

Fiscal sustainability of an independent Scotland

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Published by

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ISBN 978-1-909463-28-8

Preface

Michael Amior was employed by IFS between February and August 2013 to work on this project; he now works at the Centre for Economic Policy at the London School of Economics. The authors are grateful to Stuart Adam, Daniel Chandler, Carl Emmerson, Paul Johnson, Soumaya Keynes and David Phillips for comments and advice. They also gratefully acknowledge funding from the Economic and Social Research Council (ESRC) through the Centre for the Microeconomic Analysis of Public Policy at IFS (grant reference RES-544-28-5001). The ESRC is supporting a programme of work addressing issues around the future of Scotland. One of the strands focuses on supporting new work at current major ESRC investments before and potentially after the referendum.

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Executive Summary

In this report, we examine the long-run fiscal pressures that an independent Scotland may face, how these would differ from those facing the UK, and the size of the fiscal consolidation that may be required to put Scotland's public finances on a sustainable path. We do this using a model of the UK's and Scotland's long-run public finances, which is constructed in a similar way to the model that the Office for Budget Responsibility (OBR) uses to produce the forecasts presented in its annual Fiscal Sustainability Report (FSR). Such models seek to answer questions of the type 'What would be the fiscal consequences of continuing into the future with our current set of tax and spending policies?' or 'What scale of tax increases or spending cuts might be required to ensure long-term fiscal balance?'

Despite the considerable uncertainty surrounding the future path of borrowing and debt in Scotland, the main conclusion of our analysis is that a significant further fiscal tightening would be required in Scotland, on top of that already announced by the UK government, in order to put Scotland's long-term public finances onto a sustainable footing. An independent Scottish government might not need to implement such a fiscal consolidation immediately, but these long-run fiscal pressures should certainly form an important part of the backdrop to any discussions about the potential restructuring of Scottish taxation and public spending after independence, if the people of Scotland vote 'yes' to independence in September 2014.

Spending and revenue levels in Scotland

- In 2011–12, 9.9% of the UK government's revenues were generated in Scotland (assuming a geographic share of North Sea revenues). Since the Scottish population accounted for 8.4% of the UK population, the average revenue raised per person in Scotland (£11,079 in 2013–14 prices) was higher than for the UK as a whole (£9,342 in 2013–14 prices).
- Revenues from the North Sea made up a much larger share of total Scottish revenues (18.6%) in 2011–12 than they did for the UK as a whole (2.0%). This highlights the extent to which Scotland's public finances are more exposed than the UK's public finances to revenues from the North Sea, which are volatile and expected to decline in the long run.
- Spending per person is also higher in Scotland, at £12,629 per person in 2011–12, compared with £11,381 in the UK as a whole. This is largely due to differences in spending on public services (rather than, for example, spending on social security benefits).
- When expressed as a share of national income, Scotland is estimated to have raised a similar share of national income in revenue to the UK as a whole (37.7% compared to 37.5%) and spent a smaller share publicly (42.7% compared with 45.5%). This is because Scottish GDP per person is higher

than that for the UK as a whole if we allocate North Sea output on a geographic basis.

- As a result, in 2011–12, the gap between spending and revenues in Scotland stood at £1,550 per person (or 5.0% of national income in total), compared with £2,039 per person (or 7.9% of national income) in the UK.
- Our basic model, which adopts the same assumptions as made by the OBR in the 2013 FSR for its central projection for the UK, suggests that by 2017–18 this gap between spending and revenues will have fallen to 2.2% of national income for the UK and to 4.3% for Scotland. The main reason why Scotland's borrowing is projected to decline much less quickly than the UK's over the next five years is that North Sea revenues (which are a more important source of income for Scotland than for the UK as a whole) fell sharply between 2011–12 and 2012–13 and are forecast by the OBR to fall even further by 2017–18.

Demographic pressures

- Demographic changes, brought about by increases in longevity and declining fertility rates, are putting pressure on the public finances of most developed countries, and Scotland would not be an exception.
- ONS projections suggest that the size of the Scottish population will increase less rapidly in future than that of the UK as a whole. In the ONS 'low migration' scenario, which is deemed by the OBR to reflect current UK government policy most closely (with net immigration into Scotland from the rest of the UK and abroad at 9,000 per year), the size of the Scottish population is projected to increase by 4.4% between 2012 and 2062, compared with 22.8% growth for the UK as a whole.
- In addition, the population of Scotland is expected to age more rapidly. In Scotland, only the population aged 66 and over is projected to increase between 2012–13 and 2062–63 (the population aged 65 and under is actually projected to shrink), while in the UK as a whole the population at all ages is projected to increase.
- Changing demographics have implications for how economic output will grow, how tax revenues will evolve in future, and how demand for public spending will change. Growth in the size of the working-age population would boost economic growth. Some age groups contribute more to tax revenues and/or require a higher level of public spending than other groups do. For example, employee National Insurance contributions are only paid by those aged between 16 and the state pension age, while public spending on health and long-term care is most heavily concentrated on the very oldest age groups. As a result, demographic changes are a key driver of the future path of public revenues and spending, and thus borrowing and debt, in the model we use in this report. Differences between the demographic trends facing

Scotland and those facing the UK as a whole will tend to apply different pressure to each nation's public finances.

Borrowing and debt over the next 50 years

- Our basic model assumes that the latest OBR forecasts (March 2013) for spending and revenues for the UK as a whole up to 2017–18 are correct. We allocate these between Scotland and the rest of the UK using estimates produced by the Scottish government and some of our own modelling.
- Beyond the end of the medium-term horizon, our long-run public finance model uses estimated age–sex profiles of revenues and spending to project the impact of demographic changes on the level of revenues from various sources and public spending on different items. This provides us with a projection for borrowing and debt over the next 50 years for both the UK and Scotland.
- Our basic model for the UK suggests that public sector net debt will decline as a share of national income between 2017–18 and 2038–39, before the accumulation of demographic pressures will cause it to start rising again. We estimate that a permanent tax increase or spending cut (or a combination of the two) equal to 0.8% of national income (or about £13 billion in today's terms) would need to be implemented in 2021–22 in order to put debt on course to reach 40% of national income by 2062–63. This is more optimistic than the OBR's long-term projections for the UK.
- Our basic model for Scotland (which assumes that Scotland takes on a population share of accumulated UK debt at the point of independence) suggests that, without policy action, public sector net debt in Scotland would increase every year as a share of national income and exceed 100% of national income by 2033–34. We estimate that Scotland would require a permanent tax increase or spending cut (or a combination of the two) equal to 4.1% of Scottish national income (or about £6 billion in today's terms), to be implemented in 2021–22, to put Scottish public sector debt on course to reach 40% of national income by 2062–63.
- The outlook for borrowing and debt in an independent Scotland is very sensitive to the assumptions made in the model. We explore the sensitivity of our projections to alternative assumptions about migration, productivity growth, initial debt levels and debt interest rates, and alternative assumptions about future revenues from the North Sea.
- If revenues from the North Sea were to decline in the longer term, or if the interest rate at which the Scottish government could borrow were to be higher than the 5% rate we have assumed in our basic model (which is the OBR projection for the future cost of UK government borrowing), or if average labour productivity growth in Scotland were to be lower than the 2.2% a year we assume in our basic model, the fiscal gap facing Scotland could be even larger.

- On the other hand, if net inward migration to Scotland were higher than the 9,000 a year that we assume in our basic model, or if revenues from the North Sea were to prove more buoyant over the next few years than the OBR projected in its latest official forecast, or if an independent Scotland took on a smaller share of accumulated UK debt, Scotland could face a smaller fiscal gap.
- However, even under the most optimistic scenario that we consider in this report – in which Scotland experiences ‘high’ migration, achieves 2.2% productivity growth, takes a share of debt equal to 40% of Scottish national income, pays the same (5%) interest rate on its debt as assumed for the UK government, and enjoys high North Sea revenues in the medium term – we still estimate that the fiscal gap for Scotland would be 1.9% of national income, i.e. significantly larger than the gap that we estimate the UK faces.
- If the Scottish government wanted to raise 1.9% of national income from tax revenues, it would need to introduce tax rises of the order of around 8 percentage points to the basic rate of income tax or 7 percentage points to the standard rate of VAT. Alternatively, reducing total public spending by 1.9% of national income would require a 6% reduction in spending, or an 8% reduction to public service spending if benefit spending were not reduced.
- Just as the OBR has pointed out that the UK as a whole faces serious fiscal choices over the medium and longer term, it is clear that an independent Scotland would face even tougher choices.

Fiscal rules and institutions

- A newly independent government of Scotland – without an established reputation among creditors – would be likely to reap significant rewards from putting in place fiscal rules and an independent fiscal council that could reassure potential investors that the Scottish government was committed to prudent management of the public finances.
- Exactly what rules an independent Scotland ought to adopt would depend on a number of factors (including the currency regime chosen), many of which are beyond the scope of this report. One thing that is clear, however, is the potential benefit to an independent Scotland of establishing an independent fiscal council to provide an impartial assessment of whether the Scottish government is meeting the spirit as well as the letter of any fiscal rules, a reasonable central estimate of the outlook for Scottish public finances over the short, medium and long run, and a discussion of the key risks to these forecasts.
- Scotland would face a number of fiscal challenges that would have to be taken into account when deciding what the appropriate design of these rules would be. Any rule that constrained annual borrowing (or borrowing adjusted for the ups and downs of an economic cycle) would need to deal with Scotland’s exposure to North Sea revenues, which are volatile and expected to decline

over time. For both these reasons, there would be a strong case to focus on a measure of borrowing that excluded these revenues. Any longer-run target for debt would need to take into account that Scotland would not have an established track record with creditors and is currently reliant (at least relative to the UK) on an income stream (from the North Sea) that will decline.

1. Introduction

Demographic changes, brought about by increases in longevity and declining fertility rates, are putting pressure on the public finances of most developed countries. These pressures are important for the UK as a whole and would be important for an independent Scotland too. In this report, we examine the long-run fiscal pressures an independent Scotland may face, how these would differ from the pressures facing the UK as a whole, and the size of the fiscal consolidation that may be required to put Scotland's public finances on a sustainable path. An independent Scottish government might not need to implement such a fiscal consolidation immediately, but these long-run fiscal pressures should form an important part of the backdrop to any discussions about potential restructuring of Scottish taxation and public spending after independence, if the people of Scotland vote 'yes' to independence in September 2014.

To illustrate the fiscal pressures facing Scotland and the UK as a whole, we have constructed a model of the UK's and Scotland's long-run public finances. This model is constructed in a similar way to the model used by the Office for Budget Responsibility (OBR) in its annual Fiscal Sustainability Report (FSR), although the OBR model focuses solely on the UK as a whole. The type of model we have built seeks to answer questions of the type 'What would be the fiscal consequences of continuing into the future with our current set of tax and spending policies?' or 'What scale of tax increases or spending cuts might be required to ensure long-term fiscal balance?'. The model starts with the current patterns of taxes and spending and uses estimated age-sex profiles of revenues and spending to project the impact of population change on the level of revenues from various sources and the level of public spending on different items – and hence public borrowing and debt – over the next 50 years. The key drivers of changes in the fiscal balance in this model are changes in the demographic composition of the population, coupled with the underlying estimates of how the levels of certain types of spending and of certain taxes differ across different age-sex groups in the population. However, other fiscal trends can also be incorporated into the model, such as the expected decline in revenues from the North Sea as reserves of oil and gas are depleted, and the planned increases in the state pension age.

The focus of our model (and this report) is to compare the outlook for Scotland on its own with that for the UK as a whole, rather than necessarily to produce a 'better' forecast for the UK than that produced by the OBR. Our model, and how our results for the UK compare with those from the OBR model, are described in detail in Amior, Crawford and Tetlow (2013). The model projects levels of public revenues and spending over the next 50 years, taking into account changes in the size and demographic structure of the population, on the basis of 'unchanged' fiscal policy. We do, however, include all policy changes that have already been legislated – such as the planned reduction in the main rate of corporation tax up to 2015–16 and future increases in the state pension age. We follow the OBR's

definition of ‘unchanged policy’; this is described in chapter 1 of Office for Budget Responsibility (2013b).¹

Producing a projection for UK revenues and spending is inherently difficult and a number of judgements and assumptions must be made, as discussed in more detail in Office for Budget Responsibility (2013b) and Amior, Crawford and Tetlow (2013). Trying to carry out a similar exercise for Scotland introduces the further complexity that one must decide what fraction of the UK’s economic output, public spending and public revenues is attributable to Scotland. There are a number of ways this could be done and some debate about what is the most appropriate set of assumptions. We do not provide any discussion of these issues in this report; interested readers should refer to Scottish Government (2013a) and HM Revenue and Customs (2013). We use the same GDP allocation as set out in the Scottish National Accounts Project (SNAP), assuming a geographic share of North Sea output, and we allocate spending and revenues between Scotland and the rest of the UK using the decomposition provided by Government Expenditure and Revenues Scotland (GERS, a publication produced by the Scottish government). Further analysis of differences between Scotland and the UK in social security spending, public service spending and tax revenues can be found in Phillips (2013), Deaner and Phillips (2013) and Adam, Johnson and Roantree (2013).

The future path of revenues and spending for Scotland depends crucially on the current level of public spending and revenues in Scotland and how the size and composition of the Scottish population will change in future. Chapter 2 starts by describing differences between the UK and Scotland in the current level of spending on and revenues raised from their respective populations, before turning to examine the forecast demographic trends and projections for economic output for Scotland and the UK. Based on these underlying factors, we present a basic projection for Scottish spending, revenues, borrowing and debt over the next 50 years and compare this with the outlook for the UK as a whole. This basic projection uses the same assumptions as used by the OBR in its ‘central’ projection from the 2013 FSR – including, for example, on migration, productivity growth, baseline levels of UK revenues and spending, and interest rates on government debt.

There are a number of uncertainties about how Scotland’s public finances will evolve in future. Chapter 3 shows how sensitive our projections for borrowing and debt in Scotland are to some key factors. In particular, we show sensitivity to alternative assumptions about inward migration, future productivity growth, the

¹ The OBR assumes, for example, that unchanged fiscal policy includes benefit rates and tax thresholds rising in the longer run in line with growth in average earnings (rather than price inflation, as is currently legislated). The motivation for this assumption is that assuming price indexation of these thresholds over a very long period of time would imply the government taking a substantially larger share of private income in tax revenues and spending an increasingly small amount on benefits, which has not happened over any sustained period in the past and therefore does not seem a useful long-term assumption. The OBR also assumes that the UK government can continue forevermore to raise revenues equal to the amount it expects to be raised from the North Sea in 2017–18. We discuss the implications of this interpretation of ‘unchanged policy’ further in Chapter 3.

change in revenues from North Sea activity, the initial allocation of accumulated debt between an independent Scotland and the rest of the UK, and the interest rate payable on public debt. These factors are inherently uncertain and could also evolve differently if Scotland were independent rather than part of the UK; in addition, they could be substantially affected by the policies chosen by the government of an independent Scotland.

Although the different scenarios discussed in Chapter 3 suggest there is a considerable degree of uncertainty about the future path of borrowing and debt in Scotland, the main conclusion of our analysis is that significant tax rises and/or spending cuts would be required in order to ensure that Scotland's public finances follow a sustainable path over the longer term. In Chapter 4, we provide an indication of the size of the fiscal problem facing Scotland by setting out how large a permanent fiscal consolidation would be required to return the Scottish debt-to-GDP ratio to certain target values within 40 or 50 years. Although these target values are somewhat arbitrary, they serve to illustrate the scale of the problem. We compare the size of fiscal consolidation required for Scotland and that required across the UK as a whole to meet the same debt target over the same horizon and we describe what types of policies would be needed to achieve a fiscal tightening of this scale.

The government of a newly independent Scotland – without an established reputation among creditors – would be likely to reap significant rewards from putting in place fiscal rules and an independent fiscal council that could help reassure potential investors that the Scottish government was committed to prudent management of the public finances. This will be particularly true given the fiscal pressures outlined in this report. Therefore, in Chapter 5, we discuss some of the issues that would face an independent Scotland in designing a fiscal framework. Chapter 6 concludes.

2. Comparing Scotland and the UK in the Short and Long Run

In this chapter, we present a basic projection for UK and Scottish revenues, spending, borrowing and debt over the next 50 years using Office for National Statistics (ONS) projections of demographic trends and the same assumptions as used by the OBR in its ‘central’ projection for the UK from the 2013 FSR – including on migration, productivity, baseline levels of revenues and spending, and interest rates. While the OBR’s model only examines the UK as a whole, our model also estimates the outlook for Scotland on its own. The projection for Scotland differs from that for the UK because of differences that already exist in the levels of tax revenues raised from and spending devoted to each person in Scotland compared with the rest of the UK, and because of the different demographic trends projected by the ONS for Scotland and the UK. We start by describing existing differences between spending and revenues in Scotland and the rest of the UK (Section 2.1) and then describe how these are projected to evolve over the longer term in our basic model (Section 2.2). Section 2.3 sets out our basic projection for borrowing and debt in Scotland and the UK over the next 50 years and Section 2.4 provides a summary of the results from our basic model.

2.1 Spending and revenues in 2011–12

In 2011–12, 8.4% of the UK population lived in Scotland but 9.9% of UK GDP was produced in Scotland (assuming that Scotland accounted for a geographic share of North Sea production).² It is also estimated that public spending and revenues raised per person are higher in Scotland than across the rest of the UK (in cash terms). We describe these differences briefly here; a considerably more detailed discussion of differences in the levels of spending on social benefits can be found in Phillips (2013), public service spending in Deaner and Phillips (2013) and tax revenues in Adam, Johnson and Roantree (2013).

According to figures produced by the Scottish government, 9.9% of the UK government’s revenues in 2011–12 were generated by Scotland, assuming a geographic share of North Sea revenues.³ HM Revenue and Customs (HMRC) – using a slightly different methodology and focusing only on revenues received by HMRC – estimates that Scotland accounted for 9.8% of HMRC revenues in 2011–12.⁴ Since the Scottish population accounted for 8.4% of the UK population, the average revenues raised per person in Scotland (£11,079 in 2013–14 prices)

² Estimates of the Scottish share of UK GDP are taken from the Scottish National Accounts Project (SNAP).

³ Scottish Government (2013a); allocating North Sea revenues on a per-capita basis suggests that 8.2% of the UK’s revenues were generated by Scotland.

⁴ HM Revenue and Customs, 2013. A discussion of HMRC’s figures and how they differ from the Scottish government figures can be found in Adam, Johnson and Roantree (2013).

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were higher than for the UK as a whole (£9,342 in 2013–14 prices) in 2011–12, as shown in Table 2.1. However, when expressed as a share of national income, Scotland is estimated to have raised a similar share of GDP to the UK as a whole (37.7% compared to 37.5%), as Scottish GDP per capita is higher than that for the UK as a whole if we allocate Scotland a geographic share of North Sea output. Table 2.1 shows how the revenues raised from the main taxes compare between the UK and Scotland. In particular, this highlights how much more reliant Scotland is on revenues from the North Sea.

Table 2.1. Revenues raised in Scotland and the UK, 2011–12

	UK		Scotland	
	£ per person	% GDP	£ per person	% GDP
Income tax	2,391	9.6	2,102	7.2
National Insurance contributions	1,657	6.7	1,635	5.6
Corporation tax (excluding North Sea)	537	2.2	580	2.0
North Sea revenues	183	0.7	2,060	7.0
VAT	1,791	7.2	1,861	6.3
Capital taxes	264	1.1	178	0.6
Other revenues	2,472	9.9	2,616	8.9
Total non-interest revenues	9,296	37.3	11,032	37.5
Interest and dividends	46	0.2	46	0.2
Total receipts	9,342	37.5	11,079	37.7

Note: Figures for £ per person are expressed in 2013–14 prices (inflated from 2011–12 prices using the GDP deflator).

Source: Scottish Government (2013a); ONS 2011-based population projections.

Total onshore revenue per person in Scotland is similar to the UK as a whole. However, the amount raised from income tax is slightly lower (in part because incomes in Scotland are more evenly distributed, with fewer of the very-high-income individuals who provide such a large share of UK income tax revenues), as is the amount raised from taxes on wealth and property. On the other hand, the amounts raised per person in Scotland from VAT and taxes on fuel, alcohol, tobacco and gambling are greater than in the UK – since on average the Scots buy more, smoke more and consume more (or at least more heavily taxed forms of) alcohol. A more detailed comparison of the composition of taxation in Scotland and the UK is provided in Adam, Johnson and Roantree (2013).

Spending per person is also higher in Scotland than in the rest of the UK, based on the Scottish government's estimates of what fraction of public spending is done for the benefit of Scotland.⁵ Spending on public services explains most of this difference. In 2013–14 prices, spending on public services was £7,932 per person in Scotland in 2011–12, compared with £6,803 per person across the UK. In contrast, spending on benefits and tax credits was only a little higher per person

⁵ Scottish Government, 2013a.

in Scotland. Spending on some of the main public services is similar in Scotland to the UK as a whole: for example, spending on education and training is only 0.4% higher per person, while health spending is 8.9% higher. Where Scottish spending differs most substantially is on other public services, including transport (56.5% higher per person), housing (97.3% higher per person) and economic development (which was more than three times the UK average level per person).⁶

Overall, public spending for the benefit of Scotland totalled £12,629 per person in 2011–12, compared with £11,381 for the UK as a whole. However, since – as mentioned above – Scottish national income per person is higher than that for the UK as a whole (when North Sea output is allocated on a geographical basis), when these spending figures are expressed as a share of national income we find that Scotland is estimated to have spent 42.7% of national income publicly in 2011–12, compared with 45.5% for the UK as a whole.

Combining these figures for estimated revenues and spending in Scotland and the UK in 2011–12 suggests that the higher level of spending per person in Scotland was more than offset by the higher level of revenues from the North Sea. As a result, these figures suggest that, in 2011–12, spending in Scotland exceeded revenues by £1,550 per person on average compared with £2,039 across the UK as a whole.

2.2 Projecting future revenues and spending

There are two stages to the process by which we project how GDP, revenues and spending will grow in Scotland and in the UK over the next 50 years. First, we construct a baseline level of GDP per person, spending on major areas of public services and benefits, and revenues from major taxes. We focus, in particular, on separating out those components of spending and revenues that are particularly sensitive to the age composition of the population and/or that are expected to evolve in an atypical way in future (such as revenues from the North Sea). There are also residual categories of other spending and other revenues that are not separately identified in our model. For the UK as a whole, we take these figures from the latest published out-turns (for 2012–13). For Scotland, we allocate these UK levels of GDP, revenues and spending based on the Scottish government's estimates of how much of UK GDP is generated in Scotland, how much of UK public spending is done for the benefit of Scotland, and how much of the revenues are generated by Scotland, which were described in Section 2.1. In projecting future levels of revenues and spending in Scotland and the UK, we assume that these discrepancies in (age-adjusted) per-capita spending and revenues between Scotland and the UK remain.

⁶ Table 5 of Deaner and Phillips (2013).

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The second step of our model is to project how the level of GDP and the levels of the individual spending and revenue streams will evolve in future, based on expected demographic changes and expected economic growth. Demographic changes will affect the amount of revenues raised and levels of spending for two reasons. First, if the population increases, we would expect nominal revenues and spending to increase as there are more people to pay tax and to require benefits and public services. Second, since some taxes are paid and some areas of spending demanded disproportionately by some age groups in the population (for example, employees' National Insurance contributions are only paid by working-age adults, while public spending on health and long-term care is higher for people at older ages), future changes in the demographic structure of the population will also affect revenues and spending. We do this projection both for the UK as a whole and for Scotland individually.

Combining the baseline levels of spending and revenues from the first step with the growth rates estimated in the second step allows us to project the level of spending and revenues – and, hence, borrowing and debt – up to 2062–63. In this chapter, we provide figures based on our basic projection. The key assumptions underlying this projection are summarised in Table 2.2. In Chapter 3, we consider some alternative scenarios, which demonstrate the sensitivity of our projections to a range of alternative assumptions.

Table 2.2. Main assumptions: IFS basic model

Variable/parameter	Assumption made in basic model
Population growth and demographic change	ONS 'low migration'
Labour productivity growth (per worker)	2.2%
North Sea revenues: growth, 2012–13 to 2017–18	Declines as forecast by OBR (2013a)
North Sea revenues: growth from 2017–18 onwards	Constant as a percentage of GDP
North Sea revenues: allocation between nations	Geographical share (Scotland receives 94%)
Public sector net debt: nominal interest rate payable	Rising to 5% in 2026–27; constant thereafter
Public sector net debt: allocation to Scotland	Population share

Note: Assumptions that relate to the UK as a whole are consistent with the OBR's central projection from Office for Budget Responsibility (2013b). The assumption about the allocation of North Sea revenues is taken from Scottish Government (2013a).

Demographic change and GDP growth in Scotland

In 2012, the population structure of Scotland is estimated to have been similar to that of the UK as a whole. As shown in Table 2.3, 16.4% of the Scottish population was aged over 65 in 2012, compared to 16.3% of the UK population; meanwhile, 30.4% of the Scottish population was aged 25 and under compared to 31.9% of the UK population. However, over the next 50 years, the ONS projects that

demographic changes in Scotland will look rather different from those across the whole of the UK.

The ONS produces separate population projections for the nations of the UK based on different longevity, fertility, mortality and migration assumptions. To produce its central long-run fiscal projections, the OBR uses the ONS 'low migration' projection for the UK as a whole because it believes that the assumption of UK net inward migration (of 140,000 a year) under that scenario is more consistent with current government policy than is the ONS's principal projection.⁷ (The OBR also shows how sensitive its results are to higher levels of assumed migration.) Our basic projection also uses this 'low migration' scenario; however, since an independent Scottish government could pursue a different immigration strategy from that currently pursued by the UK government, in Section 3.1 we show the sensitivity of our projections to alternative scenarios for future migration.

Table 2.3. Comparing population projections for Scotland and the rest of the UK

Age group	Scotland			UK		
	% population 2012	% growth 2012 to 2062	% population 2062	% population 2012	% growth 2012 to 2062	% population 2062
0–15	17.3	–6.4	15.5	18.7	12.0	17.0
16–25	13.1	–14.0	10.8	13.2	5.0	11.3
26–35	12.9	–9.8	11.2	13.2	8.5	11.7
36–45	13.4	–7.5	11.9	13.7	9.9	12.2
46–55	14.7	–14.1	12.1	13.8	8.8	12.2
56–65	12.4	–9.4	10.8	11.6	7.8	10.1
66–75	8.9	38.9	11.8	8.6	53.3	10.7
76–85	5.4	66.7	8.7	5.3	79.0	7.8
Over 85	1.8	320.6	7.2	2.0	327.5	6.9
All	100.0	4.4	100.0	100.0	22.8	100.0

Note: ONS 'low migration' scenario.

Source: Authors' calculations using ONS 2010-based population projections.

The implied change in the age distribution of Scotland, compared with that of the UK, is described in Table 2.3 for the ONS 'low migration' scenario. The ONS projects that there will be significantly greater growth in the population of the UK between 2012 and 2062 than in the population of Scotland over the same period, as a result of greater life expectancies for both men and women, a higher fertility rate, and higher net immigration in the UK. Between 2012 and 2062, in the ONS's 'low migration' projection, the population grows by 22.8% in the UK compared with 4.4% in Scotland. In addition, in Scotland, all of this population growth arises from growth in the population aged 66 and over, while in the UK there is

⁷ The ONS's principal projection assumes net inward migration averaging 200,000 per year.

projected to be growth in the population at all ages. The median age of the Scottish population is projected to increase by six years from 2012 to 2062 (from age 40 to age 46), compared with an increase of four years (from 39 to 43) for the UK.

The future size and age distribution of the population are important in determining the evolution of GDP because individuals of different ages differ in their contributions to labour supply and thus to economic output. In 2011–12, Scottish GDP per capita (including a geographic share of North Sea output) is estimated to have been £29,527, compared with £25,024 for the UK as a whole (in 2013–14 prices), or 18.0% higher.⁸ However, as Figure 2.1 shows, over the next 50 years, we project that Scottish GDP will grow less quickly than UK GDP because of the differences in demographic trends just described.

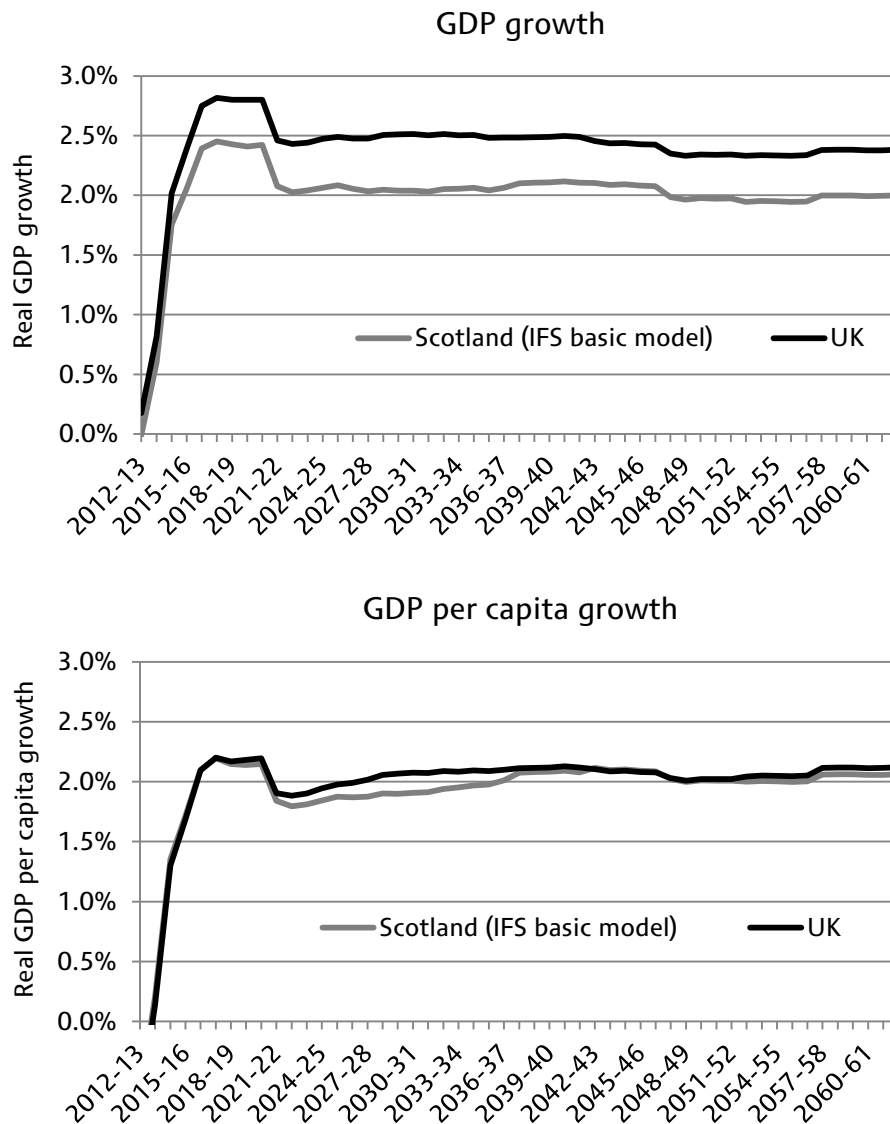
Figure 2.1 shows projected real GDP growth, and real GDP per capita growth, for Scotland and the UK from our basic model. Our model assumes the same labour market participation rate in Scotland as in the UK, and the basic version of our model assumes the same average labour productivity growth (2.2% a year) in Scotland as in the UK.⁹ Therefore, the differences in GDP and GDP per capita growth in our basic model are entirely driven by different demographics.¹⁰ The more rapid ageing of the Scottish population will tend to reduce growth in GDP per capita since only individuals aged 16–74 are assumed to participate in the labour force and therefore to make a direct contribution to GDP. Over the period 2021–22 to 2062–63, GDP per capita in Scotland is projected to grow by 2.0% a year on average, compared with 2.1% in the UK. However, the gap between the growth rates of total GDP in Scotland and the UK is projected to be even larger – around 2.0% per year over the long run in Scotland, compared with around 2.4% for the UK as a whole – because of lower projected overall population growth in Scotland. All these figures assume that the likely decline in North Sea activity over the next few decades is made up for by increases in onshore productivity. An alternative assumption, in which the decline in North Sea activity is not made up for with any increase in onshore activity, would lead to slower growth in GDP per capita, especially in Scotland. A scenario along these lines for the Scottish economy is explored in Section 3.2.

⁸ Authors' calculations based on population figures from the Office for National Statistics and estimates of Scottish GDP from SNAP, inflated to 2013–14 prices using figures for the UK GDP deflator published by HM Treasury. If, instead, we use a population allocation of North Sea output, Scottish GDP is estimated to have been £24,906 per person.

⁹ Implicitly, this productivity growth assumption assumes that North Sea activity is completely replaced with other onshore activity as North Sea reserves decline, and increases in onshore productivity are such that overall productivity in the economy increases by 2.2% a year. Since North Sea activity represents a greater share of the economy in Scotland than in the UK as a whole, this requires greater increases in onshore activity and productivity in Scotland than in the UK.

¹⁰ The sensitivity of the projections for Scottish GDP growth to assumptions about migration and productivity growth are explored in more detail in Amior, Crawford and Tetlow (2013).

Figure 2.1. Projected GDP growth for Scotland and the UK (IFS basic model)



Source: Authors' calculations using the IFS long-run public finance model.

Revenue growth: 2012–13 to 2062–63

Table 2.4 summarises projected growth in different revenue streams for the UK and Scotland from our basic model. The table shows figures for revenues as a share of national income in 2012–13 (the baseline year), 2017–18 (the end of the OBR's current medium-term forecasting horizon) and 2062–63 (the end of our long-run projection).¹¹ The table also shows projected average annual growth in revenues per person.

¹¹ Figures for the intervening years can be found in the supplementary tables accompanying this report, which can be found online at <http://www.ifs.org.uk/comms/r88supplement.xls>.

Table 2.4. Growth in major revenues between 2012–13 and 2062–63 (IFS basic model)

	<i>% of national income</i>			<i>Average annual real growth per person</i>	
	2012–13	2017–18	2062–63	2012–13 to 2062–63	2017–18 to 2062–63
UK					
Income tax	9.7	10.5	10.9	2.2	2.1
National Insurance contributions	6.7	7.0	6.9	2.1	2.1
Corporation tax (excluding North Sea)	2.2	1.9	1.9	1.7	2.1
North Sea revenues	0.4	0.2	0.2	0.8	2.1
VAT	6.5	6.3	6.5	2.0	2.1
Capital taxes	1.0	1.5	2.0	3.3	2.8
Other revenues	10.3	10.2	10.6	2.1	2.2
Total non-interest revenues	37.0	37.6	39.1	2.1	2.2
Total non-interest revenues (excluding North Sea)	36.6	37.3	38.9	2.1	2.2
Scotland (IFS basic model)					
Income tax	7.3	7.9	8.3	2.2	2.1
National Insurance contributions	5.7	5.9	5.8	2.0	2.0
Corporation tax (excluding North Sea)	2.0	1.7	1.8	1.7	2.1
North Sea revenues	4.0	2.2	2.2	0.7	2.0
VAT	5.7	5.6	5.8	2.0	2.1
Capital taxes	0.6	0.8	1.1	3.3	2.8
Other revenues	9.3	9.2	9.7	2.0	2.1
Total non-interest revenues	34.6	33.2	34.7	2.0	2.1
Total non-interest revenues (excluding North Sea)	30.6	31.0	32.5	2.1	2.1

Source: Authors' calculations using the IFS long-run public finance model.

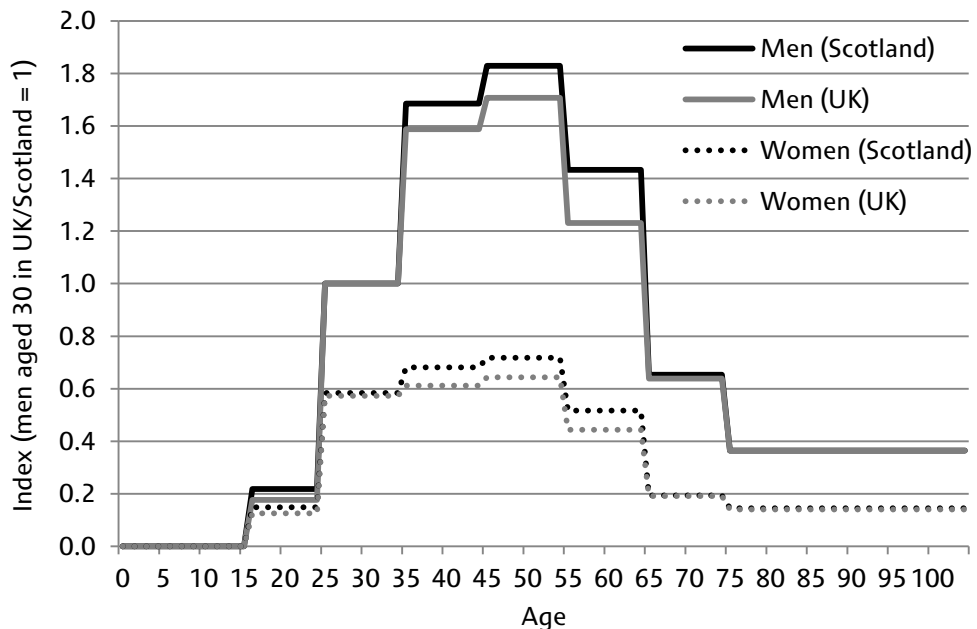
We estimate that in 2012–13, while the UK raised a total of 37.0% of national income in non-interest revenues, Scotland raised 34.6% (assuming a geographic share of North Sea output and revenues). This equates to an average of £9,266 per person across the UK as a whole and £10,259 in Scotland (in 2013–14 prices). This figure for Scotland is substantially lower than revenues a year earlier (shown in Table 2.1) because of the sharp fall in revenues from the North Sea seen between 2011–12 and 2012–13.

Between 2012–13 and 2017–18, we assume that the latest OBR projections for tax revenues (from the March 2013 Economic and Fiscal Outlook) are correct for the UK as a whole. We then allocate a proportion of these revenues to Scotland using the Scottish government's estimates described above and projected

demographic changes for Scotland and the UK over this period. Non-interest revenues for the UK as a whole are projected by the OBR to grow as a share of national income between 2012–13 and 2017–18 (from 37.0% to 37.6%). However, within this, the OBR forecasts that revenues from the North Sea will decline from 0.4% of national income to 0.2%. Scotland is very reliant on revenues from the North Sea; therefore this decline in North Sea revenues is sufficient to more than offset growth in other revenues in Scotland as a share of national income and thus our basic model suggests that revenues in Scotland will decline as a share of national income between 2012–13 and 2017–18 (from 34.6% of national income to 33.2%).

In order to project how revenues will change as the demographic composition of the population changes, we have estimated the age–sex profile of tax payments using past data, and we assume that this profile remains the same going forwards. As an example, Figure 2.2 shows our estimated age–sex profiles for income tax payments in Scotland and the UK as a whole. These profiles are shown relative to the average income tax payment made by men aged 30 in each country. The figure shows that men at all ages pay on average more than women of the same age, and that those aged 45–54 pay the highest levels of income tax on average in both Scotland and the UK. Therefore, if the composition of the population changes towards one with a smaller fraction of the population aged 45–54, the average income tax paid per person would be expected to decline. Age–sex profiles of this type underlie our projections for all taxes. Full details of these can be found in Amior, Crawford and Tetlow (2013).

Figure 2.2. Estimated age profile of income tax receipts



Note: Assumes that income tax receipts per capita are uniform for ages 75 and above.
 Source: Authors' calculations using the Survey of Personal Incomes.

The level of income tax paid by each person of a given age and sex is projected to grow in future in line with growth in average earnings, which is a function of labour productivity growth (assumed to be 2.2% a year in our basic model) and inflation. Similar assumptions are made about growth in other revenues at the individual level – full details of the assumptions made can be found in Amior, Crawford and Tetlow (2013). Taking together the estimated age–sex profile of income tax payments, this assumption about growth in revenues within each age–sex group and the ONS demographic projections, we can project how overall income tax revenues will evolve in future. Table 2.4 shows that income tax revenues are projected to increase substantially as a share of national income in both Scotland and the UK between 2012–13 and 2062–63. Two main factors are driving this. First, between 2012–13 and 2020–21, we assume (following the OBR) that the UK economy will experience above-trend economic growth and, as a result, income tax receipts will grow more quickly than the economy for the next eight years. Second, our projections allow for future planned increases in the state pension age for men and women, which will tend to increase income tax payments in future as people are assumed to participate in the labour force for longer.

From 2017–18 onwards, we project that most of the main components of tax revenues will grow as a share of national income. Consistent with the OBR’s methodology, in our basic model we assume that revenues from fuel duties and from the North Sea continue to grow in line with GDP growth from 2017–18 onwards, rather than declining in the way that might be expected. All other things being equal, revenues from fuel duties are expected to decline as households and businesses in the UK adopt more fuel-efficient vehicles, while declining reserves of North Sea oil and gas will tend to reduce North Sea production and the profits of companies operating in the North Sea. The OBR’s reason for holding these revenues constant as a share of national income, rather than allowing them to decline, is that future governments (faced with these declining revenue streams) might find other ways to raise the same amount of money. This scenario seems easier to envisage for the UK as a whole, where these revenues (as forecast by the OBR) are projected to make up only 1.8% of national income in 2017–18; it would be a bigger challenge to find other sources of such revenues from Scotland alone, since these revenues are projected to constitute 3.6% of Scottish national income in 2017–18.¹² For consistency with the OBR’s central projections, our basic model makes the same assumption for both the UK and Scotland. However, in Section 3.3, we test the sensitivity of the Scottish projections to this assumption, since the profile of the likely future decline in revenues from the North Sea is both of particular importance to the Scottish public finance position and the subject of considerable debate. Our model suggests that in 2012–13,

¹² It is also perhaps easier to envisage for fuel duties than for North Sea revenues. The former are likely to be paid by UK citizens, and therefore an increase in other taxes to make up for declining fuel duties may not increase the overall tax burden on UK citizens. By contrast, North Sea revenues might be at least partly incident on foreigners (for example, foreign consumers through the prices of oil and gas), and therefore an increase in other taxes to make up for declining North Sea revenues is likely to increase the overall tax burden faced by UK citizens.

Scotland raised the equivalent of £1,187 per person (in 2013–14 prices) from the North Sea; this is the same amount as would be generated by an additional 15p on the main rate of VAT.¹³

Table 2.4 shows that between 2012–13 and 2062–63, we project that non-interest revenues for the UK will grow on average by 2.1% per person per year, rising from 37.0% to 39.1% of national income. Among the major taxes, growth in revenues from capital taxes is projected to be particularly strong (3.3% per person per year), while growth in corporation tax revenues is projected to be slower (1.7% per person per year), largely as a result of legislated cuts to the main rate of corporation tax between 2012–13 and 2015–16.

Our projection for Scotland is that revenues per person will grow slightly more slowly in real terms (2.0% per person per year) and increase only very slightly as a share of national income – from 34.6% to 34.7%. This is because the substantial decline in North Sea revenues projected by the OBR between 2012–13 and 2017–18 is projected only just to be offset over the following 50 years in our basic model by growth in other revenues.

Spending growth: 2012–13 to 2062–63

Table 2.5 summarises projected growth in different areas of spending for the UK and Scotland from our basic model. The table shows figures for spending as a share of national income in 2012–13, 2017–18 and 2062–63.¹⁴ It also shows projected average annual growth in spending per person.

We estimate that in 2012–13, while the UK spent a total of 42.3% of national income in non-interest spending, Scotland spent 39.9% (assuming a geographic share of North Sea output). This equates to an average of £10,588 per person across the UK as a whole and £11,819 in Scotland (in 2013–14 prices).

In order to project how spending will change as the demographic composition of the population changes, we have estimated the age–sex profile of spending on different items from historic data, and we assume that this profile remains the same going forwards. As an example, Figure 2.3 shows how spending on healthcare and education are estimated to vary by age and sex. This shows that spending per person on healthcare is highest amongst the very oldest age groups. Therefore, population ageing will tend to increase public health spending. Conversely, education spending is concentrated mostly on the young and so population ageing will tend to depress growth in education spending.

¹³ The revenue yields from a number of illustrative tax rises in Scotland are estimated in Adam, Johnson and Roantree (2013).

¹⁴ Figures for the intervening years can be found in the supplementary tables accompanying this report, which can be found online at <http://www.ifs.org.uk/comms/r88supplement.xls>.

Table 2.5. Growth in main areas of public spending between 2012–13 and 2062–63 (IFS basic model)

	<i>% of national income</i>			<i>Average annual real growth per person</i>	
	2012–13	2017–18	2062–63	2012–13 to 2062–63	2017–18 to 2062–63
UK					
Health	8.0	7.4	8.7	2.2	2.4
Long-term care	1.2	1.3	2.4	3.4	3.4
Education	5.6	4.5	4.3	1.5	2.0
Pensions	6.0	5.8	8.3	2.7	2.9
Public service pensions	2.2	2.3	1.4	1.0	0.9
Non-pension benefits	7.8	6.5	7.0	1.8	2.2
Other spending	11.4	8.8	8.4	1.4	2.0
Total non-interest spending	42.3	36.7	40.6	1.9	2.3
Scotland (IFS basic model)					
Health	7.4	6.9	8.4	2.2	2.5
Long-term care	1.0	1.1	2.2	3.5	3.5
Education	4.8	3.7	3.7	1.4	2.0
Pensions	5.1	5.0	7.7	2.8	3.0
Public service pensions	2.0	2.1	1.4	1.2	1.0
Non-pension benefits	6.6	5.5	6.1	1.8	2.2
Other spending	12.9	10.4	10.0	1.4	1.9
Total non-interest spending	39.9	34.7	39.4	1.9	2.3

Note: Pensions spending includes spending on state pensions, pension credit, winter fuel payment, and free TV licences for those aged 75 and over.

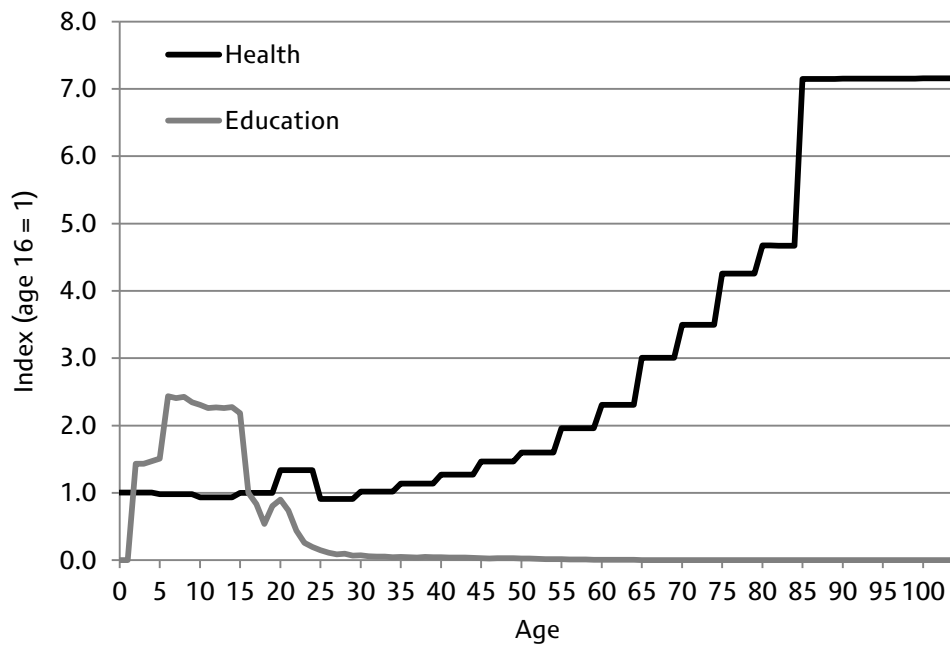
Source: Authors' calculations using the IFS long-run public finance model.

The level of health and education spending on each person of a given age and sex is projected to grow in future in line with growth in average earnings. Similar assumptions are made about growth in other components of spending at the individual level – full details of the assumptions made can be found in Amior, Crawford and Tetlow (2013). These assumptions are consistent with those made by the OBR in its long-run fiscal projections.¹⁵

Using our basic model, projected growth in spending (for both Scotland and the UK as a whole) is fastest in areas of spending that are more heavily concentrated on older people and slowest in those areas that are most heavily concentrated on the young. For example, while non-interest spending as a whole is projected to

¹⁵ As illustrated in Crawford, Emmerson and Tetlow (2009), growth in spending on most public services has historically kept pace with growth in national income over time, and in some cases (notably health, and to a lesser extent public order and safety) spending has consistently increased as a share of national income over time. The notable exception to this is spending on defence, which – while increasing in real terms over time – has been declining as a share of national income since the 1950s.

Figure 2.3. Age profile of total health and education spending



Source: Department of Health (2011) and authors' calculations using the IFS long-run public finance model (using data from the Labour Force Survey and the Department for Education).

grow by 1.9% per person per year on average in Scotland between 2012–13 and 2062–63, spending on pensions is projected to grow by 2.8% per person per year, health by 2.2% and education by just 1.4%.¹⁶

2.3 Long-run projections for borrowing and debt

In 2012–13, we estimate that the higher level of spending per person in Scotland was largely offset by revenues from the North Sea being much larger for Scotland than for the rest of the UK, when allocated on a geographic basis. Based on the assumptions in our model, we estimate that in 2012–13 total spending per person in Scotland exceeded total revenues per person by £2,088 (2013–14 prices). This compares with a gap of £1,850 across the UK as a whole. Expressed as a share of national income, which is higher per person in Scotland than across the UK as a whole, we estimate that public sector net borrowing (PSNB) was 7.0% of national income in Scotland compared with 7.4% for the UK.

The government has announced a series of net spending cuts that are due to be implemented over the next five years, which are expected to reduce PSNB for the UK as a whole and also, our model suggests, for Scotland on its own.

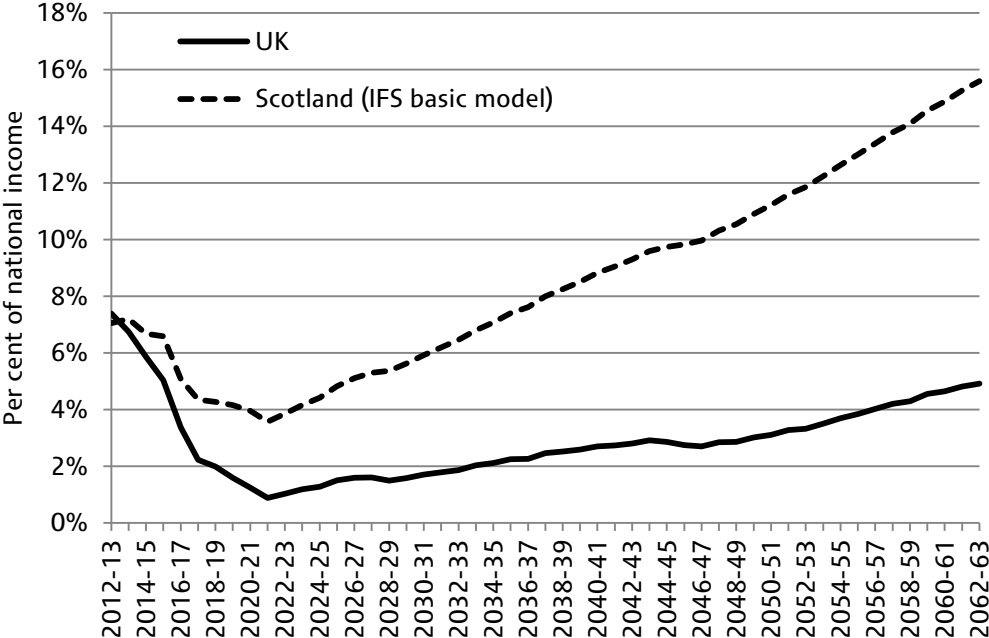
Furthermore, the UK economy is expected to continue to experience above-trend economic growth until 2020–21 (that is, a growth rate above the rate that is normally thought to be consistent with stable unemployment and inflation); this

¹⁶ Our model assumes that the level of the basic state pension (and, in future, the planned single-tier pension) will be indexed by the greatest of growth in prices, earnings growth and 2.5% every year.

will further serve to reduce PSNB for the UK and Scotland. As a result, by 2021–22, we project using our basic model that PSNB in the UK will have fallen to 0.9% of national income, while it will be 3.6% in Scotland, as shown in Figure 2.4.

Over the following 40 years, our model suggests that total public spending will grow slightly more quickly than revenues in the UK and so PSNB will increase in the absence of further policy changes. There are two periods – in the mid-2020s and mid-2040s – when PSNB declines slightly as a share of national income; these correspond to the points at which the state pension age for men and women is currently legislated to rise to age 67 and then to age 68. By 2062–63, we project – using our basic model – that PSNB would, in the absence of further policy changes, reach 4.9% of national income for the UK as a whole but 15.6% of national income for Scotland.

Figure 2.4. Public sector net borrowing projections: IFS basic model



Source: Authors’ calculations using the IFS long-run public finance model.

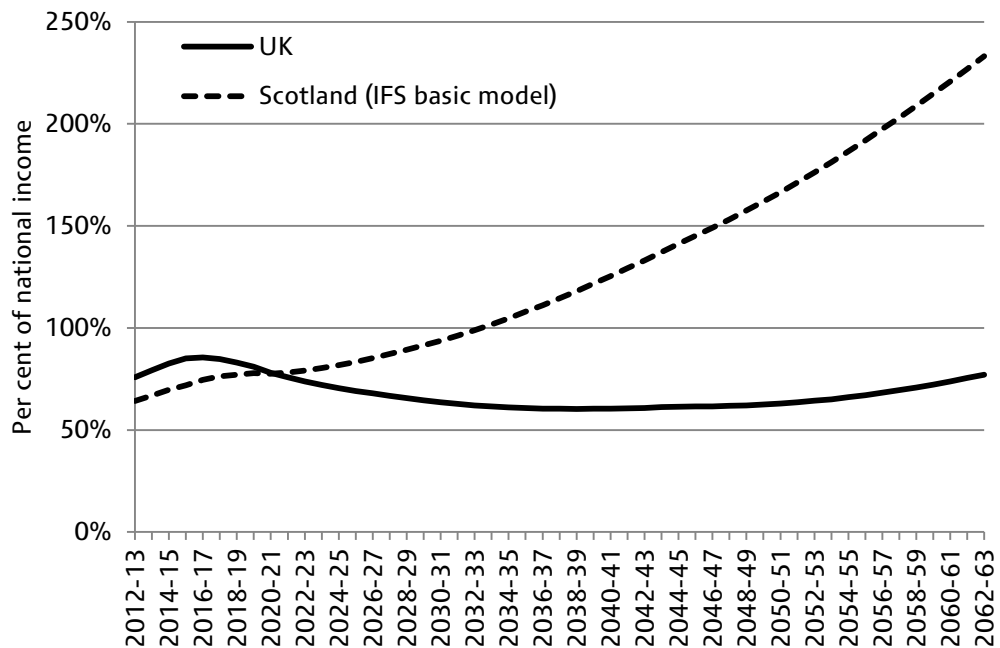
The position for Scotland in the long run is significantly worse than that for the UK for two key reasons. First, as described in Section 2.2, the Scottish population is projected to age more rapidly than the UK population as a whole, which will more quickly put pressure on areas of public spending that are in high demand among older people (such as pensions and healthcare). Second, the long-term outlook in models of this type is heavily affected by the level of borrowing at the starting point, since our basic model assumes no further policy action is taken to deal with any existing imbalances. Our projection is that Scottish PSNB will amount to 3.6% of national income in 2021–22, compared with 0.9% for the UK as a whole. As a result, Scotland is projected to accumulate additional debt more rapidly and thus to face growing debt interest costs over the medium term. In Section 3.4, we consider a scenario in which Scotland would have a lower level of borrowing in the medium term than suggested by our basic model. Chapter 4

discusses the ‘fiscal gap’ facing both the UK and Scotland and provides some estimates of the magnitude of policy action required in the medium term to put the Scottish and UK public finances on a more sustainable path.

In order to project PSNB and, in particular, public sector net debt (PSND) for Scotland, we have to make an assumption about what fraction of UK public debt should be allocated to Scotland. In our basic model (and, therefore, implicit in the numbers shown in Figure 2.4), we assume that an equal share of PSND is allocated to each person living in the UK at the date of potential independence at the end of the 2015–16 financial year. As shown in Figure 2.5, this assumption results in us estimating that the Scottish debt-to-GDP ratio would be 71.8% at the end of 2015–16, somewhat lower than the 85.1% for the UK. For the UK as a whole, tax increases and spending cuts over the next five years are expected to be sufficient to return debt to a downward path by 2017–18, although demographic pressures in the longer term would result in debt starting to rise as a share of national income from 2039–40 onwards according to our projections. For Scotland, greater demographic pressures, combined with the OBR’s forecast that revenues from the North Sea will fall sharply between 2012–13 and 2017–18, mean that PSND would increase continually from 2015–16 onwards. The projection from our basic model is that Scottish debt would (absent further fiscal consolidation) exceed 100% of Scottish national income in 2033–34 and would exceed 200% in 2057–58.

The projections in Figures 2.4 and 2.5 assume that the average interest rate on Scottish debt would increase to 5% in nominal terms by 2026–27 and then remain at that level, which is the rate that the OBR assumes the UK can borrow at over the longer term. This is slightly above projected annual growth of the UK

Figure 2.5. Public sector net debt projections: IFS basic model



Source: Authors’ calculations using the IFS long-run public finance model.

economy in the long run. Exactly what interest rate an independent Scottish government would be charged is uncertain; Armstrong and Ebell (2013), for example, estimate that the Scottish interest rate would be between 0.72 and 1.65 percentage points above that for the UK. Although it is uncertain exactly what interest rate an independent Scottish government would be able to borrow at, it seems implausible that any small economy that was reliant on foreign investors to help finance its public deficit could continue to borrow at a rate of 5% if PSND really was on course to approach 200% by the middle of the century. Section 3.4 describes the sensitivity of the projection for Scottish borrowing and debt to assumptions about the interest rate on Scottish government debt.

2.4 Summary of basic model

Our basic model illustrates that the imbalance in Scotland's public finances projected for 2017–18, along with projected demographic changes over the next 50 years, would require significant fiscal action by an independent Scottish government to ensure sustainability. Assuming no further policy action is announced, our basic model suggests that (in 2013–14 prices) public spending in Scotland would exceed revenues by £1,388 per person by 2017–18 (or a total of 4.3% of national income), compared with £601 across the UK as a whole (or a total of 2.2% of national income).¹⁷ For both the UK and Scotland, this gap would narrow slightly up to 2021–22 (to 0.9% of national income for the UK and 3.6% for Scotland), as our basic model assumes the UK economy would continue to experience above-trend growth until 2020–21 and thus tax revenues would grow faster than the economy as a whole. However, from 2022–23 onwards, borrowing is projected to increase, and to do so more rapidly in Scotland than in the rest of the UK, as the larger existing gap between spending and revenues in Scotland and the greater projected demographic pressures on Scotland's public finances feed through into more rapidly accumulating debt and debt interest payments. Table 2.6 summarises the projections from our basic model for Scotland and the UK.

The scale of action required to put Scotland onto a sustainable path is sensitive to a number of the assumptions made in our basic model. Therefore, Chapter 3 presents projections for borrowing and debt under some alternative sets of assumptions and Chapter 4 describes the corresponding estimates of the fiscal gap and the magnitude of policy action required in the medium term to put the Scottish and UK public finances on a more sustainable path.

¹⁷ For the interested reader, Appendix B describes how the projected levels of borrowing and debt in Scotland in 2017 compare with those projected by the International Monetary Fund (IMF) for other developed countries.

Table 2.6. Summary of projections from IFS basic model

% of national income (except where otherwise stated)	UK	Scotland
Total spending		
2012–13	45.3	42.5
2017–18	40.5	38.1
2021–22	39.7	37.8
2062–63	44.7	50.8
Total revenues		
2012–13	38.0	35.5
2017–18	38.3	33.8
2021–22	38.8	34.2
2062–63	39.8	35.3
Public sector net borrowing (PSNB)		
2012–13	7.4	7.0
2017–18	2.2	4.3
2021–22	0.9	3.6
2062–63	4.9	15.6
Year reaches 10% of GDP	n/a	2047–48
Public sector net debt (PSND)		
2012–13	75.9	64.2
2017–18	84.8	76.2
2021–22	75.8	78.3
2062–63	77.1	233.2
Year reaches 100% of GDP	n/a	2033–34
Average annual growth rate, 2012–13 to 2062–63 (%)		
Real GDP	2.4	2.0
Nominal GDP	4.6	4.2
Interest rate on government debt (%)	5	5

Note: Interest rate on government debt shown is the assumed average interest rate from 2026–27 onwards.

Source: Authors' calculations using the IFS long-run public finance model.

3. Sensitivity of the Projections for Scotland

The purpose of this report is to look at the Scottish public finances over a very long period. Any such projections are inevitably uncertain and sensitive to a range of assumptions. In this chapter, we explore how sensitive the projections from our model are to alternative assumptions about migration, productivity growth, future revenues from North Sea activity, the initial allocation of accumulated debt between an independent Scotland and the rest of the UK, and the interest rate payable on public debt. As well as being inherently uncertain, these factors could also evolve differently if Scotland were independent rather than part of the UK, and could be substantially affected by the policies chosen by the government of an independent Scotland. These alternative scenarios generally make the same assumptions as our basic model up to and including 2020–21, but make different assumptions thereafter. The exceptions are the scenarios that change the initial level of debt inherited by an independent Scotland – these scenarios assume that debt is allocated at the end of the 2015–16 tax year – and the scenarios that change projected future North Sea revenues.

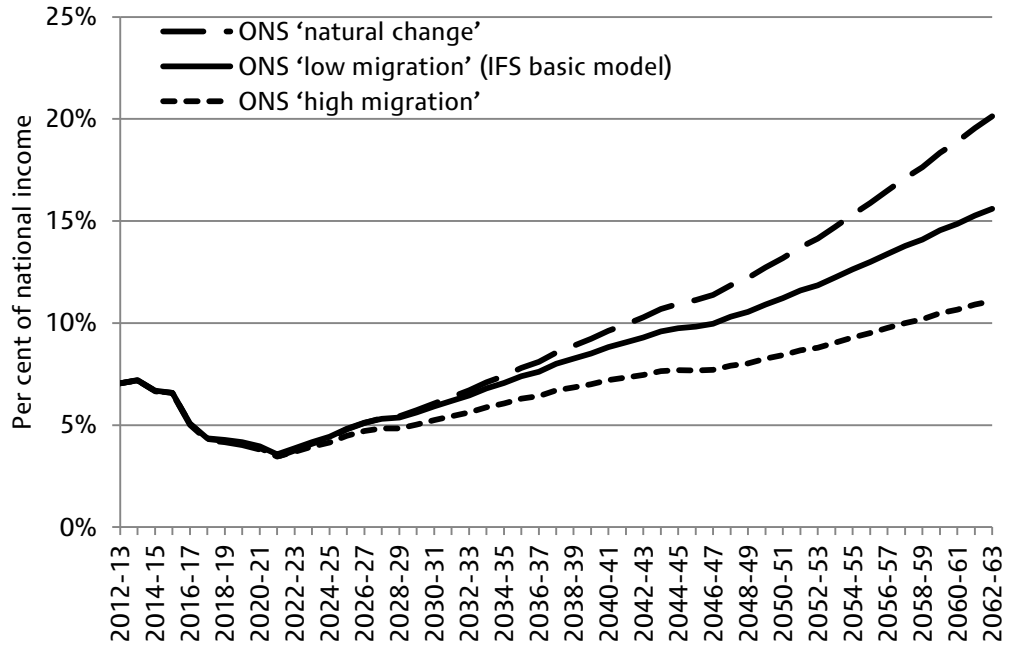
3.1 Migration

The basic projection for the Scottish public finances described in Chapter 2 uses the ONS ‘low migration’ scenario for demographic change. This assumes net inward migration to Scotland (from the rest of the UK and abroad) of 9,000 per year. However, the Scottish National Party (SNP) has argued on a number of occasions that Scotland should be more open to migrants, and it is plausible that, in the event of independence, the Scottish government would pursue a more liberal immigration policy than that currently pursued by the UK government. We therefore illustrate the sensitivity of our headline projections to instead using the ONS ‘high migration’ projection for future demographic change – which assumes net inward migration to Scotland of 26,000 per year – and using the ONS ‘natural change’ projection – which assumes zero net migration.

The impact of these alternative assumptions about migration on the projections of our model for borrowing and debt are shown in Figures 3.1 and 3.2 respectively, while Tables A.3 and A.4 in Appendix A summarise changes in all of the main fiscal aggregates under these alternative scenarios. Using the ‘high migration’ demographic projections results in a lower projected increase in borrowing in Scotland than our basic projection suggests: borrowing in Scotland would amount to 11.1% of national income in 2062–63, compared with 15.6% in our basic projection. Borrowing is projected to be lower as a result of lower projected spending as a share of national income when there is higher migration. This is because migrants are relatively less likely to be of older ages, and older individuals account for a disproportionate share of public spending. Lower

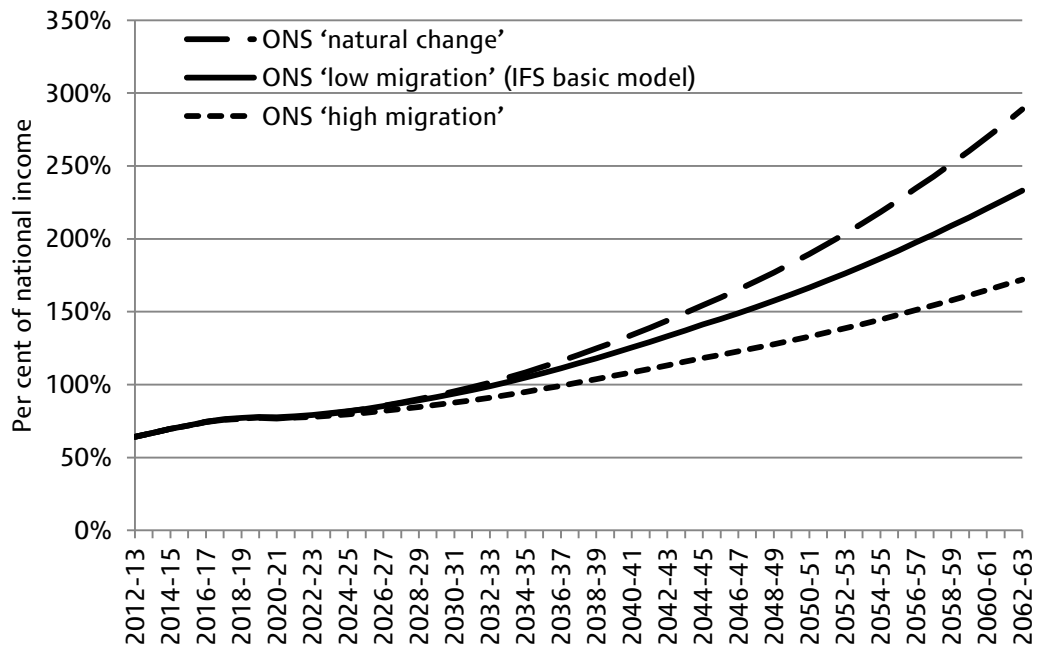
borrowing each year also results in lower public debt and hence lower debt interest payments. Under this 'high migration' scenario, total public spending is projected to reach 46.1% of national income in 2062–63, compared with 50.8% under our basic projection. This demonstrates how important migration might

Figure 3.1. Sensitivity of Scottish public sector net borrowing projection to migration



Source: Authors' calculations using the IFS long-run public finance model.

Figure 3.2. Sensitivity of Scottish public sector net debt projection to migration



Source: Authors' calculations using the IFS long-run public finance model.

be: this is a large effect on the share of national income spent publicly. Revenues as a share of national income are less affected by the level of migration: these are projected to reach 35.0% under the 'high migration' scenario, which is fractionally lower than the 35.3% projected under the basic projection.

Figure 3.2 shows how the lower borrowing cumulates to a lower public sector net debt under the 'high migration' scenario. In our basic projection, Scottish debt reaches 100% of national income in 2033–34 and 200% in 2057–58, but when we use the ONS 'high migration' scenario for demographic change, Scottish debt only reaches 100% of national income in 2037–38, moving to 154% in 2057–58 and 172% at the end of our 50-year projection.

The 'natural change' scenario provides an indication of the outlook for Scotland's public finances if Scotland experienced no net migration. Under this scenario, the working-age population of Scotland would decline more rapidly and Scotland's public finances would deteriorate faster. Again this illustrates just how sensitive fiscal projections are to different migration assumptions.

3.2 Productivity

Our basic projection assumes that labour productivity in Scotland grows at 2.2% per year, as is assumed by the OBR for the UK. Implicitly, this assumes that the UK is able both to replace North Sea activity with other onshore activity as North Sea reserves decline, and to increase onshore productivity, such that overall productivity in the economy increases by 2.2% a year. This would be easier to do for the UK as a whole than for Scotland, given that North Sea activity accounted for just 2% of the UK's national income in 2011–12, but 17% of Scotland's national income (assuming a geographic share of North Sea production).¹⁸ So the assumption of productivity growth of 2.2% per year could be argued to be a relatively generous projection for Scotland.

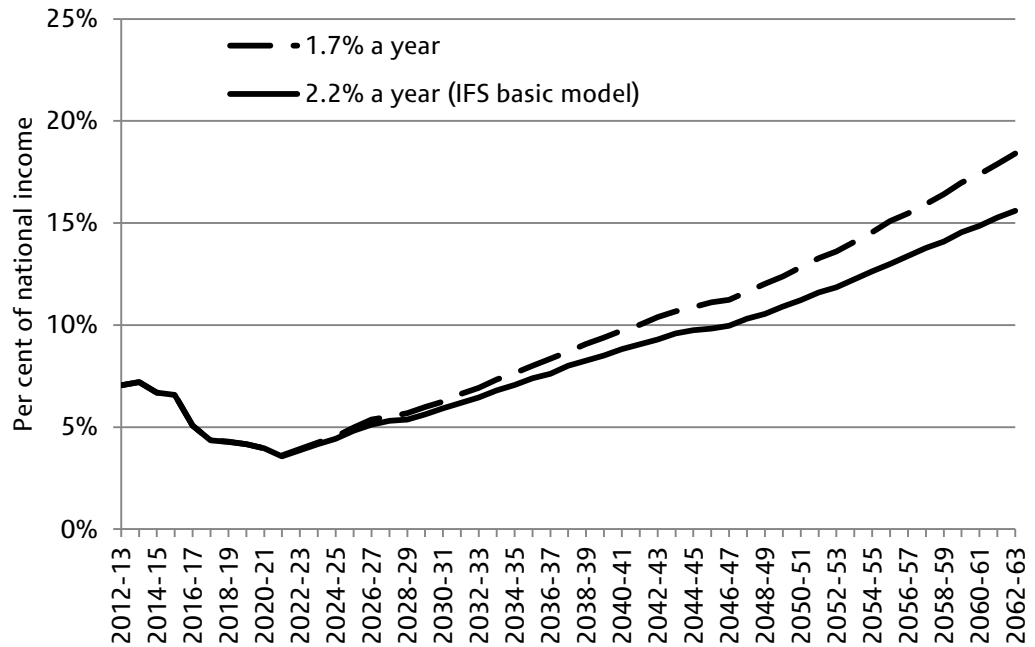
Figures 3.3 and 3.4 therefore illustrate how our projections for borrowing and debt in Scotland would differ if we instead assumed that labour productivity were to grow by 1.7% a year. This would be approximately the average rate of labour productivity growth in the economy in a scenario in which offshore activity disappears entirely by 2062–63 while onshore activity grows at 2.2% a year (i.e. onshore activity neither grows faster to replace, nor grows less quickly as a result of, the decline in offshore activity).

Table A.5 in Appendix A summarises the changes in all of the main fiscal aggregates, and illustrates that changes in productivity growth have relatively little impact on the projections from our model for non-interest spending and non-interest revenues when measured as a share of national income. This is because our model assumes that age–sex-adjusted per-capita receipts from most taxes and spending on most public services and benefits grow in line with

¹⁸ Estimates of Scottish GDP are from SNAP.

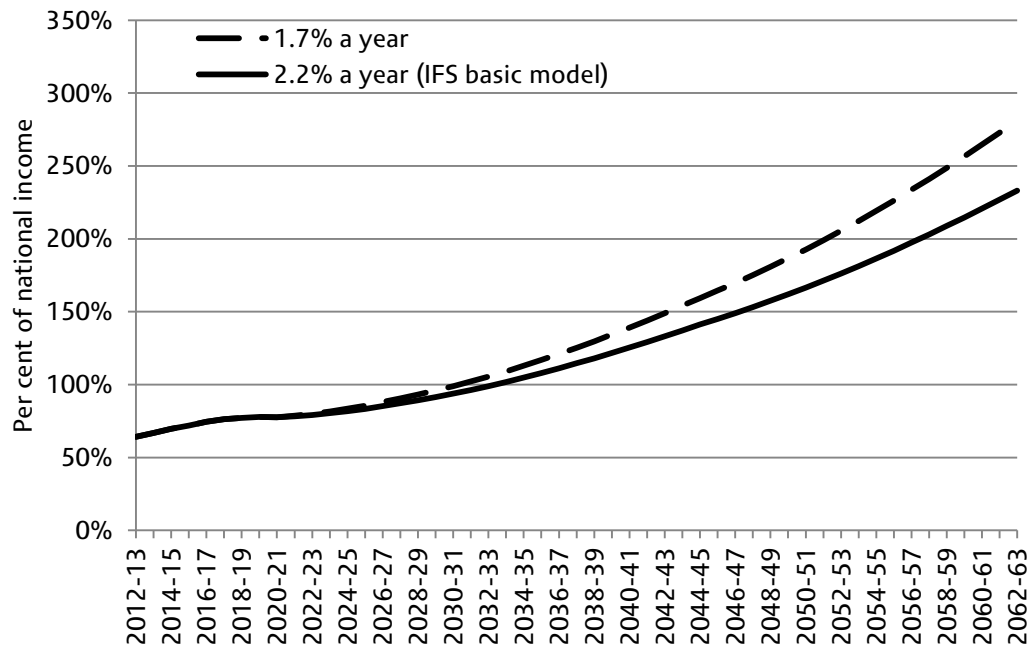
average earnings in the economy, which in turn grow in line with productivity. Therefore, a decrease in productivity growth will tend to decrease the growth in spending/receipts at the same rate as it decreases GDP growth. However, the actual cash amount spent on each individual and raised from each individual in

Figure 3.3. Sensitivity of Scottish public sector net borrowing projection to productivity



Source: Authors' calculations using the IFS long-run public finance model.

Figure 3.4. Sensitivity of Scottish public sector net debt projection to productivity growth



Source: Authors' calculations using the IFS long-run public finance model.

taxes will grow less quickly under such a scenario. For example, under this scenario, we project that spending on healthcare will reach 8.4% of national income in 2062–63, just as it does under our basic scenario. However, in real terms, health spending per person grows by just 2.0% per year between 2017–18 and 2062–63 under this lower productivity growth assumption, compared with 2.5% per person per year under our basic scenario. This means that by 2062–63, health spending per person is 22.9% higher in real terms under the assumption of 2.2% a year economy-wide productivity growth than under the assumption of 1.7% a year productivity growth.

Lower productivity growth does feed through into higher borrowing over time because lower GDP growth means that spending on interest payments on the stock of existing debt does not decline as rapidly as a share of national income over time as it does in our basic model. Assuming 1.7% productivity growth in Scotland instead of 2.2% suggests that borrowing would reach 18.4% of national income in 2062–63 rather than 15.6%.

Public sector net debt is also projected to increase more rapidly under a lower productivity scenario. In part this is due to the higher annual borrowing, and in part it is because the lower GDP growth means that the stock of debt, measured as a share of national income, does not decline as rapidly over time. When productivity is assumed to grow at 1.7% per year rather than 2.2% per year, Scottish debt is projected to pass 100% of national income in 2031–32 rather than 2033–34, and 200% in 2052–53 rather than 2057–58.

3.3 North Sea revenues

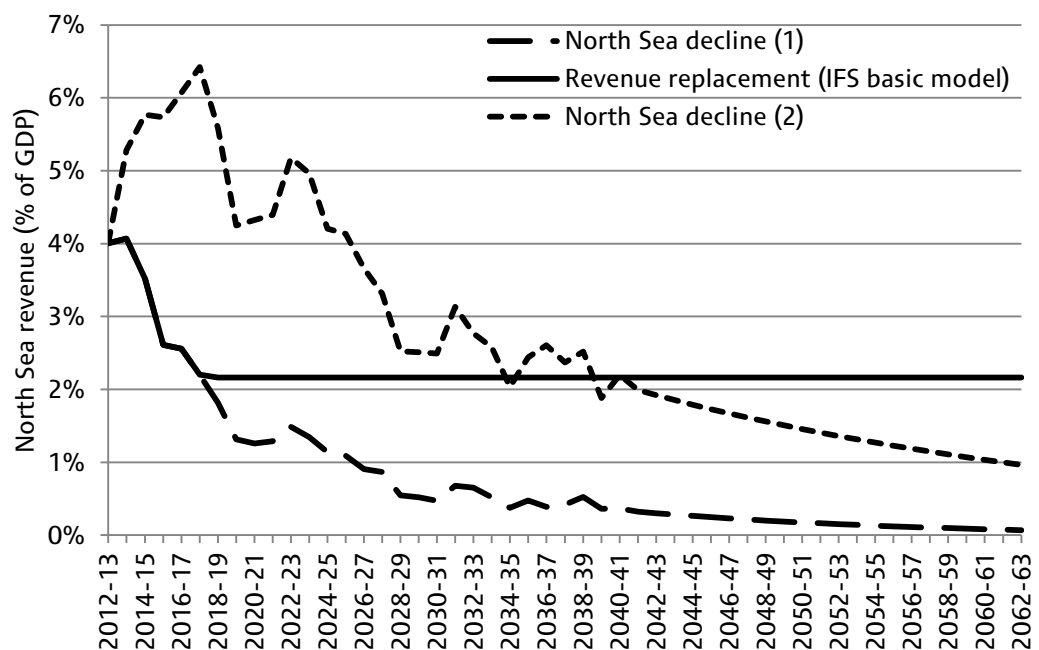
The projections of our model are particularly sensitive to the assumption about future North Sea revenues. In its 2013 FSR, the OBR produced long-term projections for oil and gas revenues, by inputting a number of assumptions about future prices, production and expenditure into HMRC's model for field-level revenues. Its resulting central projection suggested that total UK revenues from the North Sea would decline from 0.42% of national income in 2012–13 to 0.03% by 2040–41. In its long-run projections for the UK public finances, however, the OBR's 2013 FSR methodology was to assume that revenues from the North Sea would decline between 2012–13 and 2017–18, from 0.42% of national income to 0.23% (as forecast for its March 2013 Economic and Fiscal Outlook (EFO)), but then remain constant as a share of national income thereafter. Its justification for this assumption is that governments faced with these declining revenue streams might find other ways to raise the same amount of money.

In our basic model, where we essentially apply the methodology and assumptions employed by the OBR for the UK as a whole to create a basic projection for the outlook for the public finances of Scotland, we also assume that North Sea revenues are maintained as a share of national income beyond 2017–18. However, here we illustrate how our projections would differ if we incorporate the OBR's actual long-run central projection for North Sea revenues.

This is described as ‘North Sea decline (1)’ in Figure 3.5, which shows that Scottish revenues from the North Sea are projected to be 2.1% of national income lower by 2062–63 under this scenario than in our basic model. This is equivalent to the amount that would be raised from an additional 8 percentage points on the main rate of VAT.¹⁹

The Scottish government (Scottish Government, 2013b), on the other hand, has suggested that the OBR was too conservative in its EFO forecast for North Sea revenues up to 2017–18, and that both production and prices would be higher than the OBR suggested, resulting in higher revenues. We therefore also project how the Scottish public finances would look were North Sea revenues to turn out as projected by the Scottish government up to 2017–18 (using the most optimistic ‘scenario 5’ from Scottish Government (2013b)), and evolve according to the growth rate projected by the OBR in its ‘high price’ scenario from 2017–18 onwards. This is described as ‘North Sea decline (2)’ in Figure 3.5. This would result in revenues from the North Sea in 2062–63 being 1.2% of national income lower than in our basic model, but being substantially higher in the medium term.

Figure 3.5. North Sea revenues in Scotland, as a share of GDP



Note: ‘North Sea revenues’ includes offshore corporation tax and petroleum revenue tax. ‘North Sea decline (1)’ is OBR central projection for North Sea revenues up to 2040–41 and a continued linear trend thereafter. ‘North Sea decline (2)’ is Scottish Government ‘scenario 5’ up to 2017–18, changing at the same rate as the OBR ‘high price’ scenario projection between 2018–19 and 2040–41, and then a continued linear trend thereafter.

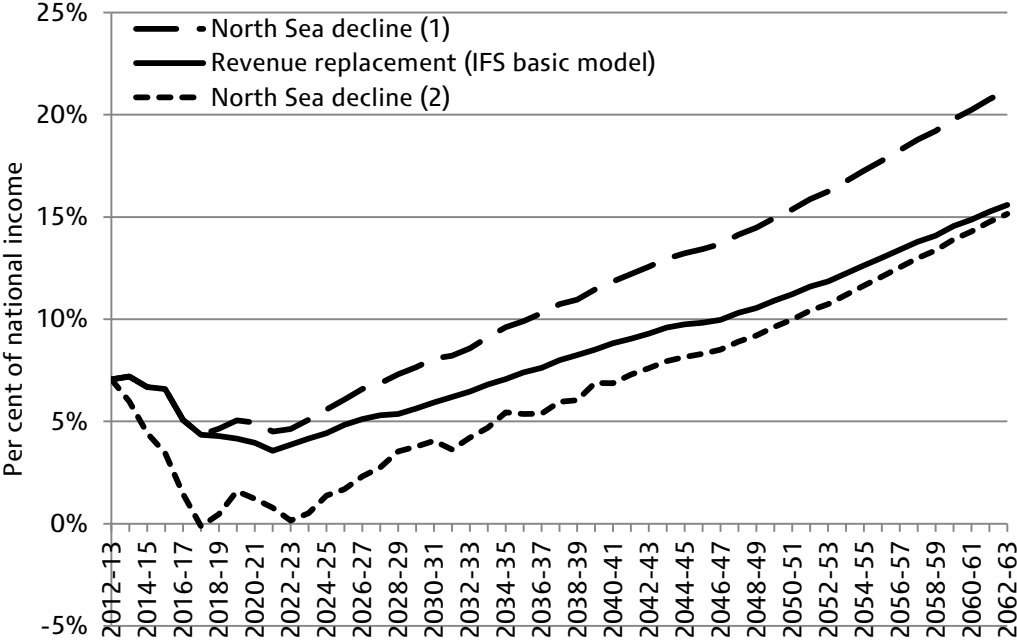
Source: Authors’ calculations based on Office for Budget Responsibility (2013b) and Scottish Government (2013b).

¹⁹ The revenue yields from a number of illustrative tax rises in Scotland are estimated in Adam, Johnson and Roantree (2013).

It is important to note that activity in the North Sea also has implications for the level of activity onshore, and therefore the revenues that can be raised from such activity. As North Sea activity declines, the productive capacity currently utilised in the North Sea could be reallocated to onshore activity.²⁰ In our basic model, where we assume North Sea revenues are replaced as a share of national income, some of this revenue replacement will implicitly come from extra onshore corporation tax revenues from North Sea productive capacity moving onshore. However, when we assume that North Sea revenues decline (either (1) or (2)), we need explicitly to take account of the fact that additional revenues may be raised elsewhere. We do this by assuming that all North Sea productive capacity moves onshore, is as productively employed as it was offshore, and pays the same average rate of corporation tax as the main onshore economy. This assumption leads us to forecast higher growth in onshore corporation tax revenues in these scenarios than in our basic model, which somewhat offsets the decline in North Sea revenues, as shown in Tables A.6 and A.7. Under these scenarios, between 2017–18 and 2062–63, onshore corporation tax revenues are projected to grow from 1.7% of Scottish national income to 1.9% (rather than growing to 1.8% as projected in our basic model).

The lower revenues under the ‘North Sea decline (1)’ scenario result in higher levels of borrowing in all future years than in our basic model, as shown in Figure 3.6. By 2062–63, our projection is that borrowing would reach 21.2% of national

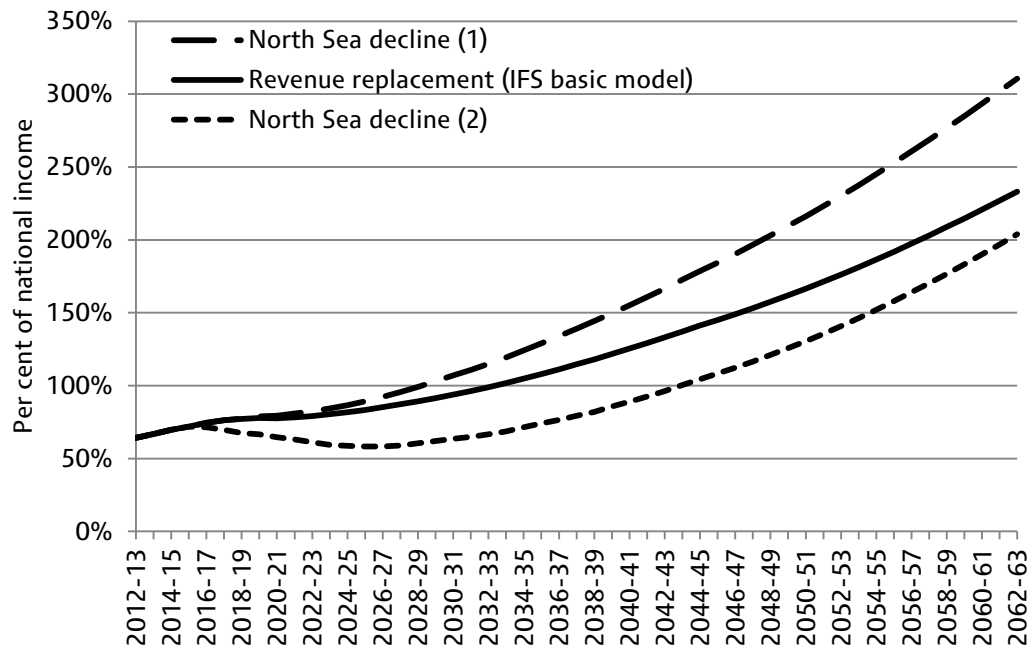
Figure 3.6. Sensitivity of Scottish public sector net borrowing projection to North Sea revenues



Source: Authors’ calculations using the IFS long-run public finance model.

²⁰ On the other hand, there is also a risk that some onshore activity will be directly adversely affected by the decline of North Sea oil and gas production.

Figure 3.7. Sensitivity of Scottish public sector net debt projection to North Sea revenues



Source: Authors' calculations using the IFS long-run public finance model.

income, compared with 15.6% in our basic model. This higher borrowing would, in the absence of a significant further fiscal tightening, feed through into more rapidly increasing levels of debt, with PSND projected to exceed 300% of national income within 50 years (shown in Figure 3.7).

The 'North Sea decline (2)' scenario involves higher revenues than our basic model until the 2030s, resulting in lower borrowing and debt accumulation – as shown in Figures 3.6 and 3.7. This lower debt accumulation results in significantly lower debt interest payments, such that borrowing remains lower under this scenario than under the basic projection until 2062–63. Figure 3.7 illustrates that debt under the 'North Sea decline (2)' scenario would remain below that projected in our basic model until beyond 2062–63 (though would still be greater than 200% of national income by that time in the absence of any new policy action).

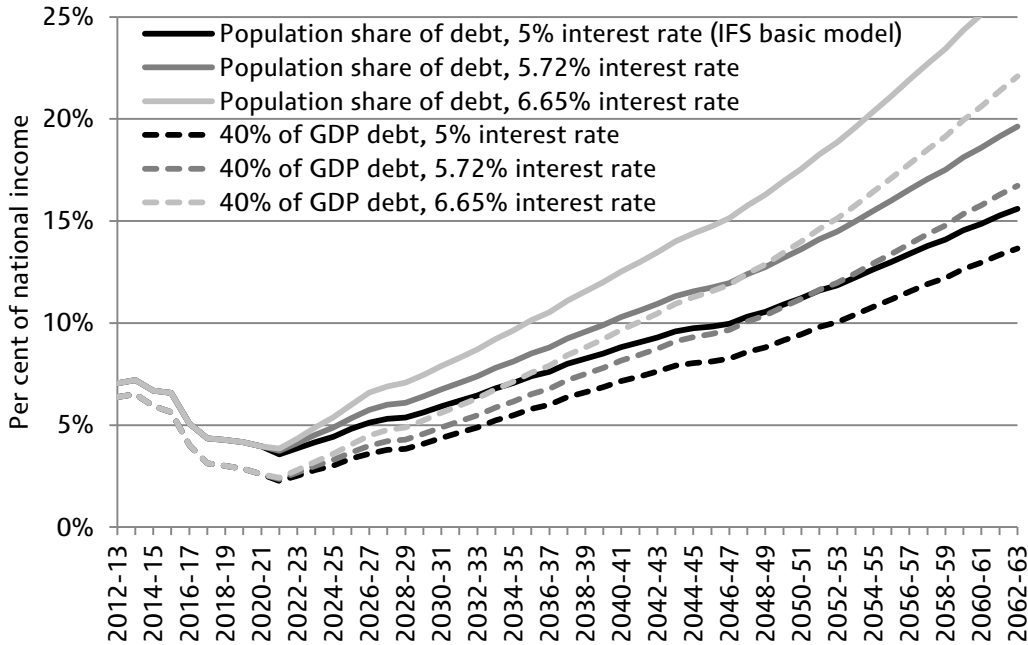
3.4 Debt allocation and interest rates

Our basic projection assumes that, on independence, Scotland would take its population share of accumulated UK net debt, resulting in projected debt of 71.8% of national income in 2015–16. Figures 3.8 and 3.9 illustrate how the projections from our model would differ were Scotland instead to take a proportion of the UK's PSND amounting to 40% of Scottish national income in 2015–16. This illustrative figure is chosen purely as it is roughly half the current UK level of debt-to-GDP and is also roughly what the UK level of public sector debt was prior to the recent financial crisis and associated recession. As well as

Fiscal sustainability of an independent Scotland

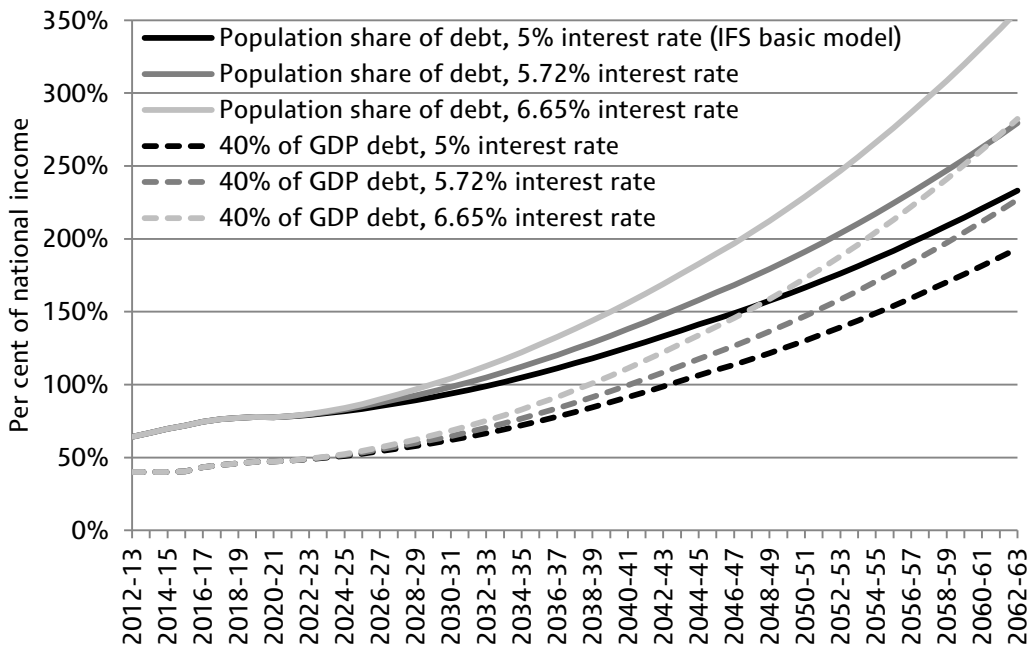
reducing the starting level of debt, this would also slow the increase in debt over time, since debt interest payments (and therefore total spending and total borrowing) would be lower. However, it is worth noting that – even with this significantly more favourable starting position – Scotland would (absent any

Figure 3.8. Sensitivity of Scottish public sector net borrowing projection to debt allocation and interest rates



Source: Authors' calculations using the IFS long-run public finance model.

Figure 3.9. Sensitivity of Scottish public sector net debt projection to debt allocation and interest rates



Source: Authors' calculations using the IFS long-run public finance model.

fiscal response) still face rapidly increasing debt. From a starting point of 40% of national income, debt is still projected to be on course to pass 100% of national income, albeit 10 years later than in our basic projection (2043–44 rather than 2033–34), and is projected to reach nearly 200% of national income by 2062–63.

Closely linked to the assumption about how much debt the Scottish government would take on independence is the assumption about what interest rate an independent Scottish government would be able to borrow at. In our basic scenario, we assume that the Scottish government would face a long-run nominal interest rate of 5% – the same as the OBR assumes for the UK. However, an independent Scotland would be a smaller nation than the UK, with no track record of financing government borrowing, and (based on most of the scenarios presented here) with a weaker longer-term public finance position. It is therefore unlikely to be able to borrow at as low a rate as the UK. Armstrong and Ebell (2013), for example, estimate that the Scottish interest rate would be 0.72 to 1.65 percentage points above that for the UK. Figure 3.8 therefore also illustrates how PSNB would differ were Scotland to face an interest rate of 5.72% or 6.65% on its debt rather than 5% (for both the case of Scotland inheriting its population share of UK PSND in 2015–16 and the case of Scotland inheriting debt equal to 40% of its national income).

Figure 3.8 highlights what a significant impact the interest rate can have on annual borrowing over the next 50 years. In the case where Scotland inherits its population share of UK debt, an increase in the interest rate from 5% to 5.72% is projected to increase PSNB by 2062–63 from 15.6% to 19.6%, while an increase in the interest rate to 6.65% is projected to increase PSNB by 2062–63 to 26.8%. The effect is only slightly smaller when the inherited level of debt is lower. In the case where Scotland inherits debt amounting to 40% of national income, an increase in the interest rate from 5% to 5.72% is projected to increase borrowing in 2062–63 from 13.7% to 16.7%; this figure would be 22.1% if interest rates rose to 6.65%.

The effect on PSND of changing the interest rate assumption is shown in Figure 3.9. The higher borrowing arising from higher interest rates results in even more rapidly increasing PSND than in our basic projections. With interest rates of 6.65%, Scottish debt would pass 200% in the mid-2050s, even if Scotland only inherited debt equal to 40% of national income on independence.

3.5 Summary

As demonstrated above, there are a number of uncertainties about how Scotland's public finances will evolve in future. Higher inward migration could reduce pressure on the public finances from an ageing population over the next 50 years and thus slow the growth of borrowing and debt. Lower productivity growth in future would tend to increase debt and debt interest spending as a share of national income and thus cause debt to accumulate faster than under our basic case. Of particular importance for Scotland's future public finances would

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be the level of debt inherited from the UK and, crucially, the interest rate at which the Scottish government could borrow. Scotland's public finances are also very exposed to the likely decline in North Sea production; the revenues generated from this currently comprise a large share of overall Scottish revenues.

The projected position of the Scottish public finances in 2062–63, in terms of the level of borrowing and debt as a share of national income, is summarised in Table 3.1 for the different scenarios described above. Despite the sensitivity of the projections to the different assumptions employed, a clear picture still emerges: an independent Scotland would need to introduce a significant fiscal tightening in order for Scotland's long-run public finances to be on a sustainable path. The next chapter therefore considers the scale of the problem that would face an independent Scotland, how this compares with the one facing the UK as a whole, and what the Scottish government could do to achieve the required fiscal tightening.

Table 3.1. Summary of sensitivity of Scottish public sector net borrowing and debt projections

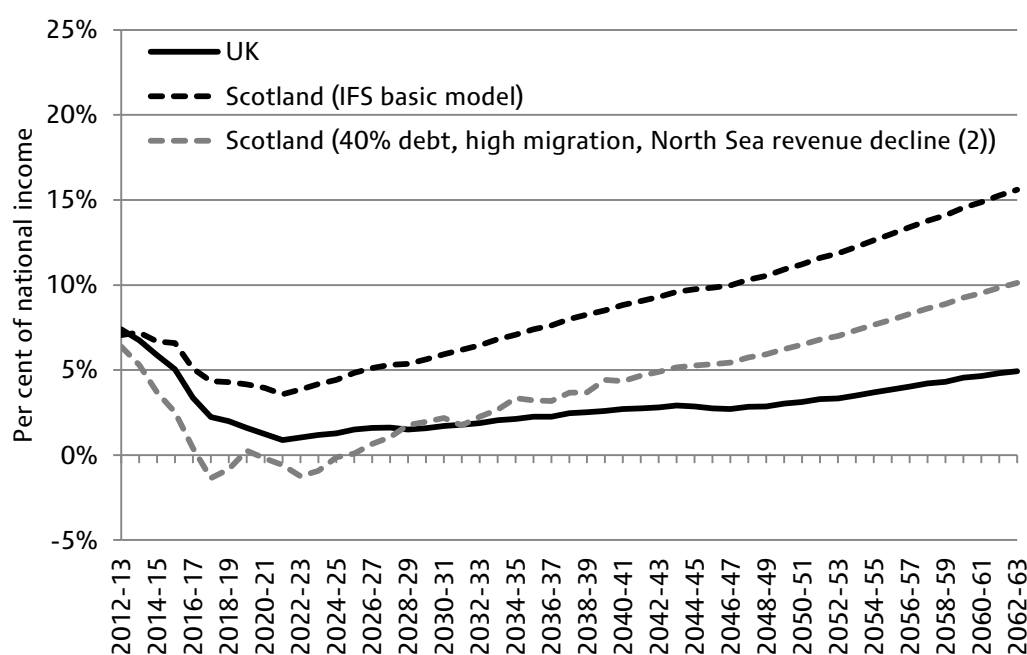
Scenario	<i>PSNB</i>		<i>PSND</i>	
	≥10% national income	Level in 2062–63	≥100% national income	Level in 2062–63
Basic	2047–48	15.6%	2033–34	233%
High migration	2057–58	11.1%	2037–38	172%
Natural change	2042–43	20.1%	2032–33	289%
1.7% productivity	2041–42	18.4%	2031–32	281%
North Sea decline (1)	2036–37	21.2%	2029–30	311%
North Sea decline (2)	2051–52	15.2%	2043–44	204%
Pop. share of debt, 6.65% interest rate	2035–36	26.8%	2029–30	356%
40% debt, 5% interest rate	2052–53	13.7%	2043–44	193%
40% debt, 6.65% interest rate	2041–42	22.1%	2038–39	282%

4. Achieving Long-Run Fiscal Sustainability?

As Chapter 3 highlighted, there are considerable uncertainties around the outlook for Scotland’s public finances, if it were to become independent; many of these uncertainties apply to the UK as a whole as well, although to a lesser extent in most cases. Despite the considerable uncertainty, one consistent pattern emerges from all the scenarios considered in Chapter 3: in all of them, Scotland’s debt-to-GDP ratio is projected to increase unsustainably over the next 50 years and, by 2062–63, be at a level higher than that projected for the UK. This is also the case if we consider an extremely optimistic scenario for Scotland, which includes the assumptions of ‘high migration’, 2.2% productivity growth, Scotland receiving a share of total UK debt equal to 40% of Scottish GDP in 2015–16 and being able to borrow at a 5% nominal interest rate in the long run, and North Sea revenues evolving as in ‘North Sea decline (2)’. The projections for borrowing and debt under this scenario are compared with projections for the UK and with our basic projections for Scotland in Figures 4.1 and 4.2 (Table A.8 in Appendix A summarises the changes in all the main fiscal aggregates).

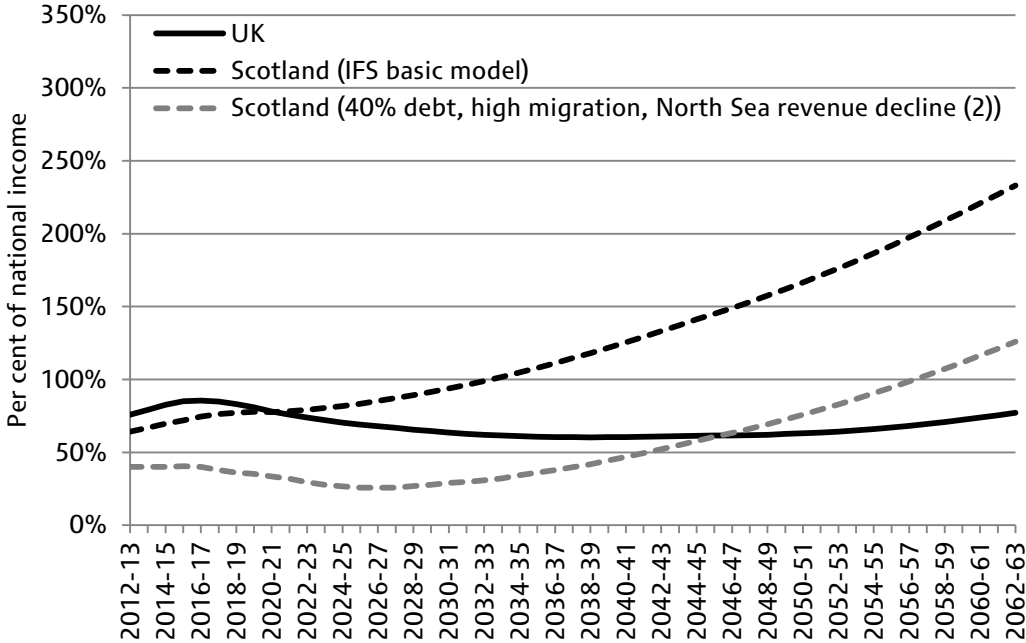
It is therefore useful to consider what size of fiscal action might need to be taken to put the public finances of an independent Scotland on a more sustainable path. There are a number of possible ways of quantifying this; in this chapter, we describe what permanent fiscal tightening would be required to get Scottish debt down to a particular target level as a share of national income by a specific target date, assuming that the fiscal tightening was implemented in 2021–22 and

Figure 4.1. Public sector net borrowing under various scenarios



Source: Authors’ calculations using the IFS long-run public finance model.

Figure 4.2. Public sector net debt under various scenarios



Source: Authors’ calculations using the IFS long-run public finance model.

remained in place thereafter.²¹ (Of course, none of this is to imply that all the response would necessarily need to take place in one go in 2021–22. This is just one way of illustrating the scale of response required.) We also provide comparable figures for the UK as a whole. It is worth noting that all of these figures are in addition to the fiscal tightening planned by the UK government up to 2017–18.

Table 4.1 summarises some estimates of the fiscal gap for the UK and for Scotland under various scenarios. We estimate that the UK as a whole would require a permanent fiscal tightening worth 0.8% of national income (or about £13 billion in today’s terms), to be implemented in 2021–22, in order to be on course for debt to return to 40% of national income by 2062–63.²² Under our basic model, the fiscal gap for Scotland (using the same definition) is estimated to be 4.1% of national income (or £6 billion in today’s terms), or 3.3% of national income larger than the fiscal gap for the UK. A significant part of this gap reflects the differences between the levels of borrowing in Scotland and the UK that are expected over the next few years. As described in Chapter 2, by 2021–22, our basic model suggests that borrowing would be 2.7% of national income higher in Scotland than across the UK as a whole: this is a large share of the additional 3.3% of national income fiscal gap that is projected to face Scotland by 2062–63 in our basic model, over-and-above that estimated to face the UK.

²¹ It is worth noting that the figures cited are sufficient to ‘get debt to X% by 2062–63 (or 2052–53)’ but debt would not stabilise at that level thereafter – instead, it would start to increase again. Therefore, implementing such a fiscal tightening would put the public finances on a sustainable path for the next 50 years, but not necessarily forevermore.

²² This is slightly smaller than the 1.2% of national income fiscal gap estimated by the OBR in FSR 2013. For more detail on how the results of our model compare with the OBR’s for the UK as a whole, see Amior, Crawford and Tetlow (2013).

Table 4.1. Estimates of the fiscal gap

Adjustment in primary balance from 2021–22 (% of national income)	Reach target by 2062–63			Reach target by 2052–53
	20%	40%	60%	40%
	Target debt ratio:			
Scotland				
Basic model	4.5	4.1	3.6	3.9
High migration	3.4	3.0	2.5	3.0
1.7% productivity growth	4.9	4.5	4.2	4.4
North Sea decline (1)	6.1	5.7	5.3	5.5
North Sea decline (2)	3.9	3.4	3.0	2.9
Pop. share of debt, 6.65% interest rate	5.0	4.7	4.4	4.6
40% debt, 5% interest rate	3.6	3.2	2.8	2.9
40% debt, 6.65% interest rate	3.9	3.6	3.3	3.3
40% debt & ‘high migration’ & North Sea decline (2)	2.4	1.9	1.5	1.3
1.7% productivity & North Sea decline (1)	6.6	6.3	5.9	6.0
UK	1.3	0.8	0.4	0.7

Note: Table A.9 in Appendix A summarises the changes in all the main fiscal aggregates for the ‘1.7% productivity & North Sea decline (1)’ scenario.

Source: Authors’ calculations using IFS long-run public finance model.

The size of the estimated fiscal gap is (unsurprisingly) sensitive to the main assumptions used in the model. Table 4.1 shows that, if North Sea oil revenues were to decline as forecast by the OBR (‘North Sea decline (1)’), then the fiscal gap would be significantly greater, at 5.7% of national income. If, in addition, the declining North Sea activity did not move onshore, such that overall productivity growth in the economy was only 1.7% on average, the fiscal gap would be even greater at 6.3%. The interest rate payable on government debt also represents a significant adverse risk.

On the other hand, if Scotland were to take on a share of the UK’s accumulated debt equal to 40% of Scottish GDP rather than taking a population share, the fiscal gap would be lower. This would also be the case if Scotland experienced high inward migration after independence, or if North Sea revenues evolved as in the ‘North Sea decline (2)’ scenario (which exhibits much higher revenues in the medium term).

It is worth noting, though, that even in the most optimistic scenario considered here (in which Scotland experiences high migration, achieves 2.2% productivity growth despite the decline in North Sea activity, takes debt equal to 40% of national income on independence, pays the same debt interest rate as projected for the UK, and enjoys high North Sea revenues in the medium term (‘North Sea decline (2)’)), the fiscal gap is still projected to be 1.9% of national income. This is greater than the 0.8% projected for the UK, and the risks are considerably on the downside. Therefore, just as the OBR has pointed out that the UK as a whole faces

some serious fiscal choices over the medium and longer term, it is clear that an independent Scotland would face even tougher choices.

A newly independent Scottish government could close this fiscal gap either by increasing taxes, reducing spending or (perhaps more likely) some combination of the two. It is worth noting, however, that the majority of policies so far mooted by the current SNP government for after independence would cost, rather than save, money – for example, increasing aid spending, delaying or scrapping the legislated future state pension age increases, and reversing the cut to housing benefit to those deemed to be under-occupying social sector housing. The current SNP government has, however, suggested that it would cut defence spending from £3.3 billion to £2.5 billion,²³ which would reduce spending by around 0.5% of national income. However, even if it were able to maintain this lower level of spending compared with the UK government's plans,²⁴ this would not be enough to close the fiscal gap even under our most optimistic scenario for the Scottish public finances.

Closing a fiscal gap of 1.9% of national income would require a significant fiscal tightening, let alone closing a gap of 4.1% or 6.3% of national income. Adam, Johnson and Roantree (2013) discuss in more detail the revenue yield of possible tax rises in Scotland. As an example, increasing the current main rate of VAT by 1 percentage point would increase tax revenues in 2014–15 by around £430 million (equivalent to 0.3% of national income), while an increase in the current basic rate of income tax by 1 percentage point would increase tax revenues by £365 million (or 0.2% of national income). Closing the entire fiscal gap through increasing tax revenues would, therefore, require significant increases in a number of tax rates.

In terms of spending, total non-interest spending in Scotland is projected to be 34.0% in 2021–22, and therefore reducing spending by 1.9% of national income would require a 6% reduction in this spending (while cuts of 4.1% or 6.3% of national income would require a cut of 12% or 19%). If all of this spending reduction were to come from public services (as opposed to spending on pensions and social benefits), then public service spending would need to be cut by 8% (or 17% or 27%) since public service spending is only projected to amount to 23.5% of national income in 2021–22.

An independent Scottish government would therefore face some very difficult decisions about how to put the Scottish public finances on a sustainable footing for the next 50 years and, unless North Sea revenues remain much stronger than currently expected by the OBR in the medium term, these choices would have to be made quite quickly.

²³ See <http://www.snp.org/referendum/faqs#>.

²⁴ Our model incorporates announced spending plans up to 2015–16; thereafter, we assume that defence spending per person in the UK grows in line with nominal national income per capita.

5. Fiscal Rules and Institutions

Many developed countries operate some form of fiscal rules to constrain the behaviour of politicians and/or to signal to creditors that the government is committed to maintaining the health of its country's public finances.²⁵ Such fiscal rules typically cover both short-run budget balance and longer-run sustainability. The European Union, for example, imposes two fiscal rules on its members – one that constrains the annual budget deficit to be less than 3% of national income and one that limits the overall level of government debt to be less than 60% of national income. An independent Scotland would be expected to abide by these criteria if it wished to be a member of the European Union. Many EU countries also operate their own domestic fiscal rules in addition. The UK government, for example, currently operates two: the fiscal mandate requires that the current budget is forecast to be in balance or surplus by the end of a rolling five-year forecast horizon, after adjusting for the ups and downs of the economic cycle; the supplementary target requires that debt should fall as a share of national income between 2014–15 and 2015–16. A number of countries also augment such rules with independent fiscal councils that provide impartial scrutiny of the government's plans and actions, as the OBR does in the UK.²⁶ A newly independent Scottish government would be likely to want (and would be well-advised to instigate) some form of domestic fiscal rules and institutions to help keep Scotland's public finances on a sustainable course, and to bolster public and market perception that this is the case.

Two factors highlighted above would make the case for fiscal rules and new fiscal institutions for Scotland particularly strong. First, demographic changes over the next few decades and existing fiscal imbalances are likely to mean that Scotland will face an unsustainable path of public debt in the absence of further policy changes – as illustrated in Chapters 2 and 3. These pressures would be a more pressing concern for Scotland than for the UK as a whole; well-designed fiscal rules could help to focus politicians' attention on the importance of addressing these. Second, in the absence of substantial short-term spending cuts and/or tax increases, the Scottish government is likely to have to issue quite a lot of new debt in the first few years after potential independence. Therefore, the interest rate faced by a newly independent Scottish government would have a substantive effect on the medium- and longer-term evolution of Scotland's public finances. This will make it particularly important that Scotland establishes credibility with its potential creditors early on.

What sort of fiscal rules an independent Scotland might want to put in place is an important policy question. In the short run, a newly independent Scottish

²⁵ A comprehensive list of fiscal rules employed by countries around the world is available from the International Monetary Fund: <http://www.imf.org/external/pubs/ft/fandd/2012/09/dataspot.htm>.

²⁶ For a recent survey of fiscal councils, see International Monetary Fund (2013).

government would be likely to be focused on continuing the fiscal consolidation process started by the UK government. As Figure 2.4 showed, in 2016–17, our basic model suggests that Scottish public sector borrowing would still stand at 5.1% of national income. However, the Scottish government would also need to be clear about its medium- and long-term ambitions, in order to reassure investors that it has a credible plan for putting the public finances on a sustainable footing. It could do this, for example, by setting out its plans for the annual budget balance, and being clear about what level of debt the Scottish government would be prepared to maintain in the long run and by when it expects to get debt down to that level.

The advantages and disadvantages of different types of fiscal rules in the UK context have been set out in various editions of the IFS Green Budget.²⁷ In general, there is a trade-off between flexibility and credibility when designing fiscal rules. Some flexibility in the design of rules is desirable as it allows politicians to, for example, accommodate economic shocks (which might temporarily increase or reduce borrowing), while continuing to operate prudent fiscal policy on average and remaining on course to meet sustainable fiscal objectives in the longer term. However, flexible rules can be open to inappropriate manipulation. If they are, or are perceived to be, inappropriately manipulated, then they risk losing value, since they may do little to constrain behaviour and little to anchor the expectations of potential creditors.

One way to mitigate this trade-off between flexibility and credibility is to set up an independent fiscal monitoring body, which can provide a credible, impartial assessment of whether the government is meeting the spirit as well as the letter of the fiscal rules. Scotland should, therefore, establish such an independent fiscal council following independence. Such a body could be similar to the OBR in the UK, which is tasked with producing economic and fiscal forecasts for the UK, auditing the government's costings of policy reforms, and assessing whether the government's fiscal policy is consistent with meeting its fiscal rules and with long-run sustainability.²⁸ However, there may also be advantages in a Scottish fiscal body having a broader remit than the OBR. For example, it could be given powers to evaluate government policy more widely, or to consider the effects of different policy options. In addition, an independent Scottish fiscal body would have an important role to play in forecasting and monitoring the use of North Sea revenues (discussed further below).

Scotland would face many of the same challenges in managing its public finances as the rest of the UK does, but there are two particular complications the Scottish government would need to deal with when designing its fiscal rules. We discuss these in turn.

²⁷ Most recently, see Emmerson, Keynes and Tetlow (2013).

²⁸ The role of the OBR in the UK is discussed in more detail in Crawford, Emmerson and Tetlow (2011).

5.1 Implications of currency options for fiscal rules

If Scotland were to adopt a currency other than the pound (though it should be noted that the current SNP government has said it would keep the pound in the event of independence), then on independence it would still have a large existing stock of debt denominated in pounds sterling. As a result, the stock of debt, and debt interest payments, would be influenced by exchange rate movements and could be volatile. This could make it difficult to abide by some kinds of fiscal rules – for example, annual limits on public sector net borrowing or the current budget balance (as opposed to, say, the primary balance, which excludes interest payments) or targets for the level or profile of debt. It would also affect what level of debt Scotland could sustain without making its investors nervous.

5.2 Implications of North Sea oil and gas for fiscal rules

Revenues from the North Sea make up a significantly greater proportion of total revenues in Scotland than they do in the UK as a whole. As described in Chapter 2, assuming a geographic allocation, North Sea revenues in 2011–12 amounted to 18.6% of total revenues for Scotland, compared with just 2.0% for the UK as a whole. As a result, the Scottish public finances are much more exposed to two important features of this revenue stream – its volatility and the expected long-run decline. Each of these has implications for the sort of fiscal rules and institutions an independent Scottish government might want to have.

Coping with volatility

The volatility of oil revenues over the last 30 years is described in more detail in Johnson and Phillips (2012) and HM Treasury (2013). The volatility of such an important revenue stream has important implications for the volatility of overall receipts. For example, HM Treasury (2013) illustrates that the average absolute year-on-year fluctuation in real receipts in Scotland over the last 30 years was 6.1%, compared with 3.7% for the UK. This would make it difficult for a government to plan in advance what its spending plans might imply for total borrowing. Any fiscal rule a Scottish government introduced with respect to the annual budget balance (or indeed the average balance over the economic cycle) would therefore need to be designed carefully to take account of this volatility. If not, lower-than-expected North Sea revenues might require the government to introduce unexpected temporary tax increases or spending cuts (so as not to exceed planned borrowing limits). Temporary tax or spending changes of this sort would be likely to have adverse effects on economic growth and stability. Therefore, an independent Scotland would be well-advised to target a measure of the deficit that excluded North Sea revenues.

An alternative, adopted in many oil-producing countries and recommended by the Fiscal Commission Working Group (FCWG) in Scotland, would be for Scotland to set up a *stabilisation fund*. This is a fund that the Scottish government would

pay into when North Sea revenues were higher than some threshold, and be able to draw on when North Sea revenues were lower than some threshold.²⁹ If the threshold were set at a cautious forecast of average long-run revenues, such a fund would enable the Scottish government to smooth North Sea revenues, and thus its borrowing requirements over time (which could reduce borrowing costs). Such a fund could operate alongside a fiscal rule targeting the annual budget balance that either treats North Sea revenues separately, or treats both North Sea revenues and calls on the stabilisation fund the same as other revenues. Such a stabilisation fund could, however, be misused by politicians if they were free to apply inappropriate assumptions about the long-run forecast for revenues. Therefore, if Scotland were to choose to operate such a fund, the case for also setting up an independent fiscal body (which could determine and regularly assess the cautious long-run forecast for North Sea revenues that would underpin the stabilisation fund), alongside some clear guidance on the objectives of the fund, would be strengthened further.

Coping with the long-run decline of North Sea revenues

North Sea revenues are going to decline in the long run as the supply of oil and gas from the North Sea declines. For a newly independent Scottish government to give credibility to its management of the public finances, it would have to be explicit about how it would deal with this issue. The government could, for example, simply provide a credible long-term indication of how the expected fall in North Sea revenues would be offset through increases in other taxes or cuts to spending. It should be stressed that this would not be an easy task: even in 2017–18, the latest OBR forecasts for North Sea revenues suggest that they will account for 2.2% of Scotland's national income. A significant tax increase would be required to raise this level of revenue elsewhere: for example, it is equivalent to an increase of 10 percentage points in the basic rate of income tax or an increase of 8 percentage points in the main rate of VAT.³⁰ Such a tax rise would be likely to result in an increase in the overall tax burden on Scottish nationals (since much of the taxes levied on North Sea activity will be incident on the shareholders or customers of companies operating in the North Sea, many of whom will not be resident in Scotland).

A better approach in the medium term might be for the Scottish government to start using a proportion of its oil revenues to accumulate assets (or reduce debt) rather than pay for current spending. Such a *long-term savings fund* has been proposed by the FCWG, and such funds are operated by many countries with large income streams from non-renewable natural resources, such as Norway. The key advantage of this strategy is that, by (partially) offsetting the decline of natural resources with an accumulation of other assets, the natural resources of

²⁹ This threshold would need to decline over time in order to take into account the predicted long-run decline in North Sea revenues.

³⁰ The revenue yields from a number of illustrative tax rises in Scotland are estimated in Adam, Johnson and Roantree (2013).

Scotland could be used to benefit all generations rather than just those who extracted and sold the resources. If sufficient assets were accumulated, this stock of wealth could even provide a stream of income that could in part replace North Sea revenues in future.³¹

A long-term savings fund would be required to be carefully built into any fiscal rules the Scottish government introduced. The rules would need to define what proportion of North Sea revenues should be paid into the savings fund and when, and the circumstances in which the fund could be drawn on to prevent this being done on an ad hoc basis. However, establishing such a long-term savings fund would require the Scottish government to reduce public spending to the point where it could be largely met by revenues excluding those from the North Sea, so at least some of the revenues from the North Sea could be contributed to the fund. As Figure 2.4 demonstrated, our basic projection suggests that (even including revenues from the North Sea) Scotland would face a gap between spending and revenues in 2017–18 of 4.3% of national income. In order to start building up an actual savings fund, the Scottish government would first need to close the majority of this gap.

5.3 Summary

In summary, a newly independent government of Scotland – without an established reputation among creditors – would be likely to reap significant rewards from putting in place fiscal rules and an independent fiscal council that could reassure potential investors that the Scottish government was committed to prudent management of the public finances. Scotland would face a number of fiscal challenges that would have to be taken into account when deciding what the appropriate design of these rules would be. First, any rule that constrained annual borrowing (or borrowing over the ups and downs of an economic cycle) would need to deal with Scotland’s exposure to North Sea revenues, which are volatile and expected to decline over time. For both these reasons, there would be a strong case to focus on a measure of annual borrowing that excluded these revenues. Second, any longer-run target for debt would need to take into account that Scotland would not have an established track record with creditors and is currently reliant (at least relative to the UK) on an income stream (from the North Sea) that will decline. The appropriate choice of targets would also be affected by a number of other factors, such as the currency regime chosen, which are beyond the scope of this report. One thing that is clear, however, is the potential benefit to an independent Scotland of establishing an independent fiscal body to provide an impartial assessment of whether the Scottish government is meeting the spirit as well as the letter of any fiscal rules, a reasonable central

³¹ It is worth noting, however, that HM Treasury (2013) cautions against being too optimistic about the amount of future revenue that can be expected from such a fund. HMT modelling of an oil fund for an independent Scotland suggests that even if an oil fund were started in 2021–22, all oil revenues were contributed to the fund each year and the fund received a real return of 4% per year, in the very long run the fund would still only provide an annual return to the government of around 0.5% of national income.

Fiscal sustainability of an independent Scotland

estimate of the outlook for Scottish public finances over the short, medium and long run, and a discussion of the key risks to these forecasts. Such a body, with a suitable structure and remit, would have the effect of boosting a new Scottish government's credibility with creditors and give it greater ability to operate appropriately flexible fiscal rules that could allow for short-run stabilisation and long-run sustainability.

6. Conclusions

In this report, we have examined the long-run fiscal pressures that would face Scotland in the event of independence. Despite the considerable degree of uncertainty about the future path of borrowing and debt in Scotland, the main conclusion of our analysis is that Scotland would require a significant additional fiscal tightening, over-and-above that already announced by the UK government, in order to bring its long-term public finances on to a sustainable footing. The same is true for the UK as a whole, though the scale of fiscal tightening required is smaller. We estimate that the UK as a whole would require a permanent fiscal tightening worth 0.8% of national income (or about £13 billion in today's terms), to be implemented in 2021–22, in order to be on course for debt to return to 40% of national income by 2062–63. The fiscal gap for Scotland (using the same definition) is estimated to be 1.9% of Scotland's national income even in a relatively optimistic scenario in which it continues to implement the spending cuts currently planned by the UK government in 2016–17 and 2017–18, experiences higher inward migration, enjoys a much later decline in North Sea revenues than forecast by the OBR, only takes on debt equal to 40% of national income at the point of independence, and is able to continue borrowing at the same interest rate as forecast for the UK. All the other scenarios we consider in this report have a considerably worse outlook for the long-run public finance position of Scotland. Our model suggests that public sector debt across the UK will decline from 2017–18 until the end of the 2030s. However, all but one of the scenarios we have presented for Scotland suggest that Scottish debt would rise as a share of national income every year, in the absence of further policy action. The fiscal pressures facing an independent Scotland would therefore be more immediately pressing than those facing the UK as a whole.

Given this, the Scottish government should be clear now about the fiscal challenges that could be faced on independence. This is important for any government, especially those that are reliant on external creditors. However, it would be particularly important for a newly independent government of Scotland without an established reputation for fiscal management. Scotland would therefore be likely to reap significant rewards from putting in place fiscal rules and introducing an independent fiscal council that could reassure potential investors that the Scottish government was committed to prudent management of the public finances. Thus far, the set of policies that the current Scottish government has suggested for an independent Scotland would serve to increase public borrowing, not reduce it. An independent Scotland would have the freedom to make its own decisions about spending priorities and the appropriate design of the tax system, but it would be constrained by the necessity to deliver a significant cut in spending and/or increase in tax revenues in order to put its public finances in a sustainable long-run position.

Appendix A. Additional tables

Table A.1. Change in spending, revenues, borrowing and debt between 2012–13 and 2062–63: UK, basic model

	<i>% of national income</i>			<i>Average annual real growth per person</i>	
	2012–13	2017–18	2062–63	2012–13 to 2062–63	2017–18 to 2062–63
Health	8.0	7.4	8.7	2.2	2.4
Long-term care	1.2	1.3	2.4	3.4	3.4
Education	5.6	4.5	4.3	1.5	2.0
Pensions	6.0	5.8	8.3	2.7	2.9
Public service pensions	2.2	2.3	1.4	1.0	0.9
Non-pension benefits	7.8	6.5	7.0	1.8	2.2
Other spending	11.4	8.8	8.4	1.4	2.0
Total non-interest spending	42.3	36.7	40.6	1.9	2.3
Income tax	9.7	10.5	10.9	2.2	2.1
National Insurance contributions	6.7	7.0	6.9	2.1	2.1
Corporation tax (excluding North Sea)	2.2	1.9	1.9	1.7	2.1
North Sea revenues	0.4	0.2	0.2	0.8	2.1
VAT	6.5	6.3	6.5	2.0	2.1
Capital taxes	1.0	1.5	2.0	3.3	2.8
Other revenues	10.3	10.2	10.6	2.1	2.2
Total non-interest revenues	37.0	37.6	39.1	2.1	2.2
Total non-interest revenues (excluding North Sea)	36.6	37.3	38.9	2.1	2.2
Primary balance	-5.3	0.9	-1.5	–	–
Net interest	2.1	3.1	3.4	–	–
Public sector net borrowing	7.4	2.2	4.9	–	–
Public sector net debt	75.9	84.8	77.1	–	–
Total managed expenditure	45.3	40.5	44.7	2.0	2.3
Current receipts	38.0	38.3	39.8	2.1	2.2

Note: Real growth figures calculated using GDP deflator. Total managed expenditure is the sum of non-interest spending plus gross debt interest payments. Current receipts are the sum of non-interest revenues and interest and dividends received.

Source: Authors' calculations using the IFS long-run public finance model.

Table A.2. Change in spending, revenues, borrowing and debt between 2012–13 and 2062–63: Scotland, basic model

	<i>% of national income</i>			<i>Average annual real growth per person</i>	
	2012–13	2017–18	2062–63	2012–13 to 2062–63	2017–18 to 2062–63
Health	7.4	6.9	8.4	2.2	2.5
Long-term care	1.0	1.1	2.2	3.5	3.5
Education	4.8	3.7	3.7	1.4	2.0
Pensions	5.1	5.0	7.7	2.8	3.0
Public service pensions	2.0	2.1	1.4	1.2	1.0
Non-pension benefits	6.6	5.5	6.1	1.8	2.2
Other spending	12.9	10.4	10.0	1.4	1.9
Total non-interest spending	39.9	34.7	39.4	1.9	2.3
Income tax	7.3	7.9	8.3	2.2	2.1
National Insurance contributions	5.7	5.9	5.8	2.0	2.0
Corporation tax (excluding North Sea)	2.0	1.7	1.8	1.7	2.1
North Sea revenues	4.0	2.2	2.2	0.7	2.0
VAT	5.7	5.6	5.8	2.0	2.1
Capital taxes	0.6	0.8	1.1	3.3	2.8
Other revenues	9.3	9.2	9.7	2.0	2.1
Total non-interest revenues	34.6	33.2	34.7	2.0	2.1
<i>Total non-interest revenues (excluding North Sea)</i>	<i>30.6</i>	<i>31.0</i>	<i>32.5</i>	<i>2.1</i>	<i>2.1</i>
Primary balance	-5.3	-1.5	-4.7	–	–
Net interest	1.8	2.8	10.9	–	–
Public sector net borrowing	7.0	4.3	15.6	–	–
Public sector net debt	64.2	76.2	233.2	–	–
Total managed expenditure	42.5	38.1	50.8	2.3	2.7
Current receipts	35.5	33.8	35.3	1.9	2.1

Note: Real growth figures calculated using GDP deflator. Total managed expenditure is the sum of non-interest spending plus gross debt interest payments. Current receipts are the sum of non-interest revenues and interest and dividends received.

Source: Authors' calculations using the IFS long-run public finance model.

Table A.3. Change in spending, revenues, borrowing and debt between 2012–13 and 2062–63: Scotland, ‘high migration’

	<i>% of national income</i>			<i>Average annual real growth per person</i>	
	2012–13	2017–18	2062–63	2012–13 to 2062–63	2017–18 to 2062–63
Health	7.4	6.9	8.0	2.1	2.4
Long-term care	1.0	1.1	1.9	3.2	3.3
Education	4.8	3.7	3.7	1.4	2.0
Pensions	5.1	4.9	6.7	2.5	2.7
Public service pensions	2.0	2.1	1.2	0.9	0.8
Non-pension benefits	6.6	5.5	6.0	1.7	2.2
Other spending	12.9	10.4	10.0	1.4	1.9
Total non-interest spending	39.9	34.7	37.5	1.8	2.2
Income tax	7.3	7.9	8.2	2.2	2.1
National Insurance contributions	5.6	5.9	5.8	2.0	2.0
Corporation tax (excluding North Sea)	2.0	1.7	1.8	1.7	2.1
North Sea revenues	4.0	2.2	2.2	0.7	2.0
VAT	5.7	5.6	5.8	2.0	2.1
Capital taxes	0.6	0.8	1.1	3.2	2.7
Other revenues	9.3	9.1	9.5	2.0	2.1
Total non-interest revenues	34.6	33.2	34.4	1.9	2.1
Total non-interest revenues (excluding North Sea)	30.6	31.0	32.3	2.1	2.1
Primary balance	-5.3	-1.5	-3.1	–	–
Net interest	1.8	2.8	8.0	–	–
Public sector net borrowing	7.0	4.3	11.1	–	–
Public sector net debt	64.2	76.1	172.1	–	–
Total managed expenditure	42.5	38.1	46.1	2.1	2.5
Current receipts	35.4	33.8	35.0	1.9	2.1

Note: Real growth figures calculated using GDP deflator. Total managed expenditure is the sum of non-interest spending plus gross debt interest payments. Current receipts are the sum of non-interest revenues and interest and dividends received.

Source: Authors’ calculations using the IFS long-run public finance model.

Table A.4. Change in spending, revenues, borrowing and debt between 2012–13 and 2062–63: Scotland, ‘natural change’

	<i>% of national income</i>			<i>Average annual real growth per person</i>	
	2012–13	2017–18	2062–63	2012–13 to 2062–63	2017–18 to 2062–63
Health	7.4	6.8	9.0	2.3	2.6
Long-term care	1.0	1.1	2.5	3.8	3.8
Education	4.8	3.7	3.6	1.3	1.9
Pensions	5.1	4.9	8.9	3.1	3.3
Public service pensions	2.0	2.1	1.6	1.5	1.3
Non-pension benefits	6.7	5.5	6.2	1.8	2.2
Other spending	12.9	10.4	10.0	1.4	1.9
Total non-interest spending	39.9	34.6	41.7	2.0	2.4
Income tax	7.3	7.9	8.4	2.2	2.1
National Insurance contributions	5.7	5.9	5.8	2.0	1.9
Corporation tax (excluding North Sea)	2.0	1.7	1.8	1.7	2.0
North Sea revenues	4.0	2.2	2.2	0.7	1.9
VAT	5.7	5.6	5.9	2.0	2.1
Capital taxes	0.6	0.8	1.2	3.3	2.8
Other revenues	9.3	9.1	9.8	2.1	2.1
Total non-interest revenues	34.7	33.2	35.1	2.0	2.1
Total non-interest revenues (excluding North Sea)	30.6	31.0	32.9	2.1	2.1
Primary balance	-5.2	-1.4	-6.7	–	–
Net interest	1.8	2.8	13.5	–	–
Public sector net borrowing	7.0	4.3	20.1	–	–
Public sector net debt	64.1	75.9	288.9	–	–
Total managed expenditure	42.5	38.0	55.8	2.5	2.8
Current receipts	35.5	33.8	35.7	2.0	2.1

Note: Real growth figures calculated using GDP deflator. Total managed expenditure is the sum of non-interest spending plus gross debt interest payments. Current receipts are the sum of non-interest revenues and interest and dividends received.

Source: Authors’ calculations using the IFS long-run public finance model.

Table A.5. Change in spending, revenues, borrowing and debt between 2012–13 and 2062–63: Scotland, 1.7% productivity growth

	<i>% of national income</i>			<i>Average annual real growth per person</i>	
	2012–13	2017–18	2062–63	2012–13 to 2062–63	2017–18 to 2062–63
Health	7.4	6.9	8.4	1.8	2.0
Long-term care	1.0	1.1	2.2	3.1	3.1
Education	4.8	3.7	3.7	1.0	1.5
Pensions	5.1	5.0	8.1	2.5	2.7
Public service pensions	2.0	2.1	1.5	0.9	0.7
Non-pension benefits	6.6	5.5	6.1	1.3	1.8
Other spending	12.9	10.4	10.0	1.0	1.4
Total non-interest spending	39.9	34.7	39.9	1.5	1.9
Income tax	7.3	7.9	8.3	1.8	1.6
National Insurance contributions	5.7	5.9	5.8	1.6	1.5
Corporation tax (excluding North Sea)	2.0	1.7	1.8	1.2	1.6
North Sea revenues	4.0	2.2	2.2	0.3	1.5
VAT	5.7	5.6	5.8	1.6	1.6
Capital taxes	0.6	0.8	1.1	2.8	2.3
Other revenues	9.3	9.2	9.7	1.6	1.7
Total non-interest revenues	34.6	33.2	34.7	1.5	1.6
Total non-interest revenues (excluding North Sea)	30.6	31.0	32.5	1.7	1.6
Primary balance	-5.3	-1.5	-5.3	–	–
Net interest	1.8	2.8	13.1	–	–
Public sector net borrowing	7.0	4.4	18.4	–	–
Public sector net debt	64.2	76.3	281.3	–	–
Total managed expenditure	42.5	38.1	53.7	2.0	2.3
Current receipts	35.5	33.8	35.3	1.5	1.6

Note: Real growth figures calculated using GDP deflator. Total managed expenditure is the sum of non-interest spending plus gross debt interest payments. Current receipts are the sum of non-interest revenues and interest and dividends received.

Source: Authors' calculations using the IFS long-run public finance model.

Table A.6. Change in spending, revenues, borrowing and debt between 2012–13 and 2062–63: Scotland, North Sea revenue decline (1)

	<i>% of national income</i>			<i>Average annual real growth per person</i>	
	2012–13	2017–18	2062–63	2012–13 to 2062–63	2017–18 to 2062–63
Health	7.4	6.9	8.4	2.2	2.5
Long-term care	1.0	1.1	2.2	3.5	3.5
Education	4.8	3.7	3.7	1.4	2.0
Pensions	5.1	5.0	7.7	2.8	3.0
Public service pensions	2.0	2.1	1.4	1.2	1.0
Non-pension benefits	6.6	5.5	6.1	1.8	2.2
Other spending	12.9	10.4	10.0	1.4	1.9
Total non-interest spending	39.9	34.7	39.4	1.9	2.3
Income tax	7.3	7.9	8.3	2.2	2.1
National Insurance contributions	5.7	5.9	5.8	2.0	2.0
Corporation tax (excluding North Sea)	2.0	1.7	1.9	1.8	2.3
North Sea revenues	4.0	2.2	0.1	–6.0	–5.5
VAT	5.7	5.6	5.8	2.0	2.1
Capital taxes	0.6	0.8	1.1	3.3	2.8
Other revenues	9.3	9.2	9.7	2.0	2.1
Total non-interest revenues	34.6	33.2	32.7	1.8	2.0
<i>Total non-interest revenues (excluding North Sea)</i>	<i>30.6</i>	<i>31.0</i>	<i>32.7</i>	<i>2.1</i>	<i>2.1</i>
Primary balance	–5.3	–1.5	–6.6	–	–
Net interest	1.8	2.8	14.6	–	–
Public sector net borrowing	7.1	4.3	21.2	–	–
Public sector net debt	64.2	76.2	310.6	–	–
Total managed expenditure	42.5	38.1	54.5	2.5	2.8
Current receipts	35.5	33.8	33.3	1.8	2.0

Note: Real growth figures calculated using GDP deflator. Total managed expenditure is the sum of non-interest spending plus gross debt interest payments. Current receipts are the sum of non-interest revenues and interest and dividends received.

Source: Authors' calculations using the IFS long-run public finance model.

Table A.7. Change in spending, revenues, borrowing and debt between 2012–13 and 2062–63: Scotland, North Sea revenue decline (2)

	<i>% of national income</i>			<i>Average annual real growth per person</i>	
	2012–13	2017–18	2062–63	2012–13 to 2062–63	2017–18 to 2062–63
Health	7.4	6.9	8.4	2.2	2.5
Long-term care	1.0	1.1	2.2	3.5	3.5
Education	4.8	3.7	3.7	1.4	2.0
Pensions	5.1	5.0	7.7	2.8	3.0
Public service pensions	2.0	2.1	1.4	1.2	1.0
Non-pension benefits	6.6	5.5	6.1	1.8	2.2
Other spending	12.9	10.4	10.0	1.4	1.9
Total non-interest spending	39.9	34.7	39.4	1.9	2.3
Income tax	7.3	7.9	8.3	2.2	2.1
National Insurance contributions	5.7	5.9	5.8	2.0	2.0
Corporation tax (excluding North Sea)	2.0	1.7	1.9	1.8	2.3
North Sea revenues	4.0	6.4	1.0	–0.9	–2.2
VAT	5.7	5.6	5.8	2.0	2.1
Capital taxes	0.6	0.8	1.1	3.3	2.8
Other revenues	9.3	9.2	9.7	2.0	2.1
Total non-interest revenues	34.6	37.4	33.6	1.9	1.8
Total non-interest revenues (excluding North Sea)	30.6	31.0	32.7	2.1	2.1
Primary balance	–5.3	2.7	–5.7	–	–
Net interest	1.8	2.6	9.4	–	–
Public sector net borrowing	7.1	–0.1	15.2	–	–
Public sector net debt	64.2	69.6	203.9	–	–
Total managed expenditure	42.5	37.9	49.8	2.3	2.6
Current receipts	35.5	38.0	34.2	1.9	1.8

Note: Real growth figures calculated using GDP deflator. Total managed expenditure is the sum of non-interest spending plus gross debt interest payments. Current receipts are the sum of non-interest revenues and interest and dividends received.

Source: Authors' calculations using the IFS long-run public finance model.

Table A.8. Change in spending, revenues, borrowing and debt between 2012–13 and 2062–63: Scotland, 40% debt & ‘high migration’ & North Sea decline (2) scenario

	<i>% of national income</i>			<i>Average annual real growth per person</i>	
	2012–13	2017–18	2062–63	2012–13 to 2062–63	2017–18 to 2062–63
Health	7.4	6.9	8.0	2.1	2.4
Long-term care	1.0	1.1	1.9	3.2	3.3
Education	4.8	3.7	3.7	1.4	2.0
Pensions	5.1	4.9	6.7	2.5	2.7
Public service pensions	2.0	2.1	1.2	0.9	0.8
Non-pension benefits	6.6	5.5	6.0	1.7	2.2
Other spending	12.9	10.4	10.0	1.4	1.9
Total non-interest spending	39.9	34.7	37.5	1.8	2.2
Income tax	7.3	7.9	8.2	2.2	2.1
National Insurance contributions	5.6	5.9	5.8	2.0	2.0
Corporation tax (excluding North Sea)	2.0	1.7	1.8	1.7	2.1
North Sea revenues	4.0	6.4	0.8	–1.3	–2.5
VAT	5.7	5.6	5.8	2.0	2.1
Capital taxes	0.6	0.8	1.1	3.2	2.7
Other revenues	9.3	9.1	9.5	2.0	2.1
Total non-interest revenues	34.6	37.4	33.1	1.9	1.8
Total non-interest revenues (excluding North Sea)	30.6	31.0	32.3	2.1	2.1
Primary balance	–5.3	2.7	–4.4	–	–
Net interest	1.1	1.3	5.7	–	–
Public sector net borrowing	6.4	–1.4	10.1	–	–
Public sector net debt	40.0	38.0	125.8	–	–
Total managed expenditure	41.8	36.6	43.8	2.1	2.4
Current receipts	35.4	38.0	33.7	1.9	1.8

Note: Real growth figures calculated using GDP deflator. Total managed expenditure is the sum of non-interest spending plus gross debt interest payments. Current receipts are the sum of non-interest revenues and interest and dividends received.

Source: Authors’ calculations using the IFS long-run public finance model.

Table A.9. Change in spending, revenues, borrowing and debt between 2012–13 and 2062–63: Scotland, 1.7% productivity growth & North Sea decline (1) scenario

	<i>% of national income</i>			<i>Average annual real growth per person</i>	
	2012–13	2017–18	2062–63	2012–13 to 2062–63	2017–18 to 2062–63
Health	7.4	6.9	8.4	1.8	2.0
Long-term care	1.0	1.1	2.2	3.1	3.1
Education	4.8	3.7	3.7	1.0	1.5
Pensions	5.1	5.0	8.1	2.5	2.7
Public service pensions	2.0	2.1	1.5	0.9	0.7
Non-pension benefits	6.6	5.5	6.1	1.3	1.8
Other spending	12.9	10.4	10.0	1.0	1.4
Total non-interest spending	39.9	34.7	39.9	1.5	1.9
Income tax	7.3	7.9	8.3	1.8	1.6
National Insurance contributions	5.7	5.9	5.8	1.6	1.5
Corporation tax (excluding North Sea)	2.0	1.7	1.8	1.2	1.6
North Sea revenues	4.0	2.2	0.1	–6.0	–5.5
VAT	5.7	5.6	5.8	1.6	1.6
Capital taxes	0.6	0.8	1.1	2.8	2.3
Other revenues	9.3	9.2	9.7	1.6	1.7
Total non-interest revenues	34.6	33.2	32.6	1.4	1.5
Total non-interest revenues (excluding North Sea)	30.6	31.0	32.5	1.7	1.6
Primary balance	–5.3	–1.5	–7.3	–	–
Net interest	1.8	2.8	17.5	–	–
Public sector net borrowing	7.1	4.4	24.8	–	–
Public sector net debt	64.2	76.3	372.0	–	–
Total managed expenditure	42.5	38.1	58.0	2.2	2.5
Current receipts	35.5	33.8	33.2	1.4	1.5

Note: Real growth figures calculated using GDP deflator. Total managed expenditure is the sum of non-interest spending plus gross debt interest payments. Current receipts are the sum of non-interest revenues and interest and dividends received.

Source: Authors' calculations using the IFS long-run public finance model.

Appendix B. How do Scottish fiscal aggregates compare with other advanced economies?

This report focuses on comparing projections for the Scottish public finances with those for the UK. However, forecasts from the International Monetary Fund (IMF) can be used to compare forecasts for the UK's public finances with those of other advanced economies, and, with some adjustments, we can perform a similar comparison for Scotland.

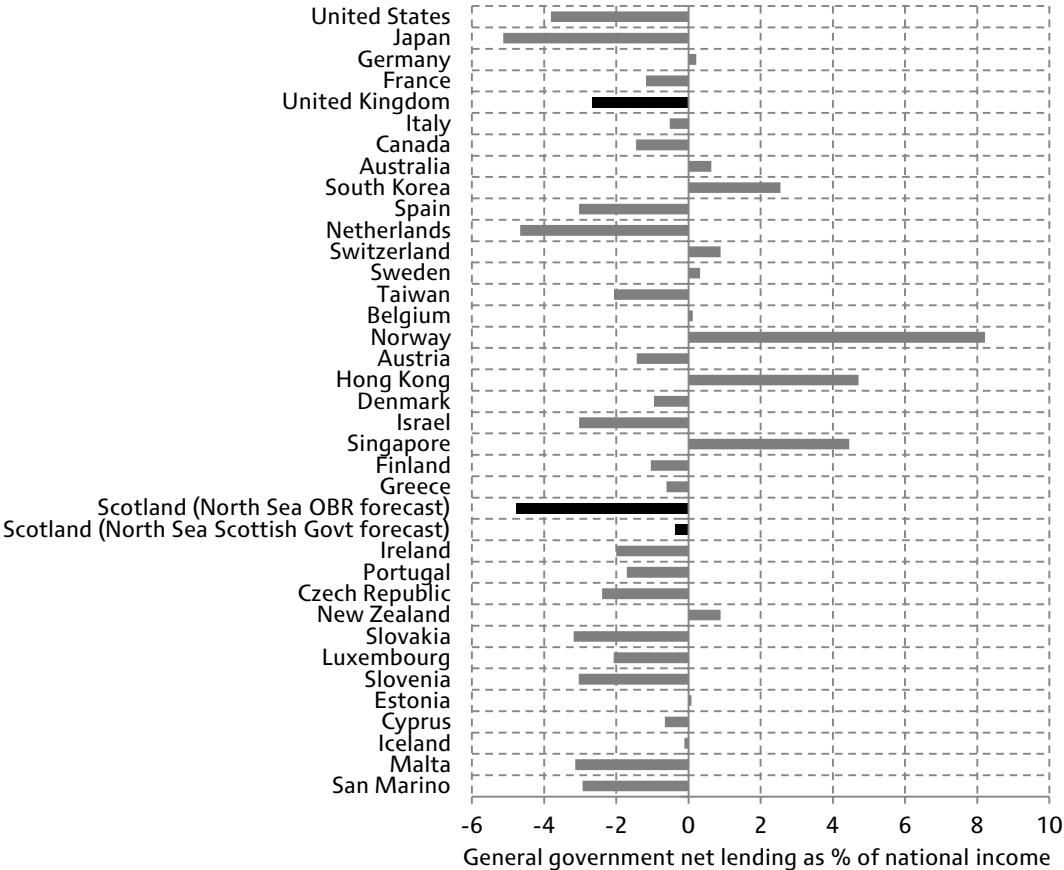
The IMF projection for 2017 is that, out of 35 advanced economies, the UK will have the 23rd highest level of tax revenues as a share of national income and the 23rd highest level of government spending as a share of national income. Our estimates suggest that Scotland would, on a broadly comparable basis (and assuming that the OBR's projection for declining North Sea revenues up to 2017 is correct), have the 30th highest level of tax but the 25th highest level of spending out of the 36 economies (that is, 36 including Scotland). These numbers suggest that the size of the state in Scotland, as measured by either the tax burden or the level of public spending as a share of national income, would not be unusually small or large in 2017 compared with other advanced economies.

Figure B.1 shows the IMF projections for government net lending in 2017 for 35 advanced economies, including the UK, alongside our estimates of how Scotland would compare on a broadly comparable basis. The countries shown are ranked in terms of the size of their national income, from the largest at the top (United States) to the smallest at the bottom (San Marino). The IMF forecast for 2017 is that the UK will have the 10th largest deficit out of the 35 economies. Our calculations suggest that Scotland's projected deficit would (under the OBR's central projection for North Sea revenue) be higher than in all but one of the economies shown. The exception is Japan, which is, of course, the world's third largest economy (after the United States and China). Japan is an unusual case, however, in that it has an unusually high supply of domestic credit, which allows it to borrow relatively cheaply – a situation that an independent Scotland would be unlikely to face.

Most economies of a similar size to Scotland have a projected deficit in 2017 that is much lower. However, the projection for Scotland is very sensitive to the path of North Sea revenues. This is highlighted in Figure B.1 by an alternative scenario under which these North Sea revenues evolve as projected by the Scottish Government.³² Under this scenario, Scotland would have a below-average level of projected deficit in 2017.

³² 'Scenario 5' from Scottish Government (2013b).

Figure B.1. General government net lending, 2017

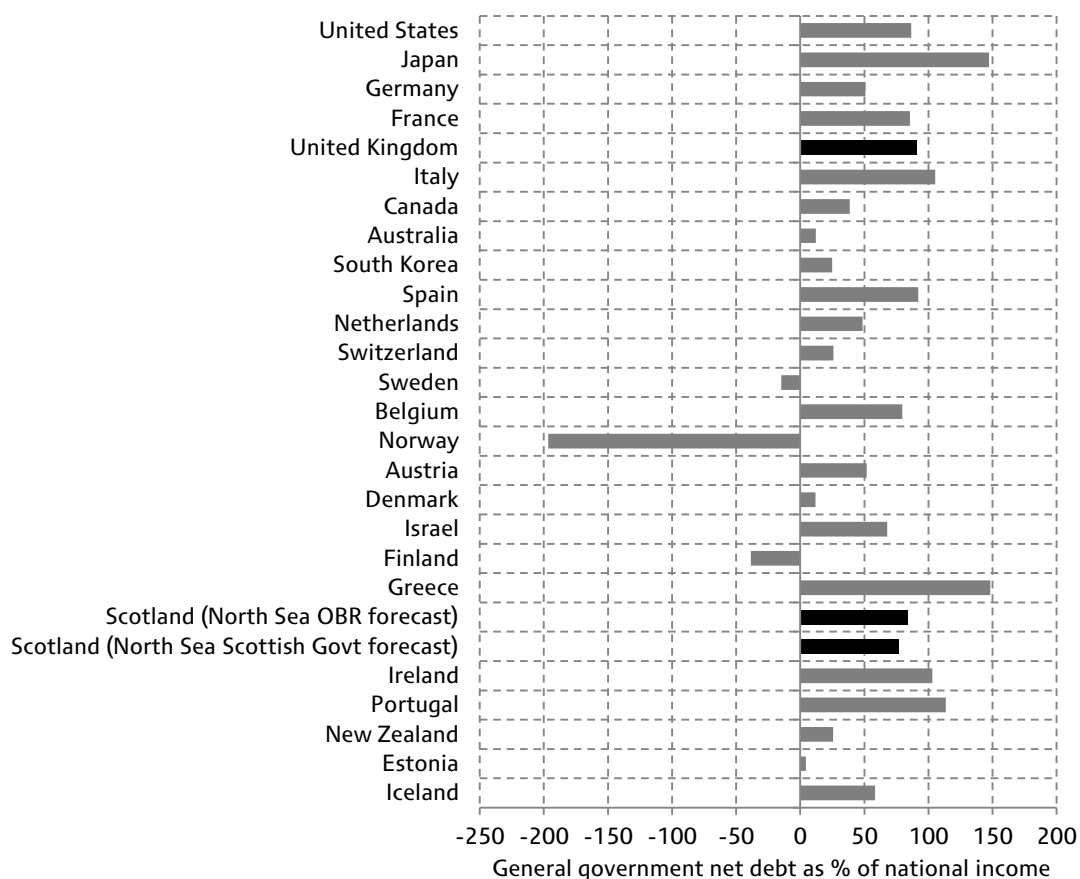


Note: This figure shows general government net lending rather than public sector net borrowing, as presented throughout the rest of this report. Figures presented for Scotland adjusted for comparability with IMF forecasts.

Source: Authors’ calculations using IMF, World Economic Outlook Database, 2013 and the IFS long-run public finance model.

IMF projections for government debt are only available for 25 of the 35 economies; projections for seven of the 10 smallest economies are missing. These forecasts are shown in Figure B.2, alongside estimates of how Scotland would compare on a broadly comparable basis. The UK is projected to have the 7th highest level of debt out of these 25 economies. Were an independent Scotland to inherit a level of debt corresponding to its population share of the UK, it would rank 10th out of the 26 economies (under the OBR’s central projection for North Sea revenue) – i.e. slightly better than the UK. Of course, if Scotland took less than its population share of UK debt then its position relative to other countries would be even better. In terms of other similarly-sized economies, Scotland’s debt position would also not be particularly high: Greece, Ireland and Portugal are all a similar size in terms of their projected GDP in 2017, and they are all forecast to have higher debt-to-GDP ratios than the UK and, therefore, than what we project an independent Scotland might expect to inherit. However, it is worth bearing in mind that these countries have experienced sharp increases in their debt levels over recent years and that Greece and Portugal both effectively defaulted on some of their debts.

Figure B.2. General government net debt, 2017



Note: This figure shows general government net debt rather than public sector net debt, as presented throughout the rest of this report. Figures presented for Scotland adjusted for comparability with IMF forecasts. Debt figures for Taiwan, Hong Kong, Singapore, the Czech Republic, Slovakia, Luxembourg, Slovenia, Cyprus, Malta and San Marino are not available. Source: Authors' calculations using IMF, World Economic Outlook Database, 2013 and the IFS long-run public finance model.

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