

This paper examines the evidence base on taxpayers' behavioural responses to income tax changes across the income spectrum. However, the focus is on Higher and Additional Rate taxpayers as the evidence suggests that behavioural effects increase with income. The paper updates the analysis published by the Scottish Government in March 2016 and December 2017<sup>1</sup> to reflect new data and empirical studies, as well as technical advice from the Council of Economic Advisers (CEA).<sup>2</sup>

## **Summary**

### *Background*

- The availability and quality of Scottish income tax data has improved significantly since December 2017, however, the outturn data is only available with a significant time lag.
- The latest administrative outturn data covers 2017-18. More detailed data, which provides insights into the characteristics of Scottish taxpayers, is only available for 2016-17. These datasets, published by HMRC in 2019, underpin the analysis in this note.
- As we have had only two years of data since the devolution of additional powers, the empirical evidence on the behavioural effects of Scottish taxpayers is limited. There is currently no data which would allow us to evaluate the comprehensive changes to income tax implemented in 2018-19.
- This note also reviews the ever-expanding international literature on behavioural effects and cross-border mobility, with recent studies benefitting from new data sources and methods.

### *Evidence on behavioural effects from latest Scottish data published in 2019*

- In 2017-18, around 308,000 individuals paid the Higher 40p Rate (HR) with a further 14,000 taxpayers paying the 45p Additional Rate (AR). Although HR and AR taxpayers represent only the highest earning 7% of Scottish adults, they contributed 56% to Scottish income tax.
- The number of HR and AR taxpayers in Scotland increased by 15,000, around 5%, from 2016-17 to 2017-18, although this partly reflects Scottish Government policy changes in that year.
- Since growth in the tax paid by AR taxpayers in Scotland and the UK was similar in 2017-18, behavioural responses may have been limited - but it is too early to draw firm conclusions.
- The large majority of AR taxpayers are male and aged between 45-64. 25% of AR taxpayers are self-employed, a larger share than for the taxpayer population as a whole. HR taxpayers towards the top end of the band share many characteristics with the AR cohort.
- The top three industries for Scottish AR taxpayers are: Professional Services, Financial Services and Mining and Quarrying (including oil-related industries). HR taxpayers tend to work in: Professional Services, Financial Services, Human Health, e.g. as consultants and GPs, and in the Manufacturing sector.

<sup>1</sup> Previous Scottish Government analysis from March 2016 is available [here](#) and from December 2017 is available [here](#).

<sup>2</sup> The CEA have provided ongoing advice to the Scottish Government on the potential behavioural effects of a change in income tax in Scotland. However, decisions around rates and bands sit with Scottish Ministers. The minutes of the CEA's meetings and phone calls can be found [here](#).

- Considering only households containing HR and AR taxpayers, around half are either households with pensioners (around 12%) or live in a household with children (40%). This suggests that these households may also benefit from the provision of a range of free-to-access public services, such as free tuition or personal care, for example which are charged for elsewhere in the UK. Similarly, other non-tax factors, such as differences in housing costs or opportunities in the local labour market, also influence location choices but are typically more difficult to measure.

*Evidence on behavioural effects from recent empirical studies*

- There is considerable uncertainty when it comes to measuring behavioural responses to changes in tax policy. The empirical literature agrees, however, that responsiveness increases with income because top earners have greater means and incentives to limit their tax liabilities.
- Taxpayers' responsiveness to changes in income tax policy are estimated through taxable income elasticities (TIEs), which measure the percentage change in taxable income in response to a one per cent change in the net of tax rate. The more responsive taxpayers are, the greater the TIE.
- Estimates tend to fall within the range of 0 to 1 for the top 1% of taxpayers.
- Lower TIEs of 0.1 to 0.2 are found for those further down the income distribution. This implies that Starter, Basic and Intermediate Rate taxpayers, as well as individuals towards the lower end of the Higher Rate band, will show limited responsiveness to small tax changes.
- Taxpayers may also respond by relocating but the international evidence finds small migration responses, depending on country-specific circumstances.
- While recent studies largely confirm these findings, they paint a more nuanced picture:
  - The strength of the mobility response to changes in taxation crucially depends on a number of non-tax factors, including local or national amenities and the provision of public services;
  - Small differentials in average tax rates are unlikely to influence people's location choice but there may be a tipping point above which mobility responses are more significant. A recent US study suggests that outward migration may be more pronounced if the difference in average tax rates exceeds 4 percentage points;
  - In the UK, as in other advanced economies, the top 1% of income taxpayers who earn more than £160,000, have become more geographically concentrated over time;
  - Many top earners in the UK only remain in this cohort for a limited period due to fluctuations in their earnings: only around 75% of individuals who were in the top 1% will be there in the next year. This may explain the relatively low levels of outward migration by the highest earners observed in the empirical literature.
- Research published by the International Monetary Fund (IMF) shows that marginal tax rates at the top of the income distribution can be raised without sacrificing economic growth.

*Conclusion*

- While newly published outturn data has improved our understanding of the Scottish income tax base, data limitations remain and empirical studies from other countries are inconclusive.
- The latest evidence suggests that taxpayers at the lower end of the income spectrum - i.e. Starter, Basic and Intermediate Rate taxpayers - have limited responsiveness to tax changes.

- The evidence does suggest, however, that certain industries, such as Professional and Financial Services, account for a large share of high earners, which may give rise to revenue risks. These risks may be cushioned to a degree by non-tax factors, including Scotland's social contract, as well as the variability of earnings from the very top earners.
- The updated evidence suggests that behavioural change impacts, reflecting differences between income tax rates in Scotland and the rUK, remain small at best and do not materially diminish the extra revenues gained from the Scottish Government's income tax changes. We will continue to monitor the revenue risks as new data and research become available.

## 1. Introduction

### **Context**

Income tax on Non-Savings, Non-Dividend (NSND) income has been partially devolved to Scotland since April 2016, with additional powers being devolved in 2017. During this time, the Scottish Government has implemented a number of policy changes, which have sought to promote the level of public services, make the tax system more progressive, protect low earners and support economic growth. As a result, there is now a difference between the Scottish regime and the tax system applied in the rest of the UK, as set out below.

Scotland 2019-20		rUK (England & Northern Ireland <sup>3</sup> ) 2019-20	
Band	Rate	Band	Rate
Over £12,500 - £14,549	19%	Over £12,500 - £50,000	20%
Over £14,549 - £24,944	20%	Over £50,000 - £150,000	40%
Over £24,944 - £43,430	21%	Above £150,000	45%
Over £43,430 - £150,000	41%		
Above £150,000	46%		

As a result of the Scottish Government's income tax reforms, 55% of Scottish income taxpayers paid up to £20 less in income tax than people earning the same amount and living in the rest of the UK in 2019-20. However, a small number of individuals, including the 15% of highest earning Scottish taxpayers, paid more tax in Scotland. For example, a taxpayer earning £60,000 in Scotland paid £1,644 more in tax in Scotland than in the rest of the UK in 2019-20. In addition, those earning between £43,430 and £50,000 face a higher marginal tax rate than they would for the same earnings in the rest of the UK (53% vs. 32%), because of the combined impact of changes in income tax and NICs.

The divergence between Scotland and the rest of the UK may affect taxpayers' behaviour and, in particular, their location decisions although the behavioural response is expected to be low. This paper extends OCEA's 2017 analysis by examining behavioural effects across the income spectrum, rather than for top earners only, and by reviewing recent findings in the empirical literature.

### **Data availability**

While the availability and quality of Scottish income tax data has improved significantly since December 2017, some significant constraints remain, in particular with regard to timeliness.

<sup>3</sup> Income tax was devolved to Wales as of April 2019.

Administrative outturn data are only available with a significant lag as headline estimates on the number of Scottish taxpayers and their revenues are published around 16 months after the end of the tax year (currently 2017-18). This is due to the time allowed for Self-Assessment taxpayers to submit their tax return. Detailed data from the *Survey of Personal Incomes* (SPI), which allows us to examine the characteristics of Scottish taxpayers, such as their age, gender or the industries they work in, is even less timely. It only becomes available with a three year lag (currently 2016-17).

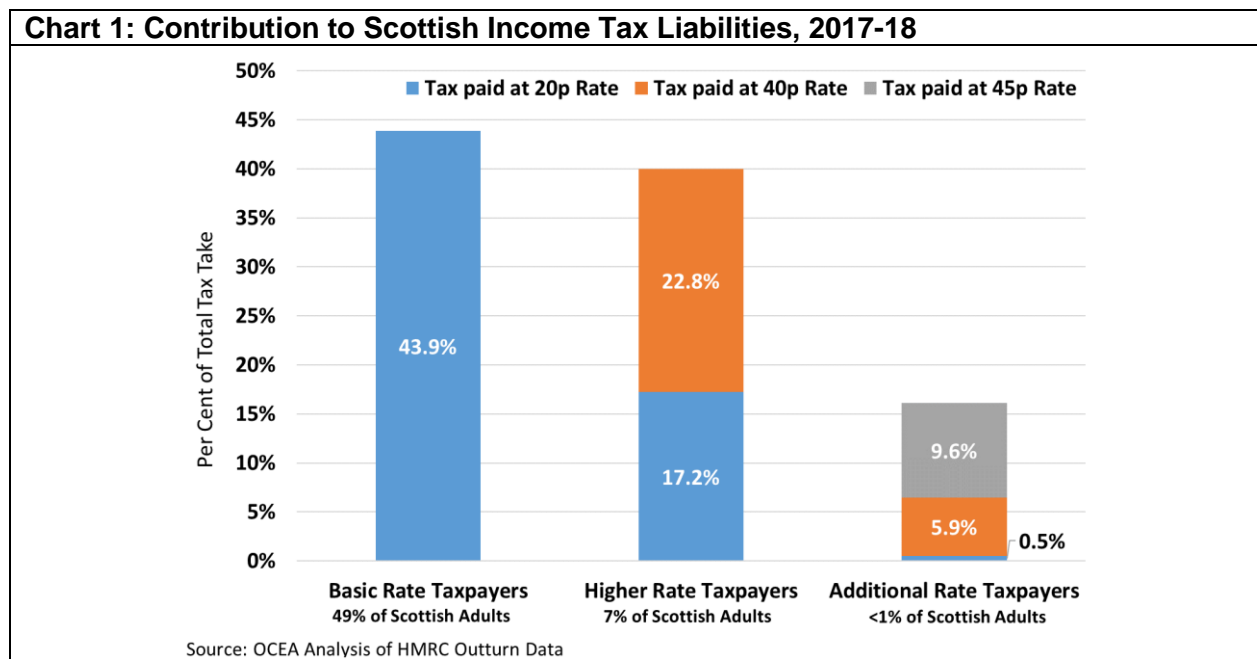
The empirical evidence on the behavioural effects of Scottish taxpayers therefore remains limited as additional powers over income tax were not devolved until April 2017. In addition, the SPI dataset does not currently track individual taxpayers and their outcomes and behaviour over time, which would be required to fully assess the extent of any behavioural responses to income tax changes.

## 1. Evidence from new Scottish outturn data

### *Who pays the Higher and Additional Rate of Income Tax in Scotland?*

In July 2019, HMRC published administrative outturn data, which showed that 308,000 individuals paid the Higher 40p Rate (HR) of income tax in Scotland in 2017-18, with a further 14,000 taxpayers paying the 45p Additional Rate (AR).<sup>4</sup>

While these taxpayers only accounted for around 7% of the highest earning Scottish adults, they made a significant contribution to income tax, accounting for around 56% of the total Scottish tax take in 2017-18 (see Chart 1). As with most countries, total revenue from income tax is therefore relatively reliant on these top earners, so that the behaviour of a relatively small number of individuals may have a disproportionate impact, positive or negative, on overall Scottish income tax liabilities.



The number of HR and AR taxpayers in Scotland increased by 15,000, around 5%, between 2016-17 and 2017-18 although this partly reflects policy changes. 2017-18 was the first year in which the Scottish Parliament set a different income tax policy from the rest of the UK by freezing the threshold at which taxpayers started paying the 40p rate at £43,000, compared to a UK threshold of £45,000.

<sup>4</sup> Scottish outturn statistics are available [here](#).

Despite this revenue-raising measure, tax receipts rose more quickly in the rest of the UK than in Scotland (3.0% vs. 1.8%). This was largely driven by a strong performance of AR taxpayers in both countries. However, differences in the income distribution, which mean that top earners account for an even larger share of the total tax take in the rest of the UK compared to Scotland (30% vs. 16%), mean that this translated into a relatively greater increase in tax receipts in the rest of the UK.

The fact that growth in the amount of tax paid by AR taxpayers in Scotland and the UK was very similar in 2017-18 (8.5% vs. 8.0%, respectively) suggests that behavioural responses may have been limited in that year. However, the published administrative data is not detailed enough to draw any firm conclusions. Detailed micro data for 2017-18, due to be published in summer 2020, may shed further light on the behavioural effects of high income taxpayers.

### ***What do we know about the characteristics of taxpayers in different income groups?***

Detailed income tax outturn data from HMRC's *Survey of Personal Incomes* (SPI) can provide further insights into the characteristics of Scottish taxpayers - such as their age, gender, or the industry they work in - and what this may mean for their response to tax changes. However, this information only becomes available with a significant lag, with the latest data referring to the 2016-17 tax year.

While OCEA's 2017 paper was mainly concerned with AR taxpayers, this note considers behavioural effects across the income spectrum, including Basic and Higher Rate taxpayers. However, since the HR band would cover all taxpayers earning between £43,000 and £150,000 in 2016-17, their characteristics, and hence behaviours, may vary substantially across this group. Although the Basic Rate (BR) population is included in the analysis, the academic literature finds that taxpayers on lower incomes are not very responsive to policy changes (see Section 2).

The 2016-17 SPI data show that the large majority of AR taxpayers are male and aged between 45-64. 25% of AR taxpayers are self-employed, a larger share than for the taxpayer population as a whole. HR taxpayers towards the top end of the band (i.e. earning more than £80,000) share many characteristics with the AR cohort while HR taxpayers towards the bottom of the band (i.e. earning between £43,000 and £80,000) are more similar to BR taxpayers. This means that taxpayers earning more than £80,000 are more likely to respond actively to income tax differentials with the rest of the UK than high income earners towards the bottom of the HR band.

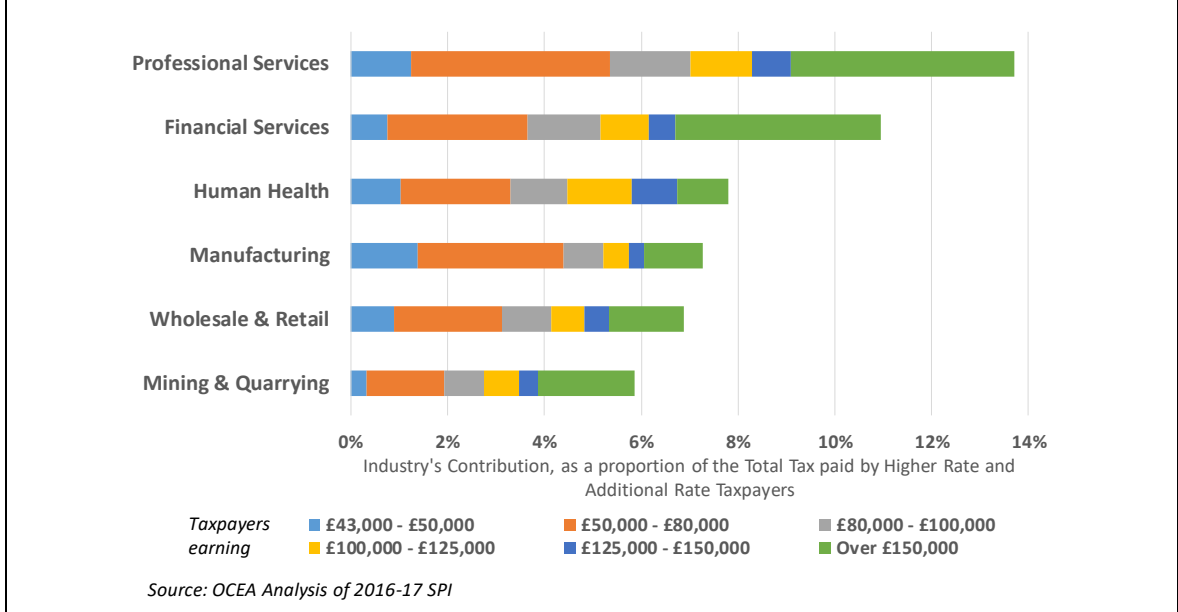
For the first time, our analysis also considers which sectors of the Scottish economy contribute most to the overall Scottish tax take and the extent to which this can be explained by a relatively larger share of high-income taxpayers in these sectors.

As illustrated in Chart 2, the top three industries for AR taxpayers are Professional Services (including accountants, lawyers and architects, for example), Financial Services and Mining and Quarrying (includes oil-related industries).<sup>5</sup> While the former also employ a relatively large share of HR taxpayers, the Mining and Quarrying industry has proportionately fewer HR taxpayers. Instead, HR taxpayers are more likely to work in Human Health, e.g. as consultants and GPs, and in the Manufacturing sector.

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<sup>5</sup> However, it should be noted that some high-value cases do not currently have an industry attached to them. Together these missing industry records account for 5% of tax liabilities of HR and AR taxpayers. If these were to be included, this could potentially change the order of the top industries

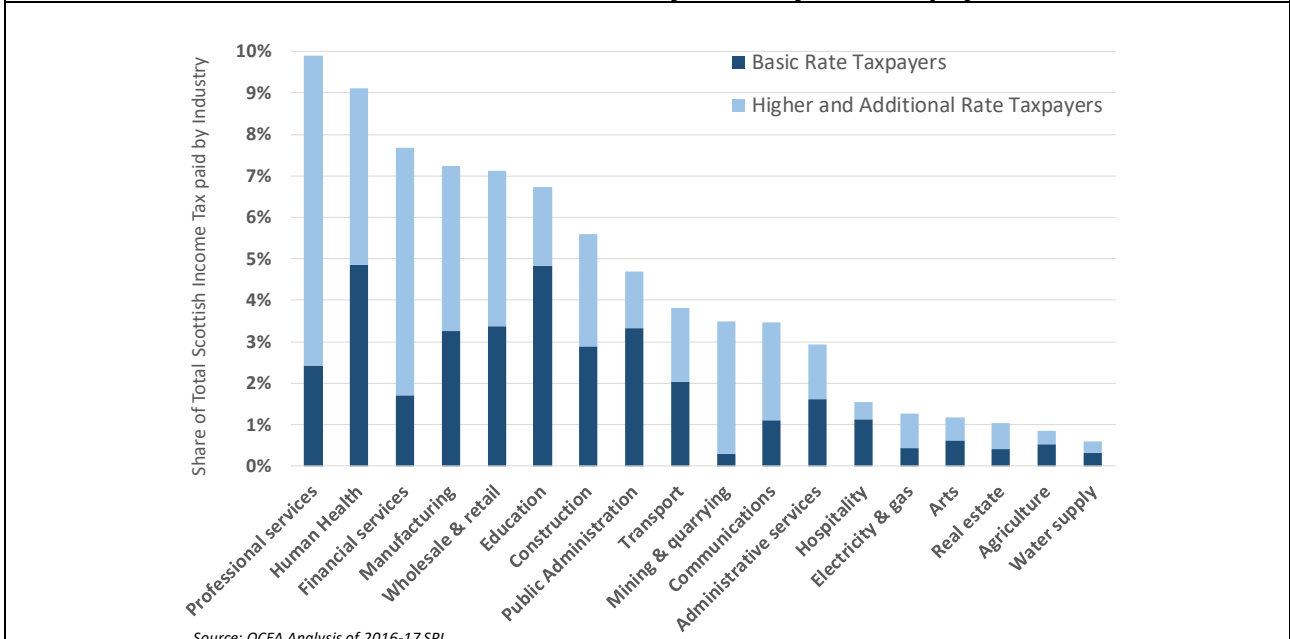
**Chart 2: Top Six Industries of HR and AR Taxpayers, 2016-17**



While high income earners in the Professional and Financial Services tend to be highly mobile, this may not be to the same extent for Mining and Quarrying, which is location specific. However, this sector is particularly vulnerable to changes in the oil price, which may result in significant year on year fluctuations in receipts from taxpayers working in this industry or related supply chains, regardless of behavioural change.

However, although some industries account for a large share of high-income taxpayers, their overall contribution to Scotland’s economy, and hence tax take, might be much smaller. This is the case, for Mining and Quarrying, for example, which accounted for around 2% of Scottish GDP in 2016 and 2017. By comparison, some industries, such as Financial and Professional Services, make a large contribution to overall receipts (18% combined) with the majority of this coming from high income earners (see Chart 3). The largest share of Basic Rate taxpayers can be found in the public sector (Education and Health) as well as Retail and Wholesale.

**Chart 3: Contribution to Scottish Income Tax by Industry and Taxpayers, 2016-17**



## ***What do we know about taxpayers' family circumstances?***

Evidence suggests that individuals base their decisions about where to live and work on a range of factors, including opportunities of local labour markets, the costs of housing, climate, the quality of public services and other amenities. The broader provision of a range of free-to-access public services in Scotland, such as free tuition, personal care, bus travel for older people and additional childcare support for three and four year olds, reduces the cost of living in Scotland for many families. Linking tax changes to the additional or full provision of public services is often termed the 'social contract'. In the context of our analysis, this is important in as far as it mitigates any behavioural responses to differences in tax rates between Scotland the rest of the UK and it is argued that the tax differential should be viewed in this wider context.

Data from the Family Resources Survey<sup>6</sup> sheds further light on top earners' family circumstances. While HR and AR taxpayers make up the highest earning 7% of Scottish adults, some of these individuals may be the main family breadwinner, supporting a partner and/or children. On an equivalised gross household income basis, HR and AR taxpayers are spread across the top four deciles<sup>7</sup> of the household distribution: 85% of HR and AR taxpayers can be found in these households.

While all Scottish residents benefit from the provision of public services (social contract) over their lifetime, many elements which set Scotland apart from the rest of the UK are aimed at older people and families with children. This suggests that these households may also benefit from the provision of a range of free-to-access public services, such as free tuition or personal care, for example which are charged for elsewhere in the UK. Similarly, other non-tax factors, such as differences in housing costs or opportunities in the local labour market, also influence location choices but are typically more difficult to measure.

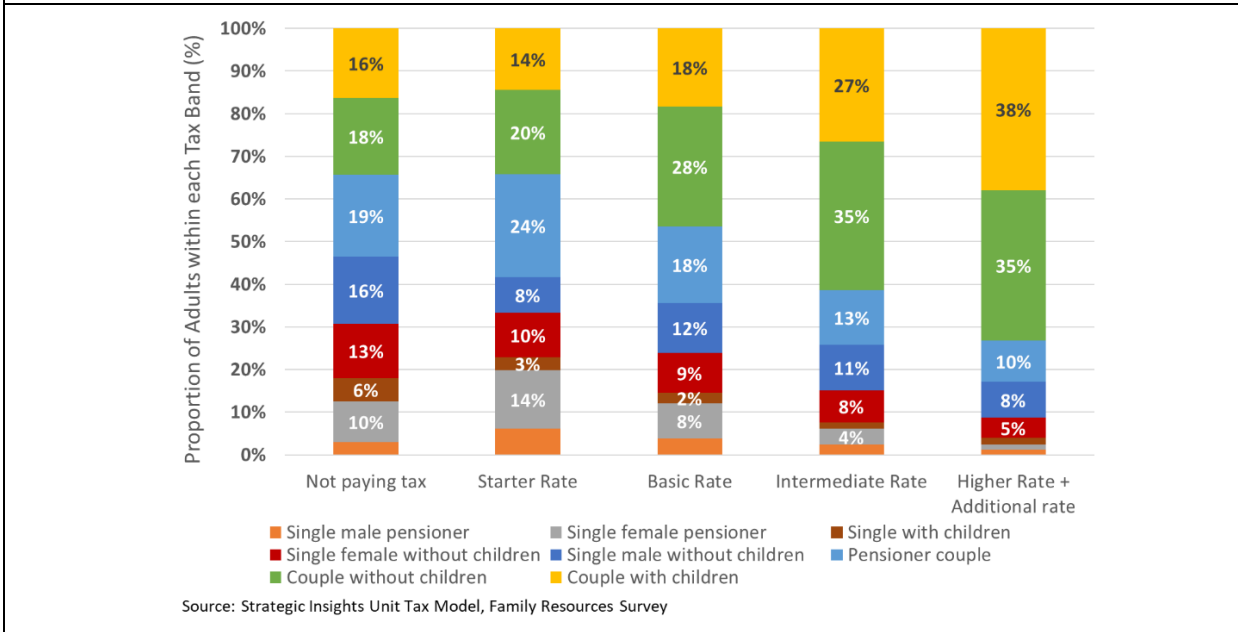
Chart 4 shows that, almost two in five adults who are HR and AR taxpayers live with another adult as a couple with children (38%), around a third of HR and AR taxpayers live as a couple without children (35%), and around one in ten HR and AR taxpayers are adults living in pensioner couples (around 10%). Couples with children make up a relatively smaller proportion (between 14% and 27%) of taxpayers in the lower earning three tax bands, i.e. the Starter, Basic and Intermediate Rates. This reflects the strong link between age and earnings. It is often only in middle-age (i.e. between the age of 45 and 54) when earnings peak, bringing some adults into the HR or AR bands.

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<sup>6</sup> Based on FRS data from 2012-13 to 2017-18, reweighted to reflect the mid-year population as at June 2020.

<sup>7</sup> This approach divides the household population into ten equal groups, with decile 1 representing the 10% of households with the lowest earnings and decile 10, the 10% of households with the highest earnings.

**Chart 4: What family unit do taxpayers live in?**



## 2. Evidence from recent empirical studies

### Background

Despite extensive research in this area, there is still considerable uncertainty when it comes to measuring taxpayers' behavioural responses to income tax changes. There is, however, general agreement in the international empirical literature that responsiveness increases with income as higher earners have greater means and incentives to limit their tax liability.

#### Background: Estimating taxpayers' behavioural responses

Behavioural responses cover a wide range of taxpayers' actions to policy changes, including:

- **Avoidance** - artificially (but legally) reducing one's tax liability. An example of this is incorporation where individuals form companies to minimise tax;
- **Evasion** - which illegally reduces tax liabilities;
- **Economic responses** - seeking work or increasing the number of hours worked or vice versa;
- **Migration** - taxes could also affect migration, both into and out of Scotland.

Empirically, taxpayers' responsiveness to changes in income tax policy are estimated through *taxable income elasticities* (TIEs), which measure the percentage change in taxable income in response to a one per cent change in the net of tax rate.<sup>8</sup> The more responsive taxpayers are, i.e. the greater the TIE, the larger will be the change in their taxable income and hence tax receipts.

<sup>8</sup> The literature distinguishes between changes in the Marginal Effective Tax Rate, where taxpayers may alter their effort to earn more or pay less tax, for example through changing working hours, and the Average Effective Tax Rate, where individuals respond through other means such as retirement or outward migration. Cross-border mobility is usually measured through (semi) migration elasticities which measure the percentage change in the number of people migrating in response to a 1 percentage point change in the average tax rate.



Following a review of the empirical literature, the Scottish Fiscal Commission currently applies the following TIEs:

Income Start	Income End	Elasticity (TIE)
Low	£30,930 (Basic Rate Limit)	0.015
£30,390	£80,000	0.1
£80,000	£150,000	0.2
£150,000	£300,000	0.35
£300,000	£500,000	0.55
£500,000	high	0.75

The 2017 paper we published found that estimates of taxpayers' responsiveness typically fall within the range of 0 to 1 for the very top earners, usually defined as the top 1% although definitions vary across studies.<sup>9</sup> Estimates tend to be towards the lower end of the range in the Scandinavian countries and Canada, and towards the upper end of the range in the United States. However, more recent evidence suggests that even within the top 1% bracket, behavioural responses may differ and increase with income.<sup>10</sup>

Recent estimates for the UK as a whole also vary substantially, depending on the methodology used. For example, the IFS (2017) estimated that top earners' responsiveness to the 2010 change in the UK-wide Additional Rate, affecting individuals in the top 1% who earn more than £150,000, ranged from 0.31 to 1 depending on the methodology used. However, the IFS study concluded that HMRC's current estimate of 0.48 is a reasonable assumption for any UK-wide policy analysis.<sup>11</sup>

Relatively few empirical studies observe taxpayers' responsiveness below the very top end of the income distribution. Most of these cover the United States and tend to find a lower responsiveness for those earning less than \$100,000, with estimates ranging from 0.1 to 0.2.<sup>12</sup> However, the extent to which these results can be applied to the UK or Scotland - where the Higher Rate band covers all individuals earning between £43,430 and £150,000 - is unclear as the income distributions and taxpayers' characteristics will not be directly comparable.

There is also an entirely separate strand of the empirical literature which attempts to quantify the impact of changes in taxation on people's location choices. While the empirical evidence is inconclusive, the early literature finds small migration responses, ranging from close to 0 to 0.23.<sup>13</sup>

However, since most of the literature on tax-induced cross-border mobility within countries is based on the US, these quite small behavioural estimates may not hold in a Scottish context. In particular, many of these studies focus on locations, such as New York or California, which have a strong tax base and are able to levy lower taxes because they may offer better job opportunities and a higher quality of living compared to their immediate neighbours. While more relevant in the Scottish context, findings from research on smaller more integrated regions, such as the cantons in Switzerland or the autonomous regions in Spain, is very mixed. For example, Agrawal and Foremny (2019) find that

<sup>9</sup> See for example Saez et al. (2012), The elasticity of taxable income with respect to marginal tax rates: A critical review. *Journal of economic literature*, 50(1), 3-50.

<sup>10</sup> See Rauh and Shyu (2019), Behavioural Responses to State Income Taxation of High Earners: Evidence from California, available [here](#).

<sup>11</sup> The IFS analysis is summarised in a briefing paper available [here](#).

<sup>12</sup> See for example Gruber and Saez (2002), The elasticity of taxable income: evidence and implications. *Journal of public Economics*, 84(1), 1-32; Kopczuk (2005), Tax bases, tax rates and the elasticity of reported income. *Journal of Public Economics*, 89(11-12), 2093-2119.

<sup>13</sup> See for example Young, Varner et al. (2016) Millionaire Migration and Taxation of the Elite: Evidence from Administrative Data. *American Sociological Review*, 81 (3):421-446; Cohen, Lai and Steindel (2012) Tax Flight Has Tangible Effects on Income Tax Revenue. *State Tax Notes* 63: 617-622.

a one percent increase in the net-of-tax rate for a region relative to others increases the probability of moving to that region by 1.7 percentage points.<sup>14</sup>

### **Recent Findings**

While recent studies largely confirm these findings, they paint a more nuanced picture, in particular:

- The strength of the mobility response to changes in taxation crucially depends on a number of non-tax factors, including local or national amenities and the provision of public goods and services;
- Small differentials in tax policy are unlikely to influence people's location choice, however, there may be a tipping point above which mobility responses are more significant;
- In the UK, the very top earners have become more geographically concentrated over time;
- Many top earners only remain in this cohort for a limited amount of time.

These findings may have implications for taxpayers' behavioural responses, as discussed below.

While there is growing evidence that personal taxation can influence people's location choices, Kleven et al. (2019) caution against over-using empirical studies for two reasons. Firstly, the researchers highlight that there is no systematic evidence on the mobility elasticities of the broader population and across different types of countries due to data limitations and methodological challenges.<sup>15</sup> Secondly, the magnitude of the migration response crucially depends on a number of factors that foster or limit the movement of people, such as local or national amenities, agglomeration effects, and the provision of public goods and services. This suggests that taxpayers will not only factor in differences in income tax rates between regions, but are likely to assess a range of non-tax factors, including the quality of life, the costs of living, regional labour markets and differences in public service provision. Regions which are more similar in terms of local amenities and public good provision therefore face potentially larger cross-border mobility and hence limited scope for differential tax rates.

This may also explain other recent findings in the empirical literature, which suggest that although small scale changes to tax policy are unlikely to influence people's location choice, there may be a tipping point above which migration responses are more significant. In a recent study for the US, Zhang and Hewings (2019)<sup>16</sup> found that the gap in the (net of tax) average personal income tax rate<sup>17</sup> would have to exceed 4 percentage points to induce any significant migration flows. To put this into context, Scotland's tax differential with the rest of the UK in the financial year 2019-20 did not exceed 3.1 percentage points<sup>18</sup>. There is currently no evidence which would allow us to quantify whether this is above or below a critical tipping point.

In the UK context, the Institute for Fiscal Studies (IFS) recently provided further insights into the characteristics of the highest earning 1% of income taxpayers, i.e. around 310,000 individuals with a taxable income of more than £160,000.<sup>19</sup> The IFS found that the very top earners have become more geographically concentrated over time as around half of this cohort now live in just 65 (out of 650) parliamentary constituencies, up from 78 constituencies in 2000-01. The large majority of these

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<sup>14</sup> See for example Agrawal and Foremny (2019), Relocation of the Rich: Migration in Response to Top Tax Rate Changes from Spanish Reforms. Review of Economics and Statistics, Volume 101(2), 214-232.

<sup>15</sup> Kleven, H. et al. (2019), Taxation and Migration: Evidence and Policy Implications. CEPR Discussion Paper No.

<sup>16</sup> Zhang and Hewings (2019), available [here](#).

<sup>17</sup> The net of income tax average rate is defined as 1 minus the average income tax rate.

<sup>18</sup> The size of the "tax gap" varies across the income distribution.

<sup>19</sup> The IFS paper is available [here](#).

(52) are in London and the South East. Within Scotland, there was only one constituency (Aberdeen) with more than 2% of adults in the top 1% in 2014-15, out of a total of 30 constituencies across the UK. Top earners also tend to be more concentrated in cities (e.g. Edinburgh and Glasgow).

This seems to chime with the international evidence on cross-border mobility, in particular in the US. Recent studies found that economic centres for top talent, such as New York or California/Silicon Valley, have become more attractive places for top earners over time and have seen little outward migration, despite introducing so called “millionaire taxes”.<sup>20</sup>

Another interesting finding from the IFS study, is that many top earners only stay in this cohort for a limited period of time due to fluctuations in their annual earnings. For example, only around 75% of individuals who were in the top 1% will be there in the next year, while only half will be part of that group after five years. In addition, many individuals do move in and out of this cohort frequently. This somewhat temporary nature of very high earnings might have important implications for individuals’ behavioural response. While a taxpayer who permanently earns more than £150,000 may be encouraged to relocate to a low tax jurisdiction, an individual with a more volatile earnings profile may be less inclined to do so. The fact that top earners may only have a handful of years in the top income tax bracket has been put forward as one potential explanation in the literature for the relatively low levels of millionaires’ outward migration that have been observed in some studies.

Finally, research published by the International Monetary Fund, shows that “*At the top of the income distribution, our research shows that marginal tax rates can be raised without sacrificing economic growth.*”<sup>21</sup>

### **3. Income Tax changes, Receipts and the Fiscal Framework.**

Under Scotland’s Fiscal Framework, how tax receipts per head perform compared to the rUK and the Scottish Parliament’s decisions on tax rates are fundamental in determining whether the Scottish budget is larger or smaller than it would have been without the new powers.

This paper has highlighted the important role Additional/Top Rate taxpayers play in driving overall receipts growth as well as the increasing geographical concentration of top earners in London and the South East. If these trends were to persist in the future, this may point towards structural risks to Scotland’s Budget due to differences in the income distribution between the two countries. This means that growing Scotland’s tax revenues as quickly as revenues in the rest of the UK could be challenging over the medium to long run.

While it is too early to draw firm conclusions, there is a possibility that a key risk to Scotland’s Budget could come from the structural concentration of Additional Rate taxpayers across the rUK, rather than behavioural responses to tax changes which are likely to be small. This is an important area for further analysis with important implications for the upcoming review of the Fiscal Framework in 2022.

### **4. Conclusion**

While new outturn data has improved our understanding of the Scottish income tax base, data limitations remain and empirical studies from other countries are inconclusive. The latest evidence

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<sup>20</sup> Varner et al. (2018), available [here](#).

<sup>21</sup> See the blog post [here](#).

suggests that taxpayers at the lower end of the income spectrum - i.e. Starter, Basic and Intermediate Rate taxpayers - are not very responsive to tax changes.

The evidence does suggest, however, that certain industries, such as Professional and Financial Services account for a large share of high earning taxpayers, which may give rise to revenue risks. These risks may be cushioned to a degree by non-tax factors, including Scotland's social contract, as well as the variability of earnings from the very top earners.

In conclusion, the updated evidence suggests that behavioural change impacts, reflecting differences between income tax rates in Scotland and the rUK, remain small at best and do not materially diminish the extra revenues gained from the Scottish Government's income tax changes. We will continue to monitor the revenue risks as new data and research becomes available.