organisations covered by the scheme. Part of the change is therefore just a redistribution of revenues across branches of government, including from local to central government. Estimates from the CCC show that around 21% of the emissions covered by the scheme come from the public sector.<sup>35</sup> Local authorities may want to try to compensate for the lost revenue by raising additional income from council tax or local charges, but the effect of the change to the CRC is small compared with the size of the overall cuts in local government funding as part of the Spending Review (see Chapter 6).

Second, what about the impact on private firms covered by the scheme? Most obviously, these firms will now shoulder a greater share of the total costs of reducing emissions than before. However, a key point to make is that the CRC was *always* effectively a ‘new green tax’ that put an additional price on carbon. Whether or not revenues are redistributed, the CRC raises firms’ energy costs at the margin. The impact of the change on firms’ incentives to use energy depends on how it affects these marginal costs. Since the planned redistribution of revenues would have been based only partially on reductions in a firm’s energy consumption, the effect of not having this redistribution on firms’ marginal costs of energy is probably small.<sup>36</sup> Indeed, for this reason, the decision not to redistribute the revenues could be an efficient (in the sense of having little additional distorting effect on behaviour) way of reducing the deficit compared with raising other taxes.<sup>37</sup>

As the quotations above show, there is some confusion over whether the end of revenue recycling increases or diminishes firms’ incentives to reduce energy use. What can we say about this? Originally, the amount a firm could expect to receive back would have depended on its baseline emissions, adjusted by a bonus or penalty factor determined by its ranking in a league table of all CRC participants. This league table will still be published and will be based on three factors:

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<sup>32</sup> This change probably will not affect the government’s objective to raise the share of receipts accounted for by green taxes (see Section 11.3) since the revenues would likely have counted as green tax receipts in any case. However, with revenue recycling, the revenues would have been simultaneously scored in government expenditures, whereas this is no longer the case. Unless the government chooses to spend the additional revenue elsewhere, the net effect is therefore to reduce the size of the deficit.

<sup>33</sup> [http://www.cbi.org.uk/pdf/cbi\\_csr\\_20\\_analysis.pdf](http://www.cbi.org.uk/pdf/cbi_csr_20_analysis.pdf).

<sup>34</sup> <http://www.publicfinance.co.uk/news/2010/10/lga-slams-carbon-tax-plan/>.

<sup>35</sup> See Committee on Climate Change, *The CRC Energy Efficiency Scheme: Advice to Government on the Second Phase*, 2010 (<http://www.theccc.org.uk/reports/carbon-reduction-commitment>).

<sup>36</sup> To the extent that the end of revenue recycling will reduce firms’ incentives to cut their energy consumption, it in fact *decreases* firms’ marginal energy costs. However, there are reasons to believe this effect is modest (see below).

<sup>37</sup> The change may reduce the incentive for smaller firms to grow larger, as this may mean that they run the risk of becoming eligible to participate in the CRC in the future.



- early action taken by firms before the CRC began;
- the absolute amount of emissions reduction;
- the reduction in carbon intensity (emissions per pound of turnover).

Since baseline emissions and pre-scheme action are not affected by decisions taken as part of the scheme, at least part of the amount recycled would have been independent of any emissions reduction: scrapping this part of the revenue recycling therefore has no incentive effects on energy use. On the other hand, as part of the league ranking would have depended on how successful the firm was at reducing its emissions, ending revenue recycling may slightly weaken incentives to reduce emissions, but there are reasons to believe the effect could be modest:

- First, only part of the ranking depends on actual emissions reduction performance.
- Second, the ranking is partly determined by emissions intensity (largely so as not to penalise growing firms), meaning firms can still perform well in the league table even if their absolute emissions level rises.
- Third, at least part of the motivation for reducing emissions is about the reputation effects of a good league table ranking rather than about the financial incentives, and these effects will remain in place.
- Fourth, the reform increases the net cost of the CRC to firms, which could make it more visible in firms' decision-making and actually help reduce emissions.
- Fifth, the government still retains ultimate control over firms' incentives to abate: if there were concerns that firms' incentives to abate were diminished, the government could simply choose to increase the carbon price or tighten the emissions cap in future rounds of the scheme.

Overall, therefore, ending revenue recycling will probably only have a small effect on the environmental impact of the CRC, and could make a small but valuable contribution to reducing the fiscal deficit.

### *Reform of the climate change levy and wider reforms of electricity supply*

The climate change levy is a tax on business energy use, introduced in April 2001. The rates vary according to the type of fuel supplied, but not directly with the carbon content of different fuels. All non-renewable electricity, for example, is charged at 0.47p/kWh, heating gas at 0.164p/kWh and coal at 1.281p/kg. Although renewable energy is exempt, the very different carbon contents of different sorts of non-renewable electricity mean that the implicit carbon tax rates embodied in the CCL vary substantially. Nuclear electricity, for example, generates essentially no carbon emissions but is still subject to the same rate of CCL as coal-fired electricity, which is estimated to produce 915 tonnes of CO<sub>2</sub> per gigawatt-hour supplied, and as gas-fired electricity, which produces 405 tonnes.<sup>38</sup> The implicit 'carbon tax' on coal from the CCL is £5.14 per tonne of CO<sub>2</sub>, on gas is £11.60 per tonne and on nuclear is essentially infinite.

In opposition, the Conservative Party proposed reforming the CCL.<sup>39</sup> The original proposals for reform included the following:

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<sup>38</sup> See table 5A of <http://www.decc.gov.uk/assets/decc/Statistics/publications/dukes/311-dukes-2010-ch5.pdf>.

<sup>39</sup> <http://www.conservatives.com/~media/Files/Green%20Papers/Rebuilding-Security.ashx?dl=true>.

- levying the tax on power generators rather than on energy use, and, in so doing, allowing the tax rate to vary with the carbon content of different fuels supplied more straightforwardly;
- allowing generators to reduce their liability for the CCL by the value of emissions trading permits purchased or allocated. This would have introduced a 'floor price' for carbon: the generator would pay the higher of the ETS and CCL carbon prices.

This proposal had two key objectives: first, to target better the CCL on carbon emissions, giving generators an incentive to discriminate between different fossil fuels on the basis of their carbon contents (effectively promoting gas and nuclear over coal); and second, to give firms greater certainty over the returns to low-carbon sources of energy, which should make them more attractive to investors.

On 16 December 2010, the government launched a consultation on plans to reform the CCL.<sup>40</sup> These are similar in spirit to, but different in practice from, the proposals outlined by the Conservatives. Rather than replacing the CCL on energy use, the government has proposed supplementing it with an additional tax (or 'carbon price support rate') from April 2013, levied on the carbon content of fossil fuels supplied to electricity generators. The intention is to use the new tax to achieve a more predictable increase in the total carbon price (including the ETS price). The precise mechanism by which the new tax will stabilise carbon prices is subject to the consultation: the tax rate may be subject to some fixed annual escalator or be adjusted annually according to either projected future ETS prices or actual ETS prices over the preceding year.

The rates of the new levy are yet to be decided, but the government presented 'illustrative' scenarios where the levy varies between £1 and £3 per tonne of CO<sub>2</sub> in 2013, rising to a projected rate of between £3.70 per tonne and £23.70 per tonne in 2020 (based on the latest DECC assumption that the ETS price in 2020 will be £16.30 per tonne and a range of target prices between £20 and £40). Assuming UK emissions from energy generation are in line with those in the National Allocation Plan for the EU ETS (just under 190 million tonnes of CO<sub>2</sub> in 2012),<sup>41</sup> initial revenues are therefore likely to be small: around £190–570 million in 2013 depending on the rate and actual emissions that year. This, of course, may also help the government achieve its objective to raise the share of revenues generated from green taxes. By 2020, the CCC estimates that power sector emissions will need to be just over 100 million tonnes to be consistent with long-term targets,<sup>42</sup> so revenues then may be around £0.4–2.4 billion depending, again, on the actual rate and emissions in 2020.

The new levy on inputs will clearly make low-carbon forms of generation (renewables and nuclear) relatively more attractive to investors. It will also make gas relatively more attractive than coal for producing electricity. It does not look as if the new levy will apply to gas or oil used for heating, which will potentially create an unwelcome incentive for firms and households to switch from electricity to other fuels.

By introducing a new tax on carbon and not replacing the CCL outright, this reform will widen the range of different carbon prices that apply to different sectors of the economy,

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<sup>40</sup> [http://www.hm-treasury.gov.uk/consult\\_carbon\\_price\\_support.htm](http://www.hm-treasury.gov.uk/consult_carbon_price_support.htm).

<sup>41</sup> See [http://www.decc.gov.uk/en/content/cms/what\\_we\\_do/change\\_energy/tackling\\_clima/emissions/eu\\_ets/euets\\_phase\\_ii/phaseii\\_nap/phaseii\\_nap.aspx](http://www.decc.gov.uk/en/content/cms/what_we_do/change_energy/tackling_clima/emissions/eu_ets/euets_phase_ii/phaseii_nap/phaseii_nap.aspx).

<sup>42</sup> See [http://downloads.theccc.org.uk/s3.amazonaws.com/4th%20Budget/4th-Budget\\_Chapter6.pdf](http://downloads.theccc.org.uk/s3.amazonaws.com/4th%20Budget/4th-Budget_Chapter6.pdf).

adding complexity to an already complex system of different incentives. On the one hand, it represents the first direct pricing of carbon that will affect households as well as businesses, which is to be welcomed, but it does not appear to bring us closer to a consistent carbon price for all emissions, which would help reduce emissions in the most efficient way (see Section 11.5). If the government is able to achieve a more predictable carbon price through this new levy, then it may help encourage investment in renewables (though it could reduce the incentive for firms and households to invest in improvements in energy efficiency if one motive for this is to insure themselves against unpredictability in energy prices). However, it is not clear whether these proposals would generate more certainty than the ideas outlined by the Conservative Party before the election to introduce a direct floor price for carbon. A simple rate escalator for the new duty will increase the overall carbon price, but leave the same variation in the underlying ETS price, and attempting to adjust the levy on the basis of forecasts of future ETS prices may lead to more volatility if forecasts turn out to be wrong. In the face of unexpected shocks to wholesale electricity prices, there may also be political pressure not to implement any planned increases in the new tax rate, similar to the pressure not to raise rates of fuel duties in the face of high oil prices during most of the last decade (see the discussion of the ‘fair fuel stabiliser’ below). These pressures may undermine the extent to which additional certainty is generated. Given the inherent difficulties in forecasting wholesale energy pricing in the longer term, it would be desirable for the government to spell out conditions under which it would review the policy.

Alongside proposals to reform carbon pricing, the government is consulting on wider reforms to electricity supply. Most significant are proposals to replace the current Renewables Obligation with a so-called ‘feed-in tariff’ (FIT) for low-carbon sources of energy from 2013.<sup>43</sup> The FIT supports the price of low-carbon sources of energy by mandating that low-carbon generators receive a higher price than the going market rate for their electricity. This higher price is effectively paid for by consumers through a higher average price for electricity. The FIT can therefore be seen as a tax on electricity consumption that is used to subsidise low-carbon generators.

The government has yet to decide how the FIT will support the price of low-carbon sources of energy. The consultation laid out three possible options:

- ‘premium FIT’ – essentially a per-unit subsidy to low-carbon generators;
- ‘fixed FIT’ – a guaranteed fixed price for low-carbon energy;
- ‘contract for difference’ (CfD), which also pays a fixed price; however, if prices rise above the contracted level, the suppliers would return some of the additional revenue to consumers. This is the government’s preferred option.

Shifting from the RO to FITs as a means to achieve renewables targets is effectively a move from a ‘quantity-based’ to a ‘price-based’ economic instrument. Under the RO, energy suppliers are mandated to provide a given percentage of their energy from renewable sources, with the option to use ‘buyouts’ at a fixed price if they are unable to meet their obligation. Under FITs, the price of renewables will be subsidised directly.<sup>44</sup> In

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<sup>43</sup> <http://www.decc.gov.uk/en/content/cms/consultations/emr/emr.aspx>. Feed-in tariffs currently exist for microgeneration (<http://www.fitariffs.co.uk/FITs/>); the proposals here would extend these to all suppliers of renewable energy.

<sup>44</sup> Note that because buyout payments made under the RO are returned to firms according to the number of renewable certificates they supply, the RO also effectively subsidises renewable energy. The key difference is that the subsidy under FITs is either constant or adjusted so as to make the prices firms receive more stable,

general, quantity-based instruments provide greater certainty that a given target will be met whereas price-based instruments give firms more certainty over the profitability of their investments by making the price or subsidy they receive more predictable.

The proposed FITs differ from the RO in two further respects. First, FITs would apply to nuclear generators, unlike the existing RO which only covers renewable sources of energy. Second, the RO is currently 'banded': a MWh generated from certain renewable sources counts more towards firms' obligations than a MWh generated from others. This obviously steers firms toward adopting particular technologies. These incentives would disappear unless the FIT is similarly 'banded', potentially making the FIT a more market-based approach to promoting low-carbon forms of energy by allowing investors to choose the cheapest form of low-carbon generation themselves.

### *The 'Green Deal'*

The 2010 Spending Review announced the creation of the 'Green Deal', which had been promised in the coalition agreement. More details were published by DECC in December 2010.<sup>45</sup> Final details are subject to consultation, but the main features are expected to be as follows:

- Households and businesses will be able to install certain energy efficiency measures at no up-front cost. Instead, repayment will take place (with interest) through energy bills over a number of years. Before any Green Deal is agreed, properties will be visited by an adviser who will assess energy performance and advise on which efficiency measures to install. The initial costs of installation will be met by high-street lenders and other financial institutions that want to sign up as 'Green Deal providers'. Interest rates will not be subsidised, although repayment structures and interest rates will be regulated.
- Consumers will be able to repay Green Deal loans early if they wish. Consumers who default will be treated in the same way as those who default on energy bill payments (including, for example, receiving protection against disconnection during winter).
- The Green Deal will be available to businesses and domestic consumers. Owner-occupiers and renters will be included, though renters will not be able to agree a deal without their landlord's consent. If landlords appear reluctant to take up the Deal, some compulsion may be introduced (from 2015).
- Liability to repay the loan will fall on the property rather than the individual. Thus if someone moves out, the next owner or tenant will continue to pay for the measure; this makes sense, because they will be the beneficiaries of an earlier decision to install energy efficiency products.
- Only measures for which, on average, the estimated energy savings offset the expected total costs including interest are included. This is likely to mean that installation of microgeneration technologies (for example, solar panels and wind turbines) will not be covered. The precise list of which measures will be included has yet to be defined.

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whereas under the RO the effective subsidy declines as firms get closer to meeting their targets and the use of buyouts falls.

<sup>45</sup> See Department of Energy and Climate Change, *The Green Deal: A Summary of the Government's Proposals*, 2010 (<http://www.decc.gov.uk/assets/decc/legislation/energybill/1010-green-deal-summary-proposals.pdf>) for a summary.

- The Green Deal will replace the Warm Front scheme,<sup>46</sup> which currently provides grants for energy efficiency measures for low-income and vulnerable households. Government expenditures under Warm Front were £345 million in 2010–11, but were set to fall to £100 million in 2012–13.<sup>47</sup>

There is a clear rationale for a policy like the Green Deal. Considerable evidence has built up to suggest that what appear to be profitable installations of energy efficiency measures (in the sense that the energy savings would more than offset the cost of installation) are not taken up.<sup>48</sup> This could be for a number of reasons. Most obviously, consumers may be credit constrained and unable to finance up-front payments for some measures, and would therefore respond to a policy such as the Green Deal which allowed them to repay over a long period. Consumers may be unaware of the potential energy savings from different measures, and if information is provided as part of the policy (either directly by government, energy companies or Green Deal providers) coupled with an energy performance assessment, this may help increase overall take-up of energy efficiency measures (though this could also suggest a policy to raise awareness rather than setting up a credit structure). There is also considerable evidence that installation of energy efficiency products is particularly poor in the private rented sector. For example, the latest English Housing Survey, for 2008, found that 32% of private rented properties with cavity walls had them insulated, compared with more than 40% of owner-occupied properties and more than 50% of social housing. Similarly, only around a quarter of private tenants with lofts had more than 150mm of insulation, compared with a third of owner-occupiers and half of social properties.<sup>49</sup> This is almost certainly because landlords are currently responsible for making these investments, but do not obtain direct benefits from the lower fuel bills which are paid by tenants (the so-called ‘principal–agent problem’). In theory, more energy-efficient rental properties could charge higher rents as a way for landlords to appropriate these benefits, but this would probably require a straightforward way for prospective tenants to verify that measures have been installed. By reducing the up-front cost of improvements to zero, and making tenants pay for improvements in energy efficiency through energy bills rather than through their rent, the Green Deal could help correct this particular market failure.

Tying the liability to repay to the property rather than the individual means that people who are considering moving should not be disincentivised from taking up the Green Deal.<sup>50</sup> The intention is that prospective tenants or owners of a property should be made aware of any liabilities they face under the Green Deal before moving in. This will need to be made very transparent to avoid the situation where someone planning to sell their property had the incentive to take up the scheme and to capitalise the value of the energy

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<sup>46</sup> See <http://www.warmfront.co.uk> for details. A scheme called the Landlords’ Energy Saving Allowance, which allows landlords to offset up to £1,500 against their income tax liabilities for installing particular energy efficiency products, will be ended from April 2015; this had been pre-announced by the previous government and was not directly linked to the introduction of the Green Deal.

<sup>47</sup> See [http://www.decc.gov.uk/en/content/cms/news/csr\\_hmt\\_releas/csr\\_hmt\\_releas.aspx](http://www.decc.gov.uk/en/content/cms/news/csr_hmt_releas/csr_hmt_releas.aspx).

<sup>48</sup> See, for example, McKinsey’s ‘cost curves’ showing negative marginal abatement costs for domestic energy efficiency measures (<http://www.mckinsey.com/client-service/sustainability/costcurves.asp>).

<sup>49</sup> <http://www.communities.gov.uk/documents/statistics/pdf/1750754.pdf>. A study based on older data in England found that private renters were less likely to have loft insulation, wall insulation or double glazing even conditional on other dwelling and resident characteristics; see V. Brechling and S. Smith, *The Pattern of Energy Efficiency Measures amongst Domestic Households in the UK*, IFS Commentary 31, 1992 (<http://www.ifs.org.uk/comms/comm31.pdf>).

<sup>50</sup> Brechling and Smith (op. cit.) found that those who said they were planning to move were less likely, all else equal, to have certain energy efficiency measures, although the effects were not statistically significant.

efficiency products in the asking price without themselves paying much of the actual cost. Information on Green Deal liabilities could be included, for example, on the Energy Performance Certificate which should be provided to potential buyers or tenants by sellers or landlords.

The Green Deal scheme represents a clear shift from direct government provision of energy efficiency measures to a more market-focused approach. The role of government will be limited, and focused on helping to set up the infrastructure for, providing information about and regulating the scheme. The Warm Front scheme, which it will replace, provides energy efficiency products worth up to £6,000 to eligible low-income and vulnerable households as a way of trying to combat fuel poverty. Two reports from the National Audit Office on Warm Front had been somewhat critical of the scheme.<sup>51</sup> There were two main criticisms:

- First, because it was targeted on poor and vulnerable households, it was not necessarily targeted on those who lived in the least energy-efficient properties; many grants were, therefore, given to households already living in relatively energy-efficient homes. With a fixed budget for Warm Front, a greater impact on fuel poverty might have been possible if eligibility had been based on both income and the current energy efficiency of the property.
- Second, the size of grants available was not always enough to cover the cost of the work. In this case, households were required to make up any difference, which was not always possible.

The move to the Green Deal may help address both criticisms: presumably, those households that would stand to make the biggest gains in reduced energy use will be the most likely to take up the scheme (assuming that the main reason they do not invest in energy efficiency already is either constrained credit or a lack of information); and the Green Deal should involve zero up-front costs to households other than the time and inconvenience associated with installing the measures. Another potential benefit of the Green Deal compared with Warm Front is that there should in principle be no limit on the total value of energy efficiency measures that could be installed under the Green Deal, whereas under Warm Front there was an annual cap on the total value of grants, meaning that more households in total may benefit.

However, there may be some concerns about the change. Low-income households would have been eligible for a full grant under Warm Front to cover the cost of the work. All else equal, poorer households are less likely to take up the scheme than richer households, since they may be more concerned about repaying the loan over the long term through increased energy bills, though there may be additional help for poor households.<sup>52</sup>

Overall, although Warm Front benefited the poor (and thus was probably more progressive, in the sense of being worth more to the poor than the rich), the Green Deal appears to be a more efficient way to reduce energy use.

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<sup>51</sup> National Audit Office, *Warm Front: Helping to Combat Fuel Poverty*, 2003 ([http://www.nao.org.uk/publications/0203/warm\\_front\\_helping\\_to\\_combat.aspx](http://www.nao.org.uk/publications/0203/warm_front_helping_to_combat.aspx)); National Audit Office, *The Warm Front Scheme*, 2009 ([http://www.nao.org.uk/publications/0809/the\\_warm\\_front\\_scheme.aspx](http://www.nao.org.uk/publications/0809/the_warm_front_scheme.aspx)).

<sup>52</sup> From 2013, the government plans to replace existing obligations on energy companies to provide energy efficiency measures that partly (the Carbon Emissions Reductions Target) or wholly (the Community Energy Saving Programme) focus on the poor with a new Energy Company Obligation (ECO) which will be focused entirely on support for poor and 'hard to treat' households. Details of the new ECO are as yet unclear.



A final consideration for any policy designed to encourage energy efficiency is the so-called 'rebound effect', which suggests that the savings in terms of fuel bills and carbon emissions may be less than expected.<sup>53</sup> Greater energy efficiency effectively reduces the cost of heating the home, and households may respond to this by keeping their home warmer, rather than keeping their home at the same temperature as before but at a lower cost. A study from Sweden that modelled the hypothetical effect of a 20% improvement in energy efficiency in transport and heating found a 1.3% rise in CO<sub>2</sub> emissions as a result, compared with a 'no-rebound-effect' baseline fall in emissions of 6.2%.<sup>54</sup> The size of the rebound effect for domestic energy efficiency measures will be an important consideration for policymakers. At present, it is not empirically clear, although a robust evaluation of the Green Deal may well shed some light on this.

## Transport policy

### Aviation taxes

Air passenger duty (APD), a tax on passengers departing from UK airports, was first levied in 1994. Until April 2001, there were two rates: one for passengers flying to European Economic Area (EEA) countries and one for those flying outside, who paid twice as much. From April 2001 to November 2009, APD was reformed so that those flying non-economy class paid twice as much as those flying economy, and those flying outside the EEA paid four times as much as those flying inside. Real-terms rates of APD rose markedly under the previous government, by 57–542% depending on the destination and class of flight.<sup>55</sup>

The coalition agreement contained a pledge to 'replace Air Passenger Duty with a per-flight duty'.<sup>56</sup> This was followed in the June 2010 Budget with the announced intention to consult on 'changes to the aviation tax system, including switching from a per-passenger to a per-plane duty, which could encourage fuller planes'. However, as yet, no more detailed proposal to reform aviation taxes has been provided.

Such a reform would be desirable, as we discussed in analysis published in a previous Green Budget.<sup>57</sup> It would give airlines a clearer incentive to fly their aircraft fully loaded, and would more easily allow freight-only flights to be brought into the tax system. In 2007, the previous government launched a consultation on reforming APD into a per-plane tax, a measure which at the time had cross-party support. However, following the consultation, the government abandoned the plan.<sup>58</sup> Instead, it maintained a per-

<sup>53</sup> See, for example, S. Sorrell, 'Jevons' Paradox revisited: the evidence for backfire from improved energy efficiency', *Energy Policy*, 2009, 37, 1456–69.

<sup>54</sup> R. Brännlund, T. Ghalwash and J. Nordström, 'Increased energy efficiency and the rebound effect: effects on consumption and emissions', *Energy Economics*, 2007, 29, 1–17.

<sup>55</sup> See table 3.1 of P. Johnson, A. Leicester and P. Levell, *Environmental Policy since 1997*, IFS 2010 Election Briefing Note 7 (IFS Briefing Note 94), 2010 (<http://www.ifs.org.uk/bns/bn94.pdf>).

<sup>56</sup> The Liberal Democrat manifesto included a plan to introduce a per-plane tax coupled with a supplementary tax on short domestic flights (under 300 miles) which together were expected to raise an additional £3.3 billion. The Conservative manifesto included a commitment to 'reform Air Passenger Duty to encourage a switch to fuller and cleaner planes' but did not specify any more detail.

<sup>57</sup> A. Leicester and C. O'Dea, 'Aviation taxes', in R. Chote, C. Emmerson, D. Miles and J. Shaw (eds), *The IFS Green Budget: January 2008*, IFS Commentary 104, 2008 (<http://www.ifs.org.uk/budgets/gb2008/08chap9.pdf>).

<sup>58</sup> See [http://webarchive.nationalarchives.gov.uk/+http://www.hm-treasury.gov.uk/media/E/2/consult\\_aviation310108.pdf](http://webarchive.nationalarchives.gov.uk/+http://www.hm-treasury.gov.uk/media/E/2/consult_aviation310108.pdf) for the initial consultation document and [http://webarchive.nationalarchives.gov.uk/20100407010852/http://www.hm-treasury.gov.uk/d/pbr08\\_aviationduty\\_395.pdf](http://webarchive.nationalarchives.gov.uk/20100407010852/http://www.hm-treasury.gov.uk/d/pbr08_aviationduty_395.pdf) for the response.



passenger charge but increased from two to four the number of different payment bands, which were based on the distance between London and different national capitals (though all flights to EEA countries still fall within the same band). Within each distance band, those flying non-economy continue to pay twice as much. Current rates range from £12 for an economy flight within Band A (countries with capitals within 2,000 miles of London) to £170 for a non-economy flight to Band D (more than 6,000 miles).<sup>59</sup>

The decision not to implement the per-plane tax appears to have been mainly based on two issues:

1. the lack of a clear tax base for flights that would correlate well with the emissions generated;
2. a concern that the tax would create an incentive for people flying long distances to take a short flight out of the UK, followed by a longer flight to their final destination, something that would probably increase the overall environmental costs of flying.

These issues clearly remain, but a move to a per-plane tax is nevertheless still a good idea. The previous government proposed basing a per-flight tax on a combination of distance flown and the maximum take-off weight (MTOW) of the aircraft, both of which were argued to be good proxies for emissions: heavier aircraft generally emit more carbon for a given distance flown, and aircraft that fly further emit more. However, MTOW is not perfectly correlated with emissions: some recent aircraft are heavier but less polluting than older models, meaning that a tax based on weight could discourage investment in more fuel-efficient aircraft. Further, airlines may be able to improve the efficiency of their existing fleet (i.e. the relationship between MTOW and emissions is not necessarily fixed) and the tax system should not discourage this. In its response to the consultation, the Civil Aviation Authority (CAA) suggested that the weight of the aircraft could be adjusted by an age factor such that newer planes were taxed more lightly for a given weight, recognising that more recently developed aircraft are generally more efficient. This is not always the case, however, and could in turn encourage premature fleet replacement, which could be environmentally costly. As an alternative, the CAA suggested a banded system of weights with lower tax rates for the most efficient aircraft within each band, though this creates the potential for difficult and opaque decisions about which aircraft to favour in this way.<sup>60</sup> A good tax base in principle would be the CO<sub>2</sub> emissions of different aircraft, but comprehensive data on these do not currently exist; it would, therefore, seem sensible to encourage such data to be collected and made available before any future reform to APD. Indeed, given the intention to include aviation in the EU ETS from 2012 (see below), it is hard to imagine that there will not be wide demand for such information.

The fact that aircraft weight and distance flown are not perfect proxies for the emissions of a flight is not in itself a good reason to have rejected the change. As a possible basis for a tax, weight and distance are almost certainly more closely correlated to emissions than passenger numbers and destination.

Transfer and transit passengers are exempt from APD. Under a per-plane tax, it would be hard to maintain these exemptions. This may encourage those who would at the moment

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<sup>59</sup> Details of which countries fall into each APD band can be found at [http://customs.hmrc.gov.uk/channelsPortalWebApp/channelsPortalWebApp.portal?\\_nfpb=true&\\_pageLabel=pageExcise\\_InfoGuides&propertyType=document&id=HMCE\\_CL\\_000505#P28\\_1885](http://customs.hmrc.gov.uk/channelsPortalWebApp/channelsPortalWebApp.portal?_nfpb=true&_pageLabel=pageExcise_InfoGuides&propertyType=document&id=HMCE_CL_000505#P28_1885).

<sup>60</sup> <http://www.caa.co.uk/docs/5/20080424CAAResponseOnAviationDutyFinal.pdf>.

transfer at, say, Heathrow to transfer at airports on the near continent instead. A per-plane tax may also encourage passengers to take a short initial flight and then a longer connecting flight (though the tax could be levied according to the final destination). In each case, the incentives to change behaviour would depend on the size of the tax passengers would face relative to the costs of doing so (the costs of booking two flights rather than one, the inconvenience of making a transfer elsewhere and so on). If the differential between short- and long-haul flights were large, these behavioural responses would be more likely. One reason to limit this differential is that the external costs associated with a flight by a given type of aircraft include a relatively large fixed component: GHG emissions and noise associated with the take-off and landing cycle.<sup>61</sup>

The need to try to find some complex design for aviation taxes that at least reasonably approximates the emissions generated stems from the fact that taxes on aviation fuel are not permitted under Article 24 of the 1944 Chicago Convention (which established the International Civil Aviation Organisation). Were fuel taxes in place, there would obviously be greater incentives for airlines to use less fuel, and to earn as much profit from a given amount of fuel by flying fully loaded. It would seem desirable to try to find ways to tax aviation fuel by some sort of international agreement. Even without this, it would still be possible and sensible to tax aviation fuel used on domestic flights, and it would also be sensible for VAT to be levied on domestic aviation.

There are plans to include aviation in the EU ETS from 2012, with airlines being given a cap of 97% of their total average emissions between 2004 and 2006, falling to 95% in 2013. It is expected that 15% of permits will be auctioned in 2012.<sup>62</sup> Including aviation in the ETS substantially limits the rationale for domestic aviation taxes designed to deal with carbon emissions. Any reform of aviation taxes that was consulted on during 2011 would probably not come into force until 2012, so it would be crucial that the relationship between the ETS and domestic tax policy were a key focus of any such consultation. But even if aviation enters the ETS, there would remain scope for taxes on flights designed to tackle non-carbon externalities, such as noise and the pollutants other than GHGs (all of which are more closely related to the characteristics of the flight than the number of passengers), and to raise revenue to the extent that flights remain outside the VAT and fuel duty system.

### *A 'fair fuel stabiliser'*

In 2008, the Conservative Party put forward a proposal for what it called a 'fair fuel stabiliser' (FFS).<sup>63</sup> The idea of the policy would be to use fuel duty rates as a stabilising instrument to try to reduce the volatility of the pump price of vehicle fuel caused by fluctuations in oil prices: fuel duty rates would be cut when oil prices rose and increased when oil prices fell. The proposal was mentioned in the June 2010 Budget: the OBR was asked to assess the impact of oil price shocks on the public finances. In the light of this,

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<sup>61</sup> Noise and congestion costs may also differ from airport to airport (e.g. depending on local population density), which suggests tax rates should vary according to airport of origin as well. There have been reports this may be considered, e.g. <http://www.telegraph.co.uk/travel/travelnews/8232228/Air-passengers-face-higher-tax-to-fly-from-London.html>.

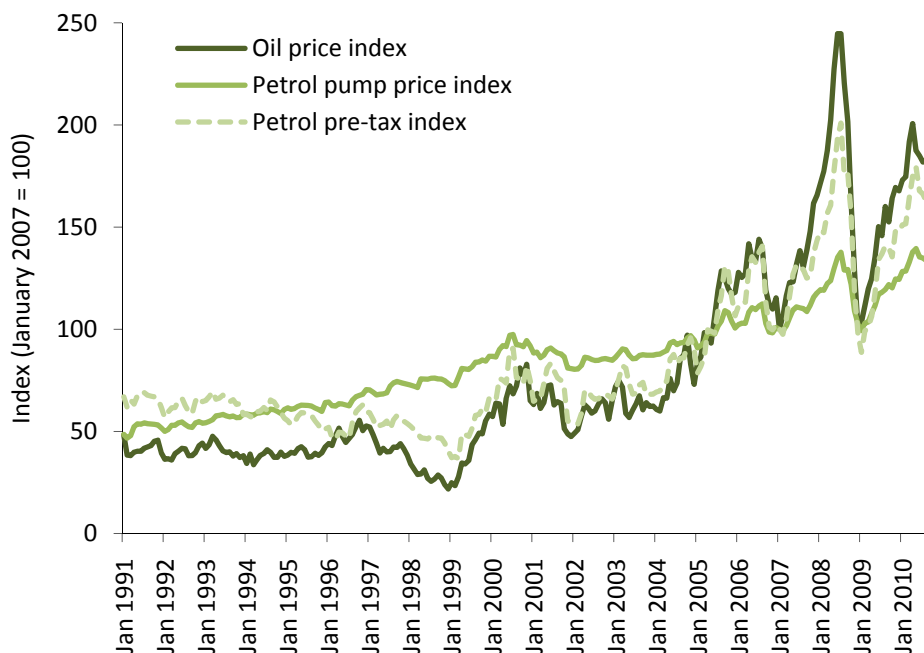
<sup>62</sup> See [http://www.decc.gov.uk/en/content/cms/what\\_we\\_do/change\\_energy/tackling\\_clima/emissions/eu\\_ets/aviation/aviation.aspx](http://www.decc.gov.uk/en/content/cms/what_we_do/change_energy/tackling_clima/emissions/eu_ets/aviation/aviation.aspx).

<sup>63</sup> See <http://www.conservatives.com/~media/Files/Downloadable%20Files/A%20Fair%20Fuel%20Stabiliser%20A%20consultation%20on%20the%20future%20of%20fuel%20taxation.ashx?dl=true>.

the government would then ‘examine options for the design of a fair fuel stabiliser’. More recent statements from David Cameron suggest the idea is still being considered.<sup>64</sup>

In fact, high fuel taxes in themselves help stabilise pump prices of fuel, at least compared with pre-tax costs which are driven mostly by oil prices. Figure 11.4 shows indices for the nominal price of oil acquired by refineries, pre-tax petrol prices and pump petrol prices since 1991. Oil and pre-tax petrol costs have shown huge recent volatility, both more than doubling between 2007 and 2008, then falling back just as quickly to their initial levels before rising rapidly once more. At the same time, volatility in pump prices was much smaller, though still far greater than the long-run trend, because the cost of oil acquired by refineries is such a small fraction of the final pump price.

Figure 11.4. Oil and petrol price indices



Source: Authors' calculations from DECC statistics on fuel prices

(<http://www.decc.gov.uk/media/viewfile.ashx?filepath=statistics/source/prices/qep411.xls&filetype=4&minwidth=true>).

Indeed, the relative stability of the upward trend in petrol prices over most of the period represents a somewhat informal ‘stabiliser’ policy operated by both the previous Conservative and Labour governments. During the 1990s, when pre-tax prices were low, real-terms fuel taxes were increased annually as part of an escalator policy begun in the Spring 1993 Budget. When pre-tax prices began to rise after 1999, the escalator policy was abandoned and real-terms fuel taxes fell significantly, but pump prices continued to rise as the oil price rose further. The most recent rise in oil prices, since 2009, has been accompanied by small real-terms increases in duty following the announcement of a renewed escalator policy in the 2009 Budget, under which duty rates will rise by one penny over inflation each year to 2014–15. It will be interesting to see whether these planned increases go ahead: during the 2000s, planned increases in duty rates were often postponed or cancelled. Alistair Darling’s last Budget, in March 2010, announced that the

<sup>64</sup> For example, <http://www.bbc.co.uk/news/uk-12144966> and <http://www.bbc.co.uk/news/uk-politics-12123843>.

planned increase in April 2010 would be staggered in three parts, rather than implemented in full in one go. Should oil prices remain high, it is possible that George Osborne may decide not to implement, or to delay, planned duty increases.

In considering an FFS, the Conservatives suggested three major benefits of the policy:

1. greater stability in household finances from a more stable fuel price;
2. greater stability in the public finances;
3. greater certainty over the cost of carbon.

We consider each in turn, and then offer some thoughts on the practical difficulties in implementing an FFS policy.

An FFS would help stabilise household finances. Vehicle fuel is a significant and growing part of the overall household budget: the average household spent 4.9% of its total (non-housing) budget on fuel in 2009, compared with 4.4% in 1999 and 3.5% in 1989.<sup>65</sup> On average, vehicle fuel is a greater share of the budget for richer households than poorer ones. In 2009, households in the poorest expenditure decile spent, on average, 1.6% of their budget on fuel and those in the 2<sup>nd</sup> decile spent 3.8%. This compares with 5.7% to 5.9% for those in deciles 5 to 8, though the share was slightly lower for those at the very top of the spending distribution (5.1% in the 9<sup>th</sup> decile and 4.0% in the top decile). The policy could also help stabilise prices of other goods for which fuel costs are a significant part of overall production costs. However, if one reason for households to invest in fuel-efficient new cars is insurance against volatile future fuel prices, increasing the stability of fuel costs under the FFS could reduce the take-up of low-carbon vehicles, and thus raise transport emissions.

The other claims for the effects of the policy are harder to justify. An FFS could only stabilise the public finances if an increase in oil prices actually increased overall tax revenues.<sup>66</sup> Some studies have suggested that revenues rise following higher oil prices, but only after a lag.<sup>67</sup> Following the Budget, the OBR published its own estimates of the impact of oil prices on the public finances.<sup>68</sup> It concluded that a temporary \$10/barrel rise in the price of oil lasting one year would raise just £100 million in the year of the shock and see revenues fall by £700 million the following year, as the negative effects of reduced output outweigh increased revenues from oil and gas. For a permanent \$10/barrel increase, the impact on the public finances was estimated at between a £1.2 billion revenue gain and a £0.7 billion revenue loss in the first year, falling to a loss of between £1.5 billion and £3.5 billion in the fourth year. Based on the OBR estimates, therefore, there would not appear to be any clear revenue gain from either a permanent or a temporary shock to oil prices. An FFS would achieve less, not greater, stability in the public finances. David Cameron's recent statements on the FFS have tended to suggest the idea will be implemented only if there is expected to be a revenue gain to the Exchequer from higher oil prices.<sup>69</sup> It is possible the Treasury may disagree with the OBR's analysis

<sup>65</sup> Based on data from the UK Expenditure and Food Survey.

<sup>66</sup> In general, higher oil prices generate higher North Sea oil and gas revenues and higher VAT receipts from fuel purchases. However, these are offset both by lower receipts from other corporations and individuals (as economic activity in general is depressed by higher oil prices) and by lower VAT receipts from other spending if consumers substitute their purchasing patterns.

<sup>67</sup> See R. Barrell, A. Choy, S. Kirby, R. Metz and O. Pomerantz, 'Prospects for the UK economy', *National Institute Economic Review*, 2005, 193, 37–52.

<sup>68</sup> See [http://budgetresponsibility.independent.gov.uk/d/assessment\\_oilprice\\_publicfinances.pdf](http://budgetresponsibility.independent.gov.uk/d/assessment_oilprice_publicfinances.pdf).

<sup>69</sup> For example, 'Is there a way in which when the oil price goes up, if the Treasury is getting more revenue out of that oil, can we find a way of sharing that risk with the consumer' (<http://www.bbc.co.uk/news/uk-politics->

and argue there is a revenue windfall, but it would need to explain carefully why it disagrees if this is the case.

Nor is it clear that an FFS would generate greater certainty over the cost of carbon. The usual rationale for fuel taxes is the external costs associated with motoring, including carbon and other pollutants, noise, road damage and congestion. These costs, imposed on others, are not taken into account by motorists, which results in excess levels of motoring at the pre-tax fuel price. Fuel taxes are an instrument, albeit an imperfect one, through which these costs can be priced into the decisions made by motorists. The costs associated with emitting a tonne of carbon into the atmosphere are probably fairly constant and do not depend on the pre-tax price of fuel. Thus carbon costs do not give a convincing economic rationale to vary fuel taxes according to the pre-tax price.

However, carbon only represents a small part of the external cost of motoring. By far the largest externality is congestion. It seems reasonable to assume that the marginal congestion externality increases with higher traffic levels. Since higher pre-tax prices will reduce traffic volumes, it may well be that marginal congestion costs fall when oil prices rise. This may provide a better rationale for lower fuel taxes when pre-tax prices rise, though, as discussed earlier, fuel duty is a particularly poor instrument to target congestion externalities. A further rationale for the FFS (but not one given by the government) arises from the oligopolistic nature of oil supply: if higher oil prices result from a strengthening of market power by oil suppliers, then pre-tax fuel prices will be above marginal costs, and this might suggest a case for lower fuel taxes to improve economic efficiency.

However, the arguments in favour of an FFS have to be set against the practical difficulties of implementing it. If the oil price increased at a known, unchanging trend rate with random fluctuations around this trend, then it would be relatively straightforward to design a target path for pump prices where any variation in oil prices was offset by changes in duty rates, in a way that was essentially revenue neutral in the long run. The main difficulties in this case would be deciding how frequently taxes should be adjusted, whether any lags in implementing tax changes risked increasing rather than reducing volatility of final prices, and whether there was a 'ratchet' effect, whereby it was relatively easy and popular to cut taxes when prices rose but much more difficult to raise taxes when prices fell. However, as Figure 11.4 above makes clear, trends in oil prices can be hard to forecast accurately and are probably not stable over time. For example, the large spike in prices in 2008 appears to have been temporary, though it may not have been obviously so at the time. If the government gets the trend wrong, or fails to adjust to a new trend, fuel taxes could rise or fall significantly before the 'mistake' is realised. This might then require big sudden policy adjustments, which would undermine claims to greater stability.

So, in summary, an FFS would stabilise household finances, but official estimates suggest that it would make the public finances more uncertain. It would also be very difficult to implement in practice.

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[12123843](http://www.bbc.co.uk/news/uk-12144966)); 'But the concept that when the oil price rises – and it has risen – if that yields extra revenue to the Treasury is there a way of sharing the burden between the Treasury and the motorist?' (<http://www.bbc.co.uk/news/uk-12144966>).

## 11.5 Consistency of carbon prices

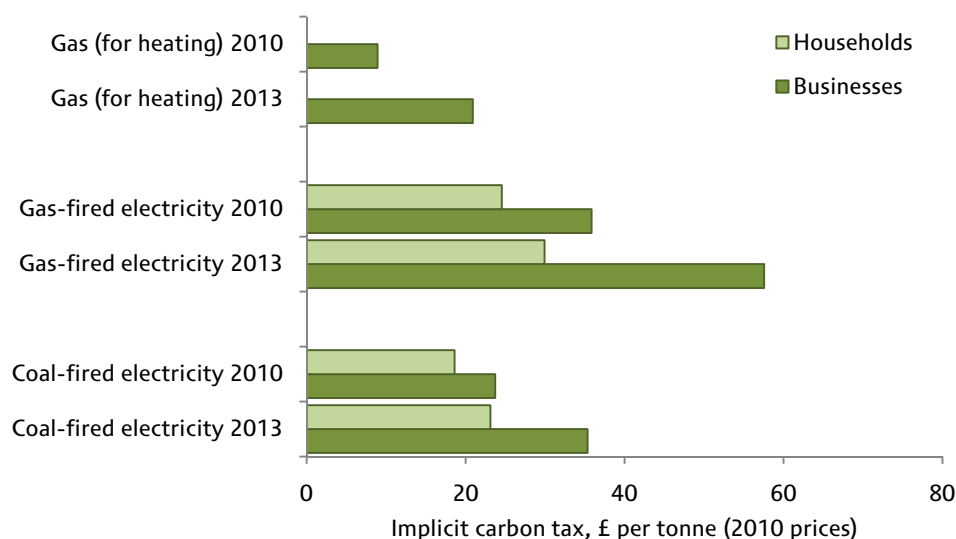
Previous analysis by IFS researchers has explored the extent to which different carbon prices operate within different parts of the economy.<sup>70</sup> Such differences are economically inefficient, since they do not provide the right incentives to reduce emissions at lowest overall cost. This section updates the analysis for 2010–11 and estimates the carbon prices that will prevail in 2013–14 given the environmental measures scheduled to come into force by then. The policies generating implicit and explicit carbon prices are:

- the EU Emissions Trading Scheme;
- the Climate Change Levy on business energy use;
- the Renewables Obligation;
- the Carbon Reduction Commitment;
- the carbon price support rates (CCL on upstream electricity generation).

We do not include the effects of the proposed feed-in tariffs (which will tend to make energy more expensive, while subsidising the generation of renewable and nuclear energy) since the details are currently unclear. Instead, we assume that firms will face the same implicit tax rates as they would have under an unchanged RO.

Figure 11.5 summarises the results for firms and consumers using gas for heating, coal-fired electricity and gas-fired electricity.<sup>71</sup> All prices are at 2010 levels. Note that nuclear power faces an implicit carbon tax rate of infinity (from the CCL and the RO) since it produces no carbon emissions, though the environmental costs associated with handling and storing nuclear waste may provide reasons to want to impose taxes on nuclear generation as well.

Figure 11.5. Implicit carbon taxes



Note: The rates for business assume the business participates in the CRC.

Source: Authors' calculations from DECC data. Details of calculation in Appendix B.

<sup>70</sup> See section 4 of P. Johnson, A. Leicester and P. Levell, *Environmental Policy since 1997*, IFS 2010 Election Briefing Note 7 (IFS Briefing Note 94), 2010 (<http://www.ifs.org.uk/bns/bn94.pdf>).

<sup>71</sup> Details of the calculation of these figures can be found in Appendix B.

The chart should be interpreted with care. Electricity consumers, for example, do not buy their power from a particular power station that generates electricity using a single fuel, but rather from a supplier that has a particular mix of fuels. For electricity, the interpretation should be: 'In a world where all electricity were produced from the same fuel source (coal, nuclear, gas, etc.), what impact would various policies have on the price and what implicit carbon tax does this give based on the CO<sub>2</sub> emissions from that source?'

At present, firms tend to be taxed at a higher rate per tonne of CO<sub>2</sub> than households for a given fuel (and, in the case of gas for heating or cooking, households are not taxed at all). Coal-fired electricity has a lower carbon tax than gas-fired, owing to the fact that the CCL and RO do not discriminate between non-renewable fuels on the basis of their carbon contents.<sup>72</sup> The reforms to the CCL work to reduce both these differences. The new levy will affect households as well as firms, and will serve to make coal more heavily taxed relative to gas, and coal and gas more heavily taxed than nuclear energy. However, at the low proposed initial rates, these reforms will not offset currently planned increases in the RO and the introduction of the CRC, which do not discriminate between non-renewables, such that the differences in the carbon prices of coal- and gas-fired electricity may well increase. The CRC is not a carbon tax, but is more akin to an energy tax, since the liability depends on energy use which is converted to an imputed carbon quantity using the average carbon emissions per kWh (meaning that it applies to nuclear and renewables as well as non-renewables). Indeed, the creation of the CRC generates an even more diverse set of implicit carbon tax rates than shown in Figure 11.5. Firms in the CRC face effectively three different sources of 'carbon tax' on their energy use: the CRC itself, a (potentially reformed) CCL and the increase in energy costs resulting from the EU ETS. Slightly smaller firms outside the CRC, and much larger firms that already participate in the ETS, will only face two of these. Thus the creation of the CRC imposes different effective carbon tax rates on firms of different sizes. As a result, despite the future introduction of an explicit electricity tax based on carbon content, it looks likely that there will be a wider, rather than narrower, range of implicit carbon prices in the future.

## 11.6 Conclusion

A number of announcements and consultations suggest environmental issues will be an active area of policymaking in the years ahead.

Ultimately, it would be desirable to move as far as possible towards a single, visible price of carbon for all sectors of the economy as a means to reducing emissions to levels consistent with future abatement targets in the most economically efficient way possible. Our analysis shows we are a long way from that point at the moment. This partly derives from using a range of instruments (taxes, trading and regulation), and from imposing emissions reduction targets that imply different sectors of the economy (notably those where emissions are and are not covered by the ETS) reducing emissions to different extents as well as facing different prices. But it also partly reflects deliberate decisions about which groups to favour: there remains a clear reluctance to price household energy directly in the same way that business energy has been priced, despite the introduction of

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<sup>72</sup> Note that the RO effectively subsidises renewables (both by reducing the number of buyouts firms need to purchase and by making firms eligible for larger payments from the buyout fund) as well as in effect 'taxing' non-renewables. This subsidy is not visible here since renewables are associated with zero carbon emissions.



several schemes that will serve to raise domestic energy prices in a much less transparent way than direct carbon pricing. The introduction of the 'carbon price support mechanism' offers a means by which this could change in the future, but the initial rates are very low, and it represents yet another layer of complexity to carbon pricing.

Some reforms suggested by the government, such as revisiting changes to aviation taxes and the 'Green Deal' for energy efficiency, do appear sensible and to be welcomed. Others, such as the 'fair fuel stabiliser', look less like good environmental policy. A commitment to raise the share of revenues from green taxes needs a clear statement from the government on which taxes are 'green' and what the target level is, but it is not at all clear that this measure is a good reflection of a government's environmental credentials.

# 12. The impact of tax and benefit changes to be implemented in April 2011

James Browne (IFS)

## Summary

- Tax and benefit changes to be introduced in April 2011 involve a net ‘takeaway’ of £5.4 billion from households in 2011–12; this is equivalent to £200 per household and comes on top of the £12.8 billion increase in indirect taxes introduced in January 2011, which is equivalent to £480 per household on average.
- Within this net ‘takeaway’, there is an £18.8 billion gross ‘takeaway’ and a £13.4 billion gross ‘giveaway’. Many of these takeaways and giveaways have offsetting effects. This creates a complex pattern of gains and losses from the overall package of reforms.
- The biggest losers are the very richest households, who are particularly affected by the restriction on the amount that can be contributed to a private pension. This comes in addition to the introduction of the 50p income tax rate applying above £150,000 and the withdrawal of the income tax personal allowance above £100,000 that were introduced in April 2010. Working couples with children also lose significantly from cuts to tax credits.
- The main winners from these reforms are non-working lone parents and low- to middle-income households without children. The main factors offsetting the other reforms for these two groups are the increases in the child element of the Child Tax Credit and in the income tax personal allowance respectively.
- The reforms introduced in January 2011 and those to be introduced in April 2011 will slightly weaken the incentive to work at all, on average. However, those on low to middle earnings without children will see their work incentives strengthen because of the increase in the income tax personal allowance.
- On average, the incentive for the vast majority of workers to earn a little more will be slightly weakened as a result of these reforms. Some workers will see their marginal effective tax rates increase more substantially as a result of these changes – the number of individuals paying the higher 40% rate of income tax will increase by 750,000. However, some workers will face a lower marginal effective tax rate as a result of these reforms, in particular those brought out of the income tax and National Insurance systems by increases in the thresholds at which these taxes start to be paid.
- If the government were to meet its aspiration of having a £10,000 income tax personal allowance in 2015–16, this would increase the number of higher-rate taxpayers by a further 850,000 and take another million people out of income tax altogether.

## 12.1 Introduction

The government's fiscal tightening to fill the structural deficit in the public finances begins in earnest in 2011. The standard VAT rate was increased from 17½% to 20% on 4 January 2011, and significant direct tax, tax credit and benefit changes are due to come into effect in the first week of April 2011. In particular, there will be a net increase in National Insurance contributions (NICs) and cuts to tax credits and Housing Benefit. This will also be the first time that the consumer price index (CPI) rather than the retail price index (RPI) or the Rossi index will be used to uprate most benefits and tax credits (with the most notable exception being the Basic State Pension), which means that they will only increase by 3.1% rather than the 4.6% or 4.8% they would otherwise have done.

In the midst of these reforms, which will tend to reduce household incomes, there will be a few giveaways: the income tax allowance for those aged under 65 will be increased in real terms, and the child element of Child Tax Credit and the Pension Credit guarantee will be increased. This leads to a complicated pattern of winners and losers and impacts on work incentives from the reforms as a whole.

In this chapter, we describe the reforms in more detail and then analyse their effects on the distribution of income and work incentives. Section 12.2 lists the reforms and shows their effects on particular example families, before we examine the overall distributional impact across the income distribution and different household types in Section 12.3. Section 12.4 examines the effect of the reforms on work incentives for current workers and Section 12.5 concludes.

## 12.2 Tax and benefit changes due in April 2011

Table 12.1 lists the main reforms due to be implemented in the 2011–12 tax year, showing the estimated revenue effects in both 2011–12 and 2012–13.<sup>1</sup> Those in italics are excluded from our analysis of the effects of tax and benefit reforms in Sections 12.3 and 12.4, as they are difficult to attribute to particular households with the data available to us.

There is a net 'takeaway' of around £5.4 billion from tax and benefit reforms to be introduced in 2011–12 (with some additional tax being payable by households in 2012–13 in respect of tax increases that have been imposed in 2011–12). This represents an average reduction in household incomes of around £200 in 2011–12, and comes on top of the increases in VAT, fuel duties and insurance premium tax that were levied in January 2011, which themselves are forecast to raise £12.8 billion, or around £480 per household on average.

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<sup>1</sup> We include the revenue effects for both years because the Treasury presents costs on a 'National Accounts' basis, which for most taxes means that revenues are accounted for when liability accrues rather than when revenue is actually received by the government. However, there are important exceptions to this, including corporation tax, self-assessment income tax, inheritance tax and capital gains tax. In these cases, the figures listed for 2011–12 do not record the full impact of the reforms due in 2011–12, as a significant part of the revenue will not be received and accounted for until the following year. For example, it is likely that restricting tax relief on pension contributions in 2011–12 will raise closer to £3.5 billion than £0.2 billion as most of the additional revenue resulting from this change will be received by the Treasury in 2012–13.

Table 12.1. Tax and benefit changes to be introduced in April 2011

	2011–12 revenue effect (£ million)	2012–13 revenue effect (£ million)
<b><i>Announced by previous government</i></b>	<b>+£9,360</b>	<b>+£13,950</b>
<b>Income tax</b>		
Freeze basic-rate limit	+£410	+£580
Restrict tax relief on pension contributions	+£200	+£3,500
Freeze annual and lifetime allowances for pension contributions	+£400	+£450
<b>National Insurance</b>		
Increase primary threshold	-£2,930	-£3,090
Increase all rates by 1ppt	+£9,020	+£9,350
<b>Indirect taxes</b>		
Tobacco duty escalator (continues in 2012–13)	+£50	+£100
Fuel duty escalator (continues in 2012–13)	+£490	+£980
Alcohol duty escalator (continues in 2012–13)	+£120	+£240
<b>Tax credits</b>		
Reduce minimum hours of those aged 60 or over to qualify for Working Tax Credit to 16	-£20	-£20
<b>Expiry of one-off giveaways</b>		
Cut in Winter Fuel Payment	+£600	+£600
1.5% real cut in the value of some benefits	+£700	+£700
<i>Other tax and benefit changes</i>	<i>+£320</i>	<i>+£560</i>
<b><i>Announced in June 2010 Budget</i></b>	<b>-£4,290</b>	<b>-£3,905</b>
<b>Income tax and National Insurance</b>		
Increase personal allowance, cut the basic-rate limit and increase the upper earnings limit	-£3,490	-£3,700
Increase employer NICs threshold	-£3,130	-£3,150
<i>Relief for new businesses in targeted regions</i>	<i>-£320</i>	<i>-£390</i>
<b>Tax credits</b>		
Reduce second income threshold to £40,000	+£140	+£145
Increase first and second withdrawal rates to 41%	+£640	+£710
<i>Reduce income disregard to £10,000</i>	<i>+£105</i>	<i>+£140</i>
Abolish baby element	+£295	+£275
Increase child element by £150/year above indexation, and £60/year in 2012–13	-£1,200	-£1,845
<b>Housing Benefit</b>		
Link Local Housing Allowance rates to 30 <sup>th</sup> percentile of local rents	+£65	+£365
Index non-dependent deductions with prices	+£125	+£225
Cap Local Housing Allowance rates and cap maximum allowance at four-bedroom rate	+£55	+£65
<i>Additional bedroom for carers</i>	<i>-£15</i>	<i>-£15</i>
<i>Increase discretionary housing payments</i>	<i>-£10</i>	<i>-£40</i>

*Continues*

Table 12.1 continued

	2011–12 revenue effect (£ million)	2012–13 revenue effect (£ million)
<b>Other benefits</b>		
Switch to CPI indexation for most benefits and tax credits (also in 2012–13)	+£1,170	+£2,240
Freeze Child Benefit (also in 2012–13)	+£365	+£695
Increase Pension Credit guarantee	–£415	–£535
<i>Abolish Child Trust Fund</i>	+£540	+£550
<i>Abolish Health in Pregnancy Grant</i>	+£150	+£150
Restrict Sure Start Maternity Grant to first child	+£75	+£75
<b>Corporation tax</b>		
<i>Reduce main rate to 27% (and 26% in 2012–13)</i>	–£400	–£1,200
<i>Reduce small companies' rate to 20%</i>	–£100	–£1,000
<i>Introduce bank levy</i>	+£1,150	+£2,320
<b>Capital gains tax</b>		
<i>Increase rate to 28% for higher-rate taxpayers and increase entrepreneurs' relief</i>	+£725	+£825
<b>Council tax</b>		
Freeze	–£625	–£630
<i>Other tax and benefit measures</i>	–£185	–£180
<b>Announced in 2010 Spending Review</b>	<b>+£320</b>	<b>+£370</b>
Freeze maximum Savings Credit award (also in 2012–13)	+£165	+£215
Freeze basic and 30-hour elements of Working Tax Credit (also in 2012–13)	+£195	+£415
Reduce payable childcare costs in Working Tax Credit from 80% to 70%	+£270	+£320
Increase child element of Child Tax Credit by a further £30/year, and another £50 in 2012–13	–£190	–£510
<i>Other benefit measures</i>	–£120	–£70
<b>Total 'giveaway'</b>	<b>–£13,365</b>	<b>–£16,465</b>
<b>Total 'takeaway'</b>	<b>+£18,755</b>	<b>+£26,880</b>
<b>Grand total</b>	<b>+£5,390</b>	<b>+£10,415</b>

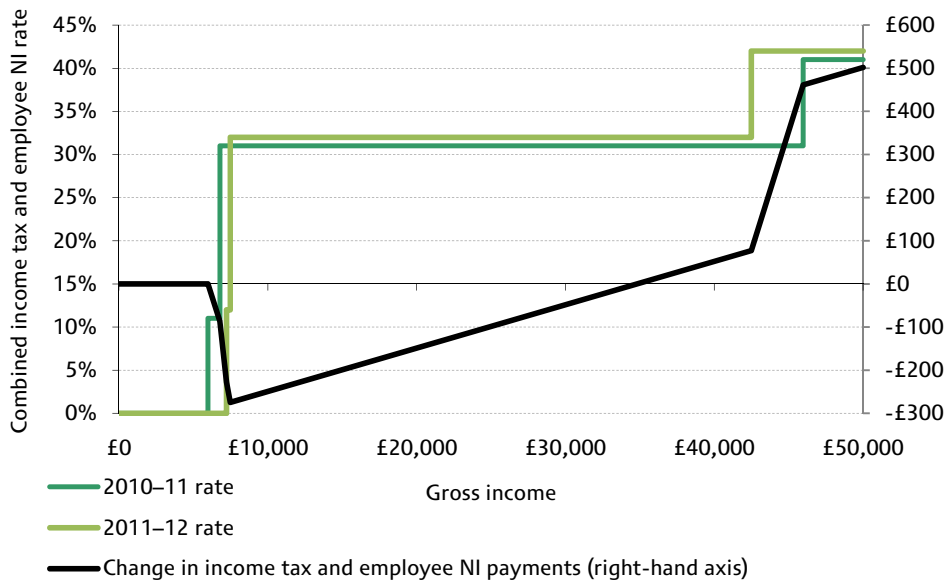
Notes: This table does not include measures already in place as of January 2011 or measures not to be introduced until future years. Where revenue effects also include reforms to be introduced in 2012–13, this is made clear in the table.

Sources: Chapter 2 of HM Treasury, *Financial Statement and Budget Report 2010*, June 2010 ([http://www.hm-treasury.gov.uk/d/junebudget\\_chapter2.pdf](http://www.hm-treasury.gov.uk/d/junebudget_chapter2.pdf)), table 3 of HM Treasury, *Spending Review 2010*, October 2010 ([http://cdn.hm-treasury.gov.uk/sr2010\\_completereport.pdf](http://cdn.hm-treasury.gov.uk/sr2010_completereport.pdf)) and table 1.6 of HMRC statistics, *Direct effects of illustrative changes*, [http://www.hmrc.gov.uk/stats/tax\\_expenditures/table1-6.pdf](http://www.hmrc.gov.uk/stats/tax_expenditures/table1-6.pdf).

Within this net 'takeaway' from households of £5.4 billion, there is a gross 'takeaway' of £18.8 billion and a gross giveaway of £13.4 billion; this is why, as we show in Section 12.3, there are both households that gain from these reforms and households that lose.

However, some of the changes directly offset each other: in particular, the increase in the employee National Insurance (NI) threshold and the income tax personal allowance offset the increase in the employee NI rate. Figure 12.1 examines the impact of changes to income tax and employee NICs on the combined income tax and employee NI schedule in

Figure 12.1. Combined income tax and employee National Insurance schedule in 2010–11 and 2011–12



Note: The figure assumes that all income is earned by an individual aged under the State Pension Age with only one job, with constant earnings throughout the year and who is contracted into the State Second Pension.

Source: Author's calculations.

2011–12, and the gains and losses resulting from these changes.<sup>2</sup> (These would also be the total gains and losses from the reforms to be introduced in April for an individual aged under 25 without children, or for an individual whose partner's income was too high for their family to be eligible for tax credits; for other individuals, however, reforms to benefits and tax credits will also be important.)

The main differences between the schedules is that, in 2011–12, there are higher allowances before income tax or NI is payable than in 2010–11, but, where income tax and NI are payable, the combined rate is higher. The black line in Figure 12.1 shows that the increases in the income tax personal allowance and employee NI thresholds reduce the amount of income tax and employee NI paid by low earners. The maximum reduction is for an individual earning £7,475 per year (the income tax personal allowance in 2011–12), who will pay around £275 per year less in income tax and NI. However, after this point, the rise in the NI rate reduces this gain until it falls to zero at around £35,000; individuals with earnings greater than £35,000 will pay more income tax and NI as a result of these reforms. The threshold at which an individual starts paying the higher rate of income tax and at which the employee NI rate falls will decrease from £45,975 to £42,475. This is the result of a decision announced by the previous government to freeze the basic-rate limit (the amount of income subject to the basic rate of income tax) and the decision to prevent higher-rate taxpayers benefiting from the increase in the income tax personal allowance announced in the June 2010 Budget. Individuals affected by this latter change see their combined income tax and employee NI rate rise by 10 percentage points. The fall in the higher-rate threshold means that the increase in income tax and NI

<sup>2</sup> We apply the standard indexation rules to put the 2010–11 system into 2011–12 prices to enable the systems to be compared.

payments rises sharply above £42,475. It will also increase the number of higher-rate taxpayers by around 750,000.<sup>3</sup> If the government were to realise its ambition of setting the personal allowance at £10,000 and again wished to prevent higher-rate taxpayers from benefiting from this by reducing the higher-rate threshold, the number of higher-rate taxpayers would increase by a further 850,000, but 1 million people would be taken out of the income tax system altogether.

But this analysis considers only income tax and employee NI for one type of individual. Other reforms will alter the pattern of gains and losses, and whether a particular family wins or loses overall will depend on factors such as the family's income, precise family structure and housing tenure. Another set of reforms that will be particularly important for families with children are those to tax credits and Child Benefit. Again, there are offsetting effects from these changes: the child element of Child Tax Credit will rise, but the values of Working Tax Credit and of Child Benefit will fall in real terms and tax credits will be withdrawn at a faster rate. Figure 12.2 adds these to our previous analysis, where we now take the example of a single-earner family (either a lone parent or a couple) with two children where the earner is working at least 30 hours per week.<sup>4</sup>

This pattern of gains and losses comes about because of the interaction of a number of different reforms to taxes and benefits. In particular:

- A single-earner family with two children earning around the minimum wage will gain from the subset of reforms considered here, because the increase to the child element of Child Tax Credit (CTC) more than offsets the real-terms falls in the value of Child Benefit and Working Tax Credit. The family also benefits from the rise in the income tax personal allowance and employee NI threshold.
- However, as income rises above this point, the gain diminishes and is eventually exhausted at around £18,000.<sup>5</sup> This is because the individual in question faces a higher marginal effective tax rate (METR) as a result of the increase in both the employee NI rate and the tax credit withdrawal rate. Withdrawing tax credits at a faster rate lowers the point at which this family ceases to be eligible for the child element of CTC from around £31,000 to around £28,000, meaning that the METR falls at a lower gross income point.
- The family element of Child Tax Credit will be withdrawn from £40,000 rather than £50,000 in 2011–12, and at the higher rate of 41% rather than 6<sup>2</sup>/<sub>3</sub>% as it is in 2010–11. This means that the METR for this individual returns to 73% between £40,000 and around £41,300 instead of remaining at 31%. Around 175,000 workers will see their METRs increase from below 40% to above 70% as a result of this change. The loss for families with incomes between £41,300 and £50,000 increases by the value of the family element of CTC, £545 per year, as a result of this change, on top of the loss caused by the increase in the employee NI rate and the freeze in Child Benefit.

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<sup>3</sup> Source: Author's calculations using the IFS tax and benefit microsimulation model, TAXBEN, run on 2008–09 Family Resources Survey.

<sup>4</sup> Note that we have therefore started this chart at £10,000 since we are assuming that the individual works at least 30 hours per week and this is approximately the amount earned from 30 hours' work at the minimum wage.

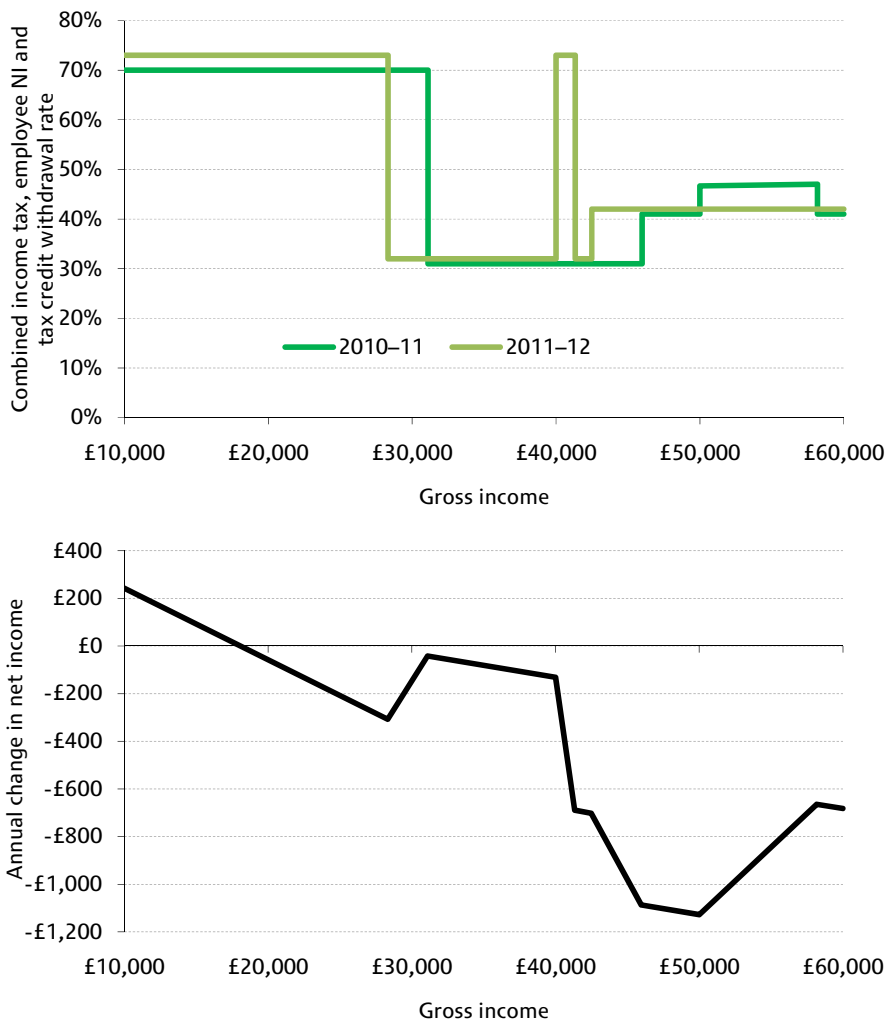
<sup>5</sup> The equivalent figure is £14,000 for a one-child family and £22,000 for a three-child family.



- Families with incomes greater than £50,000 lose less than this from the earlier withdrawal of the family element, as they currently receive less than the full family element of CTC. This loss becomes zero at the point where tax credit entitlement ends under the current system, £58,175, but families with incomes greater than this still lose out from the freeze in Child Benefit rates and the increase in the employee NI rate.

In Section 12.3, we expand our analysis to take account of reforms to all means-tested benefits and indirect taxes, and look at average losses across the income distribution and for different family types.

Figure 12.2. Combined income tax, employee National Insurance and tax credit withdrawal schedule for a lone parent or single-earner couple with two children, and change in income resulting from reforms to income tax, employee National Insurance, tax credits and Child Benefit



Note: The figure assumes that all income is earned by an individual aged under the State Pension Age working at least 30 hours per week with only one job, no childcare costs and constant earnings throughout the year and who is contracted into the State Second Pension.

Source: Author's calculations.

## 12.3 The distributional impact of the tax and benefit changes due in April 2011

In this section, we show the distributional impact of the reforms listed in Table 12.1, excluding those in italics which cannot be precisely allocated to particular households with the data available (either because they directly affect households in ways that we cannot model precisely – such as the fall in the within-year earnings disregard in tax credits – or because they do not directly affect households – such as a fall in the main rate of corporation tax – although households will be affected in some way through all of these tax and benefit changes). Unmodelled measures (those in italics) represent a net ‘takeaway’ of around £1.8 billion in 2011–12, or around £70 per household on average. (This is made up of a gross ‘takeaway’ of £3.2 billion and a ‘giveaway’ of £1.4 billion.) Separately, we also show the effects of the indirect tax rises introduced at the beginning of January 2011.

The counterfactual to which we compare these reforms is a system where tax and benefit withdrawal rates remain unchanged from their levels in January 2011, and benefit amounts and tax thresholds are uprated in line with the public finance defaults set down by the previous government.<sup>6</sup> Our analysis is done at the household level.

It is important to note that throughout this section, we hold behaviour and pre-tax prices constant.<sup>7</sup> This is consistent with HM Treasury’s analysis published in the June 2010 Budget and the October 2010 Spending Review, but not with the costings in Table 12.1 which do allow for some behavioural response. It is probably not realistic that households’ behaviour would be unaffected by these tax and benefit changes, but it is not clear that incorporating behavioural responses would make the distributional analysis a better guide to the impact on people’s well-being. For example, the extra effort of working harder bears a cost for the individual as well as bringing the benefit of extra earnings – otherwise they would presumably have chosen to work even before the reform in question. Section 12.4, which shows the impact of reforms on work incentives, gives some guide to the likely labour supply responses.

Our assumption about not allowing pre-tax prices to alter in response to changes in tax and benefit reforms is clearly more plausible in some cases than in others, and this may have consequences for the distributional effect of reforms. For example, we assume that retailers fully pass on to consumers the increase in VAT that took effect in January 2011, but in practice they may not be able to, which may instead reduce shareholder returns or employees’ wages. We assume that cuts to Housing Benefit are fully incident on tenants, but in practice landlords may reduce rents in response to reductions in the generosity of Housing Benefit, meaning that they would see their incomes reduced rather than Housing Benefit claimants. It is also the case that the rise in VAT is likely to increase the value of inflation used by the government to adjust benefits, tax credits and tax allowances in April 2012. However, we do not think that it would be helpful to allow for this in our assessment of the impact of changes to taxes and benefits on household incomes, for two main reasons:

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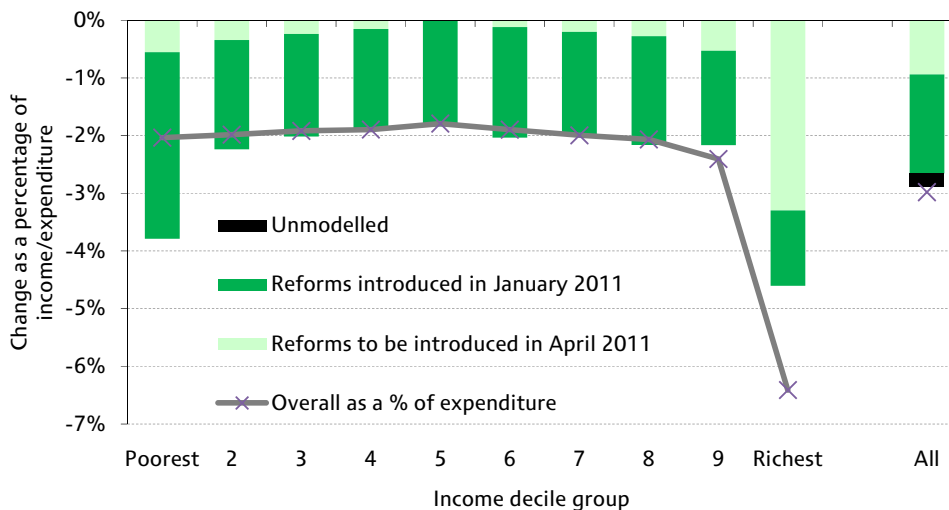
<sup>6</sup> This generally means RPI indexation for tax thresholds, tax credit rates and non-means-tested benefit rates and Rossi indexation for means-tested benefit rates.

<sup>7</sup> The only exception to this is that we assume that employers reduce wages in response to increases in employer NICs so as to keep the total employer cost constant. This means that employee and employer NICs have an identical incidence in our results, which is what we would expect from economic theory.

- First, if we were to allow for this knock-on effect of higher inflation, consistency would require us to allow for other knock-on effects of inflation. For example, some employees will have wages or salaries that are contractually linked to measures of inflation, and some private pension payments and other forms of unearned income are automatically linked to measures of inflation. It is not possible therefore for us to model precisely the impact of higher inflation on household incomes, and so the most consistent and transparent approach is to hold the pre-tax price level constant.
- Second, it is relatively straightforward to assess the impact of a VAT rise on inflation (though there is some question as to how far firms will pass on the VAT rise to customers in higher prices). But many other tax and benefit reforms could affect inflation in ways that are much harder to assess. Similarly, the VAT increase and other policies could affect a much wider range of economic outcomes, ranging from employment rates to exchange rates. It would be impossible for us to incorporate all the knock-on economic effects of all reforms into a distributional analysis. Rather than selectively incorporate some effects of some policies, but not others, we believe that the most consistent and transparent approach is to estimate the direct – almost ‘arithmetical’ – effect of reforms on different households holding all other aspects of the economy constant.

Bearing these caveats in mind, Figure 12.3 shows the distributional impact of reforms to be introduced in April 2011 by income decile group, and the impact of the reforms that were introduced in January 2011. We express the total income loss for each income decile group as a proportion of its net income and as a proportion of its expenditure. The average effect of the reforms that we are unable to allocate to particular households is shown in the ‘all’ bar and labelled ‘unmodelled’.

Figure 12.3. Distributional impact of reforms introduced in January 2011 and to be introduced in April 2011 by income decile group



Notes: Income decile groups are derived by dividing all households into 10 equal-sized groups according to income adjusted for household size using the McClements equivalence scale. Decile group 1 contains the poorest tenth of the population, decile group 2 the second poorest, and so on up to decile group 10, which contains the richest tenth. Assumes increases in employer NICs are passed on to employees in the form of lower wages.

Source: Author’s calculations using the IFS tax and benefit microsimulation model, TAXBEN, run on uprated data from the 2008–09 Family Resources Survey and 2008 Expenditure and Food Survey.

The tax and benefit reforms to be introduced in April 2011 reduce the incomes of each tenth of the income distribution, but they cause the biggest losses as a fraction of net income at the top and the bottom. This pattern of income changes cannot be described as progressive or regressive. The pattern arises because households at the bottom of the income distribution lose out particularly from the lower benefit rates that arise from using the CPI to uprate benefits rather than the RPI or the Rossi index, and because these households often do not benefit from the increases in the income tax personal allowance and NI threshold. It is households in the middle of the income distribution which benefit the most from these increases in tax and NI thresholds as a percentage of income. Households at the top of the income distribution lose out from the increase in NI rates and, in the case of the very richest households, the restriction on the maximum amount that can be invested in a private pension each year.

Adding in the increases in VAT and fuel duty that were introduced in January 2011 does not significantly alter the distributional pattern when losses are expressed as a proportion of expenditure (see Box 12.1), but does substantially increase the scale of the losses. The average loss from all of these measures (introduced in both January 2011 and April 2011, modelled and unmodelled) is around 2.9% of income.

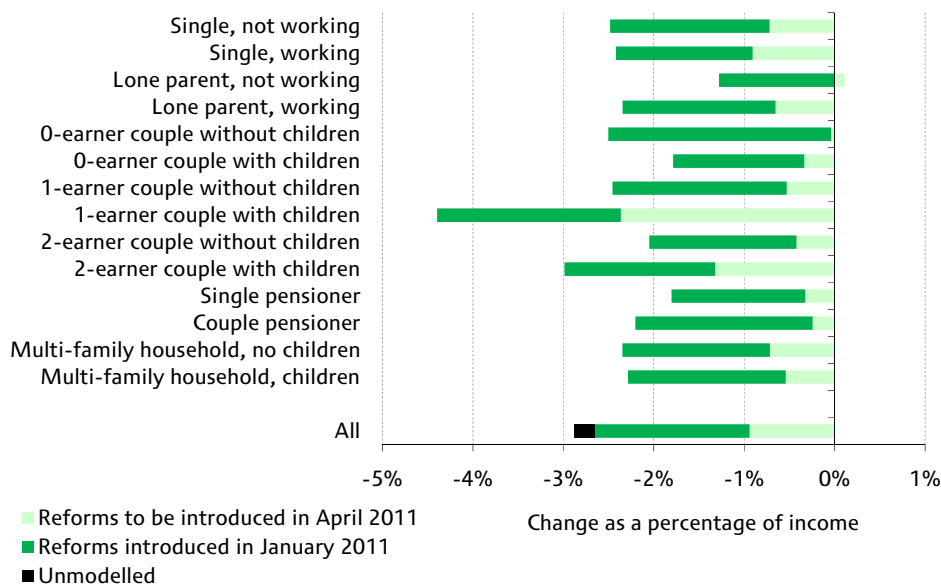
**Box 12.1. The distributional impact of increasing the standard VAT rate**

Figure 12.3 shows that the increases in indirect taxes in January 2011, which are dominated by the increase in VAT to 20%, seem to be regressive, in the sense that lower income decile groups lose more as a percentage of net income than those higher up the income distribution. This largely comes about because some households that report low incomes at a point in time to the household surveys that we use in our modelling also report relatively high levels of expenditure, which would suggest they will experience large losses from increases in indirect taxes. But many of these households are not those that we would ordinarily think of as being poor: consider, for example, the self-employed with volatile earnings, those who are temporarily unemployed, students, those taking a break from the labour market to raise children, pensioners with large amounts of capital, and so on. All such households will have low incomes when observed in a snapshot, but may be able to maintain higher living standards. However, over a lifetime, income must equal expenditure (ignoring inheritances and bequests), so households that are spending more than their income at a point in time must be saving or drawing down debt at another time, and therefore losing less as a proportion of their income from an increase in indirect taxes at this time.

Taking a lifetime perspective, what matters is whether the lifetime-rich or the lifetime-poor see a larger share of their lifetime resources taken in VAT, and on that basis VAT is progressive because necessities (consumed disproportionately by the lifetime-poor) are typically subject to zero or reduced rates of VAT. Indeed, when we instead rank households by current expenditure rather than current income, we see that low-spending households (which we might consider to be the lifetime-poor) spend proportionately less on items subject to the standard rate of VAT.<sup>a</sup>

a. See, for example, T. Crossley, D. Phillips and M. Wakefield, 'Value added tax', in R. Chote, C. Emmerson, D. Miles and J. Shaw (eds), *The IFS Green Budget: January 2009*, IFS Commentary 107 (<http://www.ifs.org.uk/budgets/gb2009/09chap10.pdf>).

Figure 12.4. Distributional impact of reforms introduced in January 2011 and to be introduced in April 2011 by household type



Note: Assumes increases in employer NICs are passed on to employees in the form of lower wages.  
 Source: Author's calculations using the IFS tax and benefit microsimulation model, TAXBEN, run on uprated data from the 2008–09 Family Resources Survey and 2008 Expenditure and Food Survey.

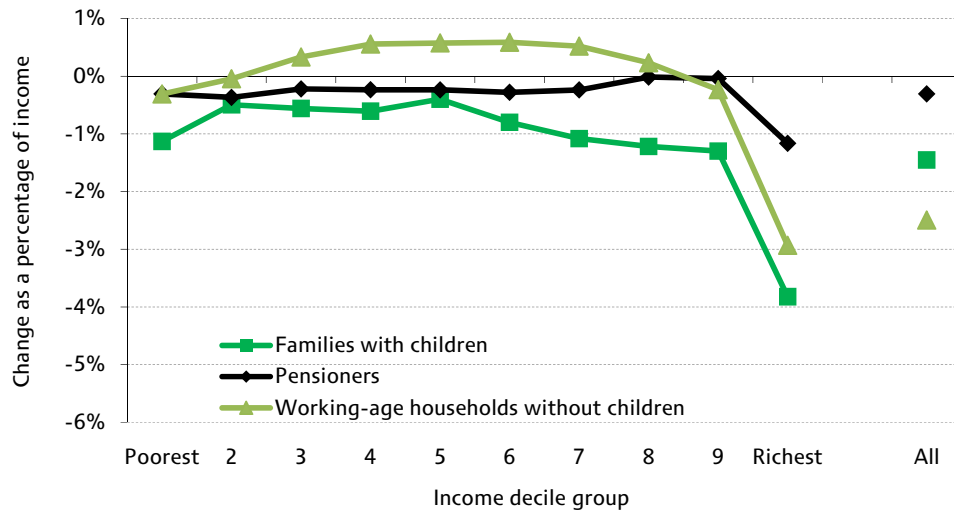
Figure 12.4 shows how the overall pattern varies by different types of household. The only household type to gain on average from the reforms to be introduced in April 2011 is non-working lone parents. They gain because the increase in the child element of CTC offsets the cuts to other benefits (cuts relative to the indexation rules in force under the previous government), and they are not affected by the increase in NI rates. Family types that lose by relatively small amounts on average are non-working couples and pensioners. By contrast, working couples with children are the most affected group: they lose from the more aggressive means-testing of tax credits and the rise in NI rates. The very richest households, which are affected by the restriction of tax relief on pension contributions, are also disproportionately found in this group.

Finally, Figures 12.5 and 12.6 show the average loss as a percentage of income for households with children, pensioners and working-age households without children in each decile group of the income distribution, both excluding (Figure 12.5) and including (Figure 12.6) the impact of the increases in indirect taxes in January 2011.

The pattern of losses across the income distribution is similar for families with children, pensioners and those of working age without children, with bigger losses amongst the richest and poorest households than amongst those in the middle of the income distribution. However, within each tenth of the income distribution, it is families with children who are most affected. This is because they are the group that is principally affected by the cuts to tax credits. By contrast, working-age households without children that are in the middle of the income distribution gain, on average, from the reforms to be introduced in April 2011. This is because they benefit from the increases in the income

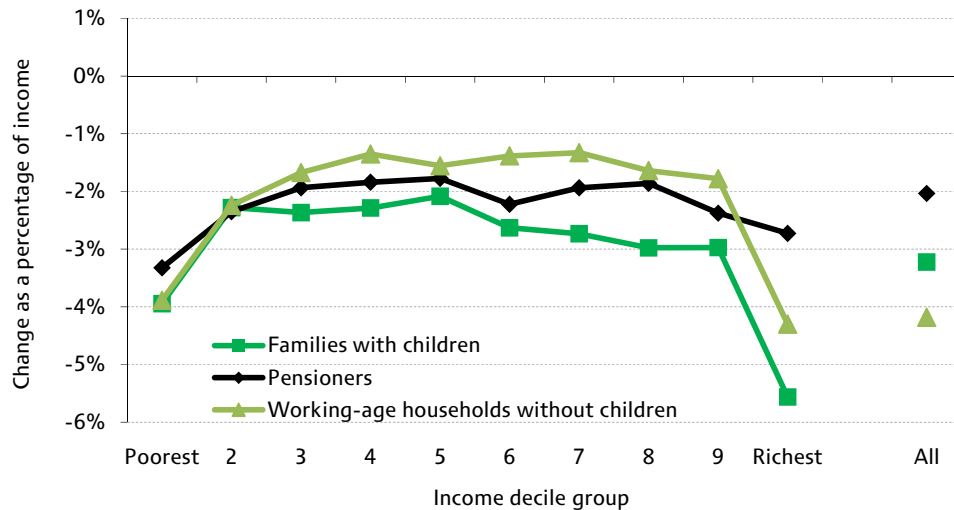
tax and NI thresholds, and are much less affected by cuts to benefits and tax credits.<sup>8</sup> Pensioner households lose as a result of the fall-back in the level of the Winter Fuel Payment but are not affected by the increase in NI rates (except for those whose partner is below the State Pension Age). None of these conclusions is significantly altered when we include the increases in indirect taxes that were implemented in January 2011 (Figure 12.6), except that all family types in all decile groups are now worse off, on average.

Figure 12.5. Distributional impact of reforms to be introduced in April 2011 by decile group and family type



Notes: As for Figure 12.3.  
Source: As for Figure 12.3.

Figure 12.6. Distributional impact of reforms introduced in January 2011 and to be introduced in April 2011 by decile group and family type



Notes: As for Figure 12.3.  
Source: As for Figure 12.3.

<sup>8</sup> Note, however, that, on average across the income distribution, working-age households without children lose more as a percentage of income than families with children. This can be explained by the fact that working-age households without children are disproportionately found in higher income decile groups, whereas those with children are disproportionately found in the lower income decile groups.

## 12.4 The impact on work incentives

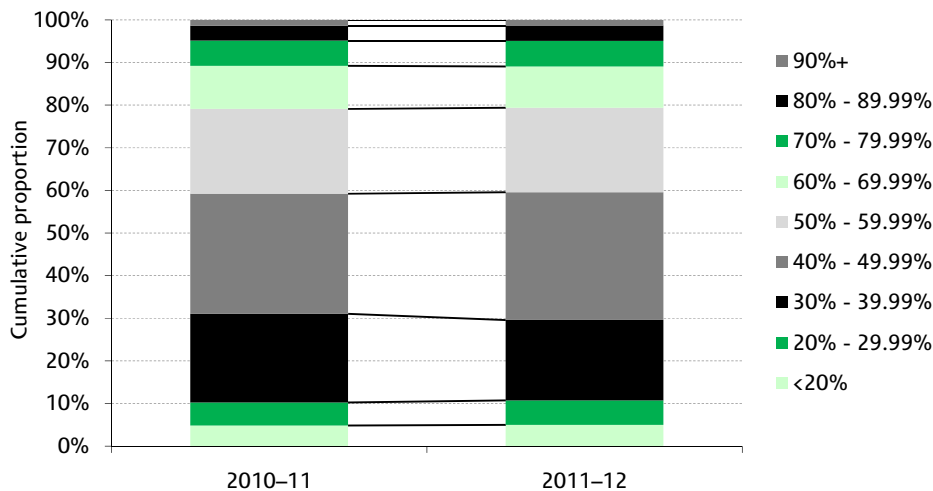
In this section, we examine the impact of the reforms to be introduced in April 2011 on work incentives. We distinguish between the incentive to do paid work at all, as opposed to not working, and the incentive for a worker to increase their earnings slightly.

### The incentive to work at all

Our measure of the incentive for an individual to work at all is the participation tax rate (PTR). This measures the proportion of earnings that is taken in higher taxes or lower benefit entitlements when an individual moves into work. We would expect the reforms to have offsetting effects on the incentive to work at all. Less generous uprating of out-of-work benefits and increases in the income tax and NI thresholds would be expected to strengthen the incentive to work at all, whereas increases in NI rates and more aggressive means-testing of tax credits would tend to weaken incentives.

Figure 12.7 shows the distribution of PTRs under an uprated version of the April 2010 tax and benefit system and under that due to be in place in April 2011. We only include current workers in this analysis. We include employer NICs and indirect taxes in our calculations of PTRs. Indirect taxes are important for work incentives, as presumably the attractiveness of working depends on the quantity of goods and services that can be purchased with the wage earned, meaning that a tax that reduces earnings will have much the same effect as one that increases prices. We calculate a consumption tax rate for each household before and after the reforms based on its observed consumption patterns. The size of each slice of the bars in the chart represents the proportion of workers whose PTRs are in each range under the system in question.

Figure 12.7. Participation tax rates of workers before January 2011 and in April 2011



Notes: Calculations are for personal taxes and benefits only: excludes most 'business taxes' (notably corporation tax and business rates, though not employer NICs) and capital taxes (notably inheritance tax, stamp duties and capital gains tax). Only includes those in work.

Source: Author's calculations using the IFS tax and benefit microsimulation model, TAXBEN, run on uprated data from the 2008 Expenditure and Food Survey.



The reforms introduced in January 2011 and to be introduced in April 2011 will very slightly weaken the incentive to work at all on average. The mean and median PTR will both increase by 0.1 percentage points. However, there will be some workers for whom work incentives will strengthen – around 11.2 million workers will see their PTRs fall, compared with 16.6 million who will see them rise. In particular:

- Those with children will see their work incentives weaken on average: this is because cuts in the real value of the Working Tax Credit and the increase in the tax credit withdrawal rate will reduce the income they receive when they are in work, whereas the increase in the child element of the Child Tax Credit will increase the amount of income they would receive if they were not working.
- However, those without children on low to middle earnings will see their incentive to work at all strengthen. This is because the increases in the income tax personal allowance and the employee NI threshold will increase the amount of income they would receive were they to work, whereas using the CPI to uprate out-of-work benefit rates will reduce the amount of income they would receive were they not to work.
- Those without children on high incomes will see the amount of income they receive when working fall because the increase in the employee NI rate more than offsets the increase in the NI threshold, and the fall in the threshold at which the higher 40% rate of income tax becomes payable means that they do not benefit from the increase in the income tax personal allowance. Therefore, PTRs for this group will increase, on average.

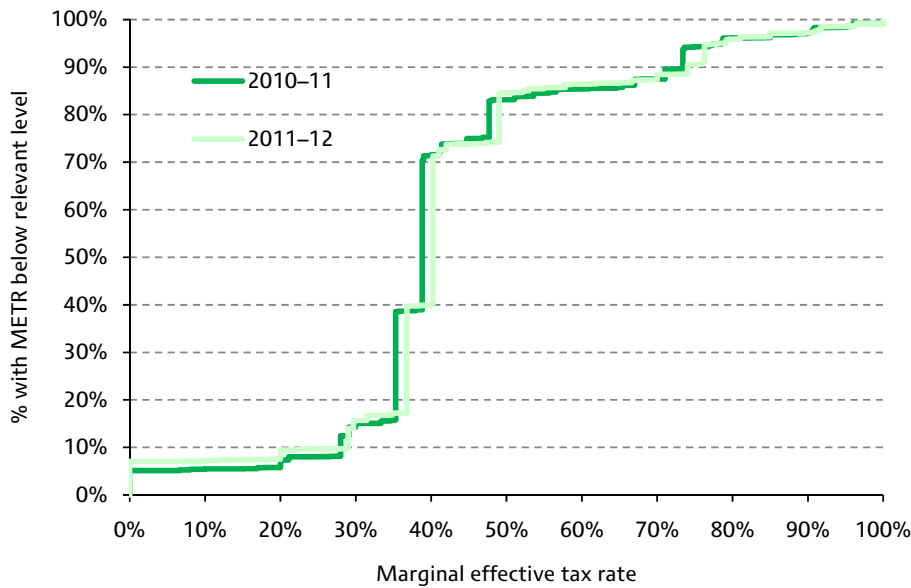
### **The incentive to earn more**

Our measure of the incentive for an individual to earn more is the marginal effective tax rate. This measures the proportion of a small rise in earnings that is lost through higher taxes or lower benefit entitlements. In Figure 12.8, we show the effect of the changes to be introduced in April on METRs amongst those already in work. Note that in this chart we exclude indirect taxes for the sake of clarity (since each household in our sample has a different average consumption tax rate), although we mention figures including indirect taxes in the following discussion.

The tax and benefit reforms to be introduced in April 2011 will increase METRs for most workers. Overall, 2.8 million workers see their METRs fall as a result of these changes, 22.4 million see a rise (although generally only a small one) and 2.2 million are unaffected. The mean METR rises by 0.3 percentage points and the median by 1.4 percentage points. When we include the reforms to indirect taxes, including those introduced in January 2011, the mean METR rises by 1.1 percentage points and the median by 1.9 percentage points.

The main cause of the rise in METRs is the increase in NI rates, which takes METRs from 38.8% to 40.2% (or 31% to 32% excluding employer NI) for a basic-rate taxpayer who is contracted in to the State Second Pension and from 35.3% to 36.8% (or 29.4% to 30.4% excluding employer NI) for an individual who is contracted out. For higher-rate taxpayers, the METR increases from 47.7% to 49.0% (or 41% to 42% excluding employer NI). The increase in the tax credit withdrawal rate further increases the METR faced by a basic-rate taxpayer who also faces tax credit withdrawal; including the NI rise, the overall METR will rise from 73.4% to 76.3% (or from 70% to 73% excluding employer NI) for such a person.

Figure 12.8. Cumulative distribution of METRs before and after reforms to be introduced in April 2011 (workers only)



Notes: Excludes indirect taxes and most ‘business taxes’ (notably corporation tax and business rates, though not employer’s NI) and capital taxes (notably inheritance tax, stamp duties and capital gains tax).  
 Source: Author’s calculations using the IFS tax and benefit microsimulation model, TAXBEN, run on uprated data from the 2008–09 Family Resources Survey.

There are also some individuals whose METR falls as a result of these reforms. Some of these are workers who have been brought out of income tax and NI by increases in the personal allowance and NI thresholds: for example, the number of workers whose METR is zero increases by nearly 500,000 as a result of these reforms. Other individuals who see their METRs fall are those who are no longer entitled to tax credits as a result of them being means-tested more aggressively; this reduces the number of workers with METRs of 70% or more by around 250,000. This nicely illustrates the ambiguous impact that changing the withdrawal rate of a means-tested benefit has on a measure of work incentives: increasing a benefit withdrawal rate increases the METR for those who remain entitled to that benefit, but reduces it for those who lose entitlement as means-testing extends less far up the income distribution.

## 12.5 Conclusion

The tax and benefit reforms that will be introduced in April 2011 consist of a ‘takeaway’ of £18.8 billion and a ‘giveaway’ of £13.4 billion, making a net ‘takeaway’ from households of £5.4 billion. Many of these takeaways and giveaways have offsetting effects but, despite this, there will be some winners as well as losers from the reforms.

The main winners will be low- to middle-earning households without children and non-working lone parents, and the biggest losers will be working couples with children and, in particular, the very richest households.

The April 2011 reforms, when considered alongside the increases in indirect taxes that were introduced in January 2011, slightly weaken work incentives on average, although

the increases in the income tax personal allowance and NI thresholds are sufficient to strengthen the incentive for individuals to work in some cases.

Of course, there are other reforms that are due to be implemented in April 2012 or later, and the effect of reforms such as multiple-year benefit freezes and the move to CPI indexation increases in magnitude over time. In particular, cuts in annual welfare spending will total £18 billion by 2014–15, compared with only £2.3 billion in 2011–12, which will disproportionately affect poorer households.<sup>9</sup> In the longer term, the government wishes to introduce the new Universal Credit system which will benefit low-income working families and strengthen incentives to work for most groups (although not second earners in couples).<sup>10</sup> These reforms will both have at least as great an impact as the reforms discussed in this chapter.

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<sup>9</sup> Sources: Table 2.1 of HM Treasury, *Financial Statement and Budget Report 2010*, June 2010 ([http://www.hm-treasury.gov.uk/d/junebudget\\_chapter2.pdf](http://www.hm-treasury.gov.uk/d/junebudget_chapter2.pdf)) and table 3 of HM Treasury, *Spending Review 2010*, October 2010 ([http://cdn.hm-treasury.gov.uk/sr2010\\_complereport.pdf](http://cdn.hm-treasury.gov.uk/sr2010_complereport.pdf)).

<sup>10</sup> See J. Browne, 'Distributional impact of tax and benefit changes', presentation at IFS 2010 Spending Review briefing, 21 October 2010 (<http://www.ifs.org.uk/publications/5313>) and M. Brewer, J. Browne and W. Jin, 'Universal Credit: a preliminary analysis', IFS Briefing Note 116, 2011 (<http://www.ifs.org.uk/bns/bn116.pdf>).

# Appendix A: Forecasting public finances

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This appendix looks at the techniques used to produce the Green Budget public finance forecasts. It starts by comparing the forecasts made for borrowing in 2009–10 in last year’s Green Budget and in the December 2009 Pre-Budget Report (PBR) with the eventual out-turn. It then goes on to provide more background information on the short- and medium-term public finance forecasts that are set out in Chapter 5.

## A.1 The accuracy of our previous forecasts

The February 2010 Green Budget forecast was for a higher level of current receipts and a lower level of current spending than those forecasts published by the Treasury in the December 2009 PBR. The out-turn for the public finances in 2009–10 was actually even stronger than the 2010 IFS Green Budget forecast, with higher receipts and lower current spending. (See Table A.1.)

Table A.1. Comparisons of forecasts for government borrowing, 2009–10

<i>£ billion</i>	<b>HM Treasury, PBR forecast, December 2009</b>	<b>IFS Green Budget forecast, February 2010</b>	<b>Estimate, OBR, November 2010</b>
Current receipts	498.1	505.2	513.8
Current expenditure <sup>a</sup>	626.2	623.0	620.4
Surplus on current budget	–128.1	–117.7	–106.6
Net investment	49.5	49.5	49.4
Total Managed Expenditure	675.7	672.5	669.8
Public sector net borrowing	177.6	167.2	156.0

a. In line with the National Accounts, depreciation has been included as current expenditure.

Note: Figures shown in this table exclude the temporary effects of financial interventions.

Sources: Out-turn figures from Office for Budget Responsibility, *Economic and Fiscal Outlook*, November 2010 (<http://budgetresponsibility.independent.gov.uk/econ-fiscal-outlook.html>). Forecasts from HM Treasury, *Pre-Budget Report*, December 2009

([http://webarchive.nationalarchives.gov.uk/20100407010852/http://www.hm-treasury.gov.uk/prebud\\_pbr09\\_repindex.htm](http://webarchive.nationalarchives.gov.uk/20100407010852/http://www.hm-treasury.gov.uk/prebud_pbr09_repindex.htm)) and table 6.2 of R. Chote, R. Crawford, C. Emmerson and G. Tetlow, ‘Green Budget public finance forecasts’, in R. Chote, C. Emmerson and J. Shaw (eds), *The IFS Green Budget: February 2010*, IFS Commentary C112 (<http://www.ifs.org.uk/budgets/gb2010/10chap6.pdf>).

Table A.2 shows the breakdown of the errors in the forecasts for tax receipts contained in the December 2009 PBR and the February 2010 Green Budget. The Treasury underestimated net taxes and National Insurance contributions by £10.2 billion, while the Green Budget (which had the benefit of access to two months’ additional out-turn data) underestimated them by £3.1 billion. The forecasting errors in the Green Budget were smaller for almost every major tax than those made by the Treasury – the exception being corporation tax. The largest error in the Treasury’s forecast was in income tax, which it estimated would generate £5.1 billion less than it ultimately did. The largest error in the Green Budget forecast was for corporation tax, which we forecasted would generate £2.7 billion less than it actually did. Outside of net taxes and social security contributions, there was also an apparently large absolute error in both forecasts for non-tax receipts:

Table A.2. IFS Green Budget and Treasury errors in forecasting government receipts, 2009–10

<i>£ billion</i>	HM Treasury, PBR, December 2009	IFS Green Budget, February 2010
Income tax (net of tax credits)	-5.1	-1.8
National Insurance contributions	-0.7	0.4
Value added tax	-2.9	-0.1
Corporation tax (net of tax credits)	-2.4	-2.7
Fuel duties	0.2	0.2
Stamp duties	-0.5	-0.5
Other taxes	1.2	1.4
<i>Net taxes &amp; National Insurance contributions</i>	<i>-10.2</i>	<i>-3.1</i>
Non-tax receipts <sup>a</sup>	-5.5	-5.5
<b>Total current receipts</b>	<b>-15.7</b>	<b>-8.6</b>

<sup>a</sup> Includes accruals adjustments on taxes, the tax credits adjustments, interest and dividends, gross operating surplus and rent; net of oil royalties and business rate payments by local authorities, the own resources contribution to the EU budget and public corporations' corporation tax payments.

Notes: Figures for tax receipts in this table are on a cash, rather than accruals, basis. Figures shown in this table exclude the temporary effects of financial interventions.

Sources: As for Table A.1.

the December 2009 PBR and the February 2010 Green Budget both underestimated non-tax receipts by £5.5 billion.

## A.2 Techniques used in our forecasts

For the current financial year, three different sources of information are examined before coming to a judgement for each element of government revenue. In addition to the latest OBR forecast from the November 2010 *Economic and Fiscal Outlook*, we use information on the revenues implied by a current receipts method and by the IFS modelled approach.<sup>1</sup> For future years, our judgement is based on the IFS model and the latest OBR forecasts.

### *Information from current receipts*

The current receipts method uses the information on receipts received in the current financial year compared with those received up to the same point in the previous financial year. An estimate for the whole of the current year's receipts is then calculated using the following formula:

$$2010-11 \text{ forecast} = \frac{\text{Receipts received so far this year}}{\text{Receipts received to the same point last year}} \times 2009-10 \text{ receipts}$$

While this is useful when forecasting revenues in the current financial year, it cannot provide projections for borrowing in future years. Also, particular caution must be used when revenues are cyclical or changes have been made that may affect the timing of payments. Both of these factors are likely to have significantly affected the timing of some tax payments in 2009–10 and 2010–11.

<sup>1</sup> For a more detailed explanation of both these techniques, see C. Giles and J. Hall, 'Forecasting the PSBR outside government: the IFS perspective', *Fiscal Studies*, 1998, 19, 83–100.

### *The IFS modelled receipts approach*

The IFS public finance model estimates growth in each of the taxes using forecasts for the growth in the tax base relevant to each tax, combined with an estimate of the elasticity of revenue with respect to the growth in the tax base. Information on the revenue effects of pre-announced tax changes from previous Budgets is then added in order to reach a forecast. Hence, modelled receipts can be summarised by the following formula:

$$2010-11 \text{ forecast} = (2009-10 \text{ receipts} \times \text{Tax-base change} \times \text{Elasticity}) + \text{Tax changes}$$

This technique enables forecasts to be made for future years, given the expected structure of the tax system. It should be noted that these forecasts become considerably less accurate for later years, since forecasts for changes in tax bases, estimates of elasticities and the impact of tax changes all become less accurate.

The elasticities for income tax and National Insurance contributions (NICs) are estimated from TAXBEN, the IFS tax and benefit model. For fuel, an elasticity calculated from previous IFS research is used.<sup>2</sup> For beer, spirits, wine and tobacco duties, we take the median elasticity found in a range of UK studies.<sup>3</sup> For air passenger duty and insurance premium tax, we estimate the elasticities used by the OBR for its projection and take those estimates.<sup>4</sup>

## **A.3 Forecasts for 2010–11**

The Green Budget baseline forecast is a judgement based on the OBR's latest forecast contained in the November 2010 *Economic and Fiscal Outlook*, the current receipts method and the IFS modelled approach. Each of these is presented in Table A.3, and we discuss below how we have used these pieces of information to come to our judgement.

Our forecast for total receipts in 2010–11 is £2.9 billion higher than that which the OBR made in November 2010, as a result of more optimistic forecasts of revenues from income tax, National Insurance contributions, corporation tax, fuel duties and capital gains tax, slightly offset by a less optimistic forecast for VAT revenues and vehicle excise duties. We forecast that spending will be as forecast by the OBR.

### *Receipts from major taxes*

For **income tax** (net of tax credits), we forecast receipts of £147.0 billion. This is £1.5 billion above the OBR forecast. This judgement is based on the growth in income tax receipts seen over the year to date, adjusted upwards for an expectation that relatively strong growth in bonuses (driven by higher profitability in the financial sector and the ending of the temporary bank payroll tax) in January 2011 will tend to lead to higher growth in income tax receipts towards the end of this financial year. Considerable uncertainties regarding income tax receipts this year remain, much of which should be resolved when receipts in January are known. This is because January is the month in

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<sup>2</sup> L. Blow and I. Crawford, *The Distributional Effects of Taxes on Private Motoring*, IFS Commentary 65, 1997 (<http://www.ifs.org.uk/publications/1887>).

<sup>3</sup> M. Chambers, 'Consumers' demand and excise duty receipts equations for alcohol, tobacco, petrol and DERV', Government Economic Service, Working Paper 138, August 1999.

<sup>4</sup> We take the nominal growth in receipts projected between 2012–13 and 2015–16 by the OBR for these taxes and relate this to the nominal growth in consumer spending, after adjusting for the estimated impact of any policy changes.

Table A.3. Forecasts for government borrowing in 2010–11

<i>£ billion</i>	OBR Nov 2010	Current receipts method	IFS forecasting model	IFS forecast judgement
Income tax (net of tax credits)	145.5	148.3 <sup>a,b</sup>	149.1	147.0
National Insurance contributions (NICs)	98.5	98.3 <sup>a</sup>	99.7	100.0
Value added tax (VAT) <sup>c</sup>	98.5	95.9 <sup>a</sup>	99.5	98.0
Corporation tax (net of tax credits)	42.6	43.2	42.6	43.0
Petroleum revenue tax	1.5	1.5	1.1	1.5
Fuel duties	27.7	27.5	27.3	27.3
Business rates	23.8	n/a	25.8	23.8
Council tax	25.7	n/a	25.3	25.7
Capital gains tax	2.8	—	2.9	2.9
Inheritance tax	2.7	2.7	2.5	2.7
Stamp duties	9.1	9.9	8.7	9.1
Tobacco duties	9.4	9.2	9.3	9.4
Spirits duties	2.6	2.6	2.9	2.6
Wine duties	3.2	3.1	3.2	3.2
Beer and cider duties	3.7	3.6	3.7	3.7
Air passenger duty	2.2	2.1	2.4	2.2
Insurance premium tax	2.5	2.4	2.5	2.5
Customs duties	3.0	n/a	2.8	3.0
Betting and gaming taxes	1.5	1.6	1.6	1.5
Landfill tax	1.2	1.1	1.0	1.2
Climate change levy	0.7	n/a	0.7	0.7
Aggregates levy	0.3	n/a	0.3	0.3
Vehicle excise duties	5.9	5.7	5.9	5.7
Temporary bank payroll tax / Bank levy <sup>d</sup>	3.5	n/a	0.0	3.5
Other taxes <sup>e</sup>	9.0	n/a	9.0	9.0
<b>National Accounts taxes</b>	<b>526.7</b>	n/a	<b>529.9</b>	<b>529.7</b>
Less Own resources contribution to EU budget	−4.9	n/a	−4.9	−4.9
Interest and dividends	3.8	n/a	3.8	3.8
Other receipts <sup>f</sup>	24.0	n/a	28.9	24.0
<b>Current receipts</b>	<b>549.7</b>	<b>n/a</b>	<b>557.7</b>	<b>552.6</b>
<b>Current spending</b>	<b>655.9</b>	<b>659.7</b>	<b>655.9</b>	<b>655.9</b>
<b>Current balance</b>	<b>−106.2</b>	<b>n/a</b>	<b>−98.2</b>	<b>−103.3</b>
Net investment	42.3	39.7	42.3	42.3
<b>Public sector net borrowing</b>	<b>148.5</b>	<b>n/a</b>	<b>140.5</b>	<b>145.6</b>

a. Current receipts figures for income tax, NICs and VAT are on an accruals basis. Other current receipts figures are on a cash basis.

b. Current receipts figures for income tax include receipts of capital gains tax.

c. Includes VAT refunds.

d. Includes both revenues from the temporary bank payroll tax introduced by the Labour government and the new, permanent bank levy announced in the June 2010 Budget.

e. Includes licence fees and environmental levies.

f. Includes gross operating surplus of public corporations.

Note: With the exception of the 'current receipts method' (see note a), all figures are on an accruals basis. Figures shown in this table exclude the temporary effects of financial interventions.

Sources: OBR forecasts from Office for Budget Responsibility, *Economic and Fiscal Outlook*, November 2010 (<http://budgetresponsibility.independent.gov.uk/econ-fiscal-outlook.html>); this table is similar to table 4.6 on page 91 and also uses public finances supplementary table 1.2. Current receipts figures from Office for National Statistics 'Public sector finances: December 2010' (<http://www.statistics.gov.uk/pdfdir/psf0111.pdf>). Authors' calculations.



which PAYE income tax on financial sector bonuses is typically paid and also because the deadline for self-assessment income tax payments for 2009–10 was Monday 31 January. The former is likely to boost receipts relative to January 2010, as many financial sector firms have been more profitable in 2010 than they were in 2009. (Details of receipts in January are scheduled to be published by the ONS on 22 February 2010.)

Our forecast for receipts from **National Insurance contributions**, of £100.0 billion, is £1.5 billion higher than the OBR's estimate. Our forecast is based on the current receipts method (which suggests that NI receipts for the year as a whole will be £98.3 billion), adjusted upwards for an expectation that relatively strong growth in bonuses (driven by higher profitability in the financial sector and the ending of the temporary bank payroll tax) will tend to lead to higher growth in NICs receipts towards the end of this financial year.

We forecast **VAT** receipts of £98.0 billion, which is £0.5 billion lower than the OBR's forecast. The IFS model suggests that VAT receipts should be higher this year than forecast by the OBR last November. However, receipts so far this year (and, in particular, out-turns for VAT receipts in the last two months of 2010) suggest that these receipts will actually come in below the OBR's forecast. Our judgement is that, while the current receipts method probably provides a pessimistic assessment of the picture for the whole year, we nonetheless expect receipts to be somewhat lower than forecast by the OBR.

Our forecast for **corporation tax** (net of tax credits) is £43.0 billion. This is slightly (£0.4 billion) above the OBR's forecast of £42.6 billion. The current receipts method suggests that receipts for the year as a whole will come in above the OBR forecast. In addition, the oil price has been higher over the last two months than the OBR forecast. While this will tend to depress the profitability of onshore companies, it will tend to increase the profitability of, and thus revenues raised from, oil and gas producers. Overall, we expect the temporary effect on corporation tax receipts this year from the higher oil price to be positive. Taking these two pieces of information together leads us to expect higher corporation tax receipts than the OBR did. Until we have data on receipts in January 2011 (again due to be published on 22 February), when typically a large slice of corporation tax receipts is received each year, the outlook for these receipts is particularly uncertain.

Our forecast for receipts from **stamp duties** of £9.1 billion is the same as the OBR's forecast. Though this is lower than the current receipts method suggests, growth in stamp duty revenues has been slowing markedly over the last three months. Our forecast is, therefore, based on the current receipts method but building in an expectation that the slowdown in receipts continues.

For **capital gains tax**, we use the forecast from the IFS model (£2.9 billion). This is slightly higher than the OBR's forecast of £2.8 billion. Monthly out-turns for receipts of capital gains tax are not available separately from income tax receipts. We do not, therefore, have a forecast for CGT revenues using the current receipts method.

We forecast that **fuel duties** will yield £27.3 billion, which is £0.4 billion lower than the OBR's forecast. The current receipts method suggests that these receipts will total £27.5 billion, while the IFS model predicts £27.3 billion. Our judgement is based on weighing these predictions against the fact that, to the extent that higher oil prices in recent months have fed through into higher consumer fuel prices, purchases of fuel will have weakened somewhat.

### Other government receipts

With the exception of vehicle excise duties (where we take the forecast from the current receipts method), we take the OBR's forecasts for 2010–11 for all other receipts.

### Government expenditure

We forecast that **current spending** in 2010–11 will be the same as forecast by the OBR, £655.9 billion. So far this year, central government current spending has been growing more quickly than the OBR forecast suggests for the year as a whole. However, this is almost exclusively driven by higher-than-expected (for the year as a whole) growth in debt interest spending over the first nine months of 2010–11. Debt interest spending has grown by 55% so far this year, compared with the OBR forecast of 38% growth over the year as a whole.<sup>5</sup> However, debt interest payments depend almost entirely on the stock of gilts already in issuance and (in the case of index-linked gilts) on inflation out-turns from previous months. All of this information would have been available to the OBR at the time it produced its latest forecasts and we therefore have no reason to question its forecast for this item of spending. All other components of central government current spending have evolved largely as the OBR forecast for the financial year as a whole. We therefore assume that current spending turns out to be in line with the OBR forecast.

We also assume that the OBR's forecast for £42.3 billion of **public sector net investment** in 2010–11 is accurate. Over the period from April 2010 to December 2010, public sector net investment spending was 19.7% lower than it was over the same period in 2009. The OBR forecast that, over the whole of 2010–11, net investment spending would be 9.2% below its 2009–10 level. Nonetheless, our judgement is that public sector net investment for the year as a whole will be in line with the OBR's forecast of £42.3 billion. Investment spending is inherently lumpy and therefore is less likely to evolve smoothly over the financial year than other components of spending.

### Government borrowing

As a result of forecasting higher current receipts and the same current spending, we forecast a **deficit on the current budget** of £103.3 billion for 2010–11. This is £2.9 billion more optimistic than the £106.2 billion deficit forecast by the OBR.

Since we forecast the same level of net investment in 2010–11 as the OBR does, our forecast for **public sector net borrowing** (£145.6 billion) is also £2.9 billion lower than the OBR forecast of £148.5 billion.

## A.4 Medium-term forecasts

Any assessment of the fiscal stance should take into account the performance of the economy. Table A.4 presents the macroeconomic forecasts underlying the Green Budget forecasts for the public finances in each of the four economic scenarios used.

The Green Budget baseline scenario predominantly uses published OBR forecasts for all macroeconomic assumptions, where these are available. The exception to this is that, as discussed in more detail in Chapter 5, we assume that the oil price is temporarily higher in the near term than the OBR forecast. The OBR's macroeconomic forecasts assume that

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<sup>5</sup> Latest out-turns from Office for National Statistics, 'Public sector finances: December 2010' (<http://www.statistics.gov.uk/pdffdir/psf0111.pdf>). Forecasts from Office for Budget Responsibility, *Economic and Fiscal Outlook*, November 2010 (<http://budgetresponsibility.independent.gov.uk/econ-fiscal-outlook.html>).

national income will grow by 2½% in 2010–11. After that, they project growth of 2% in 2011–12, rising to between 2.7% and 2.9% per annum thereafter. This path leads to the estimated output gap being closed in 2016–17, just beyond the end of the forecast horizon.<sup>6</sup>

Table A.4. Alternative macroeconomic assumptions underlying medium-term public finances forecasts

<i>Annual % change unless otherwise stated</i>	<b>2010 -11</b>	<b>2011 -12</b>	<b>2012 -13</b>	<b>2013 -14</b>	<b>2014 -15</b>	<b>2015 -16</b>
<b>Green Budget baseline (OBR assumptions, November 2010)</b>						
Gross domestic product (GDP)	2.5	2.0	2.7	2.9	2.8	2.7
Real consumers' expenditure	1.0	1.2	1.0	1.7	1.5	1.4
Employment	0.7	0.0	1.0	1.0	0.7	0.7
Real wages	-2.4	-1.4	-0.4	1.1	1.1	0.8
GDP deflator	3.1	2.5	2.2	2.7	2.7	2.7
Output gap (% of potential GDP)	-3.2	-3.3	-2.8	-2.2	-1.4	-0.7
<b>Alternative Green Budget scenario I (Barclays 'central' case)</b>						
Gross domestic product (GDP)	2.0	1.8	2.1	2.3	2.3	2.5
Real consumers' expenditure	0.1	-1.0	-0.5	-1.6	-1.4	-1.6
Employment	0.8	-0.2	0.4	0.5	0.9	0.8
Real wages	-3.6	-2.6	-1.5	-0.9	-0.3	0.7
GDP deflator	2.7	2.2	1.9	2.0	2.3	2.8
Output gap (% of potential GDP)	-2.5	-2.5	-2.1	-1.7	-1.1	-0.4
<b>Alternative Green Budget scenario II (Barclays 'optimistic' case)</b>						
Gross domestic product (GDP)	2.0	2.1	2.4	3.2	3.3	3.1
Real consumers' expenditure	0.1	-0.9	-0.6	-1.7	-1.1	-1.2
Employment	0.8	-0.1	0.4	0.4	0.9	0.8
Real wages	-3.5	-2.6	-1.4	-0.6	-0.3	0.6
GDP deflator	2.6	2.6	2.1	2.2	2.9	2.9
Output gap (% of potential GDP)	-3.4	-3.4	-3.2	-2.3	-1.3	-0.5
<b>Alternative Green Budget scenario III (Barclays 'pessimistic' case)</b>						
Gross domestic product (GDP)	1.9	0.6	0.9	1.7	1.7	1.8
Real consumers' expenditure	0.4	-0.3	-0.6	-2.1	-2.2	-2.9
Employment	0.8	-0.7	-0.5	-0.2	0.2	0.1
Real wages	-3.1	-2.0	-3.1	-3.3	-1.4	-1.0
GDP deflator	2.7	2.6	1.6	1.0	1.0	1.3
Output gap (% of potential GDP)	-1.5	-2.6	-3.4	-3.4	-3.4	-3.4

Sources: Authors' calculations; Barclays; OBR assumptions from Office for Budget Responsibility, *Economic and Fiscal Outlook*, November 2010 (<http://budgetresponsibility.independent.gov.uk/econ-fiscal-outlook.html>).

<sup>6</sup> Paragraph 1.9 of Office for Budget Responsibility, *Economic and Fiscal Outlook: November 2010*, states that the OBR expects the output gap does close in 2016–17 under its central forecast for growth.

The first alternative Green Budget scenario (the Barclays 'central' case) assumes that the output gap is smaller in 2010–11 than the OBR estimates and thus there is less scope for above-trend growth before inflationary pressures emerge. Under this scenario, growth in national income is forecast to be weaker in 2010–11 and in each of the next five years. Cumulative real GDP growth over the next five years amounts to 11.5% under this scenario, compared with 13.8% under the OBR's forecast. This scenario also implies that the output gap will not be closed until about 2016–17, and it contains substantially weaker real earnings growth and somewhat lower employment growth over the next five years than the OBR forecasts.

The second alternative Green Budget scenario (the Barclays 'optimistic' case) assumes that the economy grows by 2.0% in 2010–11, rising to 2.1% in 2011–12 and 2.4% in 2012–13. Thereafter, GDP growth accelerates to above 3%. This scenario assumes that the output gap in 2010–11 is larger than that assumed under the central case and slightly larger than that estimated by the OBR. This provides more scope for above-trend growth over the next few years. The output gap would still not be closed until about 2016–17 under this scenario. Cumulative real GDP growth over the next five years amounts to 14.9% under this scenario. However, despite this higher real GDP growth, this scenario still contains lower growth in real earnings and real consumer spending than the OBR's forecast, and so the pass-through of high GDP growth into higher tax receipts is relatively weak, as discussed in Chapter 5.

The final alternative Green Budget scenario (the Barclays 'pessimistic' case) assumes that the output gap is smaller in 2010–11 than the OBR estimates and that this gap actually widens over the next few years as real GDP growth remains sluggish. Real GDP growth is assumed to be 1.9% in 2010–11, falling to 0.6% next year and 0.9% in 2012–13, before rising again to between 1.7% and 1.8% for the following three years. Cumulative real GDP growth over the next five years amounts to just 7.0% under this scenario. This results in a decline in employment and a 10% real fall in earnings by 2015–16.

The outlook for the composition, level and growth of trend economic activity underlying the three Barclays scenarios is discussed in more detail in Chapter 4.

# Appendix B: Calculating implicit carbon taxes

Section 11.5 estimates the real (2010–11 prices) carbon taxes implicit on different fuels for different end-users resulting from a range of different policies that are currently in place or are scheduled to come on stream by 2013–14. We use information from several sources and make a number of assumptions to derive these figures.

- Estimates of the carbon emissions per kWh from the various fuels used to generate electricity (i.e. coal, gas, nuclear) come from chapter 5 of DECC's *Digest of United Kingdom Energy Statistics* (DUKES) 2010.<sup>1</sup> They are the latest available estimates of emissions (2009) for each fuel type and are adjusted to include transmission losses from power stations to end-users.
- We then estimate the impact on the carbon price of different taxes and other policies. For electricity, these are the climate change levy (CCL), the Carbon Reduction Commitment (CRC), the Renewables Obligation (RO), the proposed carbon price support rates and the EU Emissions Trading Scheme (ETS). Our calculations proceed as follows:
  - For the CCL, we take the 2010–11 rates per kWh. The CCL is assumed to be uprated annually with the retail price index (RPI) so that the real cost of the CCL is the same in two different periods.
  - The CRC is levied on energy use rather than CO<sub>2</sub> emissions, using an assumed average for grid emissions of 541g/kWh, which is fixed for the first three years of the scheme.<sup>2</sup> We assume that allowances will be sold at a price of £12 per 'tonne of CO<sub>2</sub>', as was intended by the previous government for 2012–13, and that this cost will not change in real terms by 2013–14. This implies that the CRC is equivalent to a tax of 0.65p/kWh. We assume that gas for heating is taxed at a rate consistent with £12 per tonne of CO<sub>2</sub> and emissions of 184g/kWh (from DUKES), implying a tax of 0.22p/kWh.
  - For the RO, we estimate the 2010–11 'tax' in pence per MWh to be 11.1% of the 2010–11 buyout price (£36.99 per MWh). This is an estimate of the increase in marginal costs facing suppliers, since almost all firms covered by the scheme purchased at least some buyouts, and 11.1% is the size of the obligation in 2010–11.<sup>3</sup> The buyout price is uprated annually in line with the RPI, so we assume no real change to the buyout price in 2013–14, but apply the level of the obligation of 13.4% in that year to calculate the implicit tax.<sup>4</sup>

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<sup>1</sup> <http://www.decc.gov.uk/assets/decc/Statistics/publications/dukes/311-dukes-2010-ch5.pdf>.

<sup>2</sup> See the CRC User Guide at [http://www.decc.gov.uk/assets/decc/What%20we%20do/A%20low%20carbon%20UK/crc/1\\_20100406154137\\_e\\_@\\_21934CRCPDFAWv9.pdf](http://www.decc.gov.uk/assets/decc/What%20we%20do/A%20low%20carbon%20UK/crc/1_20100406154137_e_@_21934CRCPDFAWv9.pdf).

<sup>3</sup> <http://www.ofgem.gov.uk/Media/PressRel/Documents1/RO%20Buy-Out%20price%202010%2011%20FINAL%20FINAL.pdf>.

<sup>4</sup> See 'Calculation of the ROC Obligation' at <http://www.legislation.gov.uk/ukdsi/2009/9780111473955/schedule/1>. The size of the obligation is increased if the government believes that firms will be within 10% of supplying the number of Renewables Obligation Certificates (ROCs) needed to comply with the obligation; hence this figure is a lower bound on the level of the obligation in that year. See

- For the carbon price support rates, we assume a tax per tonne of CO<sub>2</sub> of £3 in 2013. This is the highest price in the government's 'illustrative' scenarios presented in its consultation.<sup>5</sup>
- For the ETS, we take the central DECC estimate of £14.10 per tonne of CO<sub>2</sub> in the traded sector in 2010 and £14.70 in 2013.<sup>6</sup> Using estimates of the CO<sub>2</sub> emissions per kWh, we can estimate the cost of the ETS per kWh of electricity. For example, coal-fired power generates 915g of CO<sub>2</sub>/kWh. This is 0.000915 tonnes of CO<sub>2</sub>, which at a price of £14.10 per tonne would cost 1.29p/kWh.

These figures exclude some government policies aimed at promoting energy efficiency such as the Carbon Emissions Reduction Target (CERT) and the Community Energy Savings Programme (CESP). These impose costs on energy suppliers that may be passed on to end-users. They are scheduled to be replaced by the Green Deal and an Energy Companies Obligation from December 2012. We also do not take account of the different VAT treatment of energy used by households (where VAT is charged at a reduced rate of 5%) and firms (where VAT is charged at the standard rate of 20%).

The RO is set to be replaced by the system of feed-in tariffs (FITs) from 2013,<sup>7</sup> but will continue to apply to new projects until 2017, with transitional arrangements that are supposed to ensure that existing capacity is no worse off from the change. The FITs will give an advantage to renewables and nuclear power, and can also be thought of as adding to the implicit carbon tax on non-renewables (but not discriminating between coal and gas). Since we do not as yet know the levels of support or the structure of any future FIT, we simply assume that the FIT will have the same effect as the RO would have had on implicit carbon taxes. The 'banding' of the RO could arguably affect the costs of the scheme for firms (it is difficult to say whether this increases or decreases costs for firms) and we have not attempted to account for this.

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<http://www.decc.gov.uk/assets/decc/What%20we%20do/UK%20energy%20supply/Energy%20mix/Renewable%20energy/renewable%20energy%20policy/renewables%20obligation/585-RO-level-2011-12-methodology.pdf>.

<sup>5</sup> See HM Treasury, *Carbon Price Floor: Support and Certainty for Low-Carbon Investment*, 2010 ([http://www.hm-treasury.gov.uk/d/consult\\_carbon\\_price\\_support\\_condoc.pdf](http://www.hm-treasury.gov.uk/d/consult_carbon_price_support_condoc.pdf)).

<sup>6</sup>

[http://www.decc.gov.uk/assets/decc/what%20we%20do/a%20low%20carbon%20uk/carbon%20valuation/120100610131858\\_e\\_@@\\_carbonvalues.pdf](http://www.decc.gov.uk/assets/decc/what%20we%20do/a%20low%20carbon%20uk/carbon%20valuation/120100610131858_e_@@_carbonvalues.pdf).

<sup>7</sup> See Department of Energy and Climate Change, *Electricity Market Reform: Consultation Document*, 2010 (<http://www.decc.gov.uk/assets/decc/Consultations/emr/1041-electricity-market-reform-condoc.pdf>).

## Appendix C: Headline tax and benefit rates and thresholds

	2010–11	2011–12 <sup>a</sup>
<b>Income tax</b>		
Personal allowance: under age 65	£6,475 p.a.	£7,475 p.a.
aged 65–74	£9,490 p.a.	£9,940 p.a.
aged 75 and over	£9,640 p.a.	£10,090 p.a.
Married couple's allowance, restricted to 10%: at least one spouse or civil partner born before 6/4/35	£6,965 p.a.	£7,295 p.a.
Basic rate	20%	20%
Higher rate	40%	40%
Additional rate	50%	50%
Tax rates on interest income	10%, 20%, 40%, 50%	10%, 20%, 40%, 50%
Tax rates on dividend income	10%, <sup>b</sup> 32.5%, <sup>b</sup> 42.5% <sup>b</sup>	10%, <sup>b</sup> 32.5%, <sup>b</sup> 42.5% <sup>b</sup>
Starting-rate limit	£2,440 p.a.	£2,560 p.a.
Basic-rate limit	£37,400 p.a.	£35,000 p.a.
Higher-rate limit	£150,000 p.a.	£150,000 p.a.
Income limit for personal allowance	£100,000 p.a.	£100,000 p.a.
<b>National Insurance</b>		
Lower earnings limit (LEL)	£97 p.w.	£102 p.w.
Upper earnings limit (UEL)	£844 p.w.	£817 p.w.
Primary threshold (employee)	£110 p.w.	£139 p.w.
Secondary threshold (employer)	£110 p.w.	£136 p.w.
Class 1 contracted-in rate: employee – below UEL	11%	12%
– above UEL	1%	2%
employer – below UEL	12.8%	13.8%
– above UEL	12.8%	13.8%
Class 1 contracted-out rate: employee – below UEL (salary-related schemes)	9.4%	10.4%
– above UEL	1%	2%
employer – below UEL	9.1%	10.1%
– above UEL	12.8%	13.8%
<b>Corporation tax</b>		
Rates: small companies' rate	21%	20%
standard rate	28%	27%
<b>Capital gains tax</b>		
Annual exemption limit: individuals	£10,100 p.a.	£10,600 p.a.
trusts	£5,050 p.a.	£5,300 p.a.
Standard rate	18%	18%
Higher rate <sup>c</sup>	28%	28%
<b>Inheritance tax</b>		
Threshold	£325,000	£325,000
Rate for transfer at or near death	40%	40%
<b>Value added tax</b>		
Registration threshold	£70,000 p.a.	£73,000 p.a.
Standard rate	17.5%/20% <sup>d</sup>	20%
Reduced rate	5%	5%
<b>Excise duties</b>		
Beer (pint at 3.9% abv)	38p	40p <sup>e</sup>
Wine (75cl bottle at 12% abv)	169p	178p <sup>e</sup>
Spirits (70cl bottle at 40% abv)	666p	703p <sup>e</sup>
20 cigarettes: specific duty	235p	253p <sup>e</sup>
<i>ad valorem</i> (24% of retail price)	135p	135p <sup>e</sup>
Ultra-low-sulphur petrol (litre)	57p/58p/59p <sup>f</sup>	62p
Ultra-low-sulphur diesel (litre)	57p/58p/59p <sup>f</sup>	62p

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	2010–11	2011–12 <sup>a</sup>	
<b>Air passenger duty</b>			
Band A (up to 2,000 miles):	economy	£11/£12 <sup>g</sup>	£12 <sup>h</sup>
	club/first class	£22/£24 <sup>g</sup>	£25 <sup>h</sup>
Band B (2,001–4,000 miles):	economy	£45/£60 <sup>g</sup>	£60 <sup>h</sup>
	club/first class	£90/£120 <sup>g</sup>	£125 <sup>h</sup>
Band C (4,001–6,000 miles):	economy	£50/£75 <sup>g</sup>	£80 <sup>h</sup>
	club/first class	£100/£150 <sup>g</sup>	£155 <sup>h</sup>
Band D (6,001 or more miles):	economy	£55/£85 <sup>g</sup>	£90 <sup>h</sup>
	club/first class	£110/£170 <sup>g</sup>	£175 <sup>h</sup>
<b>Betting and gaming duty</b>			
Gross profits tax	15–50%	15–50%	
Spread betting rate: financial bets	3%	3%	
other bets	10%	10%	
<b>Insurance premium tax</b>			
Standard rate	5%/6% <sup>i</sup>	6%	
Higher rate (for insurance sold accompanying certain goods and services)	17.5%/20% <sup>d</sup>	20%	
<b>Stamp duty</b>			
Land and buildings:			
residential threshold	£125,000	£125,000	
non-residential threshold	£150,000	£150,000	
rate: up to threshold	0%	0%	
threshold–£250,000	1%	1%	
£250,000–£500,000	3%	3%	
£500,000–£1,000,000	4%	4%	
above £1 million	4%	5%	
Stocks and shares: rate	0.5%	0.5%	
<b>Vehicle excise duty</b>			
Graduated system (for new cars from 1 March 2001)	£0–£435 p.a. <sup>j</sup>	£0–£450 p.a. <sup>j</sup>	
Graduated system (first-year rate from April 2010)	£0–£950 p.a. <sup>k</sup>	£0–£985 p.a. <sup>k</sup>	
Standard rate (for cars registered before March 2001)	£205 p.a.	£210 p.a.	
Small-car rate (engines up to 1,549cc)	£125 p.a.	£130 p.a.	
Heavy goods vehicles (varies according to vehicle type and weight)	£170–£1,910 p.a.	£175–£1,975 p.a.	
<b>Landfill tax</b>			
Standard rate	£48 per tonne	£56 per tonne	
Lower rate (inactive waste only)	£2.50 per tonne	£2.50 per tonne	
<b>Climate change levy</b>			
Electricity	0.470p/kWh	0.485p/kWh	
Natural gas	0.164p/kWh	0.169p/kWh	
Coal	1.281p/kg	1.321p/kg	
Liquefied petroleum gas	1.050p/kg	1.083p/kg	
<b>Business rates</b>			
Rate applicable for low-value properties <sup>l</sup> in:			
England	40.7%	42.5%	
Scotland	40.7%	42.5%	
Wales	40.9%	42.7%	
<b>Council tax</b>			
Average rate Band D council tax in England and Wales	£1,420 p.a.	Councils to set	
<b>Income Support / income-based Jobseeker's Allowance</b>			
Single (aged 25 or over)	£65.45 p.w.	£67.50 p.w.	
Couple (both aged 18 or over)	£102.75 p.w.	£105.95 p.w.	
<b>Basic State Pension</b>			
Single	£97.65 p.w.	£102.15 p.w.	
Couple	£156.15 p.w.	£163.35 p.w.	
Winter Fuel Payment: for those aged 60–79	£250	£200	
for those aged 80 or over	£400	£300	

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For estimates of the effects of various illustrative tax changes on government revenues, see table 1.6 of HM Revenue & Customs, *Tax Expenditures and Ready Reckoners*, [http://www.hmrc.gov.uk/stats/tax\\_expenditures/menu.htm](http://www.hmrc.gov.uk/stats/tax_expenditures/menu.htm).

## Appendix D: Abbreviations

ACE	Allowance for Corporate Equity
AME	Annually Managed Expenditure
APD	air passenger duty
BBC	British Broadcasting Corporation
BCC	British Chambers of Commerce
BHPS	British Household Panel Survey
BIS	Department for Business, Innovation and Skills
BRC	Budget Responsibility Committee
CAA	Civil Aviation Authority
CBI	Confederation of British Industry
CBO	Congressional Budget Office (US)
CCC	Committee on Climate Change
CCL	climate change levy
CCS	carbon capture and storage
CDS	credit default swap
CERT	Carbon Emissions Reduction Target
CESP	Community Energy Savings Programme
CFC	Controlled Foreign Companies
CGT	capital gains tax
CIPFA	Chartered Institute of Public Finance and Accountancy
CO <sub>2</sub>	carbon dioxide
COFOG	Classification of the Functions of Government
CPB	Central Planning Bureau (Netherlands)
CPI	consumer price index
CRC	Carbon Reduction Commitment
CSR	Comprehensive Spending Review
CTB	Council Tax Benefit
CTC	Child Tax Credit
DB	defined benefit
DC	defined contribution
DCLG	Department for Communities and Local Government
DCLG:LG	DCLG: local government
DECC	Department of Energy and Climate Change
DEFRA	Department for Environment, Food and Rural Affairs
DEL	Departmental Expenditure Limit
DfT	Department for Transport
DMO	Debt Management Office
DUKES	Digest of United Kingdom Energy Statistics
DWP	Department for Work and Pensions
EC	European Commission
ECO	Energy Company Obligation
EEA	European Economic Area
ETS	Emissions Trading Scheme
EU	European Union

EYF	End-year flexibility
FFS	fair fuel stabiliser
FIT	feed-in-tariff
FRS	Family Resources Survey
FVI	Fiscal Vulnerability Index
GB	Green Budget
GDP	gross domestic product
GG	general government
GHG	greenhouse gas
GIMF	Global Integrated Monetary and Fiscal Model (IMF)
GNI	gross national income
HGV	heavy goods vehicle
HMRC	Her Majesty's Revenue and Customs
HMS	Her Majesty's Ship
HMT	Her Majesty's Treasury
HP filter	Hodrick–Prescott filter
ICAEW	Institute of Chartered Accountants in England and Wales
IFS	Institute for Fiscal Studies
IMF	International Monetary Fund
IP	intellectual property
IPSPC	Independent Public Service Pensions Commission
ISA	Individual Savings Account
IT	income tax
LASFE	Local Authority Self-Financed Expenditure
LFS	Labour Force Survey
METR	marginal effective tax rate
MPC	Monetary Policy Committee
MTOW	maximum take-off weight
NAO	National Audit Office
NAWRU	non-accelerating wage rate of unemployment
NHS	National Health Service
NHS PAM	NHS practices allied to medicine
NI	National Insurance
NICs	National Insurance contributions
NIESR	National Institute of Economic and Social Research
NPA	Normal Pension Age
OBR	Office for Budget Responsibility
ODA	Official Development Assistance
OECD	Organisation for Economic Co-operation and Development
OFMDFM	Office of the First Minister and Deputy First Minister (Ireland)
OLS	ordinary least squares
ONS	Office for National Statistics
OTS	Office of Tax Simplification
PAYE	Pay-As-You-Earn
PBR	Pre-Budget Report
PCT	Primary Care Trust

PFI	Private Finance Initiative
PLC	public limited company
PSBR	public sector borrowing requirement
PSNB	public sector net borrowing
PSNI	public sector net investment
PTR	participation tax rate
QE	quantitative easing
RAI	Risk Appetite Index
RDEL	resource Departmental Expenditure Limits
RHDI	real household disposable income
RO	Renewables Obligation
Rossi	retail price index excluding rent, mortgage interest, council tax and housing depreciation
RPI	retail price index
SMEs	small and medium-sized enterprises
SPA	State Pension Age
STICERD	The Suntory and Toyota International Centres for Economics and Related Disciplines
TAXBEN	IFS tax and benefit model
TFP	total factor productivity
TLRC	Tax Law Review Committee
TME	Total Managed Expenditure
UEL	upper earnings limit
UK	United Kingdom
UKIPO	United Kingdom Intellectual Property Office
UN	United Nations
US	United States
VAT	value added tax
VED	vehicle excise duty