Office for
Budget Responsibility

Briefing paper No. 6

Policy costings and our forecast

March 2014

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1 Introduction

1.1 The Office for Budget Responsibility (OBR) was created in 2010 to provide independent and authoritative analysis of the UK's public finances. To that end we produce two 5-year-ahead forecasts for the economy and the public finances each year, alongside the Budget and Autumn Statements. In each of these forecasts we need to estimate and explain the likely impact of any newly announced tax and spending policies.

1.2 Although we are ultimately interested in the aggregate impact of all the policies announced in each statement, in the interests of transparency it is helpful to show the impact of individual measures on the public finances. So alongside each statement the Treasury publishes a 'scorecard' showing the impact of particular measures on public sector net borrowing. These costings include the static impact of the policy (i.e. the impact we would see in the absence of any resulting change in people's behaviour), plus the direct impact of 'first round' behavioural effects. Under the Charter for Budget Responsibility, the Treasury is free to decide which measures to include in the scorecard and what costs to attribute to them – although in practice it does so after a detailed process of scrutiny and discussion with the OBR and the department responsible for implementing the policy (e.g. HM Revenue and Customs for tax changes).

1.3 For our part, the OBR publicly states whether we believe that each costing published by the Treasury is reasonable and central. We then incorporate those costings (or our preferred ones – something we have not yet found necessary) in our forecasts, together with the impact of any relevant policy measures that the Treasury may have omitted from the scorecard and also taking into account broader 'second round' macro-level behavioural effects resulting from individual policies or the policy package as a whole. In doing so, our goal is to end up with the best forecast for the public finances that we can, incorporating the expected impact of all announced policy decisions.

1.4 The aim of this paper is to describe how we approach the policy costings process, including the roles of the Treasury and other relevant departments, and how we incorporate the impact of policy measures in our forecasts. We want to make this process, and the methodologies used, as transparent as possible so as to maximise public confidence in the costings and forecasts that we produce. This is the sixth in a series of briefing papers designed to explain the OBR's work and the material that we publish. They can all be found on the OBR website.

2 Policy decisions, OBR forecasts and the Treasury scorecard

2.1 The Chancellor of the Exchequer typically makes two major economic statements to the House of Commons each year: the Autumn Statement and the spring Budget. These 'fiscal events' are an opportunity for him to announce tax, spending and other policy measures to Parliament, and to provide his assessment of the outlook for the economy and the public finances. The Treasury sets these out in detail in the Budget 'Red Book' and in its equivalent Autumn Statement publication, released alongside the statements.

2.2 Tax measures then take legislative form in the Finance Bill, published shortly after the Budget. It is used to renew annual taxes, as well as to legislate for new proposals and other changes to maintain the tax system. The Government's spending decisions are voted on as 'supply estimates', which detail the resources required for the individual programmes of government departments. Most requests are put to Parliament in April or May, shortly after the Budget, although in-year changes to departmental budgets are also made through supplementary or revised estimates. The Government typically sets out its broad departmental spending plans in periodic multi-year 'Spending Reviews'.

2.3 Prior to June 2010, in each Budget and Autumn Statement[1] the Chancellor (assisted by, but not bound by the views of, his civil servants) would assess the fiscal and economic impact of his policy proposals and incorporate these in his own medium-term forecasts for the economy and the public finances, as required by the 1975 Industry Act. The 2011 Budget Responsibility and National Audit Act transferred the task of producing these twice-yearly official forecasts to the independent OBR. We publish our forecasts as soon the Chancellor completes his statement to Parliament, in our *Economic and fiscal outlook (EFO)* publications. The Chancellor typically summarises the main conclusions of our forecasts in his statements, although he is under no obligation to say that he agrees with them. We hold our own public briefing on the forecasts later on the same day and are accountable for them to Parliament via the Treasury Select Committee.

2.4 The Chancellor has to inform us of his tax and spending decisions before they are announced in the Budget or Autumn Statement, so that we can incorporate their impact in the accompanying forecast. The Treasury also publishes a policy decisions table known as the 'scorecard', giving its estimate of how much each policy measure that it chooses to include will cost or raise – and therefore its expected impact on the budget deficit or surplus. We scrutinise and certify these scorecard costings, stating publicly whether we agree, disagree or have been given too little time or information to judge whether each costing is a 'reasonable and central' estimate.

[1] The latter known as the 'Pre-Budget Report' from 1997 to 2009.

2.5 If we were to disagree with the Treasury's scorecard costing, we would use our own costing in the public finance forecast and explain that transparently. We are also free to reflect in our forecasts the impact of changes to policy settings that the Treasury has chosen not to include in the scorecard, if we believe that they would have a material impact on the public finances. We also discuss in our *EFOs* the potential impact of policy decisions for which the timing and detail is not yet sufficiently clear to quantify the impact in the main forecast.

2.6 In this chapter we describe the process by which our forecasts and the Treasury scorecard take shape in the run-up to Budgets and Autumn Statements, and the ways in which different types of policy decision are included or excluded from them.

2.7 Since 2010 there have been efforts by both the Treasury and HMRC to increase the transparency around policy costings. Table 2.1 in the Treasury's Budget and Autumn Statement documents has been expanded to show the cost of each measure across the entire scorecard period, rather than just the first two years. Furthermore, a *Policy costings document*[2] is now published alongside each fiscal event and offers greater detail on how each costing was estimated and any areas of uncertainty. We contribute an annex identifying those costings around which we believe there is particular uncertainty. At each Budget, this document also contains an Annex that describes the default indexation parameters for each tax and benefit. We have reproduced the Budget 2014 default assumptions in Tables 2.1 and 2.2 below.

The forecast and scorecard process

2.8 The roles of the OBR, the Treasury, the Department for Work and Pensions (DWP) and HM Revenue and Customs (HMRC) in the preparation of our forecasts and the Treasury's scorecard costings are set out in the Charter for Budget Responsibility and the Memorandum of Understanding between the OBR, the Treasury, DWP and HMRC. These documents were published alongside the Budget Responsibility and National Audit Act, which established the OBR as a statutory body in April 2011.[3]

2.9 The Charter states that, under normal circumstances, the Chancellor should give the OBR at least 10 weeks' notice of his intention to deliver a Budget or Autumn Statement.

2.10 This starts a complex iterative process of forecast rounds and policy development that are led by the OBR and the Treasury respectively. Once the date has been set, the OBR and the Treasury agree a timetable for exchanging the information necessary for the production of the forecasts and the scorecard costings.

2.11 The two processes are closely linked and it is important that they are well coordinated. To facilitate this, the Memorandum of Understanding has established two steering groups that are attended by the relevant bodies. The scorecard costings process is coordinated by the Treasury and overseen by the 'Policy costings steering group', attended by the OBR and

[2] Autumn Statement 2013
https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/263434/autumn_statement_2013_policy_costings.pdf
[3] Available on our website: http://budgetresponsibility.org.uk/independence/legislation-and-related-material/

relevant departments and chaired by the Treasury. The fiscal and economic forecast process is coordinated by the OBR and overseen by the 'Forecast liaison group', attended by HMRC, DWP and the Treasury and chaired by the OBR.

2.12 While the Treasury oversees the policy costing process as chair of the steering group, most of the discussions around the evidence underpinning the baseline and potential behavioural effects take place with analysts and operational staff in the relevant departments, most often HMRC for tax policies and DWP for welfare policies. HMRC and DWP analysts have the most in-depth knowledge of, and access to, administrative and survey data sources, and behavioural and evaluation evidence from the same or related policy areas. It is important that we have access to their knowledge so that we can probe and sense-check their models and the assumptions that underpin their costings.

2.13 We achieve this through regular informal discussions at official level and formal discussions involving the BRC, where we agree conventions that ensure consistency across similar types of costings (e.g. the attrition assumptions for anti-avoidance costings), and through sharing written notes and evidence. It is also important that we can speak to those tasked with operating the tax and benefits system directly so that we can ensure that costings are consistent with the way a tax or welfare policy will be administered in practice, and the likelihood of tax avoidance and evasion or benefit fraud and error. These processes have typically worked well.

2.14 Timetables are revisited at each fiscal event to take into account the timing of economic data releases and other factors in the run-up to the Chancellor's chosen publication date. For the purposes of transparency, we set out the key stages of each timetable in the foreword of each *EFO*.

2.15 The process followed at each fiscal event involves a number of steps:

- We begin by preparing a first-round economic forecast, drawing on the economic data released since the previous forecast and preliminary judgements regarding the outlook for the economy. We send this economic forecast to the Chancellor. Using economic determinants derived from this forecast (such as consumer spending, wages and salaries and corporate profits), we then commission forecasts for different tax and spending streams from the relevant government departments. We collate and scrutinise these forecasts in order to generate forecasts for the key public finance aggregates.

- The results of the first-round fiscal forecast are then sent to the Chancellor, together with the our initial assessment of whether the Government is likely to hit or miss its fiscal targets in the absence of new policy measures. For Autumn Statement 2013, the Chancellor received this initial 'pre measures' fiscal forecast 5 weeks ahead of his statement.

- The economic and fiscal forecasts undergo two further iterations, in each case incorporating new data plus further judgements on the outlook for the economy and

on the detail of the tax and spending forecasts. We then send the Chancellor a final 'pre-measures' economic and fiscal forecast and an accompanying assessment of expected performance against his fiscal targets in the absence of new policy measures. This provides a stable baseline against which the Chancellor can take his final policy decisions, knowing what he would need to do for us to conclude that he is on course to meet the fiscal targets. For Autumn Statement 2013, the Chancellor asked to receive this forecast 10 working days prior to his statement.

- At the same time as working on the second and third round forecasts, we begin scrutinising the policy decisions that the Chancellor is considering announcing. The Treasury usually provides a first draft of the scorecard – an initial list of the proposed measures – at the first policy costings steering group, roughly 7 to 9 weeks prior to the statement.

- We, the Treasury and the responsible department then discuss the scrutiny that each proposed measure requires, based for example on its complexity and similarity to previously considered measures. The responsible department will then send us a 'costing note' setting out the details of the policy and estimating the amount it is expected to raise or cost in each year of the forecast. The analysis and costing notes are owned by the responsible departments and represent their best estimates of the cost of each measure. These notes go through significant internal challenge before being sent to the Treasury and subsequently to us for scrutiny and certification. This is a resource intensive part of the process for the responsible department (in most cases HMRC or DWP).

- We then discuss the analysis with the department and the Treasury, suggesting changes and iterating until we are happy to endorse the estimates as 'reasonable and central'. Normally, the process by which we iterate on the evidence and assumptions underpinning a costing can be conducted via correspondence. On some occasions, formal star chambers are set up to discuss more complicated and uncertain measures. Alternatively, we and the Treasury may agree to disagree on the costing, or we may conclude that we have not had enough time or information to reach a judgement. On the one occasion to date (increasing the time limit in the short life assets capital allowances regime from four to eight years at Budget 2011) that we have taken the third option, we said we would use the Treasury costing for the time being. In the Autumn Statement 2011 forecast, we revisited the costing and decided to leave it unchanged.

- As well as judging the direct fiscal impact of the policy measures, we must also judge whether – individually or in aggregate – they are likely to affect the outlook for the economy sufficiently to merit adjusting the economic forecast. For example, a loosening or tightening budget may affect the aggregate level of spending in the economy, indirect tax changes may affect inflation and corporation tax changes may affect business investment via their impact on the post-tax cost of capital. Tax and benefit policy changes could also affect the supply of labour. Unlike costings of the direct fiscal impact of policy measures, judgements about the wider economy effects

are solely a matter for the OBR. If we judge that policy measures are likely to have material implications for the economy, they will have knock-on effects on the public finances more generally. It is therefore necessary to ensure that the final post-measures economic and fiscal forecasts are consistent with each other.

- At the outset of the forecast process, we agree deadlines with the Treasury by which we must be told of a proposed policy measure if we are to guarantee (a) to include its impact in the final post-measures economic forecast and (b) to reach a judgement on the scorecard costing. In the Autumn Statement 2013 forecast process, the deadline was the Tuesday of the week before the statement. For policy measures likely to have an effect on the economic forecast, we would need final decisions by the Tuesday. For other policy measures, we would need to have seen a costings note related to the measure by this deadline, although minor changes to the measure could happen until the Friday of the week before the statement.

- During the week before the statement, we prepare our final 'post-measures' economic and fiscal forecasts for publication, adjusting the final pre-measures forecast to reflect the economic and fiscal impact of the scorecard package.

- The final scorecard will have evolved significantly from the initial draft. Some policy measures will have been dropped and others added. One role of the policy costings steering group is to decide which notes and scrutiny meetings to prioritise, given the probability that particular measures will feature on the final scorecard.

- In the run up to a fiscal event we are sent many more costing notes than the number of measures eventually included as policy announcements in the published policy decisions table. Some of these brought together more than one costing into a single line in the published policy decisions table. Our scrutiny of costings that do not form part of the announced package is treated in confidence, consistent with the information sharing arrangements necessary for us to fulfil our remit and with the statutory proscription on our discussing anything but the Government's stated policies.

- Even for measures that remain on the scorecard throughout, the precise details often evolve as the scrutiny process takes place and the Chancellor refines the overall policy package. Minor changes can be incorporated into the final forecast after the deadlines referred to above. We typically close the final post-measures forecasts on the Friday prior to the statement.

- On the day of the statement itself, we publish the final post-measures forecasts in the *EFO*, along with an explanation of the impact that the policy measures have had on the forecasts and on the Government's performance against its fiscal targets. The Treasury publishes its final scorecard costings and also a *Policy costing document* that summarises the final costing notes for each measure. We contribute an annex to the *Policy costings document*, identifying those costings around which we believe there is particular uncertainty and also identifying any measures where we have chosen not to endorse the Treasury's published costing as reasonable and central.

- Since Budget 2013, we have also published a supplementary fiscal table that shows our own version of the scorecard. This shows how each measure on the scorecard is split between tax and spending, further broken down by tax and spending subhead. When required, this table also includes any changes that we consider policy measures but that do not appear on the Treasury scorecard.

- Alongside the publication of *Working paper 3 - Cyclically-adjusting the public finances*, we published a tax measures database. This database contained the costings for each tax measure between Budget 1970 and 2012. We intend to publish a fully updated database later this year and to update it after each fiscal event.

2.16 In addition to incorporating the impact of newly announced policy measures, our forecasts typically incorporate changes to the estimated impact of some previously announced policy measures that appeared in earlier scorecards and forecasts:

- Previously announced policies that have already been implemented are not re-costed as a matter of course, as the stock of such policy changes is enormous and ever growing. There may, however, be evidence that specific policy costings have been subject to considerable errors and should therefore be revised. For example, at Autumn Statement 2013, in light of new evidence from the Swiss Banking Authority and further analysis by HMRC we revised down the amount expected to be raised from the Autumn Statement 2012 UK-Swiss tax agreement measure. The Budget 2011 pensions relief measure was also revised down, while we revised up the amount expected from the Budget 2012 stamp duty enveloping measure and 7 per cent rate for residential property transactions over £2 million.

- The costing of a new policy may also shed new light on the costing of an old policy. For example, the costing of the cut in the additional rate of income tax on incomes above £150,000 from 50p to 45p in Budget 2012, underpinned by detailed HMRC analysis published at the time,[4] suggested that the original costing of the introduction of the 50p rate needed to be adjusted. So in our March 2012 *EFO* we adjusted the 'pre measures' forecast as well as including the costing of the reduction to 45p in the final 'post measures' forecast.

- Alongside its scorecard costing of newly announced policy measures, the Treasury publishes at Budgets updated scorecard costings for all policy measures that have appeared in previous scorecards but which have not yet been implemented. We do not formally certify these re-costings, but we do scrutinise them when updating our 'pre measures' forecast, which will include the original costing. These re-costings may reflect changes in economic determinants or other drivers of the costing. They may also reflect minor changes to the detail of the policy measure subsequent to the original announcement. Major changes are treated and presented as new scorecard measures and we certify the costing in the usual way – for example, at Autumn

[4] HMRC, *The Exchequer effect of the 50 per cent additional rate of income tax*, March 2012

Statement 2013, the extension of the Budget 2013 partnerships measure to alternative investment funds following consultation through the summer.

What policy measures are included?

2.17 The Charter for Budget Responsibility requires the OBR's published forecasts to reflect the impact of *"all Government decisions and all other circumstances that may have a material impact on the fiscal outlook, in particular where the fiscal impact of these decisions and circumstances can be quantified with reasonable accuracy"*. It continues: *"Where the fiscal impact of these decisions and circumstances cannot be quantified with reasonable accuracy, the impacts should be noted as specific fiscal risks."*[5]

2.18 The Charter lists a set of fiscal aggregates for which we are required to produce forecasts. In effect, this requires us to take account of any policy decisions that affect:

- the amount the public sector raises from taxes or other revenues;
- the amount the public sector spends (and whether that spending is classified as capital or current spending); and
- the amount the public sector lends (for example to students) or borrows, and any other financial transactions that it engages in (such as sales of assets).

2.19 The Charter also requires us to forecast some aggregates at a sectoral level, which requires us to distinguish between the activities of central government, local government and public corporations.

2.20 In some cases, we and the Treasury have to decide whether the details of an announced policy measure are sufficiently firm and comprehensive to be included in the scorecard and forecast. Some measures have been included in our forecasts despite some technical details remaining outstanding (for example, because the Government was consulting on those details), as they did not appear material to the costing. Ultimately, the Treasury decide what appears on the scorecard and we decide what is included in our forecast. Any inconsistencies are set out in our *EFO* document. For example, at Autumn Statement 2013, we treated the effect of freezing work allowances (disregards) in Universal Credit between 2014-15 and 2016-17 as a policy change rather than a forecast adjustment. Instances such as this are likely to become more important when policing the welfare cap, as a key task for the OBR will be to state whether any fluctuations above the cap are due to forecast errors or discretionary policy.

2.21 In other cases, even if the details of an announced policy measure appear to be final, it may be excluded from the scorecard and the forecast because there is uncertainty over whether it will be implemented or not – for example, if the measure requires state aid approval from the European Commission or the agreement of another country. One recent example is the

[5] Charter for Budget Responsibility, paragraph 4.10.

UK-Swiss tax agreement announced in 2011. In this case, full and (what appeared at the time to be) final details had been announced, but the deal was subject to ratification by the Swiss Parliament and a possible referendum. It was therefore not included in the fiscal projections in the subsequent *EFO*. (Since implementation, the yield from this policy also proved particularly difficult to forecast, illustrating the uncertainty that can remain even when policy parameters are known.)

2.22 Two Government decisions in recent years have had large effects on the public finances without featuring on the Treasury scorecard: the transfer of the Royal Mail's historic pension deficit and related assets to the public sector in 2012-13 and the transfer of excess cash balances from the Bank of England Asset Purchase Facility since 2012-13. We have ensured our forecasts provide sufficient detail to understand the effects of these transfers on borrowing and the fiscal targets, and have focused the discussion in our *EFO* documents on an underlying measure of borrowing that excludes these transfers. Often policies that have a neutral impact on the public finances do not appear on the scorecard. For example, over successive years the Government has pledged to freeze council tax rates in England, with local authorities receiving grants from central government to help finance the freeze. Rather than the freeze in council tax appearing on the scorecard it was included as an adjustment to the council tax forecast. We will always endeavour to present such cases in a transparent and consistent manner in the *EFO*.

Tax policy decisions

2.23 Policy measures that affect tax bases and rates are usually announced in Budgets and Autumn Statements, but occasionally at other times (for example, when the Government closes a loophole that has been identified as being used for avoidance). Most such measures require ratification in the subsequent Finance Act and appear on the Treasury's scorecards. The impact of all such measures announced since the previous forecast (and not just on the day of the statement) is included in our forecast.

2.24 From time to time Ministers may voice aspirations about the future path of tax rates and allowances, which the Treasury chooses not to include in the scorecard as firm policy measures. The goal of reaching a £10,000 income tax personal allowance was one such aspiration in the early years of this Parliament. When such statements are made, we typically asks the Treasury to confirm publicly whether this is Government policy or not, and if so precisely what the policy is, so that we can decide whether to include it in our forecast or note it as a fiscal risk.

2.25 Estimating the increase or decrease in revenue that will result from a tax measure requires a counterfactual 'no policy change' revenue forecast. In some cases, defining 'no policy change' is straightforward, as the Chancellor will have set out explicitly how the parameters of the relevant tax will evolve in a previous policy announcement. In the absence of such announcements, the Treasury has stated conventions for how particular tax parameters are assumed to evolve – most often that allowances or thresholds will increase in line with a measure of inflation. These are set out in Table 2.1.

Table 2.1: Default assumptions for tax parameters

Tax	Element	Default Indexation assumed
Income Tax	Personal Allowance	Increase by CPI from 2015-16
	Basic Rate Limit	CPI, increase rounded to the nearest £100
	Starting Rate Limit	RPI, CPI after 2015-16
	Threshold for additional rate	Constant in cash terms
	Threshold for tapered withdrawal of personal allowance	Constant in cash terms
	Pension tax relief annual allowance	Constant in cash terms
	Pension tax relief lifetime allowance	Constant in cash terms
	ISA limits	CPI
	Threshold for Child Benefit income tax charge	Constant in cash terms
	Marriage tax allowance	Uprated in proportion to the personal allowance
NICs	Lower earnings limit	CPI
	Primary threshold/Lower profits limit	CPI
	Secondary thresholds	RPI until 2015-16, CPI thereafter
	Upper earnings limit/Upper profits limit	Aligned with income tax higher rate threshold
	Small Earnings Exception	CPI
	Contribution Rates	Fixed, apart from Class 2 and 3 weekly rates which rise by CPI
Capital Gains Tax	Main annual exempt amount	CPI
	Annual exempt amount for trustees	CPI
	Lifetime allowances for entrepreneurs relief	Constant in cash terms
Corporation Tax	Marginal relief lower limit	Constant in cash terms
	Marginal relief upper limit	Constant in cash terms
	Small profits rate	Fixed at latest announced rate
Fuel Duties	Duty Rates on petrol and diesel	RPI
	Duty rate on liquefied petroleum gas	RPI
Inheritance Tax	Nil rate band allowance threshold	CPI
Stamp Duties	SDLT thresholds	Constant in cash terms
Annual Tax on Enveloped Dwellings	Annual chargeable amounts	CPI
Climate Change Levy	Levy amount	RPI
Aggregates Levy	Levy amount	RPI
Landfill Tax	Tax Rates	RPI
Vehicle Excise Duty	Duty Rates	RPI
Amusement Machine Duty	Duty Rates	RPI
Air Passenger Duty	Duty Rates	RPI
Tobacco Duty	Duty Rates	RPI
Alcohol Duty	Duty Rates	RPI
VAT	VAT registration threshold	RPI
Gaming Duty	Gross gaming yield bands	RPI
Business Rates	Business Rates multiplier	RPI

2.26 The 'no policy change' baseline is not necessarily 'fiscally neutral'. For example, as wages and salaries are typically expected to rise more quickly than prices due to productivity growth, the no policy change assumption that income tax allowances and thresholds rise in line with prices implies a rise in the average tax rate over time as people gradually find more of their incomes in higher tax bands. Consequently, tax revenue would tend to rise as a share of GDP. This process is referred to as 'fiscal drag'.[6]

2.27 The Government sometimes makes policy decisions designed to increase tax revenues without changing rates or bases, for example by increasing the resources or changing the methods used to reduce fraud and error. The Government sometimes includes such decisions in the list of scorecard measures even though there may be other changes in the resourcing or organisation of tax administration that might have the opposite effect, but which are not included on the scorecard. Since it is the Treasury's decision what to include in the scorecard, we scrutinise the impact of such decisions as we would any other scorecard measure. We do, however, require robust evidence that such changes will yield the results claimed for them in order to certify them, for example evidence from pilot schemes or previous similar initiatives. Whether or not such measures are included in the scorecard, we aim to take all relevant information – including decisions such as these – into account when making our revenue forecasts.

2.28 Operational changes that do not arise from Government decisions are not formally certified or treated as policy measures, even if they affect revenues. A large number of such changes are made through the year as part of normal departmental business and it would not be practical to assess the fiscal implications of each one separately. Indeed, in most cases such changes would not have a material or quantifiable impact on the public finances. For more significant and quantifiable operational changes, the impact would be assessed and included in our 'pre measures' forecast baseline.

Spending policy decisions

2.29 To forecast the fiscal aggregates set out in the Charter, we need to make separate forecasts of Public Sector Current Expenditure (PSCE) and Public Sector Gross Investment (PSGI), which together comprise Total Managed Expenditure (TME).

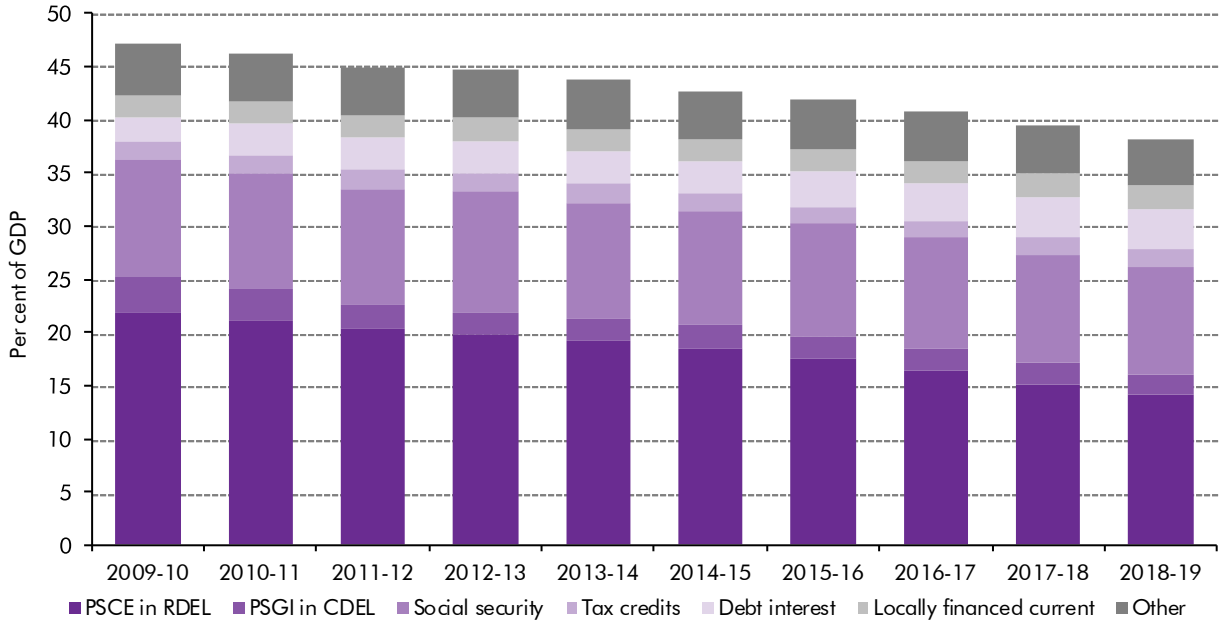
2.30 In setting out its spending policies, the Treasury also focuses on an administrative breakdown of TME into the following two categories:

- Departmental Expenditure Limits (DELs): DELs consist largely of current and capital spending on public services and administration, where the Government sets out multi-year cash plans for different departments. These plans are fixed in periodic Spending Reviews and can only be increased in exceptional circumstances through claims on separate current and capital reserves controlled by the Treasury. These act as buffers for unexpected needs (such as military operations).

[6] Fiscal drag was discussed in more detail in Box 3.2 of our 2013 *Fiscal sustainability report*.

- Annually Managed Expenditure (AME): AME contains those categories of public spending that the Government chooses not to control within multi-year fixed cash limits, typically because they are volatile or demand-led. We directly forecast the various different categories of AME spending. The main elements of departmental AME spending are social security benefits, tax credits, BBC domestic services, net public service pension payments and spending funded by the National Lottery. AME also includes various categories of non-departmental spending, such as local authorities' self-financed spending, net expenditure transfers to the European Union, public corporations' capital spending, central government debt interest payments and various accounting adjustments.

Chart 2.1: Components of total managed expenditure[7]



Source: ONS, OBR

2.31 Given the variables we forecast, we need to take explicit account of DEL policy decisions only when they would affect the total level of PSCE or PSGI. Examples in Autumn Statement 2013 include aggregate reductions to the level of the DEL reserve and departmental plans, and the extension of free school meals. We do not need to consider decisions that simply reallocate the planned DEL total within or between departments, unless they affect the balance between current and capital spending. Our forecasts for DEL spending are based on the announced levels of DELs less an allowance for shortfall. We make no judgement as to whether particular policy objectives or programmes can be achieved for the sums of money allocated to them. Nor is it for the OBR to comment on whether any spending plan is the best use of public money.

2.32 For its part, the Treasury only includes DEL measures in the scorecard when they affect public sector net borrowing. So measures that increase or decrease total DEL would be

[7] Total spending in 2016-17 to 2018-19 are based on the Government's stated TME policy assumption. The DEL spending plans are implied by residual after we subtract our AME forecast from this.

included, but measures that shift spending between current and capital are not included even though they would affect the Government's chances of hitting its fiscal mandate for the structural current budget deficit. Beyond the period for which plans exist, the level of DEL is not specified by Government, so DEL measures after this tend not to feed through to the bottom line of the scorecard. Instead, they are wrapped up in the 'implied DEL' concept in our forecast. Effectively, this means that DEL measures whose effect extends beyond existing plans increase or reduce the resource available for other spending – the rest of 'implied DEL' is affected by the measure, rather than borrowing.

2.33 Given the 5-year horizon over which we forecast, we have to make an assumption about how DELs (and the split between current and capital spending) will evolve beyond the period covered by explicit plans. In each fiscal event since the June 2010 forecast, the Government has set an explicit policy assumption about the level of TME, PSCE and PSGI beyond the years covered by plans. In Autumn Statement 2013 this was as follows:

- For 2016-17 and 2017-18, TME should continue to fall at the same average real rate as over the period covered by the Spending Review 2010 and Spending Round 2013, with PSGI flat in real terms;[8] and
- For 2018-19, TME should be held flat in real terms, with PSGI growing in line with nominal GDP.

2.34 For these years, we derived implied levels for definitions of resource DEL and capital DEL by subtracting our forecasts for AME from those for PSCE and PSGI respectively. The Treasury does not include changes in the level of DELs implied by this policy statement as scorecard measures. If the Government did not specify a spending assumption for beyond the final year of detailed plans, we would assume that spending was held constant as a share of GDP (adjusted for the economic cycle), which we consider to be a neutral assumption. Other assumptions would be possible, for example the approach we take in our long-term projections of holding age- and gender-specific spending constant as a share of GDP and allowing demographic trends to dictate changes in total spending as a share of GDP.

2.35 Each year at the Autumn Statement, the forecast horizon rolls forward a year. At this point, a new assumption for TME is required (or, in its absence, we would make a neutral assumption). As the assumption is new, the Government typically does not regard it as a policy change. However, when that assumption delivers a change in the ratio of TME to GDP and therefore affects the fiscal aggregates relevant to the Government's fiscal targets, we report on the effect the new assumption has had. For example, in our December 2013 *EFO*, we noted that the Government's TME assumption had resulted in the cyclically-adjusted current budget surplus in 2018-19 being 0.8 per cent of GDP larger than would have been the case if spending had remained constant as a share of GDP. That reflected implied resource DEL being reduced by 1.0 per cent of GDP, more than offsetting small structural increases in other current spending, mostly debt interest.

[8] The Government has stated that both the growth rate and the baseline should be calculated excluding our projected underspends in DEL and all policy measures announced in the Autumn Statement 2013.

2.36 We forecast different categories of AME spending directly and we take into account any policy decision that we believe is likely to affect AME spending. The most frequent such decisions are those affecting entitlement to, and the generosity of, social security benefit and tax credit payments. These also appear in the Treasury scorecard as they affect borrowing. As with tax measures, it is first necessary to define how the parameters of the welfare system would be assumed to evolve in the absence of explicit policy announcements – the 'no policy change' counterfactual. Again as with tax measures, the Treasury typically assumes that benefit levels rise in line with some measure of inflation. The current 'no policy change' assumptions are shown in Table 2.2.

Table 2.2: Default assumptions for social security parameters

Tax	Element	Default Indexation assumed
Child Tax Credit	Savings Credit	Frozen in cash terms until April 2016 and then frozen in real terms
	Family element	Constant in cash terms
	Child element	CPI
	Disabled and enhanced disabled child elements	CPI
Disability Benefits	Main rate	CPI
Income related benefits	Main rate	CPI
Maternity benefits	Main rate	CPI
Statutory sick pay	Main rate	CPI
Basic State Pension	All categories	Higher of earnings, CPI or 2.5%
Additional State Pension	All elements	CPI
Pension Credit	Guarantee Credit	Earnings
Working Tax Credit	All award elements	CPI
Child Benefit	Eldest child and subsequent children amounts	CPI

2.37 The 'no policy' assumption that most benefit payments rise in line with inflation is not necessarily fiscally neutral as incomes are typically expected to rise faster than prices due to productivity growth. Like the equivalent assumption for tax allowances and thresholds, this assumption puts downward pressure on borrowing over time by reducing the generosity of benefit payments relative to average incomes and per capita GDP.[9] Where a policy change switches spending between AME and DEL and it does not affect the total level of PSCE or PSGI, for example the localisation of business rates announced in Autumn Statement 2012, it need not be shown on the scorecard. But we ensure that our AME and DEL forecasts do reflect it.

2.38 For years beyond 2015-16, when total spending is currently determined by the Government's spending assumption, AME measures affect implied DEL rather than borrowing. For example, a measure to increase AME spending in 2016-17 will be completely offset by a reduction in the level of implied DEL and vice versa. While DEL measures beyond 2015-16 are not shown on the scorecard since plans have not been set and can therefore not be changed, spending decisions may still have consequences for

[9] This aspect of fiscal drag was also explored in Box 3.2 of our 2013 *Fiscal sustainability report*.

2016-17 and beyond. For example, the extension of free school meals at Autumn Statement 2013 would, if continued beyond 2015-16, either require extra spending or reductions in other spending within the DEL envelope implied by our forecast.

2.39 The Treasury has varied its presentation of spending measures in the scorecard for years beyond those covered by detailed plans. They do not ordinarily feed through to the bottom line, because AME measures are completely offset by changes in implied DEL. In the interests of transparency, it is nonetheless helpful to know the cost of individual AME and DEL measures beyond the period for which there are detailed plans. The Treasury has provided this in some published scorecards (such as in March 2013), but not in others (such as in December 2013). Our forecasts always include AME impacts and DEL consequences.

Financial transactions policy decisions

2.40 Tax and spending measures are not the only policy decisions that affect the public finances. The fiscal position is also affected by the flow of financial transactions – mostly loans and repayments between the government and the private sector, for example student loans. Financial transactions do not affect PSNB, but they do affect the Central Government Net Cash Requirement (CGNCR) and Public Sector Net Debt (PSND).

2.41 As financial transactions do not affect PSNB, policy decisions that affect them do not appear on the Treasury scorecard. But we require notification of such decisions because of their impact on PSND and other fiscal aggregates set out in the Charter, and we scrutinise them as though they were scorecard measures. The Treasury now gives its estimate of the impact of such measures in a supplementary scorecard table in the Budget Red Book or the equivalent Autumn Statement publication.

2.42 Some measures can have both an 'above the line' impact on PSNB and a 'below the line' impact on PSND additional to the knock-on effect from PSNB. One recent example in March 2012 was the decision to take the Royal Mail's historic pension deficit and associated assets onto the public sector's balance sheet. This had a large one-off impact on PSNB in the year of the transfer, a very small ongoing impact on PSNB (which the Government chose to offset from the DEL reserve) and a substantial ongoing impact on PSND. This was not presented in the main Treasury scorecard, but did appear in its summary of policy measures affecting financial transactions. We set out a comprehensive description of its impact both above and below the line in the *EFO*.

Provisions and contingent liabilities

2.43 In painting a comprehensive picture of the public finances, it is necessary also to consider policy measures that create the possibility, rather than the certainty, of adding or subtracting from liabilities. A good example is loan guarantees, which do not increase PSND straight away but expose the Government to the risk of an increase in the future if the guarantee is called upon. The potential impact of such decisions does not show up in the National Accounts, but they do appear as provisions (where the probability is greater than 50 per cent) or contingent liabilities (where the probability is less than 50 per cent) in the Whole of

Government Accounts, prepared each year on commercial accounting principles. Our forecasts are prepared on a National Accounts basis, but we highlight in our *EFO* documents such measures that are likely to show up in the WGA and discuss them in more detail in our annual *Fiscal sustainability reports*.[10] Since Autumn Statement 2013, we have begun to report on new contingent liabilities that result from policy announcements since the previous fiscal event.[11]

[10] See, for example, Table 2.20 of our 2013 *Fiscal sustainability report*.
[11] See our response to the Treasury Select Committee's report on Budget 2013.

3 Approaches to estimating policy costings

Introduction

3.1 This chapter reviews what a policy costing aims to achieve and some of the approaches that can be adopted to cost policy measures. It discusses briefly the successive rounds of effects on the economy potentially caused by changes in the policy environment, the options available for estimating those effects and the uncertainty that surrounds such estimates. Finally, it considers the rationale for the approach we take and the additional information we consider when deploying that approach.

Estimating the effect of policy measures on the economy and public finances

3.2 A policy costing is an estimate of the impact on the public finances of a new policy compared with a counterfactual scenario in which the policy is not introduced (i.e. the current policy continues). This means that the first step in any approach to costing a policy change is to establish the baseline 'no policy' counterfactual. For example, in considering the effects of reducing the rate of beer duty it would first be necessary to forecast the quantity of beer that was expected to be purchased absent any change in policy.

3.3 The objective of costing an individual policy measure is to reflect as accurately as possible the full effects the policy change will have on the public finances. Meeting that objective would ensure that forecasts of the public finances are as accurate and unbiased as possible and allow policymakers to make informed trade-offs between different policy options. In addition, when producing a forecast of the public finances, which informs the Chancellor's decisions about the overall fiscal policy setting, a key objective is to understand the net impact of the policy package as a whole.

3.4 A policy change can potentially affect the public finances through a variety of channels, some of which are more straightforward to quantify than others. This is because policy changes will often influence the behaviour of those affected, which can lead to a complex chain of interlinked effects on the economy and public finances. A key question when producing policy costings is to what extent these micro-level behavioural effects and macro-level indirect effects can be robustly estimated in policy costings.

3.5 There are different ways the chain of effects of a policy measure can be broken down. For the purposes of this briefing paper, we have used the following five steps, as the effects of the policy change filter through the economy:

- The **static effect** of changing policy parameters such as tax rates or thresholds, before considering any behavioural response from firms or individuals;
- The immediate **direct behavioural effects** of firms or individuals to the policy change;
- **Micro-level behavioural effects in closely-related areas** that are small in relation to the whole economy;
- **Macro-level behavioural effects** of policy changes that are material in relation to the whole economy; and
- The overall **net impact of the policy package as a whole.**

3.6 The first step to costing a policy change is to consider its static effects. These are the immediate fiscal effects of a policy change, ignoring any impact on the behaviour of those affected by the change or any knock-on effects to the wider economy. In the beer duty example, that would mean applying the new beer duty rate to the baseline forecast of the quantity of beer clearances and calculating the difference in beer duty raised on the new and old basis. This calculation would be relatively simple, but the behavioural and wider effects ignored could be material. As the examples in Chapter 4 illustrate, in some cases even the static effects can be difficult to calculate where there is considerable uncertainty about the baseline forecast.

3.7 Policy changes can affect people's incentives and decisions on a range of economic behaviours, such as how much they work, the quantities and types of goods and services that they consume, and the amount they save. Indeed policymakers often change policy settings precisely in order to induce certain behavioural and economic changes. These effects may have a material impact on the public finances.

3.8 The first-round of such behavioural effects concerns the particular area of taxation or spending directly affected by the policy change. In the beer duty example, the reduction in beer duty leads to lower beer prices, which, given the price elasticity of beer consumption, would increase beer clearances relative to the baseline. This would tend to push up total beer duty receipts which would to some extent – dependent on the price elasticity – offset the simple static effect, whereby a lower rate of beer duty on each unit sold would reduce receipts.

3.9 Behavioural changes may also affect closely related areas of taxation or expenditure. For example, the cost of beer and therefore the rate of beer duty could be a factor in the consumption of cider and other types of alcohol. Therefore a reduction in the beer duty rate could lead to a reduction in the consumption of cider, assuming there was no corresponding change in cider duty. HMRC has developed a variety of cross price elasticities to model such outcomes.

3.10 This chain reaction of behavioural responses to one set of policy changes affecting other decisions theoretically continues until all prices and quantities in the economy have adjusted

to the new policy landscape. In the example of reducing beer duty, these wider indirect effects include a near-term effect on inflation, since the post-tax price of alcohol makes up part of the inflation measure, with possible knock-on effects for household consumption. Changes to the forecast size or composition of the economy would have second round of effects on the public finances – for example, temporarily lower inflation would affect the amount of interest paid on index-linked gilts and could affect the uprating of tax and benefit thresholds; changes in household consumption could affect VAT receipts; and so on.

3.11 Finally, while understanding the full effects of individual policy measures is important, it is also necessary to consider the net effect of the overall policy package. In recent Budgets and Autumn Statements, a typical policy package has included around 50 to 60 policy measures. As well as the chains of effects from individual measures, there will be interactions between the measures that need to be taken into account.

Approaches to costing policy measures and packages

3.12 In simple terms, costing policy measures can be approached bottom-up (from the individual measures), top-down (from the net impact of the overall package), or through some combination of the two. In choosing the best approach(es), analytical tractability and transparency of presentation are both important considerations.

3.13 As we noted earlier, the Treasury publishes a scorecard of policy measures alongside each Budget and Autumn Statement, in which it quantifies the impact of each policy measure on public sector net borrowing (the 'costing') over the five years of the forecast horizon. In doing so, it incorporates for each measure the first three of the five steps listed above – the static impact, the direct behavioural impact and any micro-level behavioural impact in closely related areas. Under the terms of the Charter, the Treasury is free to decide which policy measures to include in – and exclude from – the scorecard and what costs to attribute to them.

3.14 Our ultimate objective is to assess the aggregate impact of the whole policy package and thus to produce the best forecast we can of the outlook for the public finances, taking into account all the latest decisions. In doing so, we state publicly whether we believe that the individual costings in the Treasury's scorecard are central and reasonable, taking the scope of the assessment as given. We then incorporate these costings (or our preferred alternatives) into our forecast, also taking into account the impact of other policy measures that the Treasury may have omitted from the scorecard and, where material, reflecting the fourth and fifth steps identified above – namely the macro-level behavioural impact of the individual measures and the impact of the package as a whole on the aggregate balance of demand and supply in the economy, and thus the setting of monetary policy. Since the dividing line between what should be considered part of the bottom-up direct costing and what should be treated as a wider indirect effect is not clear-cut, it is important to ensure there is no double-counting of effects and to avoid any material effects being missed.

3.15 Splitting the five steps in this way – and dealing with the fourth and fifth in a top-down fashion – makes sense given the time and resources available to us during the pre-

statement policy scrutiny process. In principle, we could analyse all the numerous knock-on behavioural effects of each policy measure and attribute the overall impact on the public finances to that measure, a process known as 'dynamic scoring'.[1] Quantifying the 'general equilibrium' fiscal effects of policy changes in this way is far from straightforward. As the Institute for Fiscal Studies has noted: *"The difficulty [with dynamic scoring] is that coming up with this perfect measure would require answering virtually every question, theoretical and empirical, that has ever been asked in economics."*[2]

3.16 Dynamic scoring is complicated enough when looking at individual measures in isolation, but it would be even more so when dealing with packages of many measures that inevitably interact. The scoring of each measure would be even more sensitive to the order in which they were calculated than is the case in the current costing approach.

3.17 One way of generating dynamic costings is to use a 'computable general equilibrium' (CGE) model, such as that maintained by HMRC.[3] These models deploy a range of estimation and calibration techniques that attempt to describe the micro-level adjustments that take place in the economy following a policy change. The challenge with using such models to carry out dynamic scoring is the amount of evidence required to estimate the behavioural features of the model. In principle, a CGE model is designed to capture the full range of economic effects of any policy change – but, in practice, like any model it is a partial and simplified representation of prices and quantities in the economy. The HMRC model – like most CGE models – also fails to reflect the role of monetary policy.

3.18 At the Government's behest, HMRC published a CGE analysis of the planned cuts in Corporation Tax from 28 per cent in 2010 to 20 per cent in 2015-16 alongside Autumn Statement 2013. This study estimated that the CT rate cuts would increase GDP by between 0.6 and 0.8 percentage points in the long term (with about half the increase showing up within our 5-year forecast horizon). The effect was estimated to result from higher investment and increases in labour demand that would lead to higher wages and consumption. As a result, the overall cost of the policy relative to its static cost was estimated to be lower by 45 to 60 per cent.[4]

3.19 Exercises of this sort are useful as a sense-check on our own costing approach. The HMRC study posited a boost to investment (via a lower cost of capital) similar to that which we incorporated in our forecasts when the CT cuts were announced. We did not increase our forecasts for wages, consumption and aggregate GDP by as much as the HMRC study would have implied, partly because we took into account 'whole package' implications for monetary policy that the CGE model does not capture. Had we incorporated effects of this magnitude, our forecasts for economic activity over the current parliament to date, which have already proved over-optimistic, would have been even more so.

[1] Auerbach (2005), 'Dynamic scoring: an introduction to the issues'.
[2] Adam and Bozio (2009), 'Dynamic ccoring', Institute for Fiscal Studies.
[3] HMRC (2013), *HMRC's CGE model documentation*.
[4] HMRC (2013), *Analysis of the dynamic effects of Corporation Tax reduction*.

3.20 CGE modelling holds out the prospect of potentially useful insights for our policy costings, but it does not offer a realistic alternative to the way in which the current approach to costing feeds into the forecast process. As HMRC itself has noted, its CGE model *"is not a short-term forecasting model. Its strength is in modelling the long-term economic effects of policies rather than short-term economic fluctuations."*

3.21 Policymakers and interest groups will naturally find dynamic scoring attractive as a way to highlight the potential positive spillovers that some tax measures have for the economy and other revenues. But they may be less keen to use the same approach to highlight the impact of other tax changes that increase distortions and have negative spillovers.

Dealing with uncertainty

3.22 As with other aspects of the forecasting process, costing the expected impact of policy changes will typically involve a range of uncertainties. The Treasury's *Policy costings document*, published alongside each statement, mentions the main uncertainties associated with each costing. We produce an Annex to that document that highlights measures where we think there is particular uncertainty. At previous fiscal events we have highlighted, for example, the uncertainty inherent in the UK-Swiss tax agreement. In this case, there was very little concrete information on the value and nature of UK taxpayer assets held in Switzerland, or the likely behavioural response to the agreement. The yield from the measure duly proved significantly lower than was costed at Autumn Statement 2012 and the forecast has been adjusted accordingly.[5]

3.23 We emphasise the uncertainty that surrounds forecasts of the economy and public finances using fan charts, sensitivity analysis and alternative economic scenarios. Policy costings are subject to a similar, if not greater, level of uncertainty for a number of reasons. In many cases, costings are highly sensitive to assumptions about the future behavioural responses of taxpayers or benefit recipients. In addition, it is often difficult to draw lessons from the impact of previous policy measures, because it is hard to separate the impact of the measures themselves from other changes in receipts and expenditure – after the event, it is not possible to observe the counterfactual of what would have happened in the absence of the policy change.

3.24 Some costings are more uncertain than others. The scale of the uncertainty is typically linked to the nature of the policy rather than its size. For example, the effect of rate or allowance changes that are applied to large tax bases, and which therefore have large revenue implications, can often be estimated with reasonable certainty due to the relatively complete information and accuracy of the models held by HMRC.

3.25 In these cases, the uncertainty is mainly in the economic determinants underpinning the forecast and costing. A change in the income tax personal allowance, for example, produces fairly certain costings as the models and assumptions used are familiar to us and have proved generally reliable. If economic determinants change substantially, then the

[5] See Box 4.3 in our December 2013 *EFO* for further discussion on tax agreements with offshore centres.

costing could prove inaccurate. One example where economic determinants changed is the rise in the supplementary charge on oil and gas firms announced in Autumn Statement 2011. Much lower than expected production, and higher expenditure by firms, meant much lower taxable profits than had been assumed in the original costing.

3.26 Policies that are narrower in scope can be subject to greater uncertainty. Anti-avoidance costings often target a specific subset of taxpayers who are already actively changing their behaviour in response to the tax system. Such measures are subject to greater uncertainty as the change in taxpayer behaviour is difficult to predict.

3.27 Measures that aim to incentivise future behaviour are also subject to considerable uncertainty. This is particularly the case when a policy measure is designed to provide a new incentive. At Autumn Statement 2012 we chose to highlight the extra uncertainty with the employee shareholder status measure as there was great uncertainty on take-up, with little evidence on which to predict how many individuals would wish to surrender rights in return for shares and income tax and NICs relief. The Autumn Statement 2013 shale gas pad allowance measure was subject to significant uncertainty as to how many of the pads developed within the scorecard period would be due to the new allowance and how many would have gone ahead in its absence.

Choosing which approach to adopt

3.28 There are a number of factors that need to be weighed when choosing which approach or combination of approaches to adopt. Given the goal of the policy costing process is to provide a reasonable central estimate of the impact of individual policy changes and the net effect of the policy package as a whole on the public finances, the most important consideration is whether the chosen approach to costing delivers a reasonably accurate estimate of what actually happens. Against this ideal needs to be balanced known information gaps and uncertainties over the chain of effects following a policy change, the existence of resource constraints in the analytical and forecasting teams producing and using the costings and the need to explain transparently the judgements that have been made to facilitate accountability.

3.29 Our approach balances the need for policy costings to be as realistic and comprehensive as possible given available resources with the knowledge that there will be a range of uncertainties around any estimate, which means very small effects may not be significant relative to the uncertainty that surrounds them. We therefore make judgements about the effects that are likely to be material to an individual policy costing and the wider indirect effects that are likely to be material to the economy and public finances as a whole. These judgements are set out transparently to allow others who disagree with those judgements to adjust them if they wish. We take into account evidence from other approaches where it is available, including the results of HMRC's CGE modelling in relevant cases.

4 Methodology for direct policy costings

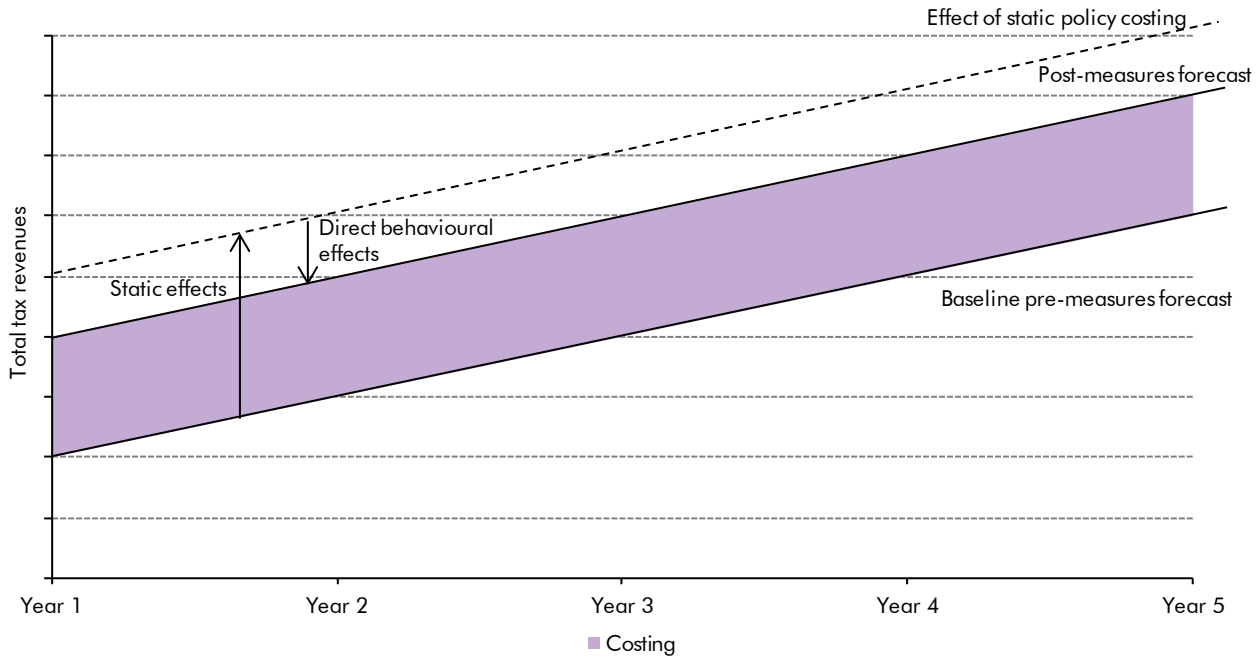
Introduction

4.1 This chapter provides further detail on the methodology used for producing the direct policy costings that appear on the Treasury scorecard and that are fed into our public finance forecasts. Our approach to estimating the wider impact of measures on the economy, and the second-round effects on the public finances that are not presented on the Treasury scorecard, is discussed in Chapter 5.

4.2 In the approach we and the Treasury use for direct policy costings, there are three steps involved in estimating the direct cost of a policy:

- **Establishing the baseline:** this is how the activity affected by the policy measure would be expected to develop in the absence of the measure, for example a forecast for tax revenue or benefit spending. The 'baseline pre-measures forecast' line in Figure 4.1 represents this;
- **Estimating the static effect:** the fiscal impact that arises from applying the new and old rules for a measure to a common baseline, before allowing for any behavioural or economic responses. The dotted line in Figure 4.1 shows the effect of a static costing; and
- **Estimating behavioural or first-round effects:** these capture the behavioural responses of specific group(s) of individuals or firms that are directly affected by the change or are in closely-related areas. In the stylised example in Figure 4.1 the behavioural effects are the difference between the static costing and the post-measures forecast lines.

Figure 4.1: A simple policy costing



4.3 To ensure that robust costings are produced, each of these three components is estimated using the best available evidence, often using unpublished administrative data, for example on taxpayers or benefit claimants, and making use of all available internal and external research and analysis. (In cases where administrative data are subject to taxpayer or claimant confidentiality, the Treasury and OBR will only see the aggregated results of analysis conducted by HMRC or DWP officials, not any individual-level data that would breach that confidentiality.)

4.4 To produce these direct costings a range of detailed models have been developed by the departments responsible for specific policies. These incorporate a forecast baseline, a range of relevant economic determinants (drawn from the OBR forecast and other sources) and a full range of policy parameters, thresholds and rates. This helps to simplify the costing process, as well as ensuring the consistency and quality of results.

4.5 The existence of these tools means that policy costings that involve straightforward changes to existing policies, for example changing the rate of a tax or broadening the base to which the tax is applied, are relatively straightforward to estimate. These models are supported by good evidence and include quantifiable data and parameters, enabling the fiscal impact of such changes to be estimated.

4.6 Measures that do not fall into this group, for example the introduction of a new tax, may be harder to produce costings for. It may be, for example, that there is good evidence for establishing a suitable baseline, but the evidence is less robust for establishing the direct behavioural response. In addition to completely new policies, there are several groups of common policy measures that fall into this less certain category. These include changes that

affect the efficiency with which a tax base or benefit is managed, such as benefit fraud and error or tax non-compliance.

4.7 The following sections go into further detail on how the baseline, static effect and direct effect are identified and quantified.

Establishing the baseline

4.8 As set out above, policy costings start with an estimate of the value of the economic activity or base to which the policy applies. In many cases, these are estimated using purpose-built forecasting models, which typically incorporate large amounts of data on the policy and policy parameters, projected forward using a range of information, including variables taken directly from the our economic forecast.

4.9 We scrutinise these forecasts and models as part of the process for establishing our economic and fiscal forecasts. The first briefing paper in this series, 'Forecasting the Public Sector Finances' describes these models and the scrutiny process in more detail.[1]

4.10 In establishing the policy counterfactual, a number of assumptions are made. The normal assumption is that allowances, thresholds and specific tax and benefit rates would have been increased in line with relevant price indices, or any pre-commitments, such as policies announced in previous Budgets. The latest information on the default tax and spending parameter indexation factors are presented in Tables 2.1 and 2.2 in Chapter 2.

4.11 This combination of the policy base and the policy counterfactual constitutes the baseline for the policy costing; the level of revenue or spending that was expected without the policy measure.

4.12 For some measures, we can use the baseline directly from the forecasting model. For the cancellation of the September 2014 fuel duty increase announced in Autumn Statement 2013, the tax base came directly from the fuel duty forecast. Likewise, measures such as the June Budget 2010 measure to switch indexation of benefits, tax credits and public service pensions to CPI used the forecast baseline as the policy counterfactual.

4.13 Each forecasting model is tailored to the specific policy. Income tax provides a good example. The data used are from the Survey of Personal Incomes (SPI), a dataset based on HMRC tax data, including detailed information of taxpayers' liabilities from employer and self-assessment returns. The richness of this dataset allows changes to specific parts of the income tax base to be captured. The SPI contains information on income tax split by income stream, age, gender and geographical area. Lags in the tax system mean that the data are several years out of date. For example, the Budget 2014 income tax allowance costing was based on the 2011-12 SPI dataset. These data are projected forward in a number of ways. The number of employees and self-employed individuals is grown in line with ONS outturns and OBR forecasts, while the number of pensioners is grown using ONS population

[1] *Briefing paper No.1: Forecasting the public finances.*

projections. Different income streams are forecast using a variety of ONS series and OBR determinants. The baseline policy world is created by increasing policy parameters in line with announced policy or our forecast of the relevant price index.

4.14 The richness of the SPI means that for most changes to income tax rates and allowances, the baseline is relatively certain. The same can be said of changes to the main rate of corporation tax and most stamp duty land tax (SDLT) policies (among others), as the models used to create the baseline are relatively uncontroversial and well established.

4.15 For many policy measures, HMRC or DWP would generate a tax base from appropriate administrative data. For an anti-avoidance measure, the tax base would often be generated from administrative data and intelligence indicating how many firms or individuals were using a particular 'tax loophole'. For measures such as the temporary rise in the annual investment allowance from £25,000 to £250,000 announced in Autumn Statement 2012, the tax base would be administrative data on qualifying expenditure between the old and new limits.

4.16 When a new tax or benefit is introduced, or a base is extended, costings may be based on new sources of data, drawn from a range of sources outside the administration of the tax and welfare system. For example, the Budget 2012 measures to extend VAT to a number of new products used information from sources such as the ONS and reports from commercial and trade associations. For new taxes, such as the bank levy introduced in June Budget 2010, the tax base was estimated from publicly available financial accounts with assumptions on the extent of banks' deleveraging over the forecast that proved subject to substantial forecast errors.

4.17 New taxes or benefits are likely to have much more uncertain tax bases as the data underpinning the estimates are less robust. As mentioned previously, the UK-Swiss tax agreement had a highly uncertain tax base due to the lack of information on the assets held in offshore centres. At Autumn Statement 2013, the Government announced a measure aimed at reducing alcohol fraud by increasing regulation on alcohol wholesalers, this policy had an uncertain tax base as there are no hard data on which to base an estimate on the amount of alcohol fraud committed by wholesalers.

4.18 Because the data used for tax forecasting are receipts data, they are affected by the current level of tax non-compliance. For most taxes, with the exception of VAT, the level of non-compliance is not separately estimated, and our assumption is that the current rate will persist. For VAT, the base is slightly different because 'non-compliance' and error are estimated explicitly using a range of data sources. In addition, explicit adjustments are made to individual forecasts to take account of litigation results.

4.19 Take-up, fraud and error assumptions are not usually explicit in these baseline forecasts, but they are implicit. Usually, these will be that take-up, fraud and error rates will remain at similar levels to recent years. In some cases, particularly on disability and carer benefits, where it is possible that take-up is continuing to increase, recent implicit trends are projected

forward. More explicit assumptions may be included if there is a specific policy to address these areas.

4.20 In the past, a number of policy announcements have not been treated as a policy change or included in the Treasury's scorecard because they have been considered to be measures that protect revenue in the baseline forecast. An example is where the Government has discovered that a new tax avoidance scheme has been initiated which, if left unaddressed, would lead to reduced revenue in the future. In such cases the revenue protected due to the announcement of a remedial policy change has not been included in the Treasury's scorecard. Instead, the baseline revenue forecast has been left unchanged so that it includes the revenue that would have been lost if the policy change had not been announced. This treatment correctly captures the fiscal implications of the policy change, but it is less transparent as the effects are not identified separately.

4.21 There is an alternative approach to dealing with revenue protection measure open to us. If the Government discovers that revenue will be lost in the future then we could reduce our baseline forecast accordingly. If the Government then announces a policy change to recover that revenue it would be treated as a policy change in the same way as other policy changes. This could be presented in a table separate to the official scorecard that transparently set out the revenue loss associated with the avoidance that has been uncovered and the proportion of it that is scored as being protected, so that the net effect of the post-protection avoidance is estimated. This would not change the overall fiscal consequences of such announcements, but it would potentially be a more transparent approach as the implications of the policy change would be separately identified. It would be important to show the net effects, not just the gross effect of the revenue protected, since it is the net effect that is relevant to the health of the public finances. Where we certify a significant amount of revenue protection, we will in future aim to report on the effects. It would not, however, be practical to adopt this approach for all such activities given the resource that would be required.

Estimating static effects

4.22 The static cost of a policy is simply the difference in the level of revenue or spending between the pre- and post-reform rules (e.g. between existing and new tax rates), calculated on a common base. At this point, the costing does not make allowance for a change in the behaviour of those paying the tax or receiving the benefit that might arise as a result of the policy change. As an example, this would be the additional revenue raised if a tax rate was raised but there was no change in the relevant tax base.

4.23 Similarly, if a new tax measure was designed to close a tax loophole (an anti-avoidance measure), the static cost would capture the difference between the loophole existing and being closed, excluding any behavioural response. As discussed above, some anti-avoidance costings are considered revenue protection and as a result do not currently appear on the scorecard.

4.24 The static effect also takes account of automatic changes in entitlement or consequences for closely related taxes, where this is as a result of the design of the tax and benefit rules, rather than behavioural change. For example, if qualification for one benefit counts as income for the purpose of a second benefit, the exchequer impact of this consequence would be included. When such interactions occur between two policies that are being changed at the same time, there is a risk that these 'knock-on' costs are either captured twice, once in each costing, or ignored entirely. To ensure against this, policies are costed in the order in which they appear in the scorecard.

Estimating the behavioural effects

4.25 The next step in producing a policy costing is to estimate the first-round behavioural responses as a result of the measure. Behavioural effects describe the way in which individuals and firms change their actions in response to a policy change. For example, an increase in tobacco duty will reduce the number of cigarettes sold because taxpayers will respond to the higher price by buying fewer cigarettes. In the case of benefits, changes in the rates or conditions may alter the take-up levels. Behavioural effects not only have an impact on the tax or benefit base the policy is applied to, but also on close substitutes or complements. For example, an increase in beer duty could cause individuals to switch from drinking beer to drinking cider, causing cider duty revenues to increase.

4.26 Behavioural effects are captured in the direct costings where there is a quantifiable response from specific groups, individuals or firms affected by the policy change, which would not lead to a material change in our macroeconomic forecast. By contrast behavioural responses which take place at the whole economy level, or which affect a specific sector but are nevertheless large enough to affect our macroeconomic forecast materially, are not included in the direct costing. Instead they are captured through the economic forecast as indirect effects, as set out in Chapter 5. For example, the reductions in the rate of corporation tax announced at successive fiscal events were judged likely to have material impacts on our business investment forecasts.

4.27 The elasticities and other behavioural adjustments used for specific policies are drawn from both the academic literature and internal and external research. There is often uncertainty around these estimates, typically around the size of the response to a policy change of a given size. In these instances, analysts must use their judgement and their assumptions will be subject to OBR scrutiny. In addition, there are often other behavioural effects which it is not possible to quantify. The following sections describe different behavioural effects that are relevant to a range of policy costings.

Price elasticities

4.28 Behavioural responses in the direct costings are typically captured by elasticities, especially for tax policies. Own-price elasticities capture the change in consumption of a good as a result of the change in its price, while cross-price elasticities relate these changes in consumption to the price of similar goods. Typically price elasticities are used to cost taxes on consumption rather than income. For example, if the duty rate on beer is raised, the own

price elasticity will be used to estimate the resulting decline in beer consumption, while cross-price elasticities are used to estimate the change in consumption of other related goods, such as cider.

4.29 At Budget 2012, the Government announced a new 7 per cent band of SDLT on residential properties over £2 million. Price elasticities were used to capture the reduction in transactions as a result of the policy. These imply that a 1 per cent increase in the SDLT rate will lead to a corresponding 2 per cent reduction in affected transactions. This elasticity implicitly captures increased avoidance, fewer transactions and price bunching below the new threshold.

4.30 Recent fiscal events have contained reductions in fuel duty relative to existing plans, with the most recent being the cancelation of the September 2014 increase announced at Autumn Statement 2013. Price elasticities are used in these cases to estimate the increase in fuel consumption due to lower fuel prices. It is assumed that the effect will increase over time, as individuals will have more time to adjust their consumption. A 1 per cent reduction in fuel prices is estimated to lead to a 0.07 per cent increase in consumption, rising to 0.13 per cent in the long term. This partially offsets the cost of the policy. The elasticities are based on HMRC's fuel duty model and are informed by academic evidence.

Taxable income elasticities

4.31 The 'taxable income elasticity' (TIE) is used to capture individuals' responses to changes in income tax rates. This is a single measure of the responsiveness of taxable income to tax rates that captures a range of possible responses, including migration, entrepreneurship responses, tax planning and labour supply (changes to effort levels, hours of work or participation). Assumed TIEs are informed by many academic studies, where findings vary widely but generally conclude that TIEs are much higher for those on high incomes. The TIEs are set such that the cumulative elasticities match those from the academic literature.

4.32 The study published by HMRC at Budget 2012 that looked into the revenue impact of the 50p tax rate also provided an estimate of the TIEs for rate changes at high income levels.[2] The study suggested 0.45 as a central assumption for these additional rate costings. This means that for additional rate taxpayers a 1 per cent fall in the marginal retention rate will lead to a 0.45 per cent reduction in their taxable incomes. The TIE for individuals with lower incomes is much smaller. For recent personal allowance measures, a TIE of zero has been used, while a TIE of 0.03 was used for measures affecting the higher rate threshold. This reflects the correlation between income levels and the propensity to alter behaviour in light of tax changes.

Forestalling

4.33 Forestalling occurs when firms or individuals bring activity forward to avoid paying tax at a higher rate. The opposite may occur if firms and individuals defer paying tax to take

[2] HMRC (2012), *The Exchequer effect of the 50 per cent additional rate of income tax*.

advantage of a lower rate in the future. Assumptions around forestalling are most relevant when dealing with policy changes that affect taxpayers with significant scope to shift their tax liabilities over time. For example, a policy that affects company directors is more likely to have a forestalling impact than one that focuses on employees, due to the flexibility on the timing of dividend payments, especially in small companies. The same can also be true on capital taxes (e.g. SDLT or capital gains tax) as individuals can choose when to purchase or dispose of assets.

4.34 The clearest examples of forestalling as a major part of the final costing were for the 50p and 45p income tax rates. A large adjustment to the 50p costing was made, partly due to the assumption that company directors, who have greater flexibility on the timing of their income, would move income forward from future years in order to avoid the introduction of the 50p rate. HMRC published an evaluation of this policy and the presence of significant forestalling was confirmed. Evidence from the 50p tax rate was used when the 45p costing was produced in order to adjust for the level of income deferred in order to pay tax at the new lower rate.

4.35 A more recent example of a costing that included a significant adjustment for forestalling was the CGT primary residence relief costing at Autumn Statement 2013. A reduction in the yield in the first year of £15 million was made in order to account for the increased incentive to dispose of second properties before the change is implemented in April 2014. SDLT holidays in 1991-1992 and 2010-2012 for first-time buyers provide further examples of activity being shifted to take advantage of the tax system, with a surge in property transactions in the final months of the holiday followed by a sharp fall immediately after SDLT rates were restored to their pre-holiday levels.

Attrition rates

4.36 Attrition occurs with anti-avoidance tax measures and reflects the decline in revenue that results from firms or individuals discovering new avoidance routes. The choice of attrition rate and profile applied reflects the likely behaviour of the groups affected and judgements about the opportunity for other avoidance routes.

4.37 For example, a policy that is designed to stop a narrow avoidance route used by aggressive tax avoiders will generally attract a high attrition rate (in some cases reducing the yield to zero after a number of years). In contrast, a policy that stops avoidance by non-aggressive tax avoiders (and/or one that closes all loopholes) will attract a lower attrition rate. Attrition rates are used as a rule of thumb because taxpayer behaviour in anti-avoidance measures is very difficult to predict and if all possible future avoidance mechanisms were known with certainty then Government would be able to close them down before they were used. It is important to recognise that attrition rates do not represent the level of avoidance condoned, but the reality that the existence of tax rules creates an incentive for firms and individuals to exploit them to minimise their payments. Assuming no attrition would result in unrealistically optimistic policy costings. Table 4.1 shows HMRC's basic attrition guidelines that are the starting point for use in anti-avoidance policy costings.

Table 4.1: HMRC attrition rate guidelines

Level	Amount of attrition
High – Narrow legislation to close specific scheme used by aggressive tax avoiders	80%-100% of the yield lost by the end of the forecast period
Medium – Broader legislation that covers quite a narrow area that allows for substitution	50%-60% of the yield lost by the end of the forecast period
Low – Measures that tackle an entire regime used by non-aggressive tax avoiders	20-30% of the yield lost by the end of the forecast period
Very low – Very broad measures that leave virtually no room for substitution	5-10% of the yield lost by the end of the forecast period

4.38 A good example of attrition being used is in the costing for the 'onshore intermediaries' measure announced at Autumn Statement 2013. High attrition rates were used as the measure aimed to tackle aggressive tax avoiders who were assumed to uncover further avoidance routes relatively quickly. This avoidance route was known to be used by two distinct populations. The costing assumed that the two groups were sufficiently different to each other that they warranted different attrition rates.

4.39 At Autumn Statement 2013, a low attrition rate was applied to the costing on partnership avoidance. This was done in order to reflect the limited scope for further tax avoidance after the implementation of the measure.

Interactions

4.40 An added difficulty in estimating the behavioural effects of measures is the extent to which different policies interact with one another. These interactions can be due to one measure changing the tax base for another or even by reducing the behavioural response between measures. The order in which the measures appear on the scorecard is important when estimating interactions, as the measure scored first can affect the costing of those further down – but not vice versa. For example, if one measure changes the rate of Corporation Tax (CT) and another reduces CT avoidance, then the order in which they are costed will impact on the interaction – i.e. the rate of CT used in the baseline for the avoidance costing will depend on whether it appears above or below the CT rate change on the scorecard.

4.41 At Autumn Statement 2013, the Government announced a package of HMRC operational changes that were aimed at increasing revenue by tackling fraud and error in the tax and tax credit system. This package of measures was challenging to cost due to the large scale interactions between parts of the package and legacy measures. This was because some of the measures aimed to tackle similar types of fraud and error and as a result it was important to estimate how much debt would be left in the system after each measure. There was a significant risk of double-counting if these interactions were not carefully mapped.

4.42 Benefits in the social security system interact with each other and with the tax and tax credits systems administered by HMRC. These interactions can be substantial and need to be allowed for in any social security policy costing. For example, a change in Basic State Pension can lead to an offsetting change in Pension Credit entitlement and both can subsequently have an impact on entitlements to Housing Benefit. Similarly, the size of some

social security awards depends on post-tax income and hence some income tax changes can have an impact on social security spending.

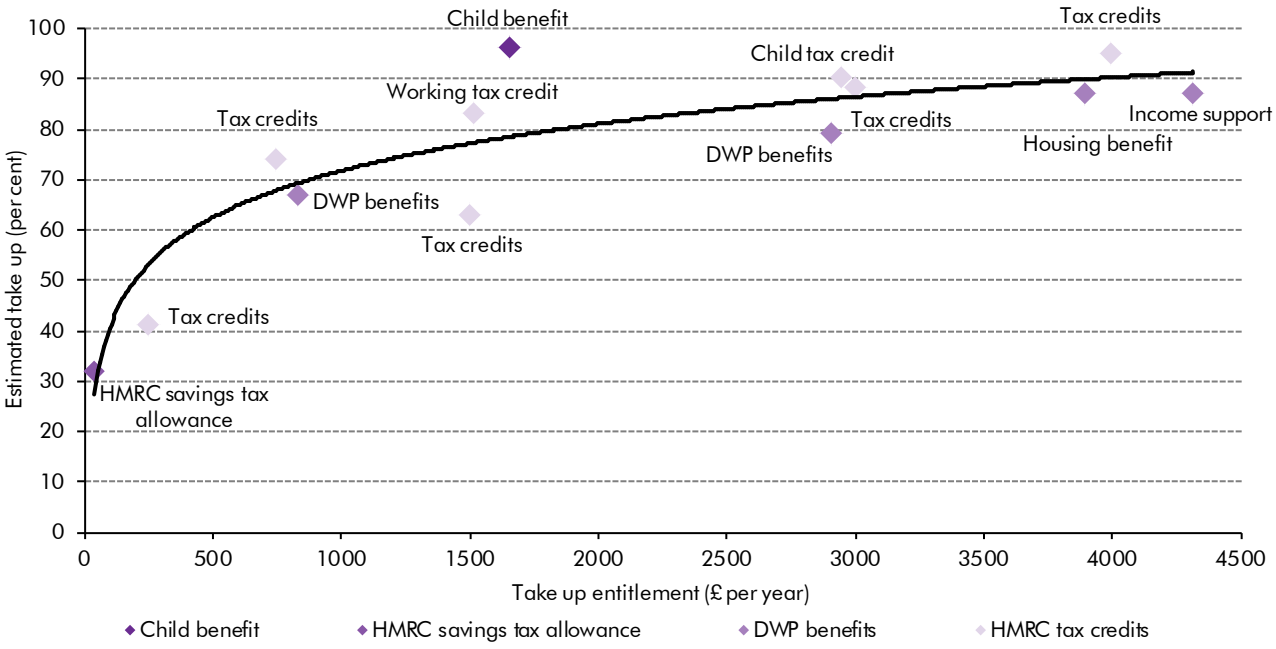
Take-up rates

4.43 Benefits and social security policies, and some tax reliefs, have the added complexity of estimating take-up rates. Take-up rates tend to attract a great deal of scrutiny in the certification process as they can significantly affect the overall revenue impact of a specific measure. The costing for Universal Credit (UC) that was certified at Budget 2012 was heavily dependent on take-up rates, as a reduction (or increase) in the assumed take-up rates would lead to a proportional reduction (or increase) in the cost. The final costing assumed higher take-up rates for UC than the legacy benefits it was replacing, because UC is expected be a single, coherent and simple claim process.

4.44 In some instances take-up rates are important when estimating tax policy. A recent example was with 'recognising marriage in the tax system' where high take-up rates were assumed due to the relative simplicity of the application process (ticking a box on the HMRC website). At Autumn Statement 2011, the Government announced a scheme where business locating into enterprise zones could benefit from enhanced capital allowances. Take-up rates were central to the costing, but subject to significant uncertainty. Evidence so far suggests that the take-up rates chosen were too high.

4.45 As would be expected, take-up rates typically increase with the level of cash entitlements. As Figure 4.2 shows, the additional impact on take-up rates of increases in entitlement diminishes once take-up rates have risen beyond around 70 per cent.

Figure 4.2: Take-up rates versus value of entitlement



Source: DWP, HMRC

5 Indirect effects and the economic forecast

Introduction

5.1 Indirect effects are the second-round effects of policy changes, individually or in aggregate, on the economy. They differ from direct behavioural effects (which are included in the direct costings) because they affect economy-wide variables. Indirect effects include, for example, any changes in variables such as whole economy output, employment, investment, consumer spending or inflation that result from changes in policy. As described in Chapter 3, including bottom-up behavioural effects in direct costings and top-down indirect effects in the economy forecast makes it especially important for us to ensure that material impacts of policy changes are neither missed nor double-counted.

5.2 As discussed above, indirect effects are not included in the costings that appear in the Treasury's scorecard. Indirect effects are, when identifiable and quantifiable, incorporated into our economic forecasts and feed into the production of the economic determinants for the fiscal forecast.[1] Estimating the indirect effects separately from the direct effects allows for a judgement to be made on the net effect of the policy package as a whole, taking into account any potential overlaps between measures, the possible interaction with monetary policy and the economic environment prevailing at the time.

5.3 In practice the majority of policies are too small to allow such effects to be quantified policy by policy in any meaningful way, especially given the uncertainty that surrounds any economic and fiscal forecast. So our assessment of the indirect effects of policy tends to be focused on large measures, or on the aggregate impact of the total policy package announced at a fiscal event. This chapter explains what criteria we use to identify when policies will have indirect effects, how the size of these effects is estimated and what the consequences are for the economic and fiscal forecasts. Where indirect effects are incorporated into the forecast, and are less visible than they would have been had they been in the scorecard, they are flagged up in the accompanying *EFO* and in the Treasury's *Policy costings document*. This is to ensure transparency around the forecast.

5.4 The Treasury or other departments can carry out, separately, their own analysis of the impact of policy measures on the economy on the basis of ready reckoners, fiscal multipliers or other methodologies. The results of such analyses are sometimes published and may inform our own assessment on whether the cumulative effect of a policy package is

[1] Paragraph 4.11 of the Charter for Budget Responsibility states: *"The Government is responsible for all policy decisions and for policy costings, i.e. quantifying the direct impact of policy decisions on the public finances […]. The OBR will also determine any resultant impact of the policy on its economic forecast ahead of publication."*

material. For example, the Treasury and HMRC sometimes present the result of their CGE modelling of particular measures or policy packages during the forecast process. However, consistent with the Charter, it is ultimately our judgement of the indirect effects of policy changes that feature in our economy forecast.

Indirect effects and the economic forecast

5.5 Our assessment of the indirect effects of policy tends to be focused on large measures, or on the aggregate impact of the total policy package announced at a fiscal event. Understanding these indirect effects on the wider economy can be particularly difficult, as it is necessary to identify the mechanisms through which behavioural changes at the microeconomic level have a significant cumulative impact at the whole economy level.

5.6 In evaluating the indirect effects of policy measures it is necessary to consider a number of factors, including:

- the size of the measure (in terms of total spend or yield);
- interactions with other measures in the scorecard;
- the timing of the effect on the economy;
- the current macroeconomic environment; and
- any potential offsetting response of monetary policy.

5.7 Consistent with the certification of direct costings, indirect effects can be assessed and quantified only for firm and final policies, i.e. where sufficient detail has been set out by the Government for us to identify the quantitative impact of such policies.

5.8 Different policies will have different effects on the economic forecast. Some policies may be judged to have an impact on aggregate demand while others will be assumed to have a narrower impact on specific variables. Policy effects may differ in their scope, definition, certainty and timing.

5.9 Accordingly there is no single tool or method used to adjust the economic forecast for all policy measures. Instead we judge the effect of different policies on a case-by-case basis, utilising the tools we deem most appropriate and drawing on existing evidence where available and relevant. The impact of policy measures on the economic forecast can be broadly decomposed into aggregate economy-wide effects, drawing on 'fiscal multipliers', and narrower adjustments to specific variables.

Fiscal multipliers

5.10 The estimated impact of a measure or package of measures on the economy can be determined through the application of 'fiscal multipliers'. The multipliers we have used are

decided on a case-by-case basis using existing evidence, available data and as assessment of the prevailing economic conditions at the time of the forecast.

5.11 The table below sets out some of the impact multipliers we used to estimate the indirect effects from new policy measures introduced in the June 2010 Budget. The impact multipliers show the impact of a given policy measure on the GDP in the year the measure was introduced. A multiplier of 0.6, for example, means that a measure which has a direct effect of reducing spending by 1 per cent of GDP is estimated to reduce GDP by 0.6 per cent in the year the measure is implemented.

Table 5.1: Estimates of fiscal multipliers

Measure	Impact multipliers
Change in VAT rate	0.35
Changes in the personal tax allowance and National Insurance Contributions	0.3
AME welfare measures	0.6
Implied resource departmental expenditure limits	0.6
Implied capital departmental expenditure limits	1.0

5.12 We assumed for the purposes of the June 2010 Budget forecast,[2] that the policies had no permanent effect on output and that immediate effects of policy measures would dissipate over time through a number of processes as the economy adjusted to the effect of policy changes. These processes include the response of monetary policy, the impact on private sector investment and real wage adjustments. The multipliers were therefore assumed to fall to zero by the end of the forecast period. This is consistent with external research conducted by bodies such as the IMF.

5.13 The impact multipliers set out in Table 5.1 have been used to estimate the impact of the measure or measures on the main macroeconomic variables in the year the policy change was implemented. The economy forecast was adjusted accordingly and a new set of economic determinants produced.

5.14 Since June 2010, the Government has announced a number of measures with potential indirect effects on the economy. In general, balanced scorecards – where the net fiscal effect of the full policy package is zero – would not be expected to have large macroeconomic effects, although the composition of the policy package could be important given the relative sizes of different multipliers.

5.15 One of the post-June 2010 scorecards with the biggest net fiscal impact was in Autumn Statement 2011. In that statement, the Government announced additional fiscal tightening of £8.3 billion in 2014-15 and £15.1 billion in 2015-16, primarily through lower implied current spending on public services. Based on the fiscal multipliers used in June 2010, the further reduction in spending would have reduced GDP growth by an additional 0.4 percentage points in 2015 and by 0.7 percentage points in 2016. However, for the purposes of our November 2011 forecast we judged that looser monetary policy would fully

[2] See our 2013 *Forecast evaluation report* for further discussion of our fiscal multiplier assumptions.

offset the effects of the additional fiscal tightening, given the size of the additional tightening and the length of time between the announcement and implementation.

5.16 The successive corporation tax cut announcements since June 2010 have been consistently reflected in our economy forecast. Corporation tax rates have been reduced from 28 per cent to a planned 20 per cent by April 2015. These changes have been reflected in a higher level of business investment and GDP. The precise effects we have included in our forecasts, and the judgements that underpin them, are discussed in greater detail below.

Box 5.1: Some recent analysis of fiscal multipliers[a]

Estimated fiscal impact multipliers continue to differ widely, some larger, some smaller and some in line with those used by the interim OBR in its June 2010 forecast.

In its 2012 Article IV report for the UK the International Monetary Fund (IMF) said that its "*staff assumes an average multiplier during the consolidation of about 0.5 after incorporating the boost to demand from automatic stabilizers and the monetary policy reaction. This estimate is roughly in line with the OBR's estimates.*" But estimates differ widely – not least within the IMF.

A recent IMF paper (2013a) suggests that the multipliers are likely to be below 1 by considering potential output assumptions for advanced countries. With a much higher potential output path, a larger multiplier is needed to obtain the low post crisis output levels; as such the paper concludes that it is more likely that potential growth forecasts were too optimistic than that the fiscal multipliers were too small. Another IMF paper (2012) also finds very low multipliers for the UK under fiscal contraction, even when the economy is weak. This paper estimates the government spending multiplier is at most 0.2 when the output gap is negative and zero when the output gap is positive and that the government revenue multiplier is not significantly different from zero.

The IMF's latest synthesis of recent evidence on fiscal multipliers (2013b) argues that there is now "*stronger evidence than before that fiscal multipliers are larger when monetary policy is constrained…, the financial sector is weak, or the economy is in a slump.*" This echoes the conclusions in Portes and Holland (2012) and its earlier work (2013c), which argued that multipliers used across advanced economies in the April 2010 IMF World Economic Outlook were on average 1 percentage point too low for 2010-11, and were likely to be in the region of 0.9 to 1.7, compared to an assumed average of 0.5 for this same group. The paper drew similar conclusions from the errors in forecasts produced by the European Commission (EC), the Organisation for Economic Cooperation and Development (OECD), and the Economist Intelligence Unit (EIU). The IMF defines fiscal consolidations in terms of changes in cyclically adjusted budget balances, which does create an additional difficulty in identifying those correctly.

Recent studies have also looked at the tapering of multipliers. IMF (2013a) estimates that fiscal multiplier effects persist for seven years, with 80 per cent of the multiplier realised in the first year, followed by the full effect in the second year, and then gradually declining to zero. The paper looked at five-year and ten-year persistence, as well as a non-linear decline but found little difference from the central seven-year estimate when assessing the overall impact of fiscal

policy on the economy.

Portes and Holland (2012) estimate that multipliers taper off more slowly under liquidity constraints, lasting over seven years compared to three years in normal times. Barrell *et al*. (2012) produce simulations presenting a similar time scale, with the government spending multiplier tapering down to zero after five years and turning slightly positive thereafter due to the response of interest rates. This paper suggests that the tax and benefits multipliers taper to zero after ten years.

Simulations carried out by Perotti (2004) suggest that the UK multiplier tapers to zero after around four years for government consumption and around one year for government investment, arguing the investment multiplier is very small as government investment directly crowds out private investment.

DeLong and Summers (2012) consider a 'hysteresis' effect, such that costs from recessions remain and the path of potential output does not return to its previous level. This implies that the multiplier never tapers off to zero. IMF (2013a) also presents a scenario of permanently lower potential economic output from this hysteresis effect, proposing that long run fiscal neutrality might be unrealistic.

a Barrell et al (2012), Fiscal consolidation part 2: Fiscal multipliers and fiscal consolidations (OECD Economics Department working paper); Baum, Poplawski-Ribeiro, and Weber (IMF 2012), Fiscal Multipliers and the State of the Economy (IMF working paper); Bi, Qu and Roaf (IMF 2013a), Assessing the Impact and Phasing of Multi-year Fiscal Adjustment: A General Framework (IMF working paper); Blanchard and Leigh (IMF 2013c), Growth Forecast Errors and Fiscal Multipliers (IMF working paper); DeLong and Summers (2012), Fiscal policy in a depressed economy (Brookings Institute); IMF (2013b), Reassessing the role and modalities of fiscal policy in advanced economies (IMF policy paper); Perotti (2004), Public investment: another (different) look (Universita Bocconi and Centre for Economic Policy Research); Portes and Holland (2012), Self-Defeating Austerity? (National Institute Economic Review)

5.17 Fiscal multipliers help to determine the top-down macroeconomic impact of a policy measure on GDP and were particularly important for the June 2010 forecast. However, the economic forecast also includes a number of other adjustments to specific variables for policy changes. The paragraphs below discuss examples of variables in the economic forecast: business investment, inflation, claimant count unemployment and household disposable income. Table 5.2 sets out a summary of some of the main judgements we have made about the indirect effects of policy measures on the economic forecast since June 2010. It draws on the discussion we include in a box in Chapter 3 of each *EFO*.

Table 5.2: Indirect effects of policy measures on the economic forecast

Forecast	Policy measure	Indirect effects
June 2010	All measures	Reduction in GDP level of around 0.3 per cent by 2014-15
	Reduction in main rate of corporation tax fropm 28 per cent to 24 per cent over four years; reduction in capital allowances from 2012; introduction of bank levy in January 2011	Level of business investment around 1 per cent higher in 2014
	Increase in standard rate of VAT from 17.5 per cent to 20 per cent	Increase in CPI inflation of around 1 per cent
November 2010	All measures	Expected to have a negligible effect on GDP
March 2011	All measures	Expected to have a negligible effect on GDP
	Delay April 2011 and April 2012 fuel duty increases	Reduce CPI inflation by 0.1 per cent in 2011-12
	Rebalancing of specific and ad-valorem tobacco duty	Increase CPI inflation by 0.1 per cent in 2011-12
	Freeze on Air Passenger Duty	Reduce CPI inflation by 0.1 per cent in 2011-12
November 2011	All measures	Expected to have a negligible effect on GDP
	Delay January 2012 fuel duty rise; cancel August 2012 rise	Reduce CPI inflation by 0.1 per cent in 2012
March 2012	All measures	Increase in level of GDP of 0.1 per cent by end of forecast, reflecting reduction in corporation tax
	I per cent reduction in the main rate of coporation tax from 2012-13	Increase level of business investment by 1 per cent by end of forecast
	Widening of VAT base Increase in tobacco duty	Increase CPI by 0.1 per cent in 2012-13
December 2012	All measures	Expected to increase GDP growth by 0.1 per cent in 2013 and 2014, partially offset by lower growth in later years, leaving level of GDP 0.1 per cent higher by end of forecast
	I per cent reduction in the main rate of corporation tax from 2014-15	Increase level of business investment by 0.4 per cent by end of forecast
	Cancellation of January 2013 fuel duty increase; delay April 2013 fuel duty increase to September 2013	Reduce CPI inflation by 0.1 per cent by end of 2013
March 2013	All measures	Expected to reduce GDP growth by less than 0.1 per cent in 2013 and increase GDP growth by less than 0.1 per cent in 2014, with no overall effect on the level of GDP by end of forecast horizon.
	Cancellation of September 2013 fuel duty increase Reduce beer duty by 2 per cent in 2013-14 and raise it by RPI rather than RPI plus 2 per cent in 2014-15	Reduction in CPI inflation of 0.1 per cent at the end of 2013 and first half of 2014
	I per cent reduction in the main rate of coporation tax from 2015-16	Increase in level of business investment of 0.5 per cent by 2017
December 2013	All measures	Expected to have a negligible effect on GDP
	Cancellation of September 2014 fuel duty increase	Reduction in CPI inflation of 0.1 per cent in subsequent year

Business investment

5.18 To assess the effect of policy measures on GDP, we apply fiscal multipliers to the scorecard costing of those measures, and arrive at a judgement on the aggregate macroeconomic effect of the package. An exception to this has been changes to the corporation tax regime, which are not explicitly incorporated via multipliers but are adjusted for separately.[3] In particular, changes to corporation tax or capital allowances are accounted for by estimating their effect on the post-tax cost of capital, which is a fundamental determinant of business investment in the long run. For example, we judged that the reductions in the main rate of corporation tax announced in the June 2010 Budget would reduce the long-run cost of capital by 3 per cent. Our post-measures investment forecast was raised by around 1 per cent relative to the pre-measures projection. Similar adjustments to our forecast were made for changes in the corporation tax regime announced in Budget 2012, Autumn Statement 2012 and Budget 2013 (see Table 5.2 for further details).

5.19 The cost of capital framework we use to estimate the effects of changes to the corporation tax regime on investment is similar to the approach used in CGE modelling of corporation tax changes.[4] Technical details of our approach to estimating the cost of capital and its relationship with business investment can be found in *Briefing Paper No.5: The macroeconomic model*.

Inflation

5.20 Our inflation forecast is adjusted directly for the impact of indirect taxes like VAT or duties on fuel, alcohol and tobacco. The resulting price changes feed through to measures of inflation such as the Consumer Prices Index (CPI) and Retail Prices Index (RPI). Once the impact of a given duty or tax change on the relevant component of the index has been estimated, the impact on CPI (or RPI) inflation can be derived by combining that effect with the weight of the component in the index. For example, changes to fuel duty announced in November 2011 were estimated to reduce CPI inflation by around 0.1 percentage points in 2012, relative to a baseline of pre-announced changes to fuel duty. The reduction in beer duty (as well as reduction of future increases) and cancellation of the September 2013 fuel duty increase announced at Budget 2013 led to a reduction in the CPI inflation forecast of around 0.1 per cent at the end of 2013 and first half of 2014. Similarly, the cancellation of the September 2014 fuel duty increase, announced in Autumn Statement 2013, was estimated to reduce annual CPI inflation by around 0.1 percentage point.

5.21 When such policies are introduced they have a one-off impact on inflation, although they will imply a persistent effect on the price level. In the long term, we assume that monetary policy keeps inflation at target. The effect of changes in indirect tax on GDP is captured by our application of fiscal multipliers to the overall policy package, as discussed above.

[3] For this reason, scorecard costings of corporation tax measures are excluded when applying the mulitpliers to other elements of any given policy package.
[4] See, for example, HMRC (2013), *Analysis of the dynamic effects of Corporation Tax reductions*.

Claimant count unemployment

5.22 As part of the economic forecast we produce a projection of the claimant count, which measures the total number of people claiming Jobseeker's Allowance (JSA). To ensure that projected expenditure on JSA is consistent with our forecasts for other elements of social security spending, we account for the impact of policies that may lead to a transfer of individuals to JSA from other benefits, such as the Lone Parent Obligation and transfers from the Employment and Support Allowance (ESA). For example, between the June 2010 and November 2010 forecast, the projection of claimant count unemployment was increased, partly as a result of higher assumed flows from ESA to JSA. Similarly, in our March 2011 forecast the effect of the Lone Parent Obligation on the claimant count was assumed to be around 10,000 lower in 2011 and around 20,000 lower in 2012 than estimated in November 2010.

Household disposable income

5.23 Our household disposable income forecast is an important factor within the overall consumption forecast. Changes in income tax – including changes in the personal allowance – directly affect household disposable income, while changes in indirect taxes, such as VAT, can affect the real purchasing power of household earnings. At Budget 2012, the change to the personal allowance (and reduction of the 50p income tax rate) increased real disposable income, whereas the widening of the VAT base and changes to age-related allowances worked in the opposite directions. As with other measures, the effect of changes in tax on GDP is captured via a judgement based on fiscal multipliers.

Long-run effects

5.24 Policy decisions could have long-run effects on the supply potential of the economy. Our economic and fiscal forecasts extend over five years and the outlook for potential output is critical in assessing the prospects for economic growth and fiscal aggregates over this horizon.

5.25 Our estimate of potential growth is determined by the underlying components of growth: productivity growth, average hours growth, employment rate growth and population growth. Policy changes could in principle affect potential output by influencing one or more of these components. For example, changes to welfare policy may affect employment or average hours worked. By changing out-of-work incomes and eligibility for benefits, it is possible that welfare measures will have some bearing on individuals' labour supply decisions. Similarly, government investment in public capital may provide long-term spillovers to output in the private sector – such as investment in infrastructure reducing business costs and raising productivity. Migration policy may affect the economy's potential growth rate by affecting underlying population growth. Further information on our approach of estimating potential growth can be found in *Briefing paper No. 3: Forecasting the economy*.

5.26 In our assessment of the indirect effects of policy measures on the forecast, we monitor possible influences on the potential growth rate resulting from announced policy changes.

However, it is important to bear in mind the significant uncertainty that surrounds the baseline estimate of the economy's potential growth rate, even without taking into account possible policy effects. Making precisely calibrated changes to this projection would involve a spurious degree of precision, even leaving aside the uncertainty around the impact of the policy itself.

5.27 It is also worth noting that estimates and projections of potential growth are constructed top-down, based largely on historical trends in aggregate data: our long-term trend productivity growth assumption, for example, is based on the UK's historical average rate of output per hour growth. To the extent that past policy measures have had some effect on the historical trend, then the projection will implicitly embody the past effect of policy measures on productivity growth, although non-policy factors are likely to have played a significant role in short-term fluctuations in productivity and its long-term trend. Given the difficulty of decomposing the trend rate of growth into the contribution from past policies, it is also difficult to identify the extent to which a new measure is additional to the policy effects that are implicitly captured in our baseline assumption.

5.28 Some of the measures announced by the Government, for example changes to the planning system and regulation, could raise long-term growth potential. But there remains significant uncertainty around the size and timing of any effect. The quantitative impact of such policy changes would also depend heavily on how they are implemented. We therefore judged that there was insufficient evidence to adjust our estimate of potential growth when these measures were announced. Similarly, it is possible that recent changes in the default retirement age and State Pension age could have helped to increase labour market activity among older age groups. Again, it is difficult to disentangle the effect of such policies from other factors that may have had a bearing on retirement decisions, such as falls in asset prices and annuity rates or concerns about pension deficits. There are also examples of policies that might reduce long-term growth potential, for example migration policies if they were successful in reducing labour force growth.

5.29 A number of policy changes announced in this area – such as future rises in the State Pension age – are beyond the horizon of the 5-year forecast set out in our *EFO*. However, they are relevant to the assessment of long-term fiscal sustainability, and we explore these further in our annual *Fiscal sustainability report*.