

Scottish Independence

Charting the implications
of demographic change

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Summary

By 2037

Scotland's working age population is expected to be

3.5%

than it was in 2013

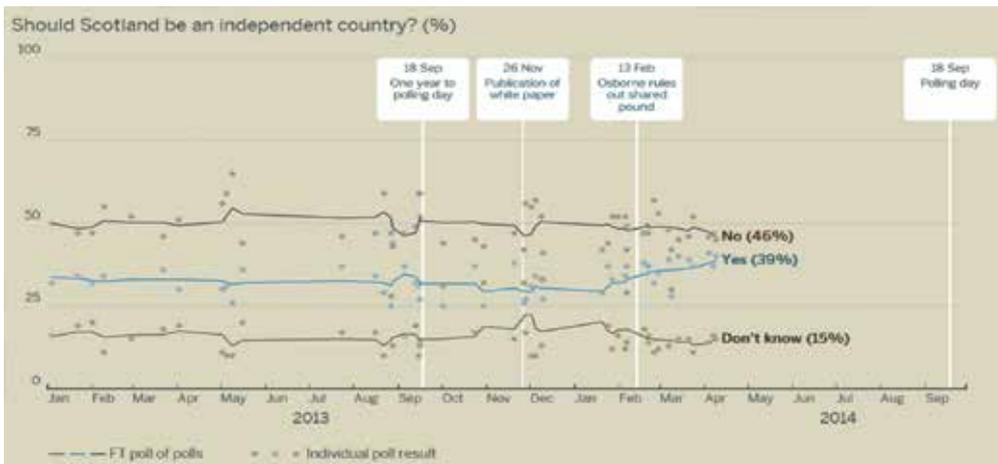


- By 2037 Scotland's working age population is expected to be 3.5% smaller than it was in 2013 – the largest percentage fall of any UK nation.
- If we assume that employment rates by age remain the same, this would imply a fall of 45,000 (-2%) in total employment compared with a 1.7 million (+6%) rise across the UK as a whole.
- To help ensure continued economic growth, Scotland will need to support longer working lives. Yet since 1981, at birth male life expectancy in Scotland has been around 2 years shorter than across the UK as a whole.
- And perhaps most importantly, at birth disability-free life expectancy for males in Scotland is below State Pension Age and four years shorter than in the UK as a whole. It will therefore be particularly critical that Scotland addresses problems associated with health and disability in order to support longer working lives.
- Over the next two decades the dependency ratio (the ratio of non-working age people to working age) will rise by 40% in Scotland by comparison to a 30% rise in the UK. At the same time, a key source of tax revenue for the region - oil and gas - is anticipated to fall from an historic average of £5.5bn per annum during the years 1980-2013, to around £2bn per annum during the period 2014-2041.
- The combination of an ageing population and declining revenues from oil and gas extraction is likely to place downward pressures on government spending as well as upward pressures on taxation. The Institute for Fiscal Studies has estimated that without policy action, Scottish debt to GDP will reach 100% by 2033-34.

Introduction

The Referendum on Scottish Independence is just a few months away and it appears as though the “Yes” vote is gathering steam with the gap narrowing to 7 percentage points – the closest it has been since the Referendum was announced (see Chart). With polling day approaching, now is a good time to take stock of the unique demographic challenges facing an independent Scotland and discuss some of their economic and fiscal implications through a number of charts and tables. What follows, relies heavily on the most up to date population projections from the Office for National Statistics – the 2012 Principal Projection published in 2013.

Figure 1: Opinion poll results (Jan 2013-April 2014)



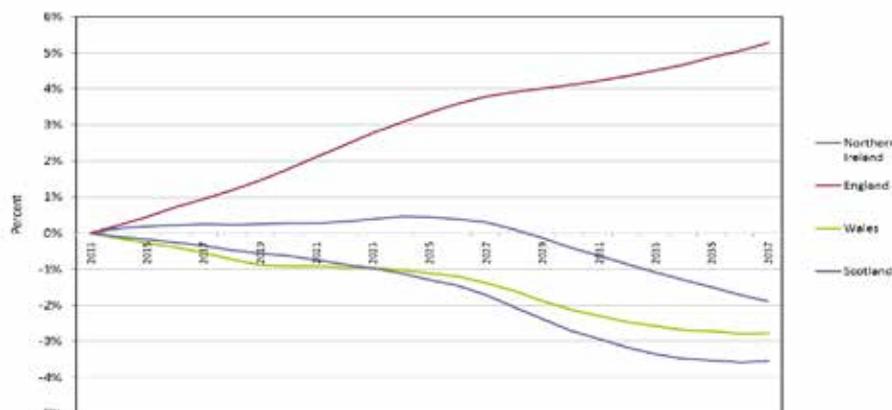
Source: Financial Times: <http://www.ft.com/cms/s/0/2a5bdce0-c4a4-11e3-b2fb-00144feabdc0.html#axzz2zbuucFS0>

Demographic Challenges

...mind the fertility gap: a declining working age population

Scotland is set to experience the most significant fall in its working age population (those aged 15-64) of any UK region. The chart below shows that Scotland’s working age population is expected to be 3.5% smaller in 2037 than it was in 2013 by comparison to a 5% rise in the working age population for England (see chart).

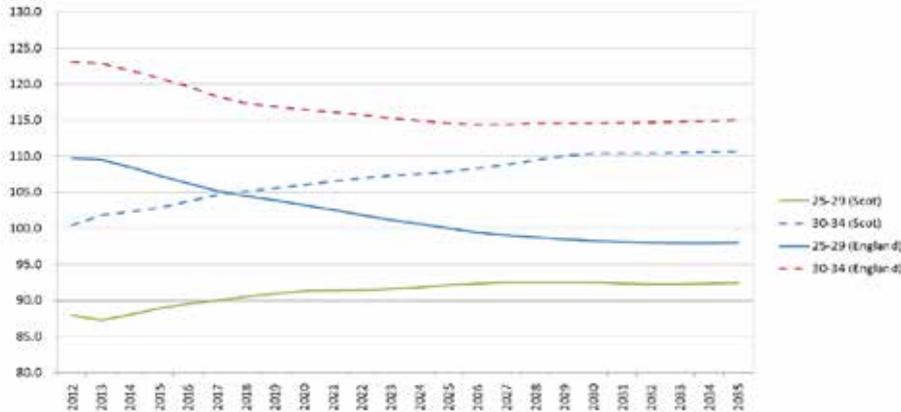
Figure 2: Percentage change in number of people of 'working age' 2013-2037



Source: ONS Principal Population Projections and author's calculations

Differences in current and expected fertility rates help to explain why Scotland's working age population is expected to fall while England's is expected to rise. The chart below shows the stark difference in fertility rates per women across different age bands. In the year 2014, it is anticipated that there will be 19 more babies for every 1,000 women aged 30-34 in England than in Scotland. The fertility gap between England and Scotland is expected to shrink over time though fertility remains higher in England than in Scotland over the forecast period.

Figure 3: Fertility rates per 1,000 females by age group

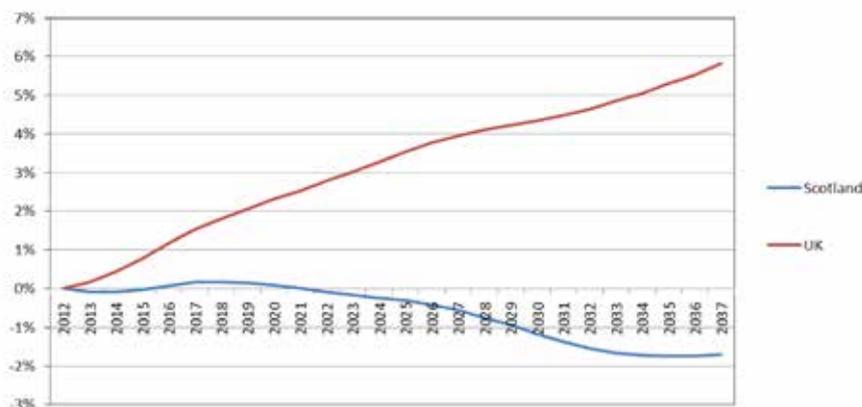


Source: ONS Population Projections

...falling employment, stagnant economy

In order to grow overall economic output an economy is reliant on two things – labour and capital. A shrinking working age population could therefore imply slower economic growth if it means a reduction in the amount of labour. We have modelled the impact of anticipated population trends in the UK and Scotland on levels of employment to show how demographic change could affect the labour supply (see chart). The crucial assumption that we have made is that the employment rates by age for both countries remain as they were at the end of 2013/beginning of 2014.

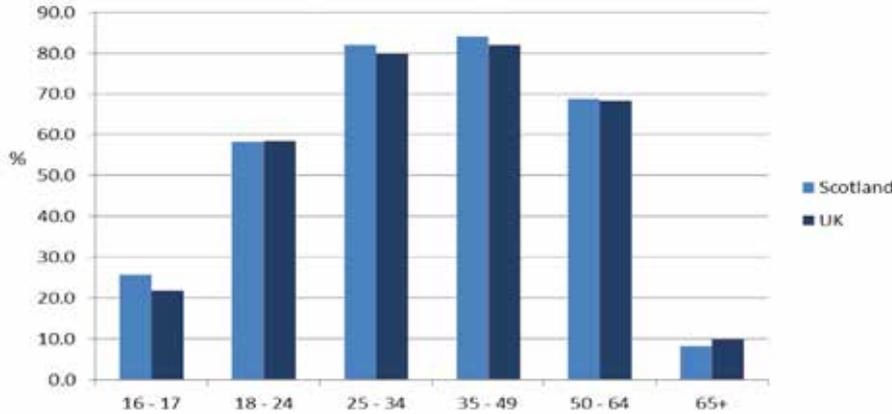
Figure 4: Percentage change in numbers in employment relative to 2012



Source: ONS and author's calculations

The difference between the UK and Scotland is significant – while total employment falls by over 1.5% in Scotland, it rises by nearly 6% in the UK as a whole. Incidentally, this difference **is not** driven by regional differences in employment rates by age group as the UK and Scotland have relatively similar employment rates by age band (see chart).

Figure 5: Employment rates by age band



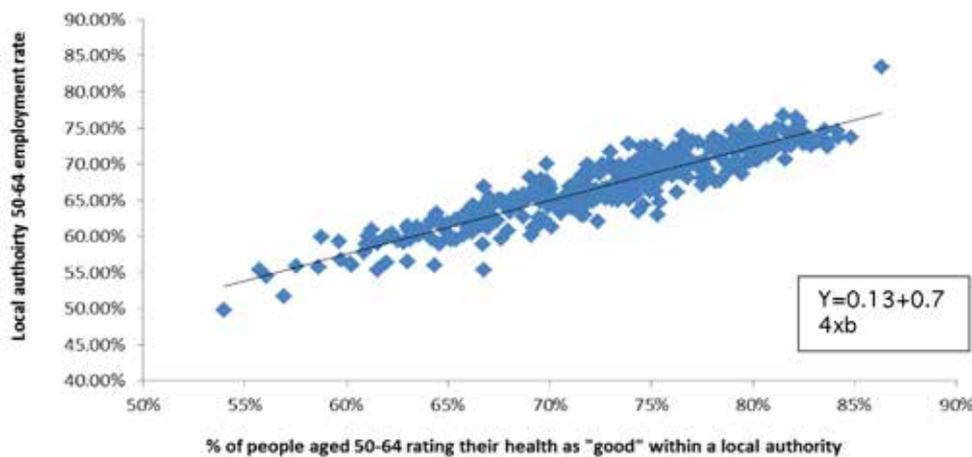
Source: ONS and author's calculations

Crucially, employment rates by age are **unlikely to remain constant**. Indeed, one way to counteract the economic effects of a falling working age population is to boost the labour force participation of all age groups including the over 65s which have by far the lowest employment rate. This is likely to be a necessary move for the whole of the UK, and it is particularly important for Scotland given the rate of decline in working age population relative to all other UK regions.

...the importance of health

Health is a key determining factor in explaining whether someone is able to continue working in later life. The below scatterplot shows the relationship between health and employment of the 50-64 age group across local authorities in 2011 (each blue dot represents a unique local authority). As the proportion of people aged 50-64 in “good” or “very good” health rises, so does the employment rate of this age group within a local authority. Indeed, according to our rough calculations, 85% of the variation in local authority employment rates for the 50-64 age group can be explained by variations in perceived health amongst this group (see chart)¹.

Figure 6: Scatterplot of self rated health against employment rate by local authority

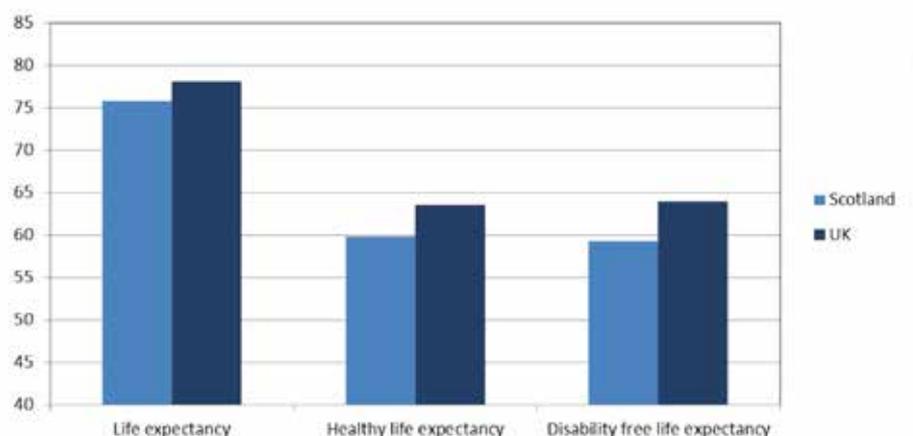


Source: ONS Census and author's calculations

¹ This data relates to Census 2011 data on local authorities for England and Wales. We have conducted a simple bivariate regression model to calculate the statistical relationship and more work is needed to identify other factors that are likely to be at play and whether the relationship is robust over time. We are planning to work up the model in the coming weeks and apply it to Scotland.

...Scotland worse than UK for life expectancy, healthy life expectancy and disability free life expectancy

Figure 7: At birth male life expectancy by region 2008-2010

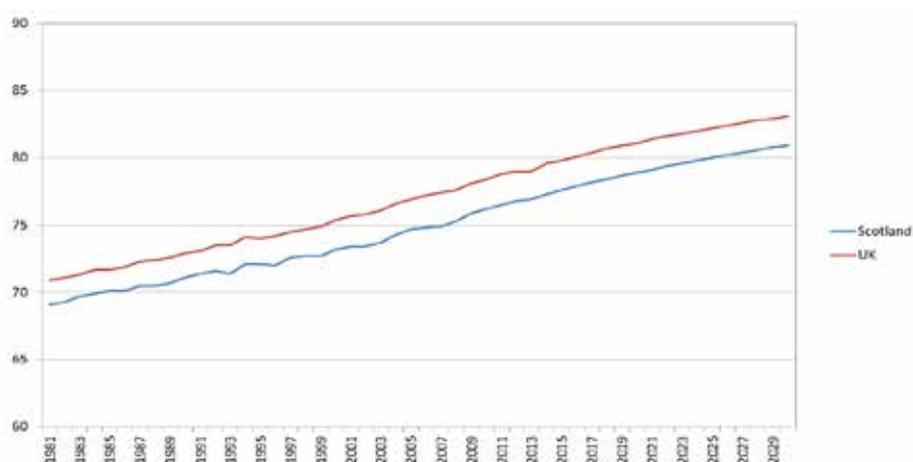


Source: ONS

As the chart above shows, healthy life expectancy and disability free life expectancy in Scotland is short of 60 whereas for the UK as a whole each is approaching the current State Pension Age of 65. In percentage terms, a man born in the UK is expected to live, on average, 8% longer than someone in Scotland. In other words, the challenge of health as a barrier to working longer and boosting the employment rates of older age groups is likely to be particularly acute in Scotland. And there is the possibility that a large proportion of the population will fail to reach retirement age in good health.

We may see some convergence between regions in terms of life expectancy though past data suggests that regional differences may be here to stay. The Office for National Statistics certainly seems to think so. The ONS estimates a consistent gap between the life expectancy of males born in Scotland and those born in the UK during the period 1981-2030 (see Chart).

Figure 8: Life expectancy by region 1981-2030

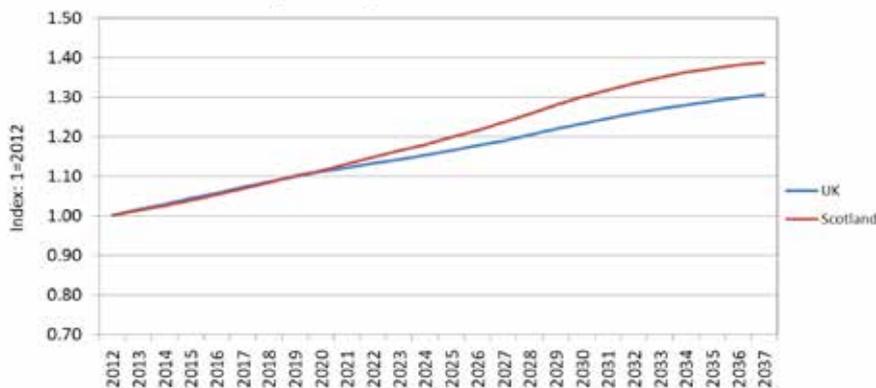


Source: ONS

Fiscal challenges: Rising dependency and falling oil revenues

While the number of people of working age in Scotland is anticipated to fall, the number of people over the age of 65 is expected to rise by 59% (see chart)². Unless the Scottish Government can identify ways to substantially increase tax revenues over this time, this rise in the dependency ratio is likely to have significant fiscal implications.

Figure 9: Dependency ratio indexed to 2012

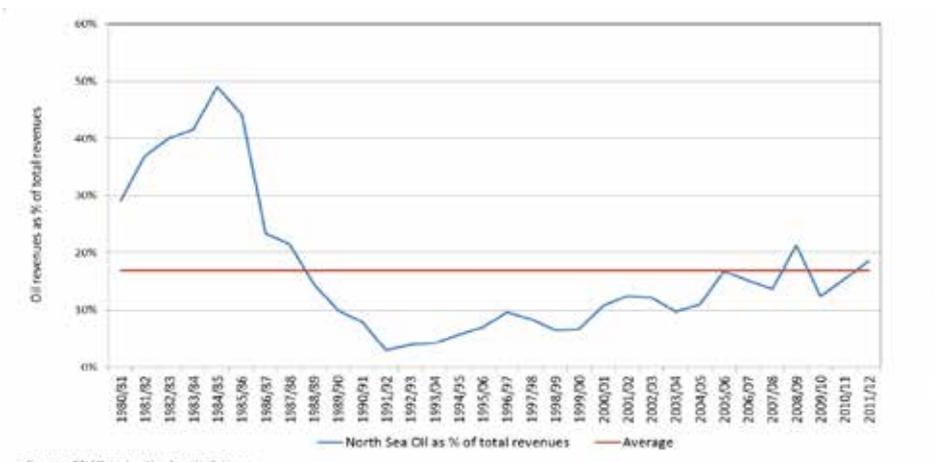


Source: ONS and author's calculations

...Oil revenues are unlikely to be a silver bullet

A project being undertaken by the Scottish Government allows us to estimate the proportion of total tax revenue generated within Scotland accounted for by North Sea Oil revenues over the last 30 years. It does this by allocating the revenues of North Sea Oil on a geographic basis. The chart below shows that revenue from North Sea oil allocated on this basis accounted for nearly 50% of total Scottish tax revenue in mid-1980s before falling to below 10% in the 1990s. Since the 2000s it picked up and remains close to 20% (a sizable chunk just above the long-run average).

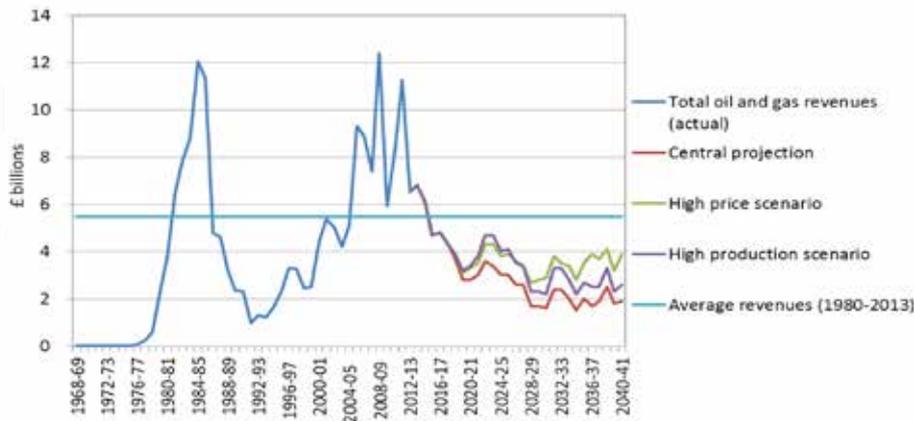
Figure 10: Scotland's reliance on North Sea Oil revenues



² There are many different ways of calculating the dependency ratio. In this paper we have calculated it as:
 Total dependency= (number of people aged 0-14+number of people aged 65+)/number of people aged 15-64)

But revenues from oil and gas are expected to fall as a consequence of falling production. According to projections from the Office for Budget Responsibility (OBR) the UK's official economic forecasting agency total revenues from oil and gas are likely to fall to around £2bn per annum (central forecast) by comparison to an average of £5.5bn during the years 1980-2013. Even under the OBR's most optimistic scenario where the price of fossil fuel is greater, revenues remain significantly down relative to the historic average (fluctuating between £3-4bn per annum during the years 2014-2040) (see chart). The central reason is that oil production is flagging. In 1998 the UK produced 148 million tonnes equivalent in oil, but by 2013 this had fallen to 49 million³.

Figure 11: Total oil and gas revenues: actual and projected

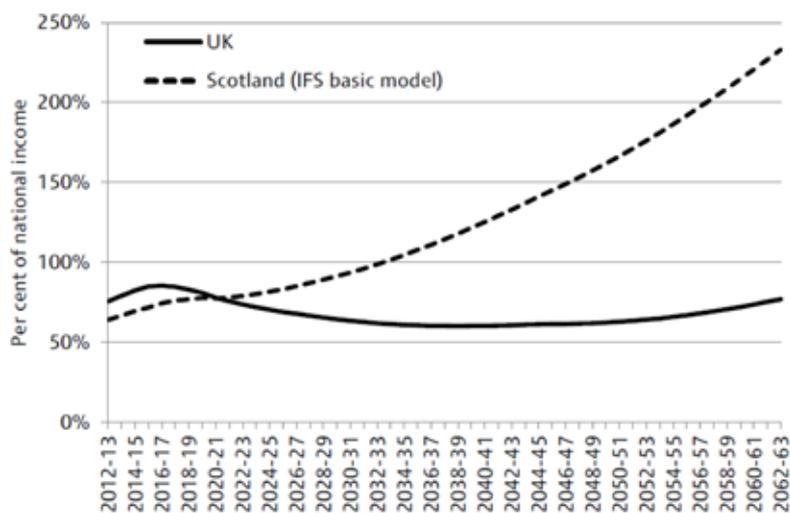


Source: HMRC, OBR and author's calculations

...potential impact on Government spending

Spending per person in Scotland is currently higher than in the UK, at £12,629 per person in 2011-12, compared with £11,381. The Institute for Fiscal Studies has modelled what might happen to the government finances of an independent Scotland assuming that there is no policy change. As a result of demographic trends and slowing oil revenues, the IFS forecast that public sector net debt in Scotland will exceed 100% of national income by 2033-34. By comparison, the UK which has somewhat more favourable demographics and is less reliant on revenues from fossil fuel, will see net debt to GDP fall to around 60% over the same time period⁴.

Figure 12: Public sector net debt projections



Source: Institute for Fiscal Studies: <http://www.ifs.org.uk/comms/r88.pdf>

³ <https://www.gov.uk/oil-and-gas-uk-field-data#uk-production-data>

⁴ <http://www.ifs.org.uk/comms/r88.pdf>

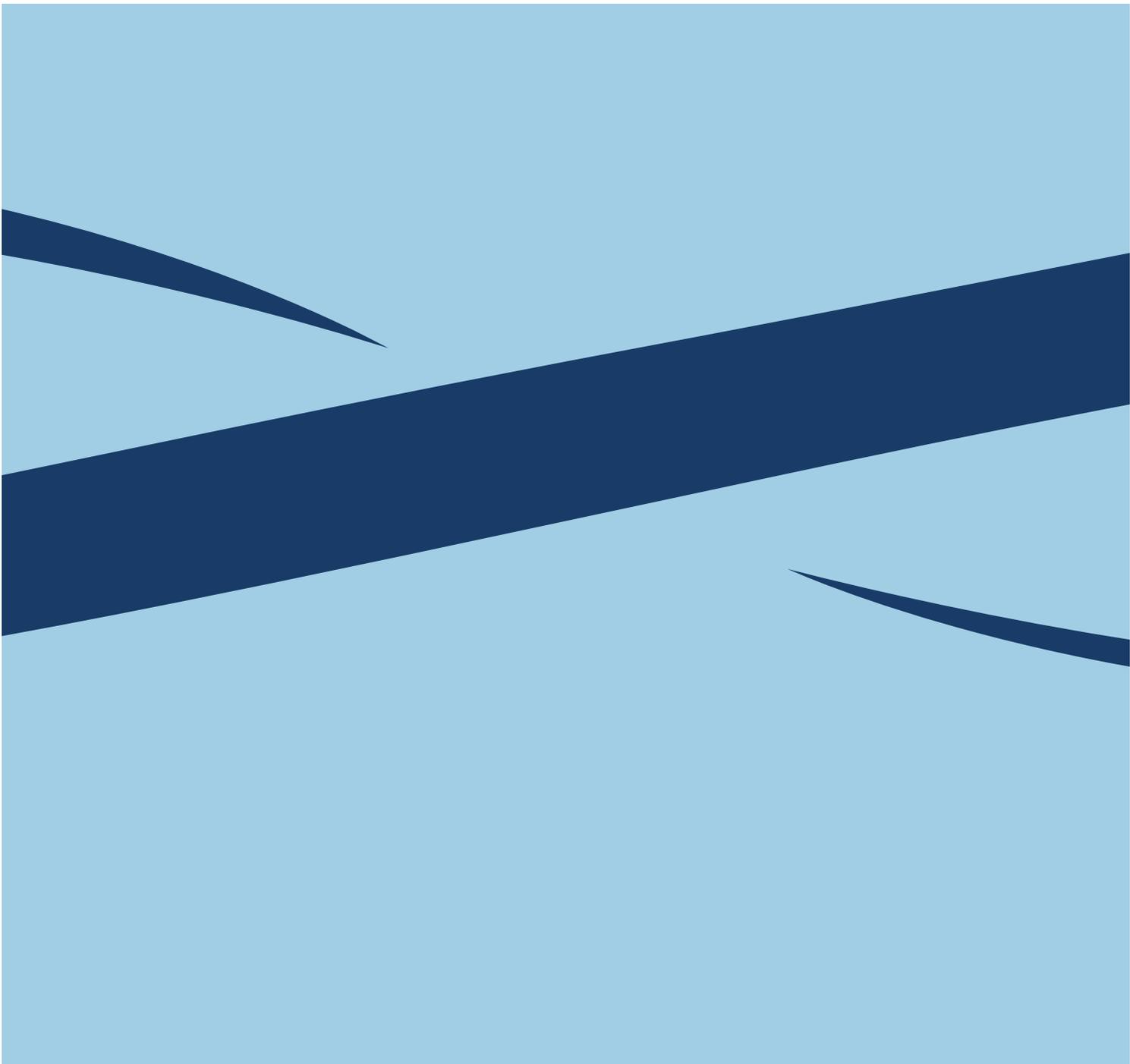
Concluding remarks

The demographic challenges facing Scotland are similar to many other developed nations. Scotland is expected to experience a decline in the working age population and a rise in the population over the age of 65. Against this backdrop, economic policy will need to incentivise longer working lives and increased investment in capital in order to improve the productivity of the workforce and drive economic growth.

The demographic challenges are starker in Scotland than the rest of the UK - where the working age population is expected to continue growing - so the need for an appropriate policy response to ageing is particularly acute north of the border. An independent Scotland will also have to face up to a future of slowing revenues from North Sea Oil which, combined with an ageing population, could result in significant downward pressures on government spending over the years ahead. Like many other nations, an independent Scotland would have to make some tough decisions in order to ensure a vibrant yet sustainable economic future.

Contact

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The International Longevity Centre - UK (ILC-UK) is an independent, non-partisan think-tank dedicated to addressing issues of longevity, ageing and population change. It develops ideas, undertakes research and creates a forum for debate.

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