

Office for  
**Budget  
Responsibility**

Briefing paper No. 1  
**Forecasting the public finances**

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January 2011

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## **Preface**

The Office for Budget Responsibility was created in 2010 to provide independent and authoritative analysis of the UK's public finances. As part of this role, we have been tasked with producing the official Budget and autumn forecasts for the economy and the public finances that were previously the responsibility of the Chancellor of the Exchequer.

This briefing paper describes the way in which the OBR works with Government departments to assemble a comprehensive forecast for the public finances from numerous separate forecasts for different categories of revenue, spending and financial transactions. It reflects our determination to make our forecasts and methods of working as transparent as possible, so as to increase public confidence in official economic and fiscal forecasts.

The paper starts with a description of our overall approach to the forecasting process in Chapter 1. Chapters 2 to 4 cover in detail the methodology behind the receipts, expenditure and financial transactions forecasts. For each element of receipts and expenditure, the paper describes briefly the way in which the forecast is produced, and lists the main economic determinants used and the key judgements taken. The arithmetic underlying the main fiscal aggregates is set out in the Annex.

The methodologies used to generate particular components of the public finances forecast will be developed and improved over time. As this happens, we will publish detailed explanations and justifications for the new methods adopted. Over time this will build into a much more detailed description of the fiscal forecasting process.

As we describe in this document, the production of the forecast necessarily draws on the efforts and expertise of officials in many departments across government. Reflecting this collaboration, we are grateful to analysts in HM Revenue & Customs (HMRC), the Department for Work and Pensions (DWP) and HM Treasury (HMT) for their help in compiling this document.

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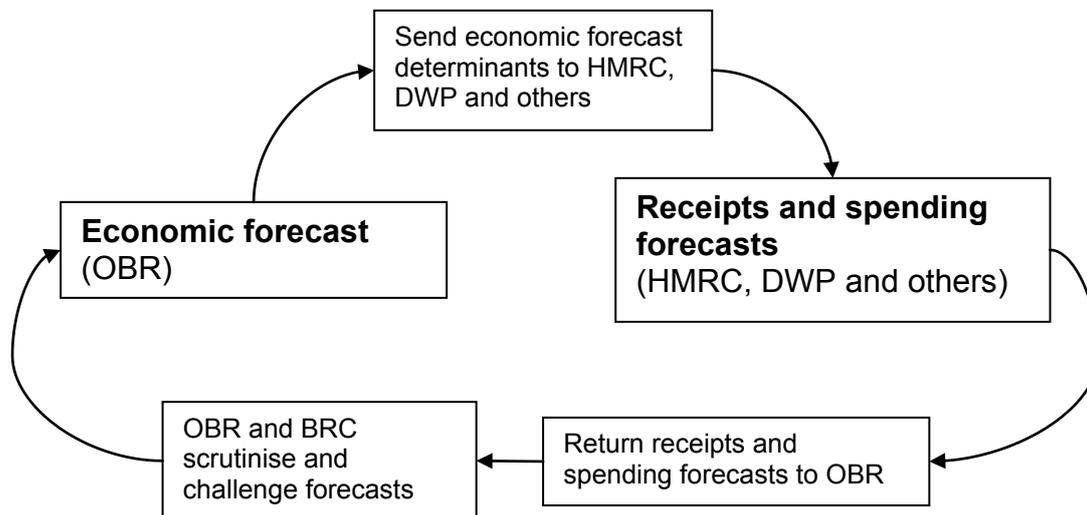
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# 1 The fiscal forecasting process

- 1.1 Producing a comprehensive fiscal forecast is a highly disaggregated bottom-up process. It requires separate forecasts for numerous categories of revenue, spending and financial transactions, based on a consistent view of the outlook for the economy.
- 1.2 This level of disaggregation requires the OBR to work in partnership with various government departments. In particular, the forecasting models for the major components of tax receipts and benefit expenditure are maintained and run by teams in HMRC and DWP respectively. This reflects their expertise on the individual tax and benefit regimes and on the receipts and payments systems, as well as their access to confidential data on individual taxpayers and benefit recipients. The OBR has access to all information and analysis related to these forecasting models, with the exception of the confidential individual-level data. All judgements and assumptions in the forecasts are made by the OBR's Budget Responsibility Committee (BRC), and the BRC takes full responsibility for the final forecast.
- 1.3 Analysts in HMRC's Knowledge, Analysis and Intelligence division work on understanding and monitoring tax receipts, maintaining the models used to produce the tax forecasts and costing policy measures. Forecasts for some of the smaller taxes are provided from other sources, such as the Department for Energy and Climate Change for environmental levies. The tax coordination and forecasting branch of the OBR then scrutinises and challenges the departmental forecasts and costings alongside the BRC, and then brings the overall receipts forecast together.
- 1.4 On the expenditure side, social security spending forecasts are provided by the DWP forecasting division, while tax credits forecasts are the responsibility of HMRC. Smaller spending streams are forecast by other departments, for example the Treasury in the case of contributions to the EU budget. The public expenditure forecasting branch of the OBR then scrutinises and challenges these forecasts alongside the BRC, and brings together the overall forecast for Annually Managed Expenditure (AME). The OBR assumes that Departmental Expenditure Limits (DEL) evolve as set out in the Government's Spending Review, with an adjustment made for any likely overshoot or undershoot in the current year.

## The fiscal forecast production process



**1.5** Reflecting its ownership of the fiscal forecast, the OBR coordinates the forecast production process. As the economy and public finances forecasts are interdependent, an iterative process of forecasting over several rounds is used to ensure that the effects of changes to one element of the forecast are fully reflected in the forecast as a whole. The steps involved in producing a round of the fiscal forecast are as follows:

- the OBR produces a draft economic forecast;
- economic determinants (e.g. growth, inflation, unemployment) derived from this forecast are sent to teams in HMRC, DWP, HMT and other departments;
- fiscal forecasting models are run by forecasting teams, using the economic determinants;
- forecasts of receipts and expenditure are returned to the OBR to be scrutinised and challenged, and are integrated into an overall forecast of the public finances;
- assumptions underpinning the forecasts are agreed by the BRC; and
- a revised economic forecast is produced by the OBR, consistent with the latest fiscal forecast, and the process begins again.

**1.6** This process iterates several times. Over time, the economic and fiscal forecasts converge such that by the end of the process they are fully consistent. Throughout the process, the fiscal forecast changes as the economy forecast evolves, issues are resolved, judgements are taken, and new outturn information becomes available.

**1.7** Receipts and expenditure forecasts are initially produced on a pre-policy measures basis. The impact on the public finances of any new policy measures is then added to the 'pre-measures' forecast to get a 'post-measures' forecast. The OBR, HMT, HMRC and DWP coordinate to ensure consistency between the costings of new policy measures and the baseline pre-measures forecast. The OBR certifies these costings, which are produced by the Treasury, working with the relevant lead department.

## **Scrutiny and challenge**

**1.8** Throughout the process, the OBR follows an iterative process of challenge and scrutiny. During each round of the fiscal forecast, the BRC meets the officials responsible for running the key receipts and expenditure models to challenge and scrutinise the projections produced and ensure they fully reflect the BRC's views on the likely future path of the economy. These meetings frequently lead to changes in assumptions and forecasting judgements to reflect the BRC's views. In addition, the OBR engages with HMRC and DWP closely at staff level.

**1.9** Common questions for forecasters include:

- Is the estimate for the current year consistent with the outturn so far in the year to date?
- Do recent trends in outturn data reflect temporary factors or permanent effects?
- Have changes in the economic determinants had the expected effect on the fiscal forecasts?
- Are changes since the last OBR forecast explainable?
- Can tax- and benefit-specific reasons for changes in the forecast be justified?
- Can year-on-year growth be explained by a combination of economic drivers, tax-specific reasons and policy measures?

## **Forecasting models**

**1.10** The fiscal forecasting models are specific to each individual tax or AME component. These models take a variety of forms: some are based on econometric equations, while others rely on micro-simulations based on samples of individual tax and benefit records. In general, recent policy measures are incorporated by adding policy costings to a baseline forecast. Policy costings are updated at each forecast to reflect the latest economic determinants. Eventually, costings are incorporated into the forecast itself.

- 1.11** The forecast is consistent with the published Treasury costings of new policy measures. It reflects only policies which have been announced by the Government on a firm and final basis. Forecasts of some duties incorporate an assumption on the path of duty rate rises beyond the period for which policy has been announced. For instance, fuel duty rates are assumed to rise with RPI in the absence of announced policy. This is set out in the individual receipts sections.
- 1.12** In most cases, our tax and benefits forecasts do not incorporate an explicit estimate of future levels of non-compliance. Instead, non-compliance is assumed to remain constant as a proportion of overall tax revenues or benefit expenditures across the forecast period. A different approach is used in the VAT forecast, where the forecast explicitly incorporates an estimate of the 'VAT gap' between the theoretical total VAT liability and actual receipts. This is explained in more detail in the section on VAT.
- 1.13** Forecasts for specific receipts components do not take into account the revenue consequences of tax litigation cases until HMRC have decided to make payments to the litigants, at which point the best central estimate of repayments is incorporated into the forecast.
- 1.14** The fiscal aggregates are forecast on a National Accounts basis. Where a tax forecast is described as being on an accrued basis, this means that receipts are allocated to the time period in which the tax liability arose, as defined in the National Accounts. This contrasts with forecasts produced on a cash basis, where receipts are allocated to the time period in which they were received by HMRC.

## Summary tables

1.15 The tables below, from the November 2010 *Economic and fiscal outlook*, show the relative magnitude of different categories of receipts, spending and financial transactions.

Table 1: Current receipts (November 2010 Outlook)

	£ billion						
	Outturn		Forecasts				
	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16
Income tax (gross of tax credits) <sup>1</sup>	147.2	151.0	156.5	168.4	182.0	196.5	209.9
of which: Pay as you earn	122.9	131.0	133.1	139.5	149.5	160.2	171.2
Self assessment	21.7	20.2	23.6	28.4	31.6	34.9	36.9
Tax credits (negative income tax)	-5.6	-5.5	-4.7	-4.3	-4.3	-4.3	-4.4
National insurance contributions	96.9	98.5	102.8	108.4	114.1	120.7	127.4
Value added tax	73.5	84.9	100.1	103.6	107.8	112.5	117.6
Corporation tax <sup>2</sup>	36.5	43.5	45.5	47.8	50.2	52.5	54.4
of which: Onshore	31.0	35.8	37.3	40.2	43.1	45.4	48.0
Offshore	5.6	7.7	8.1	7.6	7.1	7.1	6.4
Corporation tax credits <sup>3</sup>	-0.7	-0.9	-0.9	-0.9	-0.9	-0.9	-0.9
Petroleum revenue tax	0.9	1.5	1.6	1.7	1.6	1.5	1.3
Fuel duties	26.2	27.7	29.3	30.7	32.1	33.8	35.0
Business rates	23.4	23.8	25.6	26.8	27.9	28.9	29.3
Council tax	25.3	25.7	26.1	27.2	28.9	30.0	31.2
VAT refunds	11.2	13.6	15.1	14.9	14.7	14.7	15.0
Capital gains tax	2.5	2.8	3.2	2.7	3.4	4.0	4.5
Inheritance tax	2.4	2.7	2.7	2.8	3.0	3.2	3.5
Stamp duty land tax	4.9	6.0	6.3	7.9	9.2	10.5	11.5
Stamp taxes on shares	3.0	3.1	3.4	3.7	4.1	4.4	4.7
Tobacco duties	8.8	9.4	9.4	9.5	9.7	9.9	10.1
Spirits duties	2.7	2.6	2.5	2.6	2.7	2.8	2.9
Wine duties	3.0	3.2	3.3	3.5	3.8	4.0	4.4
Beer and cider duties	3.5	3.7	3.8	3.9	4.1	4.2	4.4
Air passenger duty	1.9	2.2	2.6	2.8	3.0	3.3	3.6
Insurance premium tax	2.3	2.5	2.8	2.8	2.9	2.9	3.0
Other HMRC taxes <sup>4</sup>	6.0	6.7	7.0	7.2	7.4	7.6	7.7
Vehicle excise duties	5.6	5.9	5.9	6.0	6.1	6.2	6.2
Temporary bank payroll tax	0.0	3.5	0.0	0.0	0.0	0.0	0.0
Bank levy	0.0	0.0	1.2	2.3	2.5	2.4	2.3
Licence fee receipts	3.0	3.1	3.1	3.1	3.1	3.2	3.2
Environmental levies	0.5	0.6	1.8	2.0	2.6	3.0	3.4
Other taxes	5.3	5.3	5.4	5.9	7.8	8.1	8.3
<b>National Accounts taxes</b>	<b>490.3</b>	<b>526.7</b>	<b>561.5</b>	<b>593.1</b>	<b>629.4</b>	<b>665.6</b>	<b>699.3</b>
Less own resources contribution to EU budget	-3.8	-4.9	-4.9	-5.0	-5.2	-5.4	-5.5
Interest and dividends	3.5	3.8	4.7	6.2	7.8	9.6	11.5
Gross operating surplus	23.6	23.8	24.9	26.0	27.1	28.3	29.5
Other receipts	0.1	0.2	0.1	0.0	0.0	-0.1	-0.1
<b>Current receipts</b>	<b>513.8</b>	<b>549.7</b>	<b>586.2</b>	<b>620.3</b>	<b>659.1</b>	<b>698.0</b>	<b>734.6</b>
<i>Memo:</i>							
Current receipts (% of GDP)	36.6	37.1	37.8	38.1	38.3	38.4	38.3
UK oil and gas revenues <sup>5</sup>	6.5	9.1	9.8	9.4	8.6	8.6	7.7

<sup>1</sup> Income tax includes PAYE and Self Assessment receipts, and also includes tax on savings income and other minor income tax components.

<sup>2</sup> National Accounts measure, gross of enhanced and payable tax credits.

<sup>3</sup> Includes enhanced company tax credits.

<sup>4</sup> Consists of landfill tax, climate change levy, aggregates levy, betting and gaming duties and customs duties and levies.

<sup>5</sup> Consists of offshore corporation tax and petroleum revenue tax.

Table 2: Total managed expenditure (November 2010 Outlook)

	£ billion						
	Outturn	Forecast					
	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16
<b>CURRENT EXPENDITURE</b>							
<b>Resource Departmental Expenditure Limits</b> <sup>1</sup>	<b>334.9</b>	<b>342.2</b>	<b>342.7</b>	<b>344.4</b>	<b>348.9</b>	<b>348.0</b>	<b>352.8</b>
<b>Resource Annually Managed Expenditure</b>	<b>266.0</b>	<b>293.2</b>	<b>308.3</b>	<b>317.0</b>	<b>323.3</b>	<b>336.5</b>	<b>350.2</b>
<i>of which:</i>							
Social security benefits <sup>2</sup>	163.5	169.3	174.5	177.0	176.5	181.2	188.1
Tax credits <sup>2</sup>	22.9	24.1	25.6	26.5	26.3	26.4	26.9
Net public service pensions <sup>3</sup>	3.2	4.3	5.1	5.3	5.2	5.9	7.0
National Lottery	1.0	0.9	1.1	0.9	0.8	0.8	0.8
BBC domestic services	3.5	3.4	3.6	3.5	3.7	3.5	3.6
Other departmental expenditure	0.0	-0.6	1.5	2.3	2.6	2.6	2.7
Net expenditure transfers to EU institutions	6.4	8.4	8.8	8.4	9.2	10.1	8.3
Locally-financed expenditure	25.7	26.7	27.2	28.7	30.2	31.5	32.4
Central government gross debt interest	30.9	42.7	44.0	48.6	53.5	58.9	63.1
Accounting adjustments	8.9	13.9	16.9	15.6	15.2	15.6	17.3
<b>Public sector current expenditure</b>	<b>600.9</b>	<b>635.4</b>	<b>651.0</b>	<b>661.3</b>	<b>672.2</b>	<b>684.5</b>	<b>703.0</b>
<b>CAPITAL EXPENDITURE</b>							
<b>Capital Departmental Expenditure Limits</b> <sup>1</sup>	<b>57.0</b>	<b>51.4</b>	<b>43.5</b>	<b>41.8</b>	<b>39.2</b>	<b>40.2</b>	<b>42.7</b>
<b>Capital Annually Managed Expenditure</b>	<b>12.0</b>	<b>11.4</b>	<b>9.2</b>	<b>8.1</b>	<b>7.9</b>	<b>8.3</b>	<b>7.1</b>
<i>of which:</i>							
National Lottery	0.8	1.0	0.6	0.6	0.6	0.6	0.6
Locally financed expenditure	6.8	6.5	5.4	5.0	4.6	4.1	3.3
Public corporations' own-financed capital expenditure	7.9	7.7	7.5	7.4	7.4	7.7	7.3
Central government grants to public sector banks	7.3	0.0	0.0	0.0	0.0	0.0	0.0
Other capital expenditure	-1.4	2.0	1.4	1.2	1.5	1.5	1.5
Accounting adjustments	-9.3	-5.8	-5.8	-6.1	-6.2	-5.6	-5.7
<b>Public sector gross investment</b>	<b>69.0</b>	<b>62.8</b>	<b>52.7</b>	<b>49.9</b>	<b>47.1</b>	<b>48.5</b>	<b>49.8</b>
<i>Less public sector depreciation</i>	<i>-19.5</i>	<i>-20.5</i>	<i>-21.8</i>	<i>-22.8</i>	<i>-23.8</i>	<i>-24.7</i>	<i>-25.7</i>
<b>Public sector net investment</b>	<b>49.4</b>	<b>42.3</b>	<b>30.9</b>	<b>27.1</b>	<b>23.4</b>	<b>23.8</b>	<b>24.1</b>
<b>TOTAL MANAGED EXPENDITURE</b> <sup>4</sup>	<b>669.8</b>	<b>698.2</b>	<b>703.7</b>	<b>711.3</b>	<b>719.3</b>	<b>733.0</b>	<b>752.9</b>
<i>of which:</i>							
Annually Managed Expenditure <sup>5</sup>	291.1	319.0	331.9	339.4	345.6	359.1	371.7
Departmental Expenditure Limits <sup>6</sup>	378.8	379.2	371.8	371.9	373.8	373.9	381.2
<i>of which: removal of depreciation in RDEL</i>	<i>-13.1</i>	<i>-14.3</i>	<i>-14.3</i>	<i>-14.3</i>	<i>-14.3</i>	<i>-14.3</i>	<i>-14.3</i>
<i>Memo:</i>							
<i>Total Managed Expenditure (% GDP)</i>	<i>47.7</i>	<i>47.1</i>	<i>45.4</i>	<i>43.7</i>	<i>41.8</i>	<i>40.4</i>	<i>39.3</i>

<sup>1</sup> Implied DEL numbers for 2015-16. Calculated as the difference between Resource AME and PSCE in the case of Resource DEL, and between Capital AME and PSNI in the case of Capital DEL.

<sup>2</sup> For 2009-10 to 2011-12, child allowances in Income Support and Jobseeker's Allowance have been included in tax credits and excluded from social security benefits.

<sup>3</sup> Net public service pensions expenditure is reported on a National Accounts basis.

<sup>4</sup> TME is equal to the sum of PSCE, PSNI and public sector depreciation, on a basis which excludes temporary effects of financial interventions.

<sup>5</sup> Total AME is given by resource AME plus capital AME plus depreciation in DEL.

<sup>6</sup> Total DEL is given by resource DEL plus capital DEL minus depreciation in DEL.

Table 3: Reconciliation of PSNB and CGNCR (November 2010 Outlook)

	£ billion						
	Outturn			Forecast			
	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16
<b>Public sector net borrowing</b>	<b>156.0</b>	<b>148.5</b>	<b>117</b>	<b>91</b>	<b>60</b>	<b>35</b>	<b>18</b>
Financial transactions	33.2*	5.4	6	7	9	11	12
Accruals adjustments	14.3*	-4.5	3	-1	4	-4	-6
<b>Public sector net cash requirement</b>	<b>203.5*</b>	<b>149.4</b>	<b>127</b>	<b>97</b>	<b>73</b>	<b>42</b>	<b>25</b>
<i>minus</i> Local authorities net cash requirement	5.0	6.1	5	3	1	1	0
<i>minus</i> Public corporations net cash requirement	0.8	2.9	5	6	5	6	2
<b>Central government net cash requirement (o)</b>	<b>197.7</b>	<b>140.4</b>	<b>117</b>	<b>88</b>	<b>67</b>	<b>35</b>	<b>23</b>
Net lending within the public sector	1.1	3.9	3	3	3	3	3
<b>Central government net cash requirement</b>	<b>198.8</b>	<b>144.2</b>	<b>120</b>	<b>91</b>	<b>70</b>	<b>39</b>	<b>27</b>

*Note: Totals may not sum due to rounding. Own account measures are represented by (o).*  
*\* OBR estimate in absence of published outturn*

## 2 Forecasting receipts

### Income tax

**2.1** Income tax is the largest source of revenue for the Government. In 2009-10 it raised £147 billion, and in November 2010 it was forecast to raise close to £210 billion by 2015-16. Pay-as-you-earn (PAYE) is the largest component of income tax, accounting for over 80 per cent of income tax receipts. PAYE income tax is deducted at source, taken directly from employees' pay as they earn it. There were around 38 million individuals in PAYE in 2008-09. Self-assessed (SA) income tax applies to self-employment income as well as to dividend and savings income, and accounts for around 15 per cent of income tax receipts. SA is paid by around 9.5 million individuals, although some of these will also pay PAYE.

### Pay-as-you-earn

**2.2** The starting point for the PAYE income tax forecast is the last full-year receipts figure, on an accrued basis. The forecast is generated by applying year-on-year changes due to a number of factors to this baseline. The OBR determinant for wages and salaries is the key driver of the forecast. Growth in wages and salaries can be decomposed into earnings growth and employment growth.

**2.3** HMRC's Personal Tax Model (PTM), a micro-simulation model based on a survey of taxpayers' liabilities, generates forecasts of marginal tax rates (MTRs), taking account of reliefs and allowances. It also estimates the annual cost of indexation of tax thresholds.

**2.4** The forecasting model then applies the forecast marginal tax rate to earnings growth, and the average tax rate to employment growth to estimate the increase in PAYE from the base year. This increase is reduced by the expected effect of the indexation of tax thresholds. The changes due to Budget measures and other off-model factors (such as tax-motivated incorporations) are then applied to the forecast.

**2.5** This method implicitly assumes that increases in employment and wages are spread evenly across the income distribution. A separate adjustment is made to the marginal tax rates to take account of expected financial sector bonus payments. This increases the MTR to reflect bonus payments that are likely to attract higher rates of income tax. This adjustment is agreed with OBR.

- 2.6 The model forecasts PAYE accruals which are then converted to cash receipts based on historical trends.
- 2.7 Non-SA repayments include PAYE repayments, which are forecast in line with PAYE accruals, Gift Aid repayments which are assumed to grow with wages and salaries, and repayments to private pension contributions which move in line with wages and salaries and self-employment income.

### Self-assessment

- 2.8 The self-assessment forecast is compiled on a liabilities basis and then converted to receipts. For previous years, information from tax returns is used to model the streams of income within SA (e.g. sole traders' profits, dividend receipts, savings income). Over the forecast period these are each grown in line with a suitable determinant provided by OBR. Average effective tax rates are projected using regression relationships and applied to income forecasts. This produces a theoretical liability figure for the latest outturn year which is compared with the receipts-based liability estimate from HMRC systems for the same year. The difference between the two is treated as a modelling residual and is assumed to persist in future years. The liability forecast is converted to receipts using information about self assessment payment regimes (payments on account). Future changes to the tax system (announced as Budget measures) are then factored in as receipts adjustments, along with other adjustments, such as those due to tax-motivated incorporations.
- 2.9 There are a number of other smaller components of income tax, such as the tax deduction scheme for interest (TDSI) and company income tax. These are forecast in various ways. TDSI, which taxes savings income, is forecast based on the cash deposits and interest rates determinants from the economic forecast. An adjustment is made to reflect the level of individual savings accounts (ISAs), which are tax-free.

### Main economic determinants

- **Wages and salaries:** the tax base for PAYE income tax.
- **Employment:** the number of people employed is a key determinant of PAYE receipts.
- **RPI:** used for indexation.
- **Mixed income:** used to estimate the profits of sole traders and partnerships subject to SA.
- **Household dividend receipts:** estimates growth in dividend receipts subject to SA.

- **Total interest receipts by households:** used to estimate growth in savings income.
- **Interest rates:** used to estimate growth in TDSI.

### Main forecast judgements

- **Financial sector bonuses** are a key determinant of the income tax forecast. Bonuses are generally paid to high-earning individuals and therefore tend to be taxed at a higher rate than non-bonus income. This means that although total remuneration is constrained by the wages and salaries forecast, the bonus/non-bonus split is an important judgement which affects the forecast for receipts.
- **In-year estimate:** year-to-date receipts provide valuable information about the likely outturn for the current year. Judgements are made whether to push any unexplained shortfall or overshoot to future years.
- **Forestalling:** adjustments may be made in the income tax and National Insurance Contributions forecast to take account of the effect of forestalling ahead of announced changes in tax rates and thresholds.

## **National insurance contributions**

- 2.10** National insurance contributions (NICs) raised around £97 billion in 2009-10, and in the November 2010 forecast were expected to raise £127 billion by 2015-16. National Insurance consists of different classes of contributions paid in respect of employed persons (Class 1), self-employed persons (Classes 2 and 4) and voluntarily (Class 3). Classes 2 and 3 are small in relation to the overall forecast. Other elements of NICs include statutory payment deductions, personal pension rebates, state scheme premiums, investigation settlements and repayments. The forecasting model estimates contributions to each of these elements separately.
- 2.11** Estimates of Class 1 contributions (paid by employees and employers) are based on an earnings distribution derived from the Annual Survey of Hours and Earnings (ASHE), which includes data on numbers of employees by weekly earnings band, sex and age. For future years the number and average earnings of employees within each earnings band are grown in line with OBR determinants for average earnings and numbers in employment. The same percentage earnings increases are applied across the board. Limits and thresholds are increased in line with the RPI indexation determinant. Assumptions are made about the proportion of individuals (by year, sex and age) contracted out of the State Second Pension and paying the lower contracted-out contribution rate. Contracting-out on a defined contribution (DC) basis will cease at the start of 2012-13.
- 2.12** Class 4 (self-employed) contributions are estimated using HMRC data on the earnings of the self-employed, adjusted for forecast earnings increases. The data is combined with information on contributions received in the past, the assumed number of self-employed in the future, and Class 4 rates in order to estimate the contributions paid.
- 2.13** Statutory payments consist very largely of statutory maternity pay which is forecast by increasing the latest outturn data in line with projections of births from ONS and adjusting for likely changes in payment levels. Employers' statutory payments which are subsidised in the form of reduced employer contributions are added on to the NICs forecast and offset in the social security expenditure forecast.

### **Main economic determinants**

- **Number of employees**
- **Average earnings**
- **Number of self-employed workers**
- **RPI:** used to increase limits in line with indexation.

### Main forecast judgements

- In practice, judgements made on **PAYE** receipts will feed through to the NICs forecast.
- In the absence of announcements, **thresholds** are assumed to increase by RPI.
- Prior to the abolition of contracting-out for DC schemes in 2012-13, a judgement is required on the level of **personal pension rebates**.
- **In-year estimate**: year-to-date receipts provide valuable information about the likely outturn for the current year. Judgements are made whether to push any unexplained shortfall or overshoot to future years.

## Value added tax

- 2.14** VAT is a consumption tax levied on the sale of goods and services, and is collected from the trader. In January 2011 the standard rate rose to 20 per cent. Slightly more than half of household expenditure is standard-rated. The reduced rate is 5 per cent and is applied to domestic fuel and power, children's car seats and some other goods. Around 3 per cent of expenditure is taxed at this reduced rate. Around 12 per cent of consumer expenditure is zero-rated, including books, newspapers, children's clothing and many foods. A number of other goods are required to be exempted from VAT under EU law, including land, financial services, healthcare and postal services.
- 2.15** VAT raised £73 billion in 2009-10 on an accrued basis, and in November 2010 was forecast to raise £118 billion by 2015-16.
- 2.16** The VAT forecast is based on the concepts of theoretical liability and the VAT gap. The gap is the difference between actual VAT receipts and the total value of VAT that would theoretically be collected from the tax base were all tax payers fully compliant (this value is known as VTTL – the VAT theoretical tax liability). The gap is made up of error, fraud, evasion, avoidance and debts owed by firms to HMRC.
- 2.17** Estimates of outturn VTTL are derived from detailed total expenditure data by sector, based on ONS data. Growth in VTTL is then forecast for each sector using the relevant OBR economic determinant forecasts, as described below.
- 2.18** A key factor in forecasting VAT receipts is the standard-rated share (SRS) – the share of consumer expenditure which is taxed at the standard 20 per cent rate. The latest outturn is obtained from expenditure data. Changes in the SRS are then projected using forecast changes in the ratio between consumer spending on durables and total consumer expenditure, based on the fact that durable goods are more likely to be standard-rated than non-durables. On some occasions a judgement has been made to adjust the SRS forecast in light of latest developments.
- 2.19** Subtracting the forecast VAT gap from VTTL gives the VAT forecast. Finally, adjustments are made for one-off factors such as 'Time to Pay' and the results of litigation, which in some cases involve substantial repayments from HMRC to businesses.

### Main economic determinants

- **Nominal household expenditure:** used to project VTTL growth for household consumption.
- **Expenditure on consumer durables:** used to estimate changes in the share of expenditure which is standard-rated.
- **Nominal GDP:** used to project VTTL growth for the exempt sector.

- **Household fixed investment:** used to project VTTL growth for the housing sector.
- **Central government procurement:** used to project VTTL growth for current central government expenditure.
- **Central government investment:** used to project VTTL growth for capital central government expenditure.

### Main forecast judgements

- **VAT gap:** as described above, the VAT gap is the difference between theoretical VAT liabilities and actual VAT receipts. The forecast VAT gap reflects a judgement on the future path of overall error, fraud, evasion and debt.
- **Standard-rated share:** while the standard-rated share is usually projected in line with changes in the ratio between durable consumption and total consumption, a judgement may be taken to alter this implied SRS in light of receipts data.
- **Litigation:** for key litigation cases where repayments are being made, such as the Fleming case, HMRC provide information on the likely quantity and timing of repayments. A judgement is taken on how to integrate this into the forecast.
- **In-year estimate:** year-to-date receipts provide valuable information about the likely outturn for the current year. Judgements are made whether to push any unexplained shortfall or overshoot to future years.

## Onshore corporation tax

- 2.20** HMRC forecasts onshore corporation tax (CT) by breaking it down into three sectors: industrial and commercial companies, life insurance companies, and financial sector companies excluding life insurance.
- 2.21** The model projects forward each component of the corporation tax calculation, both on the income side (e.g. profits, capital gains) and deductions (e.g. capital allowances, group relief, trading losses carried forward). These are projected forward using the appropriate OBR economic determinant or econometric equations. The CT forecast uses accruals data which is converted back into receipts.
- 2.22** Onshore corporation tax is one of the most cyclical of taxes, falling from £41 billion in 2007-08 to £31 billion in 2009-10. CT was forecast to rise to £48 billion by 2015-16 in the November 2010 forecast.

### Main economic determinants

- **Non-oil, non-financial profits:** derived from the economic forecast of corporate profits.
- **Financial company profits:** based on a judgement that financial company profits grow broadly in line with nominal GDP, and only return to a 20-year average as a percentage of GDP by the end of the forecast period.
- **Investment:** projection from economic forecast. Higher investment will mean more use of capital allowances and therefore reduce corporation tax.
- **Other economic determinants:** the model uses various determinants from the economic forecast to project certain elements of the CT calculation e.g. private non-financial company short-term interest payments (interest income), foreign income (case IV income, income relieved by double taxation).

### Main forecast judgements

- **Implications of in-year instalment payments:** large companies pay quarterly instalment payments (QIPs). Many companies would pay their instalment payments on 2010 profits in July 2010, October 2010, January 2011 and April 2011. For a forecast made halfway through a financial year, information from the first or the first two QIP payments is crucial in judging receipts for the current financial year. The current year estimate for QIPs would be based on these first two instalments, with a judgement on what this would imply for the January instalment payment. Although instalments are theoretically intended to be 25 per cent of a company's annual liability, this is based on the company's own estimate of tax due at the time that it pays the instalment. Amounts paid can therefore vary considerably from instalment to instalment.

- **Carry-forward of losses:** the combination of the financial sector crisis and the recession has increased the pool of losses. As firms return to profit, they could set these off against future liabilities. The forecast incorporate an assumption on the likely future path on the use of losses as the economy recovers.
- **Repayments:** Higher than expected repayments have depressed corporation tax in recent years. In part this reflects firms carrying back losses against recently paid tax during the recession, but some firms overpay in their instalment payments and get a repayment later. An assumption has to be made on the likely scale of repayments. In some complex cases, final tax liabilities are not settled until several years after the year in question. These settlements can result in large repayments or arrears payments. The forecasters also get intelligence from HMRC's Large Business Service (LBS) on the timing and size of likely repayments.
- **Tax-motivated incorporations (TMI):** The CT forecast allows for the impact of businesses incorporating for tax reasons and becoming liable for corporation tax rather than income tax. TMIs boost CT receipts but this is more than offset by the loss of income tax receipts.
- **Impact from previous policy measures:** These are usually added to the forecast at the end of the process, and include Budget reforms and various avoidance measures.

## UK oil and gas revenues

- 2.23 UK oil and gas revenues consist of petroleum revenue tax and offshore corporation tax. Reflecting the large swings in the oil price, UK oil and gas revenues are the most volatile of the main tax streams. UK oil and gas revenues raised £6.5 billion in 2009-10. In the November 2010 forecast, revenues were expected to raise close to £8 billion by 2015-16.
- 2.24 The HMRC forecast is based on a micro-simulation model that uses production and expenditure data on each individual oil and gas field.

### Main economic determinants

- **Oil price:** the forecast is based on prices implied by futures markets.
- **Exchange rate:** the \$/£ exchange rate projection is taken from the economic model. This assumes that the exchange rate moves in line with an uncovered interest parity condition, consistent with the interest rates underlying the model.

### Main forecast judgements

- **Oil and gas production:** derived from projections produced by the Department for Energy and Climate Change (DECC), which are based on detailed field-by-field data provided by operators. DECC then adjust some of this data to account for likely project slippage and incorporate negative contingency margins to allow for the tendency for firms to over-predict production in the short to medium term.
- **Capital and operating expenditure:** these are also based on detailed field-by-field data provided by operators. Higher expenditure will reduce profits.
- **Implications of in-year instalment payments:** UK oil and gas firms pay three instalment payments on current year profits (in July, October and January). These provide valuable information for current year receipts.
- **Gas prices:** these are assumed to move back in line with oil prices in the medium-term. In recent forecasts, gas prices have been weaker than oil prices so a judgement has been taken on how quickly they will converge upwards to oil prices.
- **Exploration and appraisal (E and A):** oil companies can offset exploration and appraisal expenditure against offshore corporation tax. DECC obtain data from field operators on outturn and forecast E and A expenditure. This is used to inform a judgement on the likely level of ongoing expenditure.

- **Other judgements:** These include model calibration and judging whether company-specific changes in receipts are likely to persist or not.

## Fuel duties

- 2.25** Fuel duties are levied primarily on road petrol and diesel. Fuel duties raised £26 billion in 2009-10, and in November 2010 were forecast to raise £35 billion by 2015-16. Duty is levied in pence per litre, so the receipts forecasts are the product of fuel consumption and the duty rate.
- 2.26** The petrol and diesel forecasts are based on an econometric equation, which predicts total kilometres travelled, and applies fuel-efficiency assumptions and the duty-paid share to obtain an estimate of total fuel consumption. Kilometres travelled are forecast using real GDP (as the number of journeys tends to increase with income) and the real price per km, which is projected using oil price and exchange rate forecasts.
- 2.27** Efficiency is calculated as an average of fuel efficiency per km of the different classes of vehicle, weighted by the number of vehicles and the average distance travelled. Fuel efficiency figures come from the Department for Transport, and are projected in line with EU targets. Improvements in efficiency over time are partly offset by the effect of increasing congestion, which tends to increase fuel usage.
- 2.28** Duties on other types of fuel such as heating oil are forecast based on simple assumptions about growth over time.

### Main economic determinants

- **Real GDP:** as GDP rises, the number of journeys made tends to rise.
- **Sterling oil price:** Taken from the oil price and sterling/dollar exchange rate determinants. Feeds into real prices per km.
- **RPI:** Duty rates beyond those announced are forecast to grow by RPI. Announced duty rate increases are also set relative to RPI (RPI + 1 pence per litre for example).

### Main forecast judgements

- **In-year estimate:** year-to-date receipts provide valuable information about the likely outturn for the current year. Judgements are made whether to push any unexplained shortfall or overshoot to future years.
- Vehicles become more efficient over time as manufacturers are assumed to reach the **EU efficiency targets**. This is in line with the assumption used in the vehicle excise duty (VED) forecast.
- Assumptions on the relationships between income, price and distance travelled.

## **Business rates (National Non-Domestic Rates)**

- 2.29** Business rates are charged on non-domestic property. Each non-exempt property has a rateable value. Gross business rate bills are calculated by applying a multiplier to the rateable value, which is uprated in line with inflation each year. Reliefs may then reduce the actual bill charged. The forecasting model multiplies the number of properties (grown by the judgement on buoyancy described below) by rateable values.
- 2.30** Business rates raised £23 billion in 2009-10 and in November 2010 were forecast to raise £29 billion by 2015-16.

### **Main economic determinants**

- **RPI:** The multiplier is uprated by the previous September's RPI. A 1 per cent rise in inflation would raise business rates by around £200 million.

### **Main forecasting judgements**

- **Buoyancy:** this is defined as the growth in the number of non-domestic properties subject to business rates from new builds and demolitions. This is a determinant calculated by HMRC from business rate data. The forecast is based on an equation that links buoyancy to the output gap and is provided by the OBR.
- **Assumptions on reliefs:** there are a number of reliefs e.g. empty property relief, charitable relief.
- **Impact of revaluation:** non-domestic properties are revalued every five years, redistributing the burden of rates based on more up-to-date property values. The level of the multiplier is adjusted so that total bills for the next 5 years are roughly equal in real terms to total bills over the previous 5 years. Transitional relief is given to cap the impact on bills for individual properties and judgement is involved in forecasting this for the years up to the next revaluation.
- **Losses from the tax base and repayments:** total rateable values and bills may be reduced by appeals and other factors. Judgement is involved in determining future losses of rateable value and consequent repayments.

## Capital gains tax

**2.31** Capital gains tax (CGT) is levied on profits made from the sale of assets. CGT is paid by individuals, trusts and personal representatives of deceased persons; gains made by companies are subject to corporation tax. CGT is paid with a year's lag, so receipts in 2009-10 reflect asset sales made in 2008-09.

**2.32** CGT was estimated to raise £7.8 billion in 2008-09. This exceptionally high figure was influenced by taxpayers selling business assets early before the abolition of business asset taper relief and also by the economic uncertainties at that time. In 2009-10, CGT was estimated to raise £2.5 billion; this is likely to reflect the effect of additional disposals being made in 2008-09 leaving fewer gains to realise in 2009-10, along with lower asset prices and transactions. By 2015-16, CGT is forecast to raise £4.5 billion.

**2.33** Capital gains tax is estimated using a model separated into financial and non-financial assets. Historical data on length of ownership and the financial/non-financial split are obtained from tax records. The forecast uses projections of asset prices and volumes from the economic forecast to project financial accruals in line with the changes in equity prices and sales volumes and to project non-financial accruals in line with average house prices and sales volumes.

### Main economic determinants

- **House prices and equity prices:** used to estimate changes in the value of assets. CGT is particularly sensitive to changes in equity prices, reflecting the fact that it is taxed on the gain rather than the whole disposal price, and that financial assets account for around two-thirds of chargeable gains.
- **Housing transactions and equity volumes:** used to estimate the number of transactions in housing and equities.

### Main forecast judgements

- The **length of time** for which assets are held is assumed not to vary over time, except in response to announced policy changes.
- The forecast reflects judgements on the effect of recent changes in the **tax regime** on asset sales and tax receipts.

## **Inheritance tax**

- 2.34** Inheritance tax (IHT) is levied on the assets, after liabilities, of the deceased. Estates are taxed at 40 per cent above a threshold of £325,000. IHT receipts reflect asset prices with a 6-12 month lag, as payment is not required until some months after probate. In 2009-10, it raised £2.4 billion, down from £2.8 billion in 2008-09, reflecting the fall in the value of assets in the recession. By 2015-16, IHT is forecast to raise £3.5 billion as of the November 2010 forecast. This is lower than the 2007-08 peak of £3.8 billion, largely reflecting the impact of the Transferable Nil-Rate Band policy introduced at the 2007 Pre-Budget Report, which allows civil partners and married couples to share their IHT allowances. Policy measures in the 2009 Pre-Budget Report and the March 2010 Budget have frozen the IHT allowance until 2014-15.
- 2.35** The forecast is based on a micro-simulation model. Data on a sample of estates is taken from HMRC, and a program is used to estimate the amount of tax paid for a given value of assets in the estate. Applying the economic forecast for asset prices to this simulation allows HMRC to forecast IHT to 2015-16. The IHT threshold is forecast to grow by RPI, except where the threshold has already been announced by the Chancellor. The forecast also takes account of changes in the number of deaths per year, forecast by the Government Actuary's Department (GAD).

### **Main economic determinants**

- **House prices and equity prices:** used to estimate the value of assets held by estates.
- **RPI:** used for uprating the threshold in the absence of policy announcements.

### **Main forecast judgements**

- The forecast assumes that the economic forecast determinants on equity prices and house prices are appropriate for the stock of equities and housing owned by estates subject to IHT.
- **In-year estimate:** year-to-date receipts provide valuable information about the likely outturn for the current year. Judgements are made whether to push any unexplained shortfall or overshoot to future years.

## Stamp duty land tax

- 2.36** Stamp duty comprises stamp duty land tax (SDLT), which is levied on land and property transactions, and stamp taxes on shares (STS) which is levied on share transactions.
- 2.37** Stamp duty land tax raised £5 billion in 2009-10, and in November 2010 was forecast to raise £12 billion by 2015-16. Two-thirds of SDLT revenue currently comes from residential transactions. Transactions are separated by value into bands above a threshold of £125,000 for residential transactions and £150,000 for non-residential transactions, with rates varying from 1 per cent to 5 per cent. First-time buyers purchasing between late March 2010 and end March 2012 are subject to a threshold of £250,000.
- 2.38** The model is based on a calculation of tax liabilities for a base year using data from the stamp duty land tax database, which contains actual data for all transactions subject to SDLT.
- 2.39** The forecast for the average price and volume of commercial and residential property is provided by OBR. These forecast prices and volumes are applied to the base year SDLT transactions to produce projected transactions from which a calculated revenue forecast for future years is derived. This is then adjusted by a correction factor to reflect the small differences between liabilities recorded on the stamp duty database and actual receipts for the base year.

### Main economic determinants

- **Residential property prices:** average house price based on CLG data, part of the economic forecast.
- **Residential property transactions:** seasonally-adjusted property transaction series, based on SDLT data. Part of the economic forecast.
- **Commercial property prices:** based on SDLT data, forecast by the OBR.
- **Commercial property transactions:** based on SDLT data, forecast by the OBR.

### Main forecast judgements

- **In-year estimate:** year-to-date receipts provide valuable information about the likely outturn for the current year. Judgements are made whether to push any unexplained shortfall or overshoot to future years.

## Stamp taxes on shares

- 2.40** Stamp taxes on shares (STS) is levied on share transactions, and raised £3 billion in 2009-10. STS was forecast in November 2010 to raise close to £5 billion by 2015-16. About 90 per cent of STS currently comes from stamp duty reserve tax (SDRT), which is the tax collected on electronic ‘paperless’ transactions.
- 2.41** The model applies the STS tax rate to the product of equity prices and volumes, and the proportion of transactions subject to stamp duty, to produce a forecast of tax accruals. Forecast receipts are then derived from known lags between transactions and payments. The proportion of stampable transactions is estimated by HMRC based on past receipts, prices and volumes. Equity prices are assumed to grow in line with nominal GDP, while equity volumes are forecast internally by the OBR using an equation based on previous trends in volumes.

### Main economic determinants

- **Equity prices:** equity prices as measured by the FTSE All-share index are assumed to rise from their current level in line with nominal GDP growth.
- **Equity volumes:** forecast by the OBR using a simple equation based on past trends in outturn.

### Main forecast judgements

- Many transactions, such as those between market-makers, are exempt from stamp duty, so there is a substantial difference between the total number of transactions and the number of transactions on which stamp duty was actually paid. A judgement is taken on the likely future path of non-exempt transaction volumes, in light of the total equity volumes forecast and recent outturn data.
- **In-year estimate:** year-to-date receipts provide valuable information about the likely outturn for the current year. Judgements are made whether to push any unexplained shortfall or overshoot to future years.

## Tobacco duty

- 2.42** Tobacco duties raised £9 billion in 2009-10 and in November 2010 were estimated to raise £10 billion by 2015-16. Tobacco revenue includes receipts from both cigarette and non-cigarette tobacco duties. Duty from cigarettes currently accounts for just over 90 per cent of tobacco revenues, with the rest being made up of hand rolling tobacco, cigars, and pipe tobacco.
- 2.43** The receipts forecast for cigarette duty is derived by multiplying forecast duty-paid cigarette clearances by announced or projected duty rates.
- 2.44** Duty-paid cigarette clearances are forecast to decline. An underlying trend decline captures the overall decline in smoking. Forecast real price increases (due to above inflation duty increases) further reduce clearances. The sterling-euro exchange rate features in the model to capture the impact of cross border shopping.
- 2.45** Other tobacco receipts are given by outturn receipts grown by changes in duty rate (RPI plus escalator) and a 2.5 per cent per year upward trend. Forecast revenues are adjusted for timing effects over the year-end.

### Main economic determinants

- **RPI:** where future duty rates have not been announced by the Chancellor, they are forecast to grow by RPI.
- **Sterling-euro exchange rate:** A stronger pound is expected to lead to increases in cross border shopping (the purchase of tobacco from abroad, rather than from the UK), leading to a fall in UK tobacco revenues.

### Main forecast judgements

- **Duty-paid consumption:** if the real price of cigarettes and the value of the pound are unchanged, the underlying volume of duty-paid consumption of cigarettes is assumed to fall by around 2 per cent per year. The underlying level is defined as duty-paid clearances, adjusted for timing effects. A 1 per cent increase in real prices is expected to lead to a 1.05 per cent fall in UK duty-paid clearances as consumers quit, purchase alternative tobacco products, or switch to non UK duty paid cigarettes.
- **Duty-paid non-cigarette consumption:** is assumed to rise by 2.5 per cent per year.
- **In-year estimate:** year-to-date receipts provide valuable information about the likely outturn for the current year. Judgements are made whether to push any unexplained shortfall or overshoot to future years.

## Alcohol duty

- 2.46** Alcohol duties raised £9 billion in 2009-10 and in November 2010 were forecast to raise £12 billion by 2015-16. In 2009-10, duties on beer and cider raised £3.5 billion, wine raised £3.0 billion, and spirits raised £2.6 billion.
- 2.47** Revenues are based on forecast growth in consumption multiplied by announced or projected duty rates.
- 2.48** Beer, wine and spirits are forecast using econometric models which relate alcohol clearances (quantities) to a number of economic determinants. Overall consumer expenditure is the most important determinant. Employment is positively correlated with beer expenditure. Spirits receipts are negatively related to producer prices. The models also include effects from changes in duty on other types of alcohol. Cider receipts are assumed to grow based on previous trend growth in clearances.
- 2.49** Nominal duty rates are assumed to rise with inflation. Pre-announced duty rate increases are included in the forecast.

### Main economic determinants

- **Consumer expenditure on alcohol:** assumed to be driven by overall consumer spending.
- **RPI:** duty rates beyond those announced are forecast to grow by RPI.
- **Employment:** projected forward across the forecast period using the determinant from OBR.

### Main forecast judgements

- **In-year estimate:** year-to-date receipts provide valuable information about the likely outturn for the current year. Judgements are made whether to push any unexplained shortfall or overshoot to future years.

## Vehicle excise duty

- 2.50** Vehicle excise duty (VED) is levied on cars, vans, motorbikes, buses and HGVs each year. It raised £6 billion in 2009-10. For cars registered after 2001, VED is applied in graduated bands based on carbon emissions: the more polluting vehicles are taxed more heavily. Currently, around 70 per cent of the car stock is covered by graduated VED; this is projected to rise to over 90 per cent by 2014-15. VED revenue has risen over the last fifteen years, with the exception of the period 1999-2001, when changes to the tax regime caused a 15 per cent fall. In the November 2010 forecast, VED was forecast to raise over £6 billion by 2015-16.
- 2.51** Although VED is collected by the DVLA (Driver and Vehicle Licensing Agency), the forecasting model is run by HMRC. The forecast is based on detailed DVLA data of the UK vehicle stock. Future stock levels are forecast using scrappage rates from the Department for Transport (DfT), and new car sales, which are forecast using the GDP growth forecast. Data from DfT is used to estimate the efficiency of new car registrations and hence which band of graduated VED they will fall into. Estimates of the vehicle stock are combined with announced and estimated tax rates to produce a forecast for VED revenue.

### Main economic determinants

- **GDP:** new car sales are forecast using an econometric equation relating them to growth in real GDP.
- **RPI:** in the absence of announced policy, tax rates are grown by RPI.

### Main forecast judgements

- **EU efficiency targets:** the EU has set out regulations on new car CO2 emissions, which the UK legislated for in April 2009. New car efficiency is forecast by DfT, assuming that car manufacturers reach their efficiency targets at the EU level; the UK fleet remains above this trend at the current gap (currently around 4 per cent above the EU average). As cars become more efficient over time a higher proportion fall into lower bands of VED. This puts downward pressure on the VED forecast.
- An adjustment may be made to the forecast of **new car sales**, reflecting the judgement that they may be higher or lower than forecast by the econometric model. For example, an adjustment could be made to reflect the positive impact of the car scrappage scheme. Offsetting adjustments are made to later years to account for these sales being brought forward.
- **In-year estimate:** year-to-date receipts provide valuable information about the likely outturn for the current year. Judgements are made whether to push any unexplained shortfall or overshoot to future years.

## VAT refunds

- 2.52 The public sector is generally treated in the same way as the private sector with respect to VAT. Public bodies pay VAT on their purchases, and if they engage in production they can claim repayments for VAT paid on inputs to production. VAT refunds are an exception to this, in which the public sector receives a different treatment and under National Accounts an adjustment must be made to receipts and spending. There are three types of VAT refund: refunds to central government (CG), to local government (LG) and to households.
- 2.53 VAT refunds to central government are intended to ensure that VAT payments are not a barrier to departments choosing to contract-out their non-core activities rather than rely on VAT-free in-house service provision.
- 2.54 In the case of local government, VAT is refunded so that it does not become a burden on local taxation and the revenue support grant.
- 2.55 VAT refund receipts are fiscally neutral as they are fully offset in expenditure through AME.
- 2.56 The three types of VAT refund are forecast separately, by estimating the tax base for each sector based on economic determinants, and applying an estimated effective tax rate (ETR) based on recent outturn ETRs adjusted for changes in the VAT rate.
- 2.57 In 2009-10 VAT refunds totalled over £11 billion, of which:
- £3.7 billion to CG (all current);
  - £7.4 billion to LG (£1.8 billion current, £5.6 billion capital); and
  - £0.1 billion to households (all capital).

### Main economic determinants

- **CG and LG procurement:** proxy for the tax base for CG and LG current spending.
- **LG investment:** proxy for the tax base for LG capital spending, adjusted to include LG investment in existing buildings.

### Main forecast judgements

- **In-year estimate:** year-to-date receipts provide valuable information about the likely outturn for the current year. Judgements are made whether to push any unexplained shortfall or overshoot to future years.

## Interest and dividend receipts

**2.58** Interest and dividend receipts (I&D receipts) were £3.5 billion in 2009-10, and in November 2010 were forecast to contribute around £12 billion by 2015-16. Receipts are forecast by sub-sector: central government, local government and public corporations. The largest component is central government I&D receipts.

**2.59** The central government I&D receipts forecast is produced by the Treasury along with the debt interest payments forecast, largely using equations from the economic model with adjustments for those components which are forecast separately from the economic model. Public corporation and local authority I&D receipts are forecast off-model.

### Main economic determinants

- **Interest rates:** I&D receipts move in line with interest rates (from the economic forecast) across the forecast period.

### Main forecast judgements

**2.60** The I&D receipts forecast is also dependent on other assumptions:

- **Stock levels:** where there is no projection for future movements in the level of assets the stock from the last quarter of the in-year debt interest payments forecast is held constant into the future. A judgement is reached about how the balance between the Debt Management Office's (DMO) short-term assets and liabilities will turn out, with the level of liabilities affecting interest paid.
- **Student loans/Financial Sector Support:** off-model calculations are made for the interest accruing on student loans (driven by RPI inflation) and that payable on loans to the public sector banks. These are made in conjunction with projections of financial transactions.

## Other receipts

- 2.61** Two major other receipts are council tax and gross operating surplus, both of which are forecast using simpler methods than the detailed tax models.
- **Council tax** (£25 billion): the June Budget announced a freeze in council tax for 2011-12. Beyond the period for which council tax freeze has been announced, the forecast uses the average of the three most recent council tax increases (2008-09 to 2010-11). The forecast also assumes that the base for council tax increases by 0.8 per cent a year, which is the historical average increase in the council tax base.
  - **Gross operating surplus (GOS)** (£24 billion): this consists of depreciation for general government, plus the gross operating surplus for public corporations (PCs). The method for forecasting depreciation is described in the section on accounting adjustments within public spending, below. PC GOS is forecast separately for i) the Local Authority Housing Revenue Account, which is forecast to decline gradually, reflecting the decline in the Local Authority housing stock, and ii) all other public corporations, where GOS is forecast to change in line with the forecast for GOS for the whole economy in the economic forecast.
- 2.62** In addition, there are a number of minor taxes and receipts in the public finances forecast. Individually these generate relatively small revenues, collectively contributing under 5 per cent of total receipts in 2009-10. Some receipts are offset by hypothecated expenditure.
- 2.63** Minor tax forecasts come from a variety of sources: HMRC, HM Treasury, other Government departments and within the OBR. Forecasts from other government departments are updated at least once per fiscal event, if new information is available. Taxes forecast by the OBR internally are mostly very minor, and can often be forecast using a simple linear trend.
- 2.64** In 2009-10, the largest of the minor taxes, to the nearest £100 million, were:
- **Licence fee receipts** (£3 billion; fiscally-neutral): based on volumes published in BBC annual report and grown in a linear trend. Volumes are then multiplied by announced licence fee prices. Revenue is spent by public service broadcasters and appears in AME.
  - **Insurance premium tax** (£2.3 billion): forecast by HMRC using a model based on consumer durables expenditure and equity prices. Durable consumption is used to estimate expenditure on goods which are likely to be insured, while equity prices proxies for insurance companies' investment income which is negatively correlated with insurance prices.

- **EU emissions trading scheme (EU ETS)** (zero in 2009-10; £0.5 billion in 2010-11 rising to £2.3 billion in 2015-16): forecast by HMRC. Carbon price forecasts are derived from the current prices of carbon futures contracts. Quantities are driven by EU directives and regulations.
- **Air passenger duty** (£1.9 billion): forecast by HMRC using a model relating air passenger numbers to a range of economic determinants such as GDP and household disposable income. Duty rates beyond those already announced are assumed to increase with RPI.
- **Betting and gaming duties** (£1.4 billion): forecast by HMRC using a variety of simple models for each element of the gambling tax regime.
- **National Lottery income** (£1.5 billion): income from ticket sales and unclaimed prizes, to be spent on Lottery causes; projections based on National Lottery Commission information.
- **Spectrum accruals adjustment** (£1 billion): in 2000, licences for spectrum to provide third-generation mobile phone services were auctioned. Reflecting an ONS classification decision that spectrum receipts represent the rent received for the use of a tangible non-produced asset, this revenue is accrued at a rate of £1 billion per year for the 21 years from the sale of the licences.
- **Landfill duty** (£800 million): forecast by HMRC.

**Climate change levy** (£700 million): tax on energy delivered to commercial users; forecast by HMRC.

- **Rail franchise premia** (£500 million): payments received from Train Operating Companies; based on projections from the Department of Transport.
- **Renewable obligation certificates** (£500 million): based on DECC forecast supplied to HMT.

## 3 Forecasting public expenditure

### The spending framework

- 3.1 Spending is forecast in terms of the following National Accounts aggregates:
- Public Sector Current Expenditure (PSCE);
  - Public Sector Gross Investment (PSGI); and
  - Total Managed Expenditure (TME), which is the total of PSCE plus PSGI.
- 3.2 Each of these current and capital spending forecasts is compiled using the spending control framework of departments' budgets, which consists of Departmental Expenditure Limits (DEL) and Annually Managed Expenditure (AME), so that:
- PSCE is forecast as current (resource) DEL, called RDEL, plus current AME; and
  - PSGI is forecast as capital DEL, called CDEL, plus capital AME.

### Explaining DEL and AME

In order to control public spending, departments' current and capital budgets are each split between DEL and departments' AME:

- Current and capital DELs were set for four years for all departments in the 2010 Spending Review. DELs are fixed and may only be increased in exceptional circumstances through a claim on the central unallocated DEL reserve, which acts as a buffer to meet unexpected needs, and is controlled by the Treasury.
  - Departments' AME contains their spending that cannot be reasonably be contained within fixed limits, because it is volatile, or demand-led, or large in relation to the size of the department. Much of AME is affected by economic determinants such as inflation, unemployment, interest rates and average earnings.
- 3.3 Departments' AME components of their budgets are not fixed. They are re-estimated at least twice a year, reflecting the latest forecasts of AME in the OBR's fiscal forecast.

**3.4** The main elements of departments' AME are<sup>1</sup>:

- social security benefits;
- tax credits;
- BBC domestic services;
- net public service pensions;
- spending financed by the Lottery funds;
- other departmental AME spending, such as the Housing Revenue Account subsidy, and payments by the redundancy scheme.

**3.5** AME spending also contains other non-departmental public spending that scores within PCSE and PSNI, which includes:

- local authorities' self financed expenditure (LASFE), which is spending financed from council tax and other sources of local authorities' income other than finance from central government (included within DELs);
- net expenditure transfers to the EU, which consists of the UK's GNI-based contributions to the EU, less the UK's abatement;
- public corporations' own-financed capital expenditure, which consists of total PC capital expenditure, less the CG or LA finance for this already scored within DELs or LASFE;
- central government debt interest payments; and
- accounting adjustments, which remove items included in DELs and the departmental AME which do not score in PSCE or PSNI, and includes items scored in the National Accounts but not scored in DELs or AME, such as VAT refunds.

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<sup>1</sup>Departmental AME also includes student loans and non-cash items which are not shown in the fiscal forecasts because these items do not score in PSCE or PSNI.

## **Departmental Expenditure Limits (DELs)**

- 3.6** The total level of spending by departments in their current and capital DELs is set at Spending Reviews (SRs), led by HM Treasury. DELs were last set at the 2010 Spending Review for the years 2011-12 to 2014-15. The resource and capital DEL settlements from the 2010 SR are taken as the forecast for DEL spending for these years.
- 3.7** For the current financial year, the OBR forecast uses the latest Government plans with an adjustment for any expected shortfall against these plans based on the latest assessment of in-year spending. In later years, the OBR assumes that DEL plans will be met in full.
- 3.8** For later years in the forecast which are outside the SR period, implied DELs are calculated as residuals. The OBR forecasts the totals for PSCE and PSNI in line with the Government's stated policy on the growth of overall spending. For instance, the June 2010 Budget announced that TME in 2015-16 will grow in line with general inflation in the economy. In the November 2010 forecast, the OBR therefore fixed the forecast totals for PSCE and PSGI so that these increased from their 2014-15 levels in line with the OBR's latest forecast for the GDP deflator. The OBR then deducted their latest total current and capital AME forecasts from these totals for PSCE and PSNI to derive the residual DELs.

## **Use of COINS data**

- 3.9** The spending forecast is compiled both in terms of the control framework of DEL and AME, and also in terms of its economic components, such as consumption, net social benefits, current grants within the public sector, gross domestic fixed capital formation (GDFCF) and so on. These economic splits of spending are a key input for the economic forecast, because general government consumption and investment accounts for some 25 per cent of GDP.
- 3.10** The economic splits of DEL spending are taken from the Consolidated On-line Information System (COINS), which is the database used by the Treasury to collect financial data from across the public sector, including departments' spending outturns and plans. The economic splits of DELs are only available on COINS for the years covered by DEL settlements, and departments need some time to finalise and reflect their final detailed spending plans on COINS after their DEL totals are set in a Spending Review. For the later years of the fiscal forecast, where details of DEL spending are not available on COINS, the economic allocation of DEL spending is modeled by the OBR.
- 3.11** COINS is also used as the source for some very minor items of departments' AME spending for the AME forecast, for the period covered by departments' budgets. This is done as the exception rather than the rule and is still subject to OBR scrutiny. Most departments supply revised forecasts of their AME spending directly

to the OBR, and their methodology and assumptions for these forecasts are subject to OBR challenge and decisions. These departments update their AME spending plans on COINS after the Budget and after the Autumn Statement, to reflect the OBR's final forecast of their AME spending.

## **Social security (DWP AME)**

- 3.12** Social Security expenditure was £164 billion in 2009-10 and in November 2010 was forecast to be £188 billion by 2015-16. DWP AME spending accounts for 90 per cent of the Social Security forecast. The other main components are Child Benefit, which is forecast by HMRC, and Northern Ireland Social Security spending.
- 3.13** The forecasting division of DWP provides a forecast of the AME spending that DWP administers – mainly benefits spending, such as Job Seekers Allowance, Employment and Support Allowance, Housing Benefit and State Pensions spending.
- 3.14** A forecast is produced for each separate benefit, with most benefits having their own, benefit-specific model. The factors affecting caseloads and spending vary from benefit to benefit, as does the nature of the data available, so a number of different methodologies are used.
- 3.15** That said, for most of the main benefits DWP models the numbers of inflows and outflows to benefits, with inflows being determined as a proportion of the relevant population, or in some cases a flow from another benefit. Outflows are normally determined by applying rates of exit to the caseload, unless there are particular policy rules that limit the amount of time a benefit can be received for. Combining expected inflows, outflows and the past caseload provides a forecast for the future caseload. In the case of Jobseeker's Allowance, the claimant forecast is provided by the OBR economic assumption on the claimant count. The population projections used in many forecasts are those produced by the Office for National Statistics.
- 3.16** The other key element of the forecast is the amount of benefit that a claimant can receive, which in most cases is dependent on a number of characteristics of the claimant – their age, family circumstances, disability and so on. As far as possible these characteristics are explicitly modelled, so changes in them over time can be taken into account. In most cases the amounts of benefit people receive based on their circumstances are pre-defined, with benefit rates being uprated by inflation or average earnings depending on pre-set rules or conventions. However, some elements do not increase in a pre-determined way – so assumptions need to be made about, for example, changes in private rents, or incomes at the lower end of the income distribution.
- 3.17** A forecast for one benefit may partly depend on a forecast for another benefit (or part of it) – for example the forecasts for Housing Benefit caseloads are heavily dependent on the forecasts for the other benefits claimants receive.
- 3.18** Forecast assumptions are derived from analysis of past trends in the DWP's statistical data and other sources. The frequent policy changes and relatively short run of historic data mean that such assumptions rarely use established time-series forecasting techniques, and instead require a significant amount of data interpretation and judgement. Initial assumptions produced by DWP forecasters

are consulted on within the department to incorporate operational intelligence from Jobcentre Plus and the Pensions, Disability and Carer's Service, and from DWP's policy functions.

- 3.19** The forecasts do not explicitly identify benefits paid in error (for whatever reason), nor do they usually explicitly make assumptions about take-up: they simply relate to the amount of benefit expected to be paid out. Implicitly the forecasts assume that take-up rates continue at current levels, or if take-up is trended, that the trend continues. The same is true for benefits paid out in error.

### Main economic and demographic determinants

- **Claimant count forecast:** Affects the number of JSA claimants, which also affects other benefits such as Housing Benefit, and JSA outflows affect the inflows into ESA.
- **CPI:** Used for the uprating of most benefits in payment, other than the Basic State Pension.
- **Average earnings:** Used for the uprating of the Basic State Pension (unless lower than the CPI or 2.5 per cent), the accruals of State Second Pension, and the variable element of Statutory Maternity Pay.
- **Population:** ONS population projections for various age groups are used in a number of benefits to determine inflows, while birth projections are used in maternity benefits forecasting, and projections of deaths are used in forecasting of pensions.

### Main forecast judgements

- 3.20** DWP make a number of provisional forecast judgements which are discussed and may be amended at forecast meetings and through the challenge process. Final judgements are agreed by the BRC. The main judgements are:

- **Interpreting the outturn:** for example understanding what is driving the latest administrative data on benefits spending and on increases or decreases in inflows/outflows and the total caseload. This can include inferring the impact of policy changes, and identifying how operational issues may have affected the data, including where changes observed in the data do not reflect real events.
- **Unobserved characteristics:** for example the work history, motivation and ability of those on JSA. During the downturn it was assumed that a smaller proportion of JSA claimants would transfer to ESA as these unobserved characteristics of the JSA stock changed (i.e. job seekers were on average more skilled and motivated).

- **Average awards:** the age profile, financial position, contributions record and other factors of the claimant population will affect the average cost of claimants. Judgements need to be made in these areas of the forecast, which are based on DWP data and analysis. A key area of uncertainty is the future path of private rents, although this will be of less importance when the Local Housing Allowance is updated by the CPI.

## Tax credits

- 3.21** Total tax credits expenditure amounted to £29 billion in 2009-10 and in November 2010 was forecast to rise to £31 billion by 2015-16.
- 3.22** The effect of tax credits expenditure on the public finances is split between Annually Managed Expenditure (AME) and negative tax receipts. The negative tax element captures the amount of tax credits expenditure that can nominally be offset against households' income tax liability, while the remainder is classified as AME.
- 3.23** The tax credits forecast is produced by HMRC, using a micro-simulation model based on the latest administrative data on tax credits recipients. This model projects forward some of the sample characteristics for each individual household, such as earnings, and, for each year over the forecast period, applies the anticipated tax credits structure to estimate their annual award. These are then summed up to arrive at an aggregate figure.
- 3.24** Adjustments, agreed with the OBR, are made to ensure that the sample remains representative over time.

### Main economic determinants

- **CPI:** CPI is used to up-rate the elements of the tax credit system.
- **Earnings growth:** An indicator based on wages and salaries and the number of employees is used to grow tax credits recipients' income.
- **Claimant count:** the claimant count projection is used to model changes to the tax credits population as a result of unemployment.
- **Population growth:** The population of 0-18 year-olds is grown in line with the relevant ONS/GAD projections.
- **Participation in full-time non-advanced education:** Department for Education estimates of the participation rate of 16-18 year-olds in full-time non-advanced education are incorporated into the population projections to account for growth in participation.

### Main forecast judgements

- 3.25** The main judgements are:
- **AME/negative tax split:** the split has a neutral effect on the public finances. The economic downturn has meant that the negative-tax share has fallen, and policy changes mean that it will fall further.

- **Error and fraud:** the forecast assumes that households' declared incomes rise in line with actual earnings. Implicitly, this means that the rate of error and fraud remains constant at the household level throughout the forecast period.
- **Economic downturn:** judgement has been necessary to ascertain the effect of the economic downturn on the tax credits forecast, primarily in the level and persistency of income falls and unemployment.
- **WTC-only take-up** (i.e. recipients without children): assumptions are made with regard to the growth of the number of WTC-only recipients. . The number of recipients of WTC-only has been increasing at a higher rate than other tax credits profiles in the last few years, mainly because of an increase in take-up but also because of policy change in 2008-09 that increased the potentially eligible population. The current administrative data shows no sign of this trend reversing, so an adjustment to the forecast is necessary.
- **Childcare growth:** assumptions are made about the growth of the childcare caseload and annual cost based on the trend in recent administrative data.
- **Population movements:** an adjustment is applied to the earnings growth indicator to reflect the fact that the static population in the model becomes increasingly unrepresentative over time, as families joining the tax credits population are likely to have lower income than families leaving the population.

## **Public service pensions**

- 3.26** Net public service pensions expenditure was £3.2 billion in 2009-10 and is forecast to rise to £7 billion by 2015-16 as of the November 2010 forecast. It consists of pension payments by central government unfunded pension schemes, net of current receipts of pension contributions. Payments of government grants for the separate local authorities' police and fire service pension schemes are currently included within the AME forecasts for other departmental expenditure.
- 3.27** The OBR commissions individual forecasts of expenditure and receipts from all the main central government pension schemes for each fiscal event, and compiles and coordinates the forecast centrally. Forecasts are commissioned from the 'Big Four' pension schemes – the Principal Civil Service Pension Scheme, the Armed Forces Pension Scheme, the NHS Pension Scheme and the Teachers Pension Scheme. These schemes account for 90 per cent of all central government pension scheme spending. Forecasts are also commissioned from the Scottish Executive and Northern Ireland Executive, who in turn collate the forecasts of their various central government pension schemes, and forecasts are commissioned from some smaller schemes.

- 3.28** The gross expenditure forecast is based on the demographics of each individual pension scheme, for existing pensioners and the current workforce, which is based on modelling by the actuaries employed by each pension scheme, e.g. GAD (Government Actuary's Department).
- 3.29** The income forecast is based on the expected employer and employee pension contributions. The key modelling here is around paybill growth, which directly determines changes in the level of pension contributions.

### Main economic determinants

- **CPI:** The OBR forecast for September CPI affects the uprating of public service pensions, and hence expenditure.
- **Population demographics:** the demographics of both the current workforce and the retired pensioner populations are important for forecasting the spending for each pension scheme.

### Main forecast judgements

- 3.30** As the forecasts for net public service pension expenditure are commissioned from the pension schemes directly, each scheme's assumptions are important and are scrutinised in detail by the OBR. The main common issues cover:
- **Retirement age distribution:** Each scheme will make assumptions about the retirement age distribution.
  - **Lump sum commutation rates:** the timing of pensions expenditure assumed by schemes depends heavily on the lump sum commutation rate that is assumed;
  - **Receipts adjustments:** the OBR scrutinises the 'Big Four' Schemes' assumptions for paybill growth rates and adjusts its forecasts where necessary to ensure that these paybill growth rates are consistent with the latest DEL plans and the public sector employment projections
  - **Contribution rates:** the forecast assumes current employee and employer pension contribution rates, as amended by the final published results from pension schemes' valuations.

## **Net expenditure transfers to the EU**

- 3.31** In the OBR's November 2010 forecast, net expenditure transfers to EU institutions were around £6 billion in 2009-10 and were expected to rise to over £8 billion by 2015-16.
- 3.32** Expenditure transfers are calculated as the UK GNI-based contributions to the EU budget, less the value of the abatement. This is the net cost that counts towards Annually Managed Expenditure (the other components of UK contributions count as negative taxation).
- 3.33** The Commission proposes an EU budget for the following year in May of each year. This is usually finalised in November and formally agreed in December, following a conciliation process involving the Council, the Parliament and the Commission.
- 3.34** The EU budget is set in euros. It is funded by contributions from EU member states through three revenue streams: Traditional Own Resources, or TOR (mainly custom duties); VAT-based contributions; and Gross National Income (GNI)-based contributions. The latter accounts for around three quarters of total contributions, and finances the residual after TOR and VAT have been collected. The EU budget cannot run any deficit.
- 3.35** VAT-based contributions and TOR do not score in UK public sector current receipts in the National Accounts as they are counted as taxes collected on behalf of (and paid directly to) the EU. The VAT-based contributions score as negative current receipts in that they are netted off and so not included in the forecast for VAT that is included in public sector current receipts.
- 3.36** The main measure of UK contributions to the EU Budget published in the spending forecast is:
- UK Expenditure Transfers = AME spending = GNI-based contributions – abatement
- 3.37** Every year, through the abatement, the UK's contribution is reduced by around two thirds of the difference between its total contributions and its receipts from the previous year. The UK abatement addresses the disproportionately large contribution made by the UK in relation to the receipts received from the EU budget.
- 3.38** The forecast for net expenditure transfers to EU institutions is based on a comprehensive and detailed analysis of the factors affecting the different types of contribution the UK makes to the EU, and a variety of modelling and judgements, which are explained in more detail below.

### Main economic determinants

- **GNI and VAT:** these are used to estimate the required level of UK contributions to the EU budget and helps form the estimates for UK abatement. The forecast of the VAT-based contributions is provided by HMRC alongside their forecast of VAT which is included in current receipts, based on the OBR economic determinants, as described in the section on VAT above.
- **Sterling/euro exchange rate:** is used to convert UK contributions, which are set in Euro, into Sterling. It is also used to convert the Sterling value of UK GNI and VAT into Euro, to calculate UK's share of EU GNI and VAT.
- **EU trade growth:** this is used for forecasting the level of receipts generated from levies and customs duties.

### Main forecast judgements

- **Size of budget beyond announced horizon:** Typically, at the time of the UK's own Budget, only the current year's EU budget is available, with a draft budget for the following year available in the autumn. Therefore judgement is needed for future budgets; in particular, (i) the level of underspend which is usually significant; and (ii) the level of non-abatable expenditure (see below).
- **Beyond 2013:** The EU budget works on a 7-year period, called Financial Perspective. This sets the maximum level of payments from the EU budget in each year. The current FP extends until 2013 and negotiations for the following FP (2014-20) have yet to start. The November 2010 forecast was based on a FP 'no policy change' assumption.
- **Draw-forward of contributions:** The EU Budget runs in calendar years and contributions are made in monthly twelfths. However the Commission is allowed to draw-forward up to two additional months worth of contributions into the first quarter of the year, and this will have an effect on financial year forecasts. This is accounted for in the EU forecast by using an average of previous year's draw-forward to estimate future decisions.
- **Departmental receipts:** Recipient departments are asked to provide forecasts of EU Budget receipts in order to determine the overall level of UK receipts. These are converted into calendar years and used, alongside an estimate of private sector receipts, to estimate the size of the abatement. There have been large forecast errors in past forecasts of receipts.

- **Non-agricultural expenditure allocated to the new Member States:**  
From 2011, as agreed in the 2005 Own Resource agreement, the UK's abatement is 'disapplied' on non-agriculture spending in the twelve new Member States. This agreement was phased in from 2008 to 2011. Estimates of non-agricultural expenditure in the new Member States are therefore needed. These are currently based on moving averages of past realisations. It is worth noting that an estimate is also needed one year ahead since the annual budgets provide total expenditure by budgetary heading, but not the allocation by Member States.

## Locally-financed expenditure

- 3.39** Current locally-financed expenditure was £26 billion in 2009-10 and in November 2010 was forecast to rise to £32 billion by 2015-16. Capital locally-financed expenditure was £7 billion in 2009-10 and is forecast to decrease to £3.3 billion by 2015-16, as of November 2010.
- 3.40** The forecast for current locally financed expenditure consists of current Local Authorities' Self-Financed Expenditure (current LASFE) for England and Wales, plus Scottish spending financed by local taxation. The forecast for capital locally financed expenditure consists of capital LASFE, which is net of asset sales, less the net capital expenditure of Housing Revenue Authorities (HRA). (HRA net capital expenditure is included within the local authorities' financial returns that are used as the basis for the LASFE forecast, but it is included within public corporations' own-financed capital expenditure in AME because the HRA is classified as a public corporation in the National Accounts.)
- 3.41** The Treasury produces the LASFE forecasts, which are then scrutinised by the OBR. Judgements are made on the spending choices of local authorities (LAs) using latest information from LAs' annual budgets, and other recent information and outturn trends (provided by Department for Communities and Local Government), in order to project future expenditure. The OBR also receives revised projections from Scotland and Northern Ireland on their future levels of local taxation (non-domestic rates), which is then used to finance spending.

### Main economic determinants

- **Residential property forecast:** Taken from the economic forecast, used to project growth rates for local authority housing sales.
- **Commercial property forecast:** To give an indication of projected non-housing asset sales.
- **Inflation and the latest local government settlement (within DELs):** these are both important inputs in the assessments and forecast judgements of the pressures on local government spending, which are described further below.

### Main forecast judgements

- 3.42** There are 354 Local Authorities in England alone, and forecasting individual decisions on spending is not feasible. Therefore, the forecast requires a large element of judgement based on the information in annual LA budgets, and historical outturn trends. Further to this, statistical data for current LA spending is not available routinely within the current year, and does not become available until 5-10 months after the year end. The main judgements are on:

### Capital LASFE

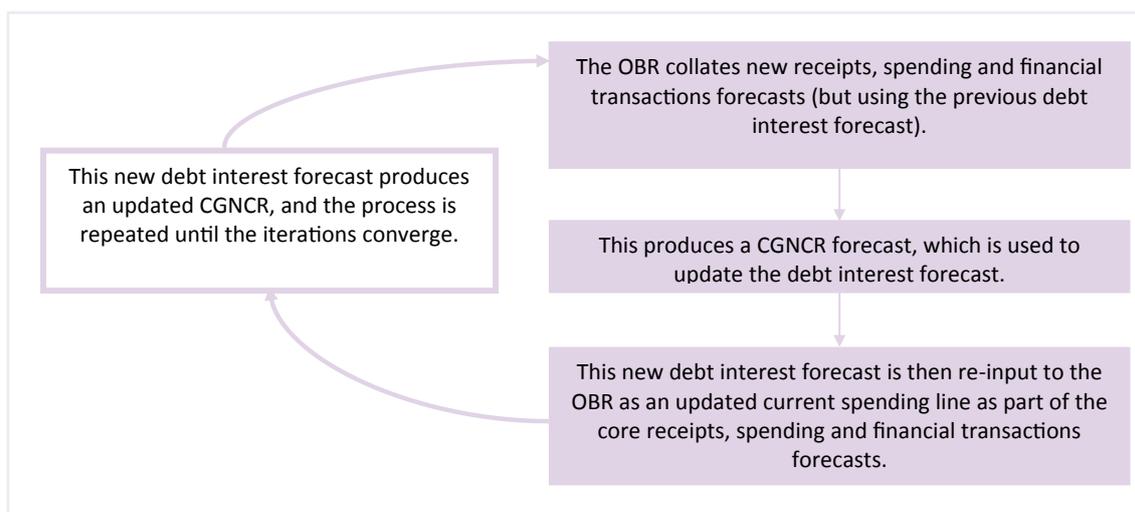
- **Borrowing:** Some indication of the level of LA borrowing, and plans to spend it, is given in annual budgets for the year ahead. However, this can prove inaccurate, both in size and timing of the borrowing and spending. Therefore some judgement is required to mitigate the risk of over - or under - estimating the level of spending financed by borrowing in each year.
- **Capital Expenditure financed from the Revenue Account (CERA):** While the impact of CERA on the overall LASFE forecast is neutral (higher capital expenditure offset by lower revenue expenditure) it does impact on the split between current and capital and there is significant year on year variation.

### Current LASFE

- **Council tax:** the forecast uses the next year's average increase if this has been announced by the Chartered Institute of Public Finance Accountants (CIPFA). But if this has not been published then the forecast assumes that council tax will increase by the average increase over the last three years, before taking account of any policy changes.
- **Local Authority reserves:** The financial position of each LA is different, and whilst some LAs will regularly run a large surplus and add to reserves each year, other will have to draw down some of the reserves to finance spending pressures at difficult times. The LASFE forecast uses an aggregated estimate for the level of reserves, and estimates the spending pressures that are likely to be faced, in order to reach a judgement on the level of drawdown.
- **Interest receipts:** Whilst some information is known about the stock of LA investments, there is little detail on LAs' rate of returns, and maturity. Therefore an element of judgement is required, using recent interest rates available to LAs, the OBR's forecast for interest rates, and outturn trends.

## Debt interest

- 3.43** Central Government debt interest expenditure was £31 billion in 2009-10 and in November 2010 was forecast to rise to £63 billion by 2015-16.
- 3.44** The Treasury coordinates the debt interest forecast, and submits it to the OBR for discussion and scrutiny. The largest component of debt interest is the interest paid on conventional gilts. For the existing stock of conventional gilts, payments are known and fixed. However estimates for interest payments on existing index-linked gilts and for all new debt issuance can be quite volatile as a result of changes in economic determinants (RPI inflation, interest rates, and changes in levels of net borrowing).
- 3.45** The mechanics of the debt interest forecast are somewhat different to other AME forecasts because of the interaction between the Central Government Net Cash Requirement (CGNCR) – an output from the OBR forecast – and the debt interest forecast. The following diagram helps to explain this:



- 3.46** The debt interest forecast is produced using different methods for the short term and later forecast periods: the in-year and year-ahead forecasts are constructed using a detailed, bottom-up approach, and a fully-specified model of gilt issuance; whereas the forecast for the remainder of the forecast period is produced using a simpler, top-down approach that uses the debt interest forecasting equations from the economic model.
- 3.47** The Treasury produces the debt interest forecast by constructing both the detailed forecasts for the current and future years, and running the relevant equations on the economic model. The forecasts for all years reflect the government's financing policy, how much of the CGNCR will be financed by gilts for instance, and the split of gilts issuance between conventional gilts and index-linked gilts, and the split of conventional gilt issuance between broad maturity bands (short, medium and long). The financing assumptions are provided by the Treasury, who liaise with the

Debt Management Office (DMO) and National Savings and Investments (NS&I), who provide the forecasts for debt interest on NS&I products.

### Main economic determinants

- **RPI:** affects the accrued debt interest payments on index-linked gilts.
- **Cash borrowing (CGNCR):** determines the level of debt on which interest payments must be paid.
- **Gilt rates:** a weighted-average interest rate on conventional gilts is used to forecast debt interest payments on conventional gilts. This is created from yield curve data from the DMO, weighted by the proportions of gilt issuance in each maturity band, based on policy guidance provided by the Treasury.

### Main forecast judgements

- **Pattern of issuance:** the breakdown between conventional and index-linked gilts, and the maturity split for the forecast period is as advised by DRM, based on DMO issuance policy.
- **Gilt rates:** the weighted average interest rate on conventional gilts is calculated based on a 10-day average of yield curve data from the DMO. This was a judgement made by the OBR in the June 2010 Pre-Budget forecast to smooth volatility in the debt interest forecast caused by movements in gilt rates.
- **Alignment with the DMO:** as part of the OBR's quality assurance process, the OBR and Treasury compare the results of the economic model forecast for debt interest on gilts with the equivalent results from the DMO's Portfolio Simulation Tool and include an adjustment to the OBR forecast to improve the alignment with the DMO's own forecast.

## National accounts adjustments

**3.48** The National Accounts Adjustments (NAAs) reconcile the budgeting aggregates of Departmental Expenditure Limits (DELs) and Annually Managed Expenditure (AME) with the National Accounts definition of Total Managed Expenditure (TME). The NAAs mainly do this by:

- Adding in spending components that score in TME, which are not already included within DEL or AME; and
- Removing components of DEL and AME that should not be scored in TME.

**3.49** The Treasury compiles the NAAs for the forecast. Currently, there are over 130 adjustments to add, remove, or reclassify spending data. The OBR intends to simplify the presentation concerning DEL and AME items that score in PSCE and PSNI, and reduce the need for accounting adjustments.

**3.50** The NAA forecast mainly relies on outturn data from the Office for National Statistics (ONS), which is then used to project the level of future adjustments.

**3.51** The largest accounting adjustments are VAT refunds and depreciation. VAT refunds are covered in the receipts section of this note.

## Depreciation

**3.52** Depreciation is forecast by sub-sector: central government, local authority and public corporations. It has a complicated impact on the public finances, as illustrated by the table below:

Component	Effect	Notes
Current Receipts	-	General Government only
Current Expenditure	+	General Government only
Depreciation	+	Public Sector only ( - on Surplus on Current Budget)
Net Investment	-	Public Sector only
Borrowing	0	( = Net Investment - Surplus on Current Budget)

**3.53** The Treasury uses a series of equations detailing the development of the capital stock, and the past rate of depreciation to forecast each sector's depreciation.

**3.54** The main economic determinant in depreciation is the **total final expenditure deflator**. This is used to uprate the capital stock from the previous period. The forecast also reflects the latest OBR forecast for net investment.

## **Other AME spending components**

- 3.55** There are a number of other minor AME spending components in the public finances forecast. Individually these are either fiscally neutral, being offset by income in the taxes forecast above, or they cover small amounts of spending.
- 3.56** Minor spending forecasts come from a variety of sources: DECC, BIS, HMT teams, other Government departments and within the OBR. They are all subject to scrutiny and challenge by the OBR.
- 3.57** The largest of these AME spending components in 2009-10 were:
- **public corporations' own-financed capital expenditure** (£7.9 billion) which consists of total PC capital expenditure, less the CG or LA finance for this already scored within DELs or LASFE. This is forecast by the OBR.
  - **BBC domestic services** (£3.5 billion): derived from the receipts forecast of TV license receipts.
  - **National Lottery** (£1.8 billion): underlying data on expected drawdown from the National and Olympic Lottery Development Funds is provided by DCMS.
  - **Police and Fire pensions** (£1.1 billion) data provided by the Home Office and CLG.
  - **Housing Revenue Account subsidy** (minus £200 million) provided by CLG and devolved authorities. Reform of the HRA system was announced in the 2010 Spending Review.

## 4 Forecasting financial transactions

### Overview

- 4.1 Financial transactions and accruals adjustments are the difference between net borrowing (an accrued measure) and the net cash requirement (a cash measure). The November 2010 *Outlook* published a table reconciling the accrued and cash measures of borrowing.

Table 4: Reconciliation of PSNB and CGNCR (November 2010 *Outlook*)

	£ billion						
	Outturn			Forecast			
	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16
<b>Public sector net borrowing</b>	<b>156.0</b>	<b>148.5</b>	<b>117</b>	<b>91</b>	<b>60</b>	<b>35</b>	<b>18</b>
Financial transactions	33.2*	5.4	6	7	9	11	12
Accruals adjustments	14.3*	-4.5	3	-1	4	-4	-6
<b>Public sector net cash requirement</b>	<b>203.5*</b>	<b>149.4</b>	<b>127</b>	<b>97</b>	<b>73</b>	<b>42</b>	<b>25</b>
<i>minus</i> Local authorities net cash requirement	5.0	6.1	5	3	1	1	0
<i>minus</i> Public corporations net cash requirement	0.8	2.9	5	6	5	6	2
<b>Central government net cash requirement (o)</b>	<b>197.7</b>	<b>140.4</b>	<b>117</b>	<b>88</b>	<b>67</b>	<b>35</b>	<b>23</b>
Net lending within the public sector	1.1	3.9	3	3	3	3	3
<b>Central government net cash requirement</b>	<b>198.8</b>	<b>144.2</b>	<b>120</b>	<b>91</b>	<b>70</b>	<b>39</b>	<b>27</b>

*Note: Totals may not sum due to rounding. Own account measures are represented by (o).*  
 \* OBR estimate in absence of published outturn

- 4.2 The public sector net cash requirement (PSNCR) is the cash equivalent of public sector net borrowing. It is important for the fiscal projections as it drives the forecast of public sector net debt (PSND) which is a cash measure of the public sector's stock of net debt. The other key cash measure is the central government net cash requirement (CGNCR). This measures the cash required by central government to fund its operations, and forms the basis for the Government's net financing requirement.
- 4.3 **Accruals adjustments** arise because net borrowing is an accruals measure and so generally records a transaction when the economic impact takes place, rather than at the point of the cash transaction.
- 4.4 The accruals adjustments are composed of two sub-components: 'accounts receivable/payable' and 'adjustment on index-linked gilts'. These are explained in the subsequent section.

- 4.5** **Financial transactions** are the exchange of financial assets involving cash (such as government loans). These score in the cash measures but do not score in PSNB, because they do not change the net liabilities position of the public sector.
- 4.6** Financial transactions are composed of the sub-components: ‘net lending to private sector and abroad’, ‘cash expenditure on company securities’, ‘miscellaneous financial transactions’ and ‘net lending within the public sector’. These are explained in the subsequent section.
- 4.7** Each of the elements of the accruals adjustments and financial transactions are forecast separately using various techniques. They incorporate information from HM Treasury on specific cash transactions as well as information from other government departments such as the Department for Business, Innovation and Skills (BIS).
- 4.8** The following approach is used to forecast these transactions:
- accruals adjustments are produced alongside the main forecasts of receipts and expenditure;
  - for regular exchanges of financial assets such as the repayment of loans to the financial sector and student loans payments, where enough is known about the size and timing of the transactions for the effects to be quantified, estimates based on the latest available information are included in the forecast; and
  - where firm plans are not in place, potential exchanges of financial assets are not included in the forecast. For example, if the Government has indicated it wishes to sell a financial asset, but the terms of sale have not been agreed, the sale would not be included.
- 4.9** As with receipts and spending forecasts, the projections for accruals adjustments and financial transactions are subject to a detailed challenge process by the OBR.
- 4.10** The following section outlines the forecast methodology for each of the sub-components in more detail, for the central government, local government and public corporation sub-sectors.

## Central government

### Accruals adjustments

#### Accounts receivable and payable

- 4.11** This is the difference between cash and accrued receipts plus the difference between cash and accrued spending. Income tax, NICs, business rates, VAT and most indirect taxes are measured on an accrued basis in the National Accounts, and thus will have accruals adjustments.
- 4.12** Most of the tax accrual adjustments are provided by HMRC as part of the receipts forecasting process. Projections for accruals adjustments on central government spending are included where known transactions will result in a further accrued payment or receipt.

#### Accruals adjustment for interest on gilts

- 4.13** The adjustment for conventional gilts has two elements: an adjustment to the smoothed conventional gilts accruals series to return to the cash series which sums to zero for a financial year; and an adjustment which removes the accrual of discounts/premia at issue. The adjustment for index-linked gilts converts the uplift on index-linked gilts due to inflation from an accrued to a cash basis.
- 4.14** Forecasts of the discounts/premia are made on the basis of existing debt issuance. Similarly for the index-linked gilts uplift adjustment the forecast is on the basis of gilts already in circulation.

### Net lending to private sector and abroad

- 4.15** Net lending overseas consists of parts of subscriptions to international organisations such as the European Investment Bank (EIB) and other International Development Agencies (with the rest regarded as equity injections). These forecasts are provided by the Department for International Development (DFID).
- 4.16** Net lending to the private sector consists of lending to industry and to households. There are several sub-components in this category: student loans, Guaranteed Export Finance Corporation (GEFCO) loan repayments, other loans to industry, support for PFI projects, and the social fund. Student loans is the largest of these sub-categories.

#### Student loans

- BIS and the devolved administrations (DAs) provide forecasts of new student loans, repayments and expected loan cancellations. This information is used to calculate the net loan transactions through the year and also to calculate the interest.

- The November 2010 Outlook incorporated the effect of the October announcement on higher education funding in England from 2012-13. This required assumptions on the level of average fees charged, the loan take-up rate and overall level of student numbers.
- Under the old scheme, the interest rate is set at the start of each academic year and is RPI as at the preceding March subject to a minimum of zero and a maximum of the bank base rate plus one percentage point.
- Under the new scheme, which affects loans in England from 2012-13 only, the interest rate is set at RPI as at the previous March plus 3 per cent. There are no maxima or minima conditions for interest accruing under the new scheme.
- Loan cancellations score as a capital grant and are therefore not financial transactions, though cancellations have an impact on the opening balance of the loan portfolio and hence the interest payments.

### Other net lending

- **Net lending overseas forecasts** are based on primarily based on DFID's spending plans,
- **GEFCO** loan repayments are forecast by Export Credits Guarantee Department (ECGD). ECGD do this each month for monitoring purposes so the latest monthly data set is used for the forecast.
- **Other loans to industry** typically consist of seed money e.g. for aero-engine development and can be taken from COINS.
- **Support for PFI projects** is forecast by HM Treasury.
- **Social Fund** forecasts are also taken from COINS with later years extrapolated if necessary.

### Cash expenditure on company securities

**4.17** This includes the impact of equity injections into public sector banks made by the previous Government in order to stabilise the financial sector. Not all cash spent on acquiring such shares directly scores in this component, as some of this cash scores as a capital grant (and so directly affects PSNB):

- the Government's equity injection in Northern Rock in December 2009, was scored as a capital grant because the government already owned 100 per cent of the company; and

- the amount that the government paid above the market value of shares in RBS and Lloyds score as capital grants.
- 4.18** This component also includes any equity disposals made by Government. It also includes DFID payments to international bodies which are regarded as equity rather than loans.
- 4.19** Forecasts are based on information from the relevant companies' business plans and agreements drawn up between HMT, the banks, the Financial Services Compensation Scheme (FSCS), and other public corporations.
- 4.20** Future transactions are only included where firm and quantifiable details of share sales have been announced.

### Miscellaneous financial transactions

- 4.21** These include other financial transactions such as government loans to Bradford and Bingley and Northern Rock, the capital injection made by the government to London Continental Railways (LCR) in December 2009, International Development Agency subscriptions, and finance leases.
- 4.22** Future transactions are included only where firm and quantifiable details of transactions have been announced.

### Net lending within the public sector

- 4.23** This comprises net lending by the central government to local authorities and to public corporations. It does not at present cover lending to public sector banks which is included in miscellaneous financial transactions. The key elements are:
- lending to local authorities through the public works loan board (PWLB) with funding provided by the national loans fund (NLF). These forecasts are based on advice from the Treasury, and on in-year monitoring; and
  - lending to public corporations, which can be from the NLF, from the spending department's voted expenditure or from the PWLB. The latter applies to bodies such as Scottish Water which were formerly run by LAs. These are based on information from HM Treasury and COINS data. Current loans to public corporations include the Post Office, Scottish Water, and the Northern Ireland Housing Executive.

## **Local government**

**4.24** Local authority transactions fall into the same categories as Central Government. Usually the levels are considerably lower than for Central Government.

- **Accounts receivable/payable:** the local authority NNDR accruals adjustment and the council tax accruals adjustments are extrapolated from historical data.
- **Adjustment for interest on gilts:** This adjustment does not apply for local government.
- **Net lending to private sector and abroad:** This component is extrapolated from historic data.
- **Cash expenditure on company securities:** The main component of this forecast is sales of local authority homes. The forecasts for this are based on historical levels and adjusted for predicted changes in house prices using a CLG series and estimates of transaction flows.
- **Miscellaneous financial transactions:** This series is assumed to be zero.
- **Net lending within the public sector:** the derivation of this is covered in the central government section earlier.

## **Public corporations**

**4.25** Many of these series are complete or partial counterparties to estimates made for Central or Local Government.

- **Accounts receivable/payable:** This component is extrapolated from historical data.
- **Adjustment for interest on gilts:** This component is currently assumed to be zero.
- **Net lending to the private sector and abroad:** Public corporations net lending to the private sector is extrapolated based on historical data.
- **Cash expenditure on company securities:** Many of the elements making up this series are counterparties to those included in the central and local government equivalent series. In addition there are transactions between public corporations and the private sector. All series are forecast using the same methodologies as explained earlier within the central government section.
- **Miscellaneous financial transactions:** in the public corporations sector these are usually counterparties to elements of the central government equivalent and their methodology is described in the central government section earlier.
- **Net lending within the public sector:** the derivation of this is covered in the central government section earlier.

## **A Fiscal aggregates**

- A.1** The receipts and expenditure components set out in the previous sections are combined to form the fiscal aggregates, which set out the current fiscal position. This section sets out the arithmetic of the fiscal aggregates, and some common abbreviations. The definition of the aggregates for the purposes of fiscal policy and spending control remains the responsibility of the Government, while the Office for National Statistics is responsible for statistical definitions of series which it publishes in outturn.
- A.2** The fiscal aggregates may be broken down by subsector. These are: central government (CG), local government (LG) and public corporations (PC). Central and local government combine to form general government (GG), while all three subsectors combine to form the public sector.

### **Abbreviations**

AME	Annually managed expenditure
CACB	Cyclically-adjusted current budget
CB	Current budget
CGNB	Central government net borrowing
CGNCR	Central government net cash requirement
D	Depreciation
DEL	Departmental expenditure limits
FT	Financial transactions
PSCE	Public sector current expenditure
PSCR	Public sector current receipts
PSGD	Public sector gross debt
PSGI	Public sector gross investment

PSNB	Public sector net borrowing
PSNCR	Public sector net cash requirement
PSND	Public sector net debt
PSNI	Net investment
PSNW	Public sector net worth
PSPB	Public sector primary balance
TME	Total managed expenditure

## Identities

$$\text{TME} = \text{AME} + \text{DEL}$$

$$\text{TME} = \text{PSCE} + \text{PSGI}$$

$$\text{PSCE} = \text{Resource AME} + \text{Resource DEL}$$

$$\text{PSGI} = \text{Capital AME} + \text{Capital DEL}$$

$$\text{PSNI} = \text{PSGI} - \text{D}$$

$$\text{CB} = \text{PSCR} - \text{PSCE} - \text{D}$$

$$\text{PSNB} = -\text{CB} + \text{PSNI}$$

$$\text{PSNB} = \text{TME} - \text{PSCR}$$

$$\text{PSNCR} = \text{PSNB} + \text{FT}$$

$$\text{PSPB} = -(\text{PSNB} - \text{net debt interest expenditure})$$

$$\text{CGNCR} = \text{CGNB} + (\text{CG element of FT})$$

$$\text{PSND} = \text{PSND}(-1) + \text{PSNCR} + \text{balancing item}^1$$

$$\text{PSNW} = \text{PSNW}(-1) + \text{CB} + \text{net asset revaluations}$$

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<sup>1</sup> The balancing item includes revaluations of assets and reclassifications

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