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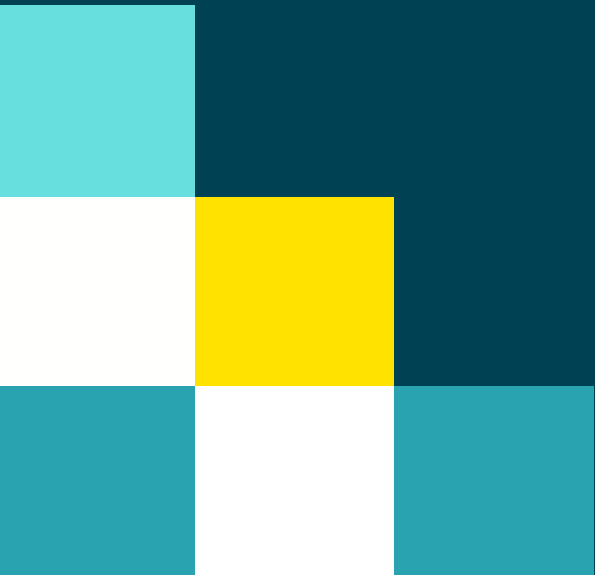
The Welsh Tax Base

Risks and Opportunities after Fiscal Devolution

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Summary

- Under the new Fiscal Framework, from April 2019, the Welsh Government and local authorities will control nearly £5 billion of tax revenues, equivalent to 30 per cent of their combined current spending. Devolved Welsh tax revenues will need to keep pace with comparable revenues in the rest of the UK (rUK) to avoid a shortfall in the Welsh budget.
- The Welsh Government's **Land Transaction Tax** and **Landfill Disposals Tax** were introduced in April 2018 (replacing Stamp Duty Land Tax and Landfill Tax). **Income Tax** will be partially devolved from April 2019, while **Council Tax** and **Non-Domestic (Business) Rates** are already devolved.
- This report explores the factors that will influence growth or reduction in revenues from these taxes, the risks and opportunities to the Welsh tax base after fiscal devolution, and some of the implications for other areas of Welsh Government policy.

The Welsh Tax Base

- The largest source of revenue will be **Income Tax**, receipts from which will depend on the employment rate, wages, and population levels. Crucially, it will be the change in these relative to rUK that will determine the impact on the Welsh Government budget.
- Employment rate: The gap in the employment rate between Wales and rUK is driven by economic inactivity, particularly among those aged 55-64. Closing this gap could increase the Welsh Government budget by around £100m a year.
- Wages: Differences in taxpayer income between Wales and rUK are concentrated at the upper end of the earnings distribution. These earners also account for a large proportion of income tax revenue.
- The differences in average earnings between Wales and rUK do not appear to be driven by the different sectoral compositions of the respective economies. Closing of the gap in earnings growth between Wales and rUK will require narrowing the productivity gap. Increasing the proportion of high-skilled workers in Wales will be key to this.
- If private sector wages grow 0.5 percentage points a year more rapidly in Wales than rUK, the Welsh Government budget would increase by £60m after five years; the reverse (a 0.5 percentage points slower rate of growth) would reduce the budget by £55m after five years.
- Population: The Welsh population aged 16-64 is projected to decrease over the next few years. By 2022 this age group will be growing 0.4 percentage points more slowly than rUK. A slower population growth rate means that per person revenues will need to grow at a faster rate in Wales to avoid a shortfall in the Welsh Government budget.
- Levels of migration between rUK and Wales will become an important budgetary factor; and, in particular, movements of high-skilled and high-earning individuals.

- Commuting patterns will also be important. People resident in Wales who commute to England for work earn 30 per cent more on average, and would have accounted for around 7.6 per cent of devolved income tax revenue in 2014-15.
- **Council Tax** is a very stable revenue source but is widely seen as being ripe for reform: it is regressive, inefficient, and lacks buoyancy. However any reform is likely to be politically difficult.
- Revenues from **Non-Domestic (Business) Rates** in Wales are disproportionately dependent on high value transactions. There are arguments for reforming NDR and scope to learn from reforms to the English and Scottish systems.
- **Land Transaction Tax** revenues are driven by the number and value of property transactions in Wales. The number of transactions in Wales has broadly tracked that in rUK. But, the relative rate of growth in property values has diverged; largely driven by property prices in London.
- If the rate of growth in prices and transactions were 2.5 percentage points higher in Wales, by 2021-22 the Welsh Government budget would be more than £92 million bigger; the converse (a growth rate of 2.5 percentage points lower than rUK) would result in £71 million less revenue.

Implications for Tax Policy

- Based on a basic modelling of the impact of varying tax rates, the effect of changes to the additional rate would appear small and likely offset by any migratory response (or absence thereof). By contrast, changes in the basic rate would have a large impact on the Welsh Government budget.

- Tax reform should be pursued in an integrated way. For example, a more progressive approach to Council Tax could be linked to changes in Land Transaction Tax or Income Tax rates.

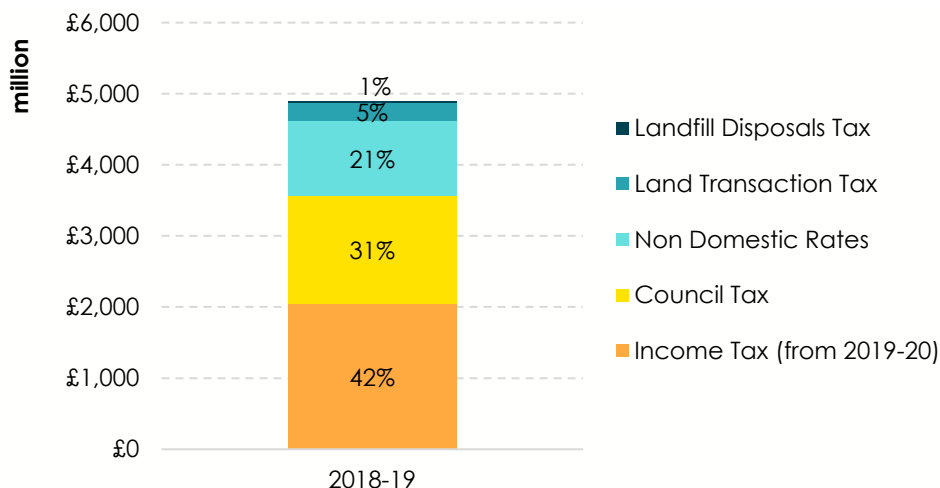
Wider Policy Implications

- Policies relating to the economy, skills, education and housing (among others) will have a direct effect on the performance of the Welsh tax base, presenting many cross-departmental challenges for the Welsh Government. For example, in higher education, a policy that incentivised graduates to stay in Wales could help enhance the Welsh tax base.
- For income tax revenues to keep pace, the rate of wage growth in Wales needs to be higher than rUK. The productivity of the Welsh economy will be key and evidence points to the importance of focusing on skills.
- Alongside the effects on the Welsh tax base, changing flows of migration and commuting will have implications for a wide range of policy areas; particularly transport and housing.

Executive Summary

Following the devolution of Stamp Duty and Landfill Tax this year and the partial devolution of Income Tax in April 2019, the Welsh Government and local authorities will control nearly £5 billion of tax revenues, equivalent to 30 per cent of their combined current spending.

Figure E1: Tax revenues under Welsh Government control, 2018-19



Source: OBR (2018) Devolved taxes forecast; Statswales and authors' calculations

By means of the Block Grant Adjustment (BGA) mechanism agreed in the new Fiscal Framework, while the Welsh budget will be largely protected from UK-wide economic shocks, devolved revenues will need to keep pace with comparable revenues in the rest of the UK to avoid a shortfall in the Welsh budget.

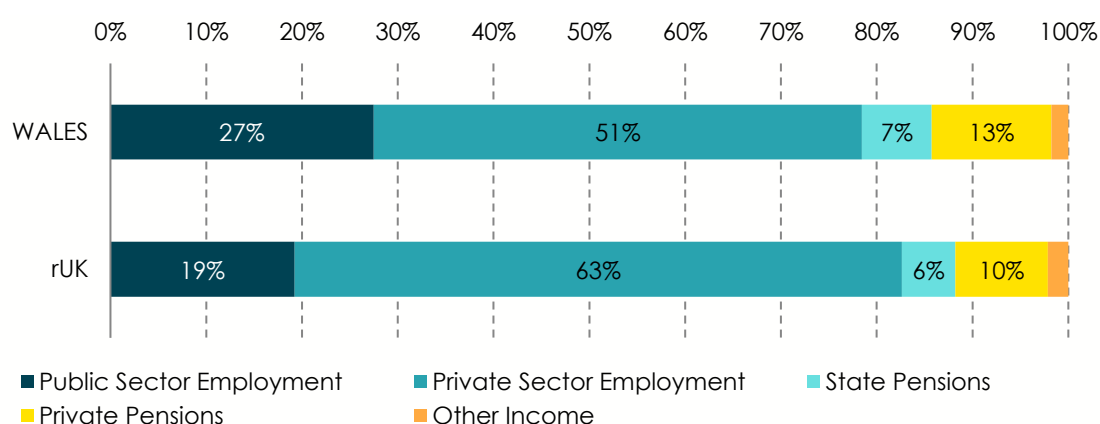
This report analyses some of the risks and opportunities in the Welsh tax base that will be critical in allowing Wales to take advantage of the new fiscal powers.

Determining the Welsh tax base

Devolved Income Tax

- From 2019-20, income tax rates paid on non-savings, non-dividend ('NSND') income by Welsh taxpayers will fall by 10p in the pound and will be replaced by the Welsh Rates of Income Tax.
- Keeping tax rates paid by Welsh taxpayers unchanged by setting a 10p rate in each band is forecasted to raise £2,099 million for the Welsh Government in 2019-20.

Figure E2: NS-ND income tax base by source for Wales and rUK, 2014-15



Source: HMRC (2017) and author's calculations

The Welsh tax base is different from the rest of the UK (rUK) in a number of ways:

- A much higher share of the Welsh income tax base derives from public sector employment and pension incomes than the rUK.
- The private sector employment income tax base in Wales and the rUK also vary by industry. Manufacturing industries account for the largest share in Wales (22 per cent - compared with 13 per cent in the rUK); while a much greater share derives from professional, scientific & technical activities, and financial & insurance activities in the rUK. This could have (at least short-term) budgetary consequences for the Welsh Government if certain industries grow more rapidly or more slowly than others. However, Wales' lower average taxpayer income is not explained by differences in the high-level industrial composition of its private sector tax base, which suggests that other factors, such as the skills composition of the workforce, are more important in determining the relative performance of Welsh wages.
- Mean taxpayer (NSND) income in Wales in 2014-15 was £24,900, significantly below that of the rUK (£29,900). Differences between Welsh and rUK taxpayer incomes are particularly apparent at the upper end of the income distribution: income at the 99th percentile was £94,600 in Wales but £153,400 in the rUK.
- Although less dependent than the rUK, the Welsh tax take will be heavily influenced by the income of the highest earners. Assuming a 10p rate at all bands, the top one per cent of taxpayers in Wales will contribute more to devolved revenues than the lowest-earning 40 per cent of taxpayers, and the top 10 per cent more than the lowest-earning 70 per cent.
- Taxable NSND income in Wales has decreased by an average of three per cent per year in real terms since the 2007-08 financial crisis to 2014-15, almost one percentage point below the change in the rUK. Much of this performance can be explained by UK government policy to sharply increase the personal allowance after 2010.
- Also influencing relative tax growth is a slower-growing population in Wales, particularly the population aged 16-64, which means revenues per person will need to grow at a

faster rate in Wales for total revenues to keep pace with the rUK. Consistent with an ageing population, the share of NSND income deriving from pensions increased from 16 per cent in 2009-10 to 20 per cent in 2014-15.

- Divergence in employment rates, pay and productivity of the working population also influence growth in the tax base. Higher levels of economic inactivity in Wales (rather than higher levels of unemployment) have generated a persistent employment rate gap of around 3.6 percentage points between Wales and rUK over the past decade. Our analysis suggests that there could be a cohort of individuals (aged 55-64) that account for this persistent gap between Wales and rUK.

Land Transaction Tax

In 2016-17, the Stamp Duty Land Tax (SDLT) raised £210 million from 59,000 property transactions in Wales.

- Residential property transactions accounted for two-thirds of receipts. Although only 14 per cent of such transactions were above £250,000 in 2015-16, 72 per cent of residential SDLT receipts derived from these transactions, while 36 per cent derived from the three per cent of transactions over £400,000.
- The non-residential property transaction tax base in Wales is far more reliant on higher value transactions. Two-thirds of non-residential SDLT revenue in 2015-16 was generated by transactions over £2 million. The large revenues generated by high-valued transactions means non-residential Land Transaction Tax (LTT) will be highly volatile: just 10 fewer freehold transactions over £5 million in 2015-16 could have reduced revenues by £7 million.
- Welsh SDLT revenues declined significantly after peaking in 2006-07, and in contrast to the rUK have failed to recover to pre-crisis levels. Although growth in the number of transactions in Wales has roughly kept pace with the rUK, house prices have grown by an average of two percentage points a year more quickly in England than in Wales since 2006.

Council tax

Council Tax raised £1.4 billion from 1.3 million properties in Wales in 2016-17, and receipts generally grew more rapidly in Wales in preceding years in the absence of a freeze (as in Scotland) or a tight cap on increases (as in England). The number of chargeable dwellings in Wales increased by an average of 0.6 per cent per year between 2006-07 and 2017-18, slightly slower than growth in England.

- Properties are heavily concentrated in the bottom bands; 57 per cent of chargeable dwellings in Wales are in bands A, B and C, while only five per cent are charged in the top three bands (G, H and I).
- There are large variations in the proportion of dwellings in each band across the 22 local authorities. The percentage of properties in the lowest band (A) is below 10 per cent in 10 local authorities, but this proportion rises to more than 50 per cent in

Blaenau Gwent and Merthyr Tydfil. More than half of all properties rated in the top two bands (H and I) are located in just three local authorities: Monmouthshire, the Vale of Glamorgan, and Cardiff.

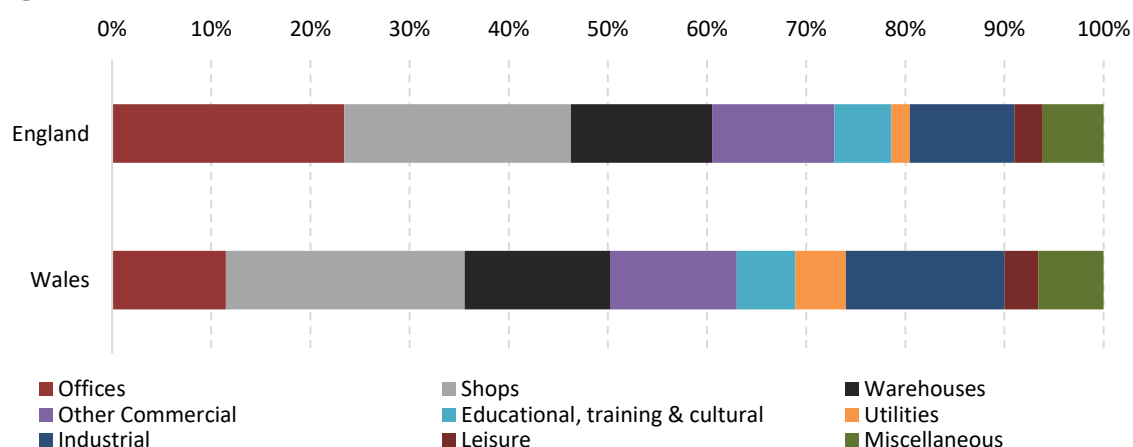
- There has been some convergence in average property prices because the local authorities with the lowest average house prices in 2003 (the year of the last revaluation in Wales) have tended to be subject to the fastest increase in house prices to 2016.
- Average increases in Band D Council Tax by local authority since 2003 are only very weakly correlated with average increases in house prices and (weakly) negatively correlated with changes in disposable household income by local authority. This is evidence of how the Council Tax system lacks buoyancy and tends not to reflect growth in the underlying tax base.

Non-domestic rates

Non-domestic (business) rates (NDR) were levied on 109,000 properties in Wales and receipts (net of refunds) totalled £962 million in 2016-17. Revenues in Wales have grown slightly more slowly than in England since 2010-11.

- Average annual growth in the total number of rateable properties in Wales has broadly matched England since 2003-04. The retail sector recorded a slight fall in the number of properties, though still accounts for one-third of the number of rateable properties. There was a rapid increase in the number of office sector developments over recent years. Average value per rateable property in the retail sector has increased significantly since 2000-01, outpacing average value per rateable property in the industrial sector. The retail sector's share of overall rateable value in Wales has therefore increased despite a smaller overall number of rateable properties.
- Average value per rateable property in Wales remains below that of England across all sectors, with the office sector subject to the largest differential. Industrial and utilities properties account for a much larger share of the NDR tax base in Wales. In contrast, office properties are much more prominent in the English tax base (figure E3).

Figure E3: Rateable value by property type, 2015-16



Source: Valuation Agency Office (VAO) administrative data

- Cardiff accounts for approximately 20 per cent of total rateable value in Wales, a share which has been steadily increasing in recent years. Only 200 properties have a rateable value over £1 million: If just 10 properties with a rateable value of £3 million each were lost through relocation or closure, total revenue would fall by 1.5 per cent. This is particularly true for certain industries – just 10 iron & steel works properties account for nearly two per cent of total rateable value on the local list.

Risks and Opportunities

Employment and wage growth

The report uses data from the Survey of Personal Incomes (SPI) to run a microsimulation of devolved tax revenues drawn from various assumptions of growth in the Welsh tax base, particularly the employment rate and average wage growth.

- The central projection assumes that employment rates by age group stay unchanged in both Wales and the rUK. The largest and most persistent gap in the employment rate between Wales and the rUK is for those aged between 55 and 65; in contrast, the gap for those aged 35 and 44 is negligible. A second projection models the effect on devolved revenues if employment rates for each age group in Wales converge with those in the rUK by 2029-30. The Welsh budget would be more than £100 million better off each year under this scenario. This convergence could happen as age cohorts with persistently lower employment rates in Wales reach retirement age.
- Our modelling suggests the Welsh Government is more exposed to earnings growth divergence, and small but sustained differences in private sector employment income in Wales and the rUK would have a material effect on the Welsh budget. The budget would be £55 million smaller after five years should private sector wage growth be 0.5 percentage points a year lower than in the rUK, but the reverse scenario (a 0.5 percentage points increase) would boost the budget by £60m over the same period (equivalent to a 2p rise in the higher rate of income tax), and by £140 after ten years (equivalent to a 3p rise in the higher rate of income tax).

Productivity trends and determinants

Narrowing the gap in earnings growth between Wales and rUK will require a narrowing of the productivity gap (see figure 3.6 below). But any sustained movements in relative productivity will be in response to long-term trends, mirroring the economic effects of Welsh Government policies, which operate over the longer term.

Much of the current gap between Gross Value Added (GVA) per head in Wales and the rUK can be attributed to lower productivity: GVA per hour worked was 82.4 per cent of the UK average in 2016. The distribution of human capital is an important determinant of regional earnings differentials in the UK:

- A smaller share of the Welsh population have a graduate-level education (NQF Level 4 and above), and a higher share are without A level (NQF Level 3) qualifications or trade apprenticeships.
- The wage premium for workers with different levels of qualifications appear similar in Wales and the rUK: hourly pay for graduates is approximately 27 per cent higher than the respective average wage in Wales and the rUK.
- Because the incomes of higher earners constitute a large share of NSND income, relative movements in the share of the population with high skill levels and the wage premium those skills attract will be important determinants of the future Welsh income tax base.

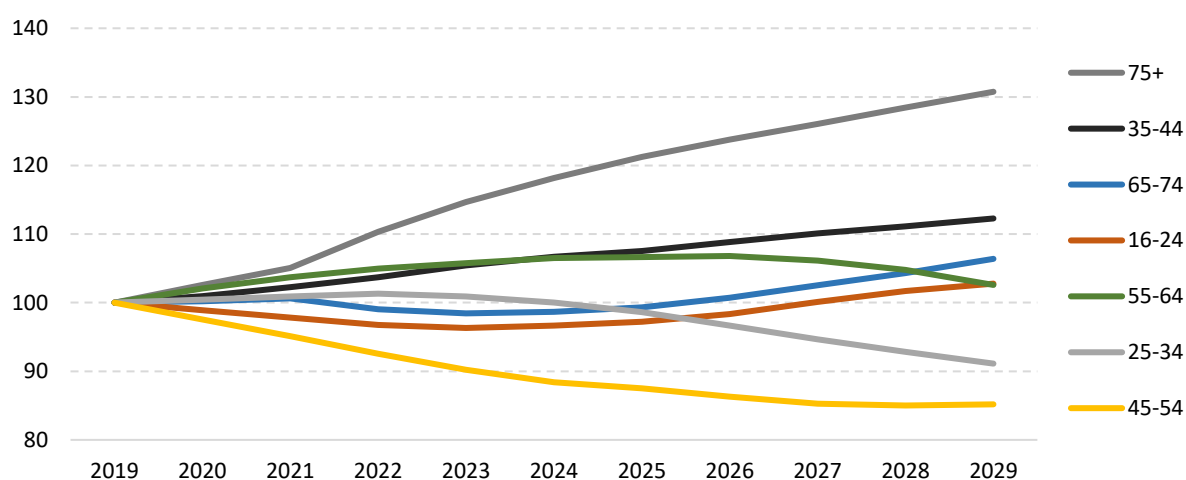
Wales' current work force would appear to be more exposed to the effects of automation, which could have a significant effect on the relative performance of the Welsh income tax base.

Population and demographics

The ONS projects that the Welsh population will grow by approximately 0.4 per cent per year from 2016, around 0.2 percentage points behind the rUK, although this is uneven across age groups. The Welsh population aged between 16 and 64 is projected to shrink; and by 2022 the growth rate of 16-64 year olds in Wales is expected to be 0.4 percentage points lower than rUK.

The fastest projected growth by far is for the population aged over 74 in both Wales and rUK, while the Welsh population aged 45-54 is projected to fall much more sharply than in the rUK (Figure E4). This sharper projected fall is a cause for concern: it is at this age that average incomes are at their highest.

Figure E4: Projected trends in different age groups, Wales (2019 = 100)



Source: ONS (2017) 2016-based population projections

While there is little difference in the average incomes of the youngest taxpayers, taxpayers aged 35-54 earn 28 per cent more on average in the rUK than in Wales. Later in life, average

incomes again converge: average incomes for those aged over 65 are only 10 per cent higher in the rUK. This convergence may suggest that the Welsh income tax base may be *relatively* more resilient to an ageing population during the first decade of income tax devolution.

Any changes in levels of international migration appear to affect Wales and rUK in similar ways. The budgetary effect for Welsh Government is therefore minimal. However, our modelling does not seek to account for the wider economic impacts of drops in inward migration.

Migration and commuting flows across the Welsh-English border

Nearly 48 per cent of the Welsh population live within 25 miles of the border with England and 4.9 million within a similar distance on the English side of the border. Changes to migration and commuting flows could have an impact on the devolved Welsh tax base.

- From 2015 to 2016, around 53,170 people migrated out of Wales to England, while 56,950 migrated in the other direction, or around 1.8 per cent of the Welsh population.
- Migration in both directions peak at age 19, with a higher rate of students moving into Wales compared with those leaving. As a result, Wales is a net loser of graduates every year, with net migration out of Wales of nearly 5,300 for those aged between 21 and 29. Gross flows of migration fall significantly for older age groups.
- A change in gross and net flows of migrants between Wales and England would affect the skills composition of the Welsh labour force. Compared with the other devolved nations, Wales currently has a lower retention rate of graduates from Welsh universities who stay and gain employment in Wales.

After income tax devolution, commuters who are resident in Wales but work in England will pay Welsh income taxes.

- 90,000 Welsh residents commuted to a workplace outside of Wales in 2016, or 6.4 per cent of all working residents. This flow is over twice as large as those who commute into Wales from England.
- Welsh residents who work outside of Wales earn around 30 per cent more per hour than individuals who both live and work in Wales. We estimate approximately 7.6 per cent of devolved income tax revenues in 2014-15 would have been earned in workplaces outside of Wales. Increased commuting from Wales over time could therefore have a substantial positive impact on the Welsh income tax base, as well as the property tax base in the four border counties should more working in England choose to move to Wales.

Property market trends

Because LTT revenue will be markedly influenced by the number and value of residential property transactions, the report explores the budgetary impact if transactions and prices grow 2.5 percentage points a year below and 2.5 percentage points above UK rates for four years after tax devolution. By 2021-22, under the higher growth assumption residential LTT receipts would reach more than £350 million and the Welsh Government budget would be more than £92 million bigger, while under the lower growth assumption receipts would be less than £200 million, resulting in £71 million less revenue for the Welsh Government.

Divergence in house price growth between Wales and the rUK has occurred in the past; between 1996 and 2000 Welsh house prices grew four percentage points more slowly than the UK average, but an average of six percentage points more rapidly from 2002 to 2005.

The ratio between the average house price in Wales and the average across the UK has fluctuated significantly over decades, with periods of rapid divergence followed by rapid convergence. With average house price growth in Wales falling behind the UK, the ratio has been climbing steadily for over a decade. Driving this trend has been growth in prices in central London. Given the significant levels of international investment in London's property market, house prices there are likely to be influenced by global trends and be somewhat detached from other UK-wide determinants.

Options and implications for the Welsh Government's Tax Strategy

There are strong arguments for the Welsh Government to utilise some of the taxation powers now at its disposal. The Welsh Government will need to take an integrated approach by considering devolved taxes on a collective basis, and how other policy levers and objectives might interact. Non-tax policy levers will be crucial in responding to some of the risks and opportunities outlined in earlier sections.

Setting income tax rates in Wales

From 2019-20 **the Welsh Government will have the option to increase or reduce its income tax rates** away from 10p in the pound, which would have a direct effect on the Welsh Government budget, as well as potentially changing the behaviour of Welsh taxpayers.

- **The extent and effects of behavioural change to be expected is highly uncertain**, though it must be considered when setting income tax policy. High income earners are assumed to be the most responsive to income tax rate changes, because they have the largest incentive and the greatest means to change their behaviour in response to tax policy.

- Since only a portion of income tax is devolved, **the Welsh Government would be relatively shielded from the behavioural response of Welsh taxpayers if it decided to change income tax rates.** For example, a 1p increase at the basic rate would raise around £184m in revenue in the absence of a behavioural response; these receipts would reduce only marginally to £180m even under an assumption of large income elasticity.
- **Taxpayers may also decide to migrate to and from Wales** as a result of income tax differentials. The UK government will not be able to respond in kind to a decision to cut income tax by the Welsh Government and close the differential in income tax rates. There is some evidence that differences in tax rates within a country can encourage taxpayers to relocate or shift income between jurisdictions, though Wales' particular circumstances make it hard to draw conclusions from other countries.
- **It would take a substantial migration response from very high earners to have a material budgetary effect** if the additional rate was cut by 5p in Wales. If 1,100 taxpayers relocated the cost of the tax cut would reduce to zero, while a doubling of Wales' share of UK additional rate taxpayers (with over 5,000 migrating) would boost the Welsh budget by £100 million.

Reforming property tax

Property in Wales provides a large and immobile tax base and has a large revenue-raising potential. However, it is currently not taxed in a way that is reflective of the contours of the underlying tax base.

- Given the length of time that has transpired since 2003, **there is a strong case for a revaluation**, for council tax bills to reflect the significant house price changes which have occurred over the intervening period. A revaluation would also be an opportunity for at least some reform of the structure of Council Tax.
- Making **property tax bills more proportional to property values** would be a crucial component of such a reform, for example through reforming Council Tax bands. At a UK level, numerous studies have explored or recommended **replacing Council Tax with an annual flat-rate tax on the market value of a property**. A 0.7 per cent flat charge on the value of all properties in Wales would yield roughly the same amount of revenue as the current Council Tax system. A majority of dwellings would see a reduction in their tax bill each year, while the highest value properties would see large increases in their annual tax bill.
- Fundamental reform of property taxation would of course be politically difficult. The distributional effects between different people and places would need to be considered carefully. Council tax is also currently a very stable revenue source for local authority budgets, so reform would have to coincide with wider changes to local authority grants and allow scope for local autonomy.
- The Welsh Government could take **an integrated approach to tax reform**. For example, recurrent property taxes could be reformed to increase revenue, to allow for

the gradual reduction in residential LTT revenue. There is also a strong economic case for **shifting the burden of taxation from labour income towards property** – increasing revenue through property tax reform by around £210 million (roughly a 14 per cent increase in Council Tax revenue) could allow for a 1p reduction in all income tax rates.

Other policy implications

The **NDR tax base** is currently very different to that in England, with the office sector perhaps offering the biggest opportunity to close the gap in terms of average value and total rateable value.

- Several proposals are currently being considered or implemented by the Welsh Government to improve the efficiency of the NDR system. Further reforms, such as proposals made by the 2017 Barclay Review of NDR in Scotland could support economic growth and reduce some barriers to investment.
- ‘Fiscal incentives’ for local authorities have been introduced elsewhere in the UK. Increasing the share of revenues retained by local authorities may incentivise them to grow their local tax bases, positively influencing the overall NDR tax base in Wales. However, incentives introduced should be properly aligned with the economic objectives of the Welsh Government.

The Wales Act 2014 also allows for the creation of **new taxes in Wales**, subject to the approval of both Houses of Parliament and the National Assembly.

- The power to introduce new taxes provides a new policy lever to influence Wales’ economy, society and environment, though the revenue streams arising from most proposed new taxes are likely to be modest.
- The idea of hypothecated tax rises is gaining traction at a UK level, as it may be politically easier to raise additional revenue in this manner. Of the proposed new taxes, the social care levy has the greatest revenue-raising potential, and there are a number of compelling reasons why such a scheme should be contributory rather than funded by a general tax rise.

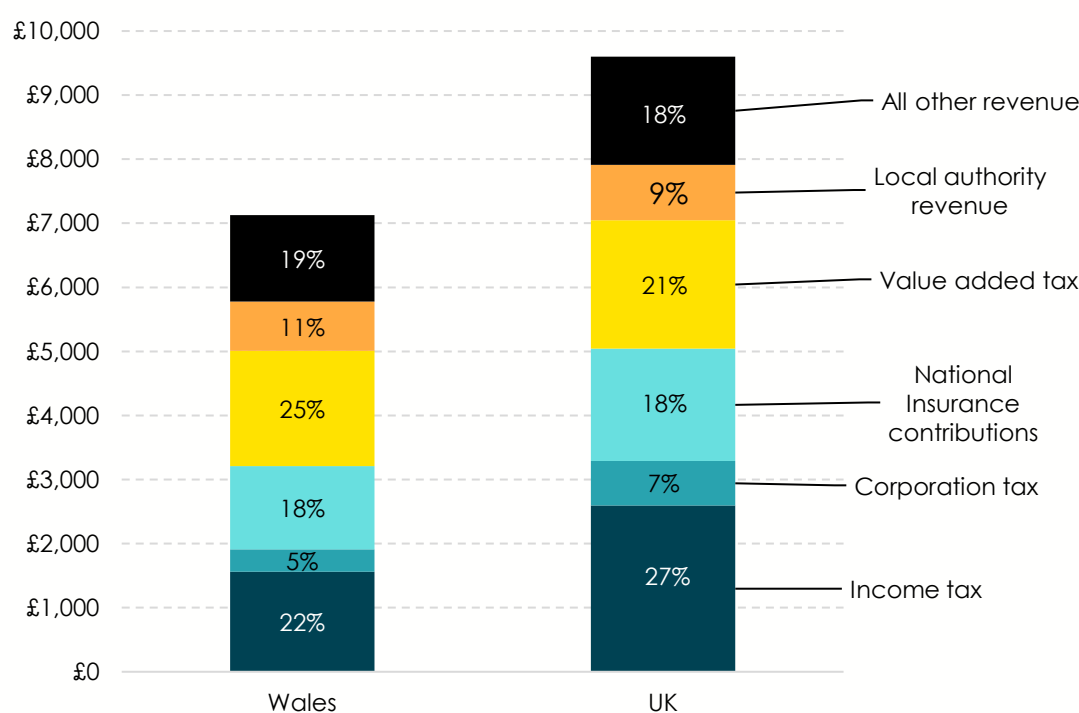
The risks and opportunities discussed in this report present many cross-departmental challenges for the Welsh Government. Apart from Welsh Government tax policy, policies relating to the economy, skills, education and housing (among others) will have a direct influence on the performance of the Welsh tax base. For example, higher education policy levers (such as those relating to fees and grants) could be used to incentivise graduates to stay in Wales, ensuring that they contribute to the Welsh tax base. The potential trade-offs and tough policy choices should be analysed and discussed strategically.

1. Introduction

For the first 16 years of its existence, the Welsh Government was responsible for more than half of public spending in Wales, but was almost entirely dependent on an annual block grant from the UK Treasury to fund this spending. Changes in the Welsh block grant from year to year (and hence the size of the overall Welsh budget) were linked to UK Government spending decisions in England via the Barnett Formula, insulating the Welsh budget from any volatility in the amount of tax revenues raised from individual taxpayers and businesses in Wales.

Each year, approximately £22 billion in tax revenues are collected in Wales. Unusually among the countries of the UK, the largest source of tax revenue in Wales is not Income Tax but the Value Added Tax, which accounted for more than a quarter of total tax receipts in 2015-16. As can be seen in figure 1.1, total revenues per person are much lower in Wales, with a relatively larger share of revenue raised from indirect taxation (VAT and excise duties from goods and services rather than taxes levied on income or profits).

Figure 1.1: Main tax revenues per person in Wales and UK, 2015-16



Source: ONS (2017) Country and Regional Public Sector Finances

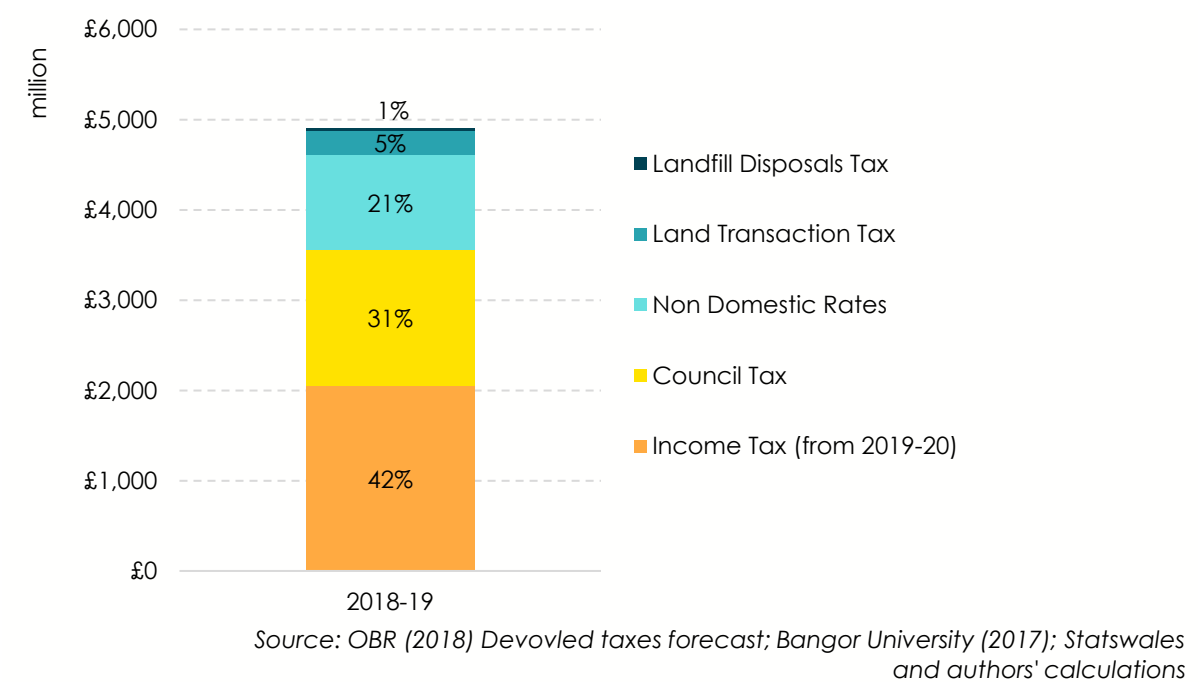
For much of the first two decades of Welsh devolution, these divergences in tax performance have been of interest but somewhat moot, because almost all taxes derived from Wales have been collected and pooled at a UK level before being spent by central government or distributed to devolved government via the Barnett Formula. The only exception to this was

the Council Tax which forms a part of local government budgets; however, receipts from this tax constitute less than five per cent of all tax revenues raised in Wales.

Following two commissions on Welsh public finances (Holtham 2008-2010 and Silk 2010-2012), the Wales Act 2014 provided the legislative framework for the devolution of taxation and borrowing powers. In April 2015 powers over business rates / non-domestic rates were fully devolved, and revenues from rates paid by Welsh businesses now accrue directly to the Welsh Government. From April 2018, the Stamp Duty Land Tax and Landfill Tax were ‘switched off’ in Wales and replaced by two devolved taxes under Welsh Government control, the Land Transaction Tax and the Landfill Disposals Tax. The Welsh Government will also be able to introduce new devolved taxes, subject to approval by the National Assembly and both houses of Parliament in Westminster. Perhaps most significantly, the Wales Act 2017 also partially devolves more than £2 billion of Income Tax revenues to the Welsh Government, from April 2019.

In a sharp departure from its past fiscal framework, the Welsh Government and local authorities will soon therefore be in control of nearly £5 billion of tax revenues, equivalent to 30 per cent of their combined current spending. As can be seen in figure 1.2, devolved revenues from Income Tax will be the largest source of tax revenue for the Welsh Government, followed by both local government taxes.

Figure 1.2: Tax revenues under Welsh Government control, 2018-19



Wales’ new fiscal powers are designed to encourage public debate and interest in the tax policy options available to the Welsh Government. However, equal consideration will need to be given to the performance of the underlying tax base supporting devolved taxes. For the first time, faster or slower growth in the Welsh tax base will have a significant and direct impact on the Welsh budget. In particular, the relative performance of the Welsh tax base

compared with elsewhere in the UK will become an issue of major importance to the long-term sustainability of the public finances and funding of Wales' public services.

As part of the recent Fiscal Framework Agreement¹ between the two governments, a downward adjustment will be made to the Welsh block grant to account for the revenue forgone by HM Treasury after tax devolution.² In the first year of devolution, this Block Grant Adjustment ('BGA') will equal the revenue being devolved to the Welsh Government, ensuring neither government is better or worse off immediately after devolution.³ Thereafter, the BGA will change from year to year according to growth in comparable UK government revenues in the rest of the UK.⁴ This means that devolved revenues will need to keep pace with revenues in the rest of the UK to avoid a shortfall in the Welsh Government's budget. If revenues in Wales grow at a faster rate, the Welsh Government will be rewarded with extra spending power. This mechanism protects the Welsh Government budget from economic shocks and trends which affect the whole of the UK, while the Welsh Government will bear the risks and rewards of differential growth in its tax base.

The purpose of this report is to outline and analyse some of the risks and opportunities facing the Welsh Government as it takes on these new fiscal powers. The remainder of this report proceeds as follows. Section 2 describes the composition and past trends in the tax bases supporting the devolved taxes, highlighting particular strengths and weaknesses. Section 3 discusses the risks and opportunities to the Welsh tax base and projects the impact of tax devolution on the Welsh Government budget under different scenarios. Section 4 presents implications and poses questions for consideration in the Welsh Government's tax strategy and wider public policy, and summarises the contributions made at an expert roundtable event on the Welsh tax base.

¹ See <http://gov.wales/funding/fiscal-reform/framework/?lang=en>.

² See Appendix A for further information on how the Block Grant Adjustments will be calculated and the implications for the risks borne by the Welsh Government.

³ For the BGAs relating to LTT and LDT, the BGA in 2018-19 reflects Welsh revenues in 2017-18, updated according to changes in revenues in the rest of the UK to 2018-19.

⁴ Specifically, this refers to revenues from England and Northern Ireland. Scottish revenues will not be included in the calculation since these revenues have already been devolved to the Scottish Government.

2. Determining the Welsh Tax Base

The Welsh Government will soon be responsible for billions of pounds of tax revenue that will form part of its budget to pay for devolved public services. As well as the tax policy choices taken by the Welsh Government, trends in the underlying tax base will – to a certain degree – determine the size of its budget. This section analyses the tax bases supporting each of the major revenue streams which are currently or soon to be under the control of the Welsh Government in coming years: Welsh Rates of Income Tax, Land Transaction Tax, Council Tax, and Non-Domestic Rates.

2.1 Devolved Income Tax

From 2019-20, the income tax paid by Welsh taxpayers will be partially devolved to the Welsh Government. Income tax rates paid by taxpayers resident in Wales will fall by 10p in the pound (e.g. from 20p to 10p at the basic rate). With the approval of the National Assembly, the Welsh Government will then introduce its own rates in each tax band, and revenues from these rates will form a part of its budget.

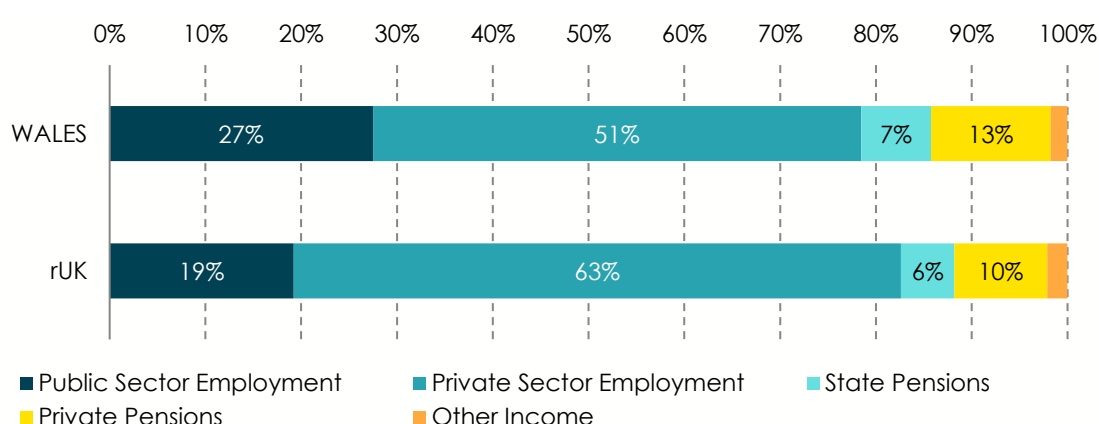
The Office for Budget Responsibility (OBR) forecasts that setting a 10p rate in each band (i.e. keeping tax rates paid by Welsh taxpayers unchanged) would raise around £2,099 million for the Welsh Government in 2019-20.

Characteristics of Wales' NS-ND income tax base

The primary source of data on the income tax raised in Wales comes from the Survey of Personal Incomes (SPI), which allows analysis of the composition, distribution and trends in Welsh income tax. The latest available survey was for the financial year 2014-15, which contained a sample of over 22,000 Welsh taxpayers (drawn from PAYE and self-assessment data).

Since income tax paid on savings and dividend incomes (which accounts for less than seven per cent of total taxpayer income in Wales) will not be devolved, the focus of this report is Non-Savings Non-Dividend ('**NS-ND**') incomes. This earned income can be further disaggregated into income from employment, pension income, and a small amount from other income sources, such as property income. Figure 2.1 provides a breakdown of the NS-ND income tax base in Wales compared with the rest of the UK.

Figure 2.1: NS-ND income tax base by source for Wales and rUK, 2014-15



Source: HMRC (2017) and author's calculations

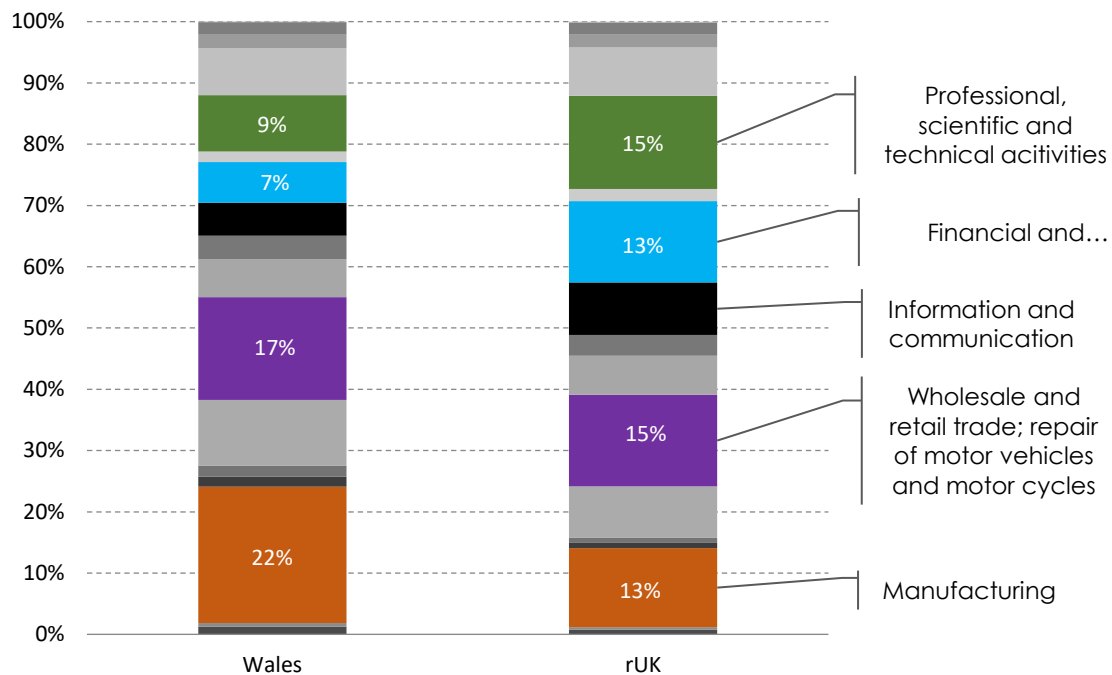
Welsh taxpayers earned an estimated £33.4 billion of NS-ND income in 2014-15, of which 78 per cent derived from employment income. Pension incomes accounted for a larger share of the Welsh tax base (20 per cent) than the rest of the UK ('rUK') (15.3 per cent). The state pension accounted for nearly a third of pension income in both Wales and the rUK.

The employment income tax base can also be further disaggregated into income from public and private sector employment. An important difference in the Welsh tax base is that a much higher share of the Welsh income tax base derives from public sector employment than in the rUK.

These differences in the composition of the Welsh tax base compared with the rUK could have budgetary consequences for the Welsh Government, particularly if UK-wide factors result in certain sources of income (e.g. pension incomes) growing more rapidly or more slowly than others. At least in the short term, this could potentially cause divergence in the growth rate of total NS-ND income tax base in Wales compared with the rUK.

The composition of private sector taxpayer income by industry also varies considerably between Wales and the rUK. As illustrated in figure 2.2, taxpayers employed in manufacturing industries account for the largest share of private sector employment income in Wales (22 per cent - compared with 13 per cent in the rUK), followed by wholesale and retail trade (17 per cent) and construction (11 per cent). In the rUK, a much greater share of private sector employment income derives from professional, scientific and technical activities (15 per cent) and financial and insurance activities (13 per cent).

Figure 2.2: Private sector employment income by industry classification (SIC 2007)



Source: HMRC (2017) and authors' calculations

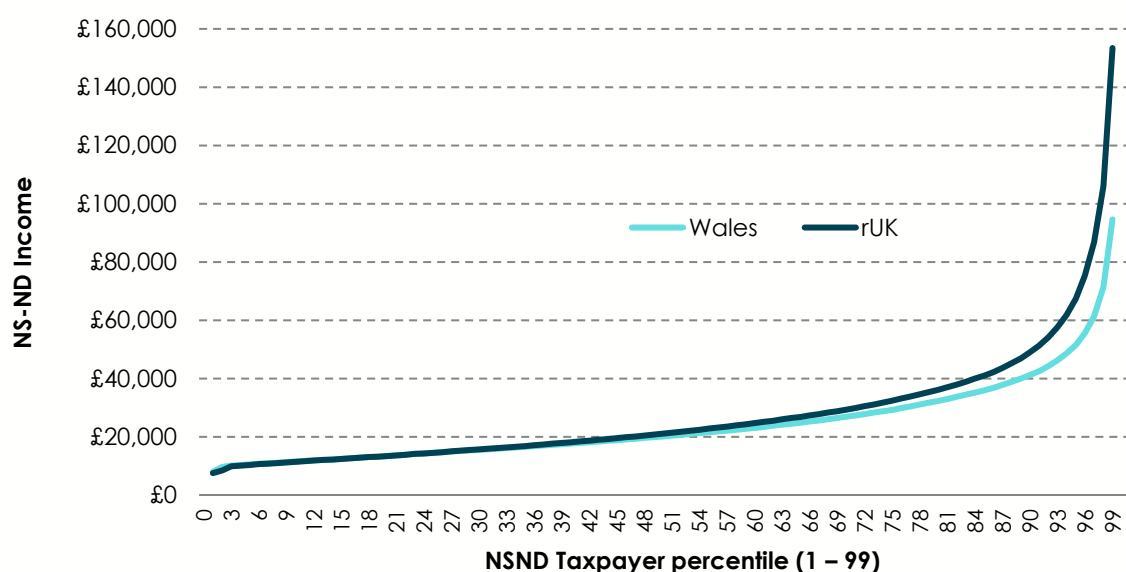
There are large differences in the average income of taxpayers working in different industries in Wales. The average income of manufacturing industry taxpayers is 20 per cent higher than the Wales average, and taxpayers in professional, scientific and technical employment also earn 17 per cent more than the average taxpayer. Conversely, taxpayers working in wholesale and retail trade and administrative and support services earn less than the average Welsh taxpayer.

Mean taxpayer (NS-ND) income in Wales in 2014-15 was £24,900, significantly below that of the rUK (£29,900). However, that Wales' average taxpayer income is lower than in the rUK is not explained by the different composition of the private sector tax base in Wales. To test for industrial sector composition effects, we can adjust the share of taxpayers in each industry in Wales to match the shares of taxpayers in each industry in the rUK (while keeping average taxpayer incomes in each industry unchanged). This industry-adjusted overall average of private sector taxpayer income is slightly lower than with Wales' industry mix. This suggests that other factors, such as the skills composition of the Welsh workforce, are more important in determining the relative performance of Welsh wages than its industrial composition (at least at a high level of industries).

However, if there were industry-specific shocks to certain industries in the UK (for example, to the steel industry or financial and insurance activities), Wales' sectoral mix may impact the tax base differently than elsewhere. Such a shock could have a significant budgetary impact, at least in the short run.

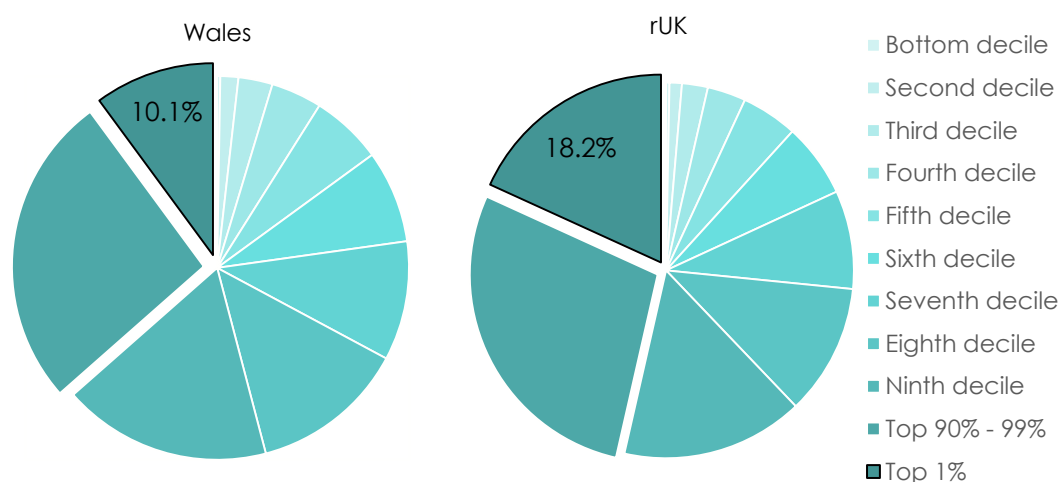
The overall distribution of taxpayer incomes also varies between Wales and the rUK. As shown in figure 2.3, although the difference in the median taxpayer income is relatively small – £20,100 in Wales versus £21,100 in the rUK – it is at the upper end of the income distribution that differences between Welsh and rUK taxpayer incomes become apparent. Taxpayer income at the 90th percentile in Wales in 2014-15 was £41,200, compared with £48,900 in the rUK. The “Welsh one per cent” also earn significantly less; taxpayer (NS-ND) income at the 99th percentile in Wales was £94,600, while rUK earners would need to earn £153,400 to be in the top one per cent of taxpayers.

Figure 2.3: Distribution of taxpayer NS-ND incomes in Wales and rUK, 2014-15



Source: HMRC (2017) and authors' calculations

Figure 2.4: Devolved income tax liabilities (with 10p rate in each band) by taxpayer decile (and top one per cent) in Wales and rUK, 2014-15



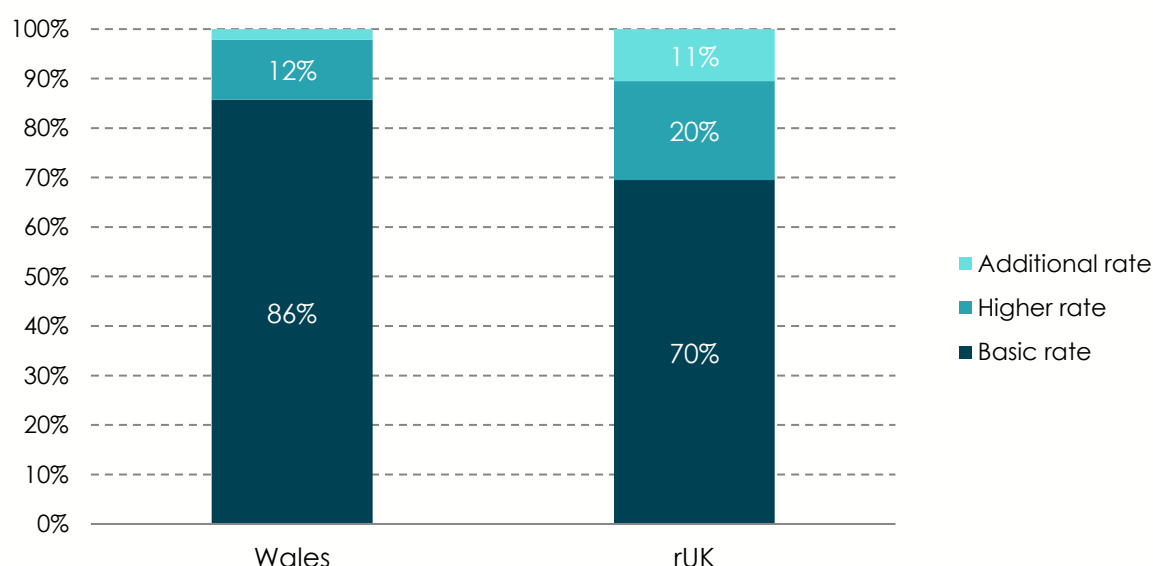
Source: HMRC (2017) and authors' calculations

This variation in taxpayer earnings at the upper range of incomes means that overall incomes are much more evenly distributed in Wales than in the rUK. The ratio of the incomes of the ninth decile of taxpayers to the first decile (90:10) is 3.6 in Wales, but 4.3 across the rUK.

A relatively large proportion of the rUK tax base is derived from the incomes of high earners. In 2014-15, the top one per cent of earners alone earned 12.3 per cent of total NS-ND income (compared with 6.4 per cent in Wales), while the earnings of the top 10 per cent accounted for 34.2 per cent (25.9 per cent in Wales). Although less dependent on those on very high incomes than the rUK, the Welsh tax base will also be heavily influenced by the income of the highest earners. After subtracting personal allowances and reliefs, and assuming the Welsh Government sets a 10p rate in all bands, the top one per cent of taxpayers in Wales will contribute more to devolved revenues than the lowest-earning 40 per cent of taxpayers, and the top 10 per cent more than the lowest-earning 70 per cent, as shown in figure 2.4 above.

To account for Wales' lower income profile, the Fiscal Framework agreement will establish a separate BGA for each separate tax band (NS-ND income earned at the basic rate, the higher rate and the additional rate). An overwhelming proportion of Welsh incomes are earned at the basic rate (as shown in figure 2.5), and separate BGAs will protect the Welsh Government budget from factors which disproportionately affect taxable income earned at the basic rate (such as increases in the personal allowance).⁵

Figure 2.5: Devolved income tax revenue by income tax band, 2014-15



Source: HMRC (2017) and author's calculations

While levels of taxpayer income inequality are very different in Wales, as a result of the agreed adjustment mechanism most factors which influence income inequality across the UK

⁵ For further information see Appendix A.

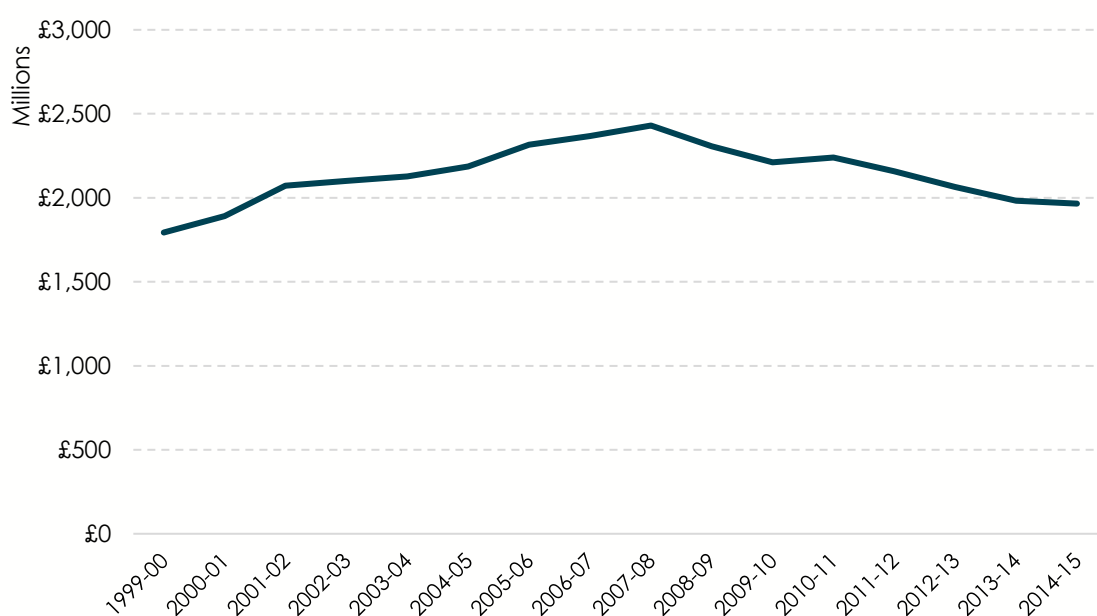
should affect the Welsh and rUK tax bases in a similar way.⁶ Differential movements in income inequality that are specific to Wales (e.g. if inequality increases faster in Wales than in the rUK) will however have an effect on the size of the Welsh budget.

Past trends in the NS-ND income tax base in Wales

Figure 2.6 shows the long-term trend in revenues from the Welsh Rates of Income Tax had a 10p rate been applied from 1999-00 to 2014-15. Annual real terms growth averaged nearly four per cent between 1999-00 and 2007-08. Since the 2007-08 financial crisis however, revenues have decreased by an average of three per cent a year in real terms. As explained in the previous section however, the BGA mechanism would have protected the Welsh budget from much of this drop in revenues because comparable revenues in the rUK also fell during this period (as shown in figure 2.7).

Once income tax is partially devolved, it will be the **relative** growth in revenues which will determine the budgetary impact for the Welsh Government. While pre-2007 annual growth in Wales broadly corresponded with the rUK (with Welsh revenues growing annually 0.3 percentage points slower than the rUK), there has been a sharper fall in revenues after the financial crisis (with Welsh revenues growing one percentage point more slowly each year).

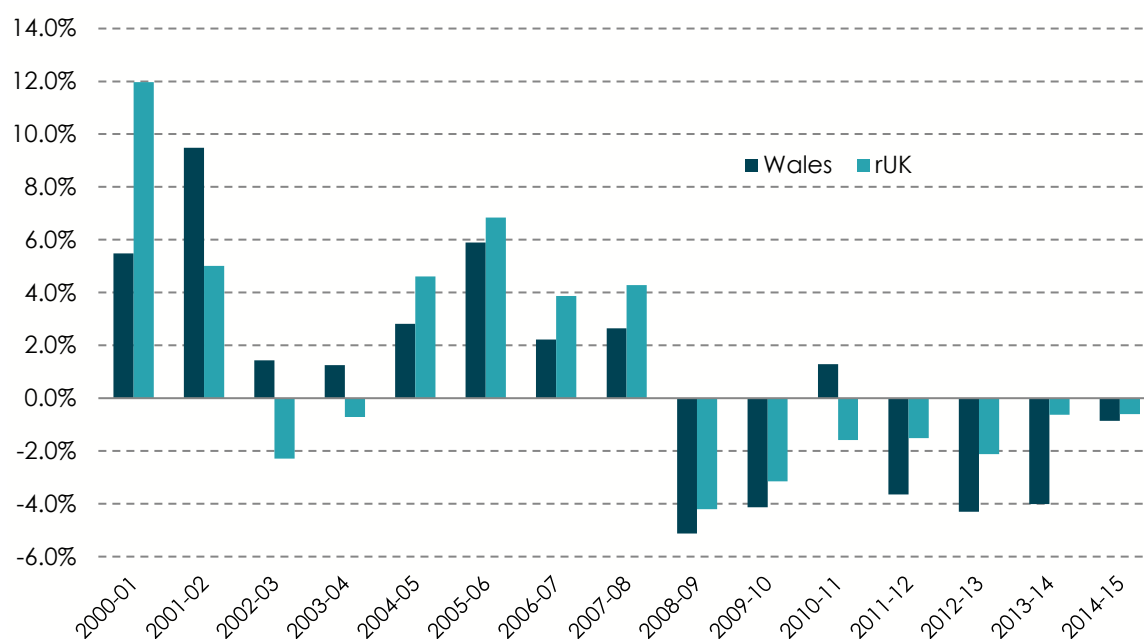
Figure 2.6: 10p rate share of taxable NS-ND income in Wales, 1999-2000 to 2014-15 (2016-17 prices)



Source: Survey of Personal Incomes (HMRC) and authors' calculations

⁶ The contribution of each decile of taxpayers to taxable income earned at the basic rate is very similar in Wales compared with the rUK. For example, the top 10% of taxpayers earned 25.9% of taxable NS-ND income earned at the basic rate in Wales in 2014-15, compared with 23.7% in the rUK.

Figure 2.7: Annual growth in a 10p rate share of taxable NS-ND income in Wales (real terms)



Source: Survey of Personal Incomes (HMRC) and authors' calculations

Although the emergence of differentiated revenue growth is a cause for concern, much of the relatively poorer performance of income tax receipts in Wales can be explained by UK government tax policy after 2010. The share of total NS-ND income offset by allowances and reliefs grew by 10 percentage points from 2010-11, primarily as a result of the sharp increases in the personal allowance.⁷ Due to lower taxpayer incomes in Wales, these personal allowance increases will have withdrawn a larger share of taxable incomes in Wales out of the tax base than was the case in the rUK.

The BGA linked to the basic rate tax base in the rUK will be similarly affected by UK-wide factors which affect taxable income at the basic rate (such as increases in the personal allowance). From 2010-11 to 2014-15, taxable income earned at the basic rate in the rUK fell by a similar percentage as in Wales. Had the Welsh Rates of Income Tax been in place over this period, separate BGAs would have protected the Welsh Government budget from much of the poorer performance of overall Welsh revenues.

⁷ This figure is calculated as the share of taxable NS-ND income as a share of total taxpayer NS-ND income. This figure doesn't account for the fact that some lower-earning taxpayers will have been pulled out of the income tax system altogether, such that their incomes are no longer counted as 'taxpayer income'.

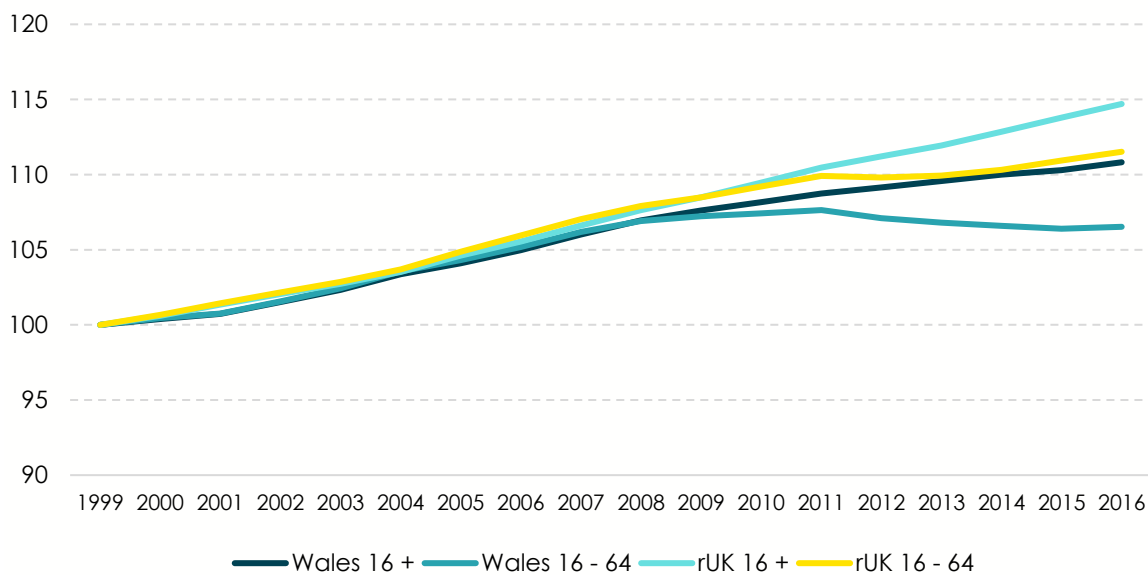
Underlying trends in NS-ND income tax base

Apart from UK government policy, a number of underlying demographic and economic factors would also have affected the recent performance of the Welsh income tax base.

A crucial factor in this analysis is that the population of Wales has been growing at a slower rate than the rUK. Annual growth in the adult population in Wales since 2008 has averaged 0.4 per cent, fully half the rate of growth in the rUK (0.8 per cent) as a consequence of lower life expectancies, lower birth rates and lower net international migration to Wales.

Furthermore, as can be seen in figure 2.8, there has been a similar divergence in the growth of the population aged between 16 and 64, the bulk of the working-age population, a population cohort which has actually reduced in size since 2011. In contrast to Scotland's fiscal framework arrangements, the Welsh Government will bear population-related risks, so differential growth in population will affect Wales' relative tax base growth. With the Welsh population growing at a slower rate than the rUK, per person revenues will need to grow at a faster rate in Wales for total revenues to keep pace with overall revenue growth in the rUK.

Figure 2.8: Population aged 16+ and 16-64, Wales and rUK (1999=100)



Source: ONS (2017)

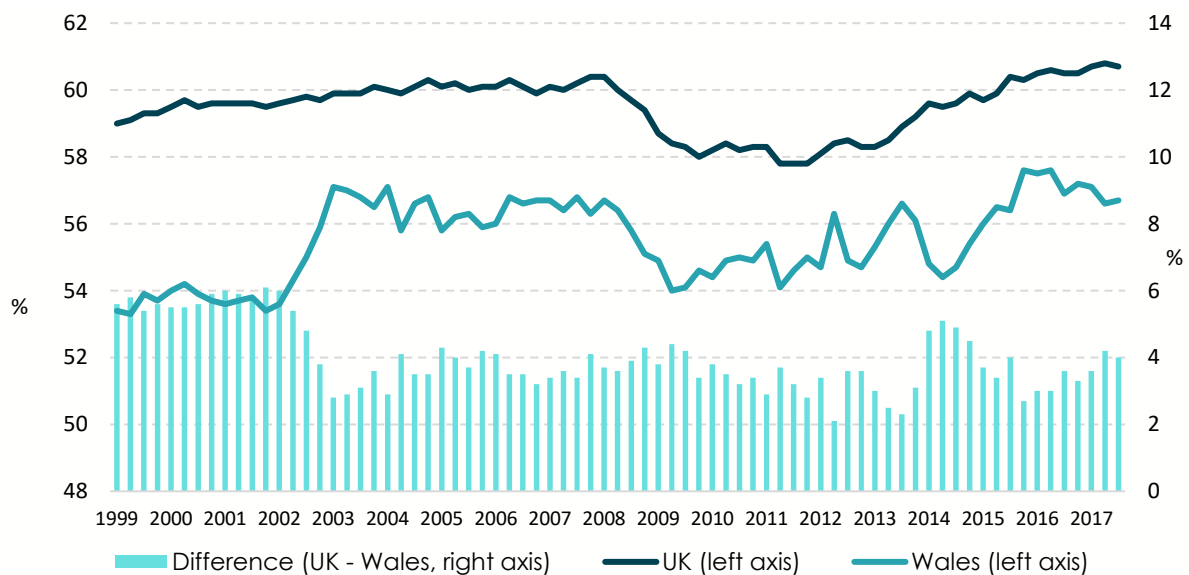
Although most taxpayers over the age of 65 continue to pay income tax on pension incomes, an ageing population will likely have an impact on the relative performance of the tax base because NS-ND incomes are generally lower for those aged over 65. Corresponding with the increasing share of people over 65 in Wales, the share of NS-ND income deriving from pension incomes has increased from 16 per cent in 2009-10 to 20 per cent in 2014-15.

Labour market trends in Wales and the rUK will also affect the future NS-ND income tax base. Divergence in employment rates, pay and productivity growth could result in a slower- or faster-growing tax base.

Although subject to considerable volatility, the employment rate in Wales has been steadily increasing since 2009. However, the gap in employment rates between Wales and rUK has

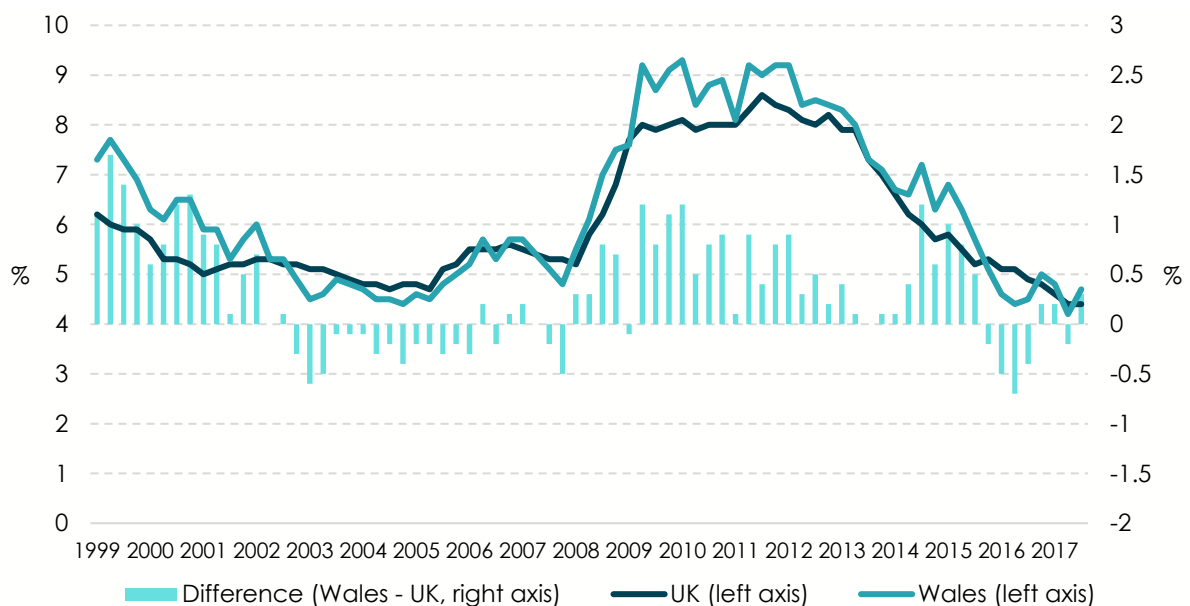
remained at approximately 3.6 percentage points over the past decade. A sharp rise in the employment rate in Wales in the early part of the last decade narrowed the gap with the rUK from over six percentage points in the first quarter of 2002 to under three percentage points in the second quarter of 2003. Since then however, there has been no significant trend in the employment rate gap (represented by the grey bars in figure 2.9).

Figure 2.9: Quarterly employment rate (16+) in Wales and UK, 1999-2017



Source: Statswales (2017)

Figure 2.10: Quarterly unemployment rate (16 - 64) in Wales and UK, 1999-2017

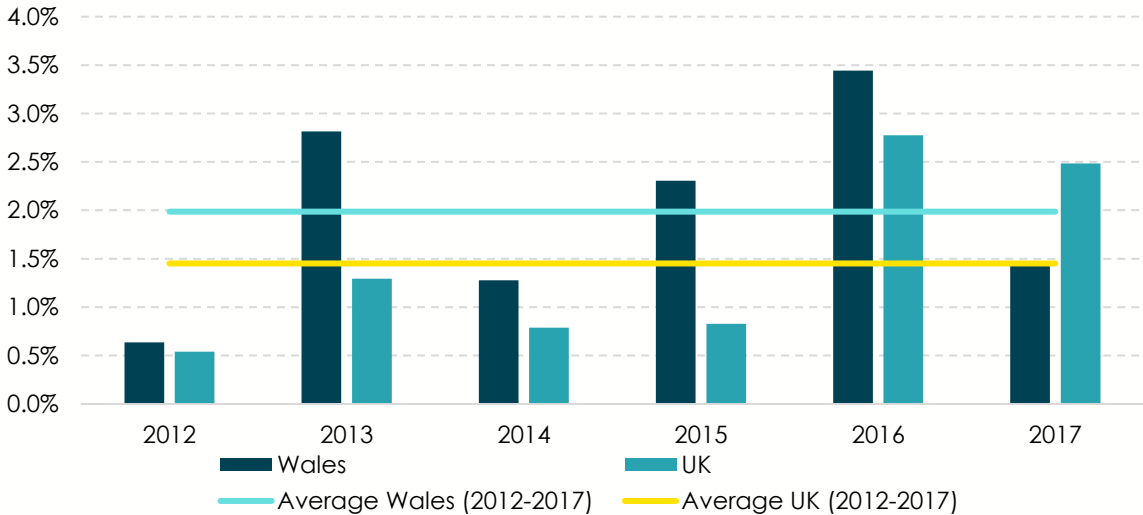


Source: Statswales (2017)

The unemployment rate in Wales has broadly followed UK trends for most of this period (shown in figure 2.10). Unemployment was slightly higher in the aftermath of the financial crisis but subsequently converged with the UK level, and was lower in Wales in each quarter of 2016. The similarity in unemployment rates point to higher levels of economic inactivity in Wales as the reason for this the persistent employment rate gap.

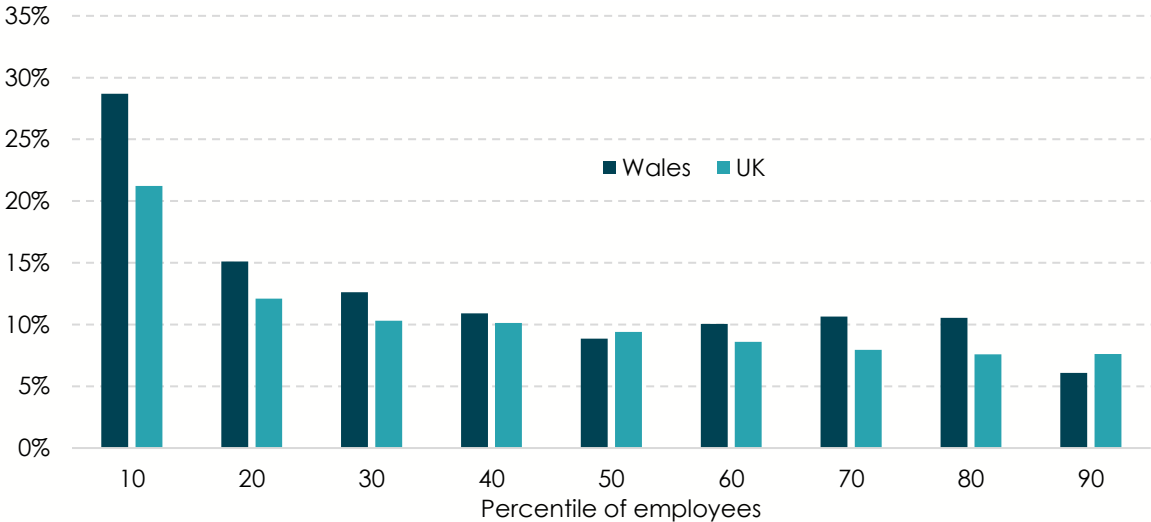
In addition to employment rates, patterns of pay growth will also be a key determinant of the NS-ND income tax base. Here, productivity will be crucial (See also figure 3.7). Figures from the Annual Survey of Hours and Earnings suggest that average annual pay of employees in Wales increased by 0.5 percentage points faster in Wales than in the UK as a whole between 2012 and 2017 (the time period for which we have comparable data).

Figure 2.11: Mean annual percentage increase in pay, Wales and UK (2012-2017, nominal)



Source: ONS (2017) Annual Survey of Hours and Earnings

Figure 2.12: Total increase in pay by percentile from 2011 to 2016, Wales and UK (nominal)



Source: ONS (2017) Annual Survey of Hours and Earnings

Although average annual pay rose more rapidly in Wales, investigating employee income distributions indicates that the increase in **median** annual pay was broadly consistent in Wales and the rUK between 2011 and 2016. As shown in figure 2.12, the largest increase was seen in the annual pay for the lowest decile of income earners, which was also the level of earnings with the largest differential between Wales and the UK. Because this level of income was below the personal allowance threshold, this pay growth divergence will not have influenced the relative performance of the NS-ND tax base. As illustrated in figure 2.4, it is relative trends in the pay of *higher-earning* individuals which have the largest impact on the relative performance of the Welsh tax base, simply because these taxpayers account for a much larger proportion of earned income.

This section has analysed some of the main differences between the Welsh NS-ND income tax base and that of the rUK, highlighting the factors which will affect the relative performance of the Welsh tax base and monies available to the Welsh Government's resource budget after the devolution of income tax. The following section considers the most important influences on the second-largest of Wales' new devolved taxes, the Land Transaction Tax.

2.2 Land Transaction Tax

From April 2018, the Stamp Duty Land Tax was replaced by the devolved Land Transaction Tax (LTT) in Wales. LTT is payable when buildings or land are bought or leased, and the Welsh Government is able to determine its own thresholds, bands and rates.

The tax policy options made available by the devolution of Land Transaction Tax has already sparked debate, with the Welsh Government having announced new rates and thresholds as part of its Draft Budget for 2018-19 in October 2017. Contributing to this discussion, this section analyses some of the underlying characteristics and trends in the property transaction tax base in Wales.

Characteristics of Wales' property transaction tax base

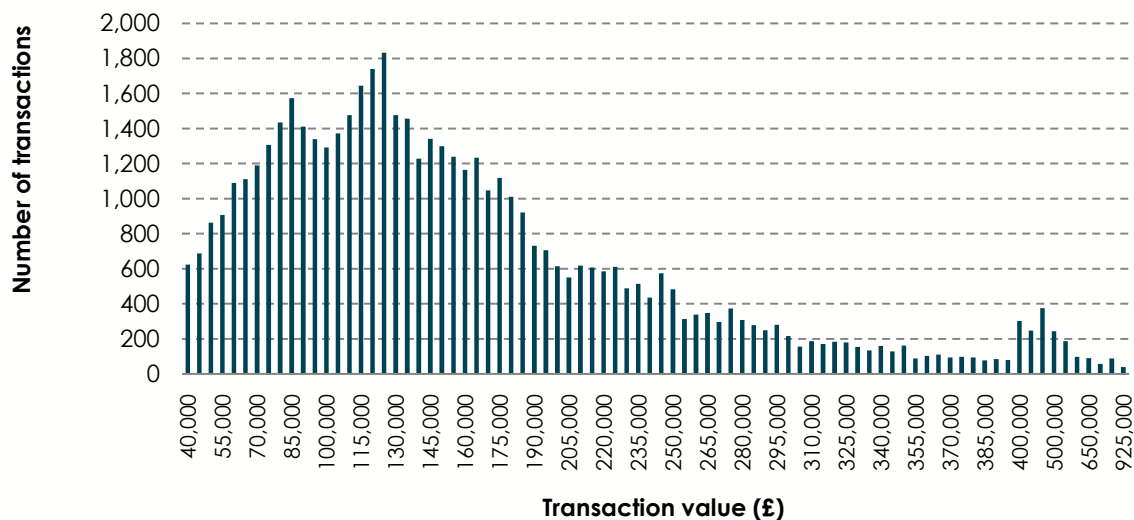
In 2016-17, SDLT raised £210 million in Wales from 59,000 property transactions. Residential property transactions accounted for two-thirds of receipts; the 6,000 non-residential transactions accounted for the remainder.

Figure 2.13 presents the price distribution of residential property transactions in Wales in 2015-16. Nearly 42 per cent of transactions were valued below £125,000, the starting threshold under the current SDLT system. Nearly 69 per cent of transactions would have fallen below the proposed £180,000 starting threshold for the new LTT structure now

implemented by the Welsh Government. Only 14 per cent of transactions were above £250,000, and three per cent above £400,000.

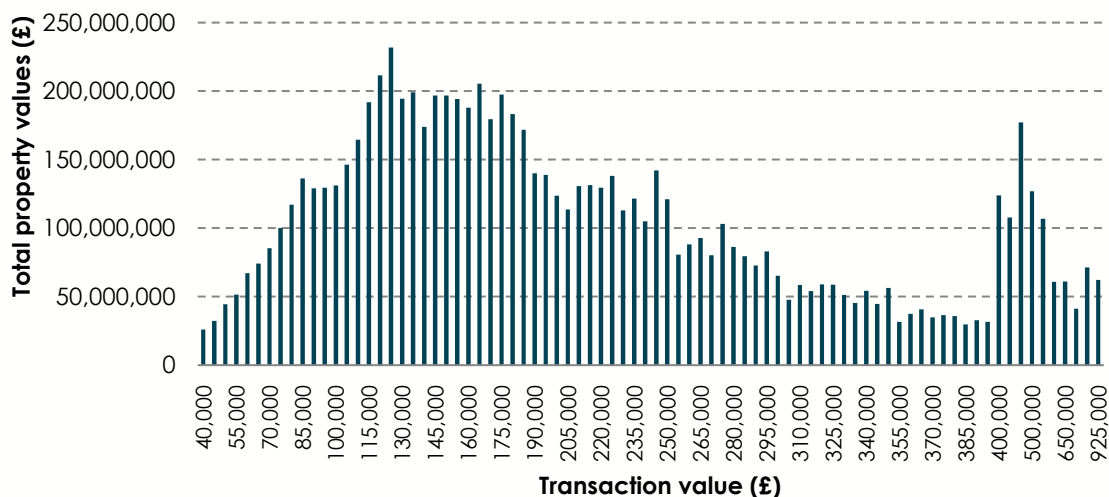
However, in parallel with income tax, this relatively small number of higher valued transactions accounted for a larger share of total transaction property values. For instance, the 14 per cent of transactions over £250,000 accounted for nearly a third of the value of transactions, while the top three per cent above £400,000 accounted for 11 per cent. Under the previous SDLT system, these higher-valued transactions accounted for an even higher share of total receipts; 72 per cent of receipts came from transactions over £250,000, while 36 per cent were derived from transactions over £400,000. The share of revenue deriving from higher valued transactions is likely to increase with the new LTT structure, as a result of the higher starting threshold for transactions and the higher rates that will be applied to higher bands.

Figure 2.13: Price distribution of property transactions in Wales, number of transactions (2015-16)



Source: Bangor University (2017)

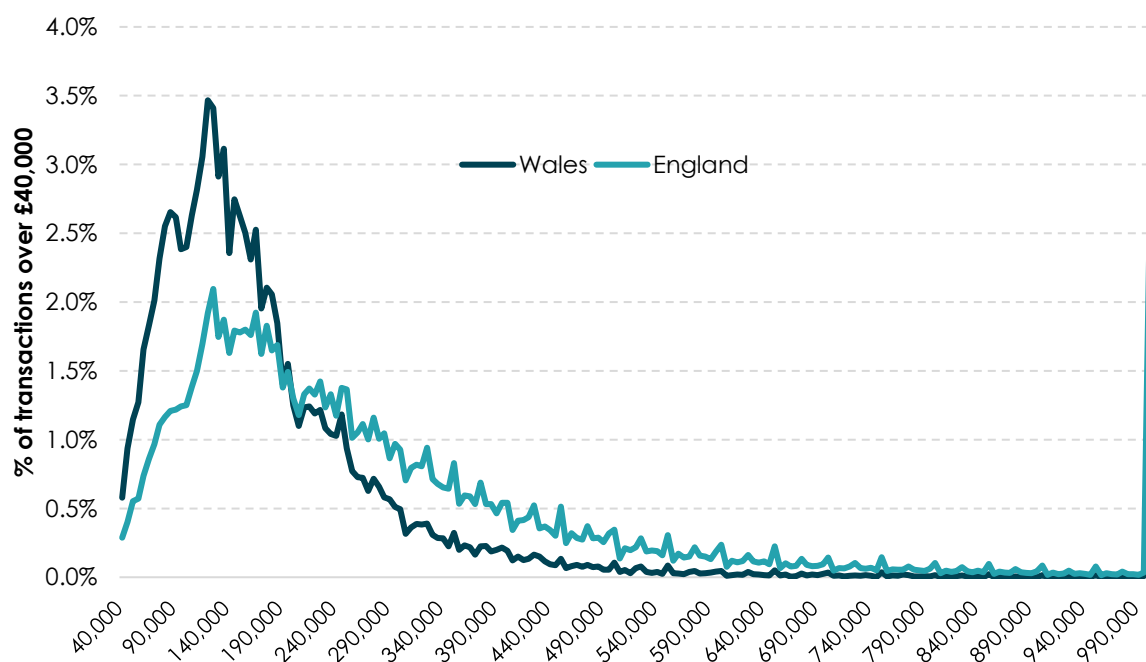
Figure 2.14: Price distribution of property transaction in Wales, total property values (2015-16)



Source: Bangor University (2017)

In its 2017 devolved tax forecast, the Office for Budget Responsibility observes that the large share of houses below the starting threshold has implications for tax policy and likely future growth in revenues. Firstly, many transactions are only taxable if they are subject to the surcharge on second (and additional) properties, so this source of revenue is particularly important in Wales. Second, as Wales' price distribution is skewed towards lower-value transactions, there is increased likelihood of 'fiscal drag' in Wales compared with the rUK. This is the case of transactions that are currently not liable for tax becoming so over time, with house price inflation and fixed thresholds, potentially leading to faster revenue growth in Wales.

Figure 2.15: Price distribution of property transactions, Wales and England (2016)



Source: HM Land Registry Price Paid Data

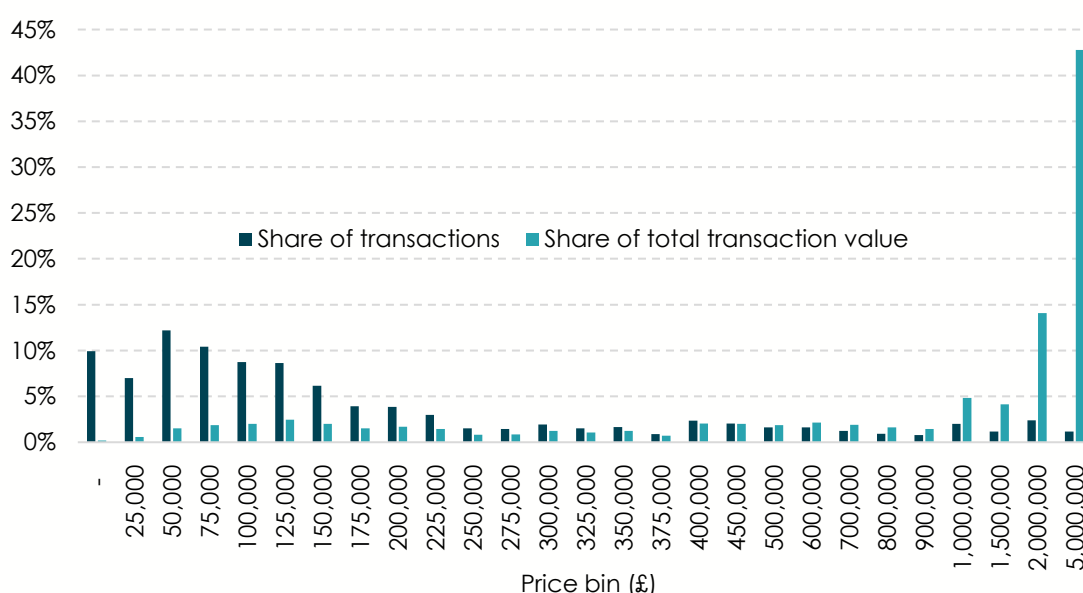
Figures from HM Land Registry Price Paid data (figure 2.15) illustrate the significant variation in the house price distribution in Wales from that in England. A far smaller share of properties in England are sold at lower prices, meaning England's property transaction tax base is much more dependent on higher-valued transactions. Although only a negligible portion of SDLT in Wales is raised from transactions valued over £1 million, these transactions account for over a third of revenues in the rUK. Transactions valued over £2 million are particularly important and comprise a fifth of all SDLT revenues raised in the rUK.

A clear implication of Wales' different price distribution is that changes to UK government policy (which affect the block grant adjustment through changing comparable revenues in the rUK) will have very different effects in Wales if they are also applied by the Welsh Government to the LTT structure. Some UK-wide factors which effect property transactions

at different points along the price distribution (e.g. international investment into higher-end property) will also have a different effect on the Welsh tax base compared with the rUK.

The non-residential property transaction tax base in Wales is far more reliant on higher value transactions. Figure 2.16 shows the distribution of (freehold and lease premium) transactions and of total transaction value by property price in 2015-16. Although there were only 45 transactions over £5 million, these transactions accounted for 43 per cent of the total transaction value in 2015-16. Non-residential lease transactions are similarly dependent on high-value transactions: the 64 lease transactions worth over £2 million accounted for 36 per cent of total transaction value.

Figure 2.16: Non-residential (freehold and lease premium) SDLT – share of transactions and total transaction value by property price (2015-16)



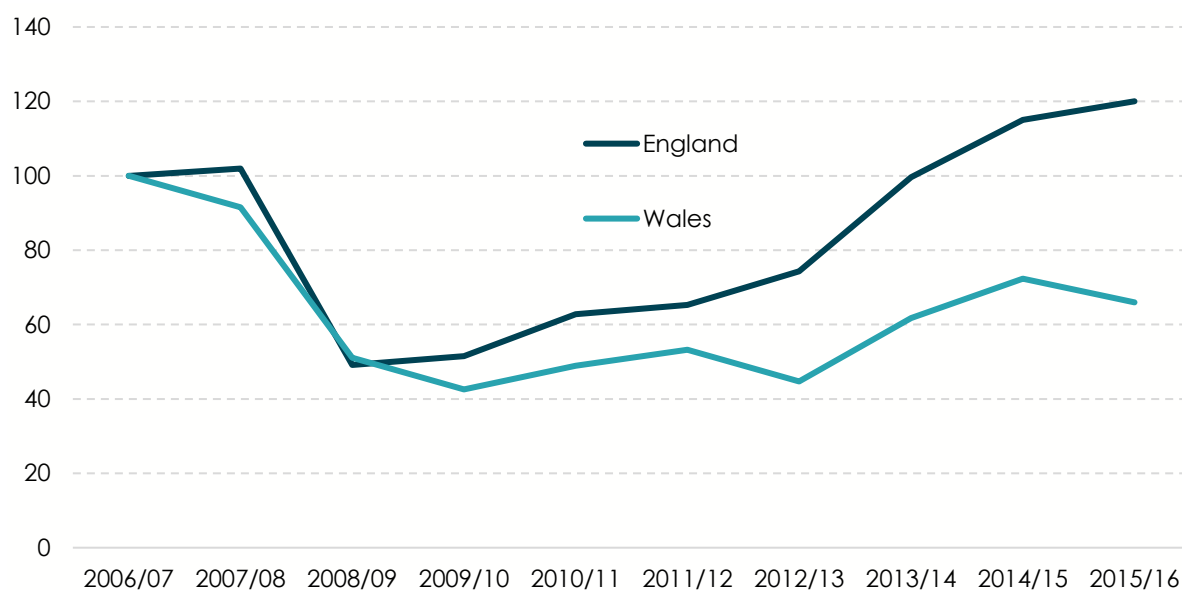
Source: Bangor University (2017)

Taking freehold and leasehold transactions together, two-thirds of non-residential SDLT revenue in 2015-16 was generated by transactions over £2 million. The equivalent figure for the rUK in 2015-16 was 69 per cent. The large share of revenue generated by such a small number of high-valued transactions means devolved non-residential LTT will be highly volatile: Just 10 fewer freehold transactions over £5 million in 2015-16 could have reduced revenues by £7 million.

Past trends in Wales' property transaction tax base

With such obvious differences in the characteristics of the property transaction tax base in Wales, it is little surprise that trends in SDLT revenue have often followed a different path to the rUK. After peaking in 2006-07, SDLT revenues declined significantly in subsequent years. While revenues in the rUK have recovered (reaching 2007-08 levels again by 2014-15), revenues in Wales have failed to recover.

Figure 2.18: Stamp Duty Land Tax receipts, Wales and England (2006-07=100)



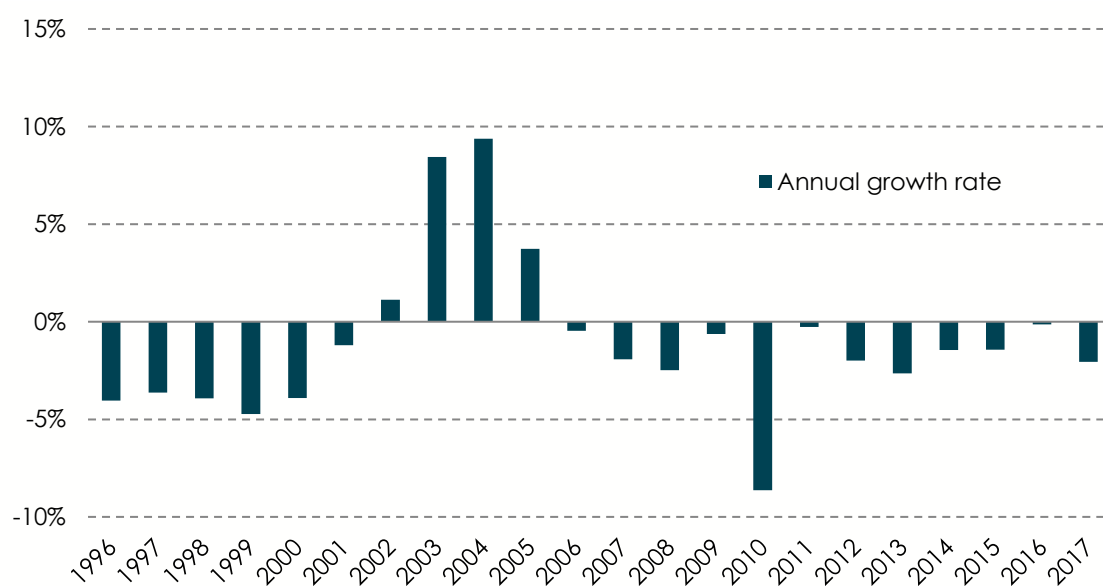
Source: ONS (2017) *Country and Regional Public Sector Finances*

Some of the poorer performance in revenues can be explained by UK Government policies having a differential effect in Wales. Much of the reforms of the SDLT tax system - such as moving away from the old “slab” system, increased taxes on higher value transactions - which would have raised more revenues in the rUK compared with Wales.

Growth in the number of transactions in Wales has roughly kept pace with the rUK. But because average property prices in Wales did not recover as quickly from the financial crisis, SDLT revenue growth has not kept pace with the rUK. Figure 2.19 shows the deviation in average house price growth in Wales from the English average from 1996 to 2017. After much stronger growth in Wales in the first part of the last decade, average house prices dropped more markedly in Wales than in England during the financial crisis. House prices have grown by an average of two percentage points more slowly in Wales than in England since 2006.

As will be explored in section 3, future trends in the number and value of property transactions in Wales compared with the rUK will be crucial in determining the budgetary effect of SDLT devolution.

Figure 2.19: Percentage point deviation of house price growth in Wales from England average, 1996 – 2017



Source: HM Land Registry Price Paid data and authors' calculations

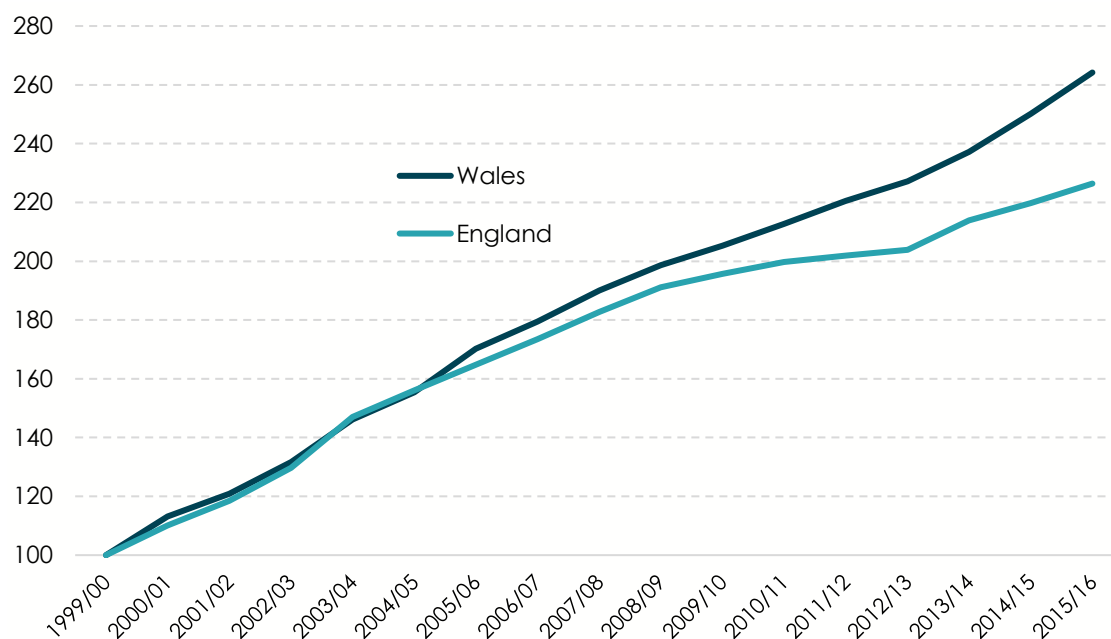
2.3 Council Tax

In contrast to the new Welsh taxes introduced in the previous sections, most aspects of the council tax system have been administered by the Welsh Government since devolution in 1999. Introduced in 1993, the tax can be considered a hybrid tax; it is partly a tax on (historic) property value and partly a charge for local services, with reliefs, exemptions and rebates reflecting household characteristics. An integral part of local council budgets, it is levied by local authorities based on property values subject to bands set at the 2003 revaluation. £1.4 billion was raised from over 1.3 million properties in Wales in 2016-17.

The Council Tax system in place lacks buoyancy; annual marginal changes in value have no impact on council tax liability for individual households or total revenues. Assessed values of properties do not change until a revaluation takes place; an undertaking which has not occurred in Wales since 2003 and in England and Scotland since 1991. This means that local authorities need to increase Council Tax levels on an annual basis simply to keep up with inflation, let alone with the values of properties in their area.

As shown in figure 2.20, Council Tax revenue in Wales has grown more quickly in Wales than in England over the last decade. From 2009-10 to 2016-17, average band D council tax bills were increased at a faster rate in Wales, partly offsetting some of the cuts in grant funding (Luchinskaya et al. 2017). The Welsh Government decided not to institute a council tax freeze (as in Scotland) or a tight cap on increases (as in England).

Figure 2.20: Trends in Council Tax revenue, Wales and England (1999=100)

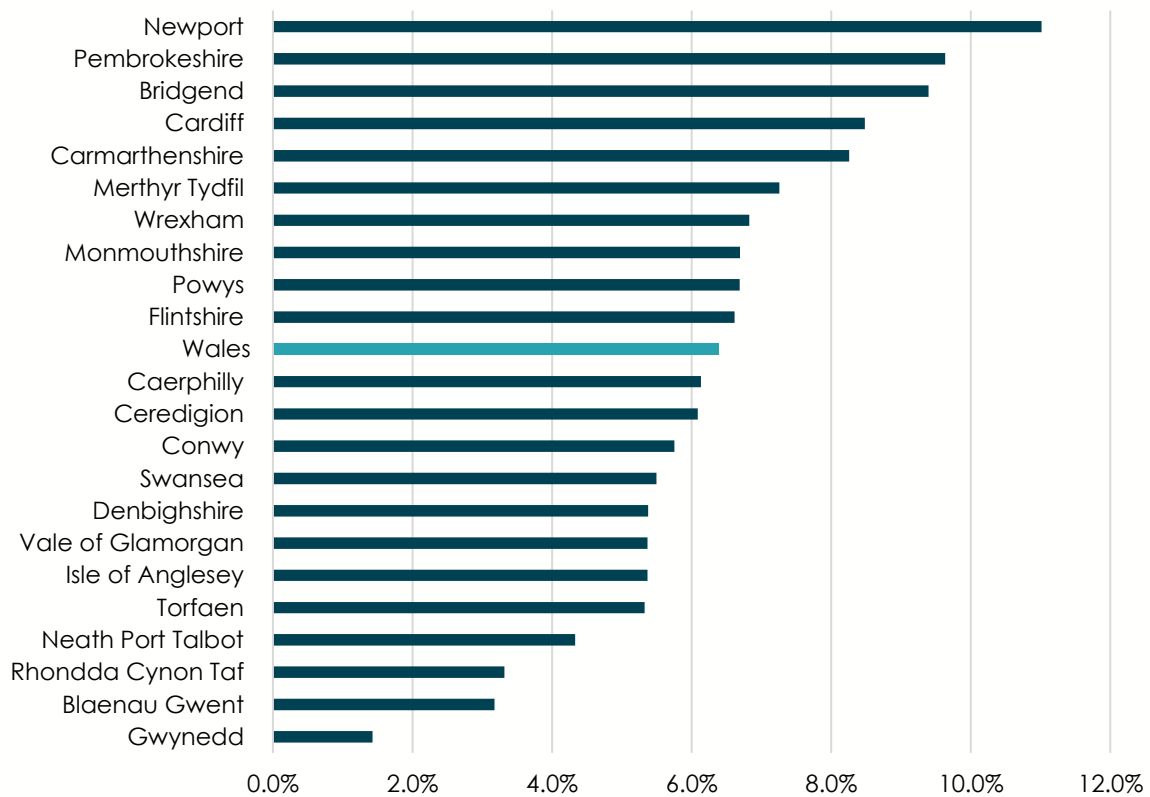


Source: ONS (2017) Country and Regional Public Sector Finances

Council Tax revenue is also influenced by the total number of chargeable dwellings. Housebuilding and therefore growth in this number has been slower in Wales than in England, with annual average increases of less than 0.6 per cent between 2006-07 and 2017-18 (compared with 0.75 per cent in England). Growth in chargeable dwellings slowed after 2008 in both Wales and England, but picked up again in more recent years.

But average growth rates in dwellings across Wales over this period conceals significant variation between the 22 local authorities. Unsurprisingly, the fastest growing local authorities in population terms - Cardiff, Newport and Bridgend – have been subject to the most rapid growth in chargeable dwellings. In contrast, Rhondda Cynon Taf, Blaenau Gwent and Gwynedd recorded growth in chargeable dwellings of less than four per cent over the entire period since 2005-06 (when the last Wales-wide revaluation took effect).

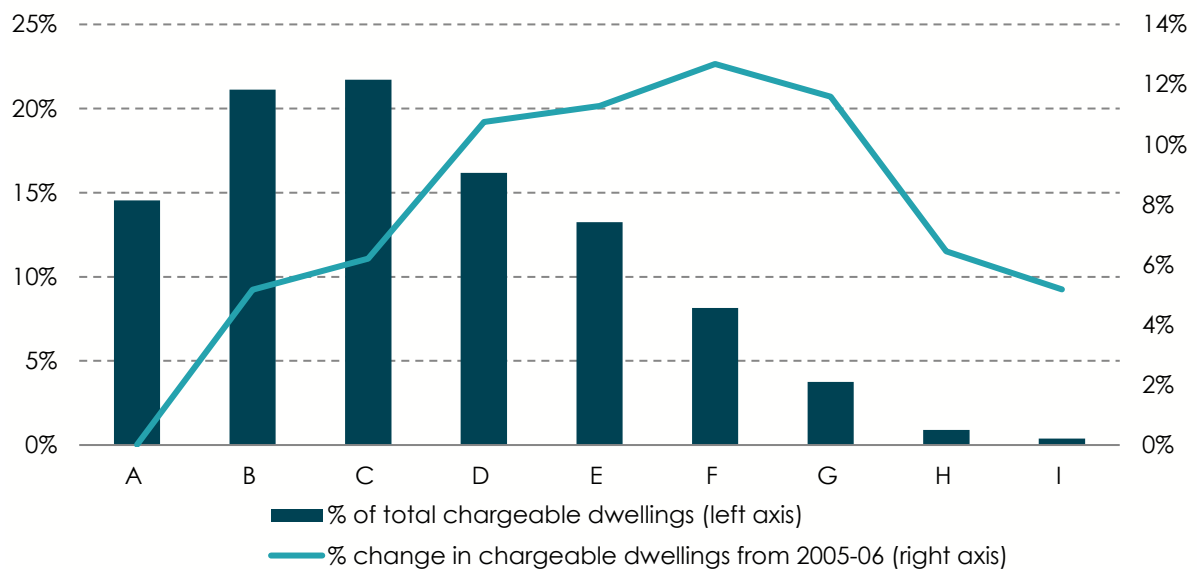
Figure 2.21: Growth in chargeable dwellings by Local Authority, 2005-06 to 2017-18



Source: Statswales

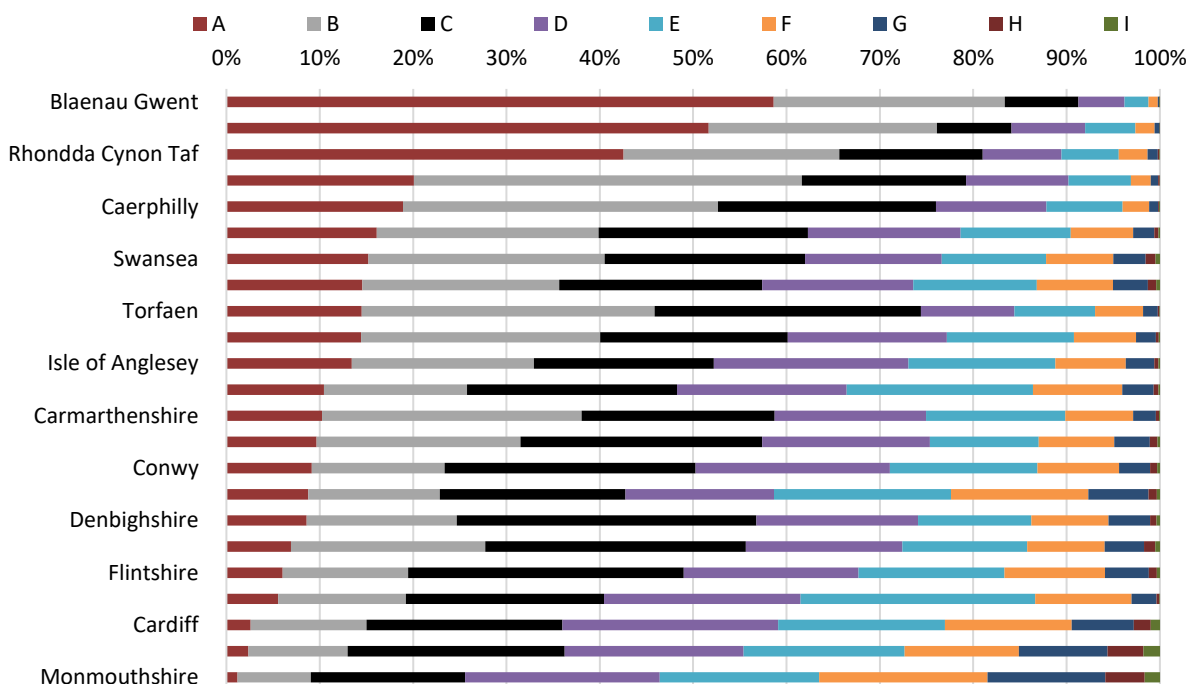
Figure 2.22 shows the distribution of chargeable dwellings by band in 2017-18 and the percentage change from 2005-06. As is the case elsewhere in the UK, properties are heavily concentrated in the bottom bands; 57 per cent of chargeable dwellings in Wales are in bands A, B or C, while only five per cent are charged in the top three bands (G, H and I). The number of chargeable dwellings in higher bands however has increased more rapidly than in the lower bands since 2005-06.

Figure 2.22: Chargeable dwellings by band in 2017-18 and change from 2005-06, Wales



Source: Statswales

Figure 2.23: Chargeable dwellings by band and local authority, 2017-18



Source: Statswales

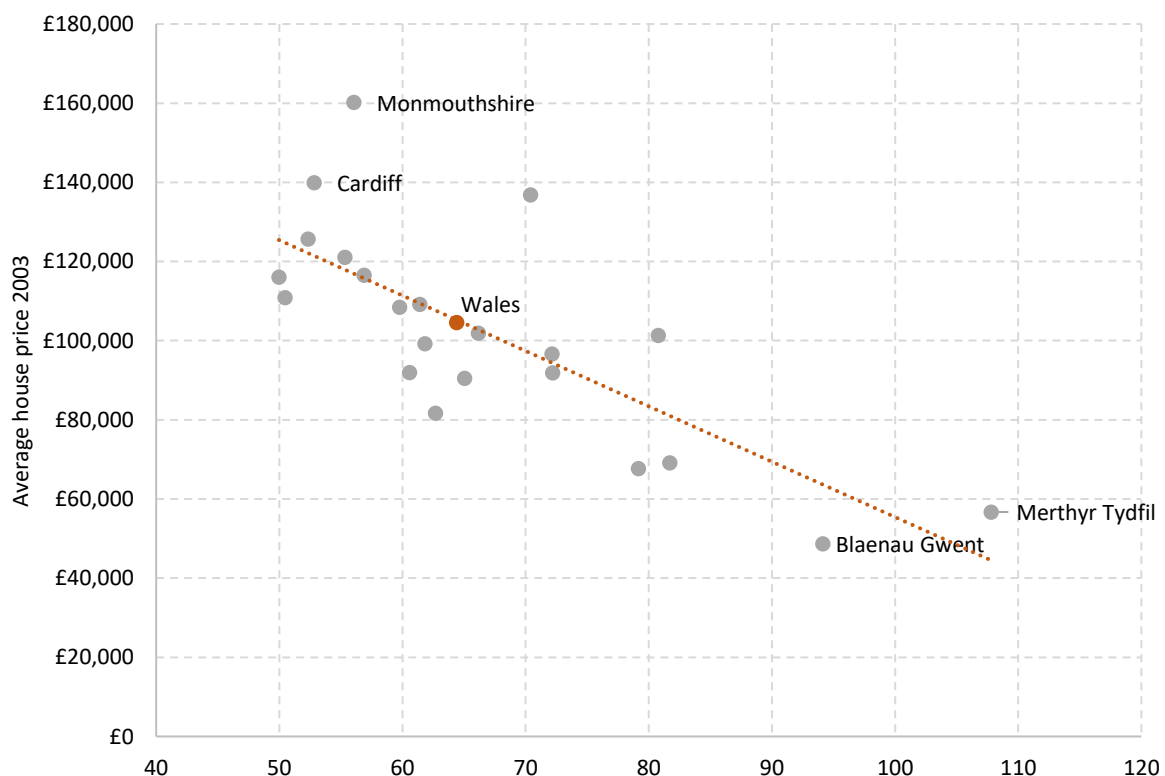
As illustrated in figure 2.23, and reflecting the significant differences in the distribution of property values at the 2003 revaluation, there are large variations in the proportion of dwellings in each band across local authorities. Across Wales the percentage of properties rated in the lowest band (A) is less than 10 per cent in 10 local authorities, but this proportion

risers to more than 50 per cent in Blaenau Gwent and Merthyr Tydfil. More than half of all properties rated in the top two bands (H and I) are located in just three local authorities: Monmouthshire, the Vale of Glamorgan, and Cardiff.

Since the revaluation in 2003 there has been an element of convergence in average property prices across Wales' local authorities. As shown in figure 2.24, the local authorities with the lowest average house price in 2003 have tended to be subject to the fastest increase in house prices to 2016. Much of this convergence occurred in the years immediately after 2003; ratios between average house prices in different local authorities since the financial crisis have remained relatively constant.

Evidence of some convergence in house prices would suggest some of the large variations in the composition of bands in different local authorities would be reduced if there was a revaluation to align assessed values with current market prices. Average increases in Band D Council Tax by local authority are very weakly correlated with average increases in house prices and (weakly) negatively correlated with changes in disposable household income by Local Authority - further evidence that changes in Council Tax revenue do not reflect growth in the underlying tax base.

Figure 2.24: Average house price by local authority in 2016 and percentage change from 2003



Source: HM Land Registry Price Paid data and authors' calculations

A further disruptive feature of the banding system is that Council Tax rates are regressive relative to its base: the more the dwelling is worth, the less is paid in Council Tax as a proportion of its value (as shown in figure 2.25). Although the tax levy in Band H is twice that for Band D, a Band H property could have been worth four times the value of a Band D property in 2003. The system also does not distinguish between properties located in the same band: properties valued just above a threshold in 2003 could be subject to the same levy as a property worth many times more. Moreover, subsequent changes in price relativities are of course not captured over time.

Figure 2.25: Average effective council tax rates by property value in Wales, 2003



Because people living in smaller and cheaper housing are subject to higher effective tax rates relative to property values, a greater burden is faced by households that are poorer, younger and/or living in less affluent areas. Across Wales, Council Tax takes a higher share of disposable income from poorer households, even after accounting for the Council Tax Reduction Scheme (Welsh Government 2017a). A revaluation, updating of bands or a more comprehensive tax reform would inevitably create winners and losers. But the evidence of unfair burdens illustrated here suggests a strong case for reform.

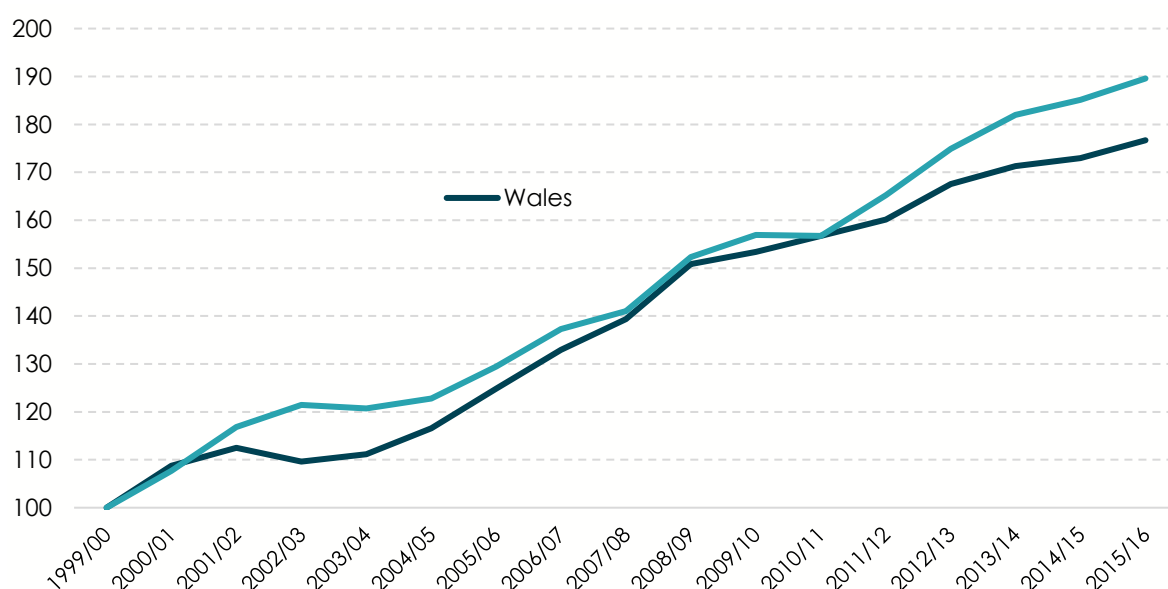
2.4 Non-Domestic Rates

Responsibility for the financial management of Non-Domestic Rates ('NDR') was fully devolved to the Welsh Government in April 2015, and changes in the amount of NDR collected in Wales now directly influence the size of the Welsh budget.

NDR is raised from businesses and other non-domestic properties, and the receipts are pooled and distributed back to local authorities. The Valuation Office Agency (VOA) assesses the rateable value of properties normally every five years, and the rates for each property is calculated after a multiplier is applied to this rateable value. The multiplier is set centrally by the Welsh Government each year and is usually increased up to the RPI measure of inflation.

NDR was levied on 109,000 properties in Wales and receipts (net of refunds) totalled £962 million in 2016-17. Revenues in Wales have grown slightly more slowly than in England since 2010-11.

Figure 2.26: Trend in non-domestic rates revenue in Wales (1999-00 = 100)



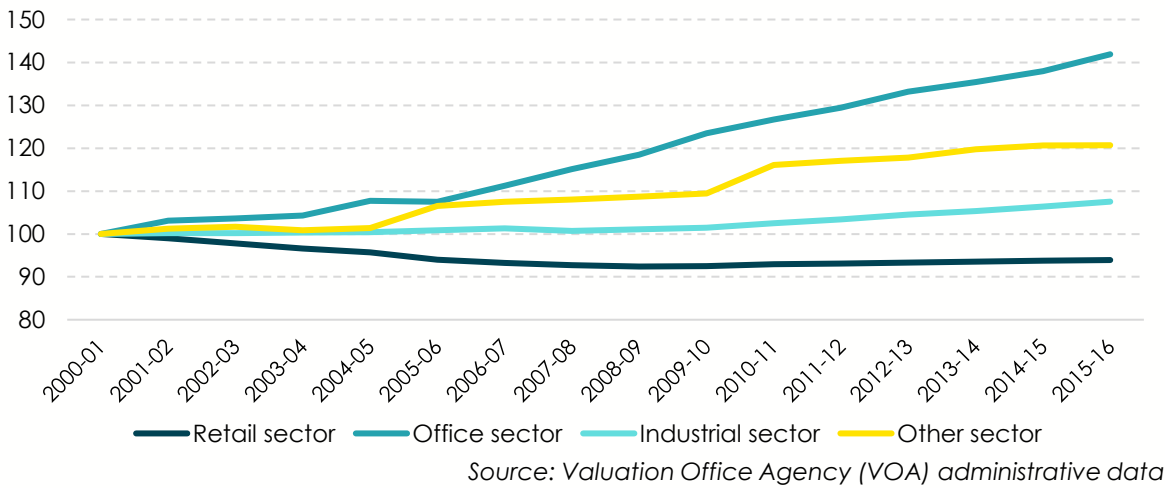
Source: ONS (2017) *Country and Regional Public Sector Finances*

NDR revenues can also vary with the underlying tax base if there is a change in the number (or average value) of rateable properties from year to year. Average annual growth in total number of rateable properties in Wales has increased broadly in parallel with England since 2003-04, with average annual growth increases of just under one per cent each year to 2015-16, recovering from a slight fall in previous years.

As illustrated in figure 2.27, the number of rateable properties added to the Welsh tax base varied significantly by sector over this time period. In a similar pattern to England, the retail sector – which accounts for one-third of the number of rateable properties in Wales - recorded a slight fall in the number of properties. The number of industrial sector properties

increased steadily in more recent years but fell as a proportion of total properties, primarily because of a rapid increase in the number of office sector developments.

Figure 2.27: Rateable properties by sector (2000-01 = 100)



Although the total number of retail sector properties fell during this period, the *average value per rateable property* in the retail sector has increased significantly since 2000-01, outpacing the average value per rateable property in the industrial sector. Therefore, retail's share of overall rateable value in Wales has increased despite a smaller overall number of rateable properties. As shown in figure 2.28, average rateable value per square metre in Wales remains below that of England across all sectors, with the office sector subject to the largest differential.

Figure 2.28: Average rateable value per square metre by sector in Wales and England

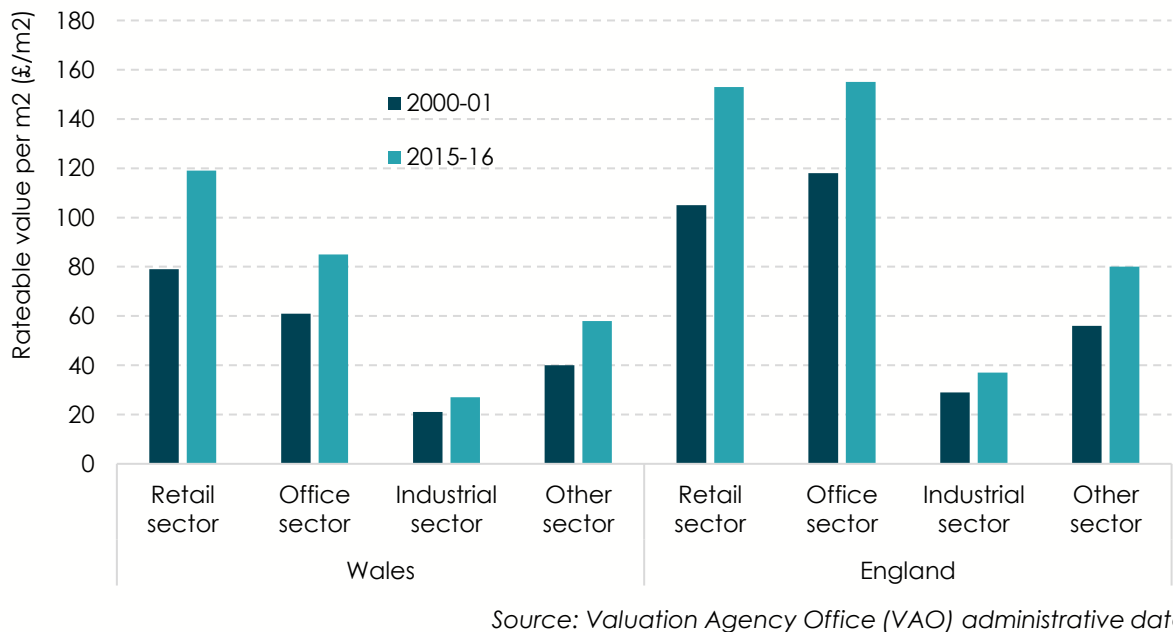
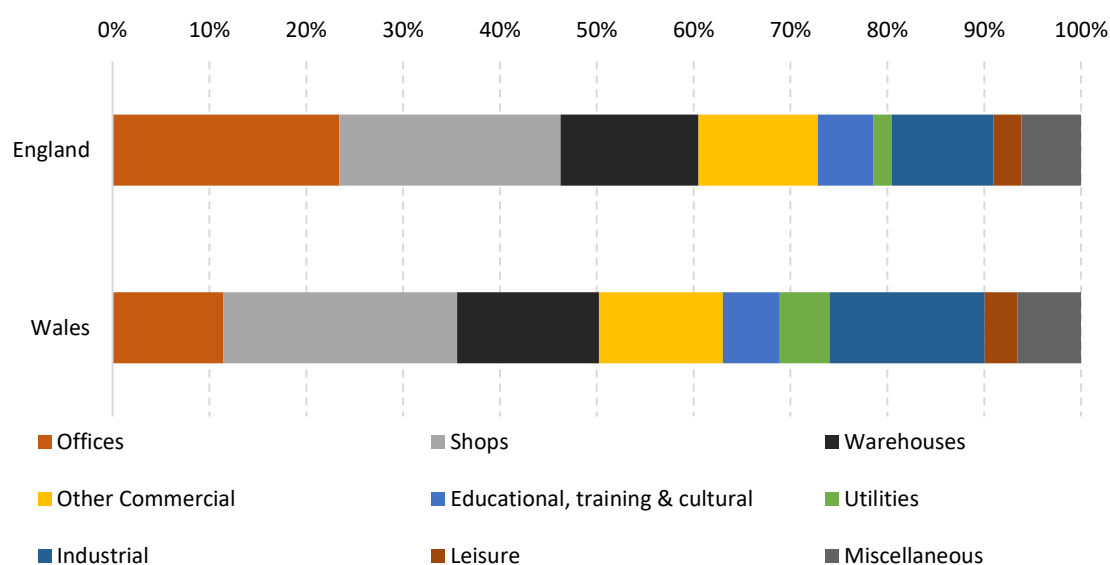


Figure 2.29: Rateable value by property type, 2015-16



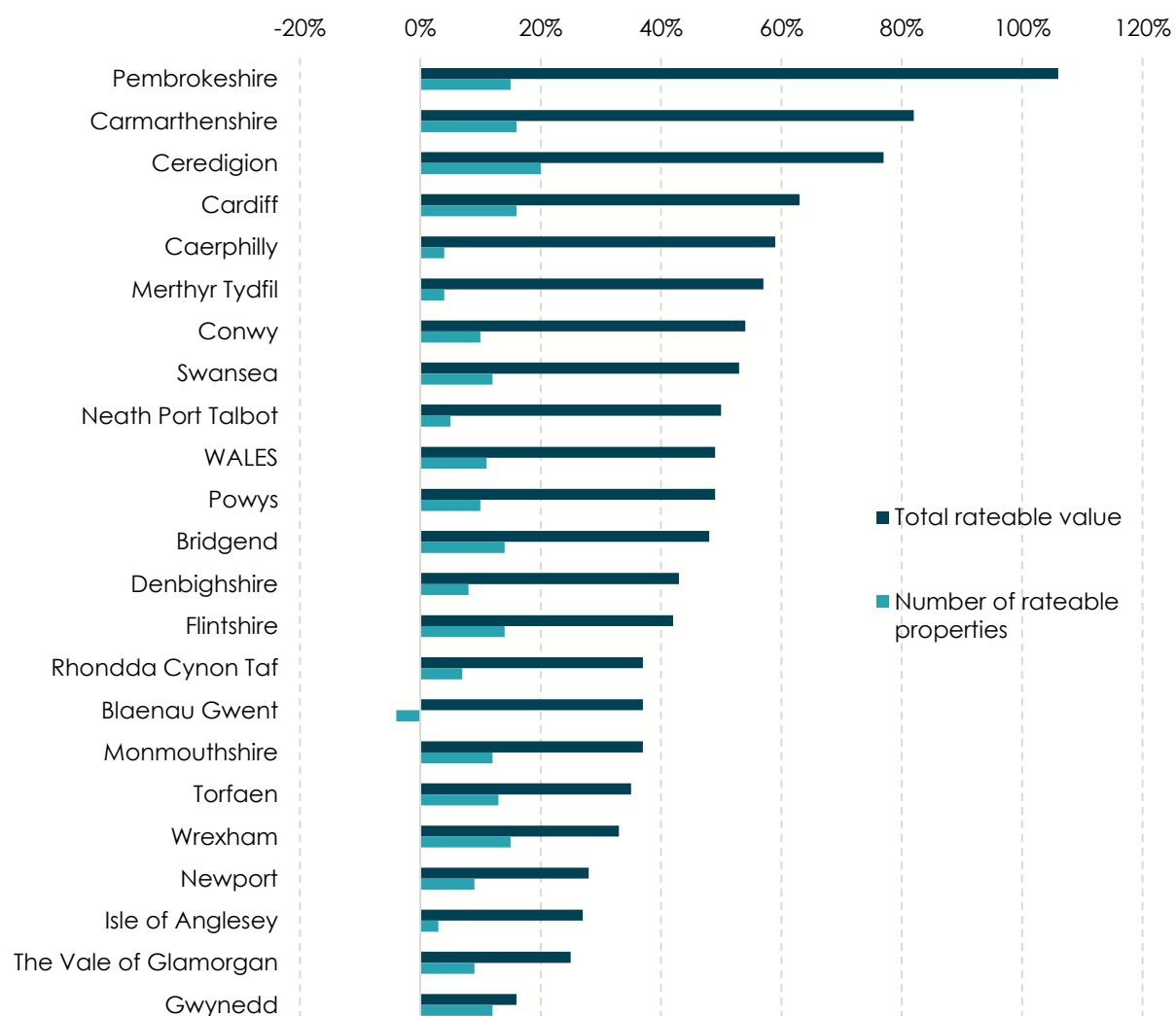
Source: Valuation Agency Office (VAO) administrative data

These sectoral differences in the Welsh NDR tax base compared with England can be identified via the shares of total rateable value derived from different types of properties on the local list.⁸ Industrial and utilities properties account for a much larger share of the NDR tax base in Wales. In contrast, office properties are much more prominent in the English tax base. These differences in tax base composition increases the likelihood of different growth rates between Wales and England if certain sectors experience asymmetric economic shocks.

As with council tax, there is significant variation in trends in the NDR tax base across the 22 local authorities, with some seeing far more rapid growth in total rateable value than others in recent years. Overall, Cardiff accounts for approximately 20 per cent of total rateable values in Wales, a share which has been steadily increasing in recent years. This means tax base trends in the capital will likely have a large impact on total NDR collections in the future.

⁸ Local authorities are responsible for collecting NDR from properties on the local list, which accounts for around 90% of total NDR raised in Wales. The smaller Central List (collected centrally by the Welsh Government) accounts for the rest.

Figure 2.30: Change in total rateable value and the number of rateable properties by local authority (2000-01 to 2015-16)



Source: Valuation Agency Office (VAO) administrative data

Overall, only a relatively small number of properties in Wales have a high rateable value, with only 200 properties valued over £1m. These properties are however very important to overall revenues, and changes in the number and nature of these types of properties have a large bearing on overall trends in the NDR tax base. As highlighted in a recent (2017) Bangor University report, if just 10 properties with a rateable value of £3 million each were lost through moving elsewhere or closure, total revenue would fall by 1.5 per cent. This is particularly true for certain industries – just 10 iron & steel works properties account for nearly two per cent of total rateable value on the local list.

2.5 Landfill Disposals Tax

The Landfill Disposals Tax (LDT) was introduced in Wales from 1 April 2018, replacing the UK Government's Landfill Tax. The purpose of LDT is to reduce the amount of waste sent to landfill. It is paid by around 20 landfill sites across Wales, and is forecast to raise around £28 million in 2018-19 (Bangor University 2017), making it by far the smallest of the tax revenues under Welsh Government control. The Welsh Government announced that the lower rate (charged on non-hazardous and low polluting waste) and standard rate will remain consistent with those in the rUK for a period of two years.

Declining amounts of standard rate waste from Welsh Local Authorities (ibid) has led to declining revenues from the tax in recent years. Revenues are forecast to decline by a fifth by 2021-22, depending on future trends in standard waste. The OBR forecasts Landfill Tax in the rUK will also decline over coming years. Given the relatively small amount of revenue generated by the tax, it presents very little risk to the overall Welsh budget. The devolution of the tax does however present another environmental policy lever for the Welsh Government, and future trends in revenue will reflect its success in reducing waste to landfill in Wales.

3. Risks and Opportunities

3.1 Employment and wage growth

As outlined in section 2, differing labour market trends in Wales will influence the relative performance of the NSND income tax base in Wales after partial tax devolution in April 2019. This section explores the potential impact of devolved taxes on the Welsh budget if employment and earnings grow relatively faster or more slowly than in the rUK.

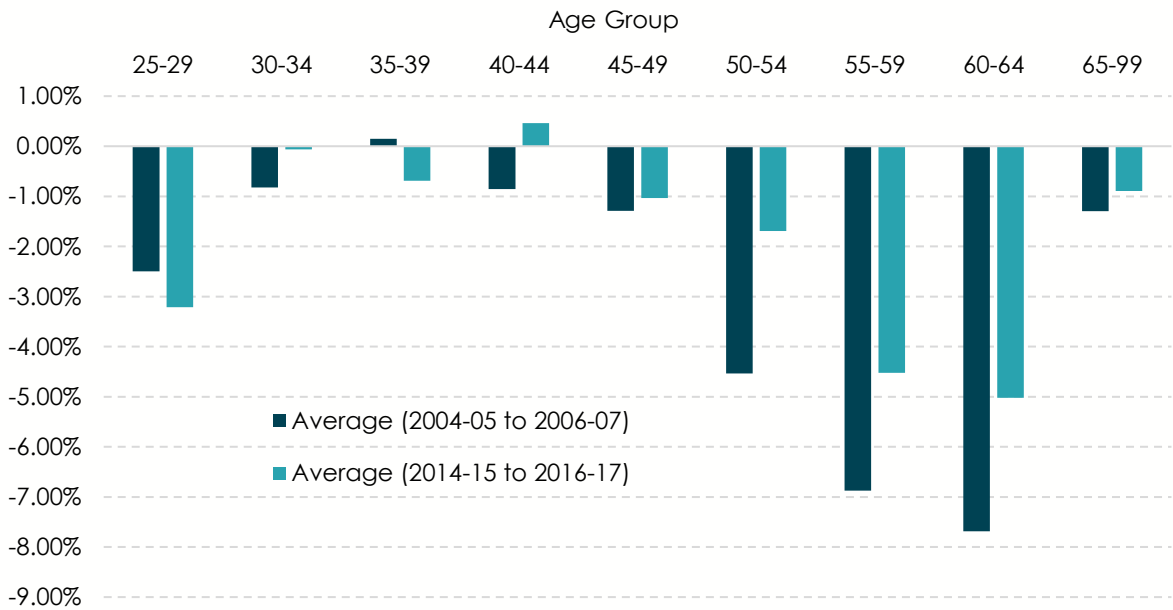
To calculate a number of possible scenarios, this section uses data from the Survey of Personal Incomes (SPI) to run a microsimulation of devolved tax revenues drawn from various assumptions of growth in the Welsh tax base. We use the latest available data for 2014-15 as a base year to calculate NSND income from different sources of income for each individual in the sample. We adjust this for reliefs and allowances before applying thresholds for each income tax band to estimate taxable income at each band. Rolling this dataset forward, each individual's different sources of income are grown according to various average earnings growth assumptions. Demographic and labour market participation changes are captured by adjusting the weighting applied to each individual in the sample from year to year, assuming different levels of population and employment rate growth for each age category. Allowances and thresholds are updated according to previously-announced UK government policy (or Conservative party manifesto commitments). On the basis of these assumptions the microsimulation model projects devolved income tax revenues from Welsh taxpayers through to 2029-30 along with comparable revenues in the rUK (excluding Scotland) to calculate the Block Grant Adjustments (BGA). A full methodology can be found in appendix B.

As explored in section 2.1, there has been a persistent gap of around three to four percentage points between the age 16+ employment rate in Wales and rUK for many years. Some of this gap can be explained by a higher percentage of the Welsh population aged over 65 (20.4 per cent, compared with 17.8 per cent in rUK). Over the last 10 years, the average gap in the employment rate for those aged between 16 and 64 has been 2.6 percentage points between Wales and the rUK, compared with 3.6 percentage points for all those aged 16 and over.

There are also stark differences in the employment rate gap when disaggregated between different age categories; this is shown in figure 3.1. The largest and most persistent gap in the employment rate between Wales and the rUK is for those aged between 55 and 65; in contrast, the gap for those aged 35 and 44 is negligible. One possible explanation for this is a differential age effect in Wales; for example, if higher levels of ill health in Wales are associated with individuals leaving the labour market at a younger age. However, another

explanation relates to a ‘cohort effect’, in which labour market participation by those currently in the 55-64 age group was permanently affected by events in the past, such as being in their 20s and 30s during a period of very high unemployment in the mid-1980s that disproportionately affected Wales. Evidence of this cohort effect can be found by comparing data from a decade ago; the difference in employment rate for those aged 50-54 has decreased significantly as individuals have moved into older age groups.

Figure 3.1: Average percentage point difference in the employment rate between Wales and rUK by age group



Source: ONS Social Survey Division (2017) Annual Population Survey and authors' calculations

Over the next decade individuals in the 55-64 age group will reach retirement age, at which point their labour market participation will fall in Wales as well as in the rUK. This cohort affect for this age group is so stark that their retirement could cause the overall employment rate in Wales (especially for those aged between 16 and 64) to converge with rates in the rest of the UK.

The OBR November 2017 forecast for the (16+) employment rate for the UK as a whole after 2019-20 is relatively stable, though subject to steady decline. We model two alternative future scenarios of employment rates to test for the effects on projected devolved income tax receipts. The central projection assumes that employment rates by age group stay unchanged in both Wales and in the rUK, and uses the income growth assumptions outlined below. SPI data allows us to disaggregate taxpayers into seven different age groups, each of which is grown in line with the ONS 2016-based principal population projections to capture demographic shifts in the population. The second projection models the effect on devolved revenues if employment rates for each age group in Wales converge with those in the rest of the UK (so that they are the same by 2029-30). Both scenarios are shown in figure 3.2.

Assuming that average taxpayer employment income is not affected by a more rapid increase in employment, annual growth in devolved revenues is 0.2 percentage points higher than in the central projection. This performance would also mean growth in devolved revenues would out-strip BGAs linked to comparable revenues in the rUK.

Figure 3.2: Projected devolved income tax revenues under two assumptions on the employment rate in Wales

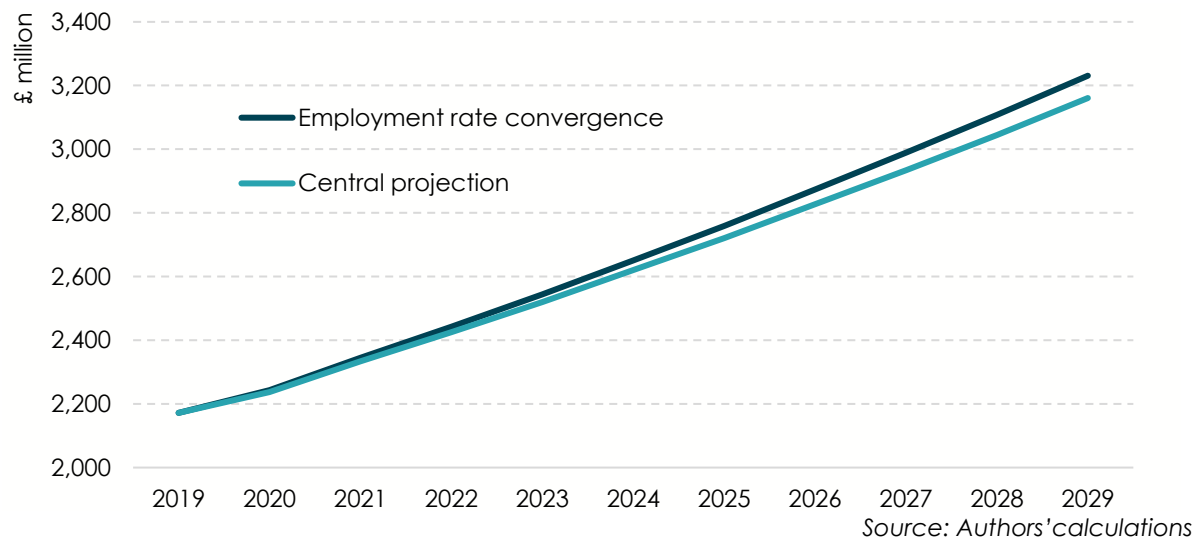
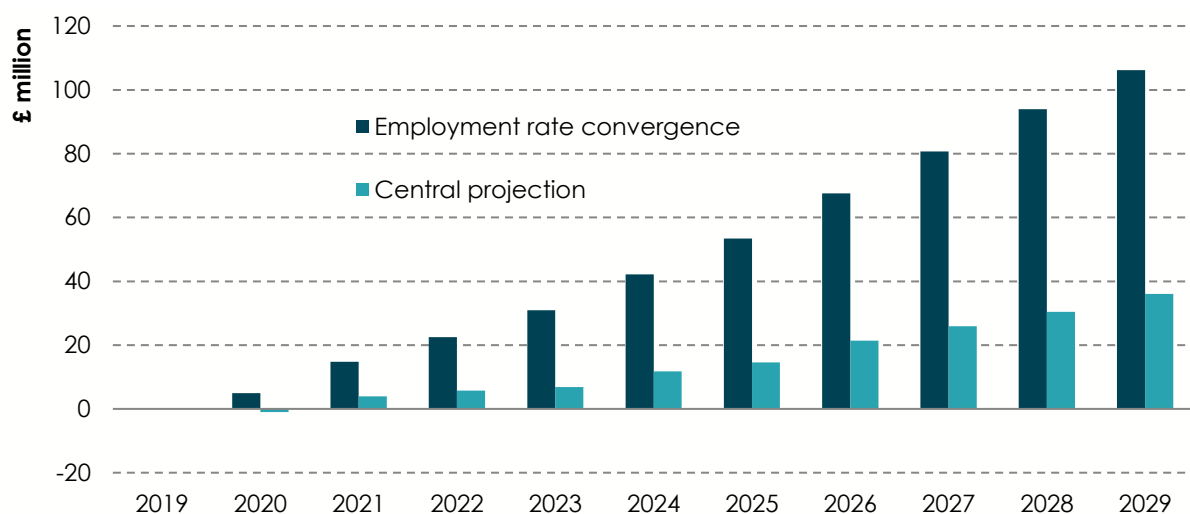


Figure 3.3 shows the projected annual budgetary impact for the Welsh Government under both scenarios, and is calculated by subtracting the projected BGAs from projected devolved revenues. Under the central projection, devolved revenues are projected to slightly outgrow modelled BGAs because of a slightly stronger “fiscal drag” effect caused by taxpayer incomes growing more rapidly than the upward adjustments to the higher and additional rate thresholds. If employment rates converge in 2029-30, the Welsh Government budget would be more than £100 million better off each year compared with a scenario of no income tax devolution.

Figure 3.3: Projected effect on the Welsh Government budget under two assumptions on the employment rate in Wales



Source: Authors' calculations

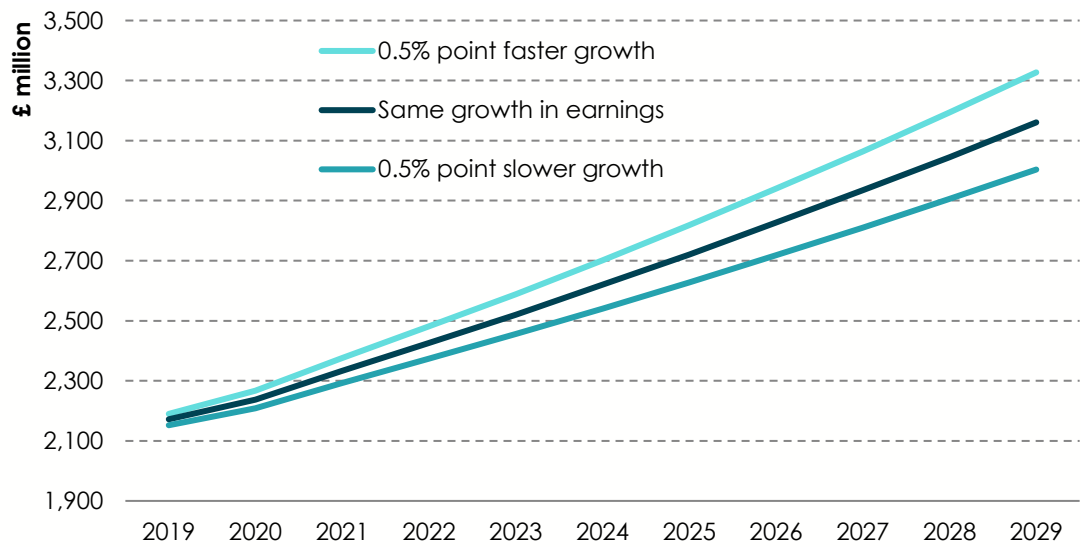
As well as the employment rate, assumptions relating to relative growth in incomes also have a substantial influence on projected devolved revenues in this model. For 2014-15 to 2017-18, earnings from private and public sector employment are grown according to outturn data for average pay of employees reported in the Annual Survey of Hours and Earnings (ASHE). In subsequent years, the OBR forecasts that growth in average earnings (wages and salaries divided by employees) will increase steadily in nominal terms over coming years, from 2.2 per cent in 2018-19, to 3.1 per cent in 2021-22 (though significantly below previous forecasts because of their more pessimistic view on productivity growth).

Growth in pay for public sector employees has been lower than in the private sector in both Wales and the rUK in recent years, influenced by a range of factors, including the pay cap imposed by the Welsh and UK Governments and local authorities. With UK Government fiscal consolidation still ongoing, our central projection assumes average public sector earnings to 2021-22 grow in line with the average from 2011 to 2017 (from ASHE data), which is a lower rate than the OBR forecast for total growth in average earnings. Modelled growth in private sector employment income is based on the OBR forecast, adjusted for the assumed lower growth in public sector income. Earnings in the public and private sectors are assumed to grow at the same rate after 2021-22. State pension incomes are grown under the OBR assumption of the UK government continuing its 'triple lock' policy, while private pension incomes are grown in line with the long term average from the SPI data.

Under these assumptions of income growth in Wales, devolved revenues grow at an average of 3.8 per cent a year (as in the central projection in figure 3.2). Although this is broadly in line with comparable revenue growth in the rUK under the same assumptions, devolved revenues grow slightly faster than the sum of the three BGAs because of the slightly stronger "fiscal drag" effect explained previously.

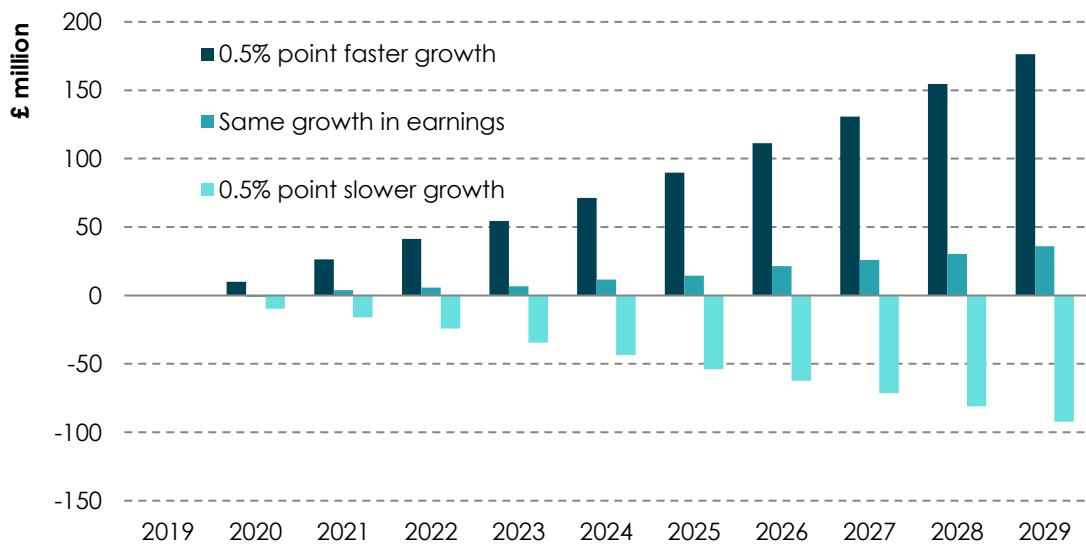
To explore the potential budgetary impact of faster or slower wage growth in Wales, we model the effect of average Welsh private sector employment income growing 0.5 percentage points more rapidly and 0.5 percentage points more slowly than in the rUK, from 2018-19 onwards. This is close to the average differential of annual pay growth of employees in Wales compared with rUK between 2011 and 2017 (see figure 2.11). Average annual pay for private sector employees in Wales is currently around 78 per cent of the UK average, and would increase to 83 per cent of the UK level by 2029-30 under the higher growth projection. As illustrated in figure 3.4, the difference in devolved revenues under these two income growth scenarios is significant, totalling £133 million by 2024-25 and £323 million in 2029-30.

Figure 3.4: Projected devolved income tax revenues under three assumptions on private sector earnings growth in Wales



Source: Authors' calculations

Figure 3.5: Projected effect on the Welsh Government budget under three assumptions on private sector earnings growth in Wales



Source: Authors' calculations

Figure 3.5 demonstrates the projected budgetary effect for the Welsh Government under these three wage growth scenarios. Although the annual effects are relatively small, sustained differences in average wage growth in Wales would have a material effect on the Welsh Government budget in the medium- to long- term. For example, the Welsh budget would be over £50 million smaller after five years of wage growth at the lower level. On the other hand, extra revenues from sustained private sector earnings growth in Wales at the higher level are the equivalent of increasing the higher rate of income tax in Wales by 2p by 2024-25 and 3p by 2029-20 (assuming no behavioural response). Assuming larger differences in average private sector incomes growth over time increases the projected budgetary impact of tax devolution. For example, if private sector earnings grow one percentage more slowly in Wales each year, more than £20 million each year would be lost from the Welsh budget.

Comparing budgetary projections under different assumptions of employment and income growth, the Welsh Government would appear to be more exposed to earnings growth divergence rather than employment growth divergence. For example, a small but sustained divergence in income growth in Wales would generate more additional funding for the Welsh Government than closing the employment rate gap entirely over the first decade of income tax devolution.

These scenarios illustrate how relative trends in the Welsh economy over time will have a direct effect on the Welsh budget after income tax devolution. The Welsh Government bears the risk of slower growth but will be rewarded with extra funding to spend on devolved services if employment and wages grow relatively strongly.

3.2 Productivity trends and determinants

The relative growth in the employment income of taxpayers in Wales will depend on a number of factors, of which relative trends in productivity are among the most significant. Much of the current gap between Gross Value Added (GVA) per head in Wales and the rUK can be attributed to lower productivity: GVA per hour worked in Wales was £26.90 in 2015, just 82.4 per cent of the UK average. This gap has widened slightly over the last decade, though annual variability makes it difficult to identify clear trends.

This measure of productivity has a close link to levels of employee pay at a regional level in the UK, as seen in figure 3.6 below. Sustained higher earnings growth that would increase the funds available to the Welsh budget – i.e. by income tax receipts outpacing BGAs – will require at least a narrowing of this productivity gap. Any sustained movements in relative

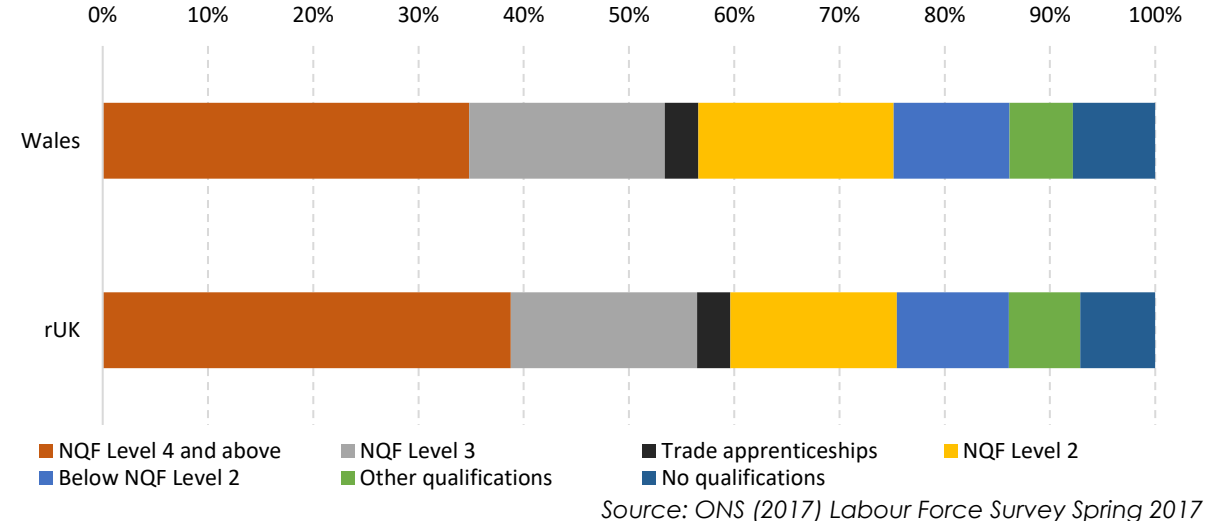
productivity could only be secured in response to long-run trends, mirroring the economic effects of Welsh Government policies which also mainly operate over the long term.

Figure 3.6: Pay and productivity by country and region, 2016 (UK = 100)



One important determinant of regional earnings differentials in the UK is the distribution of human capital. Figure 3.7 compares the qualifications level of the aged 16-64 population in Wales with that of the rUK. A smaller share of the Welsh population have a graduate-level education (NQF Level 4 and above), and a higher share of the population are without NQF Level 3 qualifications or trade apprenticeships. UK regions that have a far higher share of graduates – London, Scotland, the South East and the South West of England – tend to be among the best performing regions in terms of pay and productivity.

Figure 3.7: Qualifications levels in Wales and rUK, 2017



There is also evidence of an increasing wage premium for skills in the UK over recent decades that has been triggered by skills-based technological change. Increasing ‘job polarization’ has been identified by a number of studies and has resulted in increased disparities between the highest and lowest earners. Wage premiums relative to local averages for workers with different qualification levels are generally similar between Wales and the rUK. For example, the ONS’ Annual Population Survey found the hourly pay of graduates to be approximately 27 per cent higher than the respective average wage in Wales and in the rUK in 2017. This corresponds with Duranton and Monastiriotis (2002), who identified a convergence in the relative returns to education and experience across all regions of the UK during the 1980s and 1990s. However, an increasingly uneven regional distribution of human capital and rising inequalities between skilled and unskilled workers magnified overall regional variation in earnings.

Because the incomes of higher earners constitute a large share of NSND income, relative movements in the share of Wales’ highly-skilled population (and the wage premium those skills attract) will be an important factor in the relative performance of the Welsh income tax base.

Significant technological changes are anticipated over the first decades of income tax devolution, which will affect employment, productivity and the income tax base in Wales. There are many studies that have estimated the number and type of jobs that are likely to be ‘at risk’ of automation in the UK, although few have directly focused on Wales (Bell et al. 2017). Analysis of Labour Force Survey data shows Wales to have a higher share of jobs in routine or semi-routine occupations that are already particularly at risk from automation. Future waves of automation could affect a much broader range of occupations and industries (Roberts et al. 2017). In an influential study, Frey and Osborne (2017) consider the susceptibility of jobs in the US to computerisation over coming decades. Using this data, Roberts et al. (2017) calculate that approximately 44 per cent of jobs in the UK could feasibly be automated, a figure which aligns with a Bank of England estimate (Haldane 2015). The proportion of jobs at high risk of automation in Wales is slightly higher at 46 per cent (Roberts et al. 2017).

Beyond focusing on ‘at risk’ jobs, Bakhshi et al. (2017) identify a number of technological, globalising and demographic changes which will affect the demand for different occupations. They estimate that approximately one fifth of the UK workforce are currently in occupations that are likely to contract, and that one in 10 work in occupations which are likely to grow. These risks and opportunities are not evenly distributed across the UK (Centre for Cities 2018). Applying the probabilities estimated by Bakhshi et al. (2017) of increasing or decreasing demand for occupations to LFS data, Wales has a slightly higher share of jobs in occupations which are expected to contract in the future (23 per cent) than does the rUK (21 per cent). Occupations for which Bakhshi et al. (2017) anticipate future growth constitute a similar share of all current jobs in Wales and in the rUK. However, a larger share of the jobs

likely to experience an increase in demand are currently in publicly-funded occupations in Wales, and a lower share are in higher-skilled private sector occupations.

Although the ultimate effect of future technological change on the labour market is highly uncertain, automation clearly presents a risk to the relative performance of the Welsh income tax base. Wales' current workforce would appear to be more exposed to the risks of automation. Technological change is likely to increase income inequality, because some highly skilled labour in roles which complement machines will be well remunerated, leading to some higher incomes. Because any such process would result in the UK income tax base becoming even more reliant on high earners, the relative performance of the Welsh tax base could fall behind if relatively fewer of these 'winners' from automation pay income tax in Wales.

3.3 Population and demographics

The Office for National Statistics' 2016-based principal population projections anticipate that the Welsh population will grow by approximately 0.4 per cent per year from 2016, and that these increases will lose pace in subsequent years. This rate is around 0.2 percentage points behind the projected population growth in the rUK. Given population cohort patterns, the Welsh population aged between 16 and 64 is projected to decrease in absolute terms from 2018 and by 2022, the gap in the annual population growth rate of those aged 16-64 in Wales and the rUK is expected to reach 0.4 percentage points.

As shown in figure 3.8, relative trends in population growth effect not only the growth in Wales' tax base but also changes in the age profile of the total population.

Figure 3.8: Population by single year of age, Wales and rUK, 2016

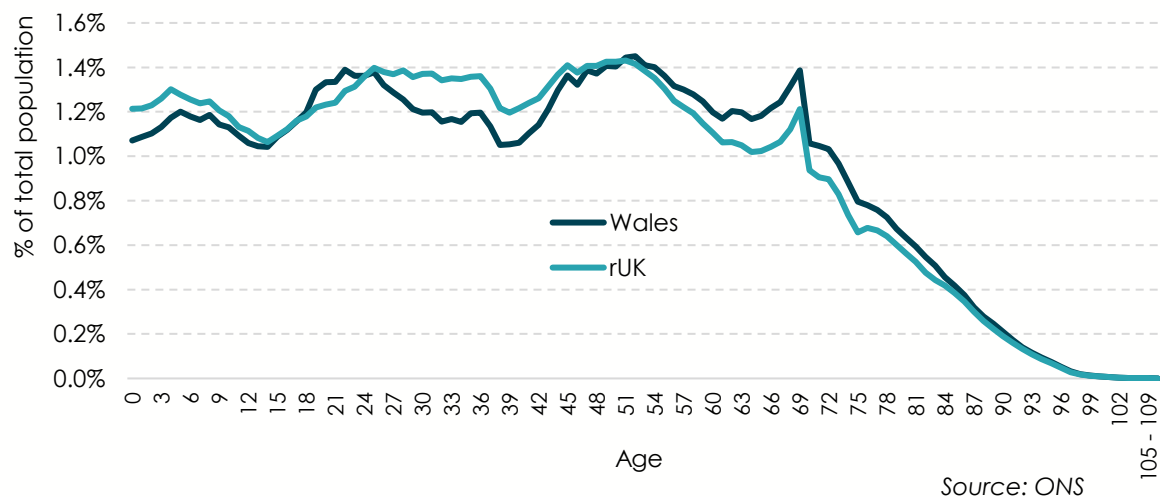


Figure 3.9 shows the projected growth of each of the seven age groups of taxpayers from the SPI data for the first decade of income tax devolution. Trends for each group and differences between Wales and the rUK can largely be explained by Wales' different age structure. While the fastest projected growth by far is for the population aged over 75 in both Wales and the rUK, Wales' population aged between 45 and 54 is projected to fall much more sharply than in the rUK.

Figure 3.9: Projected trends in different age groups, Wales (2019 = 100)

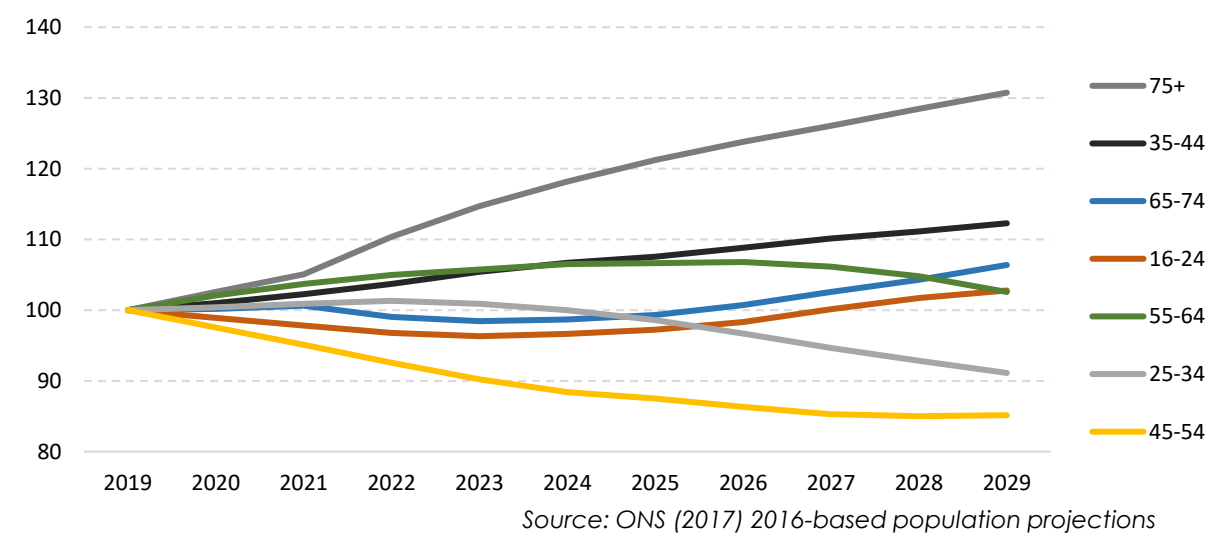
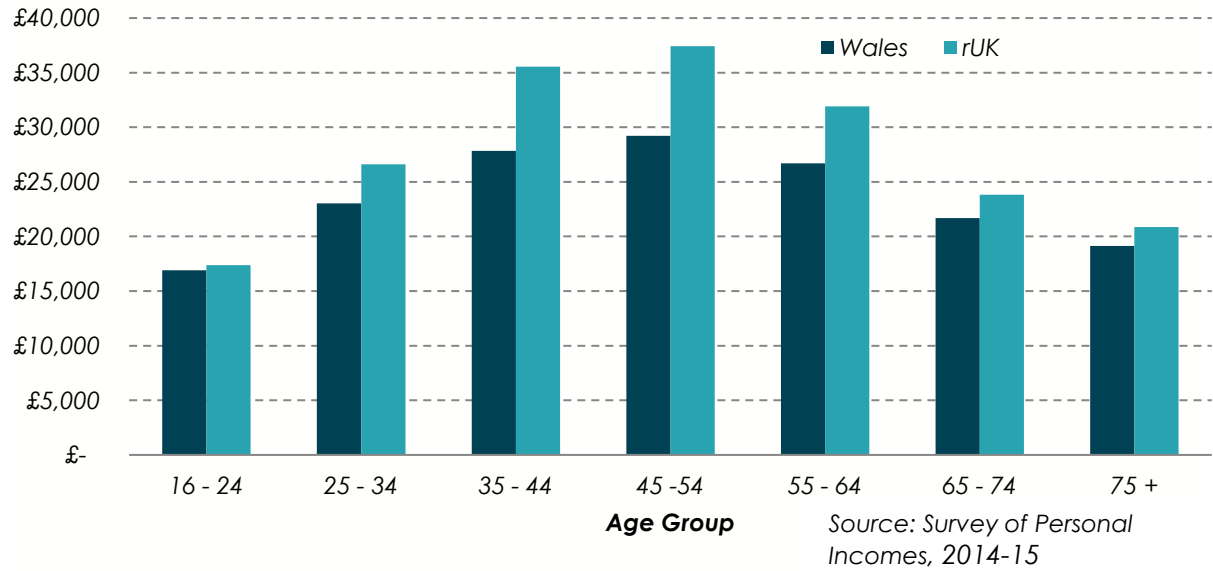


Figure 3.10: Average taxpayer NSND income by age group, 2014-15



In addition to differences in employment rates, average taxpayer NSND incomes vary significantly between age groups in the SPI sample. The sharper projected fall in the population aged 45-54 is a cause for future concern for the Welsh tax base, because it is at

this age that average incomes are at their highest: taxpayer incomes fall significantly for older age groups.

A further pattern of interest to the tax base relates to differences in average taxpayer income between the age groups living in Wales and the rUK. While there is little difference in the average incomes of the youngest taxpayers, taxpayers aged between 35 and 54 earn 28 per cent more on average in the rUK than in Wales. Later in life, average incomes of taxpayers again converge: average incomes for those aged over 65 are only 10 per cent higher in rUK than in Wales. That taxpayer incomes for older age groups therefore appear subject to a more significant drop in the rUK than in Wales may suggest that the Welsh income tax base may be more resilient to an ageing population. ONS projections suggest that the share of the population aged over 65 will increase by over three percentage points in Wales and the rUK during the first decade of income tax devolution.

A final major influence on future population trends will be levels of international migration to and from the UK; Brexit and UK government policy therefore introduce significant uncertainty into the modelling. In the ONS principal projection, net international migration is assumed to fall to around 165,000 a year from 2023 onwards, and from 12,700 to just 4,500 a year in Wales. The ONS also publish projections that assume higher and lower levels of net migration, where levels are assumed to be initially 40,000 higher or lower and subsequently 80,000 higher or lower at a UK level. In relative terms, levels of net migration to Wales are assumed to change more dramatically for any given change in net migration to the UK as a whole. The long-term level of net migration to Wales rises to 9,000 in the high migration variant projection, and falls to zero in the low migration variant projection.

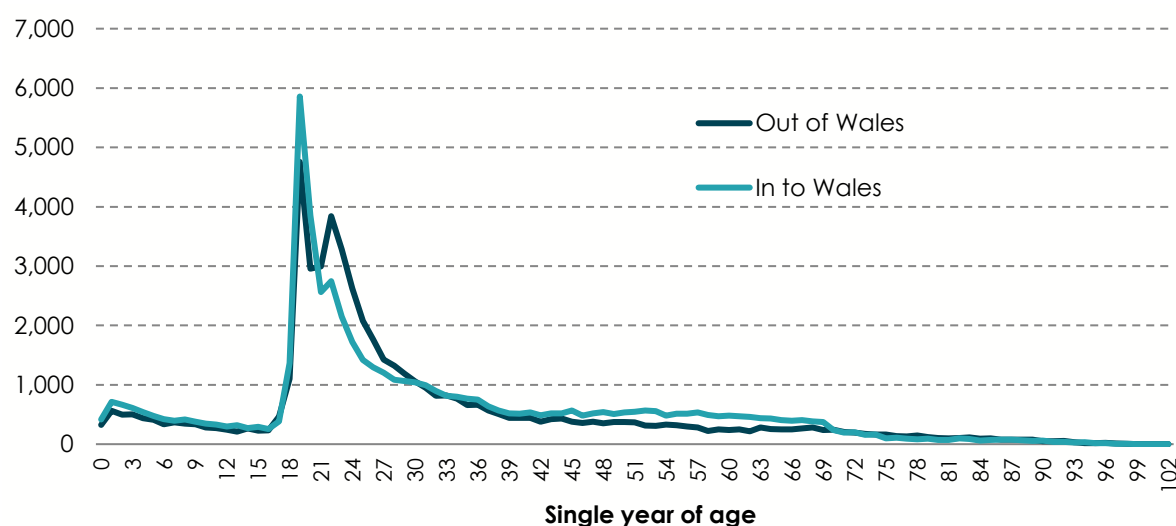
We use these varying assumptions of international migration to Wales and the rUK to re-run the simulation of devolved revenues after 2019, keeping employment levels and average taxpayer income unchanged. Because these changes in international migration assumptions have a similar effect in both Wales and the rUK, the budgetary effect for the Welsh Government does not change greatly (although this modelling holds many factors constant and doesn't seek to account for the wider economic impacts of changes to international immigration and the consequent impact on revenues). However, if we assume a higher level of net migration in Wales but use the principal ONS projection for the rUK, the Welsh Government budget would increase by over £10 million per year after 2023-24. Although related to a number of factors that are held constant here, the model suggests that the Welsh tax base would fare relatively better with higher levels of net migration, at least from a demographic perspective.

3.4 Migration and commuting flows across the Welsh-English border

Migration and cross-border commuting flows will become an object of interest for tax policy after fiscal devolution. Nearly 48 per cent of the Welsh population live within 25 miles of the border with England, and 90 per cent live within 50 miles of the border. In England, an even greater number of people live close to the Welsh border – almost 4.9 million live within 25 miles and 13.7 million within 50 miles,⁹ a number that is almost four and a half times the Welsh population. As a result, any changes to migration and commuting flows could have an impact on the devolved Welsh tax base as income tax is paid in the county of residence.

In the year 2015-16, around 53,170 people migrated out of Wales to England, while 56,950 migrated in the other direction. This represents approximately 1.8 per cent of the Welsh population. Although this total net migration figure is relatively small, there are marked differences in net migration by age, as illustrated by figure 3.11. Migration in both directions peaks at age 19, with a higher rate of students moving into Wales compared with those leaving. However, for those aged between 21 and 29, there was a large net migration out of Wales of nearly 5,300. Overall gross rates of migration fall significantly for older age groups.

Figure 3.11: Migration levels between Wales and the rUK, by single year of age



Source: ONS (2017)

Along with differences by age, net migration between Wales and England also differs in terms of education levels. Wales is a net loser of graduates every year (Clarke 2017), though this is primarily a result of being a net importer of students. Detailed analysis by Bristow et al.

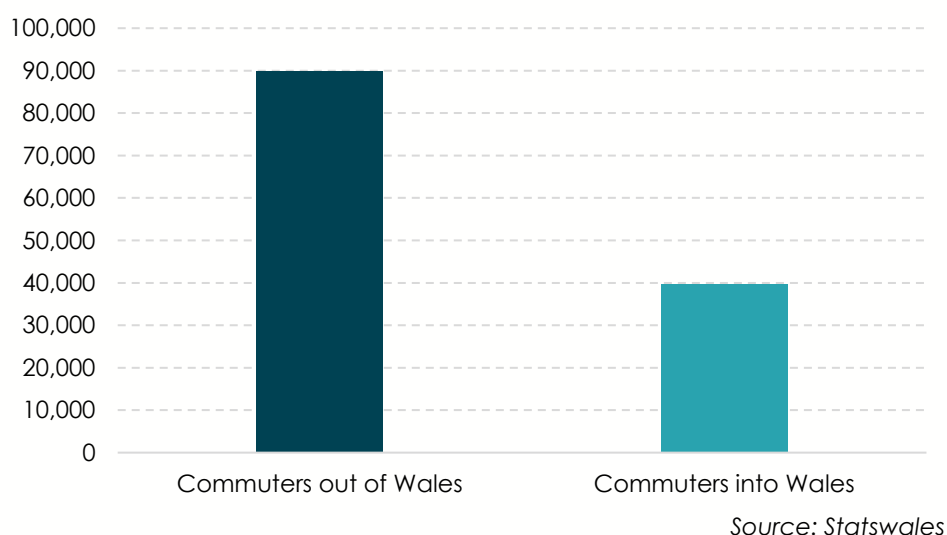
⁹ Independent Commission on Funding & Finance for Wales (2010)

(2011) shows that Wales has lower retention rates than the other devolved nations in terms of the proportion of graduates from Welsh universities who stay and gain employment in Wales. They find that graduate migration from Wales is associated with better jobs and higher earnings. O’Leary and Sloane (2008) similarly find that returns from higher education are lower in Wales than in other UK regions, although accounting for the reduced cost of living (including housing costs) or expressing returns relative to ‘local’ wages narrows this variance.

As well as influencing total population growth and demographics, a change in gross or net flows of migrants between Wales and England is therefore also likely to have an effect on the skills composition of the Welsh labour force. A key conclusion of Bristow et al. (2011) is that encouraging those born in Wales to study and stay in Wales would be more effective in graduate retention than seeking to retain non-Welsh students or attract graduates from elsewhere. The public sector is currently the primary source of high-end employment for Welsh graduates (ibid.); retaining graduates in Wales will therefore require better-paying private sector jobs, especially considering that Wales has a relatively large share of graduates in non-graduate employment (Clarke 2017).

After income tax devolution, taxpayers will be counted as Welsh taxpayers – and be subject to the Welsh Rates of Income Tax – if they live in Wales for most of the year, regardless of where they work. This means that commuters who are resident in Wales but work in England will contribute to the Welsh NSND income tax base. 90,000 workers domiciled in Wales commuted to a workplace outside of Wales in 2016, equivalent to 6.4 per cent of all working residents. This flow is over twice as large as those who commute into Wales from England.

Figure 3.12: Commuting patterns into and out of Wales, 2016



Based on analysis of Labour Market Survey data from 2014 to 2017, Welsh residents who work outside of Wales earn significantly more per hour than individuals who both live and

work in Wales (around 30 per cent more, though with a large confidence interval around this figure). Making several assumptions to adjust for datasets that do not exactly align, we estimate that approximately 7.6 per cent of devolved income tax revenues in 2014-15 would have been earned in workplaces outside of Wales. Increased commuting from Wales over time could therefore have a substantial impact on the Welsh budget.

According to 2011 census data, over half of commuters to England from Wales were in the four local authorities which share a border with England: Flintshire, Wrexham, Monmouthshire and Powys. An increase in commuters would likely have an impact on the property tax base in these areas. In 2016, around 16.2 per cent of Welsh residential property transactions took place in these local authorities, and a 10 per cent increase in the number of transactions and the average house price in these four local authorities would increase the total value of property transactions in Wales by around 3.8 per cent. The following section considers the potential budgetary impact on the Welsh Government of a faster or slower growing housing market.

3.5 Property market trends

Revenue from residential LTT will be very markedly influenced by the number and value of residential property transactions in Wales each year. After LTT devolution in April 2018, the Office for Budget Responsibility forecasts that property transactions across the UK will grow by around one per cent, and that house prices will grow by four per cent.

Using forecasts produced by the Welsh Government and Bangor University (2017), we can explore the budgetary effects of transaction and price growth in Wales that diverges from these UK trends. In figure 3.15, we show the impact of transactions and prices growing 2.5 percentage points per year below and 2.5 percentage points above the UK rates for four years after tax devolution. Such divergence in growth would have a large impact on LTT revenues. By 2021-22, under the higher growth assumption residential LTT receipts would reach more than £350 million and the Welsh Government budget would be more than £92 million bigger, while under the lower growth assumption receipts would be less than £200 million, resulting in £71 million less revenue for the Welsh Government.

Figure 3.16 illustrates this projected budgetary impact for the Welsh Government by subtracting Block Grant Adjustments – which are linked to growth in Stamp Duty Land Tax revenues in the rUK - from devolved LTT revenues. Over a relatively short period of time, differential trends in the housing market of Wales relative to the rUK would result in a substantial budgetary impact. Were transactions and prices to grow faster in Wales over four

years, the Welsh budget would be around £100 million better off each year by 2021-22. Conversely, a less buoyant housing market would result in a smaller Welsh budget over time.

Figure 3.15: Projected Residential LTT revenue from 2018-19 under varying assumptions of transactions and price growth

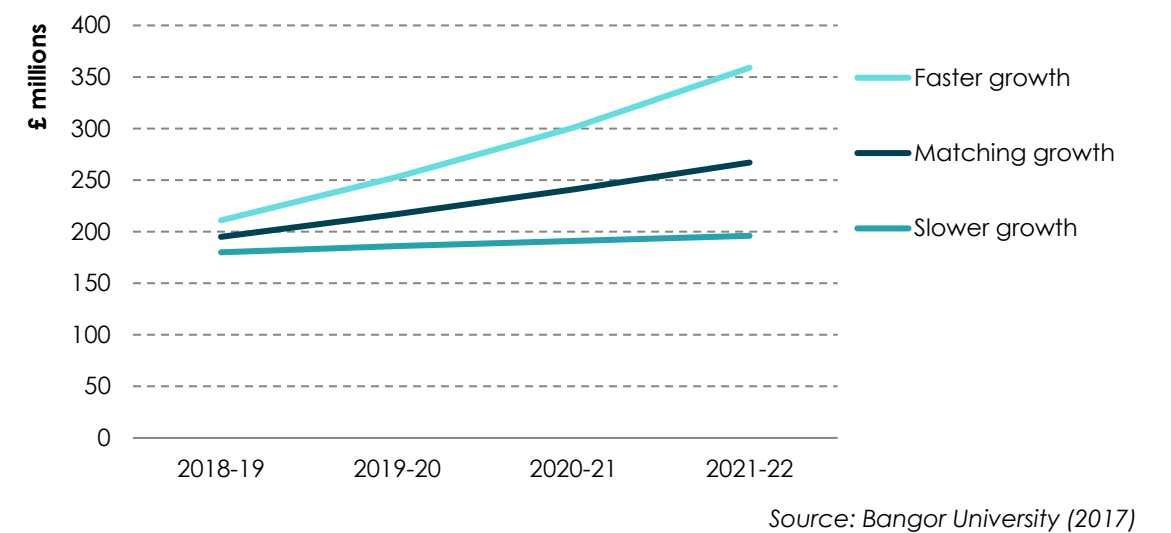
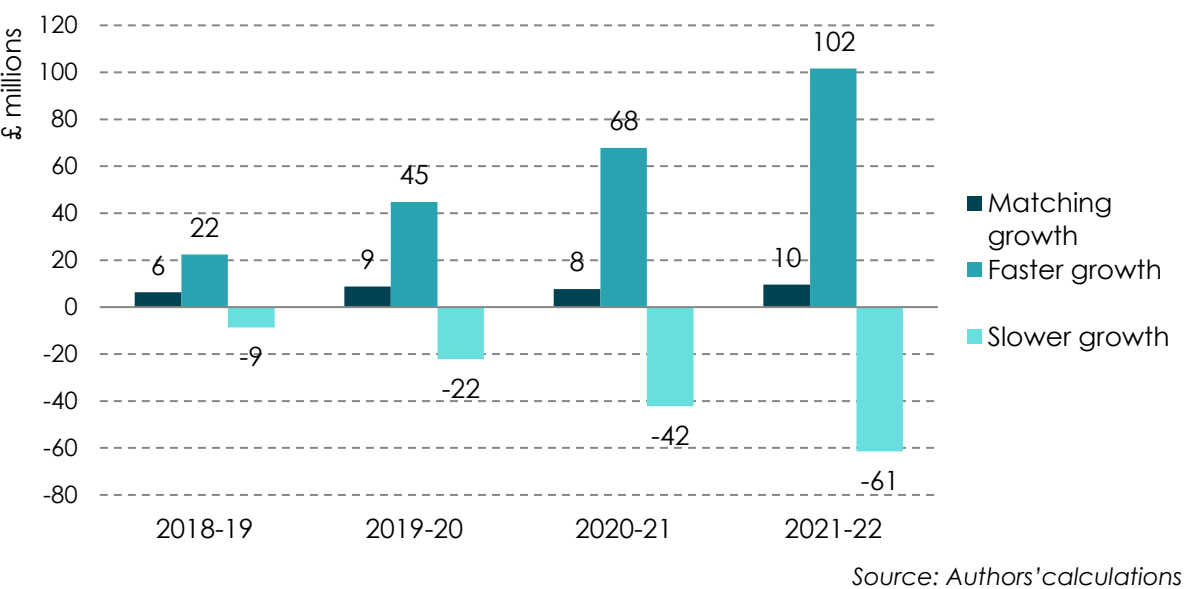


Figure 3.16: Projected effect on the Welsh budget of a 2.5 percentage point deviation in transaction and price growth

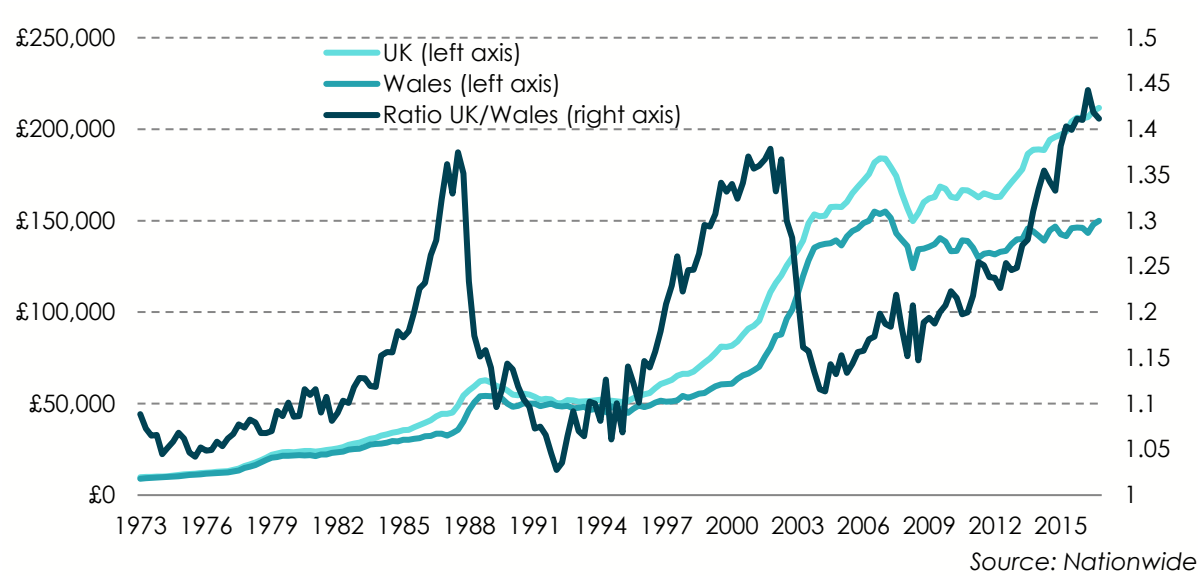


As was illustrated in figure 2.19, similar periods of house price growth divergence between Wales and the rUK have been observed in the past. For example, between 1996 to 2000 Welsh house price growth averaged four percentage points below the UK average, but averaged six percentage points *above* the UK average from 2002 to 2005.

Figure 3.17 shows the average house price in Wales and in the UK from 1973 onwards and the ratio between the two averages on the right axis. This ratio has fluctuated significantly

over the decades, with periods of rapid divergence followed by rapid convergence. With average house price growth in Wales falling behind the UK, the ratio has been climbing steadily for over a decade.

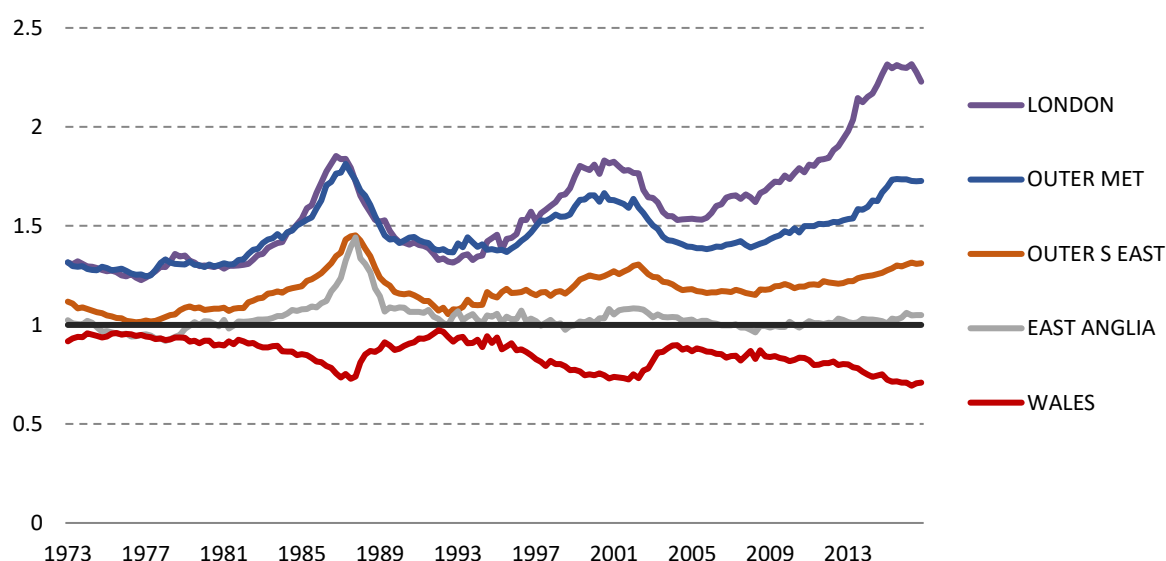
Figure 3.17: The ratio between the average mix-adjusted house price in the UK and Wales, 1973-2017 (nominal prices)



The propensity for regional house prices in the UK to diverge dramatically before narrowing again has sometimes been termed the ‘ripple effect’ (Meen 1999). House prices rise first in the south-east of England during an upswing, growth that more gradually spreads out to the rest of the country over time. Meen identifies a number of national factors which have differential effects on housing markets across the UK region; in particular, that the housing market in the ‘South’ is more responsive to changes in interest rates due to greater debt gearing capacity of households there.

Figure 3.18 shows the ratio between various regional averages and the UK average. While periods of regional house price divergence in the past appeared to be led by all south-eastern regions, the recent trend over the last decade appears to have been driven mainly by central London. Given the significant levels of international investment in London’s property market, house prices there are likely to be influenced by global trends and be somewhat detached from other national determinants.

Figure 3.18: The ratio between the regional average and UK average mix-adjusted house price, 1973-2017



Source: Nationwide

3.6 Brexit

The first years of income tax devolution to Wales will coincide with the UK's exit from the European Union. The potential economic effects of Brexit will be determined in large part by any agreement controlling the UK's future relationship with the EU, transitional arrangements, and policy responses. However, almost all studies predict that the long-run effect on economic growth and welfare will be negative under any potential future relationship (for example, Brakman et al. 2017; Dhingra et al. 2017a; Ebell and Warren 2016; OECD 2016; PWC 2017). In the long-run, the modelled effects on international trade dominate long-term estimates of potential economic impact, while additional determinants such as foreign investment, immigration and productivity are also included in some studies.

While there are potential savings from reductions in the UK's contribution to the EU budget, UK public finances will also be affected by changes in national income, with lower growth resulting in lower tax revenues (Emmerson et al. 2016). This will affect the Welsh block grant through lower spending in England.

However, in addition to the magnitude of the UK-wide financial impact, income tax devolution also requires a consideration of the *relative* economic impact in Wales. If any fall in economic growth as a result of Brexit is more pronounced in Wales, this would cause the Welsh income tax base to fall behind that of the rUK. The Welsh Government budget will also be exposed to

changes in the non-domestic rates tax base. Furthermore, variances in net migration from the European Union may impact demographic pressures to a different extent in Wales.

Despite the wealth of literature analysing the economic impact of Brexit, there are only a few studies which specifically look at potential regional or local impacts, and these tend to provide conflicting predictions. Los et al. (2017) use data from the World Input-Output Database to estimate the share of local GDP which is driven by consumption and investment demand in the rest of the EU. They find that London and the South East of England are less dependent on the EU, while the two NUTS2 regions in Wales are broadly in line with the UK average. Demos (2017) argues that the North East and Wales will experience the greatest loss of goods exports to the EU, on top of Wales' greater reliance on EU regional funding.

Conversely, using a long-run static trade model and assumptions on increased trading costs from a 'soft' or 'hard' Brexit, Dhingra et al. (2017b) find that London and the South East are predicted to experience a larger negative impact from Brexit, particularly under a hard Brexit. This result derives from higher employment shares in Business Activities or Financial Intermediation in these regions, and that the increase in non-tariff barriers for trade in these sectors are assumed to be very high. Winters (2016) likewise argues that since trade barriers will be higher for services, export demand will fall less in regions such as Wales which have higher income shares generated by manufacturing. Furthermore, London and the South East may be most negatively affected if trade diverts away from the EU, because EU trade is most concentrated in the south and east coasts of the UK. However, these regions have proven more resilient to shocks in the past – for example, although London and the South East of England were most affected by the financial crisis, output in these regions recovered more rapidly (Bell and Eiser 2016).

The UK government's assessment of the economic impact of Brexit, published by the House of Commons Exiting the European Union Committee, included provisional analyses of the regional economic impact of Brexit that accounted for regional exposure to trade barriers and dependence on exports. The predicted negative economic effects for Wales were similar to the UK average, though slightly worse under the assumptions of a 'no deal' scenario (with trade along WTO rules).

Because these assessments of Wales' relative economic performance after Brexit are uncertain, the implications for the resilience of the Welsh tax base is unknown. A key determinant will be differences in the industry-mix of the Welsh income tax base, outlined in figures 2.1 and 2.2, and how these various sectors are likely to fare after Brexit. Differences in the sector composition of the NDR tax base (see figure 2.28) will also be important if the composition of trade across industries change in response to the exit agreement. The dependence of Welsh NDR receipts on a relatively small number of large properties implies this tax base could also be affected if a few large firms decide to relocate out of Wales as a result of Brexit.

Finally, any change in the level of EU migration after Brexit will also influence demographic trends. Population projections published by the ONS (2017) include a number of variants based on different levels of EU migration after 2019. These projections show that if EU migration falls after Brexit, then Wales' working age population will continue to shrink at a faster rate. The working age population would be 0.5 per cent smaller by 2025 assuming 50 per cent less EU migration, and one per cent smaller assuming an end to EU migration. However, a cut in EU migration would have a slightly higher proportionate effect on the size of the UK's working age population.

4. Options and Implications for the Welsh Government's Tax Strategy

This section outlines some of the implications for Welsh Government policy, summarising and building on contributions made at an expert roundtable event on the Welsh tax base. It is intended to highlight options and opportunities for the Welsh Government, and to identify areas for further research and discussion.

Options for Welsh Government tax policy are constrained from above by the reserved powers of the UK Government, and from below by the interdependence with local government budgets and responsibilities. The political risks of creating winners and losers that inevitably result from tax reforms also present another barrier. However, there are strong arguments for the Welsh Government to utilise some of the powers at its disposal.

To fully realise these opportunities, the Welsh Government will need to take an integrated approach by considering devolved taxes on a collective basis, and in particular how other policy levers and objectives might interact. Individuals and households will pay both Council Tax and Income Tax, and businesses will be affected by both non-residential LTT rates and business rates. Non-tax policy levers will also be crucial in responding to some of the risks and opportunities outlined in earlier sections.

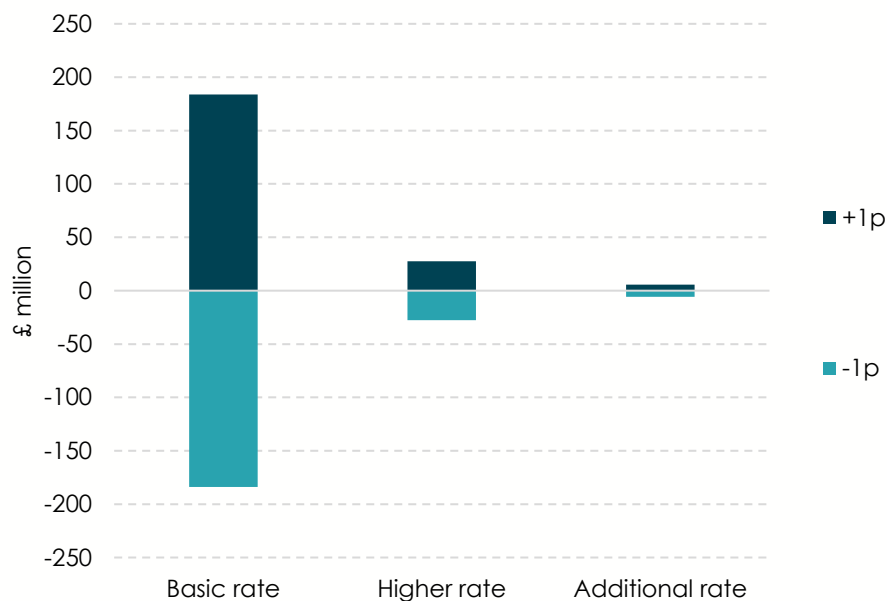
4.1 Setting income tax rates in Wales

From April 2019, UK Government income tax rates for Welsh taxpayers will be decreased by 10p in the pound, allowing the Welsh Government to set its own income tax rates in each band. Varying tax rates away from 10p in each band will have a direct effect on the Welsh Government budget, as well as potentially changing the behaviour of Welsh taxpayers.

As can be seen from figure 4.1, by far the largest revenue effect would result from a change in the basic rate in Wales; a 1p change in 2019-20 would increase or decrease the Welsh budget by approximately £184 million. Varying the higher and additional rates would result in a smaller increase or decrease in tax receipts and affect fewer taxpayers.

The Welsh Government tax rates will apply to taxable income determined by UK Government thresholds and reliefs. This restriction limits some of the scope for innovative income tax policy, such as the significant restructuring of Scottish tax bands that came into force in April 2018.

Figure 4.1: Revenue effect of changing each rate by 1p in the pound, with no behavioural response



Source: Authors' calculations

Behavioural response to a tax rate change

Were the Welsh Government to change income tax rates in Wales, there would likely be some behavioural response from Welsh taxpayers. Possible behavioural responses include greater use of tax planning, tax avoidance or evasion, individuals seeking different jobs or changing the number of hours worked, and/or migration into and out of Wales. The extent and effects of behavioural change to be expected is highly uncertain, though it must be considered when setting income tax policy.

High-income earners are assumed to be the most responsive to income tax rate changes, because these taxpayers have the largest incentive and the greatest means to change their behaviour in response to tax policy. Although the Welsh tax base is less dependent on the incomes of high-earners compared with the rUK, such earners will account for a large share of the Welsh Government's income tax revenue (see section 2.1).

Although HM Treasury varied income tax rates on incomes over £150,000 in 2010 and 2012 (firstly from 40p to 50p, then to 45p), estimates of the revenue effects of these changes are still highly uncertain, because of the significant forestalling of incomes in response to the changes being pre-announced (Browne and Phillips 2017). Forthcoming changes in Scottish income tax rates may provide further evidence of taxpayer behavioural response in a devolved setting, though detailed income tax data for 2018-19 will not be available until 2020.

In the academic literature, the extent of behavioural change in response to tax changes are often captured by estimated Taxable Income Elasticities (TIEs). TIEs are an estimate of the percentage change in total taxable incomes in response to a one per cent change in the net-of-tax rate (the share of income retained after tax). Available evidence suggests a very broad range of TIEs, which vary by income levels, time, type of policy change and country (see table 4.2 of Scottish Fiscal Commission 2018).

As an initial exploration of the Welsh Government's income tax policy options, table 4.1 presents the revenue effect of changing each Welsh Government tax rate away from 10p in the pound in 2019-20, using the micro-simulation model outlined in previous sections. Our central estimate for the behavioural response of taxpayers uses a different assumed TIE for taxpayers at each marginal rate; namely 0.1 for basic rate taxpayers, 0.2 for higher rate taxpayers, and 0.5 for additional rate taxpayers. These closely match the assumed TIEs used by the Scottish Fiscal Commission (2018) in their most recent income tax forecasts for Scotland. An alternative estimate assuming a larger behavioural response uses TIEs towards the upper end of estimates from available studies. These TIEs capture behavioural change in response to changes in the Marginal Effective Tax Rate faced by the taxpayer (i.e. how much of a £1 rise in gross earnings is lost in tax).

The estimates presented in table 4.1 demonstrate that the Welsh Government would be relatively shielded from the behavioural response of Welsh taxpayers if it decided to change income tax rates. Note that the 'mechanical' effects of a tax rate change (with no behavioural change) are relatively close to the revenue effects that assume a behavioural response. For instance, a 1p increase at the basic rate would raise around £184m in revenue in the absence of a behavioural response; these receipts would reduce only marginally to £180m even under an assumption of large income elasticities.

Table 4.1: Revenue effect of devolved income tax policy options in 2019-20

Basic rate						Higher rate					Additional rate					
Welsh Government tax policy - change from 10p	Mechanical effect (£m) on Welsh Government budget	With behavioural response (£m) - without migration response		Difference in tax liability for average basic rate earner (£)	Migration required for revenue effect to be reversed	Mechanical effect (£m) on Welsh Government budget	With behavioural response (£m) - without migration response		Difference in tax liability for average higher rate earner (£)	Migration required for revenue effect to be reversed	Mechanical effect (£m) on Welsh Government budget	With behavioural response (£m) - without migration response		Difference in tax liability for average additional rate earner (£)	Migration required for revenue effect to be reversed	
		Central (TIE=0.1)	High (TIE=0.2)				Central (TIE=0.2)	High (TIE=0.4)				Central (TIE=0.5)	High (TIE=0.75)			
	+5p	919	904	888	550	548,226	138	133	127	966	21,661	28	24	21	6089	845
	+4p	735	724	712	440	470,428	111	106	102	773	17,869	22	20	17	4871	701
	+3p	551	544	536	330	380,661	83	80	77	579	13,833	17	15	13	3653	547
	+2p	368	363	358	220	275,174	55	54	52	386	9,529	11	10	9	2436	379
	+1p	184	182	180	110	150,509	28	27	26	193	4,928	6	5	5	1218	198
	No change	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	-1p	-184	-182	-180	-110	183,146	-28	-27	-26	-236	4,929	-6	-5	-5	-2082	167
	-2p	-368	-364	-361	-221	412,079	-55	-54	-53	-472	10,290	-11	-10	-10	-4164	355
-3p	-551	-547	-540	-331	707,715	-83	-81	-79	-708	16,144	-17	-16	-15	-6245	570	
-4p	-735	-730	-723	-442	1,101,896	-111	-109	-107	-944	22,560	-22	-21	-21	-8327	818	
-5p	-919	-914	-906	-552	1,654,837	-138	-137	-134	-1180	29,624	-28	-27	-26	-10409	1,106	

Note: average earnings for taxpayers in Wales used for tax increase calculations; average earnings for taxpayers in rUK used for tax decrease calculations.

While the Welsh Government would bear all the mechanical effect of a tax rate change, it would be largely insulated from much of the behavioural response, since only a portion of income tax is devolved. Any changes in earned income because of a Welsh Government tax rate change would have a greater effect on UK government reserved revenue from income tax and national insurance contributions. For example, lowering the additional rate in Wales by 5p in the pound would cost the Welsh Government approximately £28m (assuming no behavioural response). But any positive effect on the taxable earned income of high earners would primarily go to the UK government through higher income tax and NICs. Even assuming a high TIE, the estimated cost for the Welsh Government would still be around £26m.

However, as well as responding to changes in their marginal effective tax rates, taxpayers may also respond to changes in their average effective tax rate (the proportion of a taxpayer's total income which is paid in tax). This type of behavioural response includes leaving or entering employment, and importantly in Wales' case, **migration** to another tax jurisdiction. Table 4.1 also presents the change in tax liability for an average taxpayer at each marginal rate resulting from a Welsh Government tax change. The subsequent column shows how many taxpayers would need to migrate from Wales to the rUK (or vice versa) for the revenue effect of a given tax rate change to reverse.¹⁰ For example, a 5p increase in the higher rate of income tax would cost the average higher rate taxpayer in Wales £966, and it would take over 21,000 higher rate taxpayers in Wales to leave Wales to offset the additional £133m raised by the tax change. Any change in the additional rate in Wales would have the largest effect on a taxpayer's average effective tax rate and hence present the largest incentive for migration for high income earners. The required level of migration to offset the revenue effect of an additional tax rate change is relatively small.

In contrast to Scotland's devolved tax system, a distinctive feature of the Welsh model is that the UK government will not be able to respond in kind to a decision to cut income tax by the Welsh Government. Because any UK government tax cut will also apply in Wales (to the reserved portion of income tax), any differential between income tax rates in Wales and the rUK cannot close unless the Welsh Government so chooses.

There is some evidence that differences in tax rates within a country can encourage taxpayers to relocate or shift their income between jurisdictions (Feld and Reulier 2008; Milligan and Smart 2015). It has also been argued that higher tax rates discourage in-migration of higher-earning individuals from other countries more than they encourage out-migration of current residents (Kleven et al. 2013). The forces of agglomeration may also limit the migration response of individuals in certain professions or industries (Driessen and Sheffrin 2017).

¹⁰ It should be noted that the average tax rate faced by higher and additional rate taxpayers are also influenced by changes in the basic rate. Therefore the migration effect to a basic rate cut could include taxpayers who are on higher marginal rates.

However, migration responses are likely to be very context-specific, and Wales' particular circumstances make it hard to draw conclusions from other countries and tax jurisdictions. An obvious factor will be the already large migration flows across the Welsh-English border outlined in the previous section. It is possible that the decisions of those already planning on moving may be influenced by income tax differentials. With several large English cities within commutable distances of the Welsh border, individuals who do not have to change jobs after moving may have a greater incentive to migrate to Wales to take advantage of lower tax rates. There are also a significant number of second homes in Wales and England which are owned by residents of the other country. Changing their primary residence to these addresses may allow some taxpayers to take advantage of lower income tax rates, without incurring the costs of relocation. These decisions would also be influenced by the second-home council tax premiums charged by some local authorities in Wales.

Converting income between dividend income (still taxed at the UK government rates) and earned income will also be an additional behavioural response available to some taxpayers. Taxpayers with total incomes over the additional rate threshold in Wales received around £220 million of dividend income in 2014-15. Tax-motivated incorporations have been increasing in recent years, and any income tax rate change in Wales may affect the relative trends in incorporations.

Modelled effect of an additional rate cut in Wales

The estimates presented in table 4.1 suggest that any migration response from Additional Rate taxpayers will have a high likelihood of materially affecting the revenue effects of Welsh Government tax rate changes. Since the UK government could not respond to a Welsh Government tax cut, it is worthwhile to consider the incentive the Welsh Government will have to abolish the additional rate in Wales, by implementing a 5p cut. While it is impossible to accurately predict the resulting migratory response, we can crudely calculate the revenue effect of a given hypothetical migratory response.

There are an estimated 355,000 additional rate taxpayers in the UK.¹¹ Only around 5,000 (1.4 per cent) of these taxpayers currently live in Wales. A third live in London, while another third live in the South East of England and the East of England. Around 54,000 are resident in the three regions of England which have borders with Wales, and around 78 per cent of the population of these regions live within 50 miles of the Welsh border.

¹¹ A further 9,000 additional taxpayers have addresses that are either unknown or abroad in the data.

The average NS-ND income of taxpayers earning over £150,000 was approximately £359,000 in 2017-18. The average additional rate taxpayer would therefore save over £10,000 per year through migrating in response to a Welsh Government tax cut. Using the model outlined in Section 3 and assuming an offsetting positive behavioural response, our modelling suggests that reducing the additional rate in Wales would incur a budget cost to the Welsh Government of approximately £27m in 2019-20. The cost of maintaining this tax cut would grow slowly over time as taxable income over the fixed additional rate threshold of £150,000 grows.

Table 4.2 presents projections of different levels of migration of additional rate taxpayers, and the estimated effect these would have on the Welsh Government budget. If around 334 taxpayers (0.1 per cent of rUK taxpayers with incomes over £150k) migrate to Wales, the cost of the tax cut would fall to £18 million. If 1,100 average additional rate taxpayers migrated, the cost of the tax cut would reduce to zero, while a stronger migratory response would provide a boost for the Welsh Government budget. A substantial effect on the Welsh Government budget however would require a very strong migratory response. For example, if 5,000 additional rate taxpayers migrated, then the Welsh Government budget would increase by over £100 million (equivalent to the impact of closing the gap in the employment rate). This would amount to a doubling of the share of UK additional rate taxpayers living in Wales.

Table 4.2: Modelling a 5p cut in the additional rate in Wales: revenue effects of varying migratory responses from additional rate (AR) taxpayers from rUK

<i>Share of rUK AR taxpayers migrating to Wales</i>	<i>Number of AR taxpayers migrating to Wales</i>	<i>Number of AR taxpayers in Wales</i>	<i>Welsh share of all UK AR taxpayers</i>	<i>Budget effect of migratory response</i>	<i>Budget change after tax cut</i>
0.0%	0	5000	1.4%	£0m	£-27m
0.1%	334	5334	1.5%	£8m	£-18m
0.5%	1669	6669	1.9%	£42m	£16m
1.0%	3337	8337	2.3%	£85m	£58m
1.5%	5006	10006	2.8%	£127m	£100m
2.0%	6674	11674	3.3%	£170m	£143m
2.5%	8343	13343	3.8%	£212m	£185m
3.0%	10011	15011	4.2%	£254m	£228m

Note: rUK Additional Rate taxpayers refers to non-Welsh, non-Scottish taxpayers with NS-ND incomes above the additional rate threshold.

4.2 Reforming property tax

Property in Wales provides a large and immobile tax base and has a large revenue-raising potential. As outlined in section 2, it is currently not taxed in a way that is reflective of the contours of the underlying tax base. From its introduction in 1993, the Council Tax system has come under frequent criticism, from its overall design to the use of historic property valuations. The taxation of property transactions in the form of SDLT has also been subject to wide criticism.

Council tax reform, and in particular making the system more progressive has been actively considered by Welsh Government policy-makers (Welsh Government 2017a; 2017b). A more progressive system would introduce higher rates of council tax for higher value properties or higher income households. This section considers potential reforms in the context of the issues raised in this report. While not presenting recommendations, this section looks at some of the reforms that have been proposed elsewhere, and considers some of the potential effects and issues which may arise in Wales.

Given the length of time that has transpired since 2003, there is a strong case for a revaluation, for council tax bills to reflect the significant house price changes which have occurred over the intervening period. A revaluation would also be an opportunity for at least some reform of the structure of Council Tax, as the Welsh Government achieved in 2005 with the introduction of an additional band (Band I). There is somewhat of a consensus in the literature around the direction which property tax reforms could take.

Making property tax bills more proportional to property values would be a crucial component of such a reform. The Independent Commission on Local Government Finance Wales (2016) found that banding reforms would be justified, at least on grounds of fairness, and changing the tax relativities charged between the nine council tax bands is an option being considered by the Welsh Government (2017a). Following the recommendations of the Commission on Local Tax Reform (2015) in Scotland, the Scottish Government increased the tax ratios applied to upper bands (E-H) relative to Band D, with bills for Band H properties increasing by 22.5 per cent in 2016 (Campbell 2016). This fell short of making the tax relativities proportional to property values in each band. In Wales, in order to proportionally reflect the differences in mid-point house price in each band, the ratio applied to Band A properties would need to be reduced by over two-thirds, while bills for properties in Band H would need to increase by 75 per cent. Increasing the number of bands would also begin to address the problem of the wide range of property values found within the same bands, especially for higher valued properties.

More fundamental reforms could also be considered. At a UK level, numerous studies have explored or recommended replacing Council Tax with an annual flat-rate tax on the market

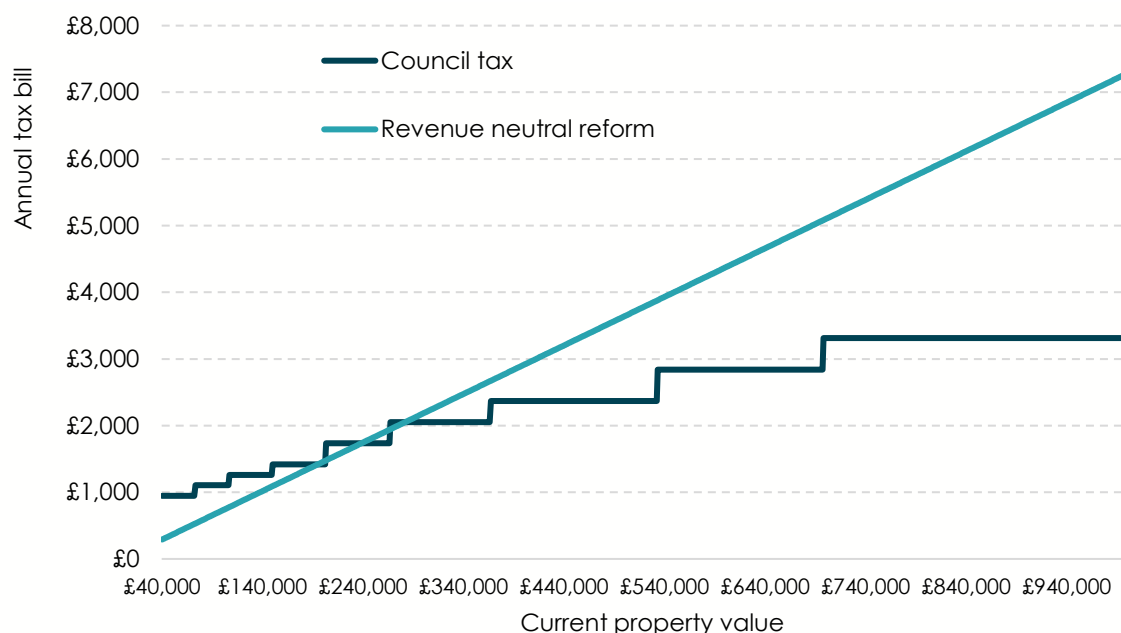
value of a property (Corlett and Gardiner 2018; Leishman et al. 2014; Lawton and Reed 2013; OECD 2011; Muellbauer 2005) or its annual rental value (Mirrlees 2011). This approach would be somewhat similar to the domestic rates system in place in Northern Ireland, where regional and district rates are multiplied by rateable capital values to calculate tax bills (with a maximum capital valuation of £400,000).¹² The exact design of the tax could vary from this simple calculation. For example, there could be a flat payment charged regardless of property value (Holtham 2014); a tax-free allowance for a portion of capital value (Corlett and Gardiner 2018); or progressively higher rates could be charged for higher valued properties (Leishman et al. 2014).

Based on the number of chargeable dwellings and the average value of a house in Wales, a 0.7 per cent flat charge on the value of all properties would yield roughly the same amount of revenue as the current Council Tax system. This is broadly in line with other estimates of revenue-neutral reform for Wales (Corlett and Gardiner 2018; Independent Commission on Funding & Finance for Wales 2010), though this would be higher than the estimated rate required for revenue-neutral reform at a UK-wide level. The tax rate and structure could be altered to raise additional revenue if done as part of a broader tax reform (see below).

Figure 4.3 shows a comparison between the average annual tax bills generated under the current Council Tax system compared with this flat rate tax of 0.7 per cent, by property value. Based on the distribution of house price sales in 2015-16, approximately 60 per cent of dwellings would see a reduction of more than £200 in their tax bill each year (not taking account discounts available under the current system). Conversely, the highest value properties would see large increases in their annual tax bill.

¹² See: <https://www.nidirect.gov.uk/articles/how-rate-bills-are-calculated>

Figure 4.3: Council tax versus a 'flat tax' on property values



Source: Authors' calculations

Any reform should introduce a mechanism to avoid the need for, or reduce the impact of, costly and large-impact revaluations in the future. For example, the assessed value of houses could rise each year with a local index of house prices, perhaps smoothed to reflect longer-term trends (Holtham 2014).

There are strong arguments for creating a stronger link between house prices and taxation in this manner. The UK property tax system currently treats housing more favourably than other (potentially more productive) investments. Such a link may also dampen volatility in house prices, and may be particularly attractive in instances where local or national public investment in Wales has boosted property values. For example, at a local level, Wang et al. (2015) find a positive correlation between public transport (namely Cardiff Bus routes) and private land value, particularly for more expensive properties.

Fundamental reform of property taxation would of course be politically difficult, which is the principal reason why reforms have not taken place across the UK. A revaluation and reform would inevitably create losers as well as winners. Furthermore, since Council Tax is a fundamental part of the overall system of financing local government, reforming it will inevitably affect many political interests. The distributional effects between different people and places will therefore need to be considered carefully.

Although a more progressive property tax system would likely be more progressive in terms of household incomes, it would not only be higher income individuals that may lose out (Mirrlees 2011). Recognising this, reducing tax bills on properties in lower bands would reduce demand

for the Council Tax Reduction Scheme, which could be used to compensate low-income households hit with higher property tax bills. Allowing deferral of payment, or payment in the form of equity shares in a property, would also further protect 'cash-poor, asset-rich' older households.

The effects of reforms will also vary greatly between local authorities. The largest tax increases would likely be concentrated in local authorities with the highest valued properties, namely Cardiff, the Value of Glamorgan and Monmouthshire. The Independent Commission on Local Government Finance Wales (2016) argued banding reform should take place at a sub-national level, to avoid a major redistribution of bills from one part of the country to another. Corlett and Gardiner (2018) model the possibility of introducing a regionally-specific allowance per property, potentially converging over time.

Council Tax is currently a very stable revenue source for local authority budgets. Creating a stronger link between tax and house prices may increase the volatility of the tax revenue. Proposing a reformed property tax at a UK level, Muellbauer (2005) argues that around "75 per cent of the revenue should go to central government, given the potential instability of such revenue". While such a revenue sharing system may not be possible in Wales, any reform of Council Tax will need to be introduced alongside broader reforms of local authority grants, and would need to consider the limited ability of the Welsh Government to smooth current revenue volatility.

The scope for local autonomy under any property tax reform should also be considered. In its update on local government finance reforms, the Welsh Government (2017b) stated that local authorities must remain accountable to their local electorates for the choices they make. In Northern Ireland, local autonomy is achieved through a combination of regional rates (set by the Northern Ireland Assembly) and district rates (set by local councils). Under the Republic of Ireland's Local Property Tax, local authorities can vary the tax rates applied to capital values by up to 15 per cent in either direction.

An integrated approach

Since they discourage mutually beneficial transactions, there remains an economic case for reducing transactional taxes on property. Recurring property taxes could be reformed to increase revenue, to allow for the gradual reduction in residential Land Transaction Tax revenue. One approach would be to further raise the starting threshold of the LTT, without increasing rates for higher valued properties. Since LTT rates have largely been capitalized into property values, lowering LTT rates would limit some of the impact on house prices caused by a more progressive recurrent property tax system.

The Welsh Government is also considering the case for “shifting the balance of taxation from income toward property” (2017a). There is a strong economic case for the taxation of land and property because such taxes are hard to avoid and its supply is far less responsive to taxes than the supply of labour. The OECD described recurrent taxes on property “the least harmful tax” (2011). Meanwhile, in a study of 21 OECD countries from 1971 to 2004, Arnold (2008) found property taxes the most growth-friendly, while income taxes were generally associated with lower economic growth.

At a Welsh level, increasing revenue through property tax reform by around £218m (roughly a 14 per cent increase on current Council Tax revenue) could allow for a 1p reduction in all income tax rates. This may allow the Welsh Government to boost jobs and growth in Wales, through the behavioural effects described earlier in this report. Importantly, increases in property taxes on high value properties could also be introduced in tandem with reductions in the additional rate of income tax to make such reforms fairer and more politically palatable.

Finally, there are two cross-border issues which would also need to be considered in the balance between taxing property and income. First, the higher taxation of second homes and lower income tax rates may encourage more individuals to declare their Welsh address as their primary residency, thus becoming eligible to pay Welsh income tax rates. And second, the composition of migration flows over the Welsh border may be influenced by a different level of taxation of income and property. Graduates and younger people may find it more attractive to stay, return or move to Wales if income taxes are lower, while they are less likely to live in or own expensive properties which would be subject to the much higher tax bills.

4.3 Commercial property taxation

The frequent revaluation exercises conducted on the NDR tax base means commercial property taxes have avoided some of the worse faults of the Council Tax system. In this regard, the revenue raised is more reflective of changes in the property market. From an economic perspective however, a weakness of the NDR system is that it is a tax on an *input* to the productive process of businesses (i.e. business property) and therefore distorts decisions made by firms. Economic activity is artificially skewed away from property-intensive production by such taxes, which can discourage investment (Mirrlees 2011). A land value tax (LVT) would potentially be more economically efficient, and could be introduced gradually as a component in the business rates system (Muellbauer 2005). As with Council Tax reform, the effects of shifting towards a system of land value taxation would vary between different properties and sectors, and across local authorities. Owners of highly-developed properties would gain relative to owners of undeveloped land, while businesses located in deprived areas with low

land prices would benefit. The Welsh Government (2017a) has already outlined its intention of exploring the feasibility of a land value tax as a replacement for NDR revenue in Wales, albeit recognising the significant administrative barriers.

Short of such a fundamental reform, there are a number of proposals currently being considered or implemented by the Welsh Government to improve the efficiency of the NDR system (*ibid.* p.15), such as reforming support for small businesses. The 2017 Barclay Review of NDR in Scotland also recommended a number of measures to support economic growth, which could help grow the tax base over time. For example, it recommended a 12 month delay before rates are increased when an existing property is expanded or improved and before rates apply to a new-build property, proposals which could reduce some of the current disincentives and barriers to investment.

As outlined in section 2.4, the composition of the NDR tax base in Wales is currently very different to that in England. In terms of average value of properties and total rateable value, the greatest gap between Wales and England is in the office sector, which perhaps presents an opportunity to grow its contribution to the tax base in Wales. While there is a growing number of rateable properties in the office sector, increasing the average rateable value of properties could be a focus, for example through incentivising improvements to current properties or improving infrastructure and services provision to encourage new property developments.

As with domestic property taxation, the NDR tax base should also be considered in conjunction with the structure of commercial LTT. For example, since the NDR tax base is heavily reliant on high-valued properties, LTT rates charged on higher-valued commercial transactions could have an effect on the NDR tax base over time.

Elsewhere in the UK, the business rates system has been subject to significant and ongoing reforms. Most significant are the attempts in England and Scotland to create a ‘fiscal incentive’ for local authorities to promote local economic development. The Business Rates Retention Scheme (BRRS) in England allowed councils to retain up to 50 per cent of the real-terms growth in local business rates, or bear up to 50 per cent of any real-terms decreases (Amin-Smith et al. 2018), and these shares are set to increase in future years. In Scotland, local authorities are rewarded for achieving revenue growth above set targets, but are protected against performing poorly (Kapitsinis and Luchinskaya 2018). In Wales however, all revenue is pooled and redistributed to local authorities. There is a strong redistributive mechanism in the current NDR system (*ibid.*) and trends in the tax base growth vary greatly between local authorities (see figure 2.29). As suggested by the Travers Review (2016), increasing the share of revenues retained by local authorities may incentivise them to grow their local NDR tax bases, which could positively influence the overall NDR tax base in Wales. This would correct for the anomaly in the current system that local authorities get council tax revenues from the development of residential properties but see no direct budgetary effect from business property

development. As Kapitsinis and Luchinskaya (2018) explore, a share-gain NDR incentivisation scheme could be an attractive option at a regional level e.g. for city regions, to reward economic growth resulting from collaboration.

However, because changes in business rates revenue across England have been found to be uncorrelated with population or economic growth (Amin-Smith et al 2018), increased local retention may not necessarily lead to higher economic growth. The BRRS in England also strips out the effects of revaluations, which means the incentive provided to local authorities is to increase the quantity of business floor space, rather than increasing underlying property values (Amin-Smith and Phillips 2017). As outlined in section 2.4, it is in the average value of properties that the Welsh tax base trails behind the English tax base. Economically weaker local authorities would find an incentive to allow development of lower value activities, instead of attracting higher value and more productive businesses (Bessis 2017). Any reforms in this area should therefore ensure that incentives are properly aligned with the economic objectives of the Welsh Government.

4.4 New taxes

As well as the devolved and local taxes under its control, the Wales Act 2014 also allows for the creation of new taxes in Wales, subject to the approval of both Houses of Parliament and the National Assembly. Any proposals made will be assessed against a range of criteria, from alignment with devolved responsibilities to the effect on UK macro-economic or fiscal policy (HM Government 2014). The Welsh Government's (2017) *Welsh Tax Policy Report* set out a shortlist of four potential new taxes it would explore. In February, it was announced that a vacant land tax would be proposed to the UK government to test the process of introducing a new tax.¹³

Although there would be significant legislative and administrative hurdles, the ability to introduce new taxes provides a new policy lever to influence Wales' economy, society and environment (Bevan Foundation 2016). In the context of the overall Welsh tax base and the Welsh budget however, the revenue streams arising from most new taxes are likely to be modest. Some suggested taxes would be well-placed to be hypothecated to specific spending priorities (instead of funding general spending), while others would be good candidates to be controlled by local authorities (e.g. a local tourism tax).

¹³ <http://gov.wales/funding/fiscal-reform/welsh-taxes/developing-new-taxes/?lang=en>

Although often criticised by economists, the idea of hypothecated tax rises is gaining traction at a UK level (Giles 2018). The symbolism of linking a new tax to a specific public service means it may be politically easier to raise additional revenue in this manner. For example, a 1p increase in all income tax rates in Wales would fund roughly a three per cent increase in core NHS spending in 2019-20. Hypothecation for health spending would be less problematic from a budget management perspective because such spending already accounts for nearly half of the Welsh Government's resource budget. Low levels of public understanding of devolved and non-devolved services may make it more important for the Welsh Government to explain how a tax increase would pay for improvements in devolved services.

One of the four ideas for new taxes set out by the Welsh Government was a social care levy, which perhaps has the greatest revenue-raising potential, and Holtham (2017) proposes a new contributory scheme of compulsory insurance to cover the cost of the increased demand for social care. In the context of the demographic risks discussed in this report, there are a number of compelling reasons why such a scheme should be contributory rather than funded by a general tax rise. In particular, the current fiscal framework in Wales would not compensate the Welsh block grant for any increased levels of spending need if improved social care arrangements in Wales incentivised more elderly people to move from the rUK (ibid.). As individuals can move across the Welsh-English border many times during their lifetime, the scheme could also be optional for those resident in the rUK that plan to return or retire to Wales, allowing them to make contributions when their income is at its highest (see figure 3.11).

4.5 Wider Welsh Government policies

The risks and opportunities discussed in this report present many cross-departmental challenges for the Welsh Government. Apart from Welsh Government tax policy, policies relating to the economy, skills, education and housing (among others) will have a direct influence on the performance of the Welsh tax base. The potential for trade-offs and tough policy choices should be analysed and discussed strategically.

Due to the progressive nature of income tax and the high personal allowance, it is the relative trends in the incomes of higher-earning taxpayers in Wales which will have the greatest long-term effect on the Welsh income tax base. For example, while a taxpayer in the 90th percentile in Wales earns 3.6 times more than a taxpayer in the 10th percentile, they will pay over 21 times as much income tax to the Welsh Government. This means that the quality and pay levels of jobs, rather than simply the number of jobs, will become more important in expanding the devolved income tax base, and economic policies designed to accelerate tax revenue

growth would focus on the creation and retention of higher-paid jobs. This points to the many interactions between tax policy and wider policy areas.

The relationships between the Welsh tax base, cross-border migration and commuter flows also pose questions for wider Welsh Government policies. For example, higher education policy levers (such as those relating to fees and grants) could be used to incentivise graduates to stay in Wales, ensuring that they contribute to the Welsh tax base. Any tax strategy or policy designed to attract and retain higher-earners from the rUK would also depend on the availability of appropriate housing developments, but any such developments would need to be sensitive to the geography of an area, consider the impact on traffic, local public services, transport systems and the Welsh language, and be proportionate to the local need for housing. The ability of Welsh taxpayers to commute to high-paying jobs in English cities and still contribute to the Welsh tax base will also depend on transport infrastructure. The effects on the Welsh tax base of changing flows in migration and commuting should therefore be set against the potential for increased spending commitments and other environmental, social and cultural costs.

Tax policy will also affect wider Welsh Government policy objectives, by influencing the behaviour of individuals and firms. In this regard, policymakers and the wider political community should consider the extent to which tax policy should itself be used to achieve wider policy goals, or whether tax policy should be primarily designed to maximise revenue over the medium to long-term, to provide more resources for the Welsh budget to tackle priorities through the expenditure side. For example, creating too many tax incentives in the design of a tax may increase the overall complexity of the system and work against maximising potential revenue yields.

5. Conclusion

Ongoing changes to Wales' fiscal framework represent a significant step-change for devolution in Wales. With over a fifth of the Welsh budget coming from own-sourced revenues, political parties will be able to present competing policy packages on Welsh taxes and public services at Assembly elections. Furthermore, the performance of the Welsh economy will become an important determinant of how much the Welsh Government has to spend on public services.

This report has outlined the significant differences which currently exist between the Welsh tax base and that of the rest of the UK. With fewer high-earning individuals residing in Wales, less income tax is raised per person on average, and a much smaller share of income tax is raised at the higher and additional rates. Similarly, lower average values of domestic and non-domestic properties result in significant differences in both the residential and commercial property tax bases of Wales and the rest of the UK. While these differences have been of interest in the past, they now hold crucial relevance in debates around developing tax policies fit for the Welsh tax base.

The performance of the Welsh tax base from its current position will also have a bearing on the sustainability of the Welsh Government budget. As explored in Section 3 of this report, future trends in Wales' economy and demography could result in a shortfall or an increase in funds available to spend on devolved services.

The risks and opportunities highlighted in this report are designed to focus attention on the ways in which the Welsh Government can successfully manage the increased risk inherent to fiscal devolution. While recognising the potential legislative, administrative and political barriers, the Welsh Government now has the opportunity to chart its own course on tax policy in Wales, and policy makers will need to consider how best to raise revenue from the Welsh tax base to pay for devolved public services.

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Appendix A: Devolved Taxes in the Welsh Government Fiscal Framework

This appendix summarises how Wales' newly devolved taxes will interact with the Welsh Government's block grant, and how they will influence the size of the Welsh budget. This discussion provides the context for some of the risks and opportunities discussed in the main report.

After tax devolution, Welsh Government budgets will continue to be funded by block grants from HM Treasury, linked to spending decisions made on comparable services in England. However, as taxes are devolved and become an increasing part of Welsh budgets, a downward adjustment is made to the block grant to compensate HM Treasury for the tax revenue they will no longer receive. This essentially ensures neither government is initially better or worse off at the point of tax devolution. Future **changes** to this block grant adjustment (BGA) will be determined by **changes in equivalent UK government taxes in England and Northern Ireland (E&NI)**.

For Stamp Duty and Landfill Tax, the baseline BGA was set to equal the revenues collected in Wales during the year immediately prior to tax devolution (i.e. 2017-18). This amount was updated according to what happened to comparable revenues in E&NI in the year to 2018-19 (the exact mechanism of doing so is outlined below). When income tax is partially devolved from April 2019, the baseline adjustment will match actual receipts collected in that first year (2019-20), assuming the Welsh Government sets a 10p tax rate in all tax bands (the share of income tax being devolved to Wales).

Both governments agreed that the method used to link changes in the BGA to changes in revenues in E&NI from equivalent UK government taxes will be the **Comparable model**. Under this method, the change in the BGA is determined by a ***tax-capacity adjusted population share of the change in equivalent UK government revenues in E&NI***. Changes in the BGA for each tax will therefore be determined by the following equation:

$$\boxed{\text{Cash change in equivalent UK government tax in E\&NI}} \times \boxed{\text{Comparability factor}} \times \boxed{\text{Population ratio}}$$

This method of updating the BGA can be best illustrated by a hypothetical example. Suppose that SDLT revenue in E&NI were to grow by £1 billion. This cash change in the equivalent UK government tax would be multiplied by a 'comparability factor', reflecting the level of

SDLT revenues per person in Wales as a proportion of SDLT revenues per person in the rest of the UK at the point of devolution, or in other words, initial Welsh 'tax capacity' for SDLT. This comparability factor is set at approximately 25 per cent, reflecting the much lower levels of SDLT raised per person in Wales. The resulting 'tax capacity' adjusted figure (£250m) would be multiplied by Wales' population measure as a percentage of E&NI's (5.4 per cent) to arrive at a roughly £13 million increase in the BGA. If Welsh LTT revenues grew by more than £13 million the Welsh Government's budget would increase by more than it would have in the absence of tax devolution, but if Welsh revenues grew by less than £13 million, the Welsh Government's budget would be reduced.

As this example illustrates, in linking BGA to equivalent revenues in E&NI the new Fiscal Framework means the **relative performance of Welsh revenues** will become very important to the Welsh Government budget. As first described by the Holtham Commission, this link to revenues in the rest of the UK has several benefits:

1. It provides further incentives for the Welsh Government to grow the Welsh economy and reap the rewards of faster revenue growth or avoid shortfalls caused by slower growth.
2. It effectively pools UK-wide economic risks, such as a recession that affects revenues across the UK. Although own-sourced tax revenues in Wales could fall during a recession, the reduction in revenues in the rest of the UK would also reduce the size of the adjustment to the Welsh block, thereby mitigating losses to the total Welsh budget.

The inclusion of the 'comparability factor' in the BGA formula means there will continue to be some element of pooling and sharing between Wales and the rUK of the taxes being devolved. Although the Barnett formula will continue to allocate a population-based share of extra spending funded by equivalent revenues in England onto the Welsh budget, the corresponding growth in the BGA will be a tax-capacity adjusted portion of this. However, the comparability factors will not be adjusted if relative tax capacities change. As a result, there is no pooling and sharing of the risks associated with changes in relative tax capacity between England and Wales.

The significant differences in the Welsh income tax base compared with the rest of the UK (as outlined in section 2.1 of this report) is further recognised in the agreement by the creation of **separate BGAs for each band of income tax** (i.e. the basic, higher and additional rates). As shown in figure 2.5 of the main report, a much higher share of Welsh taxable income is earned at the basic rate in Wales compared with the rest of the UK. This means that UK-wide factors which disproportionately impact taxable income at the basic rate band (e.g. rapid increases in the personal allowances) have much more of an impact on total tax revenue in Wales compared with the rest of the UK. Conversely, the much greater share of taxable income earned at the additional rate in the rest of the UK means that UK-wide

factors which influence very high incomes will have much greater impact on total revenues in the rest of the UK than is true for Wales.

Creating separate BGAs for each income tax band means that the BGA is likely to match the trends in devolved Welsh revenues more closely than it would have using a single BGA for income tax as a whole.

The implementation of the Comparable Model of BGA will mean that **the Welsh Government will bear population-related revenue risk**. The Welsh budget will now lose out from slower population growth on the revenue side, even if revenues per person in Wales grow as quickly as in E&NI.

To illustrate this effect, suppose that tax revenues in E&NI grow, but only as a result of population growth (revenue per person stays constant). Similarly for Wales, assume that revenue per person are constant, but that so too is population. In Wales' case, overall tax revenues are also constant. Because the Comparable Model increases Wales' BGA by a population share of the tax revenue increase in E&NI, this would lead to a reduction in the Welsh budget simply as a result of population growth in E&NI.

For further discussion of Wales' fiscal framework, see Poole et al. (2017).

Appendix B: Methodology for Microsimulation of Devolved Income Tax Revenue

To explore the potential risks and opportunities for the Welsh budget from income tax devolution, we build a microsimulation model of devolved income tax revenues in Wales. This appendix summaries the methodology behind the model. The model draws on the methodology used by the Scottish Government to forecast devolved taxes in their 2017-18 Draft Budget.¹⁴

The input to the model is HMRC's Survey of Personal Incomes (SPI) 2014-15. The SPI contains a detailed sample of over 22,000 Welsh anonymised tax records (drawn from PAYE and self-assessment returns), weighted to be representative of all Welsh income taxpayers. A summary of the sample for Wales and the rUK is provided in table B.1. For each record, there is detailed information on sources and level of income, age group, region of residency and other relevant variables.

To protect the anonymity of individuals with very large total incomes, some records are combined with cases with similar characteristics into 'composite records', and an average of each variable is taken. As individuals for different regions are combined together in this process, SPI documentation outlines the share of the composite record belonging to each region. We manually apply these regional shares to estimate Wales' share of each composite record.

Table B.1: Summary of SPI sample of Welsh and rUK taxpayers

	Sample size		Total taxpayers	
	Wales	rUK	Wales	rUK
<i>Basic rate</i>	17,301	328,506	1,200,000	22,325,000
<i>Higher rate</i>	4,374	145,251	127,000	3,839,000
<i>Additional rate</i>	357	27,749	4,000	305,000
Total	22,032	501,506	1,331,000	26,469,000

The modelling applied to the SPI data can be summarised in the following steps:

¹⁴ Their methodology can be found here: <http://www.gov.scot/Resource/0051/00511834.pdf>

1. The Non-Savings, Non-Dividend (NSND) income of each individual in the sample is calculated, by adding PAYE earnings, Self-Employment earnings, pension income, and income from property and other sources of income. Public sector employment income is identified by using the industry variable (namely: **O** Public administration and defence; compulsory social security; **P** Education; and **Q** Human health and social work activities). Pension income is disaggregated between state pension income and other private pension income.
2. We adjust NSND income by taking into account workplace pension contributions and investment reliefs (such as gift aid).
3. Personal allowances are subtracted, to estimate the taxable NSND income of each individual.
4. Tax thresholds are applied to calculate taxable NSND income at the basic, higher and additional rate bands. Welsh taxpayers are identified and their taxable NSND income multiplied by assumed Welsh Government tax rates forms the basis of the estimate of devolved income taxes. Comparable revenues from rUK taxpayers (excluding Scottish taxpayers) are used in the calculation of block grant adjustments.
5. Using 2014-15 as the base year, the dataset is rolled forward to subsequent years, with steps 1-4 repeated for each year. In general, outturn data is used for growth assumptions from 2014-15 to 2017-18, and forecasts/projections are used for growth assumptions in subsequent years. Assumptions are made relating to:
 - a. **Demographic and labour market changes:** Taxpayers are split into seven different age groups – under 25, 25-34, 35-44, 45-54, 55-64 and 65-74. Each age group is grown according to the ONS 2016-based principal population projections. These annual growth rates are amended to account for changes in the employment rate in each age group (taken from Annual Population Survey data). Assumed employment rates for each age group are held constant after 2018-19 (except for when modelling employment rate convergence, shown in figure 3.2 in the main report).
 - b. **Income growth:** Growth rate assumptions are made separately for 5 different income sources, summarised in table B.2. **State pension incomes** are grown according to the latest (March 2018) OBR outturn and forecast, made assuming the continuation of the ‘triple-lock’ guarantee. Due to the difficulty of accounting for the path in private pension incomes, we follow the Scottish Government methodology by growing **all other pension incomes** by their long-run average growth rate implied by SPI data. Outturn data from the Annual Survey of Hours and Earnings (on a calendar year basis) is used for the growth rates in **public sector** and **private sector** employment income from 2015-16 to 2017-18. Under the assumption of continuing fiscal consolidation in coming years, we grow **public sector** employment income to 2021-22 by the average growth from 2011 to 2017. Accounting for the share of employment in each sector, we grow **private sector** employment income in order for total employment income to match the OBR’s forecast for average earnings growth for these years. Both are grown by the OBR’s forecast for average earnings beyond 2022-23. **All other income** is grown in line with private sector employment. These assumptions on income growth are amended when modelling the different scenarios in section 3.1 of the main report.

Table B.2: Summary of growth rates assumed for each income source in Wales

	Year	Pensions		Employment income		All other income
		State pension	All other pensions	Public sector	Private sector	
<i>Outturn</i>	2015-16	2.9%	3.1%	1.8%	2.6%	2.6%
	2016-17	2.5%	3.1%	3.8%	3.4%	3.4%
	2017-18	3.0%	3.1%	0.0%	2.7%	2.7%
<i>Forecast</i>	2018-19	2.6%	3.1%	1.5%	2.5%	2.5%
	2019-20	2.5%	3.1%	1.5%	2.9%	2.9%
	2020-21	2.5%	3.1%	1.5%	3.3%	3.3%
	2021-22	3.0%	3.1%	1.5%	3.9%	3.9%
	2022-23	3.1%	3.1%	3.1%	3.1%	3.1%
	and beyond					

- c. **Tax policy:** Tax allowances and thresholds are updated for each year according to previously announced UK government policy (or Conservative party manifesto commitments). The **Personal Allowance threshold** is grown to reach £12,500 by 2021-22, and grows by the OBR's long-term CPI inflation forecast thereafter. The personal allowance taper threshold is held constant at £100,000. The **Higher Rate threshold** is grown in line with CPI inflation. The **Additional Rate threshold** is held constant at £150,000. **Reliefs** are grown at the same rate as total growth in incomes each year. **Welsh Government tax rates** are assumed to be 10p in each band (apart from when modelling different tax rates in section 4.1 of the main report).
6. To reach the projected effect on the Welsh Government budget, projected Block Grant Adjustments are subtracted from projected devolved income tax revenue for each year. Block Grant Adjustments are set as equal to devolved income tax revenue in 2019-20, and are then projected forward using the **Comparable model** (see Appendix A) and projected growth rates in comparable rUK revenues in each tax band.

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