FISCAL CHALLENGES AND OPPORTUNITIES FOR AN INDEPENDENT SCOTLAND

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FISCAL CHALLENGES AND OPPORTUNITIES FOR AN INDEPENDENT SCOTLAND

Rowena Crawford and Gemma Tetlow*

This paper looks at some of the key fiscal questions related to Scottish independence, drawing on detailed analysis of household survey data, official data on public spending and revenues, and using a model of the UK and Scotland's public finances over the next half a century. We examine how and why public spending on, and revenues raised from, Scotland differ from the average across the UK, and how Scotland's fiscal position might be expected to evolve over the next 50 years under current policies.

Keywords: Scottish independence; fiscal policy; generational accounting

JEL Classifications: E62; H62

1. Introduction

Independence would bring both opportunities and challenges for Scotland. This paper examines a key fiscal question: How would Scotland's fiscal position evolve over the next 50 years under current policies? The answer to this depends importantly on the ways in which Scotland currently differs from the rest of the UK in terms of the level and distribution of private incomes and public spending and the amount that is raised from different taxes.

Our long-run projections for Scotland's public finances are derived from a model constructed using a similar methodology to Cardarelli, Sefton and Kotlikoff (2000). The main objective of models of this type is to illustrate the future evolution of revenues and spending driven by changes in the size and demographic composition of the population. However, other drivers of changes in revenues and spending can also be incorporated into the model. For Scotland, it is particularly important to allow for the future evolution of revenues from oil and gas production; these revenues will not be driven by demographic changes but rather by the availability of oil and gas reserves, the technology available to exploit them and global demand for this source of energy.

The results of our model are sensitive to a number of underlying assumptions. However, the broad conclusion of our modelling is that Scotland would face a tougher fiscal challenge over the next 50 years than the UK as a whole. This conclusion is largely the result of two factors. Scotland currently enjoys higher levels of public spending per person than are experienced on average across the UK. In 2011–12, this higher spending was more than matched by higher tax revenues, if one allows for a geographic share of revenues from offshore production to be allocated to Scotland. However, over the next 50 years, reserves of oil and gas are likely to be depleted and thus revenues from this source are likely to dwindle. These higher levels of spending and declining revenues will put pressure on Scotland's fiscal position;

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this will happen to a far greater extent for Scotland than it would for the UK as a whole, since oil and gas revenues, while not insignificant, are a far smaller share of total UK government revenues. Scotland's population is also forecast to age more rapidly than that of the UK as a whole, which would tend to put upward pressure on Scotland's public spending. However, our model suggests that, while population ageing will increase public spending quite substantially in both Scotland and the UK as a whole, the difference between the size of this effect in Scotland and the UK will be quite small. This is a very similar conclusion to that reached by Lisenkova and Mérette (2014) using a different methodology.

The remainder of this paper is structured as follows. Section 2 describes how income levels in, and the population structure of, Scotland compared to that of the UK in 2011–12, which is the last year for which a detailed analysis of the distribution of public spending and revenues between Scotland and the rest of the UK was available at the time of writing. Section 3 describes the construction of a model of the long-run public finances of Scotland and the UK. Section 4 then discusses how a number of assumptions about the evolution of the Scottish population and economy affect the outlook for Scotland's public finances over the next 50 years and – bearing in mind the uncertainties around any assumptions made – draws out the key conclusions about the fiscal outlook for an independent Scotland and how this would compare to the outlook for the UK as a whole. Section 5 concludes.

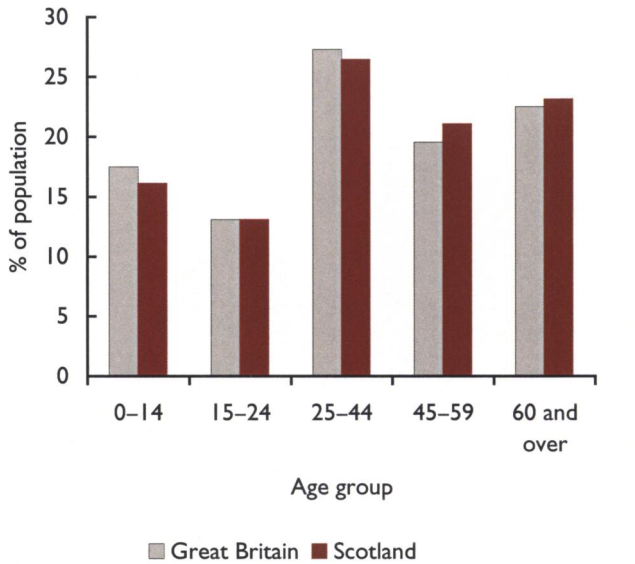
2. Spending and revenues in Scotland and the UK

In 2011–12, 8.4 per cent of the UK population lived in Scotland but they enjoyed 9.3 per cent of total UK public spending, while 9.9 per cent of tax revenues were generated in Scotland (including a geographic share of revenues from offshore production). Differences in the level of tax revenues and spending on welfare benefits reflect differences in the structure of the Scottish population and economy compared to the rest of the UK, while differences in the overall level of spending on public services largely reflect historic differences in how much of UK public service spending has been devoted to people in Scotland. The Scottish government also makes quite different decisions from Westminster about how it distributes spending across different public services, where it has discretion to do so.

2.1 Population and incomes

The age structure of the Scottish population is somewhat different from that of the rest of the country. As shown in figure 1, a smaller share of Scotland's population is aged under 45 (55.7 per cent) than across Great Britain (57.9 per cent). In particular, a much smaller share of the Scottish population is aged under 15. Instead, a larger share of the Scottish population is aged 45 and over. However, the oldest old (that is, those aged over 85) are slightly less prevalent in Scotland than in other parts of Great Britain.[1]

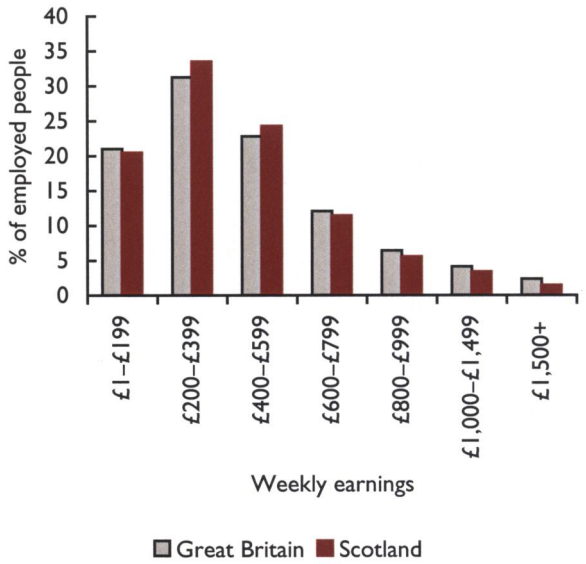
Figure 1. Age structure of the population in 2011: Scotland and Great Britain



Source: Figure 3 of Phillips (2013).

Employment rates in Scotland are close to the Great Britain average in most age groups.[2] In Scotland, 72.2 per cent of people of working age were in employment in 2012 – where working age is defined as men aged between 16 and 64 and women aged between 16 and 61. This compares to 72.4 per cent of working age people across Great Britain. However, earnings in Scotland are lower on average than across the whole of Great Britain. Average (mean) weekly earnings in Scotland were £438, compared to £460 for Great Britain as a whole.[3] As shown in figure 2, this is driven by Scotland having fewer very high earners, with the highest earners in Britain being disproportionately concentrated in London. This has an effect on the amount of income tax revenues raised, which is discussed in Section 2.4. Scotland has a similar fraction of people on low earnings to the rest of the country: 20.5 per cent of employed Scots earn less than £200 a week, compared to 21.0 per cent across Great Britain. As a result, eligibility for many

Figure 2. Distribution of weekly earnings in 2012: Scotland and Great Britain



Source: Figure 9 of Phillips (2013).

means-tested benefits is similar in Scotland to the Great Britain average, as described in Section 2.2.

Differences between employment rates and earnings levels in Scotland and the rest of Great Britain have been converging over recent years. A decade ago, employment rates were lower in Scotland than on average across Britain and average earnings lagged significantly further behind than they do now. In 1999, 69.4 per cent of Scots aged between 16 and 64 were in employment, compared to 72.9 per cent in England. By 2007, the employment rate of this group was 1.6 percentage points higher in Scotland than in England, although employment rates fell by more in Scotland during the recent recession than they did in England. Average earnings in Scotland have also moved closer to the British average. In 2002, mean earnings in Scotland were just 90.7 per cent of the mean across Great Britain. By 2012, this had increased to 95.7 per cent.[4]

2.2 Benefit spending

In 2011–12, benefit spending per person in Scotland was £3,238 a year, which was 2 per cent higher than the average across Great Britain as a whole (£3,176). This gap has been reducing over time.[5] Some differences in benefit spending levels between Scotland and the rest of Great Britain are driven by the differences in demographics described above. Spending per person on child-related benefits was 9 per cent lower in Scotland than on average across Great Britain, while spending on old-age benefits was 4 per cent higher.[6] These differences can almost entirely be explained by the smaller fraction of the Scottish population that is aged under 16 and the larger fraction aged 60 and over.

Two areas where average benefit spending does differ significantly between Scotland and the rest of Britain, however, are disability benefits and housing benefit. Average spending on disability-related benefits per person is 22 per cent higher in Scotland than across Great Britain. In part this is driven by the Scottish population being older on average than the population elsewhere in Britain, but this does not explain all of the difference: average spending on each person of a given age is also higher in Scotland than across Great Britain at virtually every age. This is, however, consistent with the fact that a greater fraction of adult Scots report being in poor health, at least up to the age of 70. Overall, 20.7 per cent of working age Scots report that they have a health problem that limits their daily activities, compared to 18.1 per cent of the working age population of Great Britain as a whole.[7]

Average spending per person on housing benefit is 12 per cent lower in Scotland than the average for Great Britain. The fraction of families who qualify for this benefit is actually similar, which is consistent with the similar proportion of low earners and similar employment rates set out above. However, the average entitlement among those who do receive the benefit is significantly lower in Scotland (£2,942 a year for each entitled family) than across Great Britain as a whole (£3,895). This is both because rents in the private and social sector are lower on average in Scotland and because more Scottish housing benefit claimants live in socially rented properties for which rents are on average lower than privately rented properties.

2.3 Spending on public services

In 2011–12, spending on public services for the benefit of Scotland was £7,932 per person, which was 17 per cent higher than average spending per person across the UK (£6,803). Current spending on public services in Scotland was 12.5 per cent higher than the average for the UK as a whole, while capital spending per person was 48.2 per cent higher. This higher level of spending largely reflects historic differences in the level of spending per person in Scotland. Although in theory the Barnett formula should act to reduce these differences over time, it will take a very long time for this to happen and may never happen if the population of Scotland continues to grow less quickly than the population of the UK as a whole.[8] Furthermore, the Barnett formula actually

has the effect of exacerbating differences in the level of spending during periods when nominal spending in England is being cut.

Public service spending per person in Scotland grew at an average real rate of 3.4 per cent a year between 2002–3 and 2009–10, compared to an average rate of 3.6 per cent across the whole of the UK – in other words, spending per person in Scotland converged, but not very much, with the UK average level over this period. However, between 2009–10 and 2011–12, public service spending per person was cut in real terms by 3.3 per cent a year in Scotland but by 4.6 per cent a year across the UK as a whole.

Around 15 per cent of spending on public services deemed to be for the benefit of Scotland is done by the UK government, with the remainder being administered and prioritised by the Scottish government and local authorities. The pattern of public service spending in Scotland differs quite substantially from that in the UK as a whole. For example, spending on education and training per person is almost exactly the same in Scotland as across the UK (just 0.4 per cent higher in Scotland), while spending on health is 8.9 per cent higher and spending on public order is 5.5 per cent lower in Scotland. In contrast, there are substantial differences between Scotland and the UK as a whole in the levels of spending on some other areas. Spending on transport was 56.5 per cent higher per person in Scotland, while spending on enterprise and economic development was more than three times as high. These differences have grown over the past decade, suggesting that, under devolution, the Scottish government has prioritised spending differently from the ranking chosen by the UK government for England.[9]

2.4 Tax revenues

In 2011–12, the UK government raised £9,420 of revenue per person in the UK. The Scottish government estimates that the figure for Scotland on its own was £11,172 per person, assuming that a geographic share of revenues from oil and gas is attributed to Scotland.[10] Onshore revenues per person were estimated to be similar in Scotland and the UK as a whole (£9,094 compared to £9,159); it is the much greater share of revenues from offshore production that accrue to Scotland that drives the large overall difference in total revenues.

The composition of onshore revenues in Scotland is, however, slightly different from that elsewhere in the UK, as shown in table 1. Income tax revenues per person were higher on average across the UK as a whole than in Scotland. This is largely driven by the fact that there are fewer very high income individuals in Scotland than elsewhere in the UK; these individuals are particularly concentrated in London. The highest income individuals, who receive a relatively large share of their income from sources other than earnings, contribute a very large fraction of total income tax revenues: HM Revenue and Customs reports that, in 2011–12, the top 1 per cent of income tax payers contributed 27.5 per cent of total income tax revenues.[11] In contrast, revenues from National Insurance contributions (NICs) – which are charged on earnings but not unearned income and are not as sensitive to the earnings of very high earners – are similar in Scotland (£1,649 per person) and the UK as a whole (£1,671).

Table 1. Revenues raised in Scotland and the UK, 2011–12

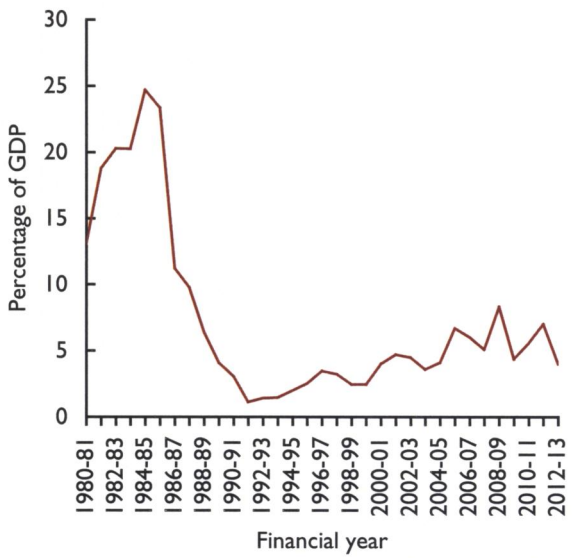
£ per person	UK	Scotland
Income tax	2411	2120
National Insurance contributions	1671	1649
Corporation tax (excl. North Sea)	541	585
North Sea revenues	185	2078
Capital taxes	266	179
VAT	1806	1877
Other indirect taxes	1015	1115
Other revenues	1525	1569
Total receipts	9420	11172

Source: Adam, Johnson and Roantree (2013), table 1.
Note: Figures for £ per person are expressed in 2013–14 prices (inflated from 2011–12 prices using the GDP deflator).

The taxes which raise more per head in Scotland than across the UK as a whole include VAT and excise duties. The latter reflects the fact that on average Scots consume more tobacco and more (or at least more heavily taxed forms of) alcohol than the UK average.

If allocated on a geographic basis, Scotland generated considerably more oil and gas revenues than the rest of the UK did. These revenues amounted to an estimated £2,078 per person in Scotland in 2011–12, compared to £185 per person on average across the UK.[12] In that year, these additional revenues were more than enough to outweigh the higher per capita public service spending in Scotland than elsewhere in the UK, described above. As a result, in 2011–12 borrowing per person in Scotland was £1,457 compared to £1,961 per person across the UK as a whole. However, this source of revenues is extremely volatile and the yield in 2011–12, at 7.0 per cent of Scottish GDP, was quite high by recent standards, as figure 3 highlights.

Figure 3. Scottish oil and gas revenues, as per cent of GDP



Source: Authors' calculations using GERS 2011–12 and SNAP Historical Fiscal Balance Calculations.

Although the estimated level of borrowing in Scotland in 2011–12 (£1,457 per person, or 5.0 per cent of GDP in total) was significantly lower than the 7.9 per cent of GDP borrowed by the UK as a whole, it was still relatively high by historic UK standards. Between 1948 and 2007–8, there were only seven years in which the UK government borrowed as much as 5.0 per cent of GDP.

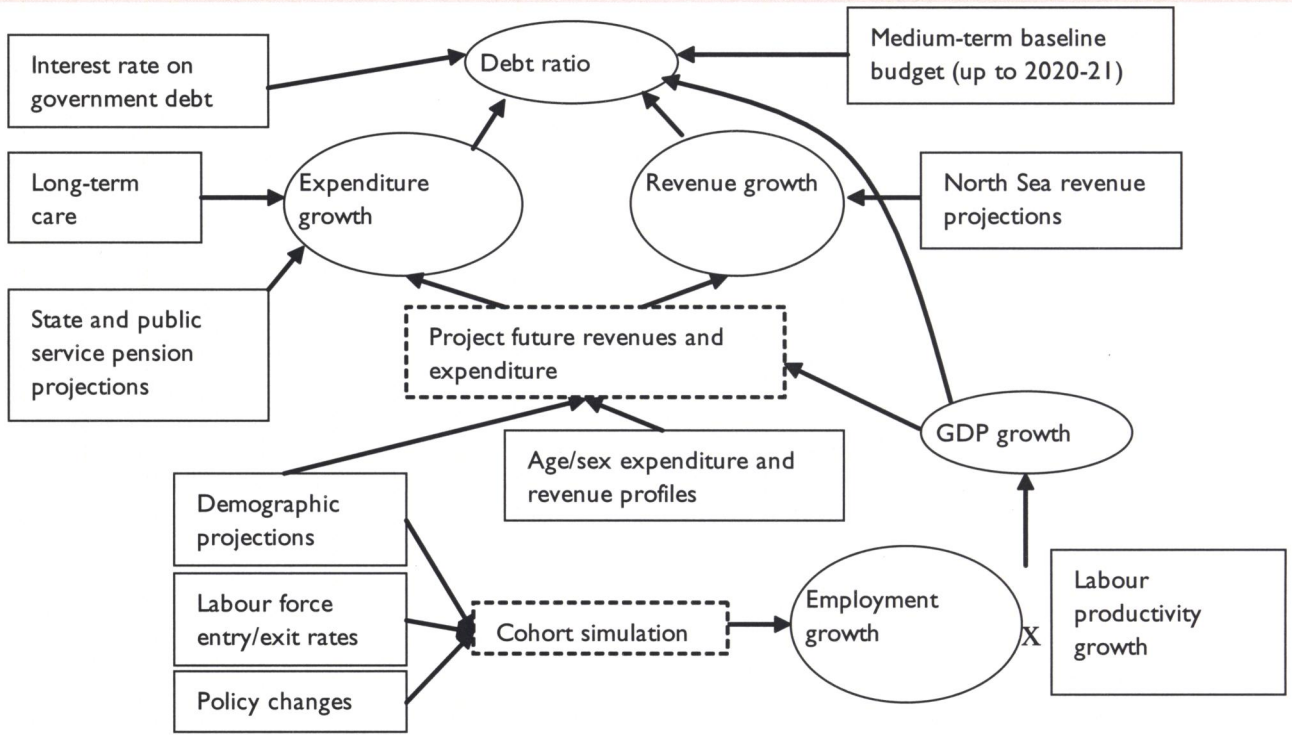
3. A model for projecting borrowing and debt

As described in the previous section, in 2011–12, average public spending per person was higher in Scotland than across the rest of the UK but this was slightly more than offset by higher revenues per person, as a result of substantial revenues from oil and gas production. In other words, Scotland is estimated to have had a slightly healthier fiscal position than the UK as a whole in 2011–12. However, there are a number of factors that are likely to change in future, which mean that the future evolution of Scotland's public finances may be quite different from that for the UK as a whole. We have therefore constructed a model to illustrate how Scotland's public finances might evolve in future and how this would be different from the outlook for the UK. This model is similar to the model used by the Office for Budget Responsibility (OBR) in their annual *Fiscal Sustainability Report* (FSR) to project public borrowing and debt for the UK over the next 50 years.[13] Their model is based on the original work of Cardarelli, Sefton and Kotlikoff (2000), which was later updated in McCarthy, Sefton and Weale (2011). However, unlike our model, the OBR's model does not explicitly simulate Scotland's fiscal position separate from that for the UK as a whole.

The basic structure of our model is described in figure 4. The square boxes denote inputs into the model, while the ellipses show the (intermediate and final) outputs produced by the model. Items in dashed boxes denote estimation procedures. The model 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 public spending on different items – and hence public borrowing and debt – over the next 50 years. One key driver of changes in the fiscal balance in this model is change in the demographic composition of the population, coupled with the underlying assumptions that different age/sex groups pay different levels of certain taxes and the level of certain types of spending differ across different age/sex groups in the population. For example, health spending is skewed towards older people, while education spending is skewed towards the young. Therefore, as the average age of the population increases, health spending will tend to increase, while education spending will tend to fall. There are some components of revenues and spending, however, that are not solely driven by demographic pressures. We, therefore, allow for some other factors to influence future tax and spending levels, which can also have a significant effect on the final picture. For Scotland, one particularly important consideration is the outlook for revenues from oil and gas production, which is discussed below.

Our modelling assumes that there will be essentially no policy change in future – sections 3.3 and 3.4 provide more detail on what this means in terms of taxes raised from, and public spending on, each person of a given age and sex. In other words, our projections for Scotland assume that an independent Scottish government would largely follow the same tax and spending policies as are currently in place. Current tax policies are largely determined by Westminster. However, as described above, current levels of public service spending reflect a large degree of choice by the Scottish government, with Scotland having very different levels of spending on some services than the rest of the UK. Independence would provide Scotland with the opportunity to change tax and spending policies (including to address some of the long-run pressure we identify from our model).

Figure 4. Basic structure of the model



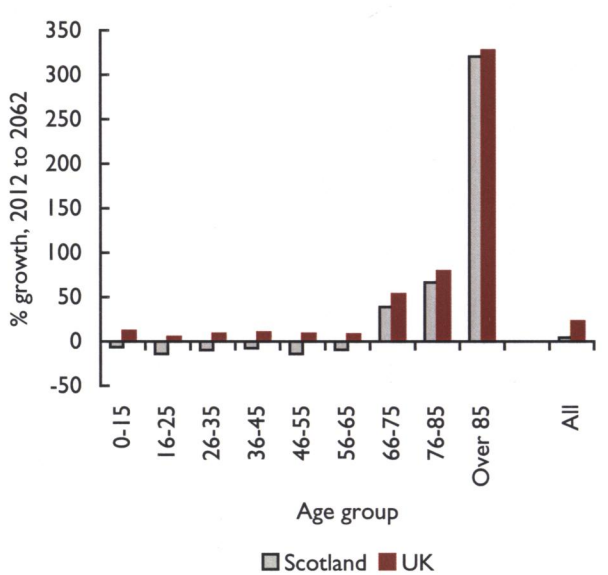
Source: Amior, Crawford and Tetlow (2013a), figure 1.

The model has three main parts. The first is a forecast for economic growth (that is, growth in gross domestic product, GDP) over the next 50 years. The second is a medium-run forecast for the level of public sector revenues and expenditures up to 2020–21.[14] The third part is the long-run forecast for revenues and expenditure from 2021–2 to 2062–3. Our model, which is described in greater detail in Amior, Crawford and Tetlow (2013a), produces separate forecasts for the UK and Scotland (unlike any other model, including the OBR's, at the time of writing).

3.1 Population growth

One of the main factors that will influence how quickly GDP, public spending and different tax revenues will grow over the next 50 years is changes in the size and age composition of the Scottish population. We use the 2010-based population projections produced by the Office for National Statistics (ONS). Their 'low migration' population projection suggests that the population of Scotland will grow by 4.4 per cent between 2012 and 2062.[15] However, as figure 5 shows, this growth will not be distributed evenly across all age groups. A more than four-fold increase in the number of people aged over 85 is projected, while the number of people aged 65 and

Figure 5. Population growth in Scotland and the UK: 2012 to 2062



Source: Amior, Crawford and Tetlow (2013b), table 2.3.

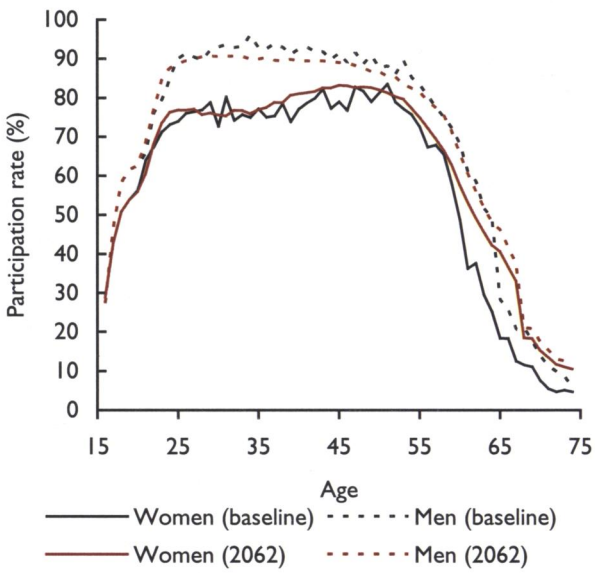
under is actually projected to decline. Total population growth is projected to be much faster for the UK, with the population forecast to grow by 22.8 per cent over the next 50 years. The distribution of that growth across age groups is, however, very similar to the pattern projected for Scotland: the population aged over 85 is projected to more than quadruple, while growth among the working age population is projected to be much slower (although, for the UK as a whole, still positive).

3.2 Economic growth

Economic growth will be affected not only by how many people live in a country but also by whether those people work and, if so, how productive they are while they are working. We project future labour force participation rates based on the patterns of employment seen over the last few years and some assumptions about how labour force participation rates will change in future in response to major policy reforms that have already been announced. In particular, we take into account the fact that legislated increases in state pension ages for men and women (increasing to age 68 by 2046) are likely to mean that employment rates at older ages will be higher in future than they are at the moment.

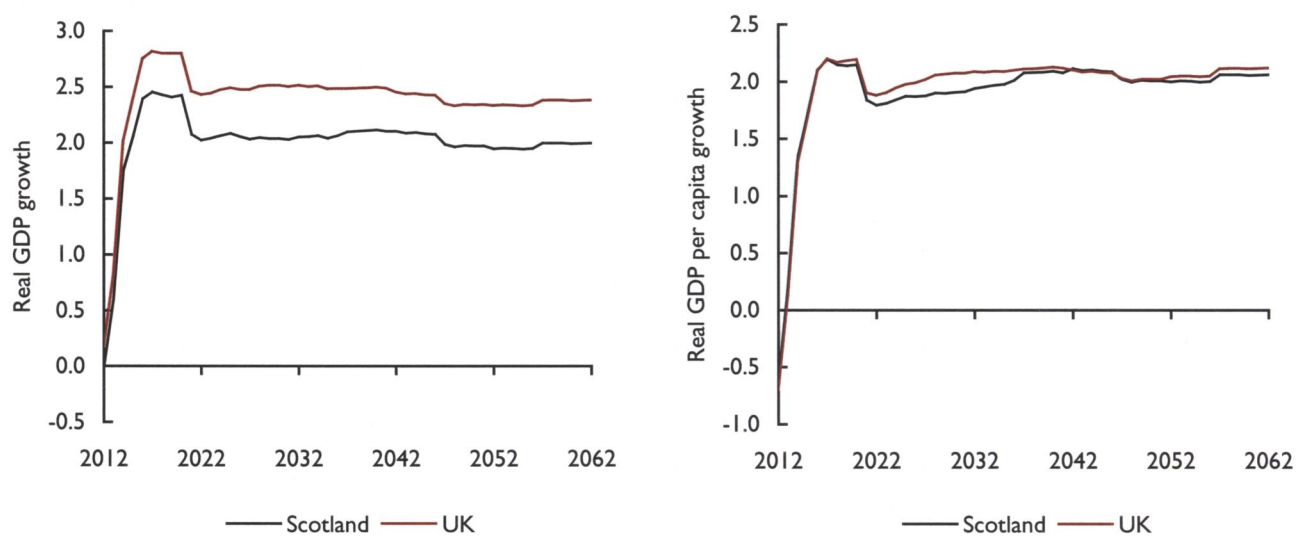
Figure 6 shows labour force participation rates of men and women in the UK. The 'baseline' figures are estimated

Figure 6. Labour force participation rates: UK



Source: Amior, Crawford and Tetlow (2013a), figures 2.2 and 2.5, based on data from the *Labour Force Survey*.

Figure 7. Projections for real GDP growth: UK and Scotland



Sources: Authors' calculation using the IFS long-run public finance model, basic model.
Note: ONS 'low migration' scenario.

using data from the 2011 *Labour Force Survey* (LFS). This shows that labour force participation rates of men and women decline from the age of 55 onwards, with particularly large declines corresponding to the state pension age for women (age 61)[16] and men (age 65). Cribb, Emmerson and Tetlow (2013) have shown that the recent increases in the state pension age for women have had a significant effect on employment rates of affected women (and their husbands). However, it is difficult to extrapolate from this result what effect future increases in the state pension age for men and women will have on labour force participation at older ages. We have, therefore, made an assumption about how labour force participation rates will evolve in future. Figure 6 shows how the assumptions we have made affect assumed participation rates in 2062.

Higher labour force participation rates will tend to increase GDP, as more workers produce more output. Exactly how quickly GDP will grow will depend on how productive each worker is and how quickly workers' productivity improves in future. Over the two and a half decades before the recent financial crisis, productivity growth in the UK averaged about 2.2 per cent a year. Figure 7 shows projected growth in GDP and GDP per capita for Scotland and the UK, assuming that workers' productivity grows at 2.2 per cent a year in future. In our basic model, we project the future size of the Scottish economy by applying this estimated growth rate to the total current level of Scottish GDP, which includes oil and gas production. This might be an optimistic assumption if the productivity of the oil and gas sector declines in future. We, therefore, illustrate below the effect on projections for borrowing and debt of alternative assumptions about average productivity growth.

Figure 7 shows that overall GDP would grow more quickly across the UK as a whole (around 2½ per cent a year) than in Scotland (around 2 per cent a year) over the next 50 years: in other words, the Scottish economy would comprise a smaller share of the UK economy in 50 years' time than it does today. However, this is largely driven by faster population growth in the rest of the UK; GDP per capita is projected to grow at a more similar rate in Scotland as across the UK: that is, the average income of each person would increase at about the same rate. There is, however, projected to be slightly lower growth in GDP per capita in Scotland compared to the UK average between 2020 and 2040.

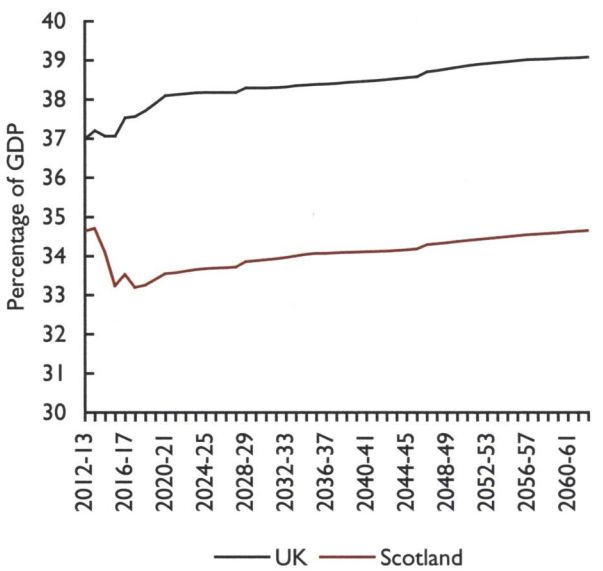
3.3 Growth in revenues

Section 2 showed that, in 2011–12, Scotland raised a somewhat different amount per person in revenues from some taxes than was raised on average across the UK. For example, revenues of VAT and excise duties were higher, while revenues from income tax were lower. There is, of course, a considerable degree of uncertainty about how much revenue will be raised from various taxes in future. To project how much tax revenue will be raised in future from Scotland and the rest of the UK, we make the relatively simple assumption that the amount raised by each tax from each person of a given age and sex will grow in line with growth in average earnings; we also allow for changes to tax policy that have already been announced and are due to take effect by 2017–18.[17] Aggregate revenues are then calculated as the sum of revenues from each individual who is projected by the ONS to live in Scotland or the rest of the UK in future years.

We estimated the age/sex profile of tax payments (in Scotland and across the UK) using various data sources; further details of these profiles can be found in Amior, Crawford and Tetlow (2013a).The average amount of tax paid directly by each individual varies a lot across the age distribution. For example, children can be assumed to pay essentially no tax, while working age adults pay a large share of income tax; people aged over state pension age pay less income tax than working age adults, on average, and no employees NICs, but do pay a significant amount of VAT. One implication of the assumptions we have made is that if there were a shift in the composition of the population towards working age adults (and in particular men), the government would expect, all other things being equal, to raise a greater share of GDP in income tax revenues.

As described above, oil and gas revenues provided a significant source of revenues to Scotland in 2011–12. The OBR's long-run projections for the UK (as presented in OBR, 2013b) assume that this source of revenues will decline (in line with their best estimate of a central projection for this revenue stream) up to 2017–18 but thereafter remain constant as a share of GDP.[18] The OBR's actual central long-run projection is that revenues from oil and gas will continue to decline after 2017–18. However, they do not incorporate this in their 'central' projection for the UK's long-run public finances on the grounds that the UK government could easily find other ways of making up this revenue elsewhere. In our basic model, results of which are shown in figure 8, we make this same assumption for both the UK and Scotland. However, while this might be a realistic prospect for the UK (where oil and gas revenues are projected to comprise just 0.2 per cent of GDP in 2017–18), this would be

Figure 8. Non-debt interest revenues, 2012–13 to 2062–3 (IFS basic model)



Source: Amior, Crawford and Tetlow (2013a), figures 6.1 and 6.5.

considerably more difficult for Scotland on its own (as oil and gas revenues are projected to equal 2.2 per cent of Scottish GDP in 2017–18). In Section 4 we describe the effect of making different assumptions about future oil and gas revenues.

Figure 8 shows our basic projection for total non-debt interest revenues under the assumptions that labour productivity grows at 2.2 per cent a year from 2021–2 onwards, the UK experiences the ONS low migration population scenario, and oil revenues decline up to 2017–18 as forecast in OBR (2013a) and then remain constant as a share of GDP. Under these assumptions, which are the same as those made by the OBR in their central scenario in the 2013 Fiscal Sustainability Report, we project that non-debt interest revenues in the UK will rise from 37.0 per cent of GDP in 2012–13 to 38.1 per cent of GDP in 2020–21. Thereafter they will increase further to 39.1 per cent of GDP by 2062–3. One of the factors that we assume will boost the growth rate of revenues in future is the planned increases in state pension age for men and women, which will increase NICs among those affected and will (we assume) boost employment rates and thus income tax payments among this group as well. This effect can be seen in figure 8 in the small upward kinks in the revenue projections in the mid-2020s and mid-2040s, which each coincide with a one year increase in the state pension age for men and women. Similar kinks are (more) noticeable in figures 9, 10 and 11 below.

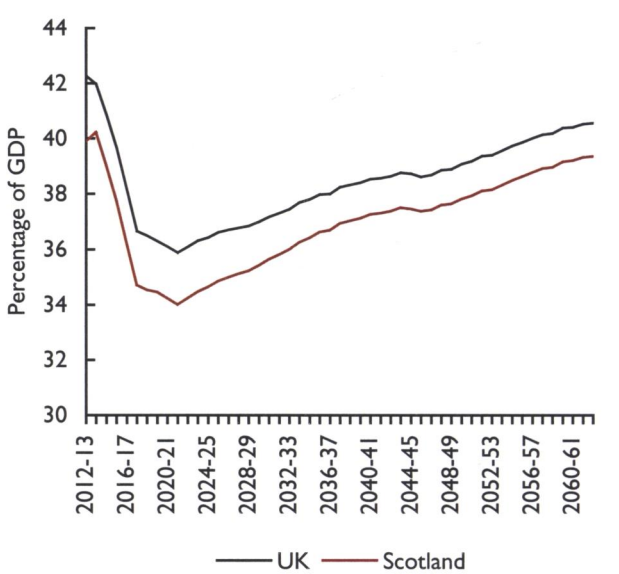
Our model suggests that non-interest revenues in Scotland will fall from 34.6 per cent of GDP in 2012–13 to 33.2 per cent in 2017–18, as a result of projected declines in revenues from oil and gas production. Thereafter, as for the UK as a whole, our model suggests that revenues in Scotland will increase, reaching 34.7 per cent of GDP by 2062–3.

3.4 Growth in public spending

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. Further details of these age/sex spending profiles can be found in Amior, Crawford and Tetlow (2013a).

Figure 9 shows our basic projection for total non-debt interest spending under the same set of assumptions as described above. Under these assumptions, we project

Figure 9. Non-debt interest spending, 2012–13 to 2062–3 (IFS basic model)



Source: Amior, Crawford and Tetlow (2013a), figures 6.1 and 6.5.

Notes: Non-interest expenditures in 2012–13 are adjusted to remove the effects of the transfer of the Royal Mail pension fund to the public sector.

that non-debt interest spending in the UK will fall from 42.3 per cent of GDP in 2012–13 to just 35.9 per cent of GDP by 2021–2. This is largely the result of spending cuts planned by the current government but also reflects some cyclical decline in spending as the economy recovers from the recent recession. Thereafter non-interest spending is projected to increase to 40.6 per cent of GDP by 2062–3.

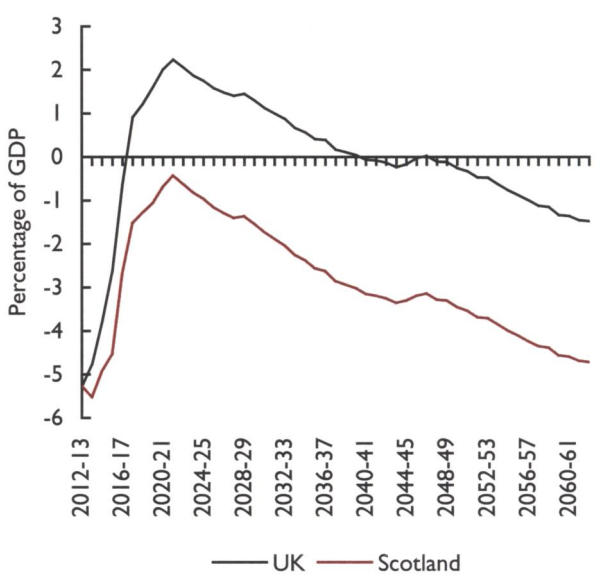
Our model suggests that non-interest spending in Scotland will fall from 39.9 per cent of GDP in 2012–13 to 34.0 per cent in 2017–18. Thereafter, as for the UK as a whole, our model suggests that spending in Scotland will increase, reaching 39.4 per cent of GDP by 2062–3.

3.5 Projections for borrowing and debt

Combining our projections for non-interest revenues and spending provides a projection for the primary balance over the next 50 years for both the UK and Scotland. These are shown in figure 10. Both Scotland and the UK are estimated to have a primary deficit in 2012–13 – that is, non-interest spending exceeding non-interest revenues in that year. Between 2012–13 and 2017–18, we project that the fiscal consolidation planned by the current government will be sufficient to return the UK to a primary surplus. However, for Scotland, the decline in revenues from oil and gas that the OBR has projected over the next five years will be sufficient to result in Scotland still having a primary deficit in 2017–18. After 2021–2, demographic pressures in both Scotland and the UK are projected to put upward pressure on public spending and thus lead to a growing primary deficit for the Scotland and, eventually, the UK.

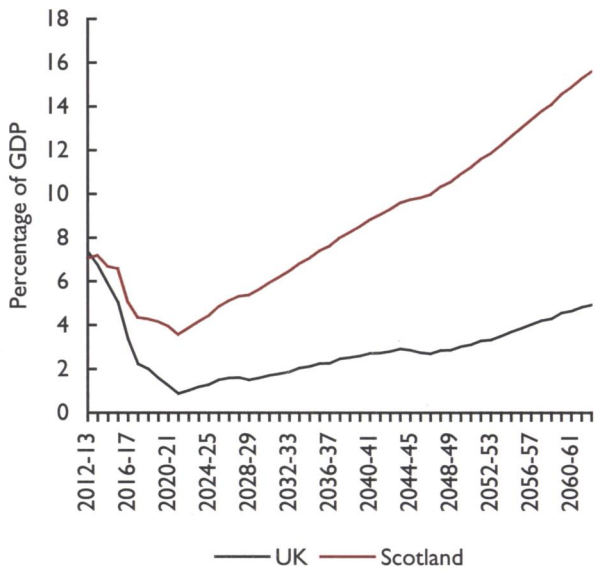
Under the assumption that both the UK and Scotland would face a 5 per cent interest rate on accumulated debt from 2026–7 onwards, figure 11 shows the path of public sector net borrowing (that is, the inverse of the primary balance plus net debt interest spending), while figure 12 shows the future path for public sector net debt for the UK and Scotland. These both assume that Scotland would inherit a population share of debt at the point of independence. We show the sensitivity of our results to this and other assumptions in the next section.

Figure 10. Primary balance, 2012–13 to 2062–3 (IFS basic model)



Source: Amior, Crawford and Tetlow (2013a), figure 6.6.
Notes: The primary balance in 2012–13 is adjusted to remove the effects of the transfer of the Royal Mail pension fund to the public sector.

Figure 11. Public sector net borrowing, 2012–13 to 2062–3 (IFS basic model)



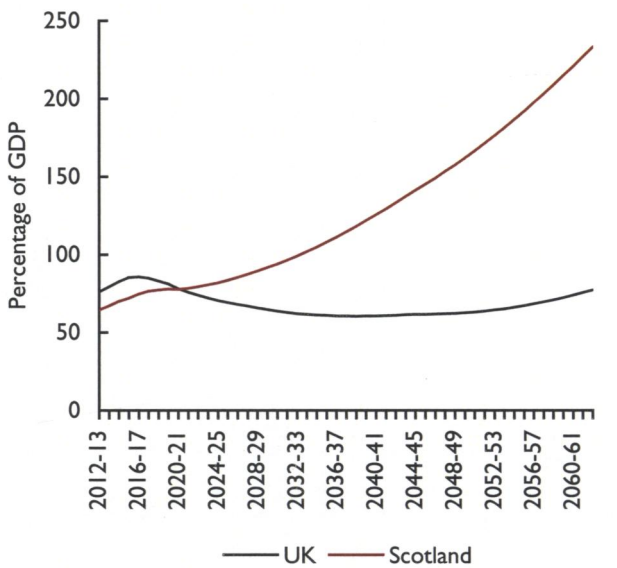
Source: Amior, Crawford and Tetlow (2013b), figure 2.4.
Notes: Public sector net borrowing in 2012–13 is adjusted to remove the effects of the transfer of the Royal Mail pension fund to the public sector.

4. Long-term fiscal outlook for an independent Scotland

The long-run projections from our model, described in the previous section, suggest that both the UK as a whole and Scotland, in particular, would face an unsustainable long-run fiscal position on the basis of unchanged fiscal policy. Figure 12 shows that debt would be on an upward trajectory for both countries within 50 years, suggesting that further spending cuts or tax increases would be required to maintain long-run fiscal sustainability. One way to quantify the size of this problem is to ask what size of permanent spending cuts and/or tax increases would be required to return debt to some target level as a share of GDP by 2062–3.

On the basis of the assumptions made in our basic model (described above), we estimate the UK would require a fiscal tightening of 0.8 per cent of GDP (to be implemented in 2021–2) in order to return public sector net debt to 40 per cent of GDP by 2062–3.[19] However, we estimate that the fiscal tightening required for Scotland would be considerably larger, at 4.1 per cent of GDP. These figures are sensitive to the assumptions made. There is great uncertainty about how the Scottish economy and public spending and revenues will evolve in Scotland if it remains in the union, and even greater uncertainty about how these would evolve under independence, since we do not yet have full information about what policies would be pursued and exactly what the independence

Figure 12. Public sector net debt, 2012–13 to 2062–3 (IFS basic model)



Source: Amior, Crawford and Tetlow (2013b), figure 2.5.

Table 2. Estimates of the fiscal gap under alternative sets of assumptions

Adjustment in primary balance from 2021–2 (% of GDP)	Reach target by 2062–3			Reach target by 2052–3
Target debt ratio:	20%	40%	60%	40%
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
Population 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 and 'high migration' and North Sea decline (2)	2.4	1.9	1.5	1.3
1.7% productivity and North Sea decline (1)	6.6	6.3	5.9	6.0
UK	1.3	0.8	0.4	0.7

Source: Authors' calculations using IFS long-run public finance model.
Notes: The basic model uses the ONS 'low migration' population projection, assumes 2.2 per cent a year productivity growth, that Scotland inherits a population share of debt on independence, and pays a 5 per cent interest rate on accumulated debt. For further details of the scenarios shown in this table, see Chapter 3 of Amior, Crawford and Tetlow (2013b).

settlement would involve. In this section, therefore, we describe what effect some plausible alternative assumptions would have on our estimates of the long-run 'fiscal gap'.

As already mentioned, one aspect of the projections presented above that might be particularly hard to defend is the assumption that revenues from oil and gas remain constant as a share of GDP from 2017–18 onwards. If we instead incorporate into our long-run projection the OBR's central projection for the decline in oil and gas revenues up to 2040–41 (and assume that there is a continuation in the rate of decline thereafter), our model suggests that the fiscal gap would increase from 4.1 per cent of GDP to 5.7 per cent. (This is described as 'North Sea decline (1)' in table 2.) The likelihood that revenues from oil and gas will dwindle to a modest sum by the second half of this century, therefore, constitutes a significant challenge to the long-run fiscal sustainability of Scotland.

However, there are some ways in which the outlook for Scotland could be better than suggested by the assumptions in our basic model. The basic model that we presented above assumed that net inward migration to Scotland would be as projected by the ONS in their 'low migration' scenario. This entails net inward migration to Scotland averaging 9,000 people a year over the next 50 years. This compares to average net inward migration of just over 19,000 people a year during the decade from 2002 to 2011.[20] However, an independent Scotland could pursue a more liberal immigration policy than the UK government. Therefore, it is interesting to consider what effect higher inward migration could have on Scotland's long-run fiscal position. As table 2 shows, incorporating instead the ONS 'high migration' projection suggests that the fiscal gap (as defined above) would fall to 3.0 per cent of GDP. The 'high migration' scenario entails average net inward migration to Scotland of 26,000 a year over the next 50 years.

Scotland may also be able to negotiate taking on a smaller share of accumulated debt at the point of independence. Table 2 illustrates the effect on the estimates of the fiscal gap from our basic model if we assume that Scotland inherits a debt level equal to 40 per cent of GDP in 2015–16 instead of a population share of debt (71.8 per cent of GDP).[21] If the interest rate charged to Scotland remained at 5 per cent, our model suggests that this lower debt level would reduce the fiscal gap from 4.1 per cent of GDP to 3.2 per cent.

The exact size of the fiscal gap is very sensitive to the precise assumptions made. However, even combining a number of more optimistic assumptions suggests that the fiscal gap facing Scotland would be larger than that facing the UK as a whole. To illustrate this, table 2 also shows the fiscal gap associated with a scenario in which Scotland experiences 'high migration', inherits a 40 per cent debt ratio, and receives high levels of oil and gas revenues over the next few years in line with the Scottish government's most optimistic scenario (Scottish Government, 2013b) – although we then assume that oil and gas revenues begin to decline over the longer term. This scenario for oil and gas revenues, up to 2017–18, is more optimistic than the scenario set out by the Scottish government in their recent White Paper. Under the scenario just described, we estimate that a fiscal tightening of 1.9 per cent of GDP would be required to return debt to 40 per cent of GDP by 2062–3. This is higher than the 0.8 per cent of GDP fiscal tightening that we estimate would be required for the UK as a whole.

5. Conclusions

Our projections for Scotland's long-term public finances are sensitive to a number of assumptions. However, our broad conclusion – that Scotland faces a tougher long-run fiscal challenge than the UK as a whole – is robust to a variety of alternative, sensible assumptions. Our modelling suggests that the UK as a whole would face a long-run fiscal gap of 0.8 per cent of GDP. Under the most optimistic scenario considered, we estimate that the fiscal gap for Scotland would be 1.9 per cent of GDP – or more than twice as large. This suggests that Scotland would be required to make more spending cuts and/or tax increases after independence (in addition to those already planned by the UK government) in order to ensure long-run fiscal sustainability.

This more difficult long-run outlook arises for two reasons. At the moment public spending per person is significantly higher in Scotland than across the UK as a whole, mainly as a result of higher spending on public services (rather than higher spending on benefits). In 2011–12, this was more than matched by greater revenues from oil and gas. However, this has not always been the case in recent years and certainly will not be the case going forwards if Scottish spending levels are not changed, as eventually oil and gas reserves will be depleted and this source of revenues will dwindle.

However, independence would also bring the opportunity to reform the tax and benefit system in Scotland to address some of the current weaknesses in the UK regime. Furthermore, Scotland would also be able to change taxation and spending to better align with the objectives of the Scottish population – to the extent

that these differ from objectives elsewhere in the UK.[22] Independence would also create the need for changes to some areas of tax policy, since the appropriate tax system for a small, independent country (Scotland) that shares a very open border with a larger neighbour (the rest of the UK) will differ from the current (or, indeed, the currently optimal) structure of taxation for the UK. Many of the differences between the characteristics of Scotland and the UK suggest that Scotland should have a lower level of overall taxation than is optimal for the UK.[23] However, the long-run fiscal pressures that our model suggests would face Scotland might point to a higher level of taxation there. A key challenge for an independent Scotland would be balancing these (potentially competing) pressures.

The recent Scottish government White Paper set out a very laudable set of objectives for reforms to the tax and benefit system of an independent Scotland, although it was (not unjustifiably) short on detail about how this would be achieved. The specific policies that were proposed contained greater giveaways than they did takeaways. Ultimately this balance would likely need to be addressed if an independent Scotland was to achieve fiscal sustainability.

NOTES

1 See Table 2.2 of Amior, Crawford and Tetlow (2013a).
2 See Figure 8 of Phillips (2013).
3 These and all other monetary figures in this paper are expressed in 2013–14 prices, with nominal values inflated/deflated to 2013–14 prices using the GDP deflator.
4 For further details, see pages 29–30 of Phillips (2013).
5 For example, in 2005–6, spending in Scotland was 7 per cent higher than the average across Great Britain.
6 Table 2 of Phillips (2013).
7 Figure 6 of Phillips (2013).
8 The Barnett formula is a method used to determine spending increases in Scotland, Wales and Northern Ireland as a function of the spending increase given in England. For more detail on this formula see, for example, Crawford *et al.* (2011).
9 See Section 4 of Deaner and Phillips (2013) for further analysis of these changes over time.
10 Scottish Government (2013a).
11 HM Revenue and Customs, Table 2.4 of http://www.hmrc.gov.uk/statistics/tax-statistics.htm.
12 These figures are based on the analysis contained in Scottish Government (2013a). HM Revenue and Customs (2013) uses a slightly different methodology, which produces slightly different figures. However, the picture provided by both methodologies is qualitatively the same.
13 See, for example, Office for Budget Responsibility (2013b).
14 This is the point at which the OBR in March 2013 believed the UK economy would have returned to its trend level and thus cyclical borrowing would have ceased. The OBR's most recent (December 2013) forecast now suggests that the economy will rebound more quickly to its trend level, reaching trend in 2019–20. We have not incorporated this into our long-run modelling. However, this quicker cyclical recovery should have little effect on the long-run projections. Importantly the OBR did not change its view of trend output or growth significantly. The December 2013 Autumn Statement also announced a further squeeze on public spending in 2018–19, in addition to the fiscal tightening accounted for in our modelling. If a newly independent Scottish government also chose to implement this additional fiscal tightening, it would help to address the fiscal gap we identify for Scotland.
15 We use the ONS 'low migration' scenario as the OBR argue that this scenario (which allows for net inward migration to the UK of 140,000 people per year) is more consistent with current government policy than is the ONS 'principal projection'. In Section 4 we show results from our model if we instead assume population growth follows the ONS 'high migration' scenario.
16 The state pension age for women started increasing from age 60 in April 2010 and reached age 61 in March 2012. Therefore, during the period to which this data relates, the state pension age for women was actually between age 60 and age 61.
17 The exceptions are: the gross operating surplus of public corporations and revenues from interest and dividends, which are assumed to grow in line with nominal GDP per capita; oil and gas revenues, for which further details on the assumed growth rate is provided in the text.
18 Our projections for tax revenues (and levels of spending) up to 2017–18 are taken from OBR (2013a) and are therefore consistent with the figures used in OBR (2013b). The most recent forecasts from the OBR (OBR, 2013c) suggest that oil and gas revenues over the next five years will actually be lower than the figures we include in our modelling.
19 The OBR's estimate of this figure is 1.2 per cent of GDP.
20 Figure 1.2 of General Register Office for Scotland (2013).
21 Exactly what debt level an independent Scotland would inherit would be the subject of negotiation at the point of independence. This 40 per cent figure is chosen purely for illustrative purposes, although it is similar to the 38 per cent debt to GDP ratio calculated by the Scottish government as Scotland's "historic share" of debt (see Scottish Government (2013d) for details).
22 Deaner and Phillips (2013) discusses some possible changes to public service spending for an independent Scotland and Phillips (2013) discusses potential reforms of benefit spending.
23 Further discussion of the optimal structure of taxation in an independent Scotland and options for reform can be found in Adam, Johnson and Roantree (2013).

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