

Office for
**Budget
Responsibility**

Welsh taxes outlook

December 2019

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1 Introduction

- 1.1 This is our first dedicated Welsh taxes forecast publication. In this extended introduction, we:
- describe the process of **fiscal devolution in Wales** and **the OBR's role in forecasting the devolved taxes**, including our new role doing so for the Welsh Government; and
 - discuss our general approach to the key components of that role, drawing on briefing papers and other material we have published on **fiscal forecasting** and our assessment of forecast models, scrutinising **policy costings**, dealing with **uncertainty** around our central judgements, and **evaluating past forecasts** to learn lessons for future ones.
- 1.2 Much of this material will be maintained on our website rather than being repeated in future reports. We end the chapter by detailing the **forecast timetable** that was followed in producing the forecasts presented in this document and setting out **the document's structure**.

Fiscal devolution in Wales

- 1.3 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.
- 1.4 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.
- 1.5 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

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.

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

1.6 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 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.

1.7 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

1.8 We formally took on this role in April 2019, with this first report being published alongside the Welsh Government's 2019-20 Draft Budget. In advance of this we agreed a Memorandum of Understanding (MoU), Terms of Reference and a Financial Framework with the Welsh Government in order to guide this work and ensure that we can bring all

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*.

relevant information to bear in producing our forecasts. All governance material is available on our website. We will jointly review these arrangements next summer so that they reflect any lessons learnt in their first year of operation.

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

- 1.9 In accordance with the fiscal framework we will prepare and publish independent forecasts of devolved Welsh tax revenues for the Welsh Government. In this first *Welsh taxes outlook (WTO)*, we forecast three sources of revenue: the Welsh rates of income tax, land transaction tax and landfill disposals tax. We describe the methodologies deployed, as well as the forecasts for each of these taxes, in subsequent chapters. We have not covered non-domestic (business) rates or council tax in this report.
- 1.10 In each *WTO* we will describe our latest Welsh tax forecasts and how they have changed since the previous publication. These will be published alongside the Welsh Government's draft and final budgets. We will also describe any changes in methodology, while the material detailed in this first report will be available and updated on our website. 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.
- 1.11 All the charts and tables presented in this document, plus supplementary forecast material, are available in spreadsheet format on our website.

What will we not be forecasting?

- 1.12 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.

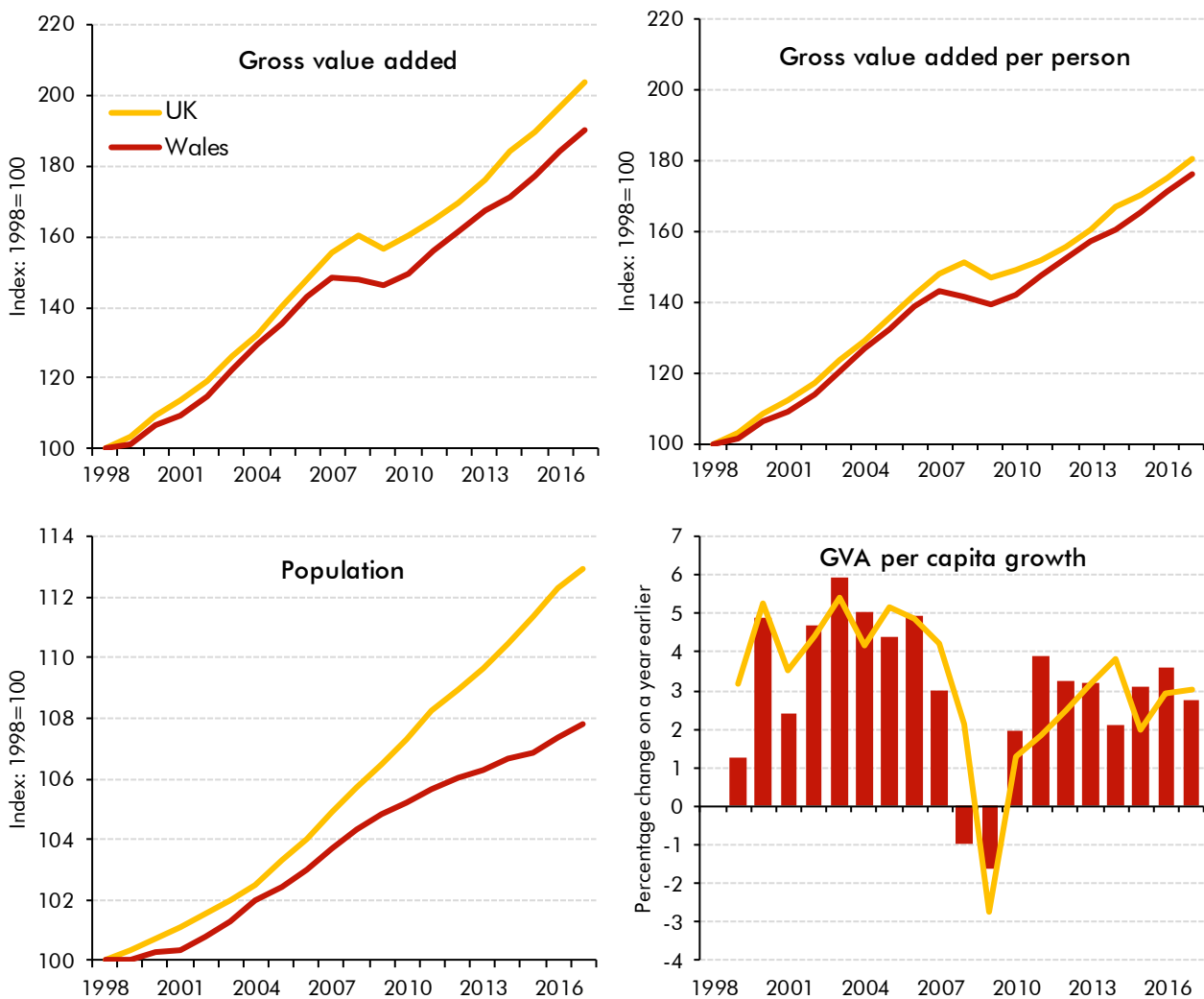
Why not produce a full macroeconomic forecast for Wales?

- 1.13 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.
- 1.14 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. 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)

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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



Source: ONS

- 1.15 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.

- 1.16 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?

- 1.17 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. The Welsh Government's settlement was extended to 2020-21 in September's Spending Round. The Spending Round did not set out UK-wide departmental spending totals or full department-by-department plans for years beyond 2020-21.
- 1.18 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.
- 1.19 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?

- 1.20 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

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

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.

Our approach to fiscal forecasting

1.21 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**.

We discuss the first two steps of the process in this section and policy costings in the next.

1.22 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

- 1.23 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.
- 1.24 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?

- 1.25 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

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

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 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.

1.26 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

1.27 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.

1.28 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

- 1.29 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 fiscal outlook. In particular where the fiscal impact of these decisions and circumstances can be quantified with reasonable accuracy.*”
- 1.30 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.
- 1.31 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

- 1.32 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.
- 1.33 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

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

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

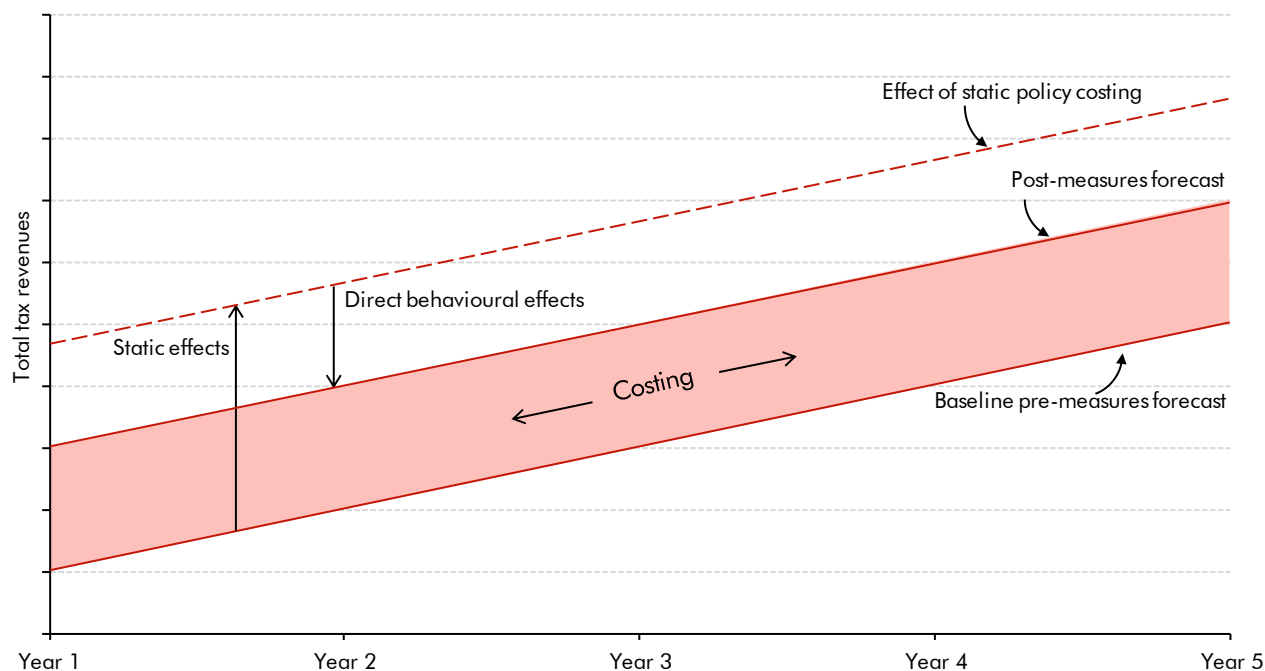
1.34 There are several steps involved in producing a policy costing:

- 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. For example, when the UK Government reformed the structure of SDLT in December 2014, the static costing was generated by taking the same forecasts for house prices and property transactions and applying the new rates and thresholds to it. This 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. In the SDLT example, the reform lowered effective tax rates on lower value properties and raised them on more expensive ones, so the overall behavioural effect represented the net effect of more transactions and modestly higher prices at the lower end of the price distribution and fewer transactions and lower prices at the upper end of it.⁹

1.35 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.

⁹ See Box 4.5 of our December 2014 *Economic and fiscal outlook*.

Figure 1.1: A stylised policy costing



How do we estimate the behavioural responses to new policies?

1.36 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

1.37 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

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

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- **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.

- 1.39 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

- 1.40 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.¹⁰ 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.

- 1.41 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.

- 1.42 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.¹¹ 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

- 1.43 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

¹⁰ 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."

¹¹ 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*.

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.

- 1.44 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,¹² and from federal countries 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.
- 1.45 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

- 1.46 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.¹³ 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

- 1.47 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.

¹² 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.

¹³ Mathews, P. OBR Working paper No.10: *Forestalling ahead of property tax changes*, October 2016.

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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.

- 1.48 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.
- 1.49 In our *EFOs*, we approach the issue of uncertainty around our forecasts in four ways:
- 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.
- 1.50 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.

- 1.51 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

- 1.52 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.
- 1.53 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.¹⁴

Evaluating our forecasts

- 1.54 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. We will do this for LDT and LTT next year, since we already have outturn data, but we will only be able to undertake such an evaluation for the Welsh rates once the first outturn is available in the summer of 2021.
- 1.55 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.
- 1.56 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.
- 1.57 For our fiscal forecasts, we use a consistent approach to breaking down forecast differences into components that are due to:

¹⁴ See our 2019 *Fiscal risks report* and our online *Policy costings uncertainty ratings database* for more information.

Introduction

- **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 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.

1.58 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.

1.59 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 2017.¹⁵ Among other things, it described the types of questions we typically ask as we pursue the underlying cause of a forecast difference:

¹⁵ Briefing paper No.7: *Evaluating forecast accuracy*, October 2017.

- **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 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?

Forecast timetable

1.60 In order to produce the pre-measures forecast presented in this document:

- In the months preceding this forecast OBR officials and members of the BRC met with Welsh Government officials on 19 June.
- Analysts in the Welsh Government and HMRC produced draft Welsh tax forecasts using our March 2019 UK economy and fiscal forecasts, plus new liabilities and receipts data published since March. The BRC scrutinised these forecasts on 26 September.

- On 26 November, the BRC finalised judgements on the Welsh taxes forecast, taking on news in the latest LTT and LDT receipts and aligning the UK non-savings non-dividend income tax liabilities forecast to news in the monthly PAYE income tax data.
- In the intervening period, preparation of new UK Budget forecasts had been underway. But the cancellation of the UK Budget that had been planned for 6 November meant that we did not complete the UK-wide forecasts for that Budget. Instead, on 16 December, we restated our March 2019 forecast to be consistent with ONS classification and other statistical changes since March. This restatement did not affect any lines of the forecast that are relevant for our Welsh taxes forecast.

Structure of the document

1.61 The rest of this document is structured as follows:

- **Chapter 2:** income tax on non-savings, non-dividend income from the Welsh rates.
- **Chapter 3:** land transaction tax (LTT).
- **Chapter 4:** landfill disposals tax (LDT).
- **Annex A:** summary of taxes and block grant adjustments (BGAs).

2 Welsh rates of income tax

2.1 This chapter:

- describes the **Welsh rates of income tax** and how they will be levied on non-savings, non-dividend income by tax band;
- sets out our **methodology** for forecasting UK income tax liabilities and the Welsh share of this total, before splitting this share out by tax band;
- presents our **latest forecasts** for the Welsh rates and for UK income tax liabilities; and
- outlines some of the **risks and uncertainties** around our Welsh rates forecast.

What are the ‘Welsh rates of income tax’?

2.2 The Welsh rates of income tax came into effect in April 2019. They are administered and collected by HMRC. There are four important aspects of the design and operation of these rates in Wales that distinguish them from our UK-wide income tax forecasts:

- First, they apply only to Welsh taxpayers, who are defined as **individuals whose main place of residence is in Wales** for the majority of the tax year. It is the taxpayer’s responsibility to tell HMRC their correct address. For those with residences in both Wales and elsewhere in the UK, it is the taxpayer’s responsibility to report their primary residence. This approach is different to some other federal systems, for example in the US, where the taxpayer’s location is defined by their place of employment. Individuals who are classified as Welsh resident are given a ‘C’ flag on their HMRC tax identifier.
- Second, the Welsh rates represent only the **first 10p in the pound for each tax band**. This differs from the devolution of income tax in Scotland, where all relevant liabilities of Scottish taxpayers have been devolved to the Scottish Parliament. Each year, the Welsh Government is required to set the tax rates for each of the basic, higher and additional tax rates, which replace the 10p reduction in the reserved UK Government element of each tax band. For 2019-20, the first year of operation, these rates were set such that overall income tax rates paid by Welsh taxpayers remained aligned with those in England and Northern Ireland. The rest of income tax raised from Welsh taxpayers – i.e. 10p in the pound from basic rate payers, 30p from higher rate payers and 35p from additional rate payers – is reserved to the UK Government.
- Third, the Welsh rates are levied on **non-savings, non-dividend (NSND) income**. NSND income accounts for around 90 per cent of UK-wide income tax liabilities, and somewhat more in Wales. It includes earnings from employment, self-employment,

pensions and property, but excludes interest on savings and dividends on shareholdings. Income tax from these sources is reserved to the UK Government.

- Finally, the Welsh rates are assessed on a **liabilities basis** rather than a National Accounts basis. Liabilities accrue in the year in which the income that generated the liability was earned. This is typically before the cash payments related to those liabilities are made to HMRC. In the National Accounts, some taxes are recorded using a time-shifted cash basis that provides a simple proxy for accruing them to the point at which the liability was generated – this is the case for pay-as-you-earn (PAYE) income tax. But some taxes are simply recorded on a cash basis – this is the case for self-assessment (SA) income tax. So the distinction between the liabilities and National Accounts treatment is important for self-assessment due to the significant lag between liabilities being incurred and tax being paid. This also means that outturn data on self-assessment liabilities are not available until well after the fiscal year in question has ended.¹

2.3 Chart 2.1 illustrates how the 2019-20 income tax liability of three specimen Welsh taxpayers would be split between the UK and Welsh Governments:²

- **For a basic rate taxpayer earning £30,000** from only one source of employment income, their £3,500 liability would be split equally between the two administrations. This results in an effective income tax rate paid by this individual of 11.7 per cent (lower than the 20 per cent basic rate thanks to the £12,500 tax-free personal allowance).
- **For a higher rate taxpayer earning £60,000**, with £55,000 coming from employment and £5,000 of dividends from company shareholdings, 41 per cent of their £10,475 liability would relate to the Welsh rates and 59 per cent would be reserved to the UK Government, including all the £975 due on their dividend income. The effective income tax rate paid by this individual is 17.5 per cent.
- **An additional rate taxpayer earning £250,000**, with £200,000 from employment income and £50,000 in dividends, would have a total tax liability of £90,788. Of this, only 22 per cent would relate to the Welsh rates, while 78 per cent would go to the UK Government. At this income level a taxpayer would not receive any personal allowance. The higher share for the UK Government reflects two factors: first, all earnings above £37,500 would be taxed at the higher or additional rates where the UK Government share is much larger; and second, the taxpayer has a liability of £18,288 from their dividend income, all of which is retained by the UK Government. The effective income tax rate paid by this individual is 36.3 per cent.

2.4 These examples illustrate the relative importance of higher earners for tax receipts. The higher rate taxpayer earns twice as much as the basic rate taxpayer, but has an overall tax

¹ The most recent outturn data for devolved Scottish income tax liabilities relate to 2017-18 and were only published by HMRC in July 2019. We anticipate a similar lag for the publication of outturn liabilities relating to the Welsh rates.

² In addition to the income tax parameters reported in Table 2.2, this also reflects the personal allowance taper that withdraws £1 of personal allowance for every £2 of earnings above £100,000; the dividend allowance of £2,000; and tax rates on dividend earnings of 7.5 per cent for basic rate taxpayers, 32.5 per cent for higher rate taxpayers and 38.1 per cent for additional rate taxpayers. These specimen examples are illustrative and do not include all aspects of the income tax regime, for example the use of reliefs to lower liability.

liability that is three times greater and a Welsh rates liability that is a little over twice as large. The additional rate taxpayer earns four times as much as the higher rate taxpayer, but has a tax liability that is more than eight times greater and a Welsh rates liability that is somewhat less than five times greater. The UK Government's tax revenues are therefore more sensitive to changes in high-earners' incomes than the Welsh Government's are.

Chart 2.1: Illustrative splits between Welsh and UK Government income tax liabilities



2.5 The December 2016 fiscal framework agreement between the Welsh and UK Governments detailed how the Welsh rates would operate.³ In doing so it placed a requirement on us to forecast income tax liabilities in Wales, and in England and Northern Ireland combined, split by tax band. This was not something that had previously been necessary or possible.⁴

Methodology

2.6 Our Welsh income tax forecasts are produced on a 'top-down' basis. The main steps are:

- First, we establish the **whole of the UK NSND income tax liabilities** forecast.
- Next, we calculate the **share of NSND income tax liabilities subject to the Welsh rates**, taking into account the relevant tax base in Wales and how this maps onto the announced tax regime. Much of our analysis first looks at the total share of income tax from Wales – including amounts paid by Welsh taxpayers but reserved to the UK Government – before estimating the proportion that is subject to the Welsh rates.
- Finally, we add our estimates of the effect of **new policies** announced since our previous forecast on Welsh rates liabilities.

³ HM Government and Welsh Government, *The agreement between the Welsh Government and the United Kingdom on the Welsh Government's fiscal framework*, December 2016.

⁴ For more on our approach, see Mathews, P. *Working paper no. 14: Devolved income tax: forecasting by tax bands*, September 2018.

Welsh rates of income tax

2.7 There are two main advantages to this top-down shares approach. First, it provides a transparent way to ensure that our Welsh rates forecast is consistent with our UK-wide forecast, which in turn aligns with how HMRC administers the tax system separately for PAYE and SA. This maximises our ability to monitor and act upon the most timely outturn information about these tax receipts. Second, it provides an efficient way to ensure that our final UK-wide economy and fiscal forecast judgements are automatically reflected in our Welsh rates forecast. This is important given the very tight deadlines to which the final stages of a Budget process operate.

Pre-measures UK-wide forecast

2.8 We use HMRC's latest published UK-wide NSND income tax liabilities outturn as the starting point for our pre-measures forecast. This relates to a tax year some distance in the past (currently 2016-17), given the lags between liabilities being incurred and tax being paid. To project liabilities between that outturn year and the year in progress, we produce an in-year estimate based on HMRC's most recent monthly tax receipts data.

2.9 We forecast growth in the UK income tax base in line with our wider economy forecast. The key determinants are employment and average earnings growth, which determine the amount of labour income that can be taxed, and CPI inflation, which is used to uprate tax thresholds in the absence of other stated policies. Our short-term forecast for labour income growth is informed by indicators of labour market slack and pay pressures, as well as broader conjunctural evidence about the economy. Over the medium term, productivity growth (on an output-per-worker basis) is the key driver – and the most important and uncertain judgement in our forecast. Our short-term inflation forecast is constructed bottom-up looking at prospects for different prices – for example, how oil price movements will affect petrol prices or how exchange rate movements will affect import prices. We typically assume that the Bank of England's Monetary Policy Committee will return inflation to target over its two-to-three-year policy horizon. As we largely assume that the Welsh income tax base will grow at the same rate as that of the UK as a whole (at least in per person terms), our major economy forecast judgements enter our Welsh rates forecast at this stage.

2.10 We forecast income tax at the UK level according to the different methods by which HMRC collects the tax. PAYE income tax accounts for over 80 per cent of revenue, with nearly all the remainder collected via the SA system. PAYE income mainly represents the earnings of employees, while SA income includes profits from self-employment and income from dividends, land and property, and savings. As virtually all tax on savings and dividends income is collected via SA, the proportion of NSND income tax collected via PAYE is even higher than for total income tax at over 90 per cent.

2.11 Our PAYE forecast is produced using HMRC's personal tax model (PTM) – a micro-simulation model based on HMRC's Survey of Personal Incomes (SPI). This is an annual survey based on a sample of around 745,000 individuals in contact with HMRC during a year through the PAYE, SA or repayment claim systems. The PTM calculates the average marginal tax rate on additional income by taking account of reliefs, allowances and our assumptions about inflation and any differences in earnings growth at different points in the

distribution. The latter are informed by HMRC’s real-time information (RTI) about the PAYE population. The PTM applies the calculated tax rates to our forecast for income growth.

2.12 Our SA income tax forecast starts by splitting up historical tax return data into the key income streams and projecting these forward using relevant determinants drawn from our economy forecast. We turn these income forecasts into projections for SA liabilities by applying appropriate average effective tax rates, again estimated using the PTM.

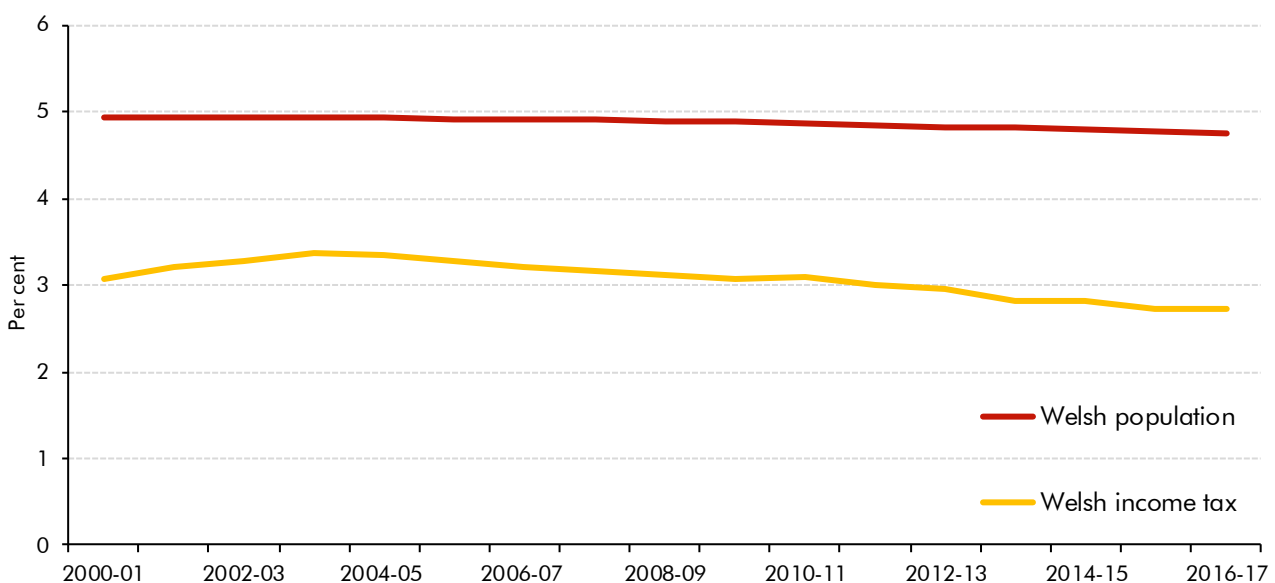
The share of UK-wide income tax liabilities subject to the Welsh rates

The overall Welsh share of UK-wide income tax liabilities

2.13 Armed with our forecast for UK NSND income tax liabilities, we then need to calculate the share that will be subject to the Welsh rates and apply this to the UK forecast. This is done in two steps. First, we calculate the overall Welsh share of income tax as captured by the SPI for 2016-17. This pre-dates the Welsh rates coming into effect and so refers to all income tax paid by Welsh taxpayers. The SPI has to date been our primary data source for Welsh income tax analysis. It is published with a long lag. The 2016-17 SPI remains the latest year available for this forecast. HMRC expects to publish the 2017-18 SPI in early 2020.

2.14 Chart 2.2 compares the Welsh share of UK income tax liabilities with its share of the UK population. Both have been declining – the Welsh share of income tax more rapidly. Perhaps the most striking feature of the chart is how much lower the Welsh share of income tax is compared with its share of the population (2.7 versus 4.7 per cent in 2016-17). On this basis, income tax liabilities per person in Wales in 2016-17 were 43 per cent lower than in the UK as a whole (£1,523 versus £2,650). We can readily incorporate differences in expected population growth in our forecasts as the ONS publish these, but understanding why tax per person in Wales is lower than in the UK, and how it has evolved over the past, can help inform other assumptions we make about the future Welsh tax share.

Chart 2.2: Welsh share of UK income tax liabilities and population



Note: Tax data unavailable for 2008-09 so the proportional shares are based on interpolation from the adjacent years.

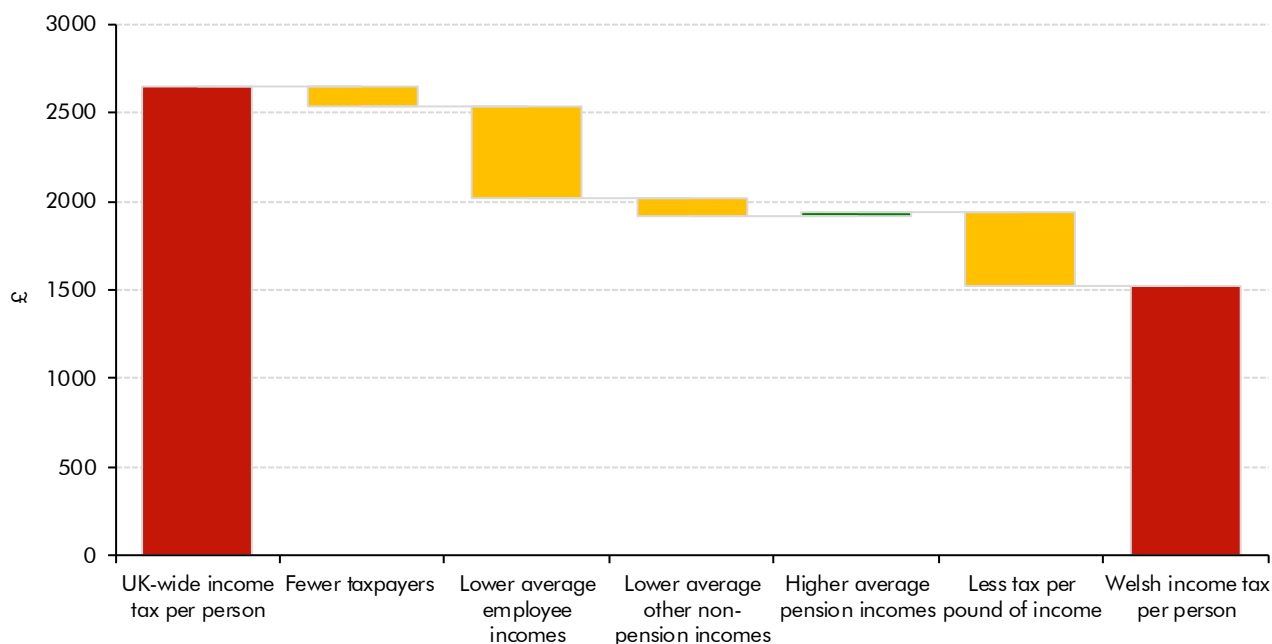
Source: HMRC, ONS

Welsh rates of income tax

2.15 So why are income tax liabilities per person so much lower in Wales than across the UK as a whole? The Wales Centre for Public Policy considered this question in its report on the Welsh tax base last year.⁵ It pointed to several differences in the characteristics of the tax base, such as the higher share of taxpayers in Wales working in the public sector or receiving pensions, the lower share working in financial and business services, and differences in the earnings distribution of all taxpayers.

2.16 Building on this analysis, in Chart 2.3 we show how the difference in tax liabilities per person can be attributed to three underlying factors: the proportion of the population that are taxpayers; the average incomes of those taxpayers (split into different sources); and the amount of tax paid per pound of income (i.e. the effective tax rate (ETR)). Analysing the difference in this way facilitates any forecast judgements we may wish to make about how the Welsh share of income tax will evolve.

Chart 2.3: Welsh and UK income tax liabilities per person in 2016-17



Source: HMRC, OBR calculations

The proportion of the population that pay income tax

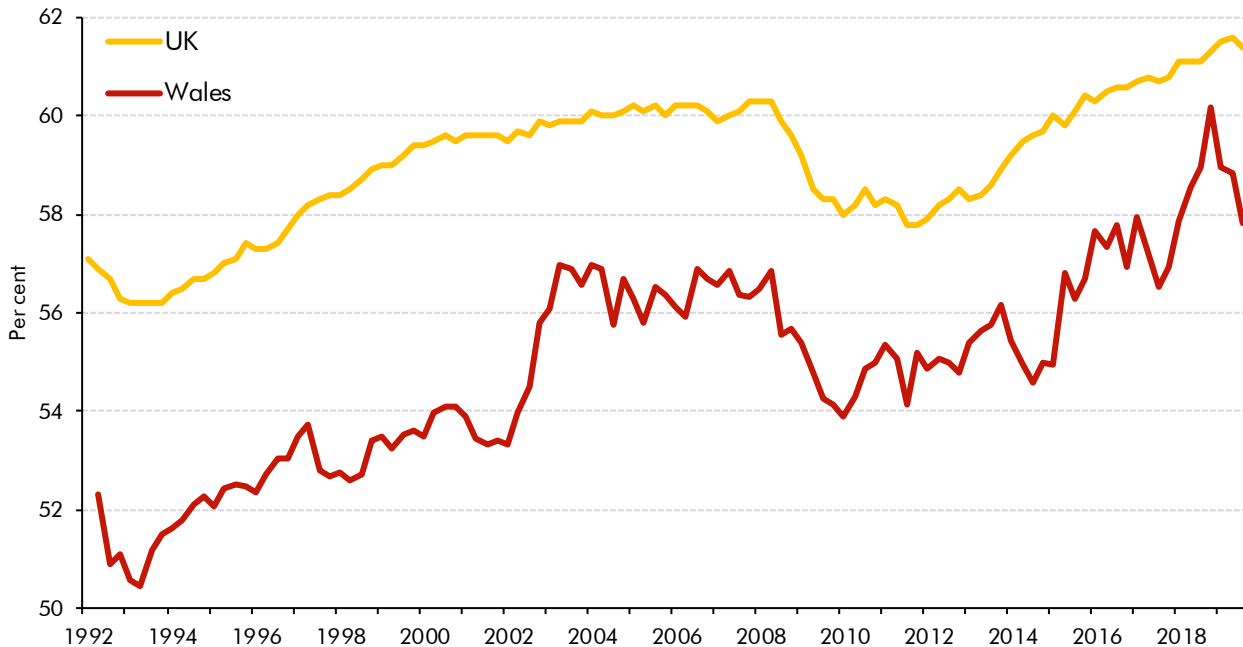
2.17 The likelihood of being an income taxpayer is lower in Wales than it is in the UK as a whole. According to the 2016-17 SPI, 44 per cent of the Welsh population were income taxpayers, compared to 47 per cent of the UK's population. This difference accounts for around 10 per cent of the gap between Welsh and UK income tax liabilities per person.

2.18 There are two main factors that are likely to explain the lower proportion of taxpayers in the population in Wales. First, the employment rate in Wales is lower than in the UK as a whole. Chart 2.4 shows that the employment rate in Wales has been below that in the UK in recent

⁵ 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.

years.⁶ On average since 1992, the rate in Wales has been 4.2 percentage points lower than that in the UK as a whole. In 2016-17 it was 3.1 percentage points lower.

Chart 2.4: Employment rate for the UK and Wales



Source: ONS

- 2.19 Second, successive rises in the tax-free personal allowance – from £6,475 in 2010-11 to £11,000 in 2016-17 – are likely to have taken proportionately more Welsh residents out of income tax altogether. This helps explain why the number of taxpayers remained flat in the UK between 2010-11 and 2016-17, but dropped by 4 per cent in Wales, despite increases in the population and employment rates in both.

Average income per taxpayer

- 2.20 The most important reason for the gap between UK and Welsh tax per person as recorded in the SPI is that Welsh taxpayers had lower average incomes. This explains more than half the shortfall in tax per person.
- 2.21 Table 2.1 displays different sources of income averaged across all income taxpayers. It shows that the vast majority of taxpayer income in both the UK and Wales comes from employee jobs, so it is not surprising that this represents the largest source of difference in tax liabilities per taxpayer (as shown in Chart 2.3). It also shows that the SPI implied average income in Wales is 19 per cent lower than in the UK as a whole, with the difference particularly marked in self-employment and other non-pension income (including savings and dividends). By contrast, the average income from pensions is 7 per cent higher in Wales. The higher proportion of the Welsh population that are of pension-age, and the higher proportion of public sector workers in Wales, will both contribute to this difference.

⁶ The employment rate here is the proportion of people aged 16 and over who are in paid work.

Table 2.1: Average incomes in 2016-17 by type

	UK	Wales	Difference	
	£ per taxpayer		£s	Per cent
Employee income	23,205	18,623	-4,582	-20
Self-employment and other non-pension income	5,519	3,333	-2,186	-40
Pension income	4,776	5,101	326	7
Total income	33,333	27,029	-6,304	-19

2.22 Table 2.2, which focuses just on employee income, shows that this large gap in average earnings is also reflected in other sources of labour income data. The coverage of each differs so they are not fully comparable, but while the level of average earnings reported by each is different, all show that average employment incomes in Wales are considerably lower than the averages prevailing across the UK as a whole.⁷

Table 2.2: Different measures of average employee earnings in 2016-17

	UK	Wales	Difference	
	£ per employee		£s	Per cent
Survey of personal incomes	30,678	25,196	-5,482	-18
Real-time information	23,480	19,860	-3,620	-15
Annual survey of hours and earnings	27,468	24,241	-3,227	-12
Labour force survey	30,816	26,826	-3,991	-13

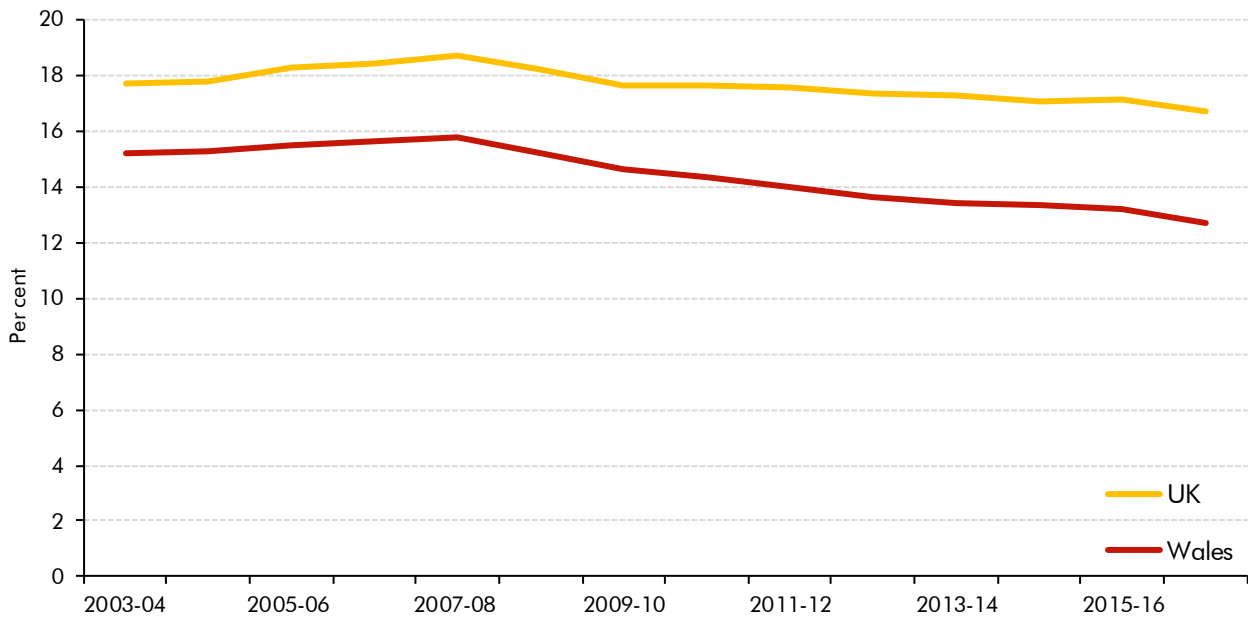
Average amounts of tax paid per pound of income

2.23 Even once we have accounted for differences in the number of taxpayers per person and the average income per taxpayer, income tax per person in Wales falls well short of that in the UK because less tax is paid per pound of income. This lower effective tax rate explains over a third of the difference. In part this reflects the progressive income tax structure interacting with lower average incomes – for example, all else equal there will be a higher share of tax paid at the basic rate in Wales than there is in the UK as a whole. But it also reflects the shape of the earnings distribution. In the UK as a whole, relatively more income tax comes from top-end taxpayers who face the highest marginal tax rates.

2.24 Chart 2.5 shows that the effective income tax rate in Wales has been considerably lower than that in the UK across the past decade. It has also declined somewhat faster, by 3 percentage points between the peak in 2007-08 and 2016-17 compared with 2 percentage points in the UK as a whole.

⁷ The difference in the SPI average between Tables 2.1 and 2.2 is because the latter is only averaging across those individuals with employment income, while the former is doing so across all individuals. This explains why the average is lower in Table 2.1, since it includes some individuals with no employment income.

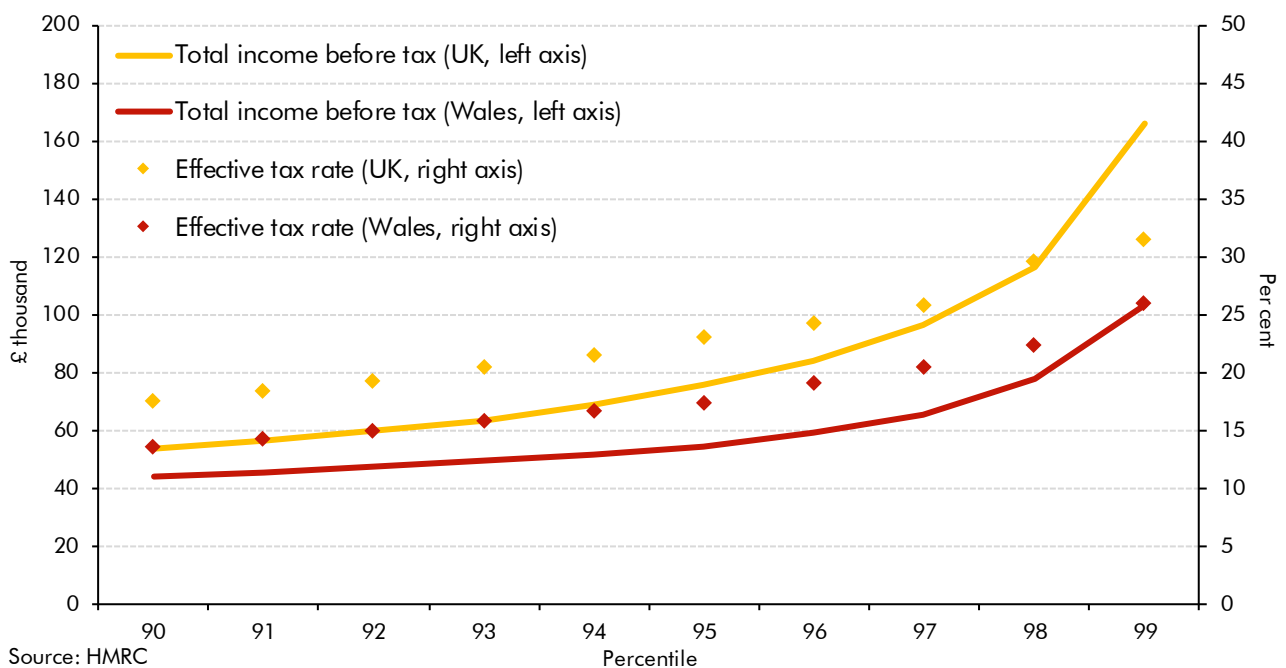
Chart 2.5: Effective income tax rates in Wales and the UK



Note: Data unavailable for 2008-09 so the proportional shares are based on interpolation from the adjacent years.
Source: HMRC

2.25 Chart 2.6 shows the amount of income tax paid per pound of income by the top 10 per cent of taxpayers in Wales and in the UK as a whole in 2016-17. A taxpayer at the 90th percentile in Wales paid 13 per cent of their £44,000 income in income tax, compared to 17 per cent of their £53,600 income for the equivalent taxpayer in the UK as a whole. The difference is even more stark at the 99th percentile, where the effective income tax rate was 26 per cent in Wales (on earnings of £103,000), relative to 31 per cent (on earnings of £166,000) in the UK as a whole.

Chart 2.6: Income and effective tax rates of the top 10 per cent of taxpayers

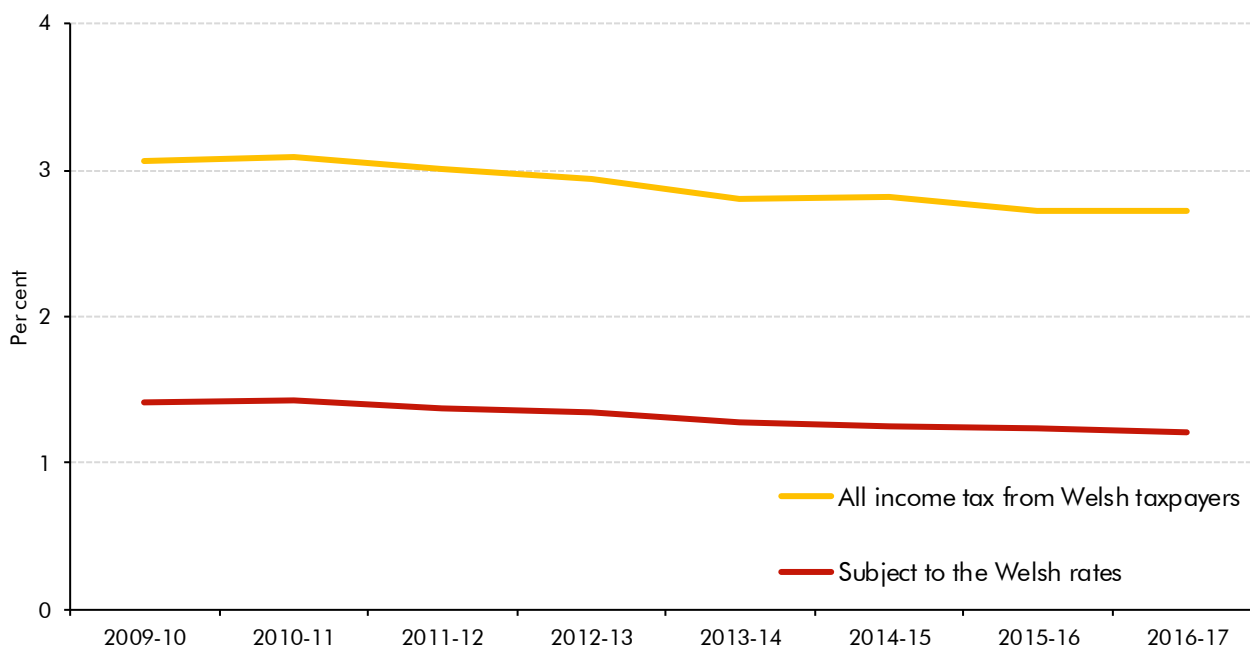


Source: HMRC

The share of Welsh income tax liabilities subject to the Welsh rates

2.26 The final step in estimating the share of UK income tax liabilities that will be subject to the Welsh rates is a mechanical one. We estimate the share of Welsh NSND income that will be taxed in each tax band and then calculate the relevant fraction of it that would be covered by the first 10p – i.e. 50 per cent for income taxed at the basic rate, and so on. Chart 2.7 shows all the income tax collected from Welsh taxpayers as a proportion of total UK income tax (2.72 per cent in 2016-17) and compares it to the amount actually devolved – i.e. the share that would be subject to the Welsh rates (1.21 per cent in 2016-17).

Chart 2.7: Welsh shares of total UK income tax liabilities: all tax from Welsh taxpayers versus the Welsh rates of income tax



Source: HMRC

Forecasting the share of income tax liabilities subject to the Welsh rates

2.27 From these starting points, we adjust our forecast for the overall Welsh share in three ways:

- **RTI earnings:** we fill in the period between 2016-17 and 2018-19 using RTI data on the Welsh share of total pre-tax employee earnings (i.e. the product of employee numbers and average earnings). In the absence of timely information on other forms of NSND income, we assume that the RTI earnings data are representative of the total. Applying this approach in our most recent Scottish income tax forecasts suggested that it provides a reasonable guide to movements in NSND income shares.
- **Population:** beyond 2018-19, we factor in relative population growth rates based on the most recent ONS principal population projections, released in October. These show the Welsh share of the UK population continuing to decline, and we would

expect a similar decline for the Welsh share of income tax payers.⁸ We adjust for this using an index of the Welsh share of the UK's adult population.

- We include adjustments for **gift aid and those previously announced policies** that have been or will be implemented between the SPI base year (2016-17) and the end of our forecasts and that are expected to affect the Welsh share. For example, the rise in the personal allowance from £11,000 in 2016-17 to £12,500 in 2019-20 is expected to reduce the Welsh share of income tax given lower average earnings in Wales.

2.28 Finally, we calculate the share of all Welsh income tax subject to the Welsh rates. For the forecast years this is done via the PTM rather than the SPI, but otherwise follows the same methodology as has been used to estimate the share subject to Welsh rates in outturn.

New policy costings

2.29 Our post-measures forecast is produced by adding the effects of new policies announced since our previous forecast. The introduction of the Welsh rates and the associated terms of the fiscal framework has meant that we now need to assess the effect of new policies on the individual bands of income tax rather than simply their overall cost or yield.

2.30 Many of the general sources of uncertainty around policy costings that we routinely highlight in our forecast publications are likely to be amplified as we disaggregate costings by geography and tax band. For that reason, we believe a relatively simple approach that makes sufficient allowance for asymmetric effects across countries and bands, while not seeking spurious precision, is appropriate. In part this reflects the relatively small sums involved – relative to our UK-wide forecast – and the fact that these estimates often need to be generated during the most time-pressured phase of a UK Budget forecast process.

2.31 For UK or Welsh Government changes to rates or thresholds – for example changing the basic rate or personal allowance – ‘static’ estimates by geography and tax band are relatively straightforward to produce using the PTM, with reasonably well understood behavioural effects factored in separately. For other UK Government ‘off-model’ measures, including those targeted at sub-sets of the population, we have approved several rule-of-thumb profiles developed by HMRC from its various sources of taxpayer information. These relate to different collection methods, income streams or taxpayer characteristics.⁹ Most of these profiles have been created using information from the PTM and SPI. For anti-avoidance measures targeting higher-earning individuals, the profiles are based on taxpayers’ postcodes recorded in HMRC’s disclosure of tax avoidance schemes register.

2.32 If we were to judge that a measure did not readily fit one of these pre-approved profiles, or if additional bespoke analysis were available, we would use an alternative profile. We update and add to the generic profiles periodically as new information becomes available.

⁸ See Box A.2 in Annex A of our 2017 *Fiscal sustainability report* for a discussion of the fiscal risks that might be associated with demographic trends in the constituent nations of the UK.

⁹ These were reported in Mathews, P. *Working paper No. 14: Devolved income tax: forecasting by tax bands*, September 2018.

Latest forecast

UK income tax forecast

2.33 As set out in Chapter 1, our latest forecast for UK NSND income tax is based on economic determinants from our March forecast. Changes to our forecast since March therefore only reflect outturn data that have become available since then. This includes monthly PAYE data during 2019-20 and the full SA liabilities data for 2017-18, relating to tax returns filed in January and February 2019 that could not be fully analysed ahead of our March forecast.

2.34 Table 2.3 shows the UK and Welsh rates and thresholds that we have used in our forecast. In line with the UK Government's stated default indexation policy assumptions, most UK tax thresholds rise in line with CPI inflation from 2021-22 onwards, but the additional rate threshold remains fixed in cash terms.

Table 2.3: UK Government and Welsh income tax parameters

	Per cent				
	2019-20	2020-21	2021-22	2022-23	2023-24
UK Government tax rates for Welsh taxpayers					
Basic rate	10	10	10	10	10
Higher rate	30	30	30	30	30
Additional rate	35	35	35	35	35
Welsh rates of income tax					
Basic rate	10	10	10	10	10
Higher rate	10	10	10	10	10
Additional rate	10	10	10	10	10
Total income tax rates					
Basic rate	20	20	20	20	20
Higher rate	40	40	40	40	40
Additional rate	45	45	45	45	45
£					
Tax thresholds (reserved to the UK Government)					
Personal allowance	12,500	12,500	12,760	13,010	13,260
Higher rate	50,000	50,000	51,060	52,110	53,160
Additional rate	150,000	150,000	150,000	150,000	150,000

Note: Shaded cells represent policy baselines assumed for forecasting purposes. We assume that Welsh rates will remain unchanged until the Welsh Government states otherwise.

2.35 Table 2.4 sets out our UK forecast of NSND income tax liabilities to underpin this Welsh rates forecast. We have revised it down in 2017-18 and 2018-19 to reflect the downside surprise in HMRC's final outturn for UK NSND liabilities in 2017-18, the detailed composition of SA liabilities reported in the latest tax returns and new repayments data. From 2019-20 onwards our forecast is little changed as strength in PAYE income tax receipts this year has largely offset those other sources of downward revision. Our March 2019 full-year forecast for PAYE income tax receipts predicted growth of just 0.3 per cent as the rises in the personal allowance and higher rate threshold took effect. In the first seven months of 2019-20, growth has been 2.3 per cent, which is likely to have been buoyed by

the modest pick-up in average earnings growth. This has boosted our NSND liabilities forecast. With no changes to the determinants underpinning the forecast, all these data-related changes to starting points for the different tax elements feed through to future years.

Table 2.4: Whole UK forecast of tax liabilities on non-savings, non-dividend income

	£ billion						
	Outturn		Forecast				
	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24
March forecast	166.9	175.6	176.8	187.4	194.6	202.3	210.4
December forecast	165.1	173.3	177.2	187.1	194.3	201.9	210.3
Change	-1.8	-2.3	0.4	-0.2	-0.3	-0.3	-0.1
of which:							
UK NSND liabilities in 2017-18		-1.4	-1.4	-1.5	-1.5	-1.6	-1.7
New PAYE data		0.0	2.3	2.1	2.1	2.1	2.5
New SA data		-0.3	-0.2	-0.2	-0.2	-0.2	-0.2
New repayments data		-0.6	-0.3	-0.6	-0.6	-0.7	-0.7
<i>Memo: March pre-measures forecast</i>	<i>166.9</i>	<i>175.6</i>	<i>176.7</i>	<i>187.3</i>	<i>194.5</i>	<i>202.2</i>	<i>210.4</i>

Share subject to the Welsh rates

2.36 Table 2.5 shows our forecast for the share of UK NSND liabilities that will be subject to the Welsh rates. The modest downward trend reflects the similarly modest declines in the Welsh share of total employee earnings shown in the RTI data for 2017-18 and 2018-19, and the latest ONS population projections for subsequent years.

2.37 HMRC has informed us that the initial operation of the 'C' flagging process has not revealed any information that would suggest the share is materially lower or higher than the figures that have been derived from the SPI.¹⁰

Table 2.5: Share of pre-measures liabilities subject to the Welsh rates

	Per cent of UK total for non-savings, non-dividend liabilities							
	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24
March forecast	1.21	1.20	1.20	1.19	1.20	1.19	1.19	1.19
December forecast	1.21	1.19	1.18	1.18	1.18	1.18	1.17	1.17
Change		-0.01	-0.01	-0.02	-0.02	-0.02	-0.02	-0.02
<i>Memo: RTI earnings index</i>	<i>100.0</i>	<i>99.3</i>	<i>99.1</i>	<i>99.1</i>	<i>99.1</i>	<i>99.1</i>	<i>99.1</i>	<i>99.1</i>
<i>Memo: Population index</i>			<i>100.0</i>	<i>99.7</i>	<i>99.3</i>	<i>99.0</i>	<i>98.7</i>	<i>98.3</i>
<i>Memo: Combined index</i>	<i>100.0</i>	<i>99.3</i>	<i>99.1</i>	<i>98.7</i>	<i>98.4</i>	<i>98.1</i>	<i>97.8</i>	<i>97.4</i>

Latest forecast for the Welsh rates of income tax

2.38 Table 2.6 sets out our latest forecast for tax raised by the Welsh rates. This combines the uneven revisions to our UK NSND income tax liabilities forecast (Table 2.4) with the slight

¹⁰ HMRC is developing a 'C' flagging process whereby it can compare the postcode used to assign the tax (a 'C flag') to the postcode recorded in its administrative data. This is similar to the 'S' flagging process used for Scottish income tax liabilities. Any differences would indicate a source of error in the Welsh share calculated using SPI data.

Welsh rates of income tax

downward revision to the Welsh rates share (Table 2.5). The latter dominates to leave our forecast lower in all years, with the largest downward revisions to 2017-18 and 2018-19.

Table 2.6: Welsh rates of income tax forecast

	£ million							
	Estimated 2016-17	2017-18	2018-19	2019-20	Forecast			
					2020-21	2021-22	2022-23	2023-24
March forecast	1933	1999	2094	2101	2229	2313	2398	2487
December forecast	1933	1967	2053	2089	2206	2286	2368	2456
Change	0	-32	-42	-12	-22	-27	-30	-31
of which:								
UK NSND forecast ¹		-14	-19	15	9	7	6	9
Welsh rates share		-18	-23	-27	-31	-33	-37	-40

¹ Includes gift aid estimates.

Key uncertainties

2.39 Our forecast for income tax liabilities subject to the Welsh rates is subject to several important uncertainties. The largest of these will typically relate to our wider UK economy forecast – labour income is the largest income component of GDP, so anything that affects economic growth will almost invariably affect the income tax base. And as we state in every forecast publication, the most important uncertainty in our medium-term forecast relates to the judgement we make about prospects for underlying productivity growth. Brexit-related uncertainties overlay this perennial source of macroeconomic risk to our tax forecasts. On top of this there are two other sources of forecast uncertainty worth noting.

The Survey of Personal Incomes base data

2.40 The representativeness of the geographical and income distributions reported in the SPI base data is particularly important at present because there are currently no outturn data on Welsh income tax liabilities. The SPI is designed to be representative at the UK level, but the sample is not stratified by geography (i.e. smaller sample sizes in each geographical area mean it is likely to be less representative at those levels than it is at the UK level). In the latest version, the confidence interval around the SPI estimate of tax liabilities at the UK level was just 0.6 per cent, but for Wales it was a more material 4.5 per cent. Sampling variance – in particular due to the small number of observations of high-income taxpayers in Wales – is another potential source of error, although the SPI does have a relatively large sample size overall and is designed to over-sample taxpayers with higher incomes. But uncertainties around the starting point of our Welsh rates forecast remain a significant risk.

2.41 This risk is illustrated by the experience with forecasting Scottish income tax liabilities using the SPI. In July 2018, HMRC published the first NSND liabilities outturn for Scotland covering the 2016-17 tax year. The estimate was £700 million (6.1 per cent) lower than our most recent forecast at the time from March 2018. Using the postcodes reported in the 2015-16 SPI led us to over-estimate the Scottish share by 0.40 percentage points (6.68 per cent outturn versus a forecast of 7.08 per cent). Since then we have been able to calibrate

our forecast to the outturn share, which meant our March 2019 forecast for Scotland's share of 2017-18 liabilities was out by just 0.03 percentage points. We have no reason to believe that Welsh outturn will differ so greatly from the SPI-derived share we have used in this forecast, but until we have outturn estimates based on actual 'C' flag administrative data this starting point will remain a risk to the forecast.

Relative performance of the Welsh and UK income tax bases

- 2.42** As described in this chapter we use our UK-level macroeconomic forecasts with only a few adjustments to forecast Welsh income tax liabilities. This reflects our assumption that future disparities between growth in any of the variables that determine the tax base in Wales and the UK as a whole are as likely to go in one direction as the other, so our central assumption is that they move in parallel. As the analysis of tax liabilities per person in this chapter shows, there are large differences between Wales and the UK as a whole at present that have been getting steadily, if only modestly, larger over time. Further divergence or a period of convergence would represent downside or upside risks to our forecast.
- 2.43** The key adjustment we make at present relates to different rates of population growth, but we do not make any further allowance for differences in the rate at which the population is ageing in Wales and the UK as a whole. We therefore capture the effect of changing numbers of taxpayers, but not any age-related changes in the distribution of taxpayers and average incomes across the different age groups. We will consider this further in the future.

3 Land transaction tax

Introduction

3.1 This chapter:

- describes the **introduction of land transaction tax (LTT)** in Wales and compares it to the stamp duty land tax (SDLT) regime in operation in England and Northern Ireland;
- outlines our **methodology for forecasting LTT** and explores trends in **property prices and transactions** in Wales that drive growth in the LTT tax base;
- presents our **latest forecasts** and explains how they have changed since March; and
- discusses some of the key **risks and uncertainties** around these forecasts.

What is 'land transaction tax'?

3.2 Land transaction tax (LTT) replaced stamp duty land tax (SDLT) in Wales from April 2018.¹ It is an ad-valorem transaction tax levied on the transfer of a property. It is paid by the purchaser, but its incidence is on the house price so the burden actually falls on the seller.²

3.3 LTT retained many of the same features as SDLT including different treatment for residential and commercial properties, a tax-free threshold as well as a 3 per cent surcharge on additional property purchases. But there are also some notable differences. For example, LTT has different rates and thresholds; it does not include a relief for first-time buyers; and it is collected by the Welsh Revenue Authority (WRA) rather than by HMRC.

Recent policy changes

3.4 Several major policy changes affected Welsh SDLT in the run up to devolution:

- in December 2014 the tax rate for residential transactions was changed from being applied to the whole value of the purchase if it topped a given threshold to being applied to the portion of the value over given thresholds – known as **moving from a 'slab' to a 'slice' regime** – with the same change being made to SDLT on commercial property purchases in March 2016;

¹ Both taxes are broadly based on the historical tax 'stamp duty', one of the oldest forms of taxation having been originally introduced on a range of products in 1694. The original duty required legal documents associated with a transaction to be authenticated by means of a physical 'stamp'. Stamp duty was replaced with SDLT in December 2003. SDLT in Scotland has also been devolved to the Scottish Government and was replaced with land and buildings transaction tax (LBTT) in April 2015.

² Best, M. and Kleven, H., *Housing market responses to transaction taxes: Evidence from notches and stimulus in the U.K.*, June 2017.

Land transaction tax

- in November 2015, the UK Government announced a **3 per cent SDLT surcharge on 'additional properties'**, which came into effect from 1 April 2016;
- in November 2017 the UK Government introduced a **relief for first-time buyers** on all properties purchased for £500,000 or less; and
- in October 2017 and again in December 2017 the Welsh Government **pre-announced rates and thresholds for LTT** that would come into effect in April 2018.

These numerous policy changes have created challenges for our LTT forecasts.

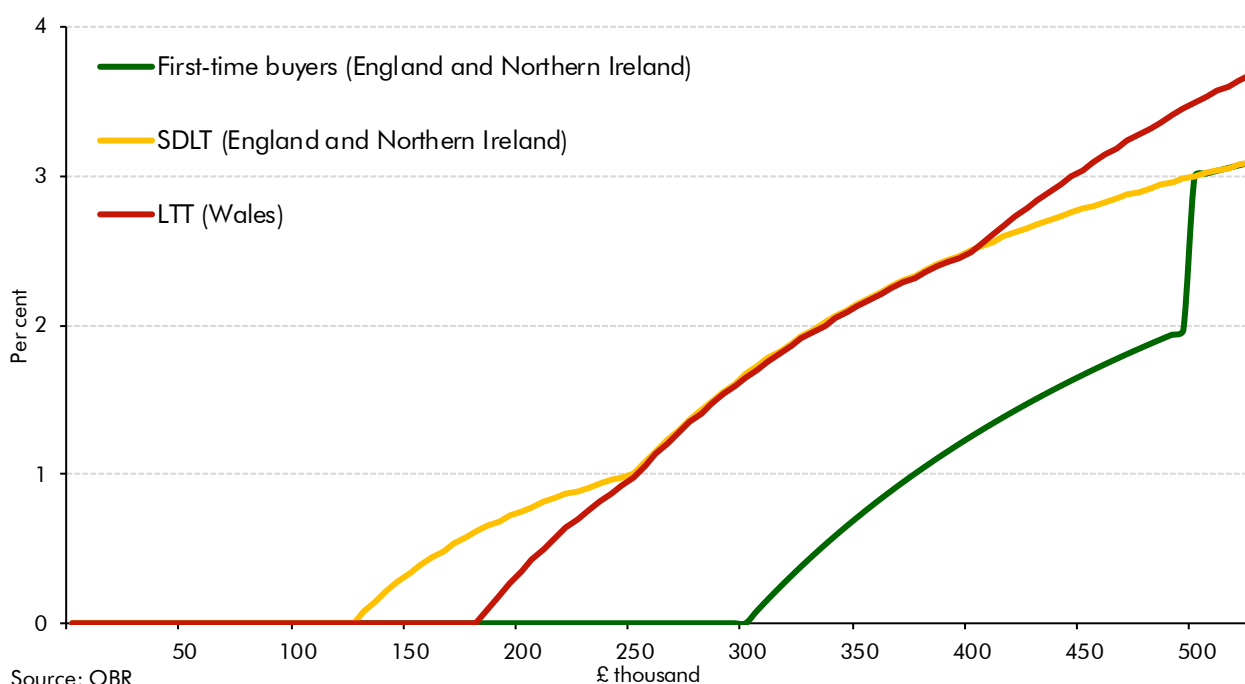
Comparison of tax regimes in 2019-20

Residential property purchases

3.5 LTT is more progressive than the SDLT regime it replaced. Chart 3.1 shows effective tax rates on residential property. Less tax is paid by those buying properties in Wales for less than £400,000. First-time buyers in England and Northern Ireland face a different tax schedule, paying less than first-time buyers in Wales on all purchases above £180,000.

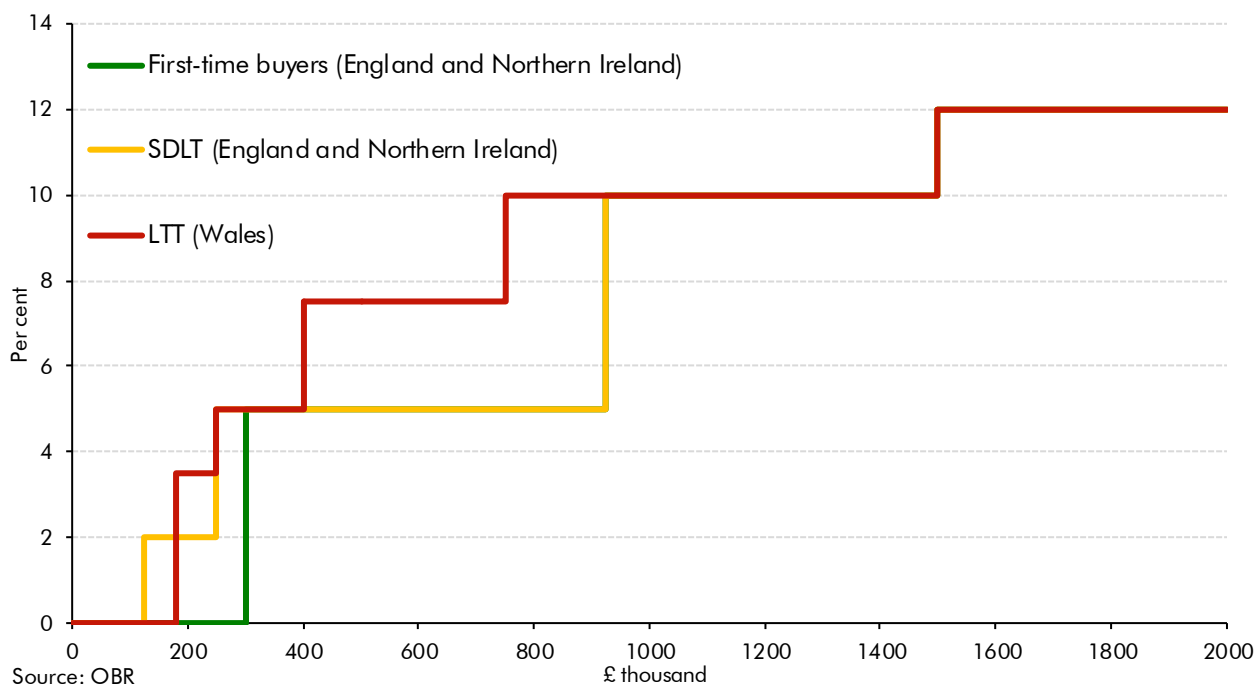
3.6 For 2019-20 the lower threshold for the main rates of LTT is £180,000, compared to £125,000 under SDLT. This higher threshold combined with a higher share of transactions in Wales being lower-priced properties means that around two-thirds of transactions in Wales pay no LTT. Only a quarter of those in England and Northern Ireland pay no SDLT.

Chart 3.1: Residential property effective tax rates



3.7 Chart 3.2 shows that significantly higher marginal tax rates are levied on residential transactions in Wales for properties that cost between £400,000 and £925,000.

Chart 3.2: Residential property marginal tax rates

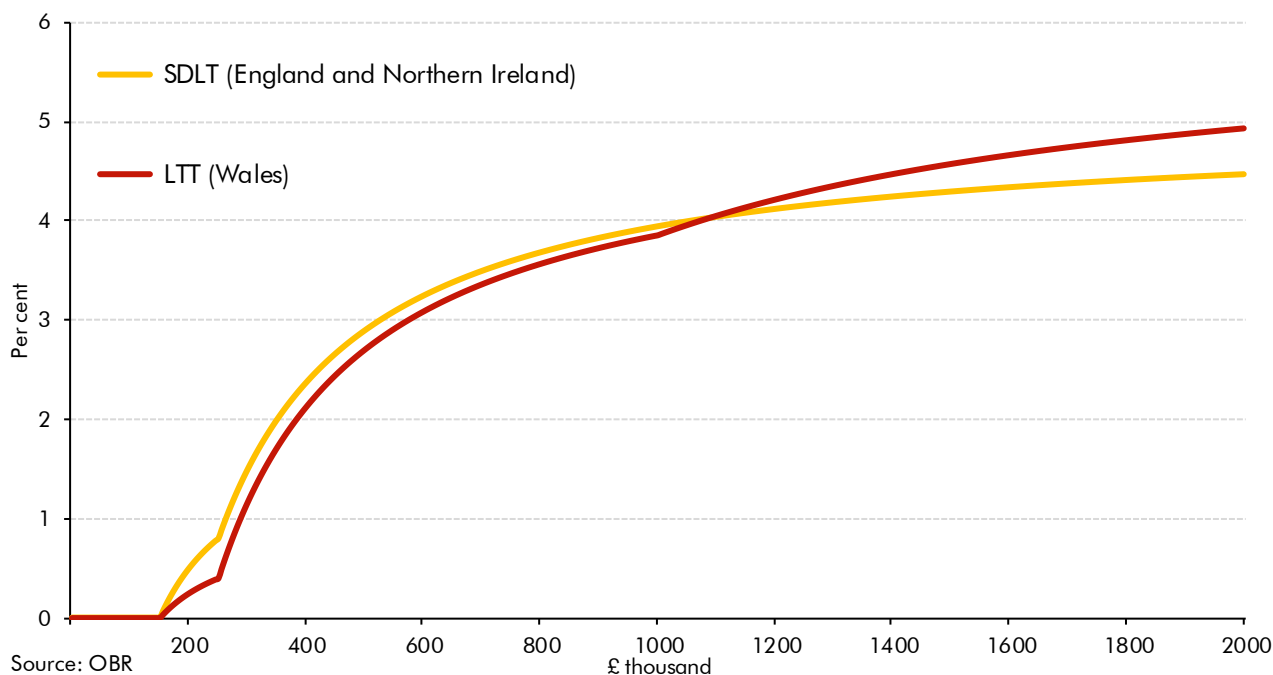


- 3.8** Under both the LTT and SDLT systems, an additional 3 per cent surcharge is applied if the purchaser already owns one property and they are not replacing their main residence. Individuals who temporarily hold more than one property, for example because their housing chain has broken down, can claim a refund on the surcharge if they sell their original property within 36 months of the additional property being purchased.

Commercial property purchases

- 3.9** The lower threshold for commercial property purchases has been set at £150,000 in Wales, the same as in England and Northern Ireland under SDLT. Chart 3.3 shows the effective tax rates for commercial property. The differences are relatively small at any given price across the two tax regimes, though the LTT schedule is again slightly more progressive.

Chart 3.3: Commercial property effective tax rates



Forecast methodology

3.10 This section describes the three stages of our methodology for generating LTT forecasts:

- first, we produce an **in-year estimate** using information from the WRA and other property market sources as it becomes available over the course of the year;
- next, we produce our **pre-measures forecast**, drawing on several models to project the property market over a five-year horizon and then calculate the expected revenue; and
- finally, we add estimates of the effects of any **new policy measures** to produce our post-measures forecasts.

In-year estimate

3.11 Our forecasts are invariably produced part-way through a fiscal year. We therefore have some monthly outturn data on LTT receipts for the year in progress, as well as some information about the performance of the property market and the economy in general.

3.12 A key judgement is whether to place more weight on recent LTT receipts or on leading property market indicators. In our recent LTT forecasts, as with SDLT, we have typically placed more weight on grossing up year-to-date receipts. We might take a different approach if we believed receipts early in the year were not representative of full-year activity, or if we had less receipts data than usual because of the timing of a forecast.

3.13 We normally produce a first monthly profile of LTT receipts using our previous forecast. We assume that current year receipts will follow a similar monthly pattern to previous years,

adjusted where necessary for things that can be anticipated. The property market typically exhibits a degree of seasonality, with more sales taking place in the summer. Additionally, more transactions tend to complete on a Friday and before public holidays such as Easter. Changes in the number of Fridays per month and the timing of Easter are known in advance. Policy changes announced or implemented mid-way through a year can also affect the profile of receipts. As LTT is a relatively new tax, we also draw on the historical monthly patterns of SDLT in Wales when producing in-year estimates.

- 3.14 The in-year estimate is a critical element of our medium-term forecast as any errors in the starting point it provides will compound across the rest of the forecast. For example, in our first LTT forecast in November 2017 we generated a 2017-18 in-year estimate of £80 million for commercial SDLT in Wales based on the historical monthly profile and receipts outturns for April to September of that year. Given our forecast for growth in the commercial property market, this led us to forecast £86 million of receipts in 2018-19. In the event, the monthly pattern of receipts in 2017-18 proved very different, with much stronger receipts at the end of the year. The final outturn was £20 million (25 per cent) higher than expected.

Pre-measures forecast

- 3.15 We produce our forecast using four separate 'price bins' models – one each for residential main rates, the additional properties surcharge, commercial sales and commercial leases. These are operated on our behalf by analysts in the Welsh Government based on our forecast assumptions and judgements.
- 3.16 To produce the pre-measures forecast we start with a representative base year of transactions. Given the succession of policy changes in recent years, finding a base year that is not somehow distorted by those changes has been a continuing challenge. We do not have access to individual taxpayer records held by the WRA. Instead, analysts in the WRA provide transactions data aggregated into relatively small 'price bins' that are representative of the true price distribution. The model then calculates the tax due on the average price of transactions within each bin. This is projected forward in line with our forecasts for property prices and transactions, with the tax then recalculated and aggregated for each future year. We use a similar modelling approach to produce our SDLT forecasts.
- 3.17 A key judgement is whether Welsh property prices and transactions should be assumed to move in line with those for the UK as a whole. Prior to this forecast we have always assumed that they will move together, so that while house prices start at different levels, prices neither converge nor diverge any further. That said, short-term differences in property market performance will have implicitly been captured via the in-year estimate process. In this forecast we have reflected the stronger momentum in Welsh house price inflation than across the UK as a whole so far in 2019 in our near-term house price assumptions.

Land transaction tax

- 3.18** We also consider different trends in the composition of transactions within each property market. For example, the top-end of the price distribution and buy-to-let purchases, which are much more heavily taxed than most owner-occupier transactions.³ We examine how trends in these fiscally important subsets of the market might differ from the average captured in our economic forecasts, and adjust our receipts forecast as appropriate.
- 3.19** The thresholds for LTT are fixed in cash terms, so house price inflation increases the share of transactions taxed at the higher rates, increasing the average effective tax rate. This is known as ‘fiscal drag’, which results in receipts rising faster than the overall value of transactions over time. When compared to SDLT, the more progressive nature of LTT should lead to greater fiscal drag as higher marginal rates apply at lower prices. We assume that the effect of fiscal drag on receipts is slightly tempered because the higher tax rates would themselves deter some transactions from taking place.
- 3.20** We also make a judgement about the profile of refunds associated with the additional properties surcharge. As the time period within which refunds can be claimed is longer than the LTT system has been in operation, this is informed by experience with SDLT refunds.

Post-measures forecast

- 3.21** To produce our post-measures forecast we then add on the effects of any policy changes announced since our most recent forecast was published. The approach taken to estimating the cost or yield of a new policy depends on the nature of the change.
- 3.22** Changes to tax rates and thresholds can typically be estimated using our existing forecast models. Here we would first generate a static costing by applying the new tax parameters to the pre-measures forecast for the tax base (i.e. the number of transactions in each ‘price bin’ over the forecast period). We would then incorporate any behavioural effects that are likely to result from the policy change. One way that we model such responses is by using price and transaction elasticities⁴ that have been built into the models.⁴ We also account for the possibility of the timing of transactions being altered in response to policy changes – either being brought forward (forestalling)⁵ or delayed (stalling). Further discussion of forestalling can be found in the key uncertainties section of this chapter.
- 3.23** Other changes, such as introducing a new relief or surcharge to a subset of taxpayers, would normally require a bespoke costing model as the particular group of buyers or types of property affected would not usually be treated separately in the forecast model.

³ See Chapter 4 of our July 2019 *Fiscal risks report* and Chapter 5 of our July 2017 *Fiscal risks report* for further discussion.

⁴ For more detail see Chapter 4 of our 2017 *Forecast evaluation report*. Also, see OBR supplementary release, *Stamp duty land tax policy costing elasticities*, January 2015 and OBR supplementary release, *Residential stamp duty land tax elasticities*, October 2017. These elasticities no longer cover the full range of behaviours that we need to consider. Devolution means we need to consider cross-border effects where tax regimes differ. And we also consider cross-market effects whereby a policy changes the composition of owner-occupiers, buy-to-let investors, and (more importantly outside Wales) first-time buyers. We discussed this in our March 2019 *Devolved taxes and spending forecast* when costing the Scottish Government’s increase in the additional dwellings supplement for LBTT.

⁵ See Mathews P., *OBR Working paper No. 10: Forestalling ahead of property tax changes*, October 2016.

Property market determinants of the forecast

3.24 By far the most important driver of our forecast for the growth in LTT receipts over the medium-term is our forecast for growth in the value of property transactions, which in turn reflects assumptions about prospects for property prices and the volume of transactions.

Our UK-wide forecasts

3.25 Our LTT forecast is predicated on the assumption that Welsh property prices and transactions will move in line with our UK-wide forecasts for those variables over the medium-term. We have assumed different rates of house price inflation between the Wales and the UK in the near-term, reflecting the momentum implied by the latest outturn data.

UK-wide property prices

3.26 Our UK house prices forecast is based on the ONS house price index, which in turn is based on data from the Land Registry. This is a 'mix-adjusted' measure that controls for changes in the mix of properties sold so that purchases of very expensive houses do not distort the series. We typically forecast UK house price inflation in three stages:

- First, we produce a **short-term forecast** for the current and subsequent quarter based on leading indicators. These include survey data from the Royal Institution of Chartered Surveyors and mortgage lending data from the Bank of England.
- Second, we use a number of models to inform our **medium-term forecast** for house price inflation. These take account of our forecasts for interest rates, credit conditions, housing supply and real income growth.⁶
- Third, we add the effects of any **new policies** that are expected to affect house prices.

3.27 Our UK commercial property price forecast is based on the simple average of commercial property sale prices as reported on tax returns. As such the series is very volatile as the average price – like tax receipts – is frequently distorted by very high-priced outliers. We forecast commercial prices by extrapolating from year-to-date growth, then drawing on two- to three-year-ahead forecasts for capital stock inflation based on consensus expectations of investors in the Investment Property Forum, before assuming that in the final years of the forecast prices grow in line with whole economy inflation (i.e. the GDP deflator).

UK-wide property transactions

3.28 Our forecast for residential property transactions is also normally produced in three stages:

- First, we produce a **short-term forecast** that is again based on leading indicators from the Royal Institution of Chartered Surveyors and Bank of England mortgage data.

⁶ Auterson, T, *OBR Working paper No. 6: Forecasting house prices*, July 2014.

Land transaction tax

- Second, we make assumptions about **growth in the housing stock** and the **average turnover rate** (the ratio of transactions to the number of dwellings) to determine our medium-term forecast.
- Finally, we add in the effects of any **new policies** that we expect to influence the level or timing of transactions. Forestalling can have material implications for this forecast.

3.29 We produce our forecast for commercial property transactions by extrapolating from recent in-year growth and then assuming that they rise in line with real GDP.

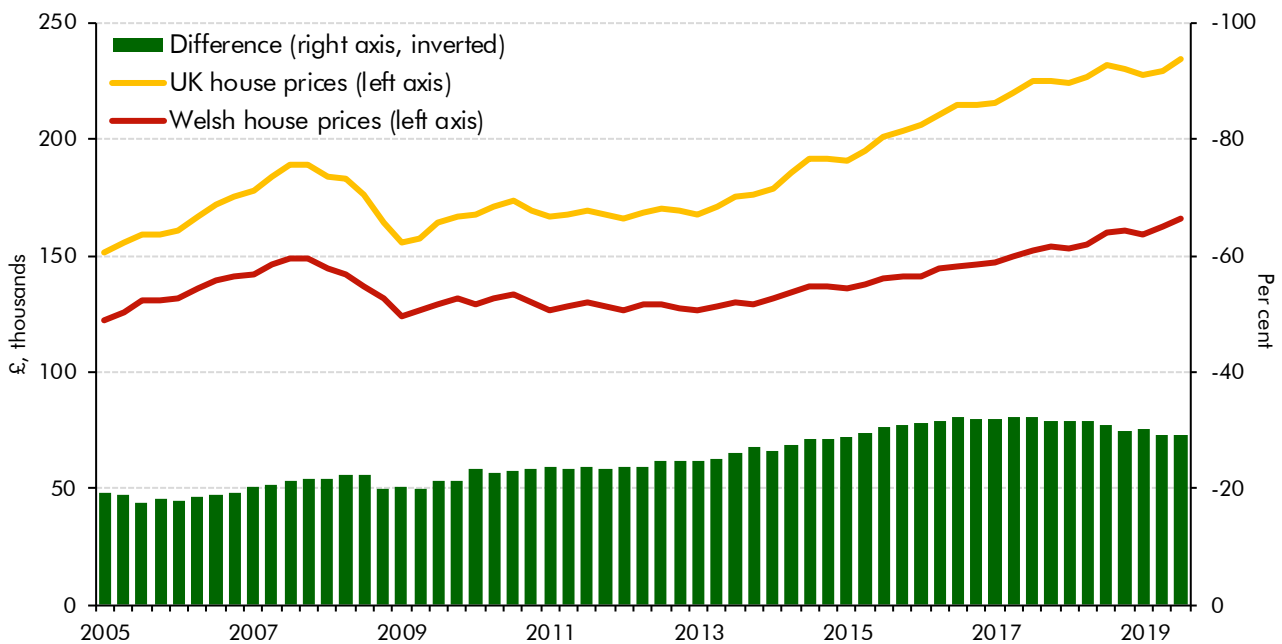
Historical trends in Welsh property markets

3.30 Our forecasting approach means that the key property market judgements for our LTT forecasts are whether to assume any divergence or convergence in prices or the volume of transactions between Wales and the UK as a whole.

Welsh property prices versus the UK as a whole

3.31 Chart 3.4 shows that average house prices in Wales are significantly lower than those across the UK as a whole. For the period covered by the ONS series, the gap increased steadily from 18 per cent in 2005 to 32 per cent in 2017, but has narrowed somewhat since then to 29 per cent so far in 2019. In the year to September 2019, house prices in Wales increased by 2.6 per cent, while those in the UK as a whole were up 1.3 per cent.

Chart 3.4: UK and Welsh mix-adjusted average house prices

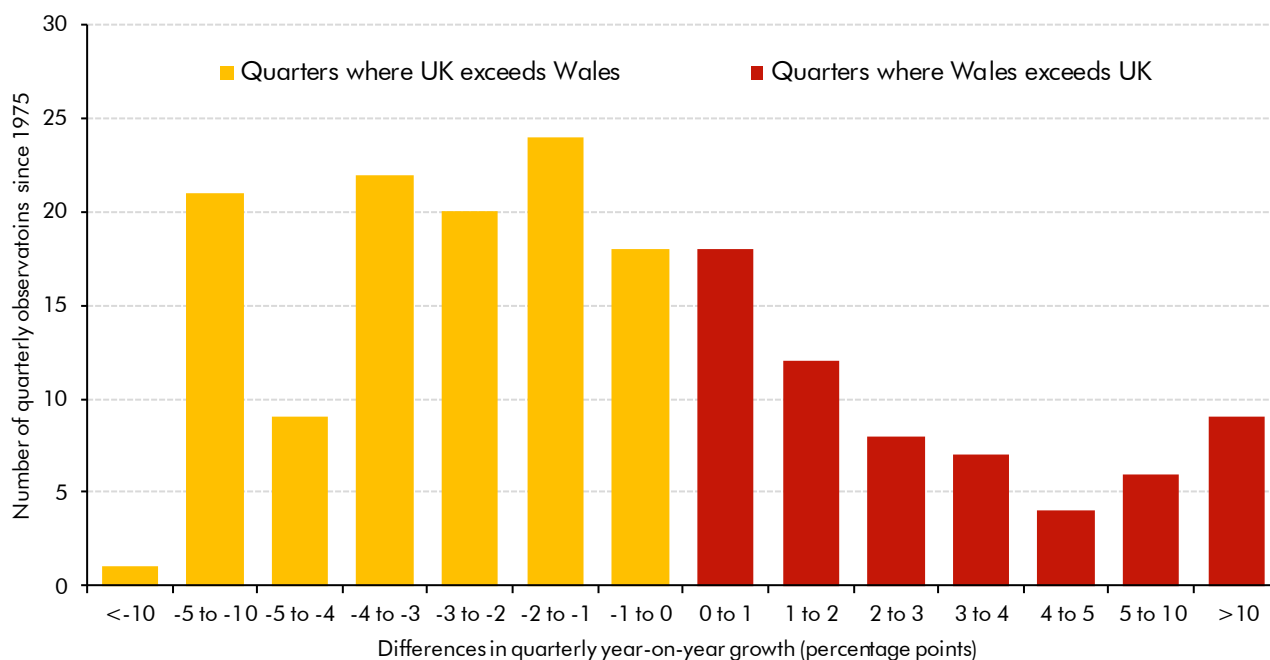


Source: ONS

3.32 Chart 3.5 plots the distribution since 1974 of percentage point differences in annual house price inflation between Wales and the UK as a whole based on the Nationwide house price series. It shows that over a period encompassing several house price cycles, the outturns are

more normally distributed around zero – consistent with our medium-term forecast assumption. Still, the distribution is not completely symmetric, with more periods of modest under-performance in Welsh house prices and some of very large out-performance.⁷

Chart 3.5: Distribution of relative house price inflation in Wales and the UK



Source: Nationwide house price index, OBR calculations

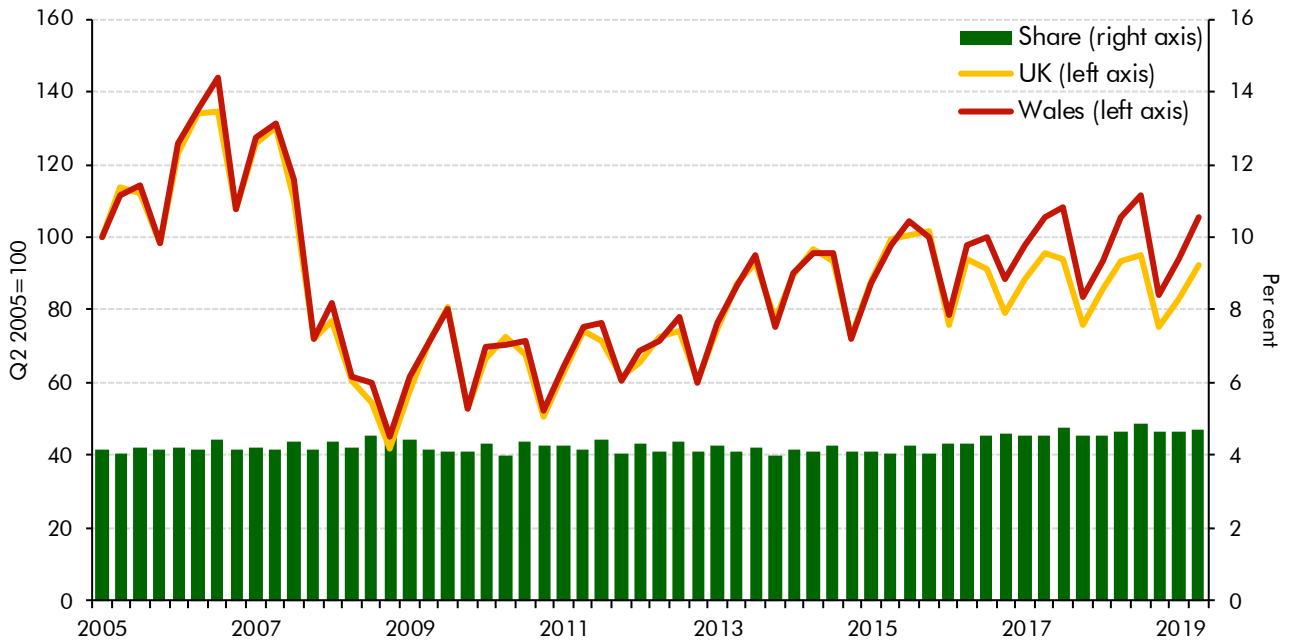
- 3.33 Chart 3.4 shows that over the past decade, an assumption that Welsh house prices move in line with those across the UK as a whole would have led to an over-optimistic forecast (assuming no errors in our UK-wide forecasts). But Chart 3.5 shows that over a longer timeframe, while subject to wide variation, it would have been subject to little bias.

Property transactions

- 3.34 Chart 3.6 shows that over the past decade or so residential property transactions in Wales have fluctuated closely with those across the whole of the UK. The Welsh share of UK-wide transactions has varied little since 2005, always lying between 4 and 5 per cent. History is therefore more supportive of an assumption that transactions in Wales move in line with the UK as a whole. That said, since late 2016 transactions in Wales have risen while in the UK as a whole they have been relatively flat (abstracting from seasonal variations).

⁷ This pattern is consistent with the findings of Meen, G., *Regional house prices and the ripple effect: a new interpretation*, 1999, which describes the spatial dynamics of house prices in different regions of the UK over time. It suggests that while there will be periods in which some regions experience faster house price inflation than others, these will tend to be transitory and lower inflation regions will tend to catch up over time. In the long-term this limits divergence between regions.

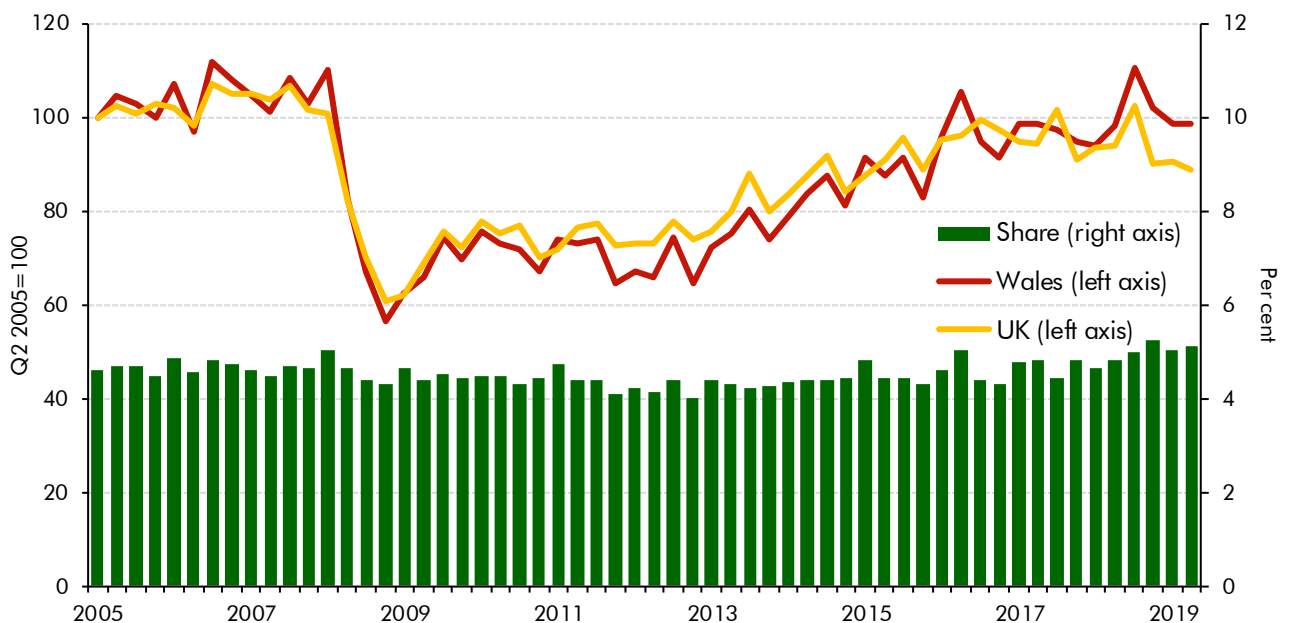
Chart 3.6: Residential property transactions



Source: HMRC, OBR

3.35 Chart 3.7 shows that commercial property transactions in Wales also move closely with those in the UK as a whole. For both, transactions fell around 40 per cent during the financial crisis and recession of the late 2000s and have slowly recovered since then. The Welsh share of the total has also fluctuated between 4 and a little over 5 per cent.

Chart 3.7: Commercial property transactions



Source: HMRC, OBR

Recent developments and prospects

3.36 The LTT forecasts described in the next section are based on the forecasts for prices and transactions set out in Table 3.1. In almost all cases these are based on our March 2019 UK-wide property market forecasts that were described in our March *EFO*. The exceptions to this are our forecasts for Welsh house price inflation in 2019-20 and 2020-21. For these years we have reflected the faster house price inflation reported in Wales versus the UK as a whole and the momentum that is likely to carry into 2020-21. We have therefore increased our 2019-20 forecast by 3.2 percentage points, consistent with the latest outturns, and our 2020-21 forecasts by 1.6 percentage points. This has a smaller effect on our receipts forecast than it might initially appear because our 2019-20 in-year estimate has been generated by grossing up year-to-date receipts, which generates a lower estimate than simply letting the model run on the basis of the faster house price inflation forecast.

Table 3.1: Forecasts for Welsh property prices and transactions

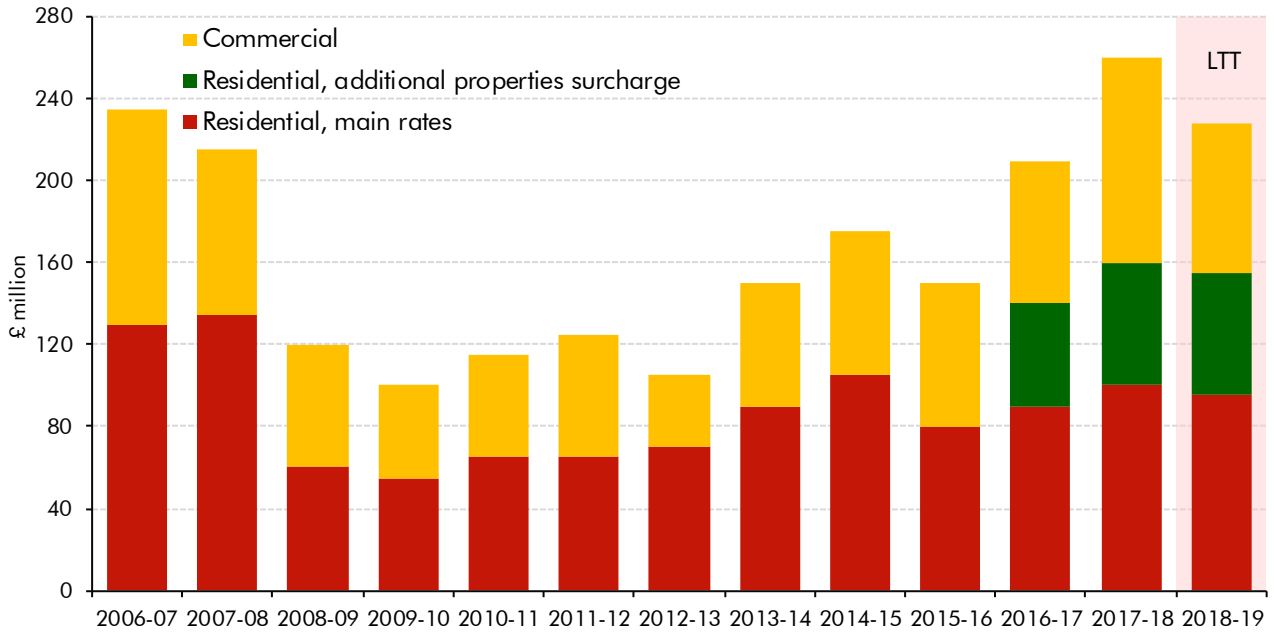
	Percentage change on a year earlier					
	Outturn 2018-19	Forecast				
		2019-20	2020-21	2021-22	2022-23	2023-24
Residential property prices	2.8	3.4	3.8	3.9	4.1	4.2
Residential property transactions	-1.2	-1.2	5.7	3.5	2.8	2.6
Commercial property prices	3.6	-1.6	-0.9	1.9	2.0	2.0
Commercial property transactions	-1.4	1.2	1.5	1.6	1.6	1.6

Trends in Welsh SDLT and LTT receipts and latest forecasts

Welsh SDLT and LTT receipts

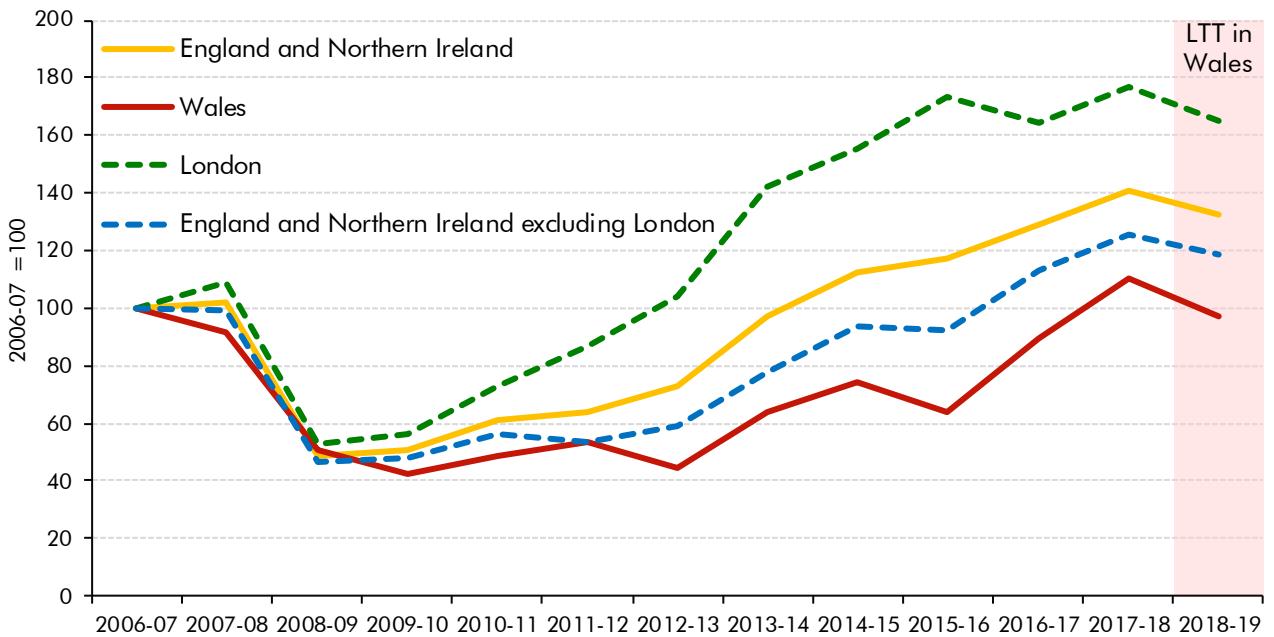
3.37 Chart 3.8 shows receipts from SDLT levied on Welsh property sales and then the first year of LTT receipts outturn, split by residential and commercial properties. Residential receipts have averaged around 60 per cent of the total. Chart 3.9 shows that receipts fell sharply in the financial crisis and have only recently approached their pre-crisis levels. Receipts growth has been driven by the residential market and notably the introduction of the additional properties surcharge in April 2016, which raised £50 million in Wales in that year. By comparison receipts in England and Northern Ireland exceeded their pre-crisis level in 2014-15, thanks largely to rapid increases in receipts from property sales in London, though these have tailed off in the past three years.

Chart 3.8: Welsh SDLT and LTT receipts outturns



Source: HMRC, WRA

Chart 3.9: Property transactions receipts since 2006-07



Source: HMRC, WRA

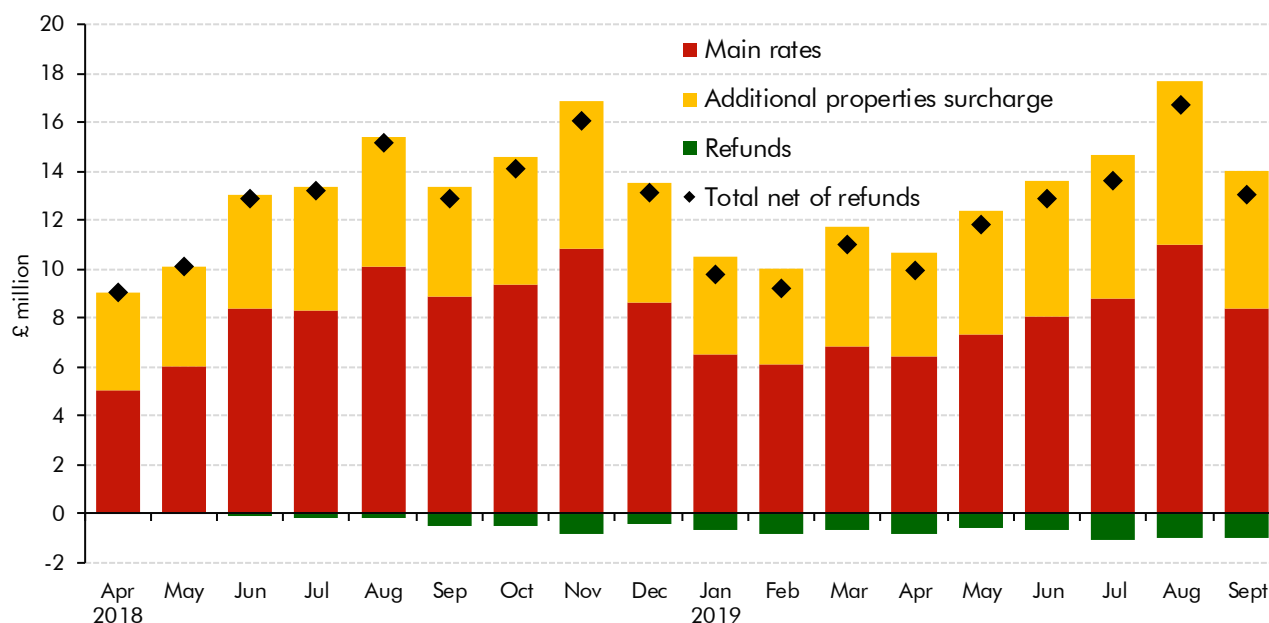
Receipts outturn since April 2018

Residential property receipts

3.38 Chart 3.10 shows monthly residential LTT receipts since April 2018, split into those from the main rates and those from the additional properties surcharge, as well as the refunds paid out in respect of the surcharge. In 2018-19 receipts totalled £155 million, of which £95 million were from transactions taxed at the main rates and £60 million from those subject to the surcharge (net of refunds).

3.39 So far in 2019-20, residential LTT receipts have totalled £95 million. This is up £1.5 million (2 per cent) on the same point last year, with a 6.4 per cent increase in main rates receipts slightly outweighing the 5.6 per cent fall in revenue from the surcharge. Increasing surcharge refunds and forestalling around the introduction of LTT (which boosted SDLT receipts in late 2017-18 and suppressed them in early 2018-19) means that these periods are not directly comparable.

Chart 3.10: Residential LTT receipts since April 2018



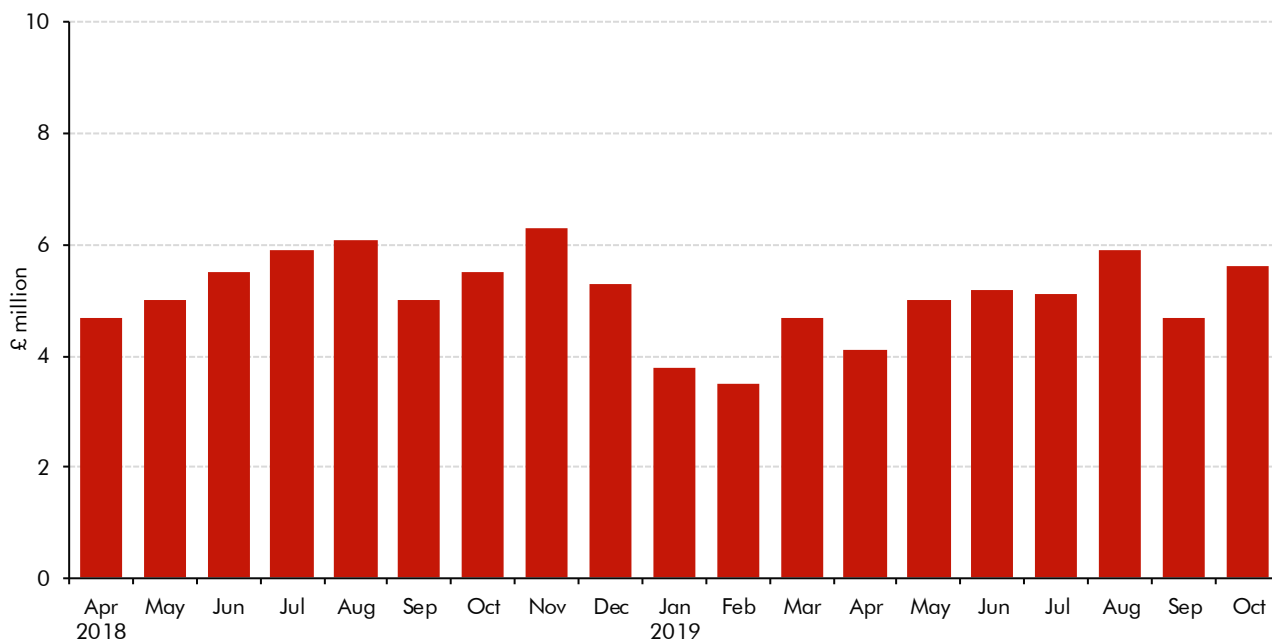
Note: The additional properties surcharge series is gross of refunds.

Source: WRA

Commercial property receipts

3.40 Commercial LTT receipts since April 2018 have been more volatile from month to month than residential LTT receipts (Chart 3.11). In 2018-19 commercial receipts totalled £72 million, accounting for 32 per cent of total LTT receipts. So far in 2019-20 commercial receipts have totalled £35 million, down 13 per cent on the same point last year. This weakness comes despite receipts in the early months of 2018-19 having been depressed somewhat by forestalling around the introduction of LTT.

Chart 3.11: Commercial LTT receipts since April 2018



Source: WRA

Latest forecasts

3.41 Table 3.2 sets out our latest forecasts for LTT receipts and for each of its three components. Relative to our March forecast we have revised total receipts down in each year from 2019-20 onwards, but by progressively diminishing amounts. This is explained by a weaker forecast for commercial property receipts, which is only partly offset by upward revisions to our residential property forecasts. Most of the change since March in each of the component forecasts reflects the performance of receipts to date in 2019-20, which has determined the in-year estimates used for each. The downward revision to commercial receipts far outweighs the modest upward revisions to receipts from the residential main rates and the additional property surcharge. The upward revision to our Welsh house price inflation forecast in 2020-21 then raises our residential receipts forecasts a little further.

3.42 When incorporating the latest data into our forecasts, we have also updated the models to run on base data from the third quarter of 2018 to the second quarter of 2019 – a period relatively free from policy-related distortions. The effects of these modelling updates on each of the forecasts is largely subsumed by the in-year estimate that sets their starting points.

Table 3.2: LTT forecasts

	£ million					
	Outturn	Forecast				
	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24
Total LTT						
March forecast	234	234	247	270	296	323
December forecast	228	226	245	268	294	322
Change	-6	-8	-2	-2	-1	0
Residential (excluding additional properties)						
March forecast	96	98	110	125	143	162
December forecast	95	100	117	133	151	171
Change	0	2	7	8	9	10
Additional properties						
March forecast	63	58	59	64	68	73
December forecast	60	59	62	66	71	76
Change	-3	1	3	2	3	3
Commercial						
March forecast	75	78	78	81	85	88
December forecast	72	66	66	69	72	75
Change	-3	-12	-12	-12	-12	-13

Risks and uncertainties

3.43 In this section we summarise some of the main uncertainties around our central LTT forecast. The largest sources of risk will typically be those relating to the tax base and how it evolves, with property transactions in particular prone to significant fluctuations through the economic cycle (as evidenced by the 40 per cent fall between 2007-08 and 2009-10). But there are several other issues that are worth highlighting as potential sources of risk.

Mapping our property market determinants to the true tax base

3.44 Earlier in the chapter we discussed some of the issues of using UK-wide property market forecasts to drive our Welsh property tax forecasts. Even abstracting from these, there remains a challenge around mapping from the whole property market to only those transactions that will be subject to LTT. Only a very small minority of all potential taxpayers will pay LTT in any given year. This differs from most other taxable activities, where taxpayers incurring a liability this year (because they have earnings from employment or buy goods subject to VAT) are likely to have one again next year. By contrast a house purchased this year is highly unlikely to be bought and sold again next year. So our LTT model base data refer to a set of properties that are unlikely to generate an LTT liability again in the forecast period, particularly the start of it. There are around 1.4 million dwellings in Wales, but were only around 56,000 residential transactions in 2018-19. Any changes in the composition of transactions relative to the simulated tax base will generate forecast errors.

Tax base concentration

3.45 LTT has a progressive tax schedule: a £200,000 residential transaction pays £700 in tax, whereas a transaction for ten times this price (£2,000,000) pays over two hundred times more tax (£171,200). In 2018-19 around a third of revenue came from the top 4 per cent of transactions (a similar concentration to income tax and SDLT). Surprises relating to the small number of highly priced London properties have often been the source of material differences between our SDLT forecasts and outturns. This is also a risk for our LTT forecast, particularly for high-value commercial property in Cardiff. In 2018-19, less than 360 commercial transactions (6 per cent of the total) accounted for over two-thirds of commercial receipts.

Frequent policy changes

3.46 The property transaction tax regime has been subject to large policy changes in recent years. These changes, especially when they are pre-announced, add uncertainty to our forecasts in respect of how taxpayers will respond to the new tax incentives they face. They mean that some historical relationships are less useful when producing new forecasts – this was particularly true with the slab/slice reforms. Policy changes have also tended to increase the concentration of receipts from wealthy taxpayers, increasing tax base uncertainties.

Forestalling

3.47 Where rises in property taxes are pre-announced it allows for purchases to be brought forward in order to be taxed at the existing lower rate. It can be difficult to gauge the strength of this response and therefore the quantity of transactions that will be brought forward from future periods. This may depend on the characteristics of the groups affected – for example, wealthier people are more likely to have the resources and advice to be able to adjust their transactions to minimise their tax liabilities.

3.48 In recent years there have been several instances of forestalling. One followed the November 2015 pre-announcement of the 3 per cent surcharge on additional properties, prior to its introduction in April 2016. At the UK level this resulted in around 60,000 transactions being brought forward, generating a net tax loss of over £300 million.⁸ Forestalling was also evident prior to the introduction of LTT. In December 2017 the Welsh Government pre-announced the rates of LTT to come into effect the following April. These differed from the SDLT rates that would remain in force until then. In the first quarter of 2018, the number of transactions worth more than £400,000 rose by 50 per cent relative to the first quarter of 2017 (and the level in March 2018 was double that in the previous March) as high value purchases were brought forward to avoid the new higher tax.

⁸ See Mathews P., *OBR Working paper No. 10: Forestalling ahead of property tax changes*, October 2016.

4 Landfill disposals tax

Introduction

4.1 This chapter:

- describes the **landfill disposals tax** levied in Wales;
- sets out our **methodology** for forecasting receipts; and
- presents our **latest forecast** and **key uncertainties** around the forecast.

What is the 'landfill disposals tax'?

4.2 Landfill tax was introduced in the UK in 1996. It applies to all waste disposed of by way of landfill at a licensed site unless the waste is specifically exempt. In Wales it was replaced with landfill disposals tax (LDT) from April 2018. The Welsh Government has said that LDT is designed to “*promote positive environmental behaviours through greater prevention of waste to landfill sites and to encourage the reuse, recycling and recovery of waste*”.¹

4.3 LDT is charged per tonne of waste disposed of at a landfill site. It is payable by landfill site operators, who are expected to pass the costs onto those making the disposals. A small number of disposals are exempt from LDT while some reliefs and discounts are also available. The tax is collected by the Welsh Revenue Authority (WRA). The Welsh Government has set rates that match those in the rest of the UK for 2018-19 and 2019-20.

4.4 Our forecast is driven by the amount of waste sent to landfill and the effective tax rate that will be paid. The latter largely depends on policy decisions on rates, but also on the composition of waste sent to landfill as there are three different rates – a ‘standard rate’, a ‘lower rate’ and an ‘unauthorised disposals rate’. In 2018-19 revenue from standard rate waste accounted for 97 per cent of total revenue from LDT.

4.5 There are 23 active landfill sites in Wales. They are run by 17 authorised landfill site operators, with nine of those supplying a business address in England. Figure 4.1 shows that the majority of sites are near the urban areas of South Wales, which is unsurprising since waste is largely a by-product of economic activity. Most of the remaining sites are in North Wales with only two in Mid-Wales and the West Coast. Five landfill sites (four in South Wales and one in Wrexham) accounted for over 80 per cent of total LDT receipts in 2018-19. A significant share of waste being sent to landfill in Wales originates in England.² This is

¹ Welsh Government, *Landfill Disposals Tax (Wales) Bill 2016: Impact Assessments*.

² Data from Natural Resources Wales show that in each year from 2015-16 to 2018-19 waste from England accounted for over 20 per cent of standard rated waste sent to landfill in Wales.

Landfill disposals tax

unsurprising given the proximity of some sites to the Wales-England border. Doubtless some waste generated in Wales is also transported to sites in England. By way of illustration, those English sites within 60 miles of the border are also shown in Figure 4.1.

Figure 4.1: Landfill sites in Wales and within 60 miles of the border with England



Methodology

4.6 The LDT forecast uses a bottom-up model operated on our behalf by analysts in the Welsh Government. The assumptions and judgements that are fed into it are those of the Budget Responsibility Committee. The forecast methodology is straightforward – the main steps are:

- establishing an **in-year estimate** using the latest administrative data (and other relevant sources) to estimate the level of receipts in the current year in progress;
- producing a **pre-measures forecast** by using the LDT forecast model to multiply the amount of liable waste sent to landfill (the tax base) by the relevant duty rate; and
- generating a **post-measures forecast** by adding the effects of any new policy measures.

We discuss each step in turn.

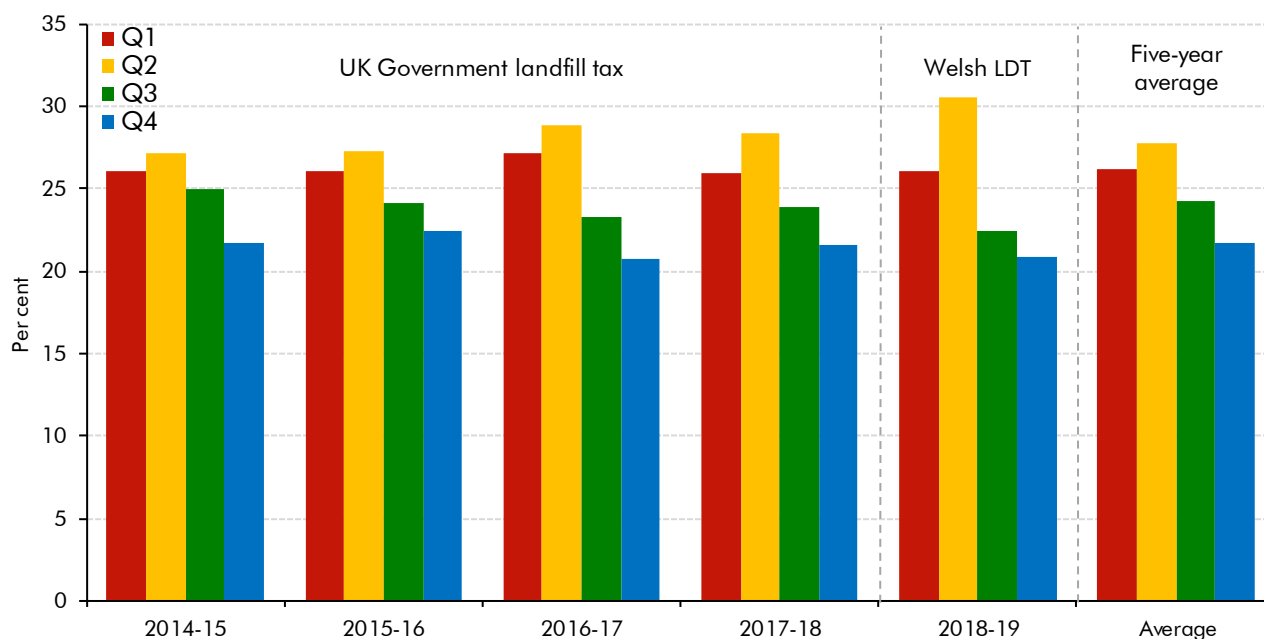
Establishing an in-year estimate

4.7 The WRA publishes LDT receipts outturn data on a quarterly basis. Each landfill site operator agrees a quarterly accounting period with the WRA that requires them to send LDT returns by the last working day of the month following the end of their accounting period. Most operators have a calendar year annual accounting period, so most returns are received at the end of April, July, October and January. A smaller number use different accounting

periods, which means that monthly data releases could be disclosive. We do not draw on the WRA's unpublished monthly administrative data when preparing our in-year estimates.

- 4.8 Quarterly rather than monthly data mean there are fewer data points on which to base our in-year judgement. Forecasts produced in the autumn will typically only be able to draw on a single in-year data point, published in August.³ Forecasts produced in the spring for the UK Government's Spring Statement will typically be able to draw on two or three data points.
- 4.9 Chart 4.1 suggests there is little seasonality to the amount of waste that is disposed of at landfill sites each quarter. It shows the percentage of annual tax receipts in each quarter of the fiscal year, for the UK Government's landfill tax from 2014-15 to 2017-18 and for LDT in 2018-19. In that first year of LDT each quarter contributed at least a fifth of total receipts, with a similar share being paid in the first half of the fiscal year as was the case with UK-wide landfill tax in the preceding years. In terms of the volume of landfill disposals, the quarterly amounts of LDT-liable waste in 2018-19 varied relatively modestly – from a high of 271,000 tonnes in the first quarter to a low of 238,000 tonnes in the final quarter.

Chart 4.1: Percentage of annual landfill taxes receipts from each quarter



Source: HMRC, WRA

The pre-measures forecast

Tax base: the volume of waste sent to landfill

- 4.10 The volume of waste sent to landfill is estimated by calibrating data from Natural Resources Wales (NRW) with tax returns sent to the WRA. The WRA requires operators to provide quarterly returns on the waste that they have received or removed from their sites. Our

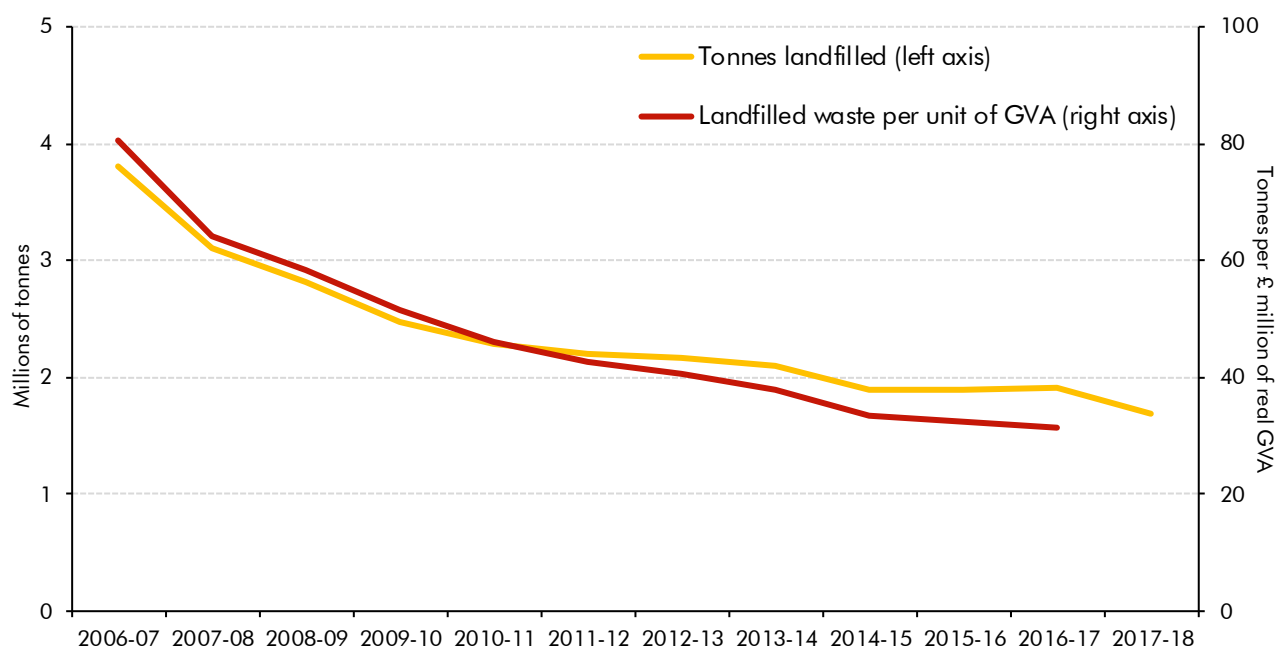
³ The Welsh Government's decision to delay its draft Budget to December allowed us to take on a second quarter of LDT receipts outturn data (released on 21 November).

Landfill disposals tax

model sorts this data by 'European waste catalogue' code into tonnages liable to the standard and lower rates of LDT. This allows us to remove waste that is exempt from LDT. The LDT-liable tonnages are then projected forward using information on local authority waste management plans, waste infrastructure developments, and an assumption about the future path of non-local authority waste.

- 4.11 There are several alternatives to sending waste to landfill sites. Recycling and incineration depend on the capacity of existing Welsh infrastructure to handle waste in these ways. Given the much smaller tax base in Wales, changes in alternative waste treatment infrastructure can lead to proportionally larger effects on LDT receipts than an equivalent change in England would have on UK landfill tax receipts. Indeed, we have previously reduced our LDT receipts forecast to account for increased capacity at a Cardiff-based incinerator.
- 4.12 Exporting waste can be cheaper than sending it to landfill, though there are external factors that might affect the volume of exports over the medium term. For example, uncertainty surrounding the UK's post-Brexit trading relationship with the EU could influence judgements about the future volume of waste exports to Europe. For now, we have not assumed any waste-specific impediments to the UK's post-Brexit exports to the EU. Were any to materialise, more waste could be sent to landfill representing an upside risk to LDT receipts. The Chinese Government's January 2018 ban on some waste imports – notably plastics – may have affected LDT receipts to the extent that alternative destinations could not be found. This might have included some English waste that was due to be exported being diverted to Wales. If such developments have already affected receipts this would be captured implicitly in our in-year estimate rather than via an explicit forecast adjustment.
- 4.13 We do not model use of these alternatives to landfill explicitly. Instead, we assume they provide sufficient headroom to accommodate future growth in waste arisings without affecting the volume of landfilled waste. The granular level of information available to us on Welsh infrastructure means that we can factor in expected changes when we need to.
- 4.14 The volume of waste sent to landfill in the UK has been trending down for over two decades. There were 96 million tonnes of waste sent to landfill in 1996-97, but that had fallen to 34 million tonnes by 2014-15 – the year before landfill tax was devolved to Scotland. Chart 4.2 shows a similar pattern for waste in Wales. The volume of waste sent to landfill more than halved between 2006-07 (3.8 million tonnes) and 2017-18 (1.7 million tonnes). Chart 4.2 also shows that waste sent to landfill per unit of gross value added (GVA - a measure of economic activity) has followed a similar downward path.

Chart 4.2: Landfill waste tonnage in Wales relative to Welsh economic activity



Source: ONS, NRW

The effective rate of landfill disposals tax paid

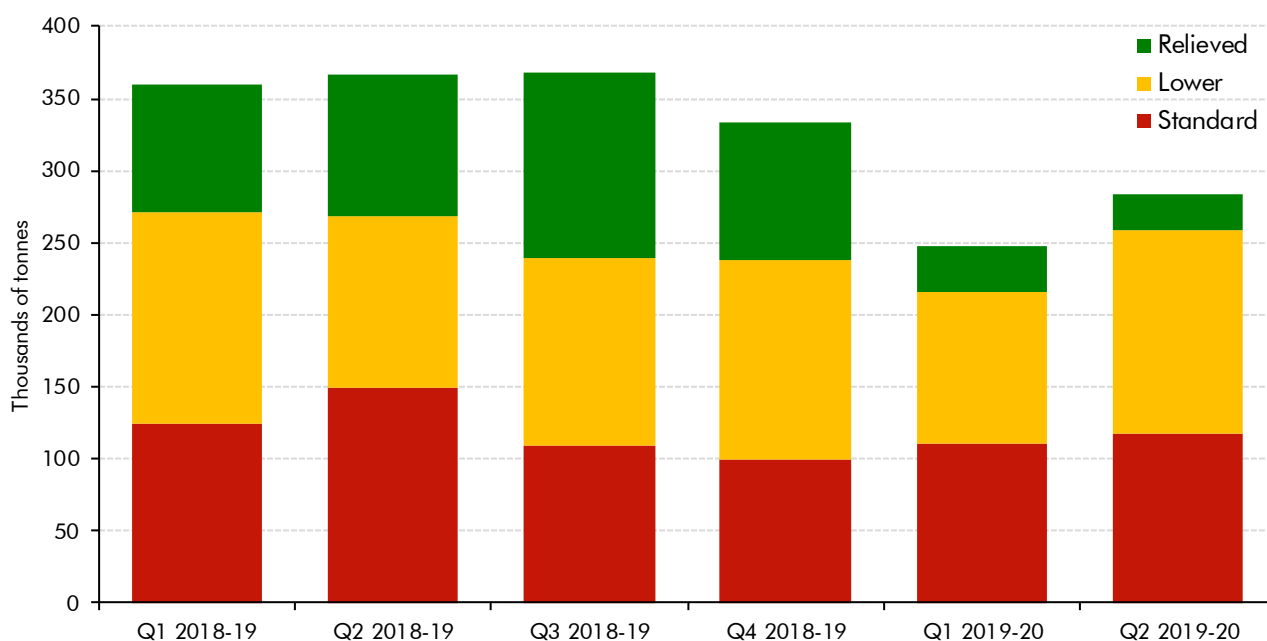
- 4.15** There are two main rates for LDT – a ‘standard’ rate and a ‘lower’ rate. The lower rate applies to waste that is ‘inert’ – i.e. less hazardous or less polluting materials such as bricks, concrete and sand. The standard rate applies to everything else that is neither exempt (see below) or unauthorised. In November 2018 the Welsh Government announced that it would match, for 2018-19 and 2019-20, the rates in the rest of the UK. In this Budget the Welsh Government has again aligned rates with those in the UK for 2020-21, setting a standard rate of £94.15 per tonne of waste and a lower rate of £3.00 per tonne⁴. Our forecast assumes that both rates rise in line with RPI inflation in future years (based on the UK Government’s default indexation assumption). The Welsh Government has not set out its policy for future years and would be free to set other rates if it so wished.
- 4.16** The Welsh Government has also introduced a third ‘unauthorised disposals’ rate that applies to all disposals that are made outside of authorised landfill sites, regardless of whether they would have qualified for the standard or lower rates. The 2020-21 rate for such disposals has been set at £141.20 per tonne of waste.
- 4.17** As with UK landfill tax, LDT legislation allows for both exemptions and reliefs. Where a disposal is exempt, for example within a pet cemetery, there is no tax liability and the site operator does not need to record it on a tax return. Where a disposal is eligible for a relief, such as when it contains material removed from water by dredging, it does need to be accounted for by the site operator, but the relief can be claimed via the tax return.

⁴ All rates are subject to confirmation from the National Assembly.

Landfill disposals tax

4.18 The effective rate paid depends not just on statutory rates and exemptions, but also the composition of waste disposals. Chart 4.3 shows the composition recorded in the first six quarters of LDT outturn data. Disposals liable to the standard rate have fluctuated between 100,000 and 150,000 tonnes a quarter and averaged 119,000 tonnes a quarter; those liable to the lower rate have typically been slightly greater, averaging 130,000 tonnes a quarter. In 2018-19 as a whole, 534,000 tonnes of waste was taxed at the lower rate and 483,000 tonnes at the standard rate, with 411,000 tonnes eligible for tax relief. The effective tax rate paid in 2018-19 was therefore £31.16 per tonne of waste sent to landfill. The amount of waste sent to landfill in the first half of 2019-20 was down 27 per cent on the previous year. But as this fall was concentrated in relieved and discounted waste receipts were down only 15 per cent.

Chart 4.3: Landfilled waste disposals in Wales by category



Post-measures forecast

4.19 The final stage in our forecast process is to add the effect of new policy measures that have been announced since our previous forecast was published. For landfill tax and LDT these are typically small, although they can still be subject to some uncertainty. For example, the UK Government's decision to extend landfill tax to illegal sites started six months later than planned due to delays in putting the relevant health and safety procedures in place to safeguard the new compliance staff that were taken on to police it.

Landfill disposals tax forecast

4.20 Using the methodology described above and based on LDT outturn data to the first quarter of 2019-20, this section describes our latest forecast and how it has changed since March.

Receipts outturn

4.21 The WRA's latest quarterly statistical bulletin reports LDT receipts of £44.5 million in 2018-19.⁵ Of this, £43.0 million was from waste taxed at the standard rate and just £1.5 million from the lower rate (see Chart 4.4).⁶ This is in line with our March 2019 forecast (which was produced with three quarters of outturn data), but exceeded our March 2018 forecast (produced before any outturn data had been published) by 65 per cent. The underestimate in our March 2018 forecast is likely to reflect one or more of the following factors:

- **Estimates of the Welsh share of landfill tax** in the years prior to LDT being introduced, which provided the starting point for our initial LDT forecast, might have been too low. Table 4.1 shows that our most recent forecasts for the Welsh share of landfill tax – covering 2015-16 to 2017-18 and all based on data collected by NRW on waste sent to landfill in Wales – were considerably lower than 2018-19 LDT outturn.
- The **share of total waste sent to landfill in Wales that was standard rated** – also based on NRW data – might have been underestimated.
- **Compliance with the LDT regime** might have been greater than for landfill tax, which might have been due to greater operational activity by the WRA in 2018-19 than was undertaken by HMRC in Wales in the prior years.

Table 4.1: Welsh share of landfill tax versus LDT receipts outturn

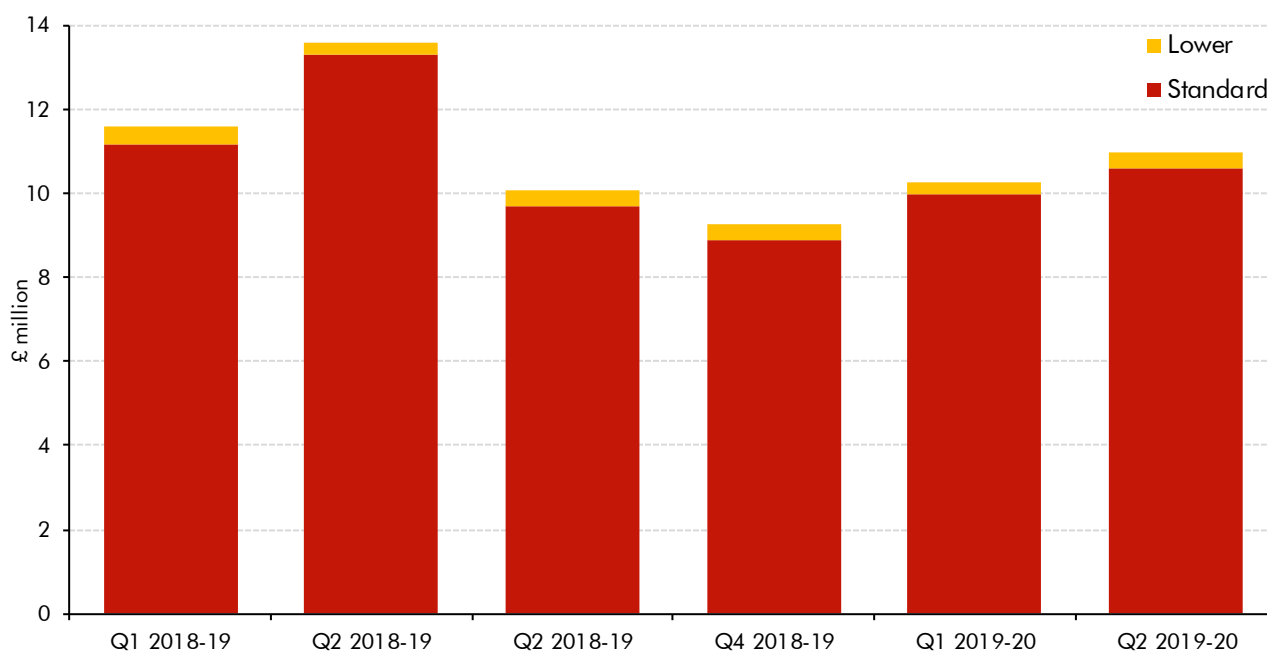
	£ million				
	2014-15	2015-16	2016-17	2017-18	2018-19
Estimated Welsh share of UK landfill tax receipts	50.4	33.6	32.0	29.0	-
Land disposals tax receipts outturn	-	-	-	-	44.5

4.22 At the time we closed this forecast receipts outturn data were only available for the first half of 2019-20. Chart 4.4 shows receipts for the first six quarters of LDT, with the pattern following that for the amount of standard rated waste sent to landfill shown in Chart 4.3. Receipts in the first half were £3.9 million (15 per cent) lower than in the same period last year.

⁵ This is slightly different from the figure in the WRA's annual accounts, which is £44.4 million. Unlike the quarterly bulletins, the annual accounts do not split total receipts into 'standard' and 'lower' rated waste. The difference is also due to slight methodological differences.

⁶ No outturn data on unauthorised disposals are currently available.

Chart 4.4: Quarterly LDT receipts



Source: WRA

Latest forecast

4.23 Table 4.2 sets out our latest LDT forecast. Receipts in the final quarter of 2018-19 and the first quarter of 2019-20 were lower than we expected in March. We have therefore lowered our in-year estimate for 2019-20. All else equal, this lowers receipts across the forecast.

4.24 Partly offsetting the lower in-year estimate, we have revised the rate at which we expect volumes of non-municipal business waste to decline. We previously based this on a 3-year average of 10 per cent a year, but we now assume that the 3 per cent decline between 2016-17 and 2017-18 will continue across the forecast. This increases receipts by increasing amounts across the forecast period.

Table 4.2: LDT forecast

	£ million					
	Outturn 2018-19	Forecast				
		2019-20	2020-21	2021-22	2022-23	2023-24
March forecast	45	41	38	35	33	32
December forecast	44	38	36	35	35	35
Difference	-1	-3	-2	0	1	3
<i>of which:</i>						
Outturn receipts	-1	-5	-4	-4	-4	-4
Modelling and other changes		2	2	4	6	7

Risks and uncertainties

- 4.25 In this section we summarise some of the main uncertainties around our central LDT forecast. We would not expect the risk posed by any of these to be particularly large.

Volumes of waste arising

- 4.26 The net volume of waste arising is assumed to remain constant over the forecast period. This allows for changes in Welsh infrastructure, such as increases in incineration capacity, which means that the forecast for tonnes of waste sent to landfill trends down. As Chart 4.2 showed, waste sent to landfill has fallen reasonably steadily, but the rate of decline slowed in 2015-16 and 2016-17 before accelerating again in 2017-18. This illustrates the scope of the tax base to surprise us on either side of our central forecast.

The composition of waste sent to landfill

- 4.27 Our March 2018 forecast significantly underestimated the first year of LDT receipts, largely by underestimating the proportion of total waste that was standard rated rather than the total level of waste sent to landfill. We assume that the proportions of standard and lower-rated waste remain constant across the forecast period. Since almost all LDT receipts come from waste that is subject to the standard rate, if the composition were to shift more to lower rated waste, receipts would be lower. Based on 2018-19 volumes, a 5 percentage-point shift would reduce receipts by around £6 million.

Non-compliance

- 4.28 All taxes are subject to a degree of non-compliance, ranging from simple errors to deliberate criminal activity. HMRC's tax gap estimates aim to measure the difference between the theoretical tax liability and what is actually paid. Using statistical techniques, it publishes an annual estimate of the tax gap, the most recent covering 2017-18. Its latest estimate of the tax gap for the UK landfill tax is 13.6 per cent or £125 million.⁷
- 4.29 There is no estimate yet for the LDT tax gap, but if it were 13.6 per cent too, then this would imply that around £7 million of potential receipts in 2018-19 were not collected. But the fact that the first year of receipts were higher than we expected suggests that the LDT tax gap might be lower than that for the UK landfill tax. This might be because the WRA has been relatively more active in its compliance effort than HMRC was in Wales prior to LDT's introduction. It is also possible that any gains might be temporary if they were related to high initial levels of engagement from WRA officials that did not continue over time.
- 4.30 For now, our forecast implicitly assumes no change in the (currently unknown) rate of non-compliance with LDT, so any changes in that rate would pose a risk to receipts.

⁷ For more detail see HMRC's *Measuring tax gaps 2019 edition*.

Changes in incineration and recycling capacity

4.31 Our forecast implicitly assumes that there is sufficient incineration and recycling capacity in Wales to absorb any increase in waste arising. These assumptions would need to be revisited if there were problems with infrastructure capacity, for example if a large incinerator were to be offline for a significant period or new capacity failed to come online as quickly as expected. Such events would imply a higher share of total waste being sent to landfill than implicitly assumed in our forecast and therefore higher LDT receipts.

External policy developments

4.32 It is possible that non-Welsh Government policies could affect LDT receipts. For example:

- **Brexit:** The UK's exit from the EU could make exporting waste to Europe less attractive, at least in the short to medium term. If the waste that was due for export were instead sent to landfill then that would raise LDT receipts.
- **Chinese ban on waste imports:** This could also divert waste that would otherwise have been exported (either from Wales or England) to landfill in Wales, raising LDT receipts.

Behavioural responses to policy changes

4.33 The Welsh Government has so far aligned LDT rates with those for landfill tax. If those rates were to diverge then we would expect some waste to be diverted across the border to the sites subject to the lower rates. As Figure 4.1 showed, there are numerous landfill sites relatively close to either side of the Welsh-English border, so there would clearly be scope for such behavioural responses to take place. The degree to which they did would depend on how the potential tax saving related to transport and other costs associated with sending waste to a landfill site subject to the lower tax rates.

A Forecasts required for the block grant adjustments

- A.1** The block grant is a mechanism for transferring funds from the UK Government to the devolved administrations, as allocated from within the departmental spending limits set by the Treasury. The block grants for the Welsh and Scottish Governments are adjusted in accordance with their respective fiscal frameworks.¹ The OBR has no direct involvement in these spending decisions or block grant negotiations, but the spending settlements do draw on our tax forecasts.
- A.2** This annex presents those forecasts, which largely relate to the UK Government's revenue from the taxes equivalent to those that have been devolved. For the three taxes covered in this report, the corresponding UK Government tax is (non-savings non-dividends) income tax, stamp duty land tax and landfill tax, all from England and Northern Ireland.
- A.3** The forecast methodologies for the Scottish and UK Government taxes are largely the same as those described in Chapters 2 to 4. We first establish an in-year estimate using the latest administrative data to estimate the level of receipts in 2019-20.² We then project over the five-year horizon using the respective forecast models and our own judgements. The economic determinants that we use are from our most recent published forecast, which is from March's *Economic and fiscal outlook*. For income tax we have also made use of the ONS population projections published in October (as described in Chapter 2).
- A.4** Tables A.1 to A.4 compare our current forecasts for the devolved Welsh (and Scottish) taxes to their UK Government equivalents (which relate to England and Northern Ireland). The differences in the growth rates compared to those in our March *Devolved taxes and spending forecasts* document are relatively modest. The most notable change is to landfill taxes, where the Scottish Government's decision to postpone the introduction of a ban on biodegradable municipal waste until 2025 reverses a change we had made in March, increasing our forecast for Scotland and reducing it for England and Northern Ireland.

¹ *The agreement between the Welsh Government and the United Kingdom Government on the Welsh Government's fiscal framework*, December 2016, and *The agreement between the Scottish Government and the United Kingdom Government on the Scottish Government's fiscal framework*, February 2016.

² The most recent month of receipts outturn data available to us at the time we closed the forecast was October. The one exception is Scottish landfill tax, where data covering the second quarter of 2019-20 is not published until December.

Forecasts required for the block grant adjustments

Table A.1: Income tax on non-savings, non-dividend income

	£ billion						
	Outturn		Forecast				
	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24
Whole UK NSND income tax	165.1	173.3	177.2	187.1	194.3	201.9	210.3
<i>of which:</i>							
Welsh Government income tax (WRIT basis)	2.0	2.1	2.1	2.2	2.3	2.4	2.5
UK Government NSND income tax from Wales	2.5	2.7	2.7	2.8	2.9	3.1	3.2
Scottish income tax ¹	10.9	11.6	12.0	12.6	13.1	13.6	14.1
England and Northern Ireland NSND income tax	149.7	157.0	160.4	169.5	176.0	182.9	190.6
Whole UK NSND income tax excluding Scottish income tax	154.2	161.7	165.2	174.5	181.2	188.4	196.2
UK Government NSND income tax²	152.2	159.6	163.1	172.3	178.9	186.0	193.7
		Percentage change on a year earlier					
Whole UK NSND income tax		4.9	2.2	5.6	3.8	3.9	4.1
<i>of which:</i>							
Welsh Government income tax (WRIT basis)		4.4	1.8	5.6	3.6	3.6	3.7
UK Government NSND income tax from Wales		4.5	0.6	6.2	3.7	3.7	3.9
Scottish income tax		6.0	3.9	5.1	3.7	3.7	3.9
England and Northern Ireland NSND income tax		4.9	2.2	5.7	3.8	4.0	4.2
Whole UK NSND income tax excluding Scottish income tax		4.9	2.1	5.7	3.8	3.9	4.2
UK Government NSND income tax²		4.9	2.1	5.7	3.8	3.9	4.2

Note: Shaded cells represent notional estimates for years when tax devolution has not occurred.

¹ Currently outturn data is only available for 2017-18, and 2018-19 remains a forecast.

² Whole UK NSND income tax excluding Scottish income tax and Welsh Government income tax (WRIT basis).

Table A.2: Welsh rates and England and Northern Ireland equivalent income tax by band forecasts

	£ billion							
	Outturn			Forecast				
	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24
England and Northern Ireland NSND income tax (WRIT basis)	53.9	55.6	58.2	59.8	63.1	65.5	68.0	70.8
<i>of which:</i>								
Basic rate	36.8	38.0	39.7	41.3	43.4	45.0	46.7	48.6
Higher rate	11.1	11.1	11.5	11.1	11.8	12.2	12.5	13.0
Additional rate	6.1	6.5	7.0	7.5	7.9	8.3	8.7	9.2
Welsh Rates	1.9	2.0	2.1	2.1	2.2	2.3	2.4	2.5
<i>of which:</i>								
Basic rate	1.7	1.7	1.8	1.8	1.9	2.0	2.0	2.1
Higher rate	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3
Additional rate	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1
	Percentage change on a year earlier							
England and Northern Ireland NSND income tax (WRIT basis)		3.1	4.7	2.7	5.5	3.8	3.9	4.1
<i>of which:</i>								
Basic rate		3.3	4.6	3.9	5.1	3.8	3.8	4.0
Higher rate		0.1	3.4	-3.9	6.8	3.0	3.2	3.6
Additional rate		7.3	7.8	6.6	5.7	5.1	5.2	5.4
Welsh Rates		1.7	4.4	1.8	5.6	3.6	3.6	3.7
<i>of which:</i>								
Basic rate		2.1	4.3	2.7	5.2	3.5	3.5	3.6
Higher rate		-1.7	3.5	-6.3	8.6	3.5	3.6	3.9
Additional rate		8.3	10.7	9.4	7.2	6.6	6.6	6.1

Note: Shaded cells represent notional estimates for years when tax devolution has not occurred.

Table A.3: Property transaction taxes

	£ million						
	Estimated outturn		Forecast				
	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24
Whole UK property transaction taxes	13,462	12,724	12,343	13,087	14,090	15,053	16,307
<i>of which:</i>							
Land transaction tax (Wales) ¹	258	228	226	245	268	294	322
LBTT (Scotland)	557	554	608	643	692	745	802
SDLT (England and Northern Ireland)	12,647	11,942	11,509	12,198	13,130	14,014	15,183
UK excluding Scottish LBTT	12,905	12,169	11,735	12,444	13,398	14,308	15,505
	Percentage change on a year earlier						
Whole UK property transaction taxes		-5.5	-3.0	6.0	7.7	6.8	8.3
<i>of which:</i>							
Land transaction tax (Wales)		-11.7	-0.8	8.5	9.4	9.6	9.5
LBTT (Scotland)		-0.5	9.7	5.8	7.6	7.6	7.7
SDLT (England and Northern Ireland)		-5.6	-3.6	6.0	7.6	6.7	8.3
UK excluding Scottish LBTT		-5.7	-3.6	6.0	7.7	6.8	8.4

Note: Shaded cells represent notional estimates for years when tax devolution has not occurred.

¹ Welsh share of SDLT in 2017-18.

Forecasts required for the block grant adjustments

Table A.4: Landfill taxes

	£ million					
	Outturn	Forecast				
	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24
Whole UK landfill taxes	864	783	716	704	633	548
<i>of which:</i>						
Landfill disposals tax (Wales)	44	38	36	35	35	35
Scottish landfill tax	149	116	110	112	94	90
Landfill tax (England and Northern Ireland)	671	629	571	556	504	424
UK excluding Scottish landfill tax	715	667	606	591	539	459
		Percentage change on a year earlier				
Whole UK landfill taxes		-9.5	-8.5	-1.7	-10.0	-13.3
<i>of which:</i>						
Landfill disposals tax (Wales)		-14.5	-6.2	-1.7	-0.4	-0.3
Scottish landfill tax		-22.3	-5.2	2.3	-16.0	-5.1
Landfill tax (England and Northern Ireland)		-6.3	-9.3	-2.5	-9.4	-15.8

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