Scottish Fiscal Commission

Supplementary Forecast Evaluation Report: Income Tax

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Foreword

Our income tax forecast plays an important role in the Scottish Budget. The forecast affects not only the initial funding allocated to the Scottish Budget, but also the eventual reconciliation, where our forecast of income tax revenue and OBR's forecast of the Block Grant Adjustment are reconciled with outturn data, between them leading to an adjustment in the subsequent Scottish Budget.

It is therefore important for us to critically evaluate our forecast and consider whether any lessons can be learnt to improve our forecasts in the future. This supplementary income tax Forecast Evaluation Report sets out such an evaluation in respect to our budget setting income tax forecast of February 2018.

Following the release of the 2018-19 HMRC outturn data on 23 September 2020, the reconciliation of £309 million was confirmed by HM Treasury and Scottish Government. In this Forecast Evaluation Report we primarily evaluate our February 2018 budget setting forecast that fed into this reconciliation. We also provide some high level thoughts on the other component of the reconciliation –Block Grant Adjustment.

We would like to thank HMRC who have worked hard to ensure we have the information we need to create our income tax forecast and evaluation.

Dame Susan Rice DBE

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5 October 2020

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Summary

1 We published our main Forecast Evaluation Report on 2 September 2020.[1] Income tax outturn data for 2018-19 was published by HMRC on 23 September, later than usual because of the COVID-19 pandemic. [2]This supplementary report evaluates our income tax forecasts for 2018-19, focussing particularly on the forecast used in the 2018-19 Scottish Budget, referred to as the budget setting forecast. We published our main forecasts for the 2018-19 Scottish Budget in December 2017.[3] Following income tax policy changes during the passage of the Budget bill, we updated our income tax forecast in February 2018 and this was used to set the 2018-19 Scottish Budget. [4] Our evaluation particularly focusses on comparing this budget setting forecast to outturn, as shown in Figure 1.

Figure 1: Error in 2018-19 budget setting forecast

Forecast	Forecast (£ million)	Outturn (£ million)	Error (£ million)	Relative Error (%)
Income tax budget setting forecast (February 2018)	12,177	11,556	-621	-5.4

Source: Scottish Fiscal Commission (2018) Supplementary Publication Updated Income Tax Forecasts - February 2018 (link), HMRC (2020) Scottish Income Tax Outturn Statistics: 2018 to 2019 (link).
Figures may not sum because of rounding.

2 As shown in Figure 1, our February 2018 forecast had a headline forecast error of £621 million, or 5.4 per cent.

3 Of this £621 million error, we estimate £538 million is because we did not have access to accurate historical outturn data to base our forecast on. When we published our February 2018 income tax forecasts HMRC had not yet developed its measure of outturn data for Scottish income tax. Instead, we based our forecast on historic data from a survey estimate of income tax revenues in Scotland, the best information available at the time. After adjusting for the 2016-17 HMRC outturn data, our forecast error is £83 million, or 0.7 per cent. Since December 2018 our income tax forecasts have been based on HMRC outturn data, meaning the lack of historical outturn data will not be a feature of future forecast errors.

4 Since the release of the first outturn data in July 2018 of 2016-17, our forecast accuracy has improved significantly. Figure 2 shows a comparison between the previous 2018-19 forecasts and the latest outturn data.

[1] Scottish Fiscal Commission (2020) Forecast Evaluation Report – September 2020 (link)
[2] HMRC (2020) Scottish Income Tax Outturn Statistics: 2018 to 2019 (link)
[3] Scottish Fiscal Commission (2017) Scotland's Economic and Fiscal Forecasts – December 2017 (link)
[4] Scottish Fiscal Commission (2018) Supplementary Publication Updated income Tax Forecasts – February 2018 (link)

Figure 2: Summary of previous 2018-19 income tax forecasts

Forecast	Forecast (£ million)	Error (£ million)	Error (Relative %)
February 2018	12,177	-621	-5.1
May 2018	11,969	-413	-3.4
December 2018	11,452	104	0.9
May 2019	11,486	70	0.6
February 2020	11,378	178	1.6
Outturn	11,556		

Source: Scottish Fiscal Commission, HMRC (2020) Scottish Income Tax Outturn Statistics: 2018 to 2019 (link), Scottish Fiscal Commission (2018) Supplementary Publication Updated Income Tax Forecasts - February 2018 (link), Scottish Fiscal Commission (2018) Scotland's Economic and Fiscal Forecasts – May 2018 (link), Scottish Fiscal Commission (2018) Scotland's Economic and Fiscal Forecasts – December 2018 (link), Scottish Fiscal Commission (2019) Scotland's Economic and Fiscal Forecasts – May 2019 (link), Scottish Fiscal Commission (2020) Scotland's Economic and Fiscal Forecasts – February 2020 (link).
Figures may not sum because of rounding.

5 In general, the forecast error in our forecasts of 2018-19 gradually reduced over time, from 5.1 per cent in our original budget setting forecast to 0.6 per cent in our May 2019 forecast. However, our forecast error rose again in our final forecast of 2018-19 before the publication of outturn data, published in February 2020.

The effect of our forecast error on the Scottish Budget

6 Income tax funding in the 2018-19 Scottish Budget was set based both on our forecasts of Scottish income tax revenue, and the Block Grant Adjustment (BGA), based on the OBR's forecasts of income tax revenue in the rest of the UK. With the publication of outturn data for 2018-19, final values for 2018-19 Scottish income tax revenues and the income tax BGA are available. Differences between our budget setting forecast and outturn, and similarly differences between the budget setting and final BGAs, will be corrected through a change in funding called a reconciliation.

7 The simplest way to understand reconciliations is by looking at the forecast and outturn growth rates. Our budget setting forecast in February 2018 anticipated Scottish income tax revenue growing by 8.6 per cent between 2016-17 and 2018-19, greater than the income tax BGA, which based on OBR forecasts was expected to grow by 4.8 per cent. Faster growth in Scottish income tax revenues compared to the BGA is explained in part by income tax policy changes in Scotland to raise additional revenue. Outturn data show the growth rates were much closer at 7.8 per cent for Scottish income tax revenue and 6.7 per cent for the income tax BGA. Our moderate overestimate of growth in Scottish income tax revenues and the moderate underestimate of growth of the BGA compounded to create the negative reconciliation.

8 We can also show how the reconciliation came about by looking at the forecasts in levels terms. The OBR based BGA forecasts and our Scottish income tax forecasts were both affected by the lack of historical income tax outturn data. Importantly for the Scottish Budget, there is a symmetric effect on the BGA and our Scottish income tax forecasts. This means that the lack of historical outturn data and the use of survey data in the budget setting forecasts has no direct net effect on the Scottish Government's budget. It does however distort our forecast errors and makes understanding the effect of forecast errors on the reconciliation more difficult. Our headline forecast errors and the reconciliation are shown in Figure 3.

Figure 3: 2018-19 Scottish income tax and BGA forecast errors and reconciliation

£ million	Scottish income tax	BGA	Reconciliation
Budget setting forecast	12,177	-11,749	
Final outturn	11,556	-11,437	
Forecast error	-621	312	-309

Source: Scottish Government (link).
Figures may not sum because of rounding

9 Our headline budget setting income tax forecast error was an overestimate of £621 million, and the negative income tax BGA was overestimated by £312 million. The combined effect of these forecast errors is an income tax reconciliation of -£309 million.

10 We adjust these headline forecast errors to show what our forecasts would have been had we had access to accurate historic outturn data. After adjusting the original budget setting forecasts for the 2016-17 outturn data, we find that our forecast error contributed £83 million and BGA forecast errors contributed £207 million to the £309 million reconciliation.[5] These are moderate forecast errors, but they compounded to create a large reconciliation. Figure 4 shows the reconciliation after adjusting for the base data issue.

Figure 4: 2018-19 Scottish income tax forecast error, adjusted for base data issue

£ million	Scottish income tax	BGA	Unallocated Reconciliation [1]	Reconciliation
Adjusted budget setting forecasts	11,639	-11,230		
Final Outturn	11,556	-11,437		
Forecast error	-83	-207	-19	-309

Source: Scottish Fiscal Commission
Figures may not sum because of rounding.
[1] Our methodology of adjusting historic forecasts means there is a small reconciliation value that is unallocated to either the SFC or OBR rUK forecasts.

11 In our February 2020 forecast report we included an estimate of the 2018-19 reconciliation of -£555 million, an overestimate of the final reconciliation by £246 million. Of this, errors in our February 2020 income tax forecast contributed £178 million, and errors in the BGA forecast contributed £68 million.

12 Between 2017-18 and 2018-19, Scottish income tax revenues grew by 5.9 per cent, significantly above historical averages and above our February 2020 forecast of 4.2 per cent. Our underestimate of growth between 2017-18 and 2018-19 explains much of the difference between our February 2020 estimate of the reconciliation and the final figure.

[5] Our methodology of adjusting historic forecasts means there is a small reconciliation value that is unallocated to either the SFC or OBR rUK forecasts.

Chapter 1
Evaluating our forecast

1.1 This supplementary report evaluates our income tax forecasts for 2018-19, focussing particularly on our budget setting forecast. We published our main forecast for the 2018-19 Scottish Budget in December 2017.[6] Following income tax policy changes during the Budget bill, we published final budget setting income tax forecasts in February 2018.[7] Figure 1.1 shows the headline forecast error from the February 2018 forecast.

Figure 1.1: Headline evaluation – income tax February 2018 forecast of 2018-19

	Forecast (£ million)	Outturn (£ million)	Error (£ million)	Error (Relative %)
	12,117	11,556	-621	5.4
OBR average absolute error				
				5.7

Source: HMRC (2020) Scottish Income Tax Outturn Statistics: 2018 to 2019 (link), Scottish Fiscal Commission (2018) Supplementary Publication Updated Income Tax Forecasts - February 2018 (link), OBR (2020) Historical official forecasts database (link).
Figures may not sum because of rounding.
The OBR's UK income tax forecasting performance is not a perfect proxy for income tax forecasting in Scotland as the availability and timing of information is quite different. UK income tax is historically more volatile as it includes dividends taxation, which is particularly sensitive to tax rate changes. The Scottish income tax forecast is only for non-savings, non-dividends income.

1.2 The Scottish Budget for 2018-19 was set using our income tax forecasts published in February 2018 of £12,177 million.[8] Compared to the outturn data of £11,556 million, our February 2018 forecast had a forecast error of £621 million, or 5.4 per cent.

Understanding our forecast error

1.3 Figure 1.2 below shows how different factors contributed to our forecast error.

Figure 1.2 Disaggregation of 2018-19 Scottish income tax forecast error

£ million	
SFC February 2018	12,177
HMRC 2016-17 base data	-538
Economic forecast	35
Other	-119
HMRC Outturn September 2020	11,556

Source: Scottish Fiscal Commission, HMRC (2020) Scottish Income Tax Outturn Statistics: 2018 to 2019 (link), Scottish Fiscal Commission (2018) Supplementary Publication Updated Income Tax Forecasts February 2018 (link).
Figures may not sum because of rounding

[6] Scottish Fiscal Commission (2017) Scotland's Economic and Fiscal Forecasts – December 2017 (link)
[7] Scottish Fiscal Commission (2018) Updated income tax forecasts – February 2018 (link)
[8] Scottish Fiscal Commission (2018) Updated income tax forecasts– February 2018 (link)

1.4 Of the -£621 million forecast error, we estimate that -£538 million is a result of not having access to historical outturn data on which to base our forecast. We slightly underestimated earnings growth in our economy forecast, which offset £35 million of our negative forecast error. This leaves around -£119 million that is attributed to other factors, discussed later in this chapter.

2016-17 base data issue

1.5 When we created our February 2018 income tax forecasts HMRC had not yet developed its outturn data on Scottish income tax. Instead, we based our forecast on historical data from a survey estimate of income tax revenues in Scotland, known as the Survey of Personal Incomes (SPI), the best information available at the time.[9]

1.6 In July 2018 we received outturn income tax data for Scotland for the first time covering 2016-17. Figure 1.3 shows how having access to 2016-17 outturn data would have affected our February 2018 forecast. We compare to 2016-17 as this is the initial deduction year for the purposes of calculating the income tax BGA.

1.7 Outturn data shows that Scottish Non-Saving Non-Dividend (NSND) income tax revenues grew by 7.8 per cent between 2016-17 and 2018-19. In our February 2018 forecast we slightly overestimated this growth rate, forecasting growth of 8.6 per cent. Applying this growth rate to outturn income tax data for 2016-17 suggests we would have forecast income tax revenues of £11,639 in 2018-19 had outturn income tax data for 2016-17 been available.

Figure 1.3: 2018-19 Scottish income tax forecast error, adjusted for base data issue

£ million	2016-17	2018-19
Original budget setting forecast		
February 2018 budget setting forecast	11,214	12,177
Growth rate (%)		8.6
2018-19 forecast error		621
Outturn data		
Outturn	10,719	11,556
Growth between 2016-17 and 2018-19 (%)		7.8
Adjusted 2018-19 forecast error		
2016-17 outturn and adjusted February 2018 forecast (£ million)	10,719	11,639
Growth rate (%)		8.6
Adjusted 2018-19 forecast error		83

Source: Scottish Fiscal Commission, HMRC (2020) Scottish Income Tax Outturn Statistics: 2018 to 2019 (link), Scottish Fiscal Commission (2018) Supplementary Publication Updated Income Tax Forecasts - February 2018 (link).
Figures may not sum because of rounding.

1.8 On the basis of this adjusted forecast, our forecasting error would have been £83 million, much less than the headline £621 million error. Of the £621 million forecast error from the February 2018 forecast, around £538 million is because we did not have access to HMRC's outturn data when we made our forecast.

[9] The Survey of Personal Incomes is based on administrative information held by HMRC about people liable for UK income tax. More information about the survey can be found in HMRC (2019) Personal incomes statistics (link).

Outturn economy determinants

1.9 Two key components of our income tax forecast are forecasts of earnings and employment from our economy forecast. Figure 1.4 shows the growth rates of these economic determinants between 2016-17 and 2018-19 compared to outturn.

Figure 1.4: Growth rates of key economic determinants between 2016-17 and 2018-19, SFC

Determinant	Forecast (%)	Outturn (%)	Difference (percentage points)
Employment	1.7	1.7	0.0
Average earnings	4.1	4.3	0.2
Total earnings	5.9	6.1	0.2

Source: Scottish Fiscal Commission, Scottish Fiscal Commission (2017) Scotland's Economic and Fiscal Forecasts – December 2017 (link).
Figures may not sum because of rounding.

1.10 Our forecast of employment growth had no significant error, but we slightly underestimated growth in average earnings by 0.2 percentage points. We estimate that our under forecast of earnings growth reduced our income tax forecast by £35 million.

Other factors

1.11 The remaining £119 million of the error cannot be attributed to either the 2016-17 outturn data or the underestimate of earnings growth. A number of factors could have contributed including unexpected policy effects, minor data and modelling issues, or unobservable changes in the income distribution over time. At one per cent of total 2018-19 revenue, the remaining £119 million error is small compared to the total forecast.

1.12 A new five band income tax system was introduced in Scotland in 2018-19. We costed this policy, including potential behavioural effects, in our February 2018 forecast. Figure 1.5 below compares our original 2018-19 policy costing from our February 2018 forecast, with the latest version of the costing from the February 2020 forecast.

Figure 1.5: Comparison of 2018-19 policy costing

Forecast	2018-19	2019-20	2020-21	2021-22	2022-23
February 2018	219	228	239	252	267
February 2020	197	197	205	212	219
Difference	-22	-30	-34	-40	-48

Source: Scottish Fiscal Commission, Scottish Fiscal Commission (2018) Supplementary Publication Updated Income Tax Forecasts - February 2018 (link), Scottish Fiscal Commission (2019) Scotland's Economic and Fiscal Forecasts – February 2020 (link).
Figures may not sum because of rounding

1.13 For the 2018-19 year, Figure 1.5 shows a difference of £22 million between our costings, contributing to a slight reduction in our total forecasts. We'll never know for certain the exact effect on tax revenues of a change in tax policy. However, given the scale of the policy change, we don't believe that errors in our estimate of the policy costing, including behavioural responses, could account for much of the overall forecast error.

1.14 We can also evaluate the change in the number of taxpayers between 2016-17 and 2018-19 comparing our February 2018 forecast with outturn, as shown in Figure 1.6.

Figure 1.6: Change in number of taxpayers between 2016-17 and 2018-19, February 2018 forecast and outturn

Bands in 2016-17	Comparable bands in 2018-19	SFC February 2018	Outturn	Error
	Starter rate			
Basic rate	Basic rate	-15,500	-33,500	-18,000
	Intermediate rate			
Higher rate	Higher rate	42,200	27,700	-14,500
Additional rate	Top rate	2,400	1,600	-800
All	All	29,000	-4,200	-33,200

Source: Scottish Fiscal Commission
Figures may not sum because of rounding

1.15 The personal allowance increased substantially between 2016-17 and 2018-19, reducing the number of taxpayers and in particular the number of basic rate taxpayers. Figure 1.6 suggests our February 2018 forecasts underestimated the scale of this effect. Our February 2018 forecast estimated that there would be around 15,500 fewer basic rate taxpayers in 2018-19 compared to 2016-17, whereas outturn data showed that this figure was actually 33,500. We don't expect this error in our number of taxpayers forecasts to have a significant effect on our total tax revenues forecast as the taxpayers who left the income tax system between 2016-17 and 2017-18 because of a rising personal allowance would have paid a very low amount of income tax. Our February 2018 forecast was much closer in estimating the growth in the number of additional or top rate taxpayers – an 800 taxpayer difference.

1.16 It is challenging to draw out firm conclusions from our number of taxpayers forecast, but it is a component of our forecast we are monitoring.

Our intermediate forecasts of 2018-19

1.17 Since the release of the first outturn data in July 2018 of 2016-17, our forecast accuracy has improved significantly. Figure 1.7 shows a comparison between the previous 2018-19 forecasts and the latest outturn data.

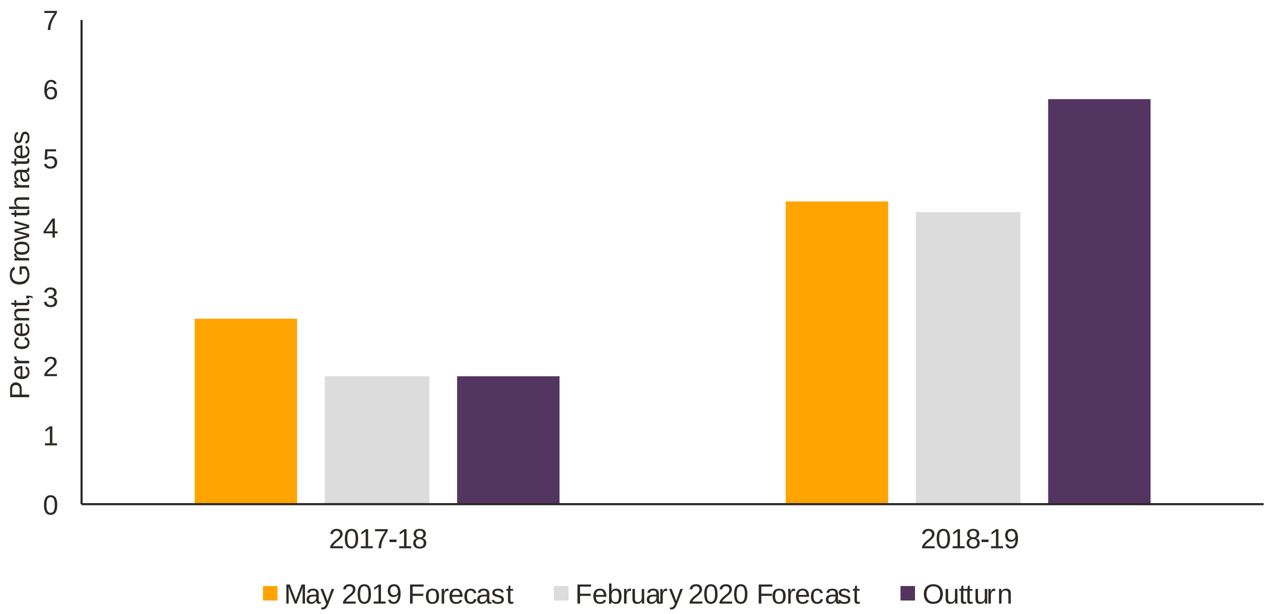
Figure 1.7: Summary of previous 2018-19 income tax forecasts

Forecast	Forecast (£ million)	Error (£ million)	Error (Relative %)
February 2018	12,177	-621	-5.4
May 2018	11,969	-413	-3.4
December 2018	11,452	104	0.9
May 2019	11,486	70	0.6
February 2020	11,378	178	1.6
Outturn	11,556		

Source: Scottish Fiscal Commission, HMRC (2020) Scottish Income Tax Outturn Statistics: 2018 to 2019 (link), Scottish Fiscal Commission (2018) Supplementary Publication Updated Income Tax Forecasts - February 2018 (link), Scottish Fiscal Commission (2018) Scotland's Economic and Fiscal Forecasts – May 2018 (link), Scottish Fiscal Commission (2018) Scotland's Economic and Fiscal Forecasts – December 2018 (link), Scottish Fiscal Commission (2019) Scotland's Economic and Fiscal Forecasts – May 2019 (link), Scottish Fiscal Commission (2019) Scotland's Economic and Fiscal Forecasts – February 2020 (link).
Figures may not sum because of rounding.

1.18 In general, the forecast error in our forecasts of 2018-19 gradually reduced over time, from 5.1 per cent in our original budget setting forecast to 0.6 per cent in our May 2019 forecast. However, our forecast error rose again in our final forecast of 2018-19 before the publication of outturn data, published in February 2020. We would not always expect that the forecast error continually decreases over time until the release of outturn data. There are multiple different components of our forecast that change over time. Although we think this helps improve our forecast accuracy, there may be occasions where it pushes our forecast further away from outturn. Figure 1.8 shows our forecast growth rates from May 2019 and February 2020 compared to the outturn data.

Figure 1.8: Forecast and outturn income tax growth rates, 2017-18 and 2018-19



Source: Scottish Fiscal Commission, HMRC (2020) Scottish Income Tax Outturn Statistics: 2018 to 2019 (link), Scottish Fiscal Commission (2019) Scotland's Economic and Fiscal Forecasts – May 2019 (link), Scottish Fiscal Commission (2019) Scotland's Economic and Fiscal Forecasts – February 2020 (link).

1.19 In May 2019 we forecast growth in income tax revenues of 2.7 per cent in 2017-18 and 4.4 per cent in 2018-19. Outturn data for 2017-18 published in July 2019 showed the growth rate in 2017-18 to be only 1.8 per cent, below our expectations. Our February 2020 forecast incorporated the 2017-18 outturn data, reducing our forecast of 2018-19 revenues by around £90 million. We also slightly reduced our forecast growth rate between 2017-18 and 2018-19, driven by our estimates of the effects of UK Government policies on Scottish income tax, such as pension's auto-enrolment.[10]

1.20 Scottish income tax revenues in 2018-19 showed unexpectedly high growth compared to recent years. While we expected the growth rates of income tax revenues to pick-up in 2018-19, we underestimated by how much. In part, this could be a return to trend following a lower level of income tax revenues in 2017-18.

1.21 Looking at our February 2020 forecast in particular, we slightly over-adjusted our forecast to the low 2017-18 outturn data, leading us to reduce our forecast of 2018-19, which increased our forecast error. In future, we will consider more closely the longer term trends in income tax revenues, as well as the latest data.

[10] For further information see our Scottish Fiscal Commission (2020) Scotland's Economic and Fiscal Forecasts - February 2020 (link)

Chapter 2
Effect of 2018-19 income tax data on Scottish Budget 2021-22

2.1 Income tax funding in the 2018-19 Scottish Budget was set based on both our forecasts of Scottish income tax revenues and the corresponding Block Grant Adjustment (BGA), which is based on the OBR's forecast of income tax revenues in the rest of the UK. With the publication of outturn data for 2018-19, we have final values for 2018-19 Scottish income tax revenues and the income tax BGA. Differences between our forecasts of income tax revenues and outturn, and similarly differences between the OBR based forecast of the BGA and the final BGA, will be corrected through reconciliations to the Scottish Budget for 2021-22. The calculation of the reconciliation based on the forecast errors is shown in Figure 2.1. Detailed information on how the Scottish Budget is set, and how reconciliations are calculated can be found on our website.[11]

Figure 2.1: 2018-19 Scottish income tax and BGA forecast errors and reconciliation

£ million	Scottish income tax	BGA	Reconciliation
Budget setting forecast	12,177	-11,749	
Final outturn	11,556	-11,437	
Forecast error	-621	312	-309

Source: Scottish Government (link).
Figures may not sum because of rounding

2.2 Our headline budget setting income tax forecast error was an overestimate of £621 million, and the negative income tax BGA was overestimated by £312 million. The combined effect of these forecast errors is a negative income tax reconciliation of £309 million. As shown later in the chapter, most of these forecast errors came from not having access to HMRC income tax outturn data for 2016-17 when the budget setting forecasts were created. The lack of historical outturn data and the use of survey data in the budget setting forecasts has no direct net effect on the Scottish Government's budget. However, it does distort our forecast errors and makes understanding the effect of forecast errors on the reconciliation harder.

Income tax net effect on budget and reconciliations

2.3 Scottish income tax revenues are a source of funding for the Scottish Budget. The income tax BGA reduces funding in the Scottish Budget to reflect the devolution of income tax to Scotland. The net effect of income tax on the Scottish Budget is how the additional Scottish income tax revenues compare to the income tax BGA. In 2018-19, outturn income tax revenues were £11,556 million, and the income tax BGA was £11,437. Therefore, 2018-19 income tax has a positive net effect on the budget of £119 million, the difference between the two.

2.4 As well as just looking at the individual forecast errors of Scottish income tax and the BGA as in Figure 2.1, reconciliations can also be thought of as a result of errors in the estimated net effect on budget when the budget is first set, based on forecasts of its two components. This is shown in Figure 2.2. When the Scottish Budget was set income tax revenues in 2018-19 forecast to be

[11] Scottish Fiscal Commission (2020) Explainers – Fiscal Framework (link)

£428 million greater than the BGA, the outturn data show this difference is £309 million lower as revenues were £119 million greater than the BGA. Therefore a reconciliation of £309 million will be applied to the Scottish Budget for 2021-22 to account for this difference.

Figure 2.2: Errors in the net effect on budget and reconciliations

£ million	Scottish income tax	BGA	Net effect on budget
Budget setting forecasts	12,177	-11,749	428
Final outturn	11,556	-11,437	119
Final reconciliation			-309

Source: Scottish Fiscal Commission
Figures may not sum because of rounding

How did SFC and OBR forecast errors contribute to the reconciliation?

2.5 Both our budget setting forecast and the initial estimate of the income tax BGA were based on a survey estimate of income tax revenues in Scotland, the best information available at the time. Importantly for the Scottish Budget, survey data was also incorporated in the baseline BGA used by HM Treasury and the Scottish Government to estimate the funding change. This means that the data issue has no direct net effect on the Scottish Government's budget. However, it does distort our forecast errors and makes understanding the reconciliations harder. In Figure 1.3 in Chapter 1 we adjusted our budget setting income tax forecasts for 2018-19 to show what they would have been had we had access to 2016-17 outturn data. It is also helpful to look at budget setting BGA forecast stripping out the effect of the 2016-17 base data issue, as shown in Figure 2.3.

Figure 2.3: 2018-19 BGA forecast error, adjusted for base data issue

£ million	2016-17	2018-19
Original budget setting forecast		
February 2018 budget setting forecast	-11,214	-11,749
Growth rate (%)		4.8
2018-19 forecast error		312
Outturn data		
Outturn	-10,719	-11,437
Growth between 2016-17 and 2018-19 (%)		6.7
Adjusted forecast based on 2016-17 outturn		
2016-17 outturn and adjusted February 2018 forecast	-10,719	-11,230
Growth rate (%)		4.8
Adjusted 2018-19 forecast error		-207

Source: Scottish Fiscal Commission, HMT (2020) Block Grant Transparency: July 2020 (link).
Figures may not sum because of rounding.

2.6 Growth in the BGA, based on OBR forecasts of income tax revenue growth in the rest of the UK, was underestimated between 2016-17 and 2018-19. The BGA was forecast to grow by 4.8 per cent between 2016-17 and 2018-19. With outturn data now available for 2018-19, the BGA is known to have grown by 6.7 per cent. Had 2016-17 income tax outturn data been available, we estimate that a BGA figure of closer to -£11,230 million would have been used to set the Scottish Budget in 2018-19.

2.7 Figure 2.4 shows how both adjusted forecasts contributed to the reconciliation.

Figure 2.4: 2018-19 Scottish income tax forecast error, adjusted for base data issue

£ million	Scottish income tax	BGA	Unallocated Reconciliation	Reconciliation
Adjusted budget setting forecasts	11,639	-11,230		
Final Outturn	11,556	-11,437		
Forecast error	-83	-207	-19	-309

Source: Scottish Fiscal Commission
Figures may not sum because of rounding.
Our methodology of adjusting historic forecasts means there is a small reconciliation value that is unallocated to either the SFC or OBR rUK forecasts.

2.8 Our analysis suggests that, had we had access to outturn data for 2016-17 when we made our 2018-19 income tax forecast, we would have overestimated Scottish income tax revenues in 2018-19 by £83 million. The BGA would have been underestimated by around £207 million.

2.9 Once the 2016-17 base data issue is accounted for, underestimation of the BGA accounted for more of the reconciliation than our underestimate of Scottish income tax revenues. These errors are below 2 per cent of Scottish income tax revenue, and are relatively small in the context of income tax forecasting errors.

Comparing forecasts and underlying economic determinants

2.10 To better understand how the reconciliation arose, we can look at the underpinning OBR forecast of rUK NSND income tax revenues and compare it to our forecast of Scottish income tax revenues. This is summarised in Figure 2.5.

Figure 2.5: Growth rates of 2018-19 OBR rUK NSND and Scottish income tax, between 2016-17 and 2018-19

Per cent growth	Scottish NSND income tax (SFC)	rUK NSND income tax (OBR)	Difference (percentage points)
Forecast (%)	8.6	5.3	3.3
Outturn (%)	7.8	7.4	0.4
Error (percentage points)	-0.8	2.1	-2.8

Source: Scottish Fiscal Commission, HMRC (2020) Scottish Income Tax Outturn Statistics: 2018 to 2019 (link), OBR (2020) Historical official forecasts database (link).
Figures may not sum because of rounding.

2.11 Figure 2.5 shows, in line with the findings in Figure 2.4, we slightly overestimated growth in Scottish income tax revenues, while the OBR had a larger underestimate of growth in rUK NSND income tax revenues. This was caused in part by the economic forecasts driving the income tax forecasts, as shown in Figure 2.6.

Figure 2.6: Growth rates of economic determinants between 2016-17 and 2018-19, SFC and OBR

Per cent growth	Determinant	Forecast (%)	Outturn (%)	Difference (percentage points)
Scotland (SFC)	Employment	1.7	1.7	0.0
	Average earnings	4.1	4.3	0.2
	Total earnings	5.9	6.1	0.2
UK (OBR)	Employment	1.6	2.2	0.5
	Average earnings	4.5	6.3	1.7
	Total earnings	6.1	8.8	2.8

Source: Scottish Fiscal Commission, Scottish Fiscal Commission (2017) Scotland's Economic and Fiscal Forecasts – December 2017 (link), Scottish Fiscal Commission (2019) Scotland's Economic and Fiscal Forecasts – February 2020 (link), OBR (2019) Economic and Fiscal Outlook – November 2017 (link), OBR (2019) Economic and Fiscal Outlook – March 2020 (link)
Figures may not sum because of rounding.

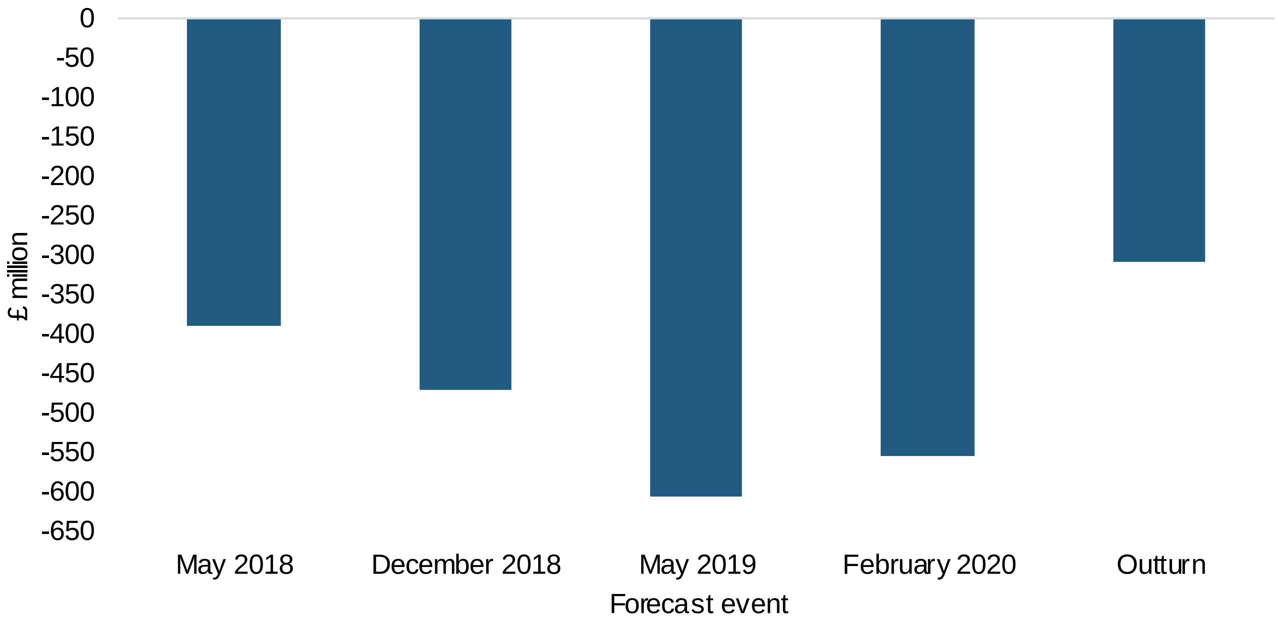
2.12 Figure 2.6 shows we slightly underestimated growth in Scottish total earnings by around 0.2 percentage points. Errors in our economy forecast do not appear to play a significant role in our income tax forecast error.

2.13 The OBR had a larger underestimate of growth in UK total earnings of 2.8 percentage points over the same period. This underestimate of earnings growth in the UK will have played a significant role in the underestimate of rUK income tax revenue growth.

Evaluating our forecasts of income tax reconciliations

2.14 After the Budget has been set but before the publication of outturn data, we provide estimates of income tax reconciliations based on our latest income tax forecasts and the latest forecasts of the BGA. Figure 2.7 shows how estimates of the income tax reconciliation for 2017-18 have developed over time.

Figure 2.7: Estimates of income tax reconciliations for 2018-19 at previous forecasts



Source: Scottish Fiscal Commission (2018) Scotland's Economic and Fiscal Forecasts – May 2018 (link), Scottish Fiscal Commission (2018) Scotland's Economic and Fiscal Forecasts – December 2018 (link), Scottish Fiscal Commission (2019) Scotland's Economic and Fiscal Forecasts – May 2019 (link), Scottish Fiscal Commission (2019) Scotland's Economic and Fiscal Forecasts – February 2020 (link), Scottish Government (link).

2.15 We have been anticipating a negative reconciliation for 2018-19 since our May 2018 forecast, the first following our budget setting forecast. Our estimates of the reconciliation have been increasing since May 2018, from -£391 million to -£555 million in February 2020. The final reconciliation of -£309 million is less than we had been anticipating.

2.16 Focussing on our latest February 2020 estimate of the reconciliation of -£555 million, we overestimated the final reconciliation by £246 million. Of this, errors in our February 2020 income tax forecast for 2018-19 contributed £178 million, and errors in the BGA forecast contributed £68 million. As discussed in Chapter 1 and shown in Figure 1.8, our February 2020 forecast error comes from failing to fully anticipate the significant increase in growth in Scottish income tax revenues in 2018-19, following slower than expected growth in 2017-18.

Annex A
Correction notice - Figure 1.6

We found an error in the original version of this publication “Supplementary Forecast Evaluation Report: Income Tax”, published on 5 October. Figure 1.6 describes the changes in the number of Scottish income tax taxpayers in our forecasts and the HMRC outturn data. The error was in the title of Figure 1.6. The numbers in the table were correct.

The title of Figure 1.6 referred to a comparison between 2017-18 and 2018-19, when it should have said the years being compared were 2016-17 to 2018-19.

The correct title is below, and is part of this version of the document:

Figure 1.6: Change in number of taxpayers between 2016-17 and 2018-19, February 2018 forecast and outturn

The Commission voluntarily complies with the UK Statistic Authority’s Code of Practice for Statistics, as part of this voluntary compliance we have published our policy for correcting any errors which arise in our work. We are applying this policy in this instance and we will also publish a corrected report on our website. [12]

8 October 2020

[12] Scottish Fiscal Commission (2018) Statement of Voluntary Compliance with the Code of Practice for Statistics (link)

Additional information

Abbreviations

BGA	Block Grant Adjustment
HMRC	Her Majesty's Revenue and Customs
HMT	Her Majesty's Treasury
NSND	Non-Savings Non-Dividends
OBR	Office for Budget Responsibility
SEFF	Scotland's Economic and Fiscal Forecasts
SFC	Scottish Fiscal Commission

A full glossary of terms is available on our website:

https://www.fiscalcommission.scot/explainers/glossary/

Professional Standards

The Commission is committed to fulfilling our role as an Independent Fiscal Institution, in line with the principles set out by the Organisation for Economic Cooperation and Development (OECD).[13]

The Commission also seeks to adhere to the highest possible standards for analysis. While we do not produce official statistics, we voluntarily comply as far as possible with the UK Statistic Authority's Code of Practice for Statistics. Further details and our statement of voluntary compliance can be found on our website.[14]

Correspondence and enquiries

We welcome comments from users about the content and format of our publications. If you have any feedback or general enquiries about this publication or the commission, please contact info@fiscalcommission.scot. Press enquiries should be sent to press@fiscalcommission.scot.

All charts and tables in this publication have also been made available in spreadsheet form on our website. For technical enquiries about the analysis and data presented in this paper please contact the responsible analyst:

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[13] OECD (2014) Recommendation on Principles for Independent Fiscal Institutions (link)
[14] Scottish Fiscal Commission (2018) Compliance with the Code of Practice for Official Statistics (link)

This publication is available at www.fiscalcommission.scot

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