The Fiscal Implications of an Older Population in Northern Ireland
The Fiscal Implications of an Older Population in Northern Ireland
Declining birth rates and rising life expectancy are radically altering the age profile of many societies. It is extraordinary that rather than being welcomed as a positive development, the fact that people are living longer is often met with apprehension and even alarm, with older people being portrayed as an economic burden. Nevertheless an aging population does have implications for the public finances and these have to be managed.

This research models the fiscal impact of an ageing population in Northern Ireland. It suggests that between 2015 and 2045 public spending will increase by 150% but tax revenues will increase by only 100%. Therefore the gap between tax revenue and public spending in Northern Ireland, known as ‘the subvention’, will widen.

As the block grant is not determined by the regional tax intake it might be argued that the Northern Ireland Assembly need only be concerned with the increased pressure on public expenditure. However there is no guarantee that the current funding arrangement will continue. The direction of travel in the UK is towards greater regional fiscal responsibility and this could well involve a stronger connection between regional tax revenues and devolved budgets. In this context both the revenue and expenditure sides of the balance sheet deserve close attention.

One response to the fiscal impact of an ageing population is a long-term programme of cuts in public spending. As this policy fits with the ideological leanings of the present UK government it is likely to be promoted as the preferred option. However there are perfectly feasible alternatives such as assisting older people to remain in work and improving levels of health. The Northern Ireland Executive will have to take early action along these lines if it wants to ensure that spending cuts are not the only option.

Seamus McAleavey

NICVA Chief Executive
# Table of Contents

Foreword ........................................................................................................................................... 2  
1. Summary ....................................................................................................................................... 5  
2. Aim and methodology .................................................................................................................. 11  
3. Tax and expenditure per person ................................................................................................. 14  
4. Total tax and expenditure ........................................................................................................... 19  
5. Economic growth, inflation and uprating ................................................................................... 25  
6. Employment ................................................................................................................................. 31  
7. Improved health ........................................................................................................................... 37  
8. Conclusions and recommendations ............................................................................................ 40
1. Summary

**Aim and scope**

This research aims to identify the fiscal impact of the changing age profile of Northern Ireland. It looks at three components of public expenditure which represent 74% of total identifiable public expenditure in Northern Ireland. They are:

- Social security benefits
- State pension
- Education, health and care (collectively referred to as ‘services’).

The research compares this expenditure with revenue to show the overall fiscal balance. This revenue accounts for 70% of the total revenue attributable to Northern Ireland (the main omissions are: a proportion of VAT, stamp duty, business rates, and corporation, inheritance and capital gains taxes).

The research does not take into account indirect financial contributions made by the population through, for example, volunteering. Instead it focuses on what is recorded by government in its fiscal balance sheet.

**Methodology**

The research takes these components of expenditure and revenue in Northern Ireland and shows how they vary by age. Figure 1.1 summarises the outcome of this analysis. The negative bars (grey, blue and green) show the average annual expenditure per person in each age group and the positive bars (red) show average tax revenue. The line shows the overall balance between expenditure and tax. The graph shows that:

- Those aged 25 to 59 are net contributors while those aged under 25 or over 60 are net recipients.
- The highest net-contributors are those aged 30 to 54 at just over £5,000.
- There is a wide range in the amount by which certain age groups are net-recipients. Children and those aged 65 to 74 are net-recipients of roughly £10,000 per year whilst people aged 90-plus are net recipients of around £30,000.
These components of expenditure in Northern Ireland in 2015 are estimated to amount to £15bn, compared to £9.6bn in estimated revenue. This means that revenue accounts for 64% of expenditure and leaves a shortfall of £5.4bn.

To show the impact of the change in the population age structure the research applies the age-based expenditure and revenue pattern in 2015 to the projected population in Northern Ireland in 2045.

This kind of analysis relies on a number of assumptions and should not be seen as a forecast of the future fiscal balance. It is instead an analytical exercise to show the impact of the changing population age structure on the public finances.

**Results**

The main output of the analysis is an estimate of overall expenditure and revenue in 2045 under a range of different scenarios. The “baseline” scenario assumes that the only change is the age structure of the population, whilst the other scenarios look at the impact of additional changes. These include:

1. Uprating the value of social security benefits and state pension in line with the Consumer Price Index (CPI), instead of earnings.
2. An increase in public sector productivity of 1% per year.
3. An increase in the state pension age (SPA) to 68 (already legislated for), leading to an additional 73,000 people in work.
4. An additional 77,000 people aged 65+ in work.
5. An increase in healthy life expectancy by 3.75 years.
Table 1.2 summarises the results of the analysis. It shows total expenditure, total tax, the shortfall between the two and the percentage of expenditure covered by tax.

In 2015 tax revenues cover 64% of modelled costs leaving a £5.4bn deficit. By 2045 this would change to 51% or a £9.6bn deficit if the population change was the only factor and economic growth was zero. This increase in the deficit of 13 percentage points can be taken as a measure of the fiscal effects of the ageing population.

To allow for economic growth the model draws on the assumptions used by the Office for Budget Responsibility, with inflation at 2% per annum and economic growth and earnings increasing at 4.2% per annum. It also assumes that spending on state pension and social security benefits increase at the same rate as earnings.

The table shows that with economic growth the overall deficit increases to £18.3bn in real terms but tax as a proportion of expenditure remains at 51%. In the absence of changes that affect the balance between tax and spending, the total size of the deficit also grows but the proportional shortfall is unchanged. This scenario is taken as the baseline against which subsequent variations are compared.

**Table 1.2: Summary of public finances under different scenarios (2015 prices)**

<table>
<thead>
<tr>
<th>Scenario Type</th>
<th>Spend (£bn)</th>
<th>Tax (£bn)</th>
<th>Deficit (£bn)</th>
<th>Tax % of spend</th>
<th>Diff from Base</th>
</tr>
</thead>
<tbody>
<tr>
<td>Base 2015</td>
<td>£15.0</td>
<td>£9.6</td>
<td>-£5.4</td>
<td>64%</td>
<td>13pp</td>
</tr>
<tr>
<td>2045 (no growth)</td>
<td>£19.8</td>
<td>£10.1</td>
<td>-£9.6</td>
<td>51%</td>
<td>NA</td>
</tr>
<tr>
<td>2045 (baseline)</td>
<td>£37.5</td>
<td>£19.2</td>
<td>-£18.3</td>
<td>51%</td>
<td>NA</td>
</tr>
<tr>
<td>Variation on 2045 base</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1) Benefits &amp; pension uprated at CPI</td>
<td>£28.5</td>
<td>£19.2</td>
<td>-£9.3</td>
<td>67%</td>
<td>16pp</td>
</tr>
<tr>
<td>2) Public sector productivity up 1% pa</td>
<td>£32.7</td>
<td>£19.2</td>
<td>-£13.5</td>
<td>59%</td>
<td>7pp</td>
</tr>
<tr>
<td>3) SPA at 68 &amp; 73,000 more in work</td>
<td>£36.3</td>
<td>£20.6</td>
<td>-£15.7</td>
<td>57%</td>
<td>6pp</td>
</tr>
<tr>
<td>4) 65+ employment increase by 77,000</td>
<td>£37.3</td>
<td>£20.2</td>
<td>-£17.1</td>
<td>54%</td>
<td>3pp</td>
</tr>
<tr>
<td>5) Healthy life expectancy +3.75 years</td>
<td>£35.5</td>
<td>£19.2</td>
<td>-£16.3</td>
<td>54%</td>
<td>3pp</td>
</tr>
</tbody>
</table>

Source: NPI Population Tax and Expenditure model

Scenario variations:

1. One way to reduce the level of expenditure relative to tax would be to uprate the value of state pension and social security benefits by less than earnings. Variation 1 in the table shows how the fiscal balance would change if both were uprated in line with inflation. This would mean that tax would account for 67% of expenditure, higher than the level in 2015, and more than countering the impact of the altered age structure. Currently, the value of state pension has been subject to the ‘triple lock’ (i.e. increase each year by at least as much as earnings) whilst for most other benefits the increase has been
capped at 1% per year since April 2013. At the time of writing the triple lock on pensions is guaranteed until 2017 whilst other benefits will be uprated by 1% until April 2016. It is important to note that this consideration excludes possible negative fiscal impacts of higher poverty levels and lower living standards that are the likely result of uprating pensions and benefits by a lower rate.1

2. The baseline scenario assumes that there is no change in public sector productivity between 2015 and 2045. But if it increased, the same services could be delivered at lower cost. Public sector productivity is hard to measure but research suggests that an improvement of about 0.7% a year has been achieved in the past. If it increased at 1% per year, expenditure in 2045 would be £5bn lower for the same level of service provided. Whilst this may be an optimistic scenario even small gains in productivity could reap significant fiscal rewards.

3. The state pension is already legislated to increase to 67 by 2028 and by 2045 it is expected to be 68. This change would have a direct impact on expenditure by reducing the number of people eligible for state pension. But it is also likely to increase tax revenues as an estimated 73,000 adults over 50 respond to the change by remaining in work for longer. This could potentially increase tax revenues from the 2045 baseline by £1.4bn and reduce expenditure by £1.2bn. As a result, tax would account for 57% of expenditure. This change in the SPA is not included in the baseline as, although a reduction in State Pension spending is guaranteed, the impact on employment is uncertain. However, this scenario does present a more realistic picture of the fiscal trajectory than the baseline.

4. There is also reason to expect the employment rate of people over SPA to increase beyond the baseline, even if the SPA did not change. Despite the financial crisis and the overall increase in unemployment in Northern Ireland the employment rates of those aged 65+ have continued to increase. A considerable increase in the employment rate among people aged 65 and over from 7.7% in 2015 to 31.1% in 2045 (resulting in an extra 77,000 in work) would raise an additional £1.0bn in tax, at which point tax would account for 54% of expenditure.

5. The final scenario shows what could happen if the gradual improvement in life expectancy led to improved health outcomes and therefore a reduced need for health-related spending. To model the effects, it assumes that the health of someone aged 45 and over in 2045 is like that of someone slightly younger in 2015. This would reduce expenditure by £2bn so tax would account for 54% of expenditure. But whilst the Office for National Statistics forecast total life

---

1 Sutherland, H, Evans, M, Hancock, R, Hills, J, and Zantomio, F (2008) The impact of benefit and tax uprating on incomes and poverty. Joseph Rowntree Foundation. From a starting point of 2006/07, the effect of uprating benefits, tax credits and pensions by prices would increase the after housing costs (AHC) poverty rate of those aged 16-64 from 20% to 24%, and of people aged 65+ from 16% to 29% over 20 years. The poverty gap (difference between the median in-poverty household’s income with the poverty line) would increase from 23% to 35% in this time as incomes are ‘eroded’ by prices (Table 10). In contrast, uprating benefits and tax credits by 1.87% per annum would have an almost distributionally neutral effect (Table 13).
expectancy to increase by 5 years by 2045, it does not forecast healthy life expectancy as trends are less clear.

**Policy Implications**

In 2015 there is a considerable shortfall between the tax and expenditure modelled in this research – with tax accounting for 64% of expenditure. If this current tax and expenditure trend was applied to the population of 2045 it would be 51% due to the change in the age structure.

But by 2045 a number of other changes are likely to alter the situation so the impact on the fiscal balance would be smaller. These include:

1. the increased state pension age (lowering expenditure on state pension),
2. a higher employment rate (increasing revenue from tax and lowering spending on out-of-work benefits),
3. improved health (lowering health-related spending),
4. increased public sector productivity (lowering the cost of delivering services).

Other than the change in the state pension age which is already legislated (and may increase further in the future), all of the above are probable but not inevitable. For these changes to be achieved some kind of intervention would be required.

- At present Northern Ireland has high levels of inactivity and employment rates that fall at an early age. The Northern Ireland Executive already has plans to reduce inactivity. Meanwhile the employment rate among people over SPA has consistently increased in recent years, despite the recession. But research has warned that this increase will not continue without investment in learning and development among older workers and greater provision for flexible working and phased retirement.²

- Given recent trends, it is reasonable to expect that healthy life expectancy will increase and, as a result, the required health expenditure on older people could fall. However, the extent to which it does improve is difficult to predict. What is clear is that improvements in healthy life expectancy in Northern Ireland are lagging behind GB. A shift in this trend would be good for the wellbeing of the population but would also lead to considerable improvements in the outlook for the public finances.

- In terms of increased public sector productivity, the health and care sector provides a bespoke service to individuals according to need and it requires skill, sensitivity and time. Making such services more efficient without compromising on quality will be a challenge. Investment in public health which aims to both increase service productivity and increase healthy life

---

expectancy would benefit individuals in terms of overall wellbeing but also bring about long-term savings.

If all of these were achieved, they would more than counter the fiscal impact of the shifting age structure. These three aims of increased employment (especially among older people), improved health (specifically targeting the onset of ill-health in later life) and increased public service productivity should not be seen as solely economic or financial goals, but social ones requiring changed norms and greater participation from all sections of Northern Ireland’s society.

Although it is common sense that an ageing population will increase net public spending, this research shows that the fiscal effect, though large, does not dwarf other changes that could offset it. Holding down public sector earnings and social security benefits continually for decades is one of them. But this is a harsh response to the increase in life expectancy which in itself is a wonderful thing. Alternatively, a combination of higher employment among those aged 50+, increased healthy life expectancy and public services delivered more productively represents a viable alternative to endless austerity.
2. Aim and methodology

Aim

It is widely accepted that the ageing population has significant consequences for the public finances. Despite the potential significance of this issue, there is limited research on how an ageing population will impact Northern Ireland. The aim of this research is to provide robust evidence on the fiscal impacts of an ageing population in Northern Ireland.

Approach

In order to understand the impact Northern Ireland’s ageing population will have on public expenditure we use a model that looks at the average public expenditure and tax revenue of an individual by age. We then apply these patterns to the projected population by age to see how total expenditure and tax contributions would change under a range of possible scenarios.

Rather than looking at how tax and expenditure varies over an individual’s lifetime, this research takes a snapshot approach by looking at how current tax and expenditure varies by age. This shows how the fiscal balance would be affected by the change in age structure if current levels of age-based tax and expenditure were maintained.

This kind of analysis relies on a number of assumptions and should not be seen as a forecast of the future fiscal balance. It is instead an analytical exercise to show the impact of the changing population age structure on the public finances.

Scope and Data Sources

The analysis takes two groups of costs into account, representing 74% of total identifiable public expenditure in Northern Ireland in 2012/13, recorded by PESA. The two groups are:

- services: health, education and personal social services ("care"), with a value in 2012/13 of £7.5bn; and
- other “social protection”: social security benefits, tax credits, state pensions (excluding public sector pensions), with a value in 2012/13 of £7.1bn.

On the revenue side, the analysis includes direct taxes (income tax and national insurance) totalling £4.7bn a year in 2011/12, and indirect taxes totalling £4.2bn a

---

5 Public sector pensions are excluded on the grounds their cost is not directly connected to the number of pensioners in the population (unlike, say, the state pension).
year. Together, these represent some 70% of total tax revenues recorded by PESA for Northern Ireland in 2011/12.\(^6\)

As there is no comprehensive source of data on expenditure and revenue in Northern Ireland by age, a model was developed using a range of source data including the Office for Budget Responsibility, the ONS and NISRA (see technical appendix for a full list of sources). This model allocates costs and revenues across the population on the basis of 5-year age bands and gender, and can then be projected forward to 2045 using National Statistics 2012-based population projections.

For the purposes of the work of the Commissioner for Older People for Northern Ireland, legislation defines older people as those aged 60 and older (and over 50 in some circumstances).\(^7\) However, this research has not sought to define older people, nor to view them as a uniform group. Rather, it looks at the how public expenditure and revenues vary by five-year age bands across the entire population.

**Non-financial contributions**

The analysis in this report is limited to public revenue and expenditure recorded by government in its fiscal balance sheet and is a direct concern and responsibility of policy makers. In this light, older people appear to benefit more from the public finances than they contribute. However, older people make a valued range of non-financial contributions that are typically overlooked in official statistics, such as volunteering and informal care provision. Other ‘hidden’ contributions include charitable donations and general spending power.\(^8\) These non-financial contributions can also have a major impact on government finance through reduced potential expenditure. As an Audit Commission literature review noted, older people make up a substantial proportion of the formal volunteer workforce and provide the majority of informal care to other older people, at a value of £87bn across the UK in 2009.\(^9\)

The Commissioner for Older People for Northern Ireland recently commissioned Development Economics to consider this non-financial contribution in the context of Northern Ireland, looking in particular at volunteering; caring; childcare; and replacement parenting. The equivalent financial value of these contributions was estimated at £67bn over the 50 years to 2062.\(^10\) By 2062, the value of these contributions is expected to increase to around £3.4bn per year in 2012 terms, with over half of this value coming from care provision. Once this non-financial contribution is taken into account against the financial costs of an ageing society,

---

\(^6\) The main omissions are a proportion of VAT, stamp duty, business rates, and corporation, inheritance and capital gains taxes. See the technical appendix for details.

\(^7\) Commissioner for Older People Act (Northern Ireland) 2011, s25.

\(^8\) WRVS (2011) Gold Age Pensioners: Valuing the socio-economic contribution of older people in the UK page 7.


older people in Northern Ireland make a net positive contribution of £24bn over the
next 50 years, although this figure does exclude state pension expenditure.  

---

11 COPNI (2014) Appreciating age: valuing the positive contributions made by older people in
Northern Ireland page 5.
3. Tax and expenditure per person

In this chapter we look at how public spending and revenue varies across the population by age, focusing on services, benefits and tax. This forms the basis of the model used in this research which goes on to show how the projected change in the population age structure affects public finances.

Services

The graph below looks at state spending per person on education, care and health in Northern Ireland by age. These three services capture the majority of such spending and are particularly relevant to this research as the amount spent has a clear age dimension.

Figure 3.1: Average state spending per person per year in Northern Ireland on education, health and care by age

Spending on education is concentrated, not surprisingly, on those aged five to 19. Children of this age benefit from, on average, £5,000 to £7,000 per year in education spending. For those aged 30 and over, spending is minimal.

In terms of health expenditure, children aged 0 to five require on average £2,500 per year. This level falls to £900 among those in their late teens. It then increases for those in their late-40s to £1,600 from which point it rises consistently among the older age groups. It reaches £3,000 among those in their mid-60s, £5,000 in their mid-70s and £8,000 in their mid-80s.

The amount spent on care services for children and working-age adults is relatively small. For those aged 25 to 39 spending amounts to under £300 per year; for those in their 50s and 60s it is about £600. But from the age of 70 spending increases at a faster rate; it doubles every five years to reach £6,000 per year for those in their late 80s.
Overall, spending on services is highest among the very oldest in the population (those aged 80-plus) due to health and care costs. But it is also high among children (aged 5 to 19) due to education. Expenditure on services is around £2,000 per year for those in their mid-20s to 40s, and less than £4,000 per year for most of the population (those aged 20 to 69).

**Social Security**

The next graph looks at annual spending per person on social security benefits by age. It shows how much is spent on different benefit types: workless income (benefits to cover the basic costs of someone without work\(^\text{12}\)), tax credits and child benefit, housing benefit, disability benefit, pension credit and other benefits (such as Guardians Allowance).

**Figure 3.2: Average state spending per person per year in Northern Ireland on benefits by age**

It shows that children are (indirect) recipients of on average £2,750 of benefit expenditure per year; almost all of this is through child benefit and child tax credit. The benefits received by working-age adults are less than children at around £2,000 per year for those aged 25 to 44 and then rising to £3,000 per year among those in their late 50s. This rise is driven by an increase in the amount spent on workless benefits and disability benefits among the older working age, whilst spending on working tax credits falls.

Average benefit spending on those who have recently become pensioners to age 75 is lower than older working-age adults (mainly due to the removal of workless income payments), but it then increases with age among pensioners. This is partly due to a higher amount spent on pension credit, but is mostly driven by higher levels of spending on disability benefits (which among the oldest pensioners amounts to an

average of £3,000 per person per year), accounting for more than half of the benefit spending on this age group.

The graph does not include state pension, which whilst not a social security benefit, does come out of the UK Welfare Budget. State pension spending dwarfs that of benefits, amounting to £7,000 a year on average to people aged 65 and over.

Tax

The graph below looks at the average amount of tax paid each year by age group. It includes income tax, national insurance contributions and indirect taxes (such as VAT and duties). Indirect taxes account for at least half of tax paid by each age group.

Figure 3.3: Average amount paid In tax per person per year In Northern Ireland by age

The amount of tax paid per year is much higher among those in their late 20s at almost £6,000 compared to those in their early 20s at £2,000. It is highest for people in their 40s, exceeding £10,000, and then declines among older age groups. From the age of 75 people pay around just over £2,000 per year in tax, mostly through indirect taxation but also from income tax on, for example, private pensions.

Overall

The final graph in this chapter brings together the three graphs above to show how average expenditure on services, benefits and state pension compares to tax paid in each age group. The line shows the balance between them (i.e. tax minus services and benefits).

It shows that, on average, people aged 25 to 59 pay more in tax than they receive through benefits and services. This is both because they pay more in tax but also because they receive much less in benefits and services than other age groups.
Children tend to receive more in services than they do in benefits as do those aged 85 and over, due to the increased spending on health and care services. But for younger pensioners more is spent on benefits and state pension than on services.

Figure 3.4: Average amount paid in tax and received in services and benefits per person per year in Northern Ireland

It is important to understand that these graphs show the value of tax paid and expenditure on benefits and services as an average across the age group. Within each age group there will be individuals who vary considerably from the average.

Spending on the state pension for older age groups is particularly high compared to the amount spent on benefits among younger age groups. This is partly because the value of the state pension is higher than unemployment benefits for the average recipient. But it is mainly because only a minority of working-age people will be in receipt of unemployment benefit, but most people over the age of 65 will be in receipt of state pension.

Likewise, someone with a chronic health condition will use the health services more than someone without, regardless of age. The reason that health spending on older age groups is higher is that individuals with greater health needs are more common among older age groups.

Dependency ratios

Dependency ratios aim to measure the number of people that are net-beneficiaries from the state relative to the number that are net-contributors. In most cases a person is defined as a net-contributor or beneficiary based solely on their age. Whilst

13 For example, the maximum value of the state pension is £113 per week whilst for a job-seeker it is £72 per week, though actual entitlement depends on individual circumstances as well as age.
these dependency ratios can be a useful way to summarise the changing age profile of a population or to compare two different populations, their practical application in public policy or economic planning is limited.

One of the most common measures is the ‘old age dependency ratio’ which is the number of people over state pension age for every 1,000 people of working age. This is often used within the context of the state pension which is based on a pay-as-you-go system, in which the National Insurance contributions of today’s working population help provide the state pensions of current pensioners (although national insurance contributions are not ring-fenced and pension payments can be funded with other revenues). However, even within this very specific context, the value of the dependency ratio measure is limited as working-age people merely represent potential National Insurance contributors rather than actual ones.

This chapter has shown that there are clear age differences in the average amount that someone pays in tax or receives in public expenditure. But other than education and state pension, age is not the determining factor. Personal health determines how much expenditure an individual requires from health and care services. Employment and earnings are strong determinants of how much tax someone pays and the benefits they receive.

If we accept that many of these determinants (employment and ill-health) follow an age trend there is reason to consider the age profile of a population in terms of planning public finances, as in this report. But the broad age groups of ‘working-age’ and ‘older people’ commonly used in dependency ratios are still very crude. Figure 3.4 showed that pensioners in their early 70s are on average net-beneficiaries of about £12,000 in expenditure, which is closer to the typical working-age adult than it is pensioners in their 90s. This highlights the limitation of any dependency measure that views all pensioners as a uniform group who are ‘dependent’ to the same extent, and ignores cases where older people remain in employment beyond state pension age. For this reason, this report considers the change in population in each five-year age band from 0 to 95 and over.

A more informative ‘dependency ratio’ would break up these two groups of net-beneficiaries and net-contributors further to indicate the scale to which they benefit or contribute, rather than relying solely on an age-based determinant. In addition, the way that these groups are defined should vary depending on the context in which it is being used – education spending could focus on the ratio of under-25s in the population and care spending on those aged 80-plus.
4. Total tax and expenditure

This chapter first looks at the age distribution of the population in Northern Ireland and how this is projected to change. It then looks at what this would mean for the balance between tax revenues and spending.

Population Projections

The previous chapter showed that the 25-59 age group are overall net contributors to the public finances, whilst under-25s and over-60s are net beneficiaries. Under-25s and 60-79 year olds tend to benefit by £5,000 to £10,000 in expenditure per year (excluding state pensions) compared to much larger amounts for those aged 80-plus. The relative population composition between these groups is therefore important for the public finances.

The table below shows how the population of these age groups in Northern Ireland is forecast to change over the next 30 years. The under-25 population is projected to remain stable at around 600,000 until the early 2030s, when it drops to 570,000 by 2045. Whilst this age group are net beneficiaries from public finances, they also represent future contributors. The 25 to 60 population is forecast to reach a high point in the early 2020s and then decline. In 2015 it accounts for 47% of the population but then falls to 42% in 2030 and 40% in 2045.

Both of the 60-79 and the 80-plus age groups grow over the period, with a higher growth rate for the latter. In 2015 there were around 310,000 adults aged 60-79 in Northern Ireland and 80,000 aged 80-plus. By 2045 both these numbers will be at least 100,000 higher. Adults aged 60-plus in Northern Ireland currently account for a fifth of the population; in 2045 they will account for a third.

Table 4.1: Northern Ireland’s population in 2015, 2030 and 2045

<table>
<thead>
<tr>
<th>Age</th>
<th>Number (000s)</th>
<th>Proportion</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2015</td>
<td>2030</td>
</tr>
<tr>
<td>0-25</td>
<td>599</td>
<td>601</td>
</tr>
<tr>
<td>25-59</td>
<td>864</td>
<td>823</td>
</tr>
<tr>
<td>60-79</td>
<td>312</td>
<td>420</td>
</tr>
<tr>
<td>80+</td>
<td>76</td>
<td>132</td>
</tr>
<tr>
<td>Total</td>
<td>1,852</td>
<td>1,975</td>
</tr>
</tbody>
</table>

Source: ONS 2012-based population projections

But this ageing population is not unusual; in fact the Northern Ireland population is currently young relative to the rest of the United Kingdom. For example, in 2015, 33% of the population are under 25, compared with 30% in GB, and the proportion aged 65-plus is smaller at 16% compared to 18% in GB. However, this difference is expected to disappear in the coming decade. By the mid-2030s Northern Ireland is projected to have the same proportion of over-65s as GB and only a slightly higher
proportion of under-25s. This is in part because, unlike the rest of the UK, net-migration in Northern Ireland is expected to be zero.\textsuperscript{14}

Next we combine the average tax and expenditure per person by age with the population structure in 2015 to model the overall balance of public finances. We also show what the impact would be with the population projected for 2030 and 2045. In short, we consider how the public finances would be different if we had tomorrow’s population today.

**Services**

The graph below shows total spending on services in Northern Ireland in 2015 and the level under the projected population in 2030 and 2045. In 2015 around £2.9bn is spent on education. The number of under-25s is projected to be the same in 2030 as in 2015 and slightly lower in 2045, so total expenditure on education follows the same trend.

Spending on health is expected to total just under £4bn in 2015, about 40\% of which will be spent on those aged 60-plus. With the population of 2045, spending on those aged 60-plus would reach £3.2bn, almost double the current level of £1.7bn, whilst spending on the under-60s would be slightly lower.

Spending on care in 2015 is expected to total £0.9bn, much less than spending on education and health. But a higher proportion of care spending is on those aged 60-plus (60\%). Under the population of 2045 total care spending would be £1.5bn. Whilst some of this growth in the total spend is due to the increase in the number of people aged 60 to 79 most of it is due to the increase in the number aged 80 and over (care spending on those aged 80-plus would be £0.9bn in 2045 compared to £0.3bn in 2015).\textsuperscript{15}


\textsuperscript{15} For a specific study on the demand for long-term care across Ireland to 2012 see Wren et al (2012) *Towards the development of a predictive model of long-term care demand for Northern Ireland and the Republic of Ireland*. 

Social security and state pension

The next graph looks at how total spending on social security benefits and the state pension would change if the population age structure were the only variable. Benefit expenditure for working-age adults and children (tax credits, child benefit and benefits for workless adults) amounts to £2.7bn per year in 2015 and would be slightly lower under the projected 2045 population. Meanwhile expenditure on disability benefits at £1.3bn in 2015 would increase to £1.9bn under the 2045 population.

Spending on pensioner benefits (including state pension) in 2015 is much the same as spending on working-age benefits at £2.6bn. But it is among the pensioner age group that population growth is concentrated. Under a 2030 population spending on pensioners would be £3.9bn and by 2045 it would be £4.8bn.

---

16 The value of benefits therefore remains at 2015 levels. The next chapter explores the impact of other factors including uprating policy.
The graph below shows tax revenue in Northern Ireland in 2015 and what it would be under the projected population in 2030 and 2045. In 2015 those aged under 60 pay £8.1bn in tax and those aged 60-plus pay £1.4bn in tax (15% of the total).

Despite the lower number of working-age people in 2045 and therefore reduced tax revenue from this group, this would be more than countered by the increased tax revenue from those aged 60-plus. Tax revenue under a 2045 population would be £10bn (22% of which would come from those aged 60-plus) compared to £9.6bn in 2015.

\[\text{\textsuperscript{17}} \text{The employment rate of each age group therefore remains at 2015 levels. Chapter 6 explores the impact of a shift in the employment rate.}\]
The final graph in this chapter looks at modelled spending on services, benefits and state pension compared to revenue from tax in 2015 and how that would differ under the projected population in 2030 and 2045.

In 2015 about £5.4bn more will be spent on services, benefits and state pension than will be raised through taxes. If the population structure were the only variable then in 2030 it would be £7.8bn and in 2045 £9.6bn. Higher spending on services and state pension accounts for most of this shift with £2.1bn more spent on services and £1.8bn more on state pension in 2045 than in 2015. Meanwhile tax revenue would increase by only £0.5bn.

But even if the age structure of the population remained the same, an increase in the total population would mean an increase in the size of the shortfall. To understand the impact of the changing age structure, rather than the overall population effect, we need to look at these taxes as a proportion of the costs. If the population age structure were the same it would remain at the 64% level in 2015. But due to changes in the age structure the level falls to 56% in 2030 and 51% in 2045.

* National Insurance Contributions are paid by people in work and their employers but not by working individuals aged over state pension age. Source: NPI Population Tax and Expenditure model.

18 It is important to note that this (and subsequent related figures) is not an estimation of the true size of the Northern Ireland subvention as only 74% of expenditure and 70% of tax revenue is represented by this model, as noted above.
**Commentary**

This analysis reflects 70% of total tax and 74% of total expenditure recorded in *PESA*, and these are the tax and expenditure elements most likely to vary with the age structure of the population. It shows that the projected change in Northern Ireland’s population age structure could put considerable pressure on public finances.

This is not surprising as the only age group expected to grow in size are those aged over 60, who are, on the whole, net-beneficiaries rather than net-contributors. But it is important to focus on the change in tax as a proportion of expenditure rather than the absolute shortfall. The impact of the ageing population could mean that tax would cover only 51% of expenditure in 2045 compared to 64% in 2015.

It is also important to note that this analysis discusses the demographic change in light of current patterns of contribution and expenditure only. Other factors will impact upon the figures we have shown and we consider these in the remainder of the report. These could be economic (such as inflation, productivity and employment), linked to policy (such as the changes in the state pension age, or how benefit values are uprated) or alternative sources of expenditure and revenue.
5. Economic growth, Inflation and uprating

The analysis thus far has only considered how current expenditure and tax revenues would change as the population age profile changes. This showed the impact of age in isolation. But it is not an altogether realistic presentation of future public finances as other policy, demographic and economic changes will play a major role. Next we look at the impact of economic growth, inflation and benefits uprating policy.

The summary table below shows the factors considered in this chapter and how they influence the public finances. These factors tend to interact and overlap, for example: benefit uprating is normally set in light of inflation and earnings, and inflation lessens the value of increased earnings (the additional earnings are worth less than if there was no inflation).

These factors are generally monitored at the UK level and are the responsibility of UK-wide bodies (such as the Bank of England and the UK Government). But it is nonetheless important to understand how they affect the fiscal balance as this has direct implications for the Northern Ireland Executive.

Table 5.1: Economic factors that affect the public finances

<table>
<thead>
<tr>
<th>Factor</th>
<th>Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inflation</td>
<td>Increases the cost of all items</td>
</tr>
<tr>
<td>Earnings</td>
<td>Increases tax revenue but also the cost of service provision</td>
</tr>
<tr>
<td>Uprating policy</td>
<td>Influences the value/cost of benefits and state pension</td>
</tr>
<tr>
<td>Productivity</td>
<td>Decreases the cost of providing services</td>
</tr>
</tbody>
</table>

Inflation and earnings

First we need to outline the impact of changes in prices and earnings. Inflation will increase the cost of all items, but in real terms the cost would be no different. If inflation, earnings, service costs and benefits all rose in line with one another, the balance between expenditure and tax would be the same as in the previous chapter (i.e. in 2045 tax would account for 51% of expenditure). In real terms the gap between tax and expenditure would be the same at £9.6bn.

But in its forecasts for the Treasury, the Office for Budget Responsibility (OBR) assumes that earnings will grow faster than inflation (at 4.2% and 2% respectively). If benefits and services also rose at the same rate as earnings the real tax shortfall would rise to £18.3bn in 2045 (the impact of these assumptions is explored later in this chapter). This is because, whilst higher wages mean that tax revenues increase,

---

19 In its *Fiscal Sustainability Reports* the OBR assumes that spending on services per person rises in line with average earnings, absent changes in the demographic profile.
the cost of services and benefits also increase. But as all of these increase at the same rate (2.2% in real terms), tax as a proportion of expenditure remains at 51%.

The table below shows how these two scenarios would alter the public finances in 2045. The first column has inflation, earnings, service costs and benefits at 2%; in real terms the figures are the same as those in the previous chapter. The second has inflation at 2% whilst earnings, service costs and benefits increase at 4.2%.

<table>
<thead>
<tr>
<th>(£ billions, 2015 prices)</th>
<th>Everything increases by 2% per annum</th>
<th>Inflation at 2.2%pa; all else at 4.2%pa</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tax</td>
<td>10.1</td>
<td>19.2</td>
</tr>
<tr>
<td>Services</td>
<td>9.7</td>
<td>18.4</td>
</tr>
<tr>
<td>State pension</td>
<td>4.1</td>
<td>7.8</td>
</tr>
<tr>
<td>Benefits</td>
<td>5.9</td>
<td>11.2</td>
</tr>
<tr>
<td>Overall</td>
<td>-9.6</td>
<td>-18.3</td>
</tr>
<tr>
<td>Tax as % of expenditure</td>
<td>51%</td>
<td>51%</td>
</tr>
</tbody>
</table>

Source: NPI Population Tax and Expenditure model.

**Uprating policy**

One way that policy can influence expenditure is through changing the value of benefits and state pension. Each year their value is adjusted to reflect changes in prices and earnings. Uprating them in line with inflation means that their value changes in line with the cost of living; uprating them in line with earnings means their value changes in line with the living standards of the workforce.

The way that benefit values and state pension are uprated will have a considerable impact on future public finances. Figure 5.3 shows how expenditure on state pension and on benefits would vary under different uprating levels (it assumes inflation is 2% and earnings increase at 4.2% as in the previous scenario).

---

20 Both services and benefits are assumed to increase at the same rate as earnings (see previous footnote).
The graph shows that even if the value of benefits increased in line with inflation, expenditure on them would still increase in real terms by a relatively small amount, due to overall population growth. This would amount to an additional £0.9bn in 2045 compared to 2015 (up 19%). If state pension was uprated by the same amount as benefits, expenditure on it would increase at a faster rate than benefits due to the higher growth in the number of pensioners. If state pension increased in line with inflation total expenditure would increase 76% in real terms, or a further £1.8bn.

Expenditure would be much higher in 2045 if benefits or state pension were uprated in line with earnings (a 2.2% annual increase in real terms) – annual expenditure on benefits would be double current levels and on state pension it would be triple. But the impact of such an uprating policy would be entirely dependent on the levels of earnings. If earnings fell in real terms so would expenditure on benefits and state pension, but tax revenue would also decrease.

The graph also shows how an extension of the ‘triple lock’ policy would impact expenditure on state pensions if it continued to 2045.\textsuperscript{21} The ‘triple lock’ guarantees that the value of state pension would increase at the highest of earnings, inflation or 2.5% each year. But the graph shows that spending in 2045 would only be £0.7bn higher than if it increased in line with earnings. However, this additional spending depends on whether earnings increase above or below the guaranteed minimum of 2.5%.\textsuperscript{22}

Table 5.4 shows what effect these uprating policies would have on the balance of tax and expenditure overall. It is important to note that this consideration excludes

\textsuperscript{21} It shows the value of state pension increasing by 4.5% each year in nominal terms (2.5% in real terms) as used in OBR models.

\textsuperscript{22} The OBR produce more detailed projections on state pension expenditure in the short-term in its biannual \textit{Economic and Fiscal Outlook} report and in the long term in its annual \textit{Fiscal Sustainability Report}.
possible negative fiscal impacts of higher poverty levels and lower living standards that are the likely result of uprating pensions and benefits by a lower rate.23

The lowest cost uprating policy is to increase the value of both benefits and state pension in line with inflation. With earnings increasing at a faster rate this would mean that tax would account for 67% of expenditure in 2045. The most expensive option would be to continue to triple lock the state pension and uprate benefits in line with earnings. This would mean that in 2045 tax would account for 50% of expenditure.

The table shows expenditure is £9.0bn more per year in 2045 when state pension and benefits are uprated in line with earnings rather than inflation. The further cost of the triple lock on pensions is then another £0.7bn. But it is important to note that it is based on the assumption that in the long term earnings increase at 2.2% above inflation, close to the triple lock guarantee. If inflation was higher than earnings (as it has been in recent years) then the cost of uprating in line with earnings would be the lowest cost option, but in the long term this is unlikely. If earnings increased above inflation but less than 2.2% the additional cost of the triple lock on state pensions would be much higher.

Table 5.4: Impact of uprating on benefit and pension expenditure in 2045 (£bn in 2015 prices)

<table>
<thead>
<tr>
<th></th>
<th>State pension</th>
<th>Benefits</th>
<th>Tax less total expenditure</th>
<th>Tax % of expenditure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Urate with earnings</td>
<td>7.8</td>
<td>11.2</td>
<td>-18.3</td>
<td>51%</td>
</tr>
<tr>
<td>Urate with inflation</td>
<td>4.1</td>
<td>5.9</td>
<td>-9.3</td>
<td>67%</td>
</tr>
<tr>
<td>State pension with earnings Benefits with inflation</td>
<td>7.8</td>
<td>5.9</td>
<td>-13.0</td>
<td>60%</td>
</tr>
<tr>
<td>State pension 'triple-lock' Benefits with earnings</td>
<td>8.5</td>
<td>11.2</td>
<td>-19.0</td>
<td>50%</td>
</tr>
<tr>
<td>State pension 'triple-lock' Benefits with inflation</td>
<td>8.5</td>
<td>5.9</td>
<td>-13.7</td>
<td>58%</td>
</tr>
</tbody>
</table>

Source: NPI Population Tax and Expenditure model.

Under the current government, the value of state pension has been subject to the ‘triple lock’ whilst for most other benefits the increase has been capped at 1% per year since April 2013. This has meant that in recent years the value of the state pension has grown at twice the rate of other benefits. At the time of writing the triple

23 Sutherland, H, Evans, M, Hancock, R, Hills, J, and Zantomio, F (2008) The impact of benefit and tax uprating on incomes and poverty. Joseph Rowntree Foundation. From a starting point of 2006/07, the effect of uprating benefits, tax credits and pensions by prices would increase the after housing costs (AHC) poverty rate of those aged 16-64 from 20% to 24%, and of people aged 65+ from 16% to 29% over 20 years. The poverty gap (difference between the median in-poverty household’s income with the poverty line) would increase from 23% to 35% in this time as incomes are ‘eroded’ by prices (Table 10). In contrast, uprating benefits and tax credits by 1.87% p.a. would have an almost distributionally neutral effect (Table 13).
lock on pensions is guaranteed until 2017 whilst other benefits will be uprated by 1% until April 2016.

But to consider the impact of other factors on the fiscal balance we need to select a baseline uprating scenario. For this we choose the scenario where all benefits and state pension values are uprated in line with earnings (which increase by 4.2% in nominal terms and 2.2% in real terms). This would ensure that living standards of all groups (employees, benefit claimants and pensioners) improved in line with each other.

**Labour productivity in health, education and care**

Lastly, this chapter considers the impact of changes in productivity in the delivery of the public health, care and education services. An increase in productivity would mean that these services could be delivered at a lower cost than previously.

The projections so far have implicitly assumed that there is no growth at all in labour productivity in health, education and care services. Evidence from before the 2008 recession shows that this is a pessimistic view. Public sector productivity is hard to measure but research suggests that an improvement of about 0.7% a year has been achieved in the past.24

Table 5.5 shows how an improvement in productivity in public services would change the required expenditure in 2045 and how that would alter the overall balance in the public finances. It shows how small increases in productivity would make a considerable difference to required expenditure on services in 2045. For example, if productivity in these services rose by 1% per year, expenditure on services by 2045 would be £4.8bn lower than if productivity remained unchanged. This would mean that tax would account for 59% of expenditure rather than 51%.

<table>
<thead>
<tr>
<th>Annual change in public sector productivity</th>
<th>Expenditure on services</th>
<th>Tax less total expenditure</th>
<th>Tax % of expenditure</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.0%</td>
<td>18.4</td>
<td>-18.3</td>
<td>51%</td>
</tr>
<tr>
<td>0.5%</td>
<td>15.9</td>
<td>-15.7</td>
<td>55%</td>
</tr>
<tr>
<td>1.0%</td>
<td>13.7</td>
<td>-13.5</td>
<td>59%</td>
</tr>
<tr>
<td>1.5%</td>
<td>11.8</td>
<td>-11.7</td>
<td>62%</td>
</tr>
<tr>
<td>2.0%</td>
<td>10.2</td>
<td>-10.0</td>
<td>66%</td>
</tr>
</tbody>
</table>

Source: NPI Population Tax and Expenditure model.

Commentary

The scenarios in this chapter demonstrate how a small change in the economy can make a considerable difference to the public finances in the long-term. In order to project public finances, assumptions need to be made about inflation, earnings, uprating and productivity. The previous chapter showed that with an ageing population expenditure will grow at a faster rate than tax, without any further assumptions being made about these other factors. But this chapter has shown that the impact of an ageing population will depend on the economic context in which these demographic changes occur, and that the impact of these economic variations can be just as dramatic as demographic ones.
6. Employment

The previous chapter looked at the impact of a range of economic changes but not at
employment. A higher employment rate would improve the public finances directly
through increased income tax revenues and reduced spending on out-of-work
benefits; but also through indirect tax revenues as those in employment spend more.

The baseline scenario assumes that there is no change in the employment rate of
each age group between 2015 and 2045. But as the population profile changes this
would mean that in 2045 the overall employment rate and the number of people
working would be lower than in 2015. In this section we consider how the
employment rate might differ in 2045 and what its impact would be.

The change in the state pension age

One reason to expect an increase in the employment rate is the change in the state
pension age (SPA). At present, the SPA for women is increasing to align with SPA
for men at 65. Once that is reached, the SPA for men and women will increase to 66
by 2020 and to 67 by 2028. Beyond this, it is intended that the SPA will increase in
line with life expectancy.\textsuperscript{25} The OBR expects that by the end of our projection period
(2045) the SPA will be 68.

Figure 6.1 shows the employment rate by sex and age in 2011 when the retirement
age was 60 for women and 65 for men. It shows that the drop in the employment rate
is sharpest for women between the age group 54-59 and 60-64 when it falls by 23
percentage points. For men the sharpest drop is in the 65-69 year group when it falls
by 25 percentage points. The Office for National Statistics has shown similar trends
for the UK, with the proportion of people exiting the labour market rising to peak at
SPA and falling afterwards.\textsuperscript{26}

\textsuperscript{25} State pension age timetables:
timetable.pdf

The Institute for Fiscal Studies has shown that an increase in the SPA tends to be followed by an increase in the overall employment rate because of financial incentives and the establishment of a new norm for retirement.\footnote{Cribb, J, Emmerson, C, and Tetlow, G (2014) \textit{Incentives, shocks or signals: labour supply effects of increasing the female state pension age in the UK}. Institute for Fiscal Studies.} The increase in the employment rate is most notable for the age groups immediately below the SPA. But whilst the evidence is limited, it’s possible that this effect could ‘ripple’ down the age groups delaying the age at which people exit the labour market: which evidence suggests begins at the age of 50 in Northern Ireland.

To model how the change in the SPA could alter public finances in 2045 we assume that people aged 50 and over start to replicate the patterns of the age group younger than them in terms of employment, tax paid, benefits claimed and pension entitlement. Overall it would mean that in 2045, compared to the baseline scenario, an additional 34,000 people aged under 65 and 39,000 more people aged 65 and over would be in work (73,000 in total).

**Northern Ireland’s employment rate compared to Great Britain**

But even if the SPA did not change, there are other reasons to expect Northern Ireland’s employment rate in 2045 to be higher than the 2015 level.

Figure 6.2 shows how the employment rate in Northern Ireland varies by age. It shows that the employment rate for 16 to 19 year olds is quite low at 21\% whilst many continue in full-time education. It then sharply increases among those in their 20s as a higher proportion of people enter the workforce. The employment rate is highest for those aged 25 to 34 at 83\% and then falls in the older age groups. Among those aged 65 and over the employment rate is 9\%.
The graph also shows that the employment rate in Great Britain is higher than in Northern Ireland except for the age group 25 to 34. In fact the employment rate in Great Britain is highest for the age group 35 to 49 when the employment rate in Northern Ireland had already started to fall.

**Figure 6.2: Employment rate by age in Northern Ireland and Great Britain**

Research suggests that the gap in the under-25 employment rate is due to NI having a higher proportion of full-time students than GB, whilst in the older age group it has been linked to higher rates of disability, in part a legacy of the Troubles. As such, the employment rate in NI in 2045 could be higher if the employment rates of those aged 35 and over in NI were to align with current rates for GB. Overall this would mean an additional 30,000 people aged under 65 and 2,000 more people aged 65 and over would be employed in 2045 than in the baseline scenario.

Put another way it would mean that the employment rate for 16-64 year olds in Northern Ireland would be 69.3% in 2045. This projected increase in employment is arguably unduly cautious. In its draft Strategic Framework to Tackle Economic Inactivity, the Northern Ireland Government aims to have reached an employment rate of over 70% by 2023. It is difficult to say what an optimistic or even realistic employment rate to expect in 2045 would be, but we also consider the impact of an employment rate of 75% in 2045 which is the European Commission’s target for 2020.

**Employment trends over SPA**

There is also reason to expect the employment rate of people over SPA to increase beyond the baseline, even if the SPA did not change. Despite the financial crisis and

---

the overall increase in unemployment in Northern Ireland the employment rates of those aged 50-64 and 65+ have continued to increase.

Research highlights that there are many reasons to expect this trend to continue and models how this would impact overall economic output to the 2030s. It assumes that the long-term UK trend continues so that the employment rate of those aged 65+ increases by 2.2 percentage points annually. Within our projection period, this would mean that the 65+ employment rate would increase to 75% by 2045 – higher than the current employment rate for 50-64 year olds; such an indefinite continuation in this trend of this order of magnitude is implausible. Instead we consider the impact of an employment rate among 65+ that is half the level for those aged 50-64, this would mean an increase from 8% to 31% in 2045.

**Impact of employment shifts on future public finances**

Table 6.3 summarises how the possible changes in employment discussed above would change the overall employment rate and the number of people in work in 2045.

<table>
<thead>
<tr>
<th>Base scenario</th>
<th>16-64</th>
<th>65-80</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Emp rate</td>
<td>Extra jobs</td>
</tr>
<tr>
<td>Base scenario</td>
<td>66.7%</td>
<td>NA</td>
</tr>
<tr>
<td>Rising SPA and employment</td>
<td>69.6%</td>
<td>34,000</td>
</tr>
<tr>
<td>35+ employment rates align with GB</td>
<td>69.3%</td>
<td>30,000</td>
</tr>
<tr>
<td>Growth in 16-64 employment only</td>
<td>75.0%</td>
<td>96,000</td>
</tr>
<tr>
<td>Growth in 65+ employment only</td>
<td>66.7%</td>
<td>0</td>
</tr>
</tbody>
</table>

Source: NPI Population Tax and Expenditure model

The next table shows how these changes would impact overall tax and spending 2045.

<table>
<thead>
<tr>
<th>Base in 2045</th>
<th>Tax (£bn)</th>
<th>Benefits (£bn)</th>
<th>State pension (£bn)</th>
<th>Balance (£bn)*</th>
<th>Tax % of spend*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rising SPA and employment</td>
<td>20.6</td>
<td>11.3</td>
<td>6.5</td>
<td>-15.7</td>
<td>57%</td>
</tr>
<tr>
<td>35+ employment aligns with GB</td>
<td>19.6</td>
<td>11.1</td>
<td>7.8</td>
<td>-17.7</td>
<td>53%</td>
</tr>
</tbody>
</table>

A higher state pension age and increased employment will have a favourable impact on public finances but alone will not be enough to fully counter the impact of demographic changes.

It is difficult to assess the extent to which the range of scenarios presented are optimistic, but even the most ambitious ones are arguably achievable. There are currently around 810,000 people employed in Northern Ireland. If the employment rate of each age group remained the same this would fall to 795,000 in 2045 as the

| Growth in 16-64 employment | £20.5 | £10.8 | £7.8 | -£16.6 | 55% |
| Growth in 65+ employment | £20.2 | £11.1 | £7.8 | -£17.2 | 54% |
| **Combined changes** | | | | | |
| Growth in 16-64 & 65+ employment | £21.6 | £10.7 | £7.8 | -£15.4 | 58% |
| Growth in 16-64 & 65+ employment and rising SPA | £21.6 | £10.6 | £6.5 | -£14.0 | 61% |

*Takes into account a services spend of £18.4bn across all scenarios.
Source: NPI Population Tax and Expenditure model.

The increase in the SPA, and the associated shift in employment, means that by 2045 tax revenue would account for 57% of expenditure, compared to 51% if the SPA did not change. About half of this improvement is through reduced expenditure on state pension (£1.3bn) and half is through increased tax revenue from higher employment (£1.4bn). But spending on benefits would increase slightly as there would be more people classed as working-age and entitled to means-tested benefits.

If the employment rate among people aged 35+ increased to the current GB rate, the impact on tax and expenditure would be much less: tax as a proportion of spending would increase by only 1.3 percentage points. This is primarily because pension spending would be unaffected and the additional number of people in employment at 32,000 more than the baseline is relatively modest.

A bigger shift in employment would make a bigger difference. If the 16-64 employment rate reached 75%, tax revenue would be £1.3bn higher. The fall in benefit spend would be smaller at £0.4bn because not all of the additional employed would have otherwise received benefit and some will continue to be eligible for in-work benefits. A considerable increase in the employment rate among people aged 65 would raise an additional £1.0bn in tax.

The final two rows on table 6.4 show the impact if some of these scenarios were combined. The first shows that if both the 16-64 and the 65+ employment rate increased, this would cut the shortfall by £2.9bn, tax accounting for 58% of expenditure. The second shows this same employment shift but also allows for the increased SPA which would reduce state pension spending. In this case the shortfall is £4.3bn less than the baseline, with tax accounting for 61% of expenditure.

**Commentary**

A higher state pension age and increased employment will have a favourable impact on public finances but alone will not be enough to fully counter the impact of demographic changes.
demographic shift takes place. But with a 16-64 employment rate of 75% and a 65+ employment rate at 31% there would be 970,000 employed people in Northern Ireland. There are good reasons to think that there will be greater supply and demand for work in 2045 than there is at present.

In terms of the supply of jobs, in 2045 demand for health and care services alone will be much greater than now as a result of the higher numbers of older people. Meeting this demand will inevitably bring employment opportunities. In terms of demand for jobs, at present Northern Ireland has high levels of inactivity and employment rates that fall at an early age. The Northern Ireland Executive already has plans to reduce inactivity within the next few years. Meanwhile the employment rate among people over SPA has consistently increased in recent years, despite the recession. If this continues and the planned falls in inactivity are achieved the number of people available, ready and wanting to work will increase.
7. Improved health

The reason for Northern Ireland’s ageing population is a combination of reduced fertility rates and increased life expectancy. The baseline scenario demonstrates the impact of this and assumes that the demand for health and care services by age does not change. But if increased life expectancy is accompanied by a delay in the onset of ill-health in later life the projected demand for health and care spending would be lower. This chapter first considers the evidence for this and then the impact it would have on our projections of the public finances.

Trends in healthy life expectancy

Figure 3.1 showed that spending on health increases consistently with each age group from the age of 40. According to ONS life expectancy projections for Northern Ireland a man aged 40 in 2015 can expect to live for another 46.2 years whilst someone of that age in 2030 can expect to live for another 48.2 years and in 2045 for another 50.3 years. The life expectancy of women shows the same trend. But to what extent does this translate into an increase in the number of years spent in good health and reduced demand for health and care services?

Whilst ONS does not project forward changes in healthy life expectancy, Figure 7.1 shows how it has changed in the UK compared to life expectancy overall. It shows that between 2000-2002 and 2009-2011 healthy life expectancy at birth has actually increased more than total life expectancy. At the age of 65 healthy life expectancy increased, but by less than overall life expectancy.

Figure 7.1: Change in UK life expectancy and healthy life expectancy

![Chart showing change in life expectancy and healthy life expectancy between 2000-2002 and 2009-2011.]

Source: Health Expectancies at Birth and at Age 65 in the United Kingdom, 2009–11

---

31 ONS (2011) *Period and cohort life expectancy tables, 2010-based.*
32 Healthy life expectancy reflects lifetime spent in ‘Very good’ or ‘Good’ health based upon self-perceived general health.
The same data is produced for Northern Ireland but is not reproduced in this report as the data is less reliable. However, it is clear that healthy life expectancy in Northern Ireland has not increased at the same rate as the UK average (the increase in Northern Ireland was generally around half the UK average for total life expectancy, whilst for men at birth there was no increase in healthy life expectancy in Northern Ireland). Overall the increase in healthy life expectancy in Northern Ireland was much lower than the UK as a whole.

Impacts of Improved Health Expectancy

To model the possible impact of improved health in older age we assume that the required health-related expenditure of each age group over 40 starts to resemble those in the age group below them. We show this for three levels of improvement in health life expectancy:

1. An increase in 2.5 years by 2045 (healthy life expectancy increases by half the projected increase in life expectancy)
2. An increase in 3.75 years by 2045 (healthy life expectancy increases by three quarters of the projected increase in life expectancy)
3. An increase in 5 years by 2045 (healthy life expectancy increases by the same number of years as life expectancy is projected to increase)

Table 7.2 shows the difference this later onset of poor health would have on public expenditure in 2045. It shows that under the most optimistic scenario health expenditure would be £1.3bn lower than in the base scenario and care expenditure £0.8bn lower. Spending on benefits could be around £0.5bn lower. Together this would mean that tax would account for 55% of expenditure compared to 51% if expenditure trends continued unchanged.

Table 7.2: Projected Impact of Improved health on health-related expenditure

<table>
<thead>
<tr>
<th></th>
<th>Health</th>
<th>Care</th>
<th>Benefits</th>
<th>Balance</th>
<th>Tax % of spend</th>
</tr>
</thead>
<tbody>
<tr>
<td>Base scenario</td>
<td>10.2</td>
<td>2.9</td>
<td>11.2</td>
<td>-18.3</td>
<td>51%</td>
</tr>
<tr>
<td>Health life expectancy +2.5yrs</td>
<td>9.5</td>
<td>2.5</td>
<td>11.0</td>
<td>-17.0</td>
<td>53%</td>
</tr>
<tr>
<td>Health life expectancy +3.75yrs</td>
<td>9.2</td>
<td>2.3</td>
<td>10.8</td>
<td>-16.3</td>
<td>54%</td>
</tr>
<tr>
<td>Health life expectancy +5yrs</td>
<td>8.8</td>
<td>2.1</td>
<td>10.7</td>
<td>-15.6</td>
<td>55%</td>
</tr>
</tbody>
</table>

Source: NPI Population Tax and Expenditure model

Commentary

Given recent trends it is reasonable to expect that healthy life expectancy will increase and as a result the required health expenditure on older people could fall. However, the extent to which it does improve is difficult to predict. What is clear is that improvements in healthy life expectancy in Northern Ireland are lagging behind
GB. A shift in this trend would be good for the wellbeing of the population but would also lead to considerable improvements in the outlook for the public finances.
8. Conclusions and recommendations

In 2015 there is a considerable shortfall between the tax and expenditure modelled in this research – with tax accounting for 64% of expenditure. If this current tax and expenditure trend was applied to the population of 2045 it would be 51% due to the change in the age structure: an increasing shortfall.

But by 2045 a number of other changes are likely to alter the situation so the impact on the fiscal balance would be smaller. These include:

1. the increased state pension age (lowering expenditure on state pension)
2. a higher employment rate (increasing revenue from tax and lowering spending on out-of-work benefits)
3. improved health (lowering health-related spending)
4. increased public sector productivity (lowering the cost of delivering services)

Other than the change in the state pension age which is already legislated (and may increase further in the future), all of the above are probable but not inevitable. For these changes to be achieved some kind of intervention would be required.

In terms of a higher employment rate, at present Northern Ireland has high levels of inactivity and employment rates that fall at an early age. The Northern Ireland Executive already has plans to reduce inactivity. Meanwhile the employment rate among people over SPA has consistently increased in recent years, despite the recession. But research has warned that this increase will not continue without investment in learning and development among older workers and greater provision for flexible working and phased retirement.

In terms of healthy life expectancy, given recent trends it is reasonable to expect that it will increase and as a result the required health expenditure on older people could fall. However, the extent to which it does improve is difficult to predict. What is clear is that improvements in healthy life expectancy in Northern Ireland are lagging behind GB. A shift in this trend would be good for the wellbeing of the population but would also lead to considerable improvements in the outlook for the public finances.

In terms of increased public sector productivity, the health and care sector provides a bespoke service to individuals according to need and it requires skill, sensitivity and time. Making such services more efficient without compromising on quality will be a challenge. Investment in public health which aims to both increase service productivity and increase healthy life expectancy would benefit individuals in terms of overall wellbeing but also bring about long-term savings.

If all of these were achieved, they would more than counter the fiscal impact of the shifting age structure. These three aims of increased employment (especially among older people), improved health (specifically targeting the onset of ill-health in later

---

life) and increased public service should not be seen as solely economic or financial goals, but social ones requiring changed norms and greater participation from all sections of Northern Ireland’s society.

Although it is common sense that an ageing population will increase net public spending, this research shows that the fiscal effect, though large, does not dwarf other changes that could offset it. Holding down public sector earnings and social security benefits continually for decades is one of them. But this is a harsh response to the increase in life expectancy which in itself is a wonderful thing. Alternatively, a combination of higher employment among those aged 50+, increased healthy life expectancy and public services delivered more productively represents a viable alternative to endless austerity.