

Fiscal devolution in Wales and the role of the OBR

Fiscal devolution in Wales

- 1.1 Fiscal devolution to Wales began in 1998 with the passing of the **Government of Wales Act**. This set up the National Assembly for Wales. At that time the Welsh Government had no revenue-raising powers, receiving its primary source of funding in the form of a 'block grant' from the UK Government.¹ The Welsh Government did (and still does) have some local tax powers, setting business rates and influencing council tax rates.
- 1.2 The **Commission on Devolution in Wales** (the Silk Commission) was set up in 2011 to review fiscal and legislative arrangements in Wales. It published two reports – in November 2012² and March 2014³ – and recommended the devolution of several taxes to the Welsh Assembly. Among the largest four taxes at the UK level, it recommended only income tax should be devolved, and then only partially. Among the smaller taxes, it recommended stamp duty land tax (SDLT), landfill tax and aggregates levy should be fully devolved and that air passenger duty rates should be devolved in respect of long-haul flights. The commission also recommended giving the Welsh Government modest borrowing powers.
- 1.3 Following these recommendations, the **Wales Act 2014** gave new powers to the Welsh Assembly relating to taxation and borrowing. It provided for the full devolution of SDLT and landfill tax from April 2018. It also stated that the Welsh Assembly would be able to set new Welsh rates of income tax, subject to a confirmatory referendum. This referendum requirement was removed in the **Wales Act 2017**, and the Welsh rates were introduced from April 2019. The UK Government intends to devolve the aggregates levy too, but the timetable for that to happen is uncertain. In February 2019 longstanding litigation against the levy was concluded, and the UK Government then announced a full review of the levy.

The OBR's role in forecasting Welsh tax revenue

Legislation and governance

- 1.4 Several pieces of legislation underpin our forecasts of Welsh devolved taxes:
 - The **Budget Responsibility and National Audit Act 2011** provides the statutory basis for the establishment of the OBR, setting out our functions and governance structure. Among other things, it requires us to carry out our role “*objectively, transparently and*

¹ Other sources of funding included transfers from the European Union and revenue raised from business rates.

² Commission on Devolution in Wales, *Empowerment and Responsibility: Financial Powers to Strengthen Wales*, November 2012.

³ Commission on Devolution in Wales, *Empowerment and Responsibility: Legislative Powers to Strengthen Wales*, March 2014.

impartially” and to base our forecasts on current government policy and not to consider alternatives. It also establishes our right of access to information from departments.⁴

- The **Wales Act 2014** confers certain revenue-raising powers on the Welsh Government.
- The **Tax Collection and Management (Wales) Act 2016** created a new Welsh Revenue Authority, which oversees the collection of the fully devolved taxes in Wales.
- **Land Transaction and Anti-avoidance of Devolved Taxes (Wales) Act 2017** makes provision for the introduction of Land Transaction Tax (LTT), which replaced SDLT in Wales in April 2018. It also established legislation to tackle devolved tax avoidance by setting out provisions for an overarching general anti-avoidance rule (GAAR).
- **Landfill Disposals Tax (Wales) Act 2017** makes provision for the introduction of Landfill Disposals Tax (LDT), which replaced landfill tax in Wales in April 2018.
- The **Wales Act 2017** removed the requirement for a referendum before the Welsh rates of income tax could be introduced. It also increased the Welsh Assembly’s borrowing powers and set out the OBR’s right to information from the Welsh authorities.

1.5 In December 2016 the Welsh and UK Governments agreed the Welsh Government’s fiscal framework. This established a mechanism for adjusting the Welsh Government’s block grant funding from the UK Government to reflect the devolution of tax powers. The fiscal framework also established a requirement for independent forecasting, stating that *“the Welsh Government will be able to decide whether to use the OBR’s forecasts or put in place alternative independent forecasting arrangements”*. In the event, the Welsh Government chose to use our forecasts to meet this requirement.⁵

1.6 We formally took on this role in April 2019 and published our first *Welsh taxes outlook* (WTO) in December 2019, alongside the Welsh Government’s Draft Budget for 2020-21. In advance of this we agreed a Memorandum of Understanding (MoU), a Terms of Reference and a Financial Framework with the Welsh Government in order to guide this work and ensure that we can bring all relevant information to bear in producing our forecasts. All governance material is available on our website. We will jointly review these arrangements each year, so that they reflect any lessons we learn over time.

What will we forecast and what supporting material will we publish?

1.7 In accordance with the fiscal framework we will prepare and publish independent forecasts of devolved Welsh tax revenues for the Welsh Government. In the WTO, we forecast three sources of revenue: the Welsh rates of income tax, land transaction tax and landfill disposals tax.

⁴ More information on relevant legislation and other governance material is available on our website.

⁵ Written statement by the Cabinet Secretary for Finance, *Provision of Welsh tax forecasts by the Office for Budget Responsibility*.

- 1.8 In each *WTO* we will describe our latest Welsh tax forecasts and how they have changed since the previous publication, as well as any changes in methodology. These will be published alongside the Welsh Government's draft and final budgets. Where necessary we will also update these forecasts alongside our main UK-wide forecasts published in our twice-yearly *Economic and fiscal outlook (EFO)* publications.

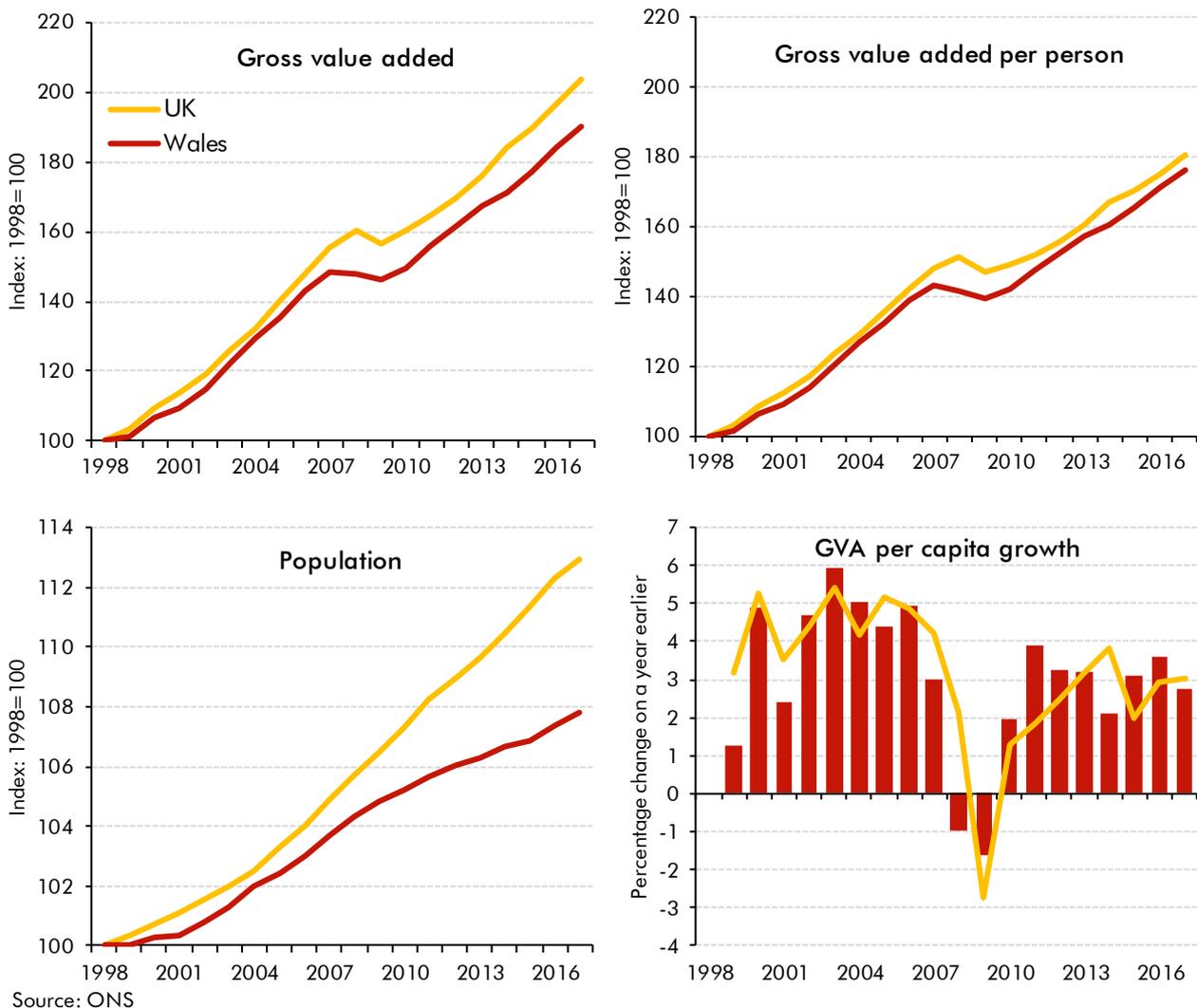
What will we not be forecasting?

- 1.9 The role we have taken on for the Welsh Government is focused on the devolved taxes, as required by the fiscal framework. There are three potentially related areas that will not feature in our reports for the Welsh Government: a full macroeconomic forecast for Wales; a forecast for Welsh Government spending; and an assessment of any policy proposals.

Why not produce a full macroeconomic forecast for Wales?

- 1.10 Many aspects of our UK-wide fiscal forecast are underpinned by our UK-level macroeconomic forecast, which itself is produced with the aid of a large-scale macroeconomic model based on the UK National Accounts framework of income and expenditure across household, corporate, government and external sectors. The data that we would need to produce a full Welsh economic forecast are either not available at this level or are only available with a long lag. But even if full and timely National Accounts for Wales were available, it is not clear that producing a Welsh macroeconomic forecast would substantively improve our ability to forecast Welsh taxes.
- 1.11 Between 1998 and 2017, gross value added – a measure of economic output – increased by 90 per cent in cash terms in Wales versus 104 per cent in the UK as a whole (top left panel of Chart 1.1). As a result, the Welsh share of UK-wide output fell from 3.7 to 3.4 per cent. Of that fall, around two-thirds was explained by slower population growth (7.8 per cent in Wales versus 12.9 per cent UK-wide, bottom left panel) and around a third by slower growth per person (76 versus 80 per cent, top right). We can reflect differences in projected population growth in our tax forecasts relatively simply without recourse to a full macroeconomic forecast. For per capita growth, where using a macroeconomic model might have more value, past evidence shows little systematic convergence or divergence between Wales and the UK as a whole. The positive correlation between annual per capita GVA growth rates in Wales and the UK as a whole between 1999 and 2017 was just under 80 per cent, with Wales growing faster than the UK in 10 years and slower in nine (bottom right panel). So there would be no obvious basis for assuming sustained differences in per capita growth rates over a five-year forecast.

Chart 1.1: Relative economic performance: Wales versus the UK as a whole



1.12 There are other issues that would also present challenges in trying to forecast regional aggregate income or expenditure. For example, profits are often recorded in different places to where value is added. This can be a challenge at the UK level when multinational companies can shift profits between tax jurisdictions. It would be greater at a regional level, where the tax system does not place geographical requirements on reporting. In terms of labour income, many people cross the English-Welsh border each day to work and so earn their income in a different country to the one in which they live and spend those earnings. To forecast gross value added in Wales, we would care about where the employment took place. Conversely, to forecast income tax receipts, we care about the taxpayers' place of residence. Even if these difficulties did not exist, the collection of sufficient economic data would be both time consuming and costly, as it would be likely to require a large increase in data coverage. Smaller sample sizes for individual countries would also have to be treated with care as they are not as reliable as larger samples at the aggregate level.

1.13 Instead of producing a Welsh macroeconomic forecast, we will investigate whether there is convergence or divergence between Wales and the rest of the UK in the variables of relevance to the tax we are forecasting and make any top-down adjustments we deem

necessary to produce a central forecast. For example, if momentum in the Welsh housing market appeared to differ materially from that in the UK as a whole, we would use different assumptions in our LTT forecast than were used in our SDLT forecast. This might be more feasible over the short run, where leading indicators are available, than over five years.

Why are we not forecasting Welsh Government spending?

- 1.14 The taxes we forecast in this report form part of the funding for the Welsh Government’s spending, but we do not have all the ingredients necessary to forecast that spending – and we have not been asked to by the Welsh or UK Governments. The Welsh Government’s budget is predominantly managed within the UK Government’s departmental expenditure limits (DELs), which are set by the Treasury. The Treasury draws on our tax forecasts when determining spending settlements for the Welsh Government in accordance with the fiscal framework.
- 1.15 The Welsh Government decides how to spend its DEL allocation on its responsibilities. For the years covered by detailed plans, at a UK level we judge the extent to which limits will be underspent each year, but we do not do so at the level of individual departments. So we do not need to forecast the Welsh Government’s borrowing or use of reserves to vary its actual spending relative to the DELs it has been set. For the years covered only by the Treasury’s policy assumption for total DEL spending, we do not know what proportion of the total would be allocated to the Welsh Government when detailed plans are set.
- 1.16 The OBR has no direct involvement in DEL spending decisions or block grant negotiations. What we can do to help users of our forecasts interested in their implications for Welsh Government spending power is to provide commentary on the changes to Welsh tax revenues and the equivalent UK taxes that play an important role in the calculation of block grant adjustments, as determined by the terms of the fiscal framework.

Why do we not estimate the effects of policies under consideration?

- 1.17 The Welsh Government has set out areas where it is developing potential tax policies, for example in respect of a tourism tax and taxing use of disposable plastics.⁶ We will only be able to reflect such policies in our forecast once they have been articulated in sufficient detail to allow us to estimate their effects in specific years, and they have been adopted as Welsh Government policy. Our founding legislation states that we “*may not consider what the effect of any alternative policies would be*”. Policy commitments or aspirations that do not meet the criteria for inclusion in our central forecasts are noted as risks to them.

⁶ Welsh Government, *Tax policy work plan 2019*, February 2019.

Our approach to fiscal forecasting

1.18 Our UK fiscal forecast is produced using a highly disaggregated bottom-up process that involves hundreds of separate forecast models that are operated on our behalf by analysts in other parts of the UK government. In almost all cases, the production of our receipts forecasts can be thought of as involving three steps:

- First, we use the latest administrative data and other sources to estimate the level of receipts in the current year – the **in-year estimate**.
- Second, we use one or more dedicated forecast models to project growth in receipts from that in-year baseline. This forecast is produced consistent with policy settings as they stood at our previous forecast, and is termed the **pre-measures forecast**. Forecast models are the tools we use to generate each line of our fiscal forecast, but the growth rates they produce will largely be driven by the assumptions we feed into them. These are drawn from our macroeconomic forecast where relevant (for example, the wages and salaries forecast that drives income tax receipts), but we often need to make many additional tax-specific assumptions (for example, about how the amount of waste sent to landfill is likely to evolve relative to the population or national output).
- Finally, we estimate the effects of new policy announcements and add them to our pre-measures forecasts. This generates the final **post-measures forecast**.

1.19 When forecasting the Welsh revenue streams, our approach is guided by how separable the Welsh revenues are from the UK-wide totals that can be observed in administrative data:

- For the **fully devolved taxes** (LTT and LDT), we can deploy our standard in-year estimate plus modelled growth rate approach. The Welsh Revenue Authority publishes monthly (for LTT) or quarterly (for LDT) data on which we can base an in-year estimate. We then use bottom-up models that are operated by analysts in the Welsh Government on our behalf. The assumptions and judgements that are fed into them are determined by us.
- For the **Welsh rates**, it is not possible to generate an in-year estimate in the normal way. Our underlying forecast is produced by HMRC at a UK level, since some receipts collected by HMRC will be paid to the UK Government, and some to the Welsh Government, but some of the key data are not separable between the two. We then estimate the share of UK income tax liabilities that will be paid to the Welsh Government. This draws on HMRC's Survey of Personal Incomes for the most recent available year, a projection between that survey year and the year in progress that is informed by other sources, and then a forecast covering the following five years.

In-year estimates

1.20 In-year estimates are an important component of our pre-measures forecast, providing the starting point for the year in progress that supplements our model outputs with a range of

administrative and operational information. This starting point is heavily influenced by the quality and the timeliness of the data available. Its importance for our medium-term forecasts stems from the fact that any difference between forecast and outturn at the start is compounded over the remainder of the five-year period when receipts are forecast to grow.

- 1.21 Given the crucial role they play, we published a working paper last year – *Working paper No.13: In-year fiscal forecasting and monitoring* – that looked at the issue in detail.⁷ We reviewed the factors that influence the public finances each month – for example, the importance of bonus payments to income tax receipts late in the fiscal year and the highly uneven profile of self-assessment receipts through the year – and the forecasting challenges they pose. We described the approaches taken to in-year forecasting, from statistical methods to scale up year-to-date receipts through to determinant-driven forecasts for the remaining months of the year. Finally, we evaluated our in-year forecast performance, identifying lessons in respect of bonus assumptions for income tax, judgements about the information content of initial quarterly instalment payments on corporation tax liabilities and the pattern of revisions to ONS estimates of the public sector gross operating surplus.

What do we look for in our forecast models?

- 1.22 In preparing our UK fiscal forecasts we utilise more than 350 models of varying size and complexity. The outputs are scrutinised during forecast rounds and model development work is undertaken between forecasts. In 2017, we introduced a more systematic approach to following up our analysis of fiscal forecasting differences and the issues raised in forecasting rounds. This was based on a set of modelling criteria that will also be used in our new role for the Welsh Government as we evaluate and develop our forecast models:
- **Accuracy – how well does the model match outturns?** We look at the size, direction and bias of fiscal forecasting differences, bearing in mind that some lines of tax are much harder to forecast (i.e. because the underlying stream of tax is more volatile). We also want forecasters to be able to fully explain and decompose those forecasting differences to enable us to draw effective conclusions. This analysis relies on the availability of outturn data, so we will not be able to assess our Welsh rates forecasts until HMRC has published an outturn liabilities estimate, which will not be until the summer of 2021.
 - **Plausibility – how well do the model outputs align with theory and experience?** Here we look for evidence that the structure and assumptions underpinning our fiscal forecasting models align with recent experience and economic theory. We also want to ensure that models are able to provide an explanation of the forecast profile and that any assumptions made are consistent with those made elsewhere in our forecasts.
 - **Transparency – how easily can the model outputs be understood and scrutinised?** It is essential that both the inputs and outputs of a model can be scrutinised. We look at models to ensure that the specification, assumptions, data and other adjustments are clear, so that we can examine and explain the differences from outturn that inevitably

⁷ Taylor, J. and Sutton, A., OBR Working paper No.13: *In-year fiscal forecasting and monitoring*, September 2018.

occur. Forecast-to-forecast diagnostics are key in understanding the effect of new economic determinants and judgements, and so we also want to ensure these are produced effectively in each model.

- **Effectiveness – how well does the model capture the tax system?** Here we look at the complexity of the model. Is it overly complicated? Or, conversely, would greater disaggregation be required to capture the essence of the tax system effectively? We also look at the quality of data being used in the model.
- **Efficiency – is the model capable of providing outputs to short deadlines?** The forecast process ahead of a Budget or other fiscal statement requires that fiscal forecasting models can be run and any supplementary information delivered within a short time period. We therefore look to ensure that models can meet these deadlines.

1.23 We publish the results of our fiscal forecasting model reviews in Chapter 4 of each year’s *Forecast evaluation report*, with our priorities and a RAG-rating of progress over the preceding year presented in a ‘model assessment database’ on our website.

Policy costings

1.24 Once our final pre-measures forecasts have been produced we then add on the effects of new policy measures to arrive at our post-measures forecast. We intend to follow the same approach to policy costings for the Welsh Government’s tax forecasts as we do for the UK Government’s Budgets and other fiscal statements. This involves the consideration of each measure in turn, scrutinising the assumptions underpinning each to satisfy ourselves that they are reasonable and central.

1.25 Unlike our pre-measures forecast, the published policy costings are formally owned by the Government, with our role being to certify them. In practice at the UK level this has involved an iterative process during which we identify any assumptions that we do not believe to be reasonable or central and the Government has amended them to reach a final costing that we certify. If we did disagree with a published costing, we would use our own estimate in our forecasts and state what had caused the disagreement. But the UK Government has yet to publish a costing that it knew we would disagree with and replace with an alternative.

UK-level policy costings process

1.26 The process we follow at the UK level was detailed in a briefing paper that we published in 2014.⁸ During the run-up to UK Government Budgets and other policy statements, we subject the draft costings of tax and spending measures to detailed challenge and scrutiny. The *Charter for Budget Responsibility* requires our forecasts to reflect the impact of “all Government decisions and all other circumstances that may have a material impact on the

⁸ See *Briefing paper No.6: Policy costings and our forecast* available on our website.

fiscal outlook. In particular where the fiscal impact of these decisions and circumstances can be quantified with reasonable accuracy."

- 1.27 The Treasury is responsible for the costing of UK Government policies, which it does by coordinating a process that delegates the analysis to the departments responsible for implementing the policy. Our role is to state whether we believe each costing to be reasonable and central. This involves a detailed process of scrutiny and discussion with the Treasury and relevant departments. We typically ask questions about every costing – often clarificatory rather than challenging judgements – but for more complicated or contentious costings there can be many rounds of questions and responses. Once completed, we then incorporate these costings (or our preferred alternative) in our forecasts.
- 1.28 The Charter also states that *"where the fiscal impact of these decisions and circumstances cannot be quantified with reasonable accuracy, these impacts should be noted as specific fiscal risks"*. Where the UK Government has voiced a policy aspiration or ambition but not supported it with precise details, such as the timetable for implementation, we would not include it in our central forecast, but would instead note it as a fiscal risk in our EFO. We ask the Treasury to confirm whether or not such aspirations reflect firm Government policy.

Policies affecting devolved tax revenues

- 1.29 We intend to deploy the same approach to scrutinising and incorporating the effects of Welsh Government policies into our Welsh taxes forecasts. We will engage with Welsh Government analysts as soon as they are in a position to discuss the estimated effects of policies being prepared for announcement. Where appropriate we will also engage with the Welsh Revenue Authority and HMRC, particularly where operational delivery could affect the cost or yield of a policy measure. This engagement will allow us to seek clarification on assumptions being used and to challenge judgements where we do not feel they are reasonable or central. This will allow Welsh Government ministers to make their final policy decisions in the knowledge of the effect they will have on our forecasts. We will only include firm policy decisions in our forecasts once they have been announced in sufficient detail.
- 1.30 We will not include the effects of Welsh Government tax policies that we deem not yet to represent a firm policy commitment, consistent with the requirements placed on us by the Budget Responsibility and National Audit Act 2011. For example, we do not include the effects of any policy until we have sufficient detail on its operation in each year of the forecast – this was the case with the UK Government's commitment to raise the income tax personal allowance to £12,500 by 2020-21, where the path to that target was not set out until Budget 2018 and the commitment was noted as a fiscal risk in our EFOs prior to that. We would also not include a policy until it had been developed in sufficient detail to be presented to the relevant legislature as part of a formal budget process – this has been the case with the Scottish Government's plans for air passenger duty once it has been devolved.

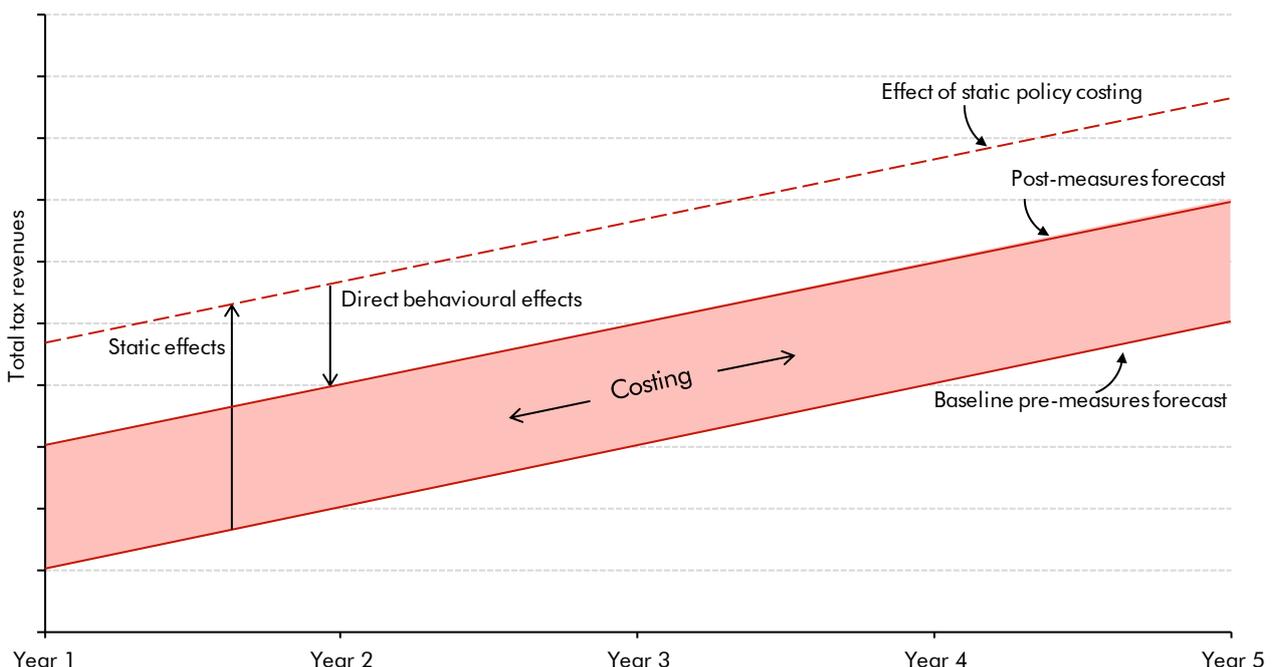
The steps involved in a policy costing

1.31 There are several steps involved in producing a policy costing:

- First, we establish **the baseline** against which to compare the new policy. This will invariably be our pre-measures forecast, although in some instances the policy in question will affect a subset of activity that is not specified in our forecasts, so a baseline consistent with our pre-measures forecast must be generated.
- Second, we estimate the **static effect** of the policy change. This simply compares the effect of applying the new and old rules to an unchanged baseline. It tells us how much a measure would cost or yield if taxpayers were not to change their behaviour in response to it. But, of course, in the real world behavioural responses *will* be induced.
- So third, we estimate the **behavioural effects** of the policy change. For tax measures, this typically involves estimating how taxpayers will reduce taxable activity in response to tax rises and vice versa. This may be the result of reducing actual activity – smoking less if tobacco duty is raised – or reducing the amount of activity that is taxable – buying cigarettes cross-border rather than in the UK.

1.32 Figure 1.1 provides a stylised example of a policy costing depicting these steps. Simpler policy measures will often follow this kind of profile, with the baseline forecast rising in cash terms over the five years of the forecast, the static yield from a tax-raising measure being reasonably constant in percentage terms, so rising modestly in cash terms, and the behavioural effects offsetting a reasonably stable proportion of the static yield. The certified costing is the difference between the baseline and the post-measures forecast lines.

Figure 1.1: A stylised policy costing



How do we estimate the behavioural responses to new policies?

1.33 Behavioural effects can be a key source of uncertainty in policy costings. One way in which we attempt to measure them is via ‘elasticities’ – the proportional change in a tax base resulting from a proportional change in a tax rate – such as taxable income elasticities (TIEs) for income tax measures. These provide a framework for analysing behavioural responses to changes in tax rates and are normally estimated from evaluations of past tax measures.

Income tax measures

1.34 We may use different elasticities to estimate the behavioural responses of different groups. For income tax we have generally considered two main forms of behaviour:

- **Responses to a change in the *marginal* tax rate.** The incentive to earn and report *additional* taxable income is affected by the post-tax earnings on additional hours worked. The higher the marginal tax rate, the lower the incentive to work more.
- **Responses to a change in the *average* tax rate.** The incentive to earn and report *any* taxable income is affected by the overall tax paid on that income – i.e. whether to work at all rather than whether to work an extra shift or take a higher-paying job. Responses to changes in the average tax rate will normally be much weaker than those to changes in marginal tax rates.

Property transaction tax measures

1.35 For property transaction taxes like SDLT and LTT we have also generally considered two main forms of behaviour:

- **House price elasticities** estimate the extent to which a tax rise leads to lower house prices and therefore the post-behavioural yield is less than the static yield.
- **Housing transaction elasticities** estimate the extent to which a tax rise leads to lower turnover in the property market and fewer taxpaying transactions. In revenue terms, the effect of a given percentage change in transactions is normally greater than the effect of an equivalent percentage change in house prices.

In both cases the reverse applies when considering a tax cut.

1.36 Both the TIEs and the housing market elasticities that we use assume a greater behavioural response from more affluent taxpayers, which among other things reflects the greater access and ability they have to engage in tax planning to reduce their tax liabilities.

Anti-avoidance and evasion measures

- 1.37 Tax avoidance and evasion, as recorded in HMRC's estimate of the tax gap, is estimated to cost £35 billion a year at the UK level, which is 5.6 per cent of theoretical tax liabilities.⁹ The Welsh Revenue Authority has not estimated tax gaps for LTT or LDT. HMRC's most recent estimates for SDLT and landfill tax are 1.1 per cent and 13.6 per cent respectively. So trying to understand the motivations for avoidance and evasion and how these will interact with policy measures that aim to reduce the tax gap is important.
- 1.38 Such behavioural effects may in part be captured in the elasticities described above, particularly the TIEs used in income tax measures. But we also regularly ask for additional effects to be included in costings via 'attrition' assumptions – top-down assumptions about the percentage of the static yield that will be lost over time to unspecified avoidance or evasion behaviours. These judgements are often highly uncertain because the measures themselves are targeting individuals or firms that are already actively planning their activity to reduce their tax liabilities, so can be expected to continue to do so via other means when an existing opportunity to do so closes.
- 1.39 One avoidance technique that could be used in response to an increase in the Welsh rates would be for taxpayers to incorporate as single-director companies to benefit from lower taxes on corporate profits and dividends than the equivalent tax treatment of employment income.¹⁰ The loss in Welsh and UK Government income tax receipts and UK Government National Insurance contributions (NICs) receipts from such a response would outweigh the increase in corporation tax and dividend income tax receipts to the UK Government.

Cross-border effects

- 1.40 A particularly challenging behavioural effect to estimate for any Welsh tax costings would be any cross-border effects. The most notable examples would be if there were material disparities in the income tax rates set between Wales and England. This could encourage some taxpayers that work in the higher-tax jurisdiction to choose to live in the lower-tax one and commute across the border so as to reduce their income tax liability. For those with a residence in each country, this might simply be a case of reporting the one in the lower-tax jurisdiction to be their place of residence for the majority of the year.
- 1.41 The Welsh Government has set the Welsh rates such that overall income tax rates in Wales match those in England and Northern Ireland, so this is not currently an issue. But should that change we would seek to draw on emerging evidence from the English-Scottish border, where tax rates and thresholds for higher earnings now differ,¹¹ and from federal countries

⁹ HMRC, *Measuring tax gaps 2019 edition*. HMRC defines a tax gap as "the difference between the amount of tax that should, in theory, be paid to HMRC, and what is actually paid."

¹⁰ Incorporations have been on an upward trend across the UK and there are factors other than tax that might prompt individuals to change the way they work. For more information on the risks to our tax forecasts associated with incorporations, tax motivated or otherwise, see Chapter 4 of our 2019 *Fiscal risks report*.

¹¹ See, for example: Ifan, G. and E.G. Poole, *The Welsh Tax Base – Risks and Opportunities after Fiscal Devolution*, Wales Centre for Public Policy, Wales Governance Centre at Cardiff University, 2018; and Scottish Fiscal Commission, *How we forecast behavioural responses to income tax policy*, March 2018.

such as the US and Spain, to help understand possible behavioural responses. Given the nature of the border and the distribution of the population, one might expect such effects to be more powerful across the Welsh-English border than in these other examples.

- 1.42 Cross-border effects could also affect LTT and LDT. For example, if landfill tax rates were cut in England it could lead to some Welsh waste being sent to landfill in England. Similarly, lower SDLT rates might prompt people to choose to buy property in England rather than Wales. Such effects would depend on how the tax saving compared with the additional cost of transporting waste across the border or other costs associated with living in England rather than Wales. If they did occur, they could be more pronounced for Wales than for Scotland as a larger share of the population lives nearer to the border with England.

Forestalling

- 1.43 In the short run we often observe forestalling whereby taxable activity is brought forward (or stalling where it is pushed back) to minimise taxable liabilities ahead of pre-announced changes in tax policy. This has been a particular issue for property transaction taxes, where there are numerous examples of tax rises being announced ahead of implementation and transactions being brought forward ahead of the change. We looked at these in a working paper published in 2016, which showed significant numbers of transactions being brought forward in each case and that the volume was positively correlated with the size of the tax change and the amount of notice taxpayers had of the change.¹² Even in narrow windows some transactions were brought forward – for example, on Autumn Statement day in 2014, when SDLT reforms were announced at around 1pm to take effect from midnight, around four times as many transactions took place than did on other Wednesdays around that date.

Dealing with uncertainty

Forecast uncertainty

- 1.44 Uncertainty is inherent in economic and fiscal forecasting so it is important to recognise that our central forecasts will never be accurate in every dimension – they represent the centre of a wide distribution of possible outcomes, to which probabilities could in theory be attached. And while our forecast judgements will necessarily be uncertain, there is also often uncertainty associated with the data used in the forecast process. Some only become available with a lag and some are revised over time as further information comes to light.
- 1.45 This report sets out our central forecasts around which we believe the risks to be balanced, so that it is equally likely that the actual outcome will lie above the central forecast as below it. As our *Fiscal risks reports (FRR)* discuss, history suggests that risks to the public finances are negatively skewed – we are more likely to see very bad outcomes than very good ones – and that governments typically respond more quickly to good news than to bad.
- 1.46 In our *EFOs*, we approach the issue of uncertainty around our forecasts in four ways:

¹² Mathews, P. OBR Working paper No.10: *Forestalling ahead of property tax changes*, October 2016.

- At the end of Chapters 3 and 4 of each report, we discuss **sources of risk to our latest economy and fiscal forecasts** respectively. These range from those specific to a particular forecast – say, the household saving ratio having fallen to a historically low level, which would pose a risk to growth if households were to retrench by reducing spending – to more generic risks – the roughly one-in-two chance of a recession in any given five-year period implied by the frequency of past recessions in the UK.
 - We present **fan charts** around key forecast variables, including GDP growth and public sector net borrowing, which draw on the performance of past Treasury and OBR forecasts to generate a distribution of possible outcomes around our central forecast.
 - In Chapter 5 of each report, we conduct **sensitivity analysis** whereby we test the evolution of the metrics used in the UK Government’s fiscal targets to changes in key parameters. For example, the extent to which potential GDP would need to fall short of our central forecast for the UK Government’s fiscal mandate to be missed.
 - Also in Chapter 5 of each report, we look at **alternative economic scenarios** that go further than sensitivity analysis by putting together a consistent set of alternative assumptions that sketch out how the economy might evolve – for example, were it to fall into recession or were medium-term productivity growth to fall short of our central forecast. We then use ‘ready-reckoners’ for various lines of our tax and spending forecasts to estimate the fiscal implications of those alternative scenarios.
- 1.47 In our biennial *FRR* we go a step further by constructing a fiscal stress test – a more fully specified negative scenario for the economy and public finances. In 2017, we used the Bank of England’s ‘annual cyclical scenario’, which it uses to stress test the banking system, which had dramatic implications for the public finances, pushing public sector net debt up by 34 per cent of GDP by the end of the five-year stress test horizon. In 2019, we used the more benign of two IMF ‘no deal, no transition’ Brexit scenarios from its April 2019 *World Economic Outlook*, which had less severe but still substantial fiscal implications, pushing debt up by 12 per cent of GDP over five years.
- 1.48 Our sensitivity and scenario analysis is dependent on the use of ready reckoners – simplifying assumptions we make about the fiscal consequences of a change in a particular variable. Our latest ready reckoners can be found on our website alongside our 2019 *FRR*.

Uncertainty around policy costings

- 1.49 For policy costings we assign uncertainty rankings to each measure we certify. These are based on our assessment of the uncertainty presented by the data underpinning the cost, the modelling required to calculate its cost or yield, and the likely behavioural responses to the measure. We also note which of these sources of uncertainty we deem to be the most important. We publish this information in a database on our website.
- 1.50 While we judge the effect of each individual policy measure we have certified to be central, there are also risks from the overall effect of policy packages. For example, the UK

Government has been raising tax revenue from measures that we have deemed to be ‘highly uncertain’ – often tackling tax avoidance and evasion – but its tax giveaways have been in measures for which the cost is much more certain.¹³

Evaluating our forecasts

- 1.51 Given our commitment to transparency and accountability, we believe that it is important to provide appropriate quantitative detail on our forecasts and to examine and explain after the event how they compare to subsequent outturn data.
- 1.52 Assessing the performance of our forecasts after the event is important for helping users to understand how they are made and revised. Identifying and explaining forecast differences also helps improve our understanding of the way in which the economy and public finances behave, and allows us to improve our judgements and forecast techniques for the future. Finally, it also aids self-discipline. The knowledge that you are going to have to justify your forecast in detail forces you to make only those judgements you are willing to defend. You cannot hide them in the knowledge that no one will ever know.
- 1.53 We describe the arithmetic divergence between our central forecasts and the subsequent outturns as ‘differences’ rather than ‘errors’, because in many cases it would have been impossible to avoid them given the information available when the forecast was made. Where we do find genuine errors, which could (and should) have been corrected if we had spotted them, they are described as such. Errors of this sort are inevitable from time to time in a highly disaggregated forecasting exercise like ours.
- 1.54 For our fiscal forecasts, we use a consistent approach to breaking down forecast differences into components that are due to:
- **ONS classification or methodological changes:** if outturns are prepared on a different basis to the one that we used when preparing the forecast, a simple comparison of the two would not compare like with like. We make adjustments to correct for this.
 - **Subsequent policy changes:** Parliament requires us to base our forecasts on the Government’s stated policy at the time, so one source of difference between forecast and outturn comes when the Government subsequently changes policy. This is clearly something we cannot factor into our forecasts, so we separate out these effects.
 - **Economy forecast differences:** our fiscal forecasts use ‘determinants’ that are drawn from our economy forecast, so any differences between forecast and outturn for the economy will generate differences between our actual fiscal forecast and what it would have been had those determinants matched estimated outturns.
 - **The residual ‘fiscal forecasting difference’:** any difference that is not accounted for in the previous three categories is categorised as a fiscal forecasting difference, in the

¹³ See our 2019 *Fiscal risks report* and our online *Policy costings uncertainty ratings database* for more information.

sense that it must stem from other assumptions and judgements that we make and how those are combined in the models we use to construct the fiscal forecast. We investigate these differences to understand their underlying drivers and to learn lessons that can be applied in subsequent forecasts.

1.55 The residual fiscal forecasting difference can relate to how the model was used as well as to something inherent to the model itself. That means that we need to be careful when interpreting analysis of forecast accuracy, because it will capture a wide range of factors. These fall into two main categories:

- **factors directly related to the model**, such as the specification of the tax system in a microsimulation model or the coefficients used in an econometric equation; or
- **judgements that are fed into the model**, which could include assumptions about changes in the earnings distribution (which we factor into our income tax forecast, but are not part of our economic forecast), decisions about which economic determinant to use as a proxy for a tax base (such as the commercial property prices used to proxy for commercial rents in the LTT forecast) and other judgements (such as the eligibility and take-up of tax reliefs). These judgements can often relate to real-world developments that are highly uncertain, such as the outcome of a litigation case or the emergence of new non-compliance behaviour.

1.56 We need to learn from all sources of forecast difference, but in order to take the appropriate remedial action we need to identify their true cause. Our approach to this was set out in a briefing paper published in 2017.¹⁴ Among other things, it described the types of questions we typically ask as we pursue the underlying cause of a forecast difference:

- **Were there any events that could explain the difference?** For example, were there forestalling effects around a tax policy change? Changes in the rate of non-compliance in tax or welfare systems? A judgement in a legal case that had knock-on consequences for receipts or spending?
- **Which components of the tax or spending stream caused the difference?** For example, when looking at onshore corporation tax receipts, was the difference concentrated among financial or non-financial sector companies or was it related to the profits that generate tax liabilities or the deductions that reduce them? When looking at debt interest spending, was the difference mainly in the cost of conventional or index-linked gilts or was it associated with gilts held in the Bank of England Asset Purchase Facility?
- **Which parts of the model caused the difference?** For example, in exploring a VAT forecast difference, was the standard-rated share assumption a source of difference, and if so, which component of that assumption was wrong? If we have identified

¹⁴ Briefing paper No.7: *Evaluating forecast accuracy*, October 2017.

deductions as a source of the corporation tax forecast difference, was it related to capital allowances, group relief or something else?

- **Were there any key judgements or assumptions that contributed to the difference?** For example, assumptions about the speed with which a new benefit is rolled out across the eligible population? Or the extent to which local authorities will draw down from their stock of reserves to maintain higher levels of spending than their available resources would otherwise allow?
- **Is there anything consistent about this fiscal forecasting difference,** given previous analyses? Does it highlight any changes that need to be made to the model or to the assumptions that are put into it?
- **Are there any other stories we can tell about the difference?** For example, are there 'economic' factors that are not being fully captured by the determinants that we draw from our economy forecast, such as changes in the distribution of earnings or other compositional effects?