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Scottish Income Tax

2018-19 policy evaluation

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1. Executive Summary

- In 2018-19, the Scottish Government introduced significant reforms to Scottish Income Tax, adding two new bands to split the previous Basic Rate band and adding 1p to the Higher and Top Rates. This represented the first major change in Income Tax policy since the current powers were devolved by the Scotland Act 2016.
- These reforms built on the policy changes implemented in 2017-18, where the freeze to the Higher Rate Threshold meant that, for the first time since the creation of Income Tax in 1799, some people in Scotland paid a different amount of tax from the rest of the UK.
- The purpose of this policy evaluation is to review the impacts of the 2018-19 Income Tax policy. The impacts are assessed against the outcomes defined by four key tests for Income Tax policy, initially set out in the discussion document *The role of Income Tax in Scotland's budget*.
- Overall, the policy met all four tests, which were:
 - **Revenue test** – the Scottish Income Tax system raised around £240 million more for funding public services in Scotland compared to implementing the rates and bands of UK Income Tax.
 - **Progressivity test** – the policy was progressive across large parts of the income distribution, resulting in a small reduction in inequality, as measured by the Gini coefficient (a fall of 0.3 percentage points).
 - **Protecting lower earners test** – lower earners saw the tax they paid fall – with 56% of taxpayers paying less tax.
 - **Economic growth test** – the policy provided additional funding to support the economy, protecting our public services and helping make Scotland fairer.
- In addition to the four tests, the Scottish Government also sought to understand the **operational and administrative impacts** of the policy. In doing so, we found that:
 - the processes and procedures put in place by HMRC to administer Scottish Income Tax are robust and enable it to be collected efficiently and effectively.
 - while the policy change made the tax system more complicated for some taxpayers, the use of software and technology significantly lessened the impact of the additional complexity.
 - good communication around tax policy and administration is key, particularly for unrepresented taxpayers and businesses.

2. Introduction

The Scottish Government's reforms to Scottish Income Tax in 2018-19 represented the first major change to the rate and bands of Income Tax in the UK in a number of years. This also marked the first time that the rates of Income Tax in Scotland had notably diverged from those in the rest of the UK (rUK) since the creation of Income Tax in 1799.

In the Medium Term Financial Strategy¹ published on 28 January 2021, the Scottish Government set out a commitment to conduct a more detailed evaluation of the 2018-19 Income Tax policy, including an assessment of the scale of the behavioural effects and the amount of revenue raised.

This has been a unique opportunity to conduct an evaluation of this scale on Income Tax policy and its outcomes will have broader relevance to the approach to taxation in Scotland and beyond.

This publication sets out the analysis and findings from this evaluation. It is being published in tandem with a HMRC study into the responsiveness of taxpayers' income following the 2018-19 reforms².

1 [Scotland's Fiscal Outlook: The Scottish Government's Medium-Term Financial Strategy - gov.scot \(www.gov.scot\)](https://www.gov.scot/publications/medium-term-financial-strategy-2021/pages/1-introduction.aspx)

2 www.gov.uk/government/publications/estimating-scottish-taxpayer-behaviour-in-response-to-scottish-income-tax-changes-introduced-in-2018-to-2019

3. Policy context

The Scottish Budget was historically funded exclusively via a Block Grant from the UK Government. This meant that a budget, which was set by the UK Government and Parliament based on spending decisions for England and Wales, was transferred as revenue to the Scottish Parliament, which could then decide how to allocate those funds at the Scottish Budget.

The Scotland Act 2012 gave the Scottish Parliament the power to set a Scottish Rate of Income Tax. Since 2017-18, and following the further devolution of the current Income Tax powers in the Scotland Act 2016, the Scottish Parliament has had the power to set the rates and bands that apply to non-savings non-dividend Income Tax for Scottish taxpayers (i.e. income from employment, self-employment, pensions and property). The other elements of the Income Tax system, including savings and dividend income, reliefs/exemptions and setting the tax-free Personal Allowance, remain reserved to the UK Government. HMRC also collects and administers Scottish Income Tax on behalf of the Scottish Government.

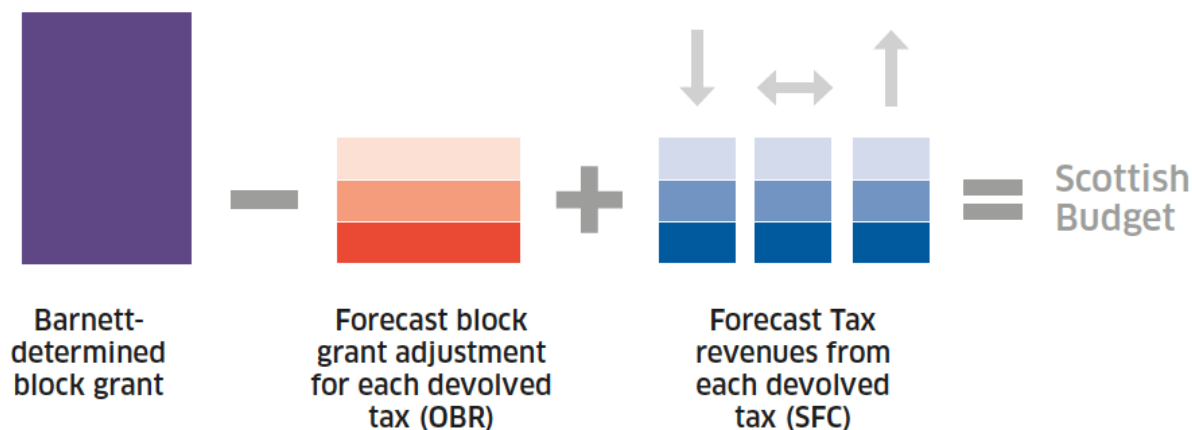
Scottish Income Tax receipts are around £12 billion annually, accounting for roughly 30% of the overall Scottish Budget. The Scottish Parliament has to pass a Scottish Rate Resolution each year to set the rates and bands that will apply to the income of Scottish taxpayers in the following tax year. This means that decisions made in the Scottish Parliament now have greater influence over the size of the Scottish Budget.

3.1 Fiscal Framework

The Fiscal Framework was introduced alongside the Scotland Act 2016 to determine how the Scottish Budget should be funded following the devolution of further powers over taxation and social security.

The Scottish Block Grant continues to be calculated by the Barnett formula, but an adjustment is made to reflect the fact that some of the budget is now funded by Scottish tax revenues that were previously retained by the UK Government (known as the Block Grant Adjustment (BGA)). The revenues from devolved taxes are then added back in to determine the net position for the Scottish Budget, see Figure 1.

Figure 1: Components of the Fiscal Framework



As a result, the net impact of Scottish Income Tax on the Scottish Budget depends on the forecasts of UK tax revenues produced by the Office for Budget Responsibility (OBR), which are used to calculate the BGAs; and the forecasts of tax revenues raised in Scotland, produced by the Scottish Fiscal Commission (SFC).

The overall impact on the Scottish Budget depends on the performance of Income Tax receipts in Scotland relative to the rUK³. If the Scottish Government is able to grow its receipts per head faster than in the rUK, the net budgetary effect will be positive, and vice versa. This outcome is heavily influenced by changes in tax policy; economic performance; differences in the composition of the tax base; and differences in the sectorial composition of the two economies.

Inevitably, the SFC and OBR forecasts will not exactly match the amounts actually raised in Scotland or the rUK. Therefore, when outturn data is published, an adjustment (known as a reconciliation) is applied to the next Scottish Government Budget to account for the differences in the forecasts⁴. Reconciliations are a normal part of the Fiscal Framework for all taxes and should not be confused with how tax receipts are performing.

Further information can be found in the *Fiscal Framework: factsheet*⁵.

3.2 2018-19 Scottish Budget

The 2018-19 was the second year that the Scottish Government was able to set out its Income Tax policy using the new powers provided by the Scotland Act 2016. In the first year (2017-18), there was a small divergence between the Scottish and UK Income Tax systems, when the Higher Rate threshold in Scotland was frozen at £43,000.

In advance of the 2018-19 Scottish Budget, the Scottish Government published the discussion document *The role of Income Tax in Scotland's budget*⁶. The document set out four key tests against which the Scottish Government believed that any future tax changes should be judged, and applied these tests to a range of scenarios, including the Income Tax proposals that the parties represented in the Scottish Parliament had in their 2016 election manifestos. The purpose of the discussion document was to inform and encourage a more open debate across Scotland on how Income Tax powers could be used.

At the 2018-19 Draft Budget presented on 14 December 2017, the then Cabinet Secretary for Finance and the Constitution announced significant reforms to Scottish Income Tax, with 1p added to the Higher and Top Rates, and the addition of two new bands to split the previous Scottish Basic Rate band. As set out in the 2018-19 Draft Budget documentation⁷, these reforms were judged to best meet the four key tests as set out in the discussion document, making the system more progressive, raising additional revenue for public services, whilst supporting Scotland's economy.

3 The rest of the UK (Northern Ireland, England and Wales) is only used as the comparator until 2018-19. From 2019-20, Wales is excluded from the comparator due to partial devolution of Income Tax to Wales.

4 Due to the time between the end of the tax year and the Self-Assessment filing deadline (31 January of the following year), outturn data on how receipts performed is only available with a significant lag.

5 [Fiscal framework: factsheet – gov.scot \(www.gov.scot\)](https://www.gov.scot/publications/fiscal-framework-factsheet/pages/1-10.aspx)

6 [The role of income tax in Scotland's budget – gov.scot \(www.gov.scot\)](https://www.gov.scot/publications/role-of-income-tax-in-scotland-budget/pages/1-10.aspx)

7 [Scottish Budget: draft budget 2018-2019 – gov.scot \(www.gov.scot\)](https://www.gov.scot/publications/draft-budget-2018-2019/pages/1-10.aspx)

The following rates and bands were agreed to by the Scottish Parliament on 20 February 2018:

Table 1: Scottish Income Tax rates and bands 2018-19		
Band	Band name	Rate
Over £11,850* to £13,850	Starter rate	19%
Over £13,850 to £24,000	Basic rate	20%
Over £24,000 to £43,430	Intermediate rate	21%
Over £43,430 to £150,000	Higher rate	41%
Over £150,000	Top rate	46%

*The Personal Allowance is set by the UK Government

This compares to the three tax rates and bands in force in the rest of the UK in 2018-19:

Table 2: rUK Income Tax rates and bands 2018-19		
Band	Band name	Rate
Over £11,850 to £45,000	Basic rate	20%
Over £46,350 to £150,000	Higher rate	40%
Over £150,000	Additional rate	45%

And to the three tax rates and bands for Scottish and UK Income Tax in 2017-18:

Table 3: Scottish Income Tax rates and bands 2017-18		
Band	Band name	Rate
Over £11,500 to £43,000	Basic rate	20%
Over £43,000 to £150,000	Higher rate	40%
Over £150,000	Additional rate	45%

Table 4: rUK Income Tax rates and bands 2017-18		
Band	Band name	Rate
Over £11,500 to £45,000	Basic rate	20%
Over £45,000 to £150,000	Higher rate	40%
Over £150,000	Additional rate	45%

4. Purpose and scope of the evaluation

Scotland's first *Framework for Tax*⁸, which has been published at the same time as this evaluation, builds on the already established Scottish approach to taxation. It sets out the principles, strategic objectives and approach to decision making, engagement and how we manage and sequence tax policy through the fiscal cycle. The Framework provides a foundation for the design and delivery of tax policies that support our National Outcomes⁹ and embodies our ambition for excellence in tax policy and delivery – including embedding evaluation as part of the routine cycle of tax policy making.

The purpose of any policy evaluation is to measure whether: a policy has been implemented as intended; anticipated outcomes have been achieved; the benefits of implementing the policy outweigh the associated costs.

This evaluation assesses the impact of the Scottish Government's 2018-19 Income Tax policy, including the departure from the tax bands used in the rest of the UK in 2017-18, against the intended outcomes defined by the four tests set out in the original discussion paper *'The role of Income Tax in Scotland's budget'*¹⁰. These outcomes were:

- **Revenue test** – any Income Tax changes should raise additional revenue, over and above the current policy, to help protect public services in Scotland and support the social contract;
- **Progressivity test** – any changes to the Income Tax system should increase the progressivity of the tax system and reduce income inequality;
- **Protecting lower earners test** – at a time when living costs are also rising, taxpayers in lower income brackets should not pay more tax;
- **Economic growth test** – changes in Income Tax policy, and the accompanying change in public spending, must support the economy.

The evaluation also assesses **operational and administrative impacts** of the policy changes on taxpayers, businesses and payroll software providers.

Overall, the aims of the evaluation are to:

- understand the extent to which the policy achieved its intended outcomes, including how much revenue was raised in practice;
- deepen the evidence around the performance of the tax base in Scotland and the behavioural risks associated with the divergence of Scotland's tax system relative to the rUK's;
- identify lessons that can be drawn upon to inform Scottish Government fiscal and economic policy decisions, and to support growth and sustainability of Income Tax revenues; and
- to better understand the impact of policy changes on HMRC, taxpayers, businesses and payroll software providers.

We did not test public attitudes towards, and knowledge of, the Scottish Income Tax system as part of this evaluation. However, the Scottish Government does gather evidence on public attitudes to tax, including via the Scottish Social Attitudes Survey.

8 <https://www.gov.scot/isbn/9781802017328>

9 [National Outcomes | National Performance Framework](#)

10 [The role of income tax in Scotland's budget – gov.scot \(www.gov.scot\)](#)

5. Revenue test

Revenue test – any Income Tax changes should raise additional revenue, over and above the current policy, to help protect public services in Scotland and support the social contract.

The Scottish Government believes that investment in the economy, public services and the social contract – which goes beyond what is provided in other parts of the UK – delivers benefits for all taxpayers and makes a significant contribution to making Scotland the best place in which to live, work, study and invest.

Our Income Tax policies were introduced at a time when the Scottish Budget had been falling in real terms, with real funding around £0.3 billion less in 2019-20 than 2015-16. Raising additional tax revenue was therefore one of the four policy tests against which the reforms are ultimately to be judged.

5.1 Key findings

- A new empirical study published by HMRC on the 2018-19 Scottish Income Tax reform provides “limited evidence of Scottish taxpayers lowering their declared income in response to increasing tax rates”¹¹.
- We estimate that the 2018-19 Income Tax policy raised £239 million, compared to implementing the rUK rates and bands. Our estimate is based on HMRC’s headline measure of taxpayers’ responsiveness to tax changes, as outlined in their study.
- This is about £60 million lower than would have been expected using the estimates of taxpayers’ responsiveness and the estimated composition of the Scottish tax base at the time the policy was introduced.

5.2 Summary of results

Overall, we estimate that the 2018-19 Income Tax policy raised between £230 and £300 million in additional revenue, compared to implementing the same rates and bands as the rUK. **Our central estimate of revenues raised by the reform is £239 million**, based on the headline measure used in a new study published by HMRC on estimating taxpayers’ behavioural responses to the policy change. This includes the impact of both the introduction of new rates and bands in 2018-19, and the change in higher rate threshold in 2017-18. This additional money was invested in public services and to support the Scottish economy in 2018-19.

Breaking down the individual parts of the policy, we estimate that the introduction of the Intermediate Rate and the relatively lower uprating of the Higher Rate threshold, relative to the rUK, made the largest contribution to this additional revenue raising

By comparison, we estimate that our decision to raise the Top Rate of Income Tax by 1p to 46p raised limited additional revenues, and might even have resulted in a small loss of receipts. Estimates range from -£6 million to +£5 million, depending on the scale of the behavioural response. **However, using HMRC’s headline estimate of behavioural responses in their latest published study suggests that the increase to the Top Rate raised revenue.**

¹¹ www.gov.uk/government/publications/estimating-scottish-taxpayer-behaviour-in-response-to-scottish-income-tax-changes-introduced-in-2018-to-2019

Table 5 below summarises estimates of the revenue raised in 2018-19 by each component of the policy change. It shows the revenue raised using both the original estimates of behavioural response used at the time the policy was introduced, and the new estimates based on the HMRC study. The estimates for the Top Rate uses behavioural responses estimated for all Top Rate payers collectively, rather than by narrower income bands.

Table 5 also shows how much revenue the policy would be expected to raise if taxpayers did not change their behaviour. As can be seen, the size of the estimated behavioural response generally increases in line with income, as is typically expected.

Table 5: Estimates of revenue raised by policy in 2018-19 (£million), relative to implementing rUK rates and bands

Behavioural response used	Total revenue raised	Contribution (£m) to total of..				
		Starter Rate	Intermediate Rate	Higher Rate	Top Rate	Higher Rate threshold
Assuming no behavioural response	£378m	-48	133	85	27	181
Using original estimates of behavioural response	£302m	-47	127	62	4	155
Using new HMRC estimates of behavioural response	£239m	-47	125	37	5	119
Range of HMRC estimates dependent on method used	£230m to £245m	-47	124 to 128	33 to 39	-6 to 5	119 to 125

The estimates of behavioural responses in the HMRC study are broadly in line with the international academic literature. As HMRC highlight in their study, several of their estimates are not statistically significant, particularly where the number of taxpayers in the income band being analysed was very small, and consequently the specific results should be interpreted with a degree of caution.

However, despite these limitations, this paper provides new Scotland-specific evidence on behavioural responses to tax policy. In particular, there is evidence that the behavioural responses of Higher Rate taxpayers might have been larger than originally expected. This means that certain elements of the policy reform, namely the Higher Rate threshold freeze and the 1p increase in the Higher Rate, might have raised less than originally anticipated.

Nevertheless, the policy generated additional revenue for the Scottish Budget, as was intended. It had also provided evidence around the extent to which increasing tax rates reduce the amount of revenue raised, due to the changing behaviour of taxpayers.

In many cases, behavioural responses only materialise over time. As such, the results need to be interpreted with a degree of caution as they provide only one piece of additional information in a large body of evidence. We will therefore continue to work in partnership with HMRC, the SFC and other stakeholders to monitor the emerging data about Scottish taxpayers' behavioural responses.

The HMRC study only includes those taxpayers resident in Scotland for three consecutive years, and therefore does not include any migration effects. Separate work by HMRC analysed movement of Self-Assessment (SA) taxpayers between Scotland and the rest of the UK from 2016-17 to 2019-20. This identified a slight decrease in the net migration of SA taxpayers from the rUK to Scotland. However, this was observed across all tax bands, not just those who saw an increase in tax paid as a result of the policy. Additionally, data limitations make it challenging to draw wider inferences from data on SA taxpayers alone.

Despite our updated estimate that the policy should have raised £239 million compared to implementing rUK rates and bands, **the net benefit to the Scottish Budget**, as measured by the difference between Scottish receipts and the corresponding BGA, **was only £119 million in 2018-19.**

The reasons for this difference are not clear, but it is likely explained in part by relatively weaker performance in the Scottish economy and the underlying tax base in 2018-19, as well as due to long standing differences in the composition of the tax base. The most recent *Scotland's Economic and Fiscal Forecasts*¹² released by the SFC discusses possible explanations for this weaker than expected tax revenue in more detail.

Overall, our analysis suggests that the reforms made to the Income Tax system struck an appropriate balance between asking those who can best afford it to pay more while managing the risks of behavioural responses.

5.3 Methodology and Data

In September 2020, HMRC published outturn data on Income Tax for 2018-19, the first year of the five-band system. The data showed that Scottish receipts grew by 5.9% from 2017-18 to 2018-19, compared to 4.2% in the rUK, and raised £119 million more than the corresponding BGA.

However, putting a quantitative estimate on the amount of additional tax that policy reform has raised is not straightforward. Firstly, we will never know for certain how much tax the policy generated as we are comparing the published outturn data against a hypothetical scenario that was not observed in practice.

The choice of counterfactual has a major impact on the estimates of revenue raised. **For the purposes of this evaluation, we compare the Income Tax policy implemented in Scotland to a counterfactual where Scottish Income Tax policy was identical to that of the rest of the UK in 2018-19.** This is different from the standard approach used in the official forecasts and policy costings produced by the OBR and SFC that underpin the Scottish Budget, which compares to a counterfactual of increasing existing thresholds with inflation.

We depart from the standard approach in this evaluation for two reasons. Firstly, using a counterfactual where Scotland and the rUK have identical Income Tax policy allows us to more easily draw conclusions about the impact of the policy change on the net position, as calculated under the Fiscal Framework. Estimating a counterfactual in which Scotland follows the same Income Tax policy as rUK shows how much the net position could have improved by after policy effects, all else being equal.

12 [Scotland's Economic and Fiscal Forecasts | Scottish Fiscal Commission](#)

Secondly, we view the counterfactual of retaining rUK Income Tax policy as being more pertinent to public discourse on Scottish Income Tax policy. By using rUK Income Tax policy as the counterfactual we are, in effect, comparing current policy to a scenario where Income Tax devolution did not take place. This is not necessarily an appropriate counterfactual for assessing year-to-year policy changes, but it is helpful for informing the debate on the impact of changes made by the Scottish Government following the Scotland Act 2016.

Using a counterfactual of inflationary uprating remains the standard approach by which the SFC produces its official policy costings and forecasts of Scottish Income Tax. It continues to be a meaningful baseline against which to assess future policy changes. However, it should be noted that due to the different counterfactuals used, revenue estimates in this evaluation are not directly comparable to those published by the SFC. As noted above, the SFC's forecasts and costings of policies remain the official forecasts of the Scottish Government and underpin the Scottish Budget.

Regardless of the counterfactual used, an economic model is needed to estimate the revenue in the counterfactual scenario, and therefore the impact of policy reforms. Both the Scottish Government and the SFC use a micro-simulation model of the Scottish Income Tax system which uses detailed micro data from the Survey of Personal Incomes) and allows for insights into the characteristics of Scottish tax base.

This model also provides us with the ability to assess how much could have been raised from the policy reform had taxpayers not changed their behaviour. To aid this approach we continually draw on new evidence that emerges in the economic literature, including working with stakeholders such as the SFC and HMRC to benefit from their internal knowledge and expertise in this area.

5.4 Evidence and scale of different types of behavioural responses

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

- **Economic responses:** seeking work or increasing the number of hours worked or vice versa;
- **Cross-border mobility:** taxes could also affect migration, both into and out of Scotland;
- **Tax planning or avoidance:** shifting income into a more tax-efficient source, such as dividends; or artificially reducing one's tax liability; and
- **Evasion:** where there is a deliberate (and illegal) attempt not to pay the tax which is due.

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.

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 percentage of income retained after tax. A TIE of one implies a one per cent reduction in taxable income for a one percentage point decrease in the percentage of income retained after tax. A TIE of zero would imply taxpayers do not change their income in response to tax policy changes. 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.

Our analysis of taxpayers' responses to the 2018-19 reform incorporates new information on the first two of the above behavioural responses, using Scotland specific economic data rather than empirical studies based on international evidence.

A) Economic responses

What does the empirical literature tell us about behavioural responses?

Since Income Tax devolution is a fairly recent development and UK and Scottish policies did not diverge until 2017-18, there is currently limited evidence on the behavioural responses of Scottish and rUK taxpayers to increasing policy divergence with the rUK. Instead, both the SFC and the OBR/HMRC rely on empirical findings from across the world, as well as evidence from UK-wide policy changes, to inform their policy costings – none of which are Scotland specific.

As summarised in our 2017 and 2020 analytical papers¹³, the international evidence suggests that TIEs tend to fall within the range of 0 to 1 for the top 1% of taxpayers. 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.

With regard to UK specific studies, the IFS (2017) estimated that top earners' responsiveness to the 2010 change in the UK-wide Additional Rate – where the rate was increased from 45p to 50p, affecting individuals in the top 1% who earn more than £150,000 – ranged from 0.31 to 1, depending on the methodology used.

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.

How does this compare to the new evidence from the 2018-19 reform?

The 2018-19 tax reform provides a unique opportunity to update and test our understanding of taxpayers' behavioural responses in the context of Scottish Income Tax devolution. While limited changes to the Scottish Income Tax regime were implemented as early as 2017-18, these were not expected to have significant behavioural responses, and 2018-19 was the first time that Income Tax **rates** differed across the different areas of the UK.

We have a long-standing commitment to monitor the evidence base on behavioural responses, both to inform our policy choices and to improve our understanding of the Scottish Income Tax base, as evidenced in our previous work with the Council of Economic

¹³ See the Scottish Government papers titled [The Role of Income Tax in Scotland's Budget \(2017\)](#) and [Understanding the Behavioural Effects from Income Tax changes \(2020\)](#)

Advisers. This year, we have worked in close partnership with HMRC, supported by the University of Westminster and the Fraser of Allander Institute, to use newly available Scottish Income Tax data to assess the behavioural impact of the 2018-19 reform.

This is the first time such an analysis has been attempted in the Scottish context. It represents an important step towards our understanding of the policy impacts of devolution as well as a significant contribution to the wider empirical literature on behavioural responses to tax differentials within countries.

This unique setting – where one group of taxpayers faced a policy change whereas their counterparts elsewhere in the UK did not – lends itself to an empirical methodology called “difference in difference estimation”. This involves assuming that Scottish taxpayers’ incomes would have grown along the same path as their rUK peers in the absence of the policy change. By analysing the difference in earnings and tax liabilities for both Scottish and a matched group of rUK taxpayers with similar characteristics, the impact of the policy itself can be estimated, while controlling for differences between the two economies¹⁴.

HMRC’s study provides “*limited evidence of Scottish taxpayers lowering their declared income in response to increasing tax rates*”, in particular:

- Their findings were broadly in line with the international academic literature and the assumptions currently used by the two independent forecasters, the SFC and the OBR.
- As expected, the scale of the behavioural responses generally increased in line with income as high income earners have greater means of limiting their tax liability.
- Top Rate taxpayers, i.e. those earning more than £150,000, showed the largest behavioural responses. Looking at this group as a whole, elasticities ranged from 0.52 to 0.77, depending on the methodology used. This is slightly higher than HMRC’s previous estimate of 0.45 (2012), but in line more recent studies by the Institute for Fiscal Studies.
- The study also examined how behavioural responses differed within the Top Rate band. However, “*results are a little unstable for this group depending on the matching methodology used and this is likely due to the relatively small numbers of taxpayers in these bands.*” We have presented estimates for these TIEs below, but would caution against using these due to concerns about sensitivity to the matching approach used. In producing estimates of the revenue impact of the policy changes, we have used a single TIE of 0.52 for all Top Rate taxpayers.
- HMRC’s study also showed slightly larger than expected behaviour for Higher Rate taxpayers, ranging from 0.12 to 0.46 depending on methodology used. While empirical studies of the behavioural responses of these taxpayers are limited in number, they typically tend to find slightly lower estimates of 0.11 to 0.27. This is in line with our own analysis of the academic literature, as published in our 2020 paper, which found TIEs of 0.1 to 0.2 for those earning less than \$100,000 annually¹⁵.
- Once the effects of public sector pay growth, which was faster in Scotland than rUK over the period, are accounted for, HMRC’s results also indicate that there is little to no evidence of behavioural effects for Starter, Basic and Intermediate Rate taxpayers. This is in line with our expectations.

14 www.gov.uk/government/publications/estimating-scottish-taxpayer-behaviour-in-response-to-scottish-income-tax-changes-introduced-in-2018-to-2019

15 See page 9 of our publication [Understanding the Behavioural Effects from Income Tax changes](#) (2020)

Table 6 below shows the TIEs estimated by HMRC by income range, compared to the TIEs used by the SFC, and used to estimate the impact of the policy at the point it was introduced. The three different results shown from the HMRC study are a consequence of using different methods to control for differences between Scottish and rUK taxpayers. Further details are provided in the HMRC study¹⁶. The range of these results demonstrates the uncertainty in estimating TIEs, and the sensitivity of results to the method used, particularly for higher income taxpayers.

Table 6: Comparison of taxable income elasticities

Income Range		Taxable Income Elasticities (TIEs)			
Lower Threshold (£)	Upper Threshold (£)	SFC estimates	HMRC estimates: headline method	HMRC estimates: alternative method 1	HMRC estimates: alternative method 2
11,850	13,850	0.015	-0.06	0.01	0.10
13,851	24,000		NA	NA	NA
24,001	43,430		0.07	0.09	-0.01
43,431	80,000	0.1	0.35	0.31	0.33
80,001	100,000	0.2	0.27	0.40	0.40
100,001	123,700		0.29	0.43	0.46
123,701	150,000		0.12	-0.04	0.29
150,001	300,000	0.35	0.18	0.48	0.68
300,001	500,000	0.55	2.39	1.89	0.88
500,000	Unbounded	0.75	5.45	3.79	2.89
All Additional/Top Rate Taxpayers		0.51	0.52	0.54	0.77

This study excludes taxpayers migrating between Scotland and the rUK, and only captures behaviour with regard to the amount of earned income which taxpayers have declared rather than other behaviours, such as out-migration. This issue is turned to later in this section.

B) Cross border mobility

What does the empirical literature tell us about tax induced cross border mobility?

There is a separate strand of the empirical literature which analyses the impact of changes in taxation on peoples' location choices, which we discuss in greater depth in our 2020 publication¹⁷.

International evidence finds small migration responses, depending on country-specific circumstances. Recent studies largely confirm these findings, emphasising that: i) the strength of the mobility response depends on a number of non-tax factors; and ii) small differentials in average tax rates of below 4 percentage points are unlikely to influence people's location choices.

¹⁶ The methods shown in this table are:

Headline method: nearest neighbour one-to-one matching

Alternative method 1: nearest neighbour one-to-two matching

Alternative method 2: kernel matching

As noted in the HMRC study, none of these methods are clearly superior to the others. We follow HMRC in using nearest neighbour one-to-one matching as the method used for our central estimates.

¹⁷ See [Understanding the Behavioural Effects from Income Tax changes](#) (2020)

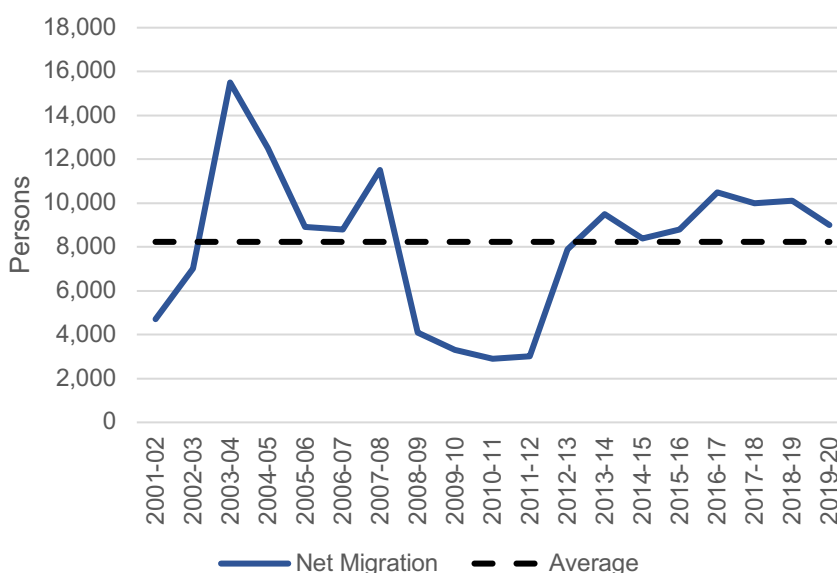
However, many of these academic studies are based on cross border mobility within the United States and as such, their applicability to the Scottish context remains limited. For example, some of these studies might fail to capture the ease with which UK taxpayers with more than one address can switch their residence to lower their tax liability. This 'paper migration' – as opposed to physical migration – is difficult to track in official migration data and will require access to tax returns, which the Scottish Government does not have.

What evidence do we have on cross border mobility in Scotland?

The Office for National Statistics (ONS) and the National Records of Scotland (NRS) publish data on net migration in Scotland on an annual basis, including migration from both the rUK and the rest of the world.

This shows that Scotland has increased its population by just over 8,000 people a year, on average, through net migration from the rest of the UK since 2001-02, although as illustrated in chart 1, there can be significant variation from year to year. Since 2012-13 however, net migration to Scotland from the rest of the UK has been consistently between 8,000 to 11,000 a year.

Chart 1: Net Migration to Scotland from rUK, 2001-02 to 2019-20



Source: National Records of Scotland

People base their decisions as to where to live and work on a wide range of factors, including differences in housing costs or opportunities in the local labour market. Tax is only one of such factors. It is therefore difficult to empirically test whether a tax policy change, such as the 2018-19 Scottish Income Tax reform, had any statistically significant impact on migration patterns to Scotland.

However, **the published net migration data provides no strong indication that our Income Tax policy had a negative impact on net migration to Scotland**, at least not at the aggregate level. In fact, in 2018-19 net migration to Scotland remained above average and actually increased slightly relative to 2017-18. There is also no evidence that net migration in 2018-19 was more, or less, volatile than has historically been the case.

Using data produced by the ONS and NRS on net migration by age group between Scotland and the rUK, there was a decrease in the net migration of those aged 16-34 in 2018-19, although this was more than offset by increased net migration for all other age brackets. Again there is no evidence to suggest this is related to tax changes relative to other wider socio-economic factors.

Ultimately, there are limitations to this analysis as the data only allows us to track physical movements of the entire Scottish population rather than changes in tax residency, which sometimes occur only on paper.

We therefore worked in partnership with HMRC to analyse tax returns for SA taxpayers in the UK over the period 2016-17 to 2019-20. While this allows us to track residency changes of individual taxpayers over time, this approach is not without challenges. For example, a taxpayer may complete an SA in one year but not the next for a variety of reasons, including:

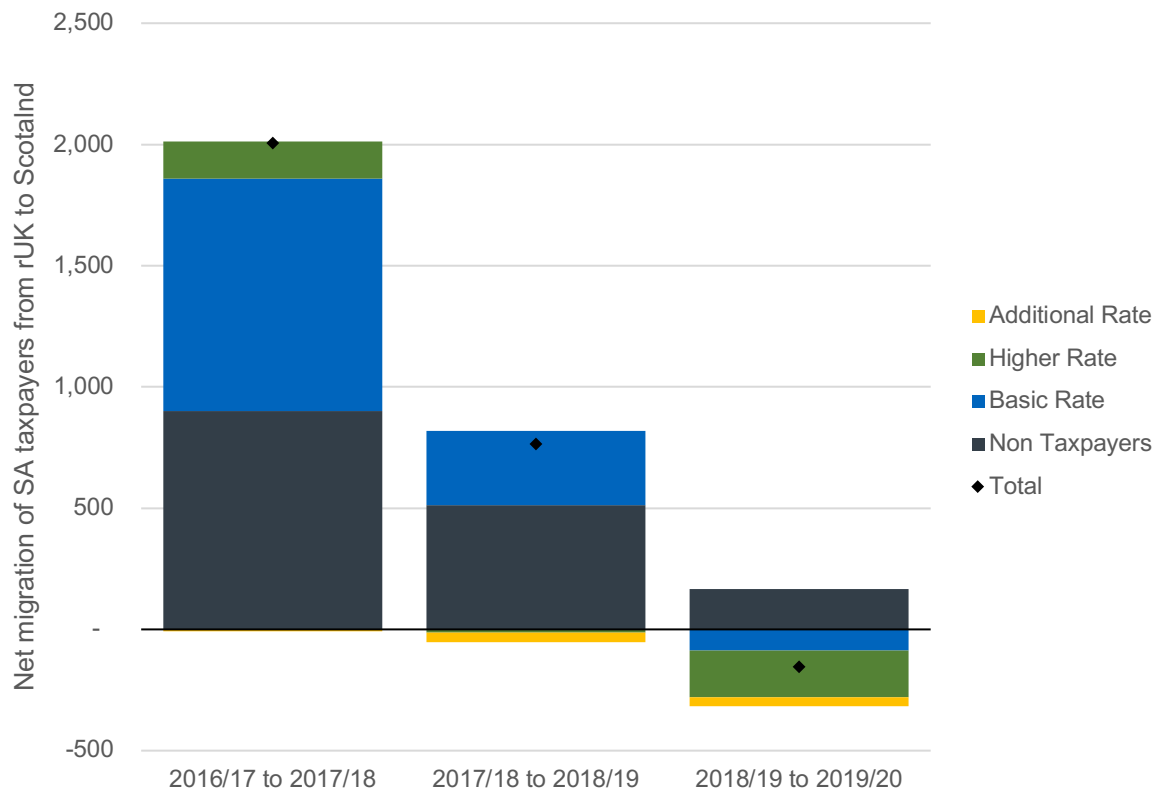
- their tax affairs are changing and they are no longer required to fill in an SA return.
- they are self-employed but earn less than the Personal Allowance.
- they become resident abroad and cease to have any income from the UK.

It is not possible to determine from the data why a taxpayer does not appear in each year of the dataset. SA taxpayers also make-up only about 17% of taxpayers in Scotland. These taxpayers will not be a representative sample of the whole population of taxpayers. Analysing their migration choices therefore does not allow any definitive conclusions to be drawn about the impact of migration on the Scottish tax base overall.

Keeping in mind these limitations, the analysis shows some reduction in the net migration of SA taxpayers into Scotland following the changes in Income Tax policy. From 2016-17 to 2017-18 (before the policy change) there was a net gain of around 1,400 SA taxpayers moving to Scotland from the rest of the UK. This fell to a net increase of around 500 SA taxpayers from 2017-18 to 2018-19 (the year the policy was introduced), before falling further to a net decrease of 75 SA taxpayers from 2018-19 to 2019-20, after the policy's introduction.

However, this reduction in the net migration of SA taxpayers occurs both in bands in which rates were increased, and in groups unaffected by the policy change (see chart 2 below). This suggests that the reduction in SA taxpayers moving to Scotland from rUK may have been driven by factors other than the policy change. However, further analysis would be needed to draw robust conclusions. As noted above, in aggregate, migration from rUK to Scotland remained around its historic levels.

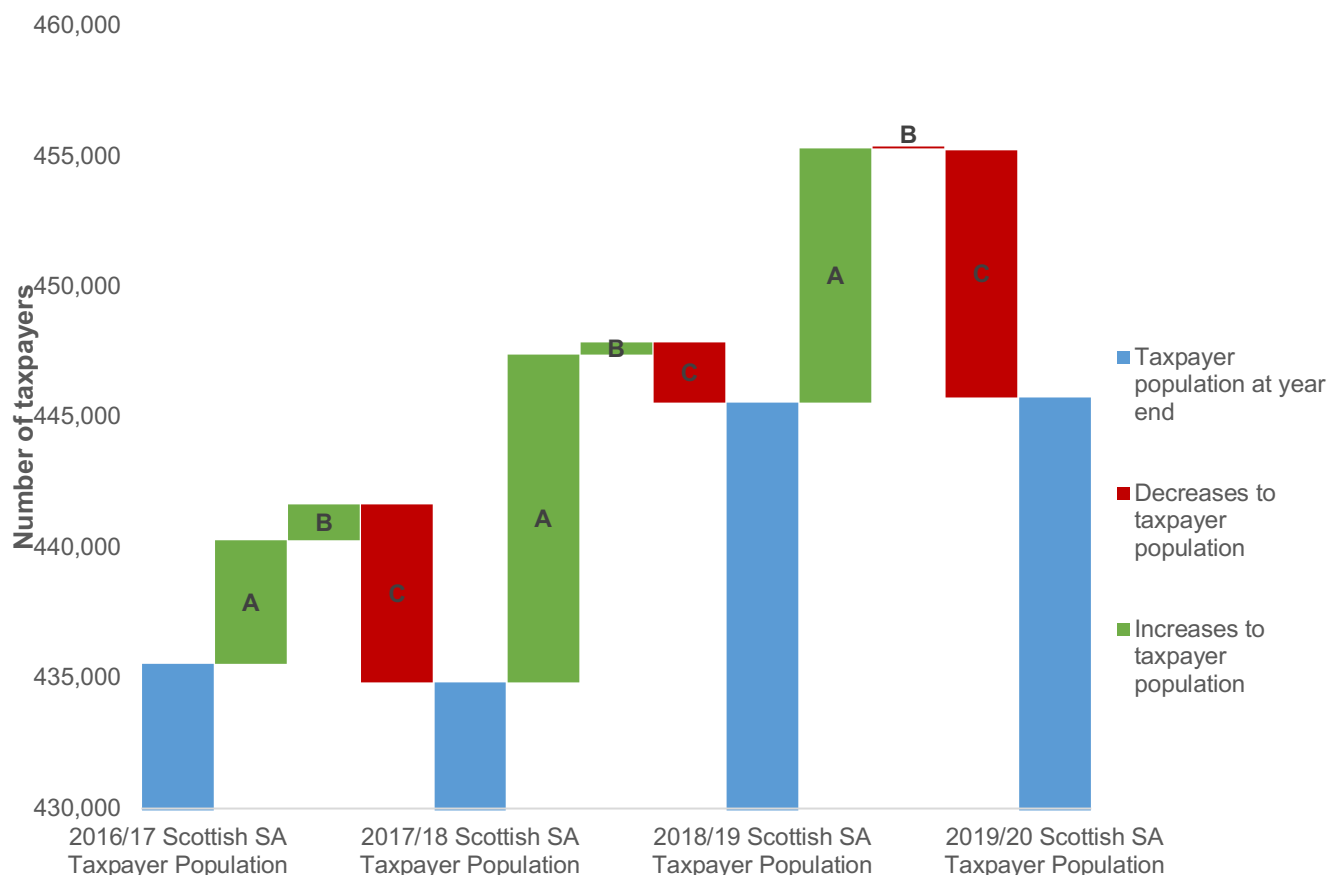
Chart 2: Net migration of SA taxpayers from rUK to Scotland, by top marginal rate in year prior to movement



Source: HMRC analysis of self-assessment tax data

Moreover, migration between Scotland and rUK makes up only a small proportion of the change in the Scottish SA taxpayer base. Chart 3 below decomposes the change in the Scottish SA taxpayer base into the net migration of taxpayers between Scotland and rUK; the net impact taxpayers either entering or leaving SA; or changing taxpayer status, i.e. remaining in Scotland but becoming or ceasing to be a taxpayer. It shows that the impact of the latter two sources of change is significantly greater than the impact of cross-border movements. In this analysis, HMRC are not able to track those individuals who leave or enter SA. It is therefore possible the net change in those entering/leaving SA in Scotland is partially driven by individuals moving to or from Scotland and (simultaneously) to or from the PAYE system into SA. This adds further uncertainty to this analysis, and makes it challenging to draw any definitive conclusion on migration impacts.

Chart 3: Sources of change in Scottish SA taxpayer population, 2016/17 to 2019/20¹⁸



- A:** Net change entering/leaving self-assessment
- B:** Net migration between Scotland and rUK
- C:** Net change in taxpayer status within Scottish self-assessment

Source: HMRC analysis of self-assessment tax data

The uncertainty is compounded by the fact that a net loss or gain in the number of taxpayers does not necessarily correspond to an equivalent change in revenue. Table 7 below shows the net migration in taxpayers, and the total net impact of those movements on tax liabilities. Despite the fall in net migration in the year the policy was introduced, the net impact of migration of tax liabilities increased. This further complicates drawing any conclusions about the impact of migration on revenue from the data available to us.

Table 7: Net migration of SA taxpayers and impact on liabilities

Years	Net migration of SA taxpayers between Scotland and rUK (no. of people)	Net change in liabilities due to migration of SA taxpayers between Scotland and rUK (£m)
2016/17 - 2017/18	1379	9.3
2017/18 - 2018/19	468	18.1
2018/19 - 2019/20	-75	-0.1

¹⁸ Note that the net migration figures will not match exactly between this Chart and Chart 2, as this chart includes those who migrate and change taxpayer status in one year.

Overall, while HMRC's analysis showed a decline in net migration of SA taxpayers from rUK to Scotland, it is not possible to draw robust conclusions on whether the 2018-19 changes caused any substantial net movement of taxpayers from rUK to Scotland or vice versa.

5.5 Implications for Scotland's Income Tax net position

As noted above, the net benefit to the Scottish Budget, as measured as the difference between Scottish receipts and the corresponding BGA, was £119 million in 2018-19.

This is lower than any of our earlier estimates of the amount of revenue that could have been raised by the policy compared to implementing the same rates and bands as the rUK. While our estimates are uncertain, a difference of this magnitude suggests there are other factors that partially offset the positive revenue impacts of the policy change.

As noted in section 3.1, under the Fiscal Framework, Scotland's budget position improves if tax receipts per head grow more quickly in Scotland than in the rUK (and vice versa). This will be affected by policy changes in both Scotland and rUK, but also a number of economic factors:

- Growth in earnings, pensions and property income: growth in wages is one of the key drivers of Income Tax performance.
- Growth in the number of taxpayers: This in turn depends on growth in the (working age) population, the performance of the Scottish labour market as well as decisions around the UK-wide Personal Allowance which may lift some taxpayers out of paying tax altogether. The Fiscal Framework partially protects Scotland against its relatively slower population growth as it operates on a per head basis, but will not account for, for example, demographic changes that reduce the growth rate of the working age population.
- The composition of the tax base, including the relative contribution of high income taxpayers and their earnings growth.

Differences in any of these economic factors between Scotland and rUK could potentially explain the gap between the estimates of revenue raised by the policy change and the net impact on the Scottish Budget in 2018-19.

Annex B of the January 2021 Medium Term Financial Strategy (MTFS)¹⁹ includes analysis of two specific hypotheses that could explain the slower than expected tax revenue growth in Scotland in 2018-19.

Firstly, **sectoral differences in the Scottish and rUK economies**, including persistent effects from the global oil price crash in 2015-16 weighing on tax revenue in the North East of Scotland. Illustrative modelling in the MTFS estimated that a temporary \$30 fall in the global oil price could, in the absence of any policy interventions, reduce Scotland's Income Tax net position by between -£100 and -£200 million across two years, largely due to lower average earnings growth relative to the rUK.

¹⁹ [Scotland's Fiscal Outlook: The Scottish Government's Medium-Term Financial Strategy – gov.scot \(www.gov.scot\)](https://www.gov.scot/publications/mtfs-2021/annex-b/pages/100/index.aspx)

Secondly, **differences in the distribution of the Income Tax base in Scotland and the rest of the UK**. In 2018-19 the proportion of taxpayers earning £100,000 or more was considerably higher in the rest of the UK than in Scotland (2.6% vs. 1.7%) whilst incomes per head in that cohort were also 21% higher in the rUK. Consequently, UK-wide factors that have a disproportionate impact on the incomes of top earners will have a relatively larger effect on rUK receipts. There is evidence from a range of data sources that earnings growth is unequally distributed across the income distribution as earnings tend to grow more strongly at the bottom and top end of the income spectrum. For example, the SFC have previously noted that individuals at the very top end of the income distribution in the UK (i.e. within the 99th percentile) have seen their incomes grow significantly faster since 2002, compared with Scottish individuals²⁰.

The weaker than expected tax performance in 2018-19 likely reflects a combination of these factors, as well as a potentially broader-based difference in economic performance between Scotland and rUK. Understanding differences in the economies and tax base of Scotland and rUK remains an area of ongoing analysis for the Scottish Government. Furthermore, since differences in the composition of the tax base were already evident when the current Income Tax powers were devolved, the Scottish Government has called for the issue to be considered as part of the upcoming review of the Fiscal Framework.

²⁰ [The distribution of income and growth in income tax revenue - October 2020 | Scottish Fiscal Commission](#)

6. Progressivity and Protecting lower earners tests

Progressivity test – any changes to the Income Tax system should increase the progressivity of the tax system and reduce income inequality.

Protecting lower earners test – at a time when living costs are also rising, taxpayers in lower income brackets should not pay more tax.

In addition to raising revenues for investment in public services, Income Tax is also one of the main levers at the Scottish Government's disposal for redistributing household income and tackling income inequality. *The role of Income Tax in Scotland's budget* discussion paper therefore set out two further tests against which the 2018-19 policy was to be judged.

This section sets out to which extent the 2018-19 policy met these tests by drawing on newly available evidence from HMRC's Survey of Personal Incomes (SPI) for the year of the tax reform, 2018-19, as well as data from the Family Resources Survey (FRS) from 2015-16, 2016-17 and 2018-19 to examine the impact of the policy on taxpayers and households.

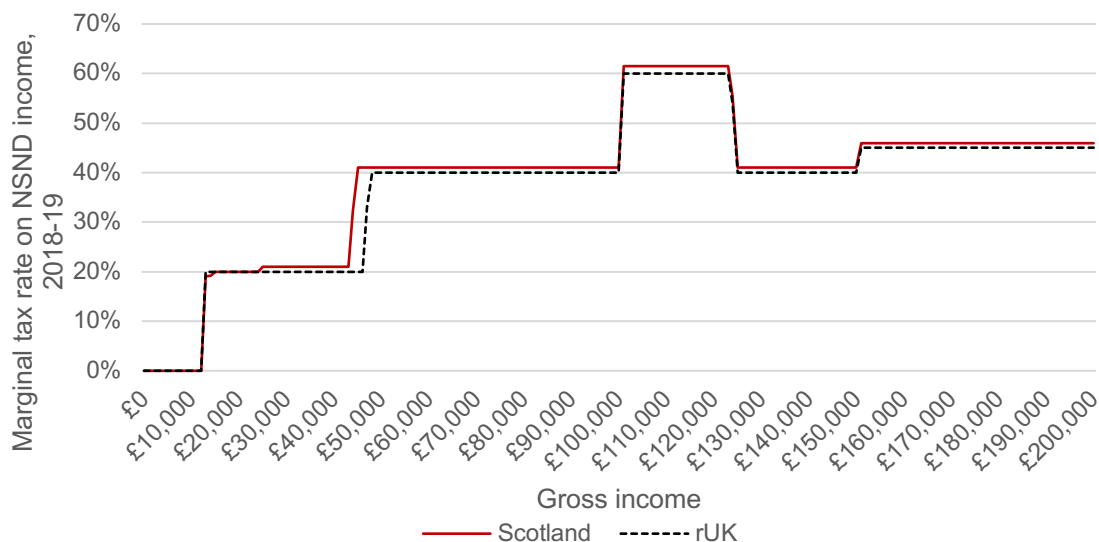
6.1 Key findings

- Our modelling indicates that the **2018-19 Income Tax policy was progressive across large parts of the income distribution** – with certain elements of the policy more progressive than others.
- The policy resulted in a **small reduction in inequality**, as measured by the Gini coefficient (a fall of 0.3 percentage points).
- The policy was also **highly redistributive** with the bottom two household deciles experiencing small gains in household income.

6.2 Progressivity Test

A progressive tax regime taxes people according to their ability to pay, with high income earners paying proportionately more in tax than those on lower incomes. Prior to devolution, the Income Tax systems in Scotland and the rUK were already progressive. However, following the introduction of the two new bands, the Starter and Intermediate Rate, and the 1p increase in the Higher and Top rate, Scotland's tax schedule slightly more progressive, relative to the rUK, as illustrated in chart 4.

Chart 4: Marginal tax rates on NSND Income in Scotland and the rUK, 2018-19



Source: Scottish Government

There are different ways of measuring the progressivity of a tax system, each with their pros and cons.

One way to assess the progressivity of a tax system as a whole, and its impact on inequality, is to estimate the change in the Gini coefficient²¹, an internationally recognised measure of how equally income is distributed across the population. A reduction in the Gini co-efficient would reduce income inequality and would therefore mean that the tax policy is more progressive.

We estimate these impacts using the microsimulation model UKMOD, based on Family Resources Survey (FRS) data from 2016-17, 2017-18, and 2018-19²². UKMOD is a static model, meaning it does not take into account behavioural changes resulting from the policy. However, we would expect the broad findings to remain valid, even if the magnitudes are affected by behavioural changes.

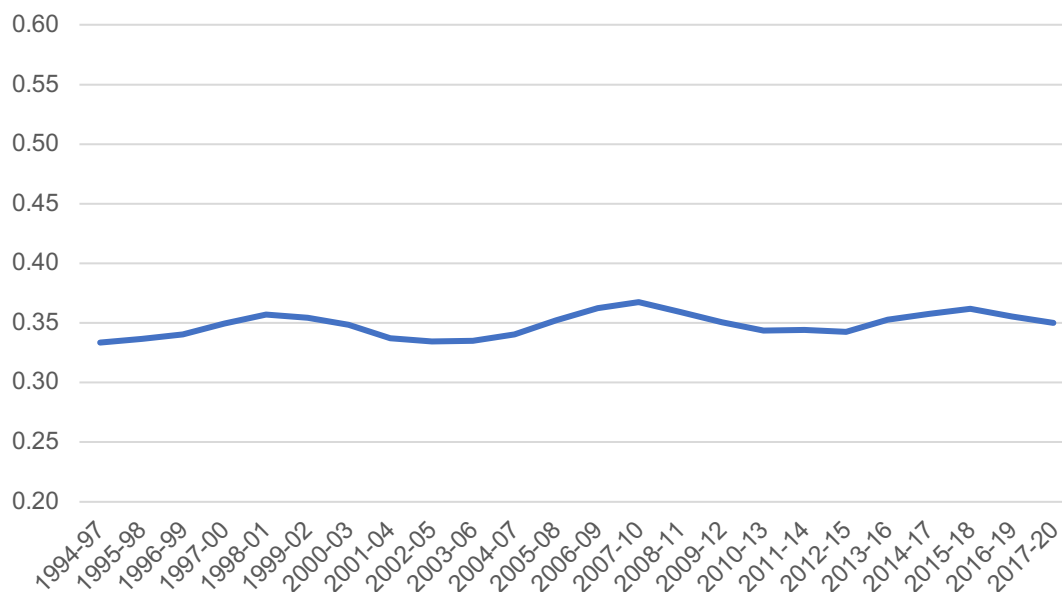
As illustrated in chart 5, the Gini coefficient for Scotland has been relatively stable at 36% over the period 2014-17 to 2016-19, with a small drop, i.e. an improvement in income equality, over the period 2017-2020. However, it is important to note that many factors, not just Income Tax policy, determine the Gini coefficient, most notably UK Government welfare policies in addition to the distribution of earnings growth.

In order to isolate the impact of the Scottish Government's Income Tax policy choices on equality outcomes, this section considers the impact of 2018-19 reform on the Gini coefficient, and on different types of individuals and households, by comparing the Scottish tax regime in 2018-19 with a hypothetical scenario where the rUK rates and bands had remained in place in Scotland. This allows us to focus on the impact of Scottish policy choices, rather than changes in the UK-wide Personal Allowance, and show which taxpayers benefitted, or saw their tax bill increase, from the policy reform.

21 The Gini co-efficient is a measure of how equally income is distributed across the population. It takes a value between 0 and 1 where 0 represents perfect equality.

22 [UKMOD - Centre for Microsimulation and Policy Analysis](#)

Chart 5: Gini coefficient of income inequality, after housing costs



Source: Scottish Government analysis using UKMOD

As shown in Chart 5, this modelling indicates that the Gini coefficient was 0.3 percentage points lower under the Scottish tax regime in 2018-19 than it would have been if the UK tax regime had remained in place in Scotland. Given the small size of these estimates, they will be highly sensitive to measurement error as well as methodological choices and thus should be treated as solely indicative. Note also that the measures given here are modelled estimates which do not necessarily align with official statistics, for example because benefit income is simulated rather than taken directly from the FRS.

Table 8: Differences in inequality, equivalised household disposable income after housing costs, Scottish tax system vs. rUK, 2018-19

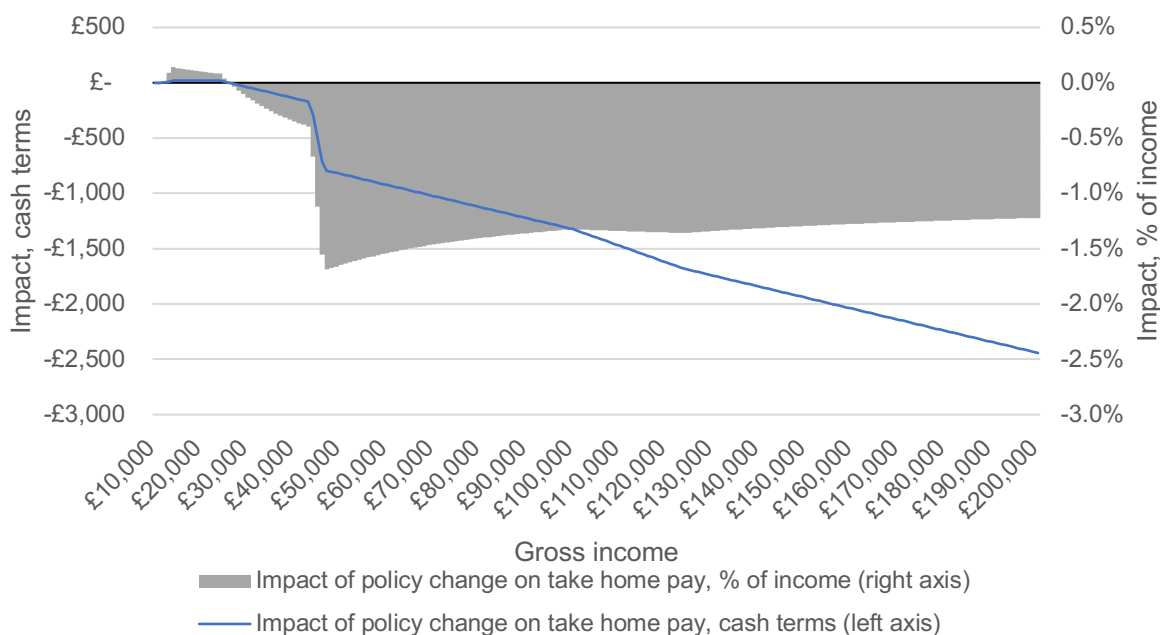
	UK tax regime	Scottish tax regime	Difference
Gini Coefficient	32.9%	32.6%	-0.3

Previous analysis carried out by Scottish Government estimated a reduction of 0.14 percentage points in the Gini coefficient if the 2018-19 Scottish tax system was compared with the 2017-18 system, and a reduction of 0.18 percentage points if compared to a counterfactual scenario of the 2018-19 system without the policy change²³. Although the scale of the reduction varies depending on the chosen counterfactual, the modelling therefore points towards a small reduction in inequality.

Another option for measuring the progressivity of the tax system is to consider the percentage change in income, as this allows us to examine the impact of the reform across different levels of income. This approach is relevant here as the policy would affect different segments of the income distribution differently. Chart 6 illustrates the impact of the Scottish Government's policies up to 2018-19 on individual taxpayers' take-home pay, compared to having the rUK rates and bands in place, as well as the impact in cash terms.

²³ Scottish Government, [The Scottish Government's Income Tax Policy: Analytical note on Impacts on Income Levels and Equality](#), 2018

Chart 6: Impact of 2018-19 policy on an individual's take-home pay



Source: Scottish Government analysis

Income Tax policy increased take-home pay for low income earners, albeit by a modest amount of up to £20 per year (or 0.1% of their gross income). At the same time, take-home pay fell for taxpayers earning more than £26,000. However, the percentage change in income did not increase consistently with the level of income as some income groups – in particular those with earnings just above £46,350 and £123,700 – saw the largest percentage fall in their take-home pay.

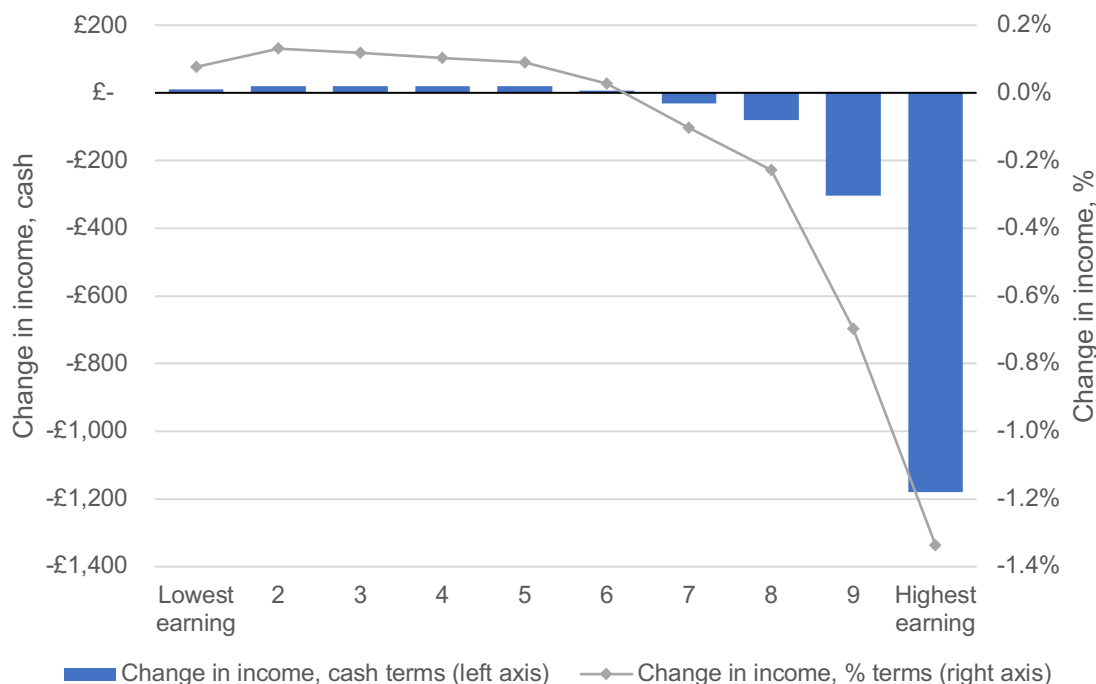
This means that the Income Tax policy was progressive across many parts of the income distribution. However, some elements of the policy were less progressive than others. For example, the change in the Higher Rate threshold was less progressive than the 1p change in the rates. This is because for all taxpayers earning more than £46,350, the threshold change increased their tax liability by the same amount, in this instance £584, regardless of their income.

This explains why taxpayers with earnings just above the rUK's Higher Rate threshold of £46,350 saw a greater percentage change in their net income than taxpayers higher up the distribution, although differences are marginal. Moreover, interactions with reserved elements of Income Tax – such as the tapered withdrawal of the Personal Allowance for incomes above £100,000, with it being fully withdrawn at £123,700 (for 2018-19) mean that taxpayers in that income range, rather than the very top earners, faced the largest percentage change in their take-home pay.

Chart 6 above, while it shows the impact of the policy change by income, does not account that the vast majority of taxpayers have incomes on the left hand side of the chart. An alternative approach is to present the impact of the 2018-19 policy on Scottish taxpayers by income decile, based on data from the 2018-19 SPI, as in Charts 7 and 8 below. This approach divides the taxpayer population into ten equal groups, with decile 1 representing the 10% of taxpayers with the lowest earnings and decile 10, the 10% of taxpayers with the highest earnings.

As shown in charts 7 and 8, the Scottish Government's 2018-19 policy has been highly redistributive and protected low - and middle-income taxpayers. The introduction of the Starter Rate provided a tax saving of up to £20 annually to all taxpayers, although for the top 40% of taxpayers, this is more than offset by the tax raising measures. Relative to their gross earnings, taxpayers in deciles 2 and 3 saw the largest increase in their take-home pay, as they benefitted from the full £20 tax saving. By contrast, the highest earning 10% of taxpayers, i.e. those earning more than £50,100, saw the largest fall in their take-home pay, both in cash terms (-£1,180 annually) and relative to their gross income (-1.34%).

Chart 7: Impact of 2018-19 policy on taxpayers



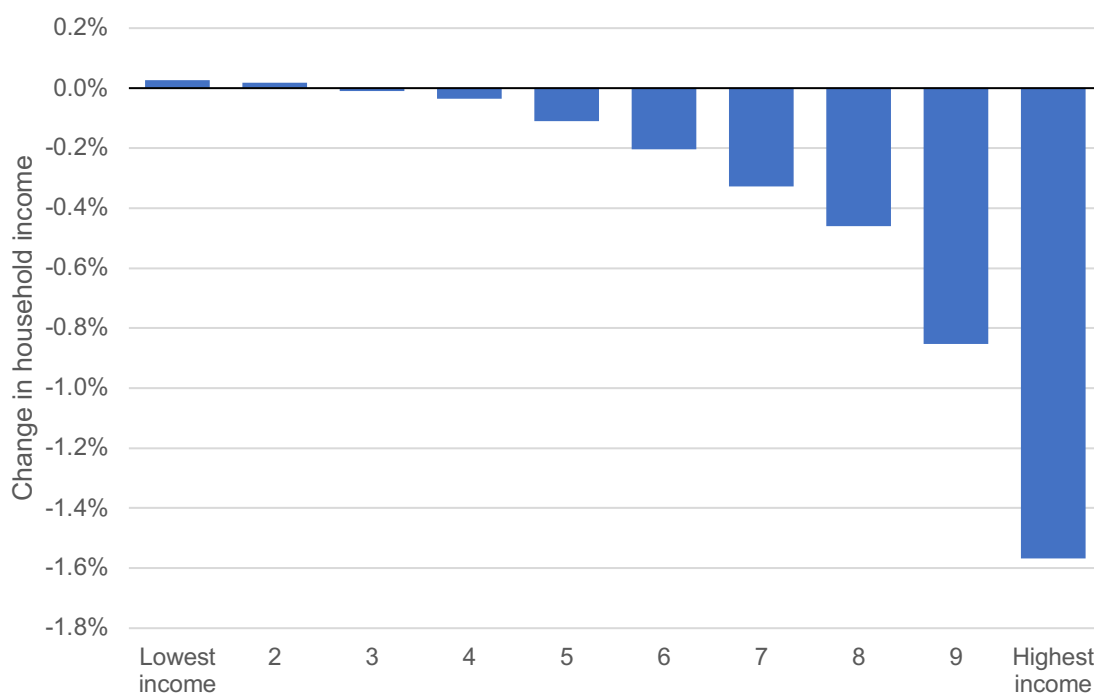
Source: Scottish Government analysis based on 2018/19 PUT

However, it is important to remember that a significant proportion of the Scottish adult population, 44.1% or 2.0 million adults, did not pay Income Tax in 2018-19, either because they were in work but earned less than the Personal Allowance, or because they have no taxable income - if, for example, they were in education or had full-time caring responsibilities. These individuals were not directly affected by the Scottish Government's Income Tax policies and are not covered in the taxpayer analysis above.

We therefore consider the impact of the policy across the household distribution and different types of households. This accounts for the fact that some of these high income taxpayers may be the main family earner, supporting a partner and/or children.

Using UKMOD, Chart 8 below shows the impacts of the policy by household income decile. As can be seen in the chart, on average the bottom two deciles experienced marginal gains in household income, despite a marginal fall in benefit payments and a likely concentration of non-taxpayers in these deciles²⁴. The remaining deciles experienced net losses, which were larger for higher-income households. While the distribution of losses was therefore more dispersed when measured at the household level, these results confirm that the policy was progressive.

Chart 8: Percentage difference in equivalised household disposable income after housing costs, by decile, Scottish tax framework vs. rUK, 2018-19



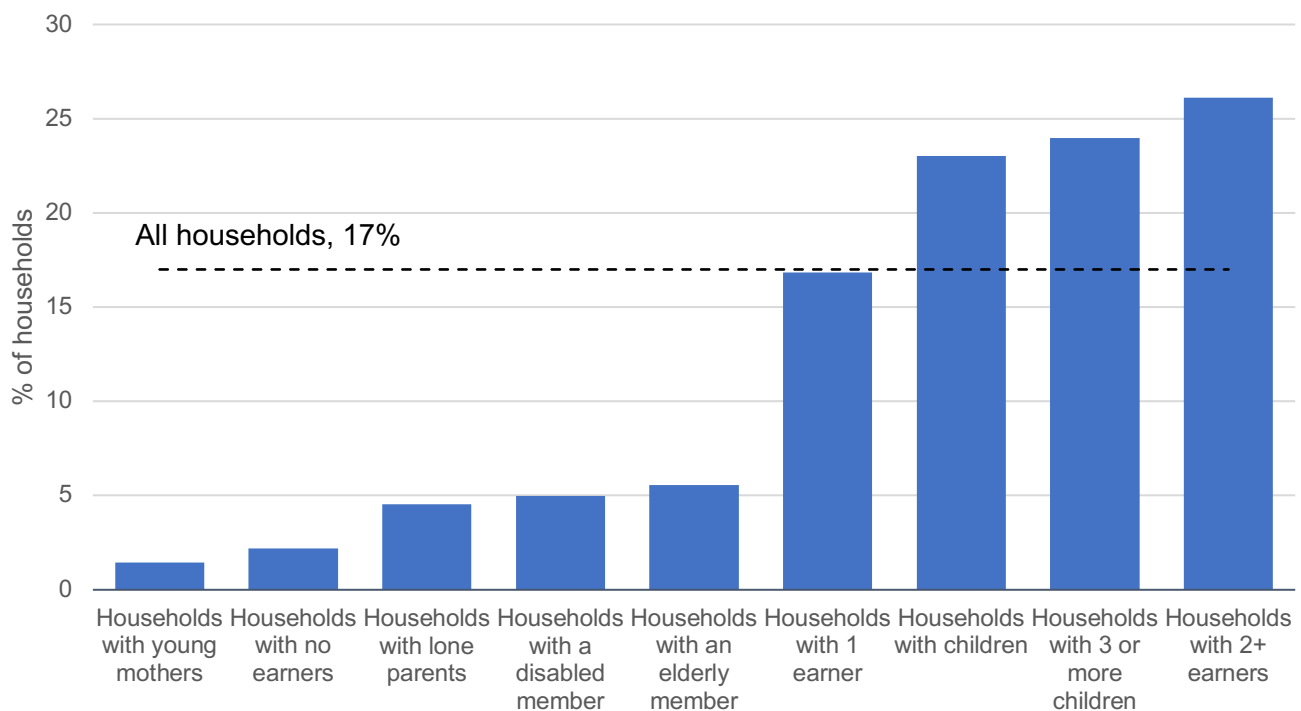
Source: Scottish Government analysis using UKMOD

This analysis also found that only 0.02% of individuals experienced an increase in household income of over 1%, compared with the UK tax regime, and no individuals experienced an increase of over 5%. On the other hand, 17% of individuals experienced a decrease in household disposable income of over 1%.

As shown in Chart 9 below, a higher proportion of people in households with children (23%) experienced a reduction of income of over 1% of household income. However, only 5% of people in lone-parent households and 1% of people in households with young mothers (i.e. mothers aged under 25) experienced reductions of 1% or more. Conversely, 26% of people in households with at least two earners experienced reductions of 1% or more, compared with 17% of people in households with only one earner. These results imply that the impacts on households with children are largely due to correlations between having children on the one hand and being older (and thus having higher income) and having more earners in the household (and thus standing a higher chance of being impacted by the policy) on the other hand.

²⁴ If a household experiences a reduction in income tax, its disposable income will rise, which could reduce its eligibility for means-tested benefits. Overall, our modelling indicates that welfare expenditure fell by approximately £0.5m as a result of the policy reform, which represented a fall of around 0.01% in expenditure on means-tested benefits in Scotland.

Chart 9: Proportion of individuals in households with a more than 1% reduction in equivalised household disposable income after housing costs, by type, Scottish tax framework vs. rUK, 2018-19



Source: Scottish Government analysis using UKMOD

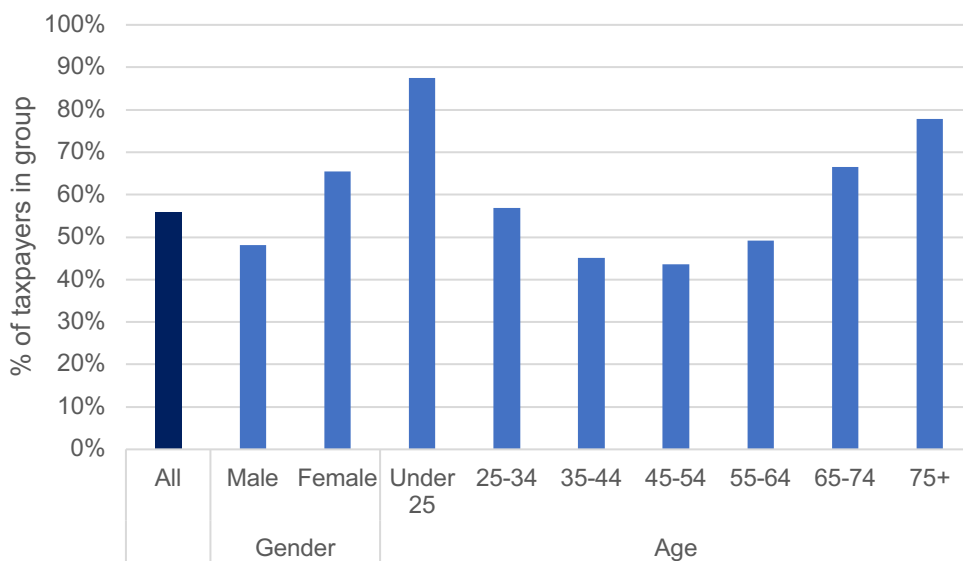
Protecting low income earners test

At the time of the Scottish Rate Resolution on 20 February 2018, it was forecast that around 55% of Scottish taxpayers, i.e. those earning less than £26,000, would pay less tax in 2018-19 than if they lived in other parts of the UK²⁵. The 2018-19 SPI data allows us to assess this forecast. It shows that **56% of Scottish taxpayers, or 1.41 million individuals, paid less tax than their rUK counterparts in 2018-19**. This is broadly in line with the original estimates.

However, the benefits of the reform vary across different taxpayer groups. Since average earnings tend to be lowest amongst young adults and older people, 87% of taxpayers under the age of 25 and 78% of over 75s paid less tax in 2018-19 than they would have done in the rUK. Similarly, relatively more women benefitted from the policy than men. This is because women still tend to have lower earnings, on average, than their male counterparts. This reflects the fact that women take more time out of the labour market to look after family and children, and are often second earners or work part time. Finally, while the gender pay gap has narrowed in recent decades, women continue to be paid less, on average, than their male counterparts for the same jobs.

²⁵ [Scottish income tax: 2018-2019 - gov.scot \(www.gov.scot\)](http://www.gov.scot)

Chart 10: Proportion of individuals paying less tax in 2018-19 than in the rUK



Our modelling also suggests that any impacts of the Income Tax policy on relative poverty, including child poverty, were negligible²⁶. This result is to be expected: relative poverty is a binary measure (someone is classified as being either in or out of poverty); and poverty rates only change when changes in income are sufficiently large and widespread to move a number of households over the poverty line. This issue is magnified by the fact that poverty measures are based on a survey sample, which means that small poverty impacts are difficult to measure.

²⁶ Relative poverty is defined as having an equivalised household income below 60% of the UK median household income and is measured either before or after housing costs.

7. Economic growth test

Economic growth test - changes in Income Tax policy, and the accompanying change in public spending, must support the economy.

This section sets out analysis on our understanding of the macroeconomic impact of Income Tax policy. Given the uncertainty inherent in modelling and forecasting the economy as a whole, these results are necessarily more uncertain than the analysis of impacts on individuals and households above.

7.1 Key findings

- Our modelling indicates that the 2018-19 Income Tax policy, alongside additional government spending as a result of the policy change, **had a relatively negligible impact on the size and growth rate of the economy** in the short-term.
- This **impact was anticipated at the time of setting the 2018-19 Draft Budget**, where it was concluded that the economic impacts of the tax rise would be relatively small.
- These results are consistent with the SFC's views, stated in their December 2017 forecast, that the policies announced at Draft Budget 2018-19 were not expected to have a significant impact on the economy over the five-year forecast period.
- This analysis only considers the short-term static impact of the change in Scottish Government fiscal policy. In the long-run, higher tax rates and higher government expenditure may also influence economic growth through a variety of other channels and these longer term considerations could form part of future studies.

7.2 Impacts on economic growth

This section sets out the methodology used to assess to what extent the 2018-19 policy met the economic growth test, and aims to evidence whether the reform impacted economic growth, positively or negatively.

Evaluating the impact of a change in tax policy on economic growth can be challenging as it is often difficult to isolate the direct or indirect effects of a specific tax policy change on economic activity relative to the many other factors that can influence an economy over time, many of which are outside of the Scottish Government's control. For example, firms' and households' decisions can be affected by changes in: monetary policy; how quickly prices or wages in the economy are rising; or even how confident businesses and consumers are feeling at any given time.

In the short term, the policy increased the average level of Income Tax in the Scottish economy. In isolation, we would generally expect this to decrease the spending power of households or individuals affected. This could, in turn, reduce the demand from in the Scottish economy.

However, this effect could be countered by the fact that the revenue raised from the policy was used to fund higher government spending. In general, higher government spending would generally be expected to increase economic activity in the short run, though the size of the effect will depend on the type of government spending that is increased. Consequently any increase in government spending could potentially offset the negative impact of higher taxation on economic activity.

Overall, due to the relatively small size of the tax change (the revenue the tax policy is estimated to be worth only around 0.2% of GDP in 2018-19 prices) and the associated government spending increase, we would expect the net short-run impact of this policy change on the economy to be relatively small. While we would expect the impact of the tax increase in isolation to be negative, when it is combined with the associated increase in government spending the net impact could feasibly be positive, negative, or zero depending on which factor outweighs the other.

Quantifying this net impact can be challenging, especially as macroeconomic performance often varies year-on-year. Table 8 below shows that 2018-19 was generally one of the stronger years recently for the Scottish economy, in terms of GDP growth, earnings growth and unemployment. This performance was driven by factors in the Scottish, UK and global economies that are likely far larger in impact than the relatively small change in Income Tax policy and government spending. While it is possible that the policy change may have affected economic growth in 2018-19, separating that impact from a host of wider changes would be very challenging.

Table 9: Scottish economic statistics by financial year

2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21
GDP Growth (%)						
2.0%	0.1%	1.0%	0.9%	1.2%	-0.3%*	-10.3%
Unemployment Rate (%)						
5.9%	5.9%	4.8%	4.1%	3.7%	3.8%	4.5%
Average Earnings Growth (%)						
N/A**	-0.4%	1.6%	2.2%	6.2%	-0.3%	3.9%
House Price Growth (%)						
5.6%	2.1%	1.6%	4.3%	3.3%	1.7%	4.7%

Source: Scot Govt; UK Govt; ONS

*2019-20 growth is partially affected by including 2020 Q1 and the early impacts of COVID-19. The Annual growth rate for 2019 as a calendar year was 0.7%

**RTI Earnings data only goes back to July 2014 and hence can't be used to construct an annual growth rate for 2014-15

Scenario Analysis

Using an economic model to estimate the broad magnitude of the impact of a tax change provides useful insight as to the relative importance of the different ways a tax change might affect economic activity.

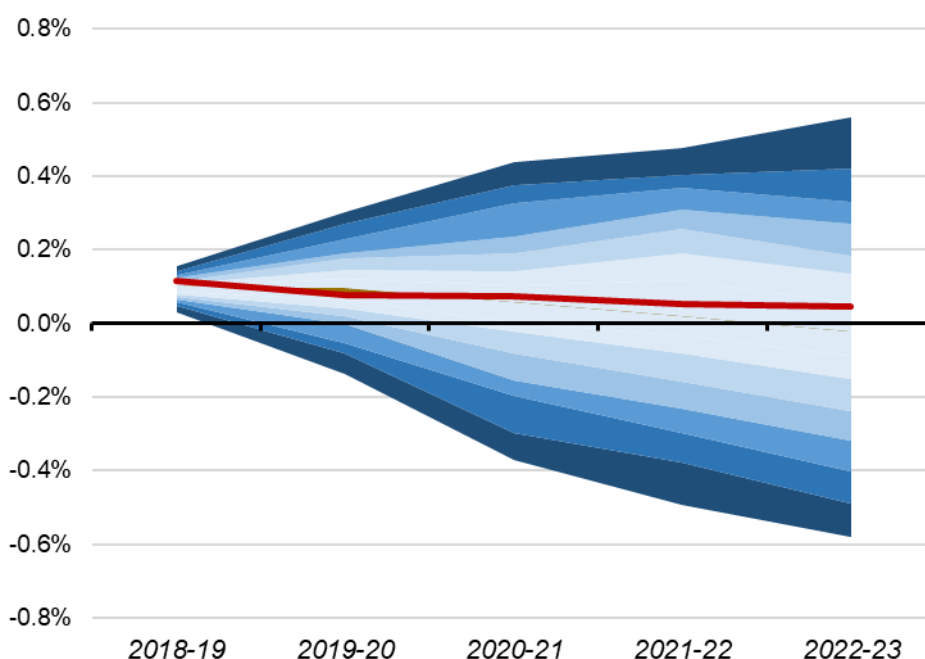
This modelling only looks at the short-term direct or static effect of the policy change. In the long-run, higher tax rates and correspondingly higher government expenditure may also influence economic growth through a variety of other channels, such as affecting individuals' and firms' decisions around: saving; investing; spending; and how many hours to work; or whether to start or expand a business.

These longer-term dynamic impacts on growth could be positive or negative, and the economic literature on this topic is inconclusive. These long-term impacts are, by definition, also very challenging to identify with a relatively recent policy change. For these reasons, we focus only on the short-term impacts of the policy change on economic growth.

To estimate the impact of the tax policy changes we have used the Scottish Government’s Global Econometric Model (SGGEM). SGGEM is a modified version of the National Institute of Economic and Social Research’s (NIESR) Global Macroeconomic Model NiGEM, which is an internationally recognised macroeconomic model, used by institutions such as the OECD, European Central Bank and the Bank of England. It is well suited to examining the macroeconomic impact of various scenarios, including changes in direct tax rates. It has been calibrated by NIESR to Scottish data to reflect the observed behaviour of the Scottish economy.

Chart 11 below shows the estimated impact on the level of GDP from an increase in both tax revenue and government spending each equivalent to around 0.2% of GDP. Full details of the approach and scenario analysis can be found in Annex A.

Chart 11: Impact on the level of Scottish GDP from an increase in direct taxation and government spending with uncertainty fan chart



Source: Scottish Government Global Econometric Model (SGGEM)

The red line indicates the central estimate from the model, which shows a small positive impact of the policy change over time. This results in the size of the Scottish economy being around 0.05% larger by 2022-23. However, modelling of this type is highly uncertain, and for comparison we show a confidence interval (the blue bands). These show the area in which we would expect the outcome to fall about 70% of the time when further sensitivity analysis is undertaken (see Annex A for more details). This shows a broad range of possible outcomes, and importantly includes both positive and negative impacts on economic activity. This is consistent with our expectations that the net impact of the policy would be small, and could feasibly be either above or below zero.

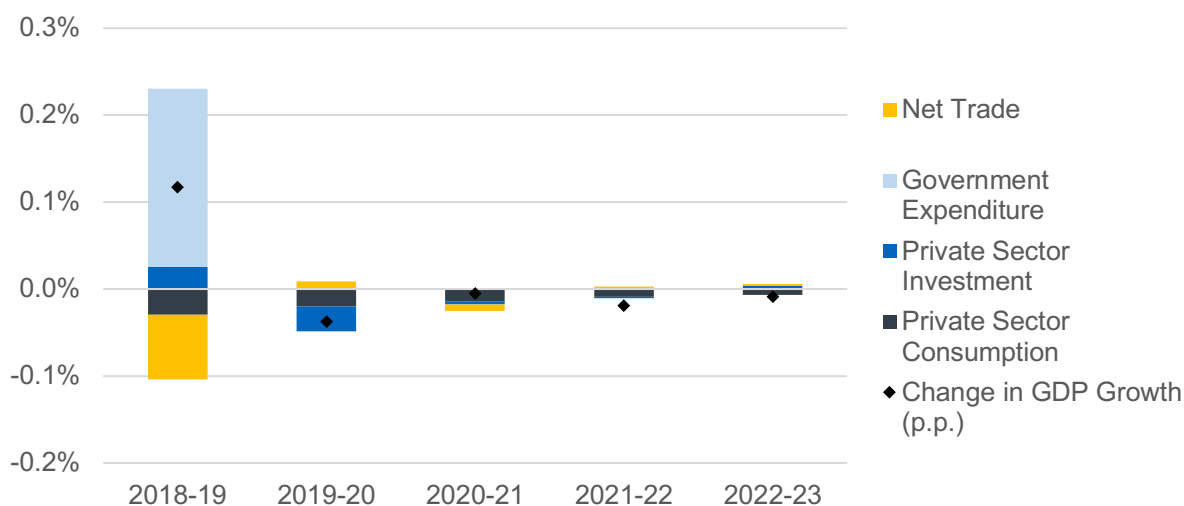
These conclusions are also consistent with the SFC’s views stated in their December 2017 forecasts:

“The policies announced at Draft Budget 2018-19 are not expected to have a significant impact on the economy over the five-year forecast period.”

“ ... the Commission’s judgement is that these policies are not of a large enough magnitude to have a significant aggregate impact on the Scottish economy, in particular with respect to our forecasts of earnings and employment. While they may have some impact on household consumption and business investment through their impact on taxes, this will be offset in part by changes to Scottish Government expenditure.”

Another key finding is that the short-term static impact only affects the level of GDP. As can be seen in chart 12 below, the growth rate of the economy is slightly faster than it otherwise would have been in 2018-19 as the economy adjusts to a higher level, but then eventually returns to its original path.

Chart 12: Contribution to the change (p.p.) in annual GDP growth relative to no policy change



Source: Scottish Government Global Econometric Model (SGGEM)

Consequently, although the size of the economy may have changed, there is no persistent impact on the growth rate of the economy.

However these estimates of the impact on economic growth are not definitive, and are the results from only one model. Other economic models might generate different results, or show different impacts with the benefit of more data over a longer time horizon.

Overall, though, the short-term static modelling suggests that the net impact of the tax policy change is likely to be relatively small. **The central estimate is for the size of the Scottish economy to be around 0.05% larger by 2022-23**, with no persistent impact on annual economic growth rates.

8. Operational and administrative impacts

Two of the principles which underpin the Scottish approach to taxation are Convenience and Efficiency. In adapting these principles to the present context, the Scottish Government believes that the tax system should be as simple as possible and easy to understand and comply with, and that tax policy should be cost-effective to administer.

Therefore in addition to evaluating the impact of the 2018-19 policy against the four tests, this evaluation also seeks to understand the operational and administrative impacts of the policy on businesses and taxpayers. The majority of evidence was gathered from a focus group of tax and payroll professionals, which took place in July 2021.

8.1 Key findings

- In their report *Administration of Scottish Income Tax 2018-19*, the National Audit Office found that HMRC “framed adequate regulations and procedures to secure an effective check on the assessment, collection and proper allocation of revenue, and that they are being duly carried out”.
- Any initial issues that materialised as a result of the policy changes have mostly been resolved. As such, the administration and collection of Scottish Income Tax is now operating under business as usual.
- The reforms introduced additional complexities to the tax system, which could already be complicated for some taxpayers, although technology lessened any impacts.
- Communication around tax policy and administration is key. The Scottish Government should develop further communications activity jointly with HMRC.
- Overall, the processes and procedures put in place by HMRC to administer Scottish Income Tax are robust and enable it to be collected efficiently and effectively, representing value for money for Scottish public finances.

8.2 Governance arrangements between Scottish Government and HMRC

HMRC are accountable for the collection and management of Scottish Income Tax and are required to produce evidence that they are doing so in an efficient and effective manner.

To ensure a consistent quality of service to Scottish Income Tax taxpayers and to allow both HMRC and Scottish Government meet their respective responsibilities, a Service Level Agreement (SLA) was agreed between the two organisations²⁷. The SLA describes the requirements and performance measures for the operation of Scottish Income Tax, including HMRC’s responsibility for identifying and maintaining a robust record of the Scottish Income Tax population.

One of the key requirements of the SLA is for HMRC to report annually on its delivery of the agreed services²⁸. This work is audited by the National Audit Office (NAO) and Audit Scotland²⁹. The latest report by NAO was published in January 2021³⁰.

27 [Service level agreement for operation of Scottish Income Tax by HMRC - GOV.UK \(www.gov.uk\)](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/534442/service-level-agreement-for-operation-of-scottish-income-tax-by-hmrc.pdf)

28 [Scottish Income Tax – HMRC Annual Report 2019 - GOV.UK \(www.gov.uk\)](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/534442/scottish-income-tax-hmrc-annual-report-2019.pdf)

29 [Administration of Scottish income tax 2019/20 \(audit-scotland.gov.uk\)](https://audit-scotland.gov.uk/publications/2020/01/2020-2021-administration-of-scottish-income-tax-2019-20)

30 [Administration of Scottish income tax 2019-20 \(nao.org.uk\)](https://nao.org.uk/publications/2021/01/2021-2022-administration-of-scottish-income-tax-2019-20)

The Scottish Income Tax Board meets quarterly, chaired by the relevant Deputy Directors in each organisation (or their delegates). The Board considers any relevant matters arising from the delivery aspect of the SLA. This includes all business as usual activity around Scottish Income Tax, across operations, compliance, data and policy. The Board also reviews the financial data provided by HMRC for this period in line with the quarterly reporting and invoicing requirements.

Bi-annual review meetings are held between Directors in each organisation, who are also signatories of the SLA, at which the overall effectiveness of the SLA and HMRC's performance against it is kept under review.

HMRC produce monthly finance reports for review by Scottish Government. These reports provide details of the monthly operational costs, key movements, updated costs forecasts for the quarter and the recharge cost for the month. HMRC recharges the Scottish Government for any net additional costs wholly and necessarily incurred as a result of the administration of the Scottish Income Tax powers. The recharge costs are approved at the quarterly Board meetings.

In order for HMRC to identify and maintain an accurate and robust record of the Scottish taxpayer population they undertake a variety of identification and address assurance activity each year. HMRC present their results at both the Board and the Bi-annual Review meetings so that senior staff at Scottish Government are able to assess HMRC's performance.

8.3 Preparations for the commencement of the Scottish Rate of Income Tax in 2016

Scottish Income Tax applies to Scottish taxpayers' wages, pensions and most other taxable income³¹, except for dividend and savings income. It is collected by HMRC through the PAYE system by assigning Scottish taxpayers a tax code starting with an 'S' or is collected through SA where taxpayers are asked to confirm their address on their tax return.

Two new processes were created in order for HMRC to be able to collect the Scottish Rate of Income Tax, and subsequently, Scottish Income Tax, and identify relevant receipts accordingly. First, the identification of relevant Scottish taxpayers and secondary attaching a 'S' prefix to their PAYE codes.

Prior to the introduction of Scottish Income Tax, HMRC maintained its database of taxpayers and their addresses across the UK. However, because a taxpayer's address would be the primary source of identifying them as a Scottish taxpayer, and to allow HMRC to identify which receipts should be allocated to the Scottish Government, there was an increased onus on HMRC to ensure the data it held was as accurate as possible and for taxpayers to advise HMRC of their correct address.

There are a number of tests that can be used to define a Scottish taxpayer, as set out in section 80D of the Scotland Act 1998, with the location of their main residence being a key factor³². HMRC identify a taxpayer as living in Scotland by using the postcode recorded on their PAYE and SA systems. Additionally, HMRC undertake data clash exercises with postcode data available from third party sources to monitor their address

31 [Income Tax in Scotland - GOV.UK \(www.gov.uk\)](http://www.gov.uk)

32 www.gov.uk/hmrc-internal-manuals/scottish-taxpayer-technical-guidance/sttg2000

assurance of Scottish taxpayers³³. This work is audited by the National Audit Office and most recent report was published in January 2021³⁴.

The data clash exercise involves HMRC comparing their dataset of Scottish taxpayers' records against third party data sources. In the most recent exercise the majority of records were successfully matched to a third party Scottish address. For a small number of records that matched but were identified as having a different residency, based on the postcode recorded on HMRC and the third party's databases, HMRC wrote to these individuals asking them to check and update, if required, the address held by them. For the remaining records that could not be verified by comparing to third party data sources, HMRC compared these records against their internal SA data or Real Time Information provided by employers. Of these records HMRC successfully matched most to a Scottish address. A small number also matched to an address in the rUK. For the remaining unmatched records HMRC undertook further analysis and discovered that the vast majority had temporary reference numbers so they considered that these records were no longer active.

HMRC also liaised with Royal Mail and National Records of Scotland to establish postcodes that spanned the Scottish/English border and identified the actual postal addresses that were affected to make sure that the ones in Scotland were correctly flagged on their systems. Additionally, HMRC undertakes regular scans to identify and update Scottish instances of missing or partial postcode.

The results of this exercise provided evidence to suggest that **HMRC's identification of Scottish taxpayers was correct in 98% to 99% of cases.**

The Scottish Government asked HMRC to comment on the operational and administrative impacts on HMRC of the move to the five bands of Scottish Income Tax.

HMRC responded as follows:

'The Scotland Act 2016, alongside the Scotland Act 2012, gave Scottish Parliament additional powers to set Income Tax thresholds, bands and rates for non-savings, non-dividend income for Scottish taxpayers. The Scottish Government introduced two new Income Tax bands, the Starter and Intermediate Rates, for Scottish Taxpayers for the 2018/19 tax year in light of this new legislation.

HMRC identified several administrative and operational impacts when delivering the Further Scottish Income Tax Powers (Scottish Income Tax) Project to implement these new bands on behalf of the Scottish Government.

IT functionality changes were made to PAYE, Self-Assessment and Compliance processes, providing flexibility for the Scottish Government, and ensuring Scottish taxpayers are taxed correctly.

HMRC also identified that changes to letters sent out to Scottish taxpayers would be required to reflect the different rates of Income Tax applicable in Scotland.

33 www.gov.uk/government/publications/scottish-income-tax-hmrc-annual-report-2020/scottish-income-tax-hmrc-annual-report-2020

34 www.nao.org.uk/wp-content/uploads/2021/01/Administration-of-Scottish-income-tax-2019-20-.pdf

In addition, training was provided to HMRC's operational staff to raise awareness of the implementation of the wider Scottish Income Tax Devolved Powers, and HMRC identified that there would likely be an increase in customer contact which could therefore require additional resource.

The Scottish Government met the £24.3m total cost of delivering Scottish Income Tax. This includes the implementation of the Scottish Rate of Income Tax between 2012-13 and 2018-19, the implementation of Further Scottish Income Tax Powers between 2016-17 and 2018-19, and the implementation of Relief at Source between 2015-16 and 2019-20. The ongoing costs of operating Scottish Income Tax are separate."

8.4 Focus group results

In order to gain insight into the administrative and operational impacts of the move to the 5-band structure of Scottish Income Tax in 2018-19, the Scottish Government spoke to the Institute of Chartered Accountants of Scotland to better understand the impact that the policy change had on accountants, tax and payroll professionals, and taxpayers.

Following this, the Scottish Government arranged a focus group comprised of tax and payroll professionals. The analysis in the remainder of this section refers to the feedback provided by this group on two core questions, the full notes from which are available at Annex B.

Question one: what was the impact – both financial and administratively – on businesses and payroll software providers?

Although not specifically part of the 2018-19 changes, the group initially discussed the introduction of the 'S' PAYE code and the issues it caused. The 'S' code is integral to the collection of the correct amount of Scottish Income Tax as a result of any changes made to the Scottish Income Tax rates or bands.

As the 'S' code prefix is determined by where a taxpayer lives rather than where they work, the group commented that this created confusion in the beginning, particularly as it is ultimately the responsibility of the individual taxpayer to make sure their tax code is correct. There was a general consensus from the group that communication on what was driving the change to 'S' code prefixes was a significant issue at the time of the change but any issues were short lived and it has now bedded in successfully.

The introduction of the 'S' code also created some problems initially for payroll software as it did not correctly identify Scottish taxpayers. The group noted that there was some dissatisfaction amongst affected taxpayers and further administrative burdens for employers identifying people manually before software updates were made available to recognise Scottish Income Tax taxpayers automatically. The group advised that while this was a challenge for the payroll profession, issues like those which materialised were to be expected during any transitional period.

The group stated that the introduction of the new five band tax rate structure for Scottish Income Tax initially caused frustration and more complication, particularly as it took longer for the calculation of PAYE and tax liabilities to be processed and checked. However, the general consensus amongst the group was that the software and technology significantly lessened the impact of this. There was concern from the group that further complications could arise if there were frequent changes to the rates and bands in the future.

The group's view was that no significant costs arose to businesses or payroll operators – the software providers included the additional upgrades to calculate Scottish Income Tax as part of their annual statutory update and the costs were part of the usual annual charges. Furthermore, as many businesses outsource their payroll, there was little additional time and monetary costs for the businesses themselves. Although the focus group was again concerned that further complexity may result in higher costs.

The group also advised that there was a direct cost to cross-border businesses in terms of the PAYE Settlement Agreement (PSA)³⁵ as separate calculations had to be carried out for employees in Scotland and the rUK. However, the cost is relatively small and is generally passed on to the taxpayer (i.e. the employer) by their accountants or payroll service provider.

For the future, the group suggested that further changes to rates, bands and thresholds of Scottish Income Tax should not be an issue, so long as the tax and payroll professions are given reasonable notice. They stressed it was very important that when upgrades to software are required, sufficient time is allowed for development, testing, and quality assurance. In this respect, stakeholders have previously highlighted the recent uncertainty caused by delays to the UK and Scottish Budget processes³⁶.

Question two: have the changes made the tax system more complicated?

The general consensus from the group was that tax and payroll professionals are experienced in coping with legislative and regulatory changes, such as those made to Scottish Income Tax in 2018-19. The group also recognised that it was inevitable that gradual or partial devolution would lead to divergence and therefore more complication.

The group was concerned about the level of understanding of tax, particularly amongst unrepresented individuals and micro businesses, and this needs to be taken into account when considering whether the changes to Scottish Income Tax made the tax system more complicated^{37 38}. The group noted that taxpayers need to be consistently reminded of any tax changes as it is easy for them to forget, particularly if they are running a business and are required to meet various other legal and regulatory obligations.

To communicate the changes to Scottish Income Tax in 2018-19, HMRC used a range of communication channels, including the Employer Bulletin, Agent Update, Customer Compliance Managers' engagement with large businesses and public bodies, forums for employers, payroll managers and agents, GOV.UK and social media.

The group discussed at length the importance of good communication on tax matters. They suggested that:

- while HMRC are the trusted messenger for communicating to the general public on tax matters, more joint communications by the Scottish Government and HMRC would help to improve public understanding of tax in Scotland;
- the rules around determining Scottish taxpayer status are relatively straightforward to explain and that more communication would help to further improve understanding in this area;

35 A PAYE Settlement Agreement allows an employer to make one annual payment to cover all the tax and National Insurance due on [minor, irregular or impracticable](#) expenses or benefits for their employees.

36 [Coronavirus contaminates the budget process and payrollers suffer | ICAS](#)

37 [CIOT-ICAS-tax-manifesto-April-2021.pdf](#)

38 [CIOT_Topline_30032021.pdf \(kc-usercontent.com\)](#)

- when further policy decisions are made, it will be important to identify who they affect and tailor communications activity accordingly;
- there is a need for wider communication and continued support to, in particular, individual taxpayers with complicated tax affairs, businesses and tax professionals.

The group noted that feedback received from attendees of the recent Citizens' Assembly³⁹ was positive and suggested more of this type of engagement would be helpful.

The focus group highlighted and discussed the divergence between the tax systems in Scotland and the rUK.

Some larger employers encountered issues with similarly salaried employees being taxed differently in Scotland and the rUK. However, this was to be expected with devolution and was not an overly frequent or complicated issue for business to deal with (as the differing tax systems were ultimately not their responsibility).

One of the main issues the group identified was around pension tax relief. Scottish taxpayers are entitled to receive tax relief on their pensions according to the Scottish rates and bands. Those who contributed to a workplace pension scheme have the correct amount of relief automatically applied and no further action is required on their part.

Where a taxpayer makes pension contributions into a relief at source arrangement, they automatically receive tax relief at the relevant Basic Rate on their contribution. Taxpayers who pay tax at the Intermediate, Higher or Top Rate can then claim extra relief from HMRC.

While this process was well established for Higher and Top Rate taxpayers prior to the introduction of Scottish Income Tax, the addition of the 21% Intermediate Rate band brought a broader base of taxpayers into scope, who are entitled to claim the extra relief from HMRC. Only some taxpayers need to take action, however, and those who normally complete a SA tax return can claim the relief by completing the relevant section on their tax return.

The group were concerned that this would not be widely known amongst Intermediate Rate taxpayers, which is linked to an earlier point made by the group in respect of targeting and tailoring communications to those with more complicated tax affairs.

The group also raised issues with the interaction between diverging Income Tax rates and bands and: National Insurance Contributions; gift aid payments; and the social security system.

The group advised that there were initially some technology issues as a result of the move to the five band system. A very small number of Scottish taxpayers were unable to file online due to a software error, meaning they had to submit paper tax returns. The group felt that HMRC needed more time between the announcement of the policy changes and the start of the new tax year in order to code their software correctly and address any unanticipated issues.

There were various points raised by individuals in the group around making sure that all the Scottish Income Tax is attributed to Scotland and that it was important to ensure that all tax, penalties & interest arising from future tax enquiries were attributed to Scotland by HMRC. Similarly, a point was raised about PSAs and whether HMRC was passing the Scottish Income Tax received under these settlements for amounts assessed at the Scottish rates. During the session of the focus group, attendees were directed to documents which demonstrated how these additional liabilities are attributed to the Scottish Government.

³⁹ [Citizens' Assembly of Scotland | Citizens Assembly](#)

9. Conclusion

The Scottish Government has published this evaluation as part of our commitment to evaluating the effectiveness of tax policy in Scotland, embodying our ambition for excellence in tax policy and delivery, as set out in Scotland's first Framework for Tax.

For the first time, we bring together detailed evidence on the impact of the Scottish Government's decisions on Income Tax since 2017-18. As a result, this document significantly adds to the evidence base on Income Tax in Scotland and will inform the wider debate on the future path of Income Tax policy.

This evaluation is a step in our ongoing work to understand the impacts of Income Tax policy and the performance of the underlying tax base. We will continue to monitor the fiscal and economic risks, as well as the distributional impacts of Income Tax policy as our understanding develops over time.

We will also continue to work with HMRC to ensure that its processes around the operation and administration of Scottish Income Tax remain robust and represent good value for money for Scottish public finances. In this respect, officials in the Scottish Government and HMRC will discuss the findings of this report at the Scottish Income Tax Board and jointly agree any actions to be taken forward.

Finally, we hope this document will contribute to improving public understanding of, and the level of discourse around, taxation in Scotland. In this respect, we intend to carry out a programme of engagement on the evaluation and its findings with stakeholder organisations and academic institutions.

Annex A: Scenario Analysis

Evaluating the impact of a change in tax policy on economic growth can be challenging as it is often difficult to isolate the direct or indirect effects of a specific tax policy change on economic activity relative to the many other factors that can influence an economy over time.

One solution to this problem is to use economic models to help examine some of the channels through which a tax policy change may influence the economy and in helping assess or quantify the broad magnitude of the impact that a change in fiscal policy may have.

To do so, we use the Scottish Government's Global Econometric Model (SGGEM) to perform some scenario analysis on how a change in tax policy could affect the Scottish economy. SGGEM is an economic model that was commissioned from the National Institute of Economic and Social Research (NIESR) and one of its strengths is that it is a modified version (splitting the UK into Scotland and the rUK) of NIESR's own Global Macroeconomic Model NiGEM⁴⁰, which is an internationally recognised and scrutinised macroeconomic model which has been used by institutions such as the OECD, European Central Bank and the Bank of England. Consequently, the model is a robust general equilibrium model that is well suited to examining the macro economic impact of various scenarios, including changes in direct tax rates and government spending.

However, this scenario analysis only looks at the short-term / static effects of the policy change. In the long-run, higher tax rates and higher government expenditure may also influence economic growth via other channels, such as affecting people's decisions to save, spend, work, or start a business.

The impacts on growth could be positive or negative, and the economic literature on this topic is not conclusive. These long-term impacts are, by definition, also going to be very challenging to identify with a relatively recent policy change. For these reasons, we focus only on the short-term / static and/or direct impacts of the policy change on economic growth.

Methodology

The 2018-19 tax policy has been estimated to increase Scottish NSND Income Tax Revenue by around £200m to £300m – equivalent to roughly 0.2% of Scottish GDP in 2018-19. This estimate can then be used to calibrate two assumptions used in the scenario analysis. First, to calibrate a change to the “direct tax rate” within SGGEM which is a proxy for taxes applied to individuals (for example real personal disposable income in the model is a function of personal income minus direct taxes). A tax rate increase is then calibrated which increases overall direct tax revenue by 0.2% of GDP in the model. Second, to calibrate a change to government expenditure in the model which assumes any increased tax revenue is spent with the resultant increase in government expenditure equal to 0.2% of GDP within the model.

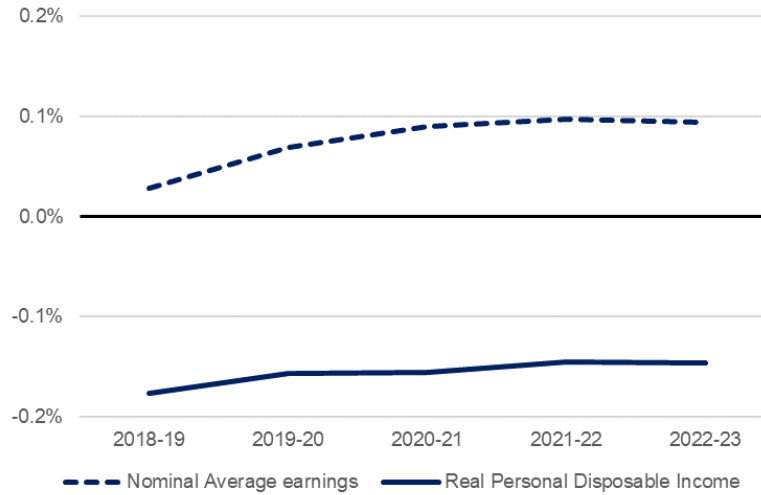
Any shock is assumed to be permanent across the scenario horizon beginning in 2018 Q2 and it is assumed that consumers and firms are forward looking and have rational expectations. It is also assumed that interest rates in the UK as a whole are unchanged and that monetary policy is exogenous within the scenario.

⁴⁰ Further information on the model can be found [here](#).

Results

Chart 13 below shows the impact on the level of real GDP from a direct tax rate revenue increase worth 0.2% of GDP that is also accompanied by an equivalent sized expansion of government expenditure. The immediate impact is estimated to increase the level of GDP by around 0.1% in the short-term and by around 0.05% by 2022-23.

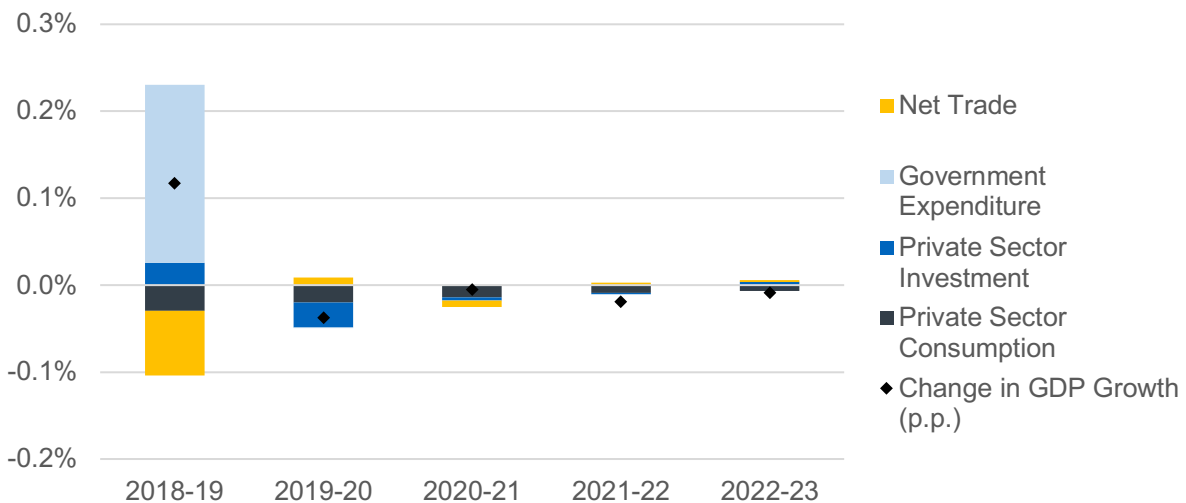
Chart 13: Change (%) in the level of Scottish GDP relative to a no-shock baseline.



Source: Scottish Government Global Econometric Model (SGGEM)

The increase in direct taxation has a negative effect on real personal disposable income as post-tax earnings falls. However this is partly mitigated by the small increase in nominal average earnings as a result of the overall positive increase in activity in the economy.

Chart 14: Change (%) in the level of nominal average earnings and real personal disposable income relative to a no-shock baseline.

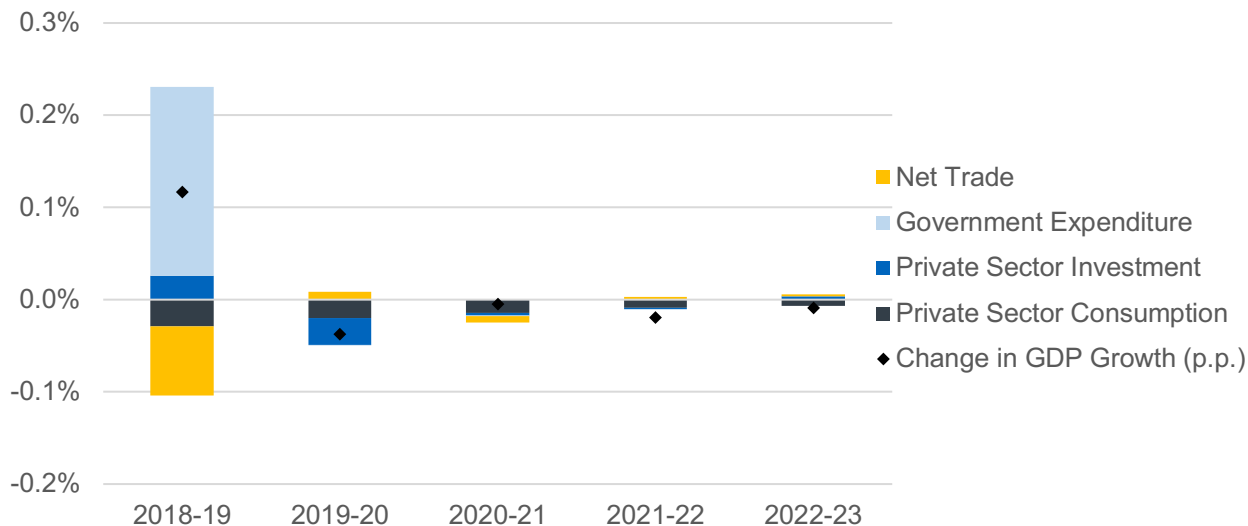


Source: Scottish Government Global Econometric Model (SGGEM)

As a result of the lower levels of real disposable income, aggregate private sector consumption (which accounts for around two thirds of economic activity) is smaller than otherwise would have been the case. The increase in government spending is estimated to offset the negative impact on economic growth from the fall in private sector consumption. However, as a result of the stimulus generated from additional government expenditure, there is also a corresponding rise in demand for goods and services across

the economy (some of which is imported). Consequently, net trade deteriorates acting as an additional drag on the economy, as imports are estimated to rise whilst exports remain relatively unchanged. This then partially offsets some of the positive GDP impact of higher government spending, although the net impact is still positive.

Chart 15: Contribution to the change (p.p.) in annual GDP growth relative to a no shock baseline



Source: Scottish Government Global Econometric Model (SGGEM)

Sensitivity Analysis

As mentioned this scenario only consider the direct impacts of a tax and government expenditure change. SGGEM is a dynamic general equilibrium model and does automatically account for some indirect impacts from higher taxes and government expenditure (such as changing prices) but there are parts of the model structure that does not automatically or endogenously incorporate additional indirect impacts that may occur.

For example, labour productivity in the model is exogenous - the model does not automatically make any assumption about how changes in taxation or government expenditure may affect it. If there are arguments that higher or lower taxes or government expenditure could have a long-term impact on labour productivity, then this would have to be incorporated directly as an additional productivity assumption into the scenario analysis.

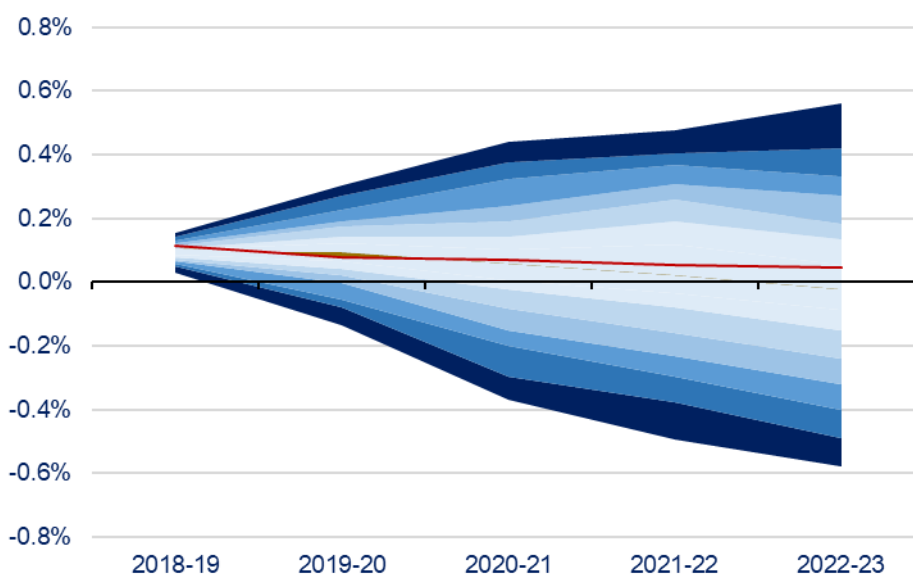
Second, there are a wide variety of estimates around the relationship between different economic variables. For example, a 1% increase in government spending may be estimated to increase GDP by a certain percentage on average over time. However, these estimates are not always unconditional - they can often be sensitive towards the type of government expenditure being undertaken such as day-to-day spending on the NHS relative to the economic impact of investing in a new railway. They are also often specific to the state of the current economy. So for example, every additional £1 of government expenditure spent, or every £1 less paid in tax during a recession could have a different effect on the economy (when there may be higher levels of unemployment, and lower levels of demand for goods and services) than during a period of strong economic growth when demand is already high.

To address some of these concerns some additional sensitivity analysis is undertaken. The process involves looking at how the key equations in the model have performed in explaining historical data and using a “bootstrap” approach to take random draws from the values these equations would predict over time relative to actual historic outturn data to create a stochastic database of residuals for these key equations. These can be thought of as measurements of uncertainty in how the model has done in actually explaining how the economy has performed historically.

This stochastic database can then be used to generate hundreds of additional scenarios where random stochastic shocks are introduced to some of the key equations over time. In particular a subset of core equations are selected that were deemed to likely be sensitive to fiscal policy changes, such as the level of employment, average number of hours worked per employee, nominal wages and other personal income. This can then help compensate for some of the uncertainties and caveats of the central scenario analysis.

Chart 16 below shows the central estimate of the scenario analysis accompanied by a confidence interval generated from the 250 additional sensitivity scenarios. There was evidence that around 70% of the additional scenarios that included the stochastic uncertainty shocks over time resulted in an economy between 0.6% larger to around -0.6% lower by 2022-23.

Chart 16: Change (%) in the level of Scottish GDP compared to a no-shock baseline with uncertainty fan chart



Source: Scottish Government Global Econometric Model (SGGEM)

To some degree these sensitivity results are arbitrary and are not directly associated with some of the specific modelling uncertainties to do with fiscal policy changes. However, they do help measure the historical performance of the model in explaining real outturn data and hence are useful to give a degree of sensitivity to the core estimate.

Conclusion

Overall, there is evidence from the scenario analysis that, primarily due to the relatively small size of the tax and government expenditure change from the 2018-19 tax policy, any direct / static impact on the short-term size of the economy is also likely to be relatively small. Our central estimate is that a tax rise accompanied by an equal sized increase in government expenditure will have a small positive impact on the size of the economy, although the sensitivity analysis suggests that the confidence intervals around this estimate are quite wide and do not exclude the possibility of a negative impact.

However, the central estimate and the sensitivity analysis does provide some evidence that the overall impact on the short-term size of the economy is not likely to be substantial.

These conclusions are also consistent with the SFC's views stated in their December 2017 forecasts:

"The policies announced at Draft Budget 2018-19 are not expected to have a significant impact on the economy over the five-year forecast period."

"... the Commission's judgement is that these policies are not of a large enough magnitude to have a significant aggregate impact on the Scottish economy, in particular with respect to our forecasts of earnings and employment. While they may have some impact on household consumption and business investment through their impact on taxes, this will be offset in part by changes to Scottish Government expenditure."

These estimates of the impact on economic growth are not definitive, and are the results of one model. Other economic models might generate different results, or show different impacts with the benefit of more data over a longer time horizon.

Annex B: Focus Group Notes

In July 2021, the Scottish Government arranged a focus group comprised of tax and payroll professionals, facilitated by an independent moderator, to gain a deeper understanding and perspective of the issues that had been raised. Once the focus group concluded, officials consolidated notes taken during the discussion and presented this information by drawing out key themes that arose during the conversation. This qualitative data was then cleaned and coded by topic, resulting in four clear themes being presented for each question asked during the session.

Question 1: What was the impact – both financial and administratively – on businesses and payroll software providers? Were there any extra complications or adaptations to the processes?

Theme 1: “S” code prefix:

- The payroll profession’s biggest challenge was the change to PAYE codes to include the S prefix to identify Scottish taxpayers. However, it was pointed out that this was an expected part of the transition.
- When payroll operators had to update their systems to recognise the S code prefix there was a lag – some attendees believed this led to some Scottish taxpayers not being correctly identified as a Scottish taxpayer, and therefore were not paying the correct amount of tax. Similarly, there were concerns that even now not all Scottish taxpayers are being captured correctly through the S code mechanism and therefore there is not full confidence that the correct tax is being allocated to the Scottish Government⁴¹. An example was given of a Highland business whose employees do not all have an S code.
- Issues still emerge in the identification of Scottish taxpayers, particularly around Scotland/England border (an example was given of North Berwick not being classed as in Scotland for residency due to issues with postcodes⁴²).
- The S code prefix is determined by where you live rather than where you work, which added confusion at the beginning. Furthermore it is the responsibility of individuals to have the right PAYE code which leaves further room for error. There was general consensus that communication on what was driving the change to S code prefixes was a big issue at the time of the change.
- Any confusion around the communication of who should have an S code was short lived and has now bedded in successfully.
- The Group did not raise any administrative impact of changing over to S code prefix when considering Scottish Income Tax’s implications for reserved taxes, such as National Insurance Contributions.

41 Attendees were invited to read the National Audit Office’s report on the administration of Scottish Income Tax for 2019-20, containing a section on the identification of Scottish taxpayers and sections on compliance.

42 It was mentioned by an attendee that there are some similar issues along the Wales-England border where the postcode straddles the border, so this appears not to be a Scotland-specific issue.

Theme 2: Move to 5-band structure:

- The change to the 5 band structure meant that tax calculations and computations took longer to process. That challenge was biggest in the transition year however since then the impact has largely tapered off.
- The change itself was described as “frustrating” – in the sense of its operational impacts – however the general consensus amongst the group was that software and technology significantly lessened any operational impacts.
- It would be more complicated if there were frequent changes in bands & rates.
- Nothing at the time would have made the change to the five band structure any more straightforward, the main issue was around coding and timing rather than the change to the tax system in itself.
- There was some additional work for payroll operators who had to manually check that the software was calculating the new Scottish Income Tax rates and bands correctly, in other words it added more length to the existing tax computation. This is expected in any transitional year; it was complicated at the time but not as burdensome now.

Theme 3: Administration and Cost

- There were some initial teething problems with payroll providers sometimes getting staff payroll details wrong, which caused dissatisfaction amongst employees who raised the matter and made sure it was addressed.
- Payroll providers had to upgrade their software due to the 2018-19 policy change. Statutory upgrades are released annually and can be fairly easy to do, and the costs of the annual changes tend to be built-in. More complexity might lead to higher costs. One attendee noted that the computer coding can be completed quickly.
- There was a potential administrative burden in identifying people manually before software was made available to recognise this automatically.
- There was a direct cost to cross-border businesses in terms of the PAYE Settlement Agreement (PSA)⁴³ – there are now three separate calculations to be done for those businesses but this (relatively small) cost is generally passed on to the taxpayer.
- A lot of businesses outsource their payroll anyway so there was little additional time/monetary cost to them compared to had there been no change.

Theme 4: Timing

- Any further changes to the rates, bands and thresholds of Scottish Income Tax now should not be an issue, so long as tax and payroll professions are given reasonable notice.
- Bigger businesses sometimes use their own in-house software and also need time to implement any changes.
- Software requires a good period of time to change and test, but less time required for simple changes, e.g. change in Personal Allowance.
- One attendee suggested that the SG should not announce a change in March and expect it to be implemented in April.

⁴³ The Group were also made aware that the reference in footnote 1 contains a section on PSAs which they were invited to read

- One attendee said that hypothetically if the Scottish Parliament was to approve a new 7-band structure they would like 18 months' notice to be sure they could upgrade all their systems in time.
- There was a time cost that could be attributed to businesses not getting enough notice before needing to update their processes, however the attendee who raised this point also noted that tax and payroll professionals are aware that the Scottish Government works to fairly rigid budget cycles.

Question 2: Have the changes made the tax system more complicated? If so, why and for who?

Theme 1: Taxpayers

- The tax and payroll profession can cope with changes such as those made in 2018-19 as they are professionals and have dealt with changes in the past. However, it is difficult and more complicated for unrepresented individuals and micro businesses – particularly those who operate cross-border.
- The tax system in general is significantly more complicated now with taxpayers' understanding poor at the same time – how can individuals be responsible for their tax position if they do not fully understand?
- Some individuals have income from a variety of sources from all over the world, which makes understanding tax calculations “indecipherable” for taxpayers.
- There were initial difficulties with Self-Assessment filing for those who had a combination of earnings and other income at higher rates – these customers needed to be excepted from the online process due to HMRC's online tax computation not taking these different rates into account. However, this was largely resolved after a couple of years, and there are reasons as to why someone would be excepted from submitting an online tax declaration aside from being a Scottish taxpayer.
- People need to be consistently reminded of tax changes as it is easy to forget when running a business, in amongst the various other legal and regulatory measures businesses must comply with.
- There can be issues for employers when explaining why similar employees were receiving different amounts – an example was given of the Ministry of Defence and the need to ‘tax equalise’ armed forces personnel stationed at Scottish bases to ensure that their take home pay did not decrease. However, this was to be expected with devolution and is not an overly frequent or complicated issue.
- The feedback from attendees on the Citizens' Assembly was positive, with attendees being interested in learning more about tax. More engagement of this sort would be useful.

Theme 2: Communication

- A lot of the consideration of whether the change makes the tax system more complicated for businesses and individuals is down to communication, and some in the Group felt that not enough communication is being offered to support understanding, particularly amongst individual taxpayers.
- More communication on the process of identifying Scottish taxpayers is vital. The rules are simple and straightforward for the majority so more joint communications with HMRC would help to improve understanding in this area.

- There was a suggestion to identify groups that will be have more complicated affairs and target communication towards them.
- Need to make sure a communications programme is in place. Attendees felt that there is too much reliance on HMRC to do the communication, with some in the Group feeling that HMRC do not view this as their responsibility.
- The general consensus was that the SG and HMRC should do more joint communications to identify Scottish taxpayers.
- If making a policy decision identify who it affects and SG to get communications out to them. Do not expect HMRC to do this.
- There is an “economic necessity for complexity in the tax system” but this needs to be balanced with access to good information.

Theme 3: Divergence

- It was pointed out that there were some issues with Scottish higher rate threshold being lower than England + NICs – some attendees also pointed out that NICs was very close to being aligned with Income Tax but now further away than ever before.
- There was some discussion around the behavioural change side of things – particular the 53% marginal rate. One attendee mentioned they had heard anecdotally that some taxpayers had changed their behaviour to avoid falling into this tax category.
- Pension tax relief issues – people not aware that they can claim extra relief if paying tax at 21%. While is on HMRC website, there is not much in the way of communication to Scottish taxpayers. A similar issue exists with gift aid.
- Issue with interaction between Scottish Income Tax changes with devolved benefits and this gap could get worse. For example, someone being on the threshold for being eligible for Universal Credit – they could lose eligibility due to divergence once net pay taken into account.
- Inevitable that gradual or partial devolution would lead to divergence and therefore more complication – one solution would be to have all income taxed at the same rate and that can work both ways (i.e. full devolution, or aligning Scottish rates with rUK).

Theme 4: Technology

- Some software failed to extend the tax band for basic rate taxpayers.
- Ideally, from a technology perspective, higher rates would be aligned across the UK as HMRC had a lot of exception reports to deal with early on as systems were not ready for changes, but less of an issue now.
- Some in the group felt that payroll operators are relying on software to be able to cope. HMRC initially could not build their own software in time to cope with the changes. In the first year some taxpayers had to amend and file paper returns. Most of the exceptions have gone now but there was not enough time for the initial implementation – still a few instances where errors occur, although not exclusively in relation to Scottish Income Tax
- Needs to be a greater focus on the fact that HMRC need to code correctly to allow the process change to run smoothly.
- HMRC saw getting things right as ‘grit in the system’ and did not put much focus on getting quirks addressed, e.g. with PSAs, employer compliance reviews, etc.

- One attendee noted that there is a need to ensure yield, penalties & interest from enquiries is attributed to Scotland.
- One attendee noted that HMRC considered that they were getting it right even if 5% of Scottish taxpayers were coded incorrectly. While for SG this was a big issue as even 5% of receipts not being correctly attributed to the Scottish Government would have a significant impact on its budget. Similarly, there was a point raised about PSAs and whether HMRC was passing the Income Tax received under these settlements for amounts assessed at the Scottish rates.



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