Scotland’s population is currently in transition. Like many other developed economies, it faces an increasingly ageing population which brings about pressing policy implications. The aim of this report is to address these questions which are currently of great political and public interest. How is the Scottish population expected to change in next decades? What are the key areas of spending that are influenced by demographic change? What can be done now to ensure that public spending is effectively managed in years to come?
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EXECUTIVE SUMMARY

- Scotland has a population driven by a lower fertility combined with gradually decreasing mortality, which along with no significant gains or losses from migration results in the redistribution of the population away from the younger to the older age groups.

- Key areas of public spending impacted by demographic change include health services, public pension schemes administered by Scotland and free personal care.

- These currently account for almost 50 per cent of the 2010-11 Scottish DEL budget\(^1\).

- Health, accounting for 38 per cent of the Scottish DEL budget, is the largest area of concern. For example, current demographic projections would increase primary care spending for those aged 65 and older by 70 per cent by 2033 unless action is taken.

- Pensions, accounting for 8.5 per cent of the Scottish DEL budget, would require reform to prevent future spending increases. Without decreasing contributions or increasing the pensionable age beyond that already planned, expenditure could increase by over 31 per cent by 2033.

- Although it accounts for a smaller proportion of public spending, the amount spent on free personal care could increase by more than 200 per cent by 2033 unless cost or eligibility is reduced.

- Influencing demographic change is very unlikely to be enough on its own to mitigate these rising costs.

- Implementing key changes such as eligibility for universal benefits, reduced cost of delivering healthcare and reduced pension contribution rates will be required if costs are to be kept at current levels.

- The cost of a primary care consultation would need to be reduced by more than 38 per cent for spending on primary care for those above the age of 65 to remain constant in real terms by 2033.

- To keep spending in line with current amounts, pension schemes such as NHS and teacher schemes could be reduced by decreasing contribution rates by 21 per cent in real terms by 2033 or delaying the pensionable age to 70 years of age by 2013.

- The effect of ageing on free personal and nursing care could be mitigated by reducing enrolment by 57 per cent or cutting the average cost per enrolee in real terms by 52 per cent by 2033.

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\(^1\) NHS and Teachers pensions are part of AME spend, not DEL – but this statistic is intended to give an impression of scale.
DEMOGRAPHIC TRENDS: WHAT IS HAPPENING TO SCOTLAND’S POPULATION?

FACTORS OF POPULATION CHANGE

The population equation involves four factors: the number of births, deaths, immigrants and emigrants. There are two ways a population can transform itself. The first is by a change in births and deaths, otherwise known as “natural change”. The second is by a change in “net migration” which is the difference between the number of immigrants and emigrants. An ageing population is ultimately caused by the interaction of these four variables. “Lower fertility combined with gradually decreasing mortality and no significant gains or losses from migration results in the redistribution of the population away from the younger to the older age groups” (ESRC, 2004).

Fertility

Chart 1: Birth and Deaths, actual and projected, Scotland 1951-2031

The number of births in Scotland fell significantly between the early 1960s and 2002, dropping below the number of deaths in 1996. In the last few years Scotland has seen an upturn in the number of births as they have exceeded the number of deaths in 2007. Since 2003, there has been an unanticipated increase in fertility in Scotland that can partially be attributed to an increase in migration. Although there are an increasing proportion of children born to foreign women in Scotland, the ONS concludes that there is no clear relationship between the proportion of births to foreign born mothers and the level of fertility in an area.

The projections show a further increase in the number of births in 2009. They are projected to continually decline but exceed the number of deaths until 2027 and remain above the historically low number of births that were observed in 2002 (GROS, 2009a).

The extent to which these projections can portray an accurate picture of fertility in the future depends on a variety of factors (ESRC, 2004). The following factors have the potential to influence fertility in Scotland and could cause a deviation from current projections:
- Childbirth timing such as the average age of women at the birth of their first child
- Changes in social attitudes, norms, and behaviour such as a rise in individualism, consumerism and changing social attitudes
- New patterns of partnering such as cohabitation
- Changes in gender relations such as employment opportunities for women
- Cost of raising children and state benefits such as child care assistance and tax reductions
- Work/life balance such as the ease of combining employment and childbearing

For a population to replace itself, the total fertility rate needs to be 2.1. This is the level of fertility required so that the number of births equals the number of deaths and the population size remains constant naturally (ESRC, 2004). Scotland’s fertility level currently lies, and is predicted to remain in, what has been called the “safety zone” above 1.5 births per woman. When fertility is in this zone size of the subsequent generation will fall only slowly and that there is an opportunity to supplement generation size with migration (McDonald, 2004).

**Mortality**

In recent years, Scotland has seen a steady increase in life expectancy and is projected to see a continuation of this trend in the future. Expectations of life at birth are projected to increase from 74.8 in 2007 to 80.7 in 2033 for males and from 79.8 in 2007 to 85.3 in 2033 for females (GROS, 2009a).

![Chart 2: Life Expectation at Birth, Scotland 1983-2033](image)

Factors that have lead to a change in life expectancy in the past and could lead to a deviation from the projected trends in the future include (Baines, Cummins, and Schulze, forthcoming):

- Improvements in environment, such as progress in sanitation
- Changes in medical advancement or health policy
- Better access to welfare and medical services
- Improvements in diet and lifestyle
- Reduction in dangerous occupations

Source: GROS, 2009a
Migration

Historically, Scotland has been a nation with a negative net-migration. From 1951 to 2007 the number of emigrants was larger than the number of immigrants, leading to population loss. In this period, net migration loss was over 800,000 people. This is quite a considerable loss, considering that in this period the total population of Scotland averaged around 5 million. Such an intense out-migration occurred in very few countries in the same period with the exception of Ireland (Lisenkova and Wright, 2009).

The gap between immigration and emigration has gradually closed and the 1990s was a period of relative balance. Since 2000, immigration has exceeded emigration and the country has had a record five consecutive years of positive net-migration (Lisenkova and Wright, 2009).

![Chart 3: Estimated and Projected Net Migration Scotland 1951-2033](source: GROS, 2009a)

As a result, projections assume that Scotland will continue to experience a net inflow throughout the projection period. The size of this net annual inflow is assumed to fall steadily from its 2007-8 level of 20,000 until it stabilizes at 12,000 in 2014-5 (GROS, 2009a).

These assumptions have been derived from an analysis of trends in civilian migration to and from the United Kingdom as well as a cross-border migration between the four constituent countries. These projections include additional allowances for migrants from the A8 countries which joined the European Union in 2004 (GROS, 2009a).

Unlike some countries, the UK does not have a comprehensive system of recording migrants, particularly those leaving the country, nor any legal requirement to notify change of address. So migration is the most difficult component of population change to measure and predict. Migration levels have been so variable in recent years that any trend is hard to identify due to the non-linear nature of migration patterns (GROS, 2009a). The unanticipated spike in 2003 in migration is further evidence of the difficulty in projecting migration.

The factors that could lead in the future to a deviation from the current projected migration levels include:

- Labour markets fluctuations
- Changes in age structure
In Scotland, matters related to immigration are a “reserved power”. Since the release of Scotland’s population projections, significant policy shifts adopted by the government may lower migration from outside the EU to below current trends. As of June, the new coalition government has announced that the number of workers entering the UK from outside Europe will be controlled by a new limit. The intention is to scale back net migration to below 1990 levels. The Home Secretary stated that ‘the government promised large-scale change to Britain's immigration system - and that is what we are delivering. Alongside the limit on non EU migrant workers, we have already introduced a requirement that those coming here to marry learn English, and our urgent review into child detention for immigration purposes is under way’ (UK Home Office, 2010).

**TOTAL POPULATION PROJECTION**

The total population of Scotland is projected to rise from 5.17 million in 2008 to 5.36 million in 2018 and to continue to rise to 5.54 million in 2033. This represents an increase of 7 per cent over the 25 year period (GROS, 2009a).

The recent increase in Scotland’s population has been driven mostly by net in-migration although recently there have been more births than deaths. Under the assumption of zero migration, the projection suggests that Scottish population will decrease in size in the future. The projected population increase depends considerably on net migration as well as maintaining fertility levels.
DEMOGRAPHIC CONSEQUENCES OF POPULATION PROJECTIONS

AGE DISTRIBUTION

The current demographic trends show an acceleration of population ageing with a shift to a greater proportion of the population to the age of 60 or above. In the ten years from 1998 to 2008, the ageing of the population was reflected in the number of children under 16 reducing by 9 per cent and the number of people aged 75 per cent and over increasing by 13 per cent (GROS, 2009c). Between 2006 and 2031, Scotland’s population is projected to continue age markedly. The number of children aged under 16 is projected to decrease by 7 per cent. The number of people aged 75 and over is projected to have the sharpest increase at 81 per cent.
Scotland’s age structure is projected to change dramatically between 2008 and 2033. In each case, the number of people over the age of 60, and in particular those who are 75 and over is projected to increase significantly. On the other hand, the number of people less than 60 years of age is projected to decrease in most cases.

Chart 7: Percentage Change in Age Structure under the 2008-based Principal and Selected Variant Projections 2008-2033

Geographic Variation

Although the population of the whole of Scotland is projected to rise over the next 25 years before declining slowly, there are differences in this pattern across Scotland (GROS, 2009b). The populations of 19 of the 32 council areas in Scotland are projected to increase and 13 are projected to decline. The council areas which are projected to show the largest relative increases over this period are East Lothian (+33 per cent), Perth and Kinross (+27 per cent), Clackmannanshire (+24 per cent) and West Lothian (+23 per cent). The largest relative population decreases are projected in Inverclyde (-18 per cent), East Dunbartonshire (-13 per cent), West Dunbartonshire (-8 per cent) and Shetland (-7 per cent) (GROS, 2009b).

The relative importance of natural change and net migration on the projected population change differs by council area. In some areas of projected population increases such as East Lothian, Perth & Kinross, Clackmannanshire, West Lothian and Aberdeenshire the population gain over this 25 year period are attributable both to gains from migration and more births than deaths. For Midlothian, North Lanarkshire and Glasgow the population is projected to increase due to more births than deaths despite net out-migration. In other areas, the projected increase is due to in-migration despite fewer births than deaths as in the Highlands, Scottish Borders, and the Orkney Islands (GROS, 2009b).

There is variation between council areas in terms of the projected percentage change in the percentage of the population of pensionable age. However, the percentage change in the proportion of the population that is of pensionable age is universally projected to increase in all council areas. These projections take into account the change in pensionable age. Currently, pensionable age is 65 for men, 60 for women until 2010; between 2010 and 2020 pensionable age increases to 65 for women. Between 2024 and 2026 the pensionable age for both men and women increases to 66 and changes again to 68 by 2046.
USES AND LIMITATIONS OF PROJECTIONS

Projections are not an exact science and there should be a great reluctance to interpreting the results as a prediction of future conditions. Projections are calculations that show what happens if a particular set of assumptions are made, regardless of the likelihood of these assumptions. Projections merely use past trends to deduce future trends and do not include behavioural or policy changes, nor do they include potential for unanticipated external shocks. The accuracy of the projections depends on two important drivers: the extent to which the past trends have been accurately measured and the extent to which the future reveals itself to be consistent with the past.

The reliability of the projections is entirely dependent on the quality of underlying data and the extent to which they represent current trends (GROS, 2009b). Migration, in particular, is difficult to project because it is largely determined by evolving economic and political forces, rather than past trends. Fertility and mortality projection rates tend be closer to the realised rates. However, the unanticipated fertility increase in 2003 is a testament to the limitations of these projections. Mortality trends are also subject to a certain degree of variability, pending certain medical breakthroughs that currently remain unforeseen. Many social and economic factors influence population change including policies adopted by both central and local government. The relationships between the various factors are complex and largely unknown (GROS, 2009b).

The future population of an area is strongly influenced by the initial base population. Since the process of change is cumulative, the reliability of projections decreases over time. Smaller populations are more easily affected by trends, such as migration, and the projections for these areas tend to be less reliable. The sizes of migration flows and the uncertainty of future trends mean that for many areas the migration assumptions are more critical than the fertility and mortality assumptions. Hence, the migration assumptions can have a large effect on small populations in the long-term (GROS, 2009b). For example, there are current restrictions on free movement of labour from A8 countries to some EU member states. However, if these barriers in other countries are reduced, the in-migration to Scotland could be reduced. Such potential scenarios are not included in the population projections although they are vital when considering Scotland’s future population.
Population projections may also be an impetus for behavioural and policy change, making them less likely to be realised. Population projections may indicate that existing trends and policies are likely to lead to outcomes which may not be deemed desirable. If policies are introduced that counter these trends, either directly or indirectly, the original projections will not be realised (GROS, 2009b).

**SUMMARY OF DEMOGRAPHIC TRENDS AND CONSEQUENCES**

- The population of Scotland is projected to rise by 7 per cent to total 5.54 million by 2033. The projected population increase is largely driven by a positive net migration as well as maintaining fertility levels.
- Scotland has an ageing population driven by a lower fertility combined with gradually decreasing mortality and no significant gains or losses from migration results in the redistribution of the population away from the younger to the older age groups.
- Between 2006 and 2031, the number of people aged 75 and over is projected to have the sharpest increase of 81 per cent. The number of people aged 65 to 74 is projected to increase by 40 per cent during the same period.
- Simultaneously, the number of people aged 30 to 59 years is expected to decrease by ten per cent in the same period.
- An ageing population is expected to occur throughout all Scottish council areas but some are projected to encounter it more acutely such as Aberdeenshire, Shetland Islands and West Lothian.
- After the period of accelerated ageing in the next decades, Scotland is then expected to experience a period of decelerated ageing as the younger cohorts are considerably smaller.
- Projections rely on past trends to imply future trends and do not take into account behavioural, policy or exogenous changes.

**SPENDING IMPLICATIONS: HOW DOES DEMOGRAPHIC CHANGE INFLUENCE THE SCOTTISH BUDGET?**

Population ageing and population decline are undeniably cause for concern in most developed countries. Research has identified such trends to have an impact on key labour market variables such as earnings, employment, unemployment, mobility, migration, retirement and education participation. Likewise, serious attention has been directed towards evaluating the effects on savings, consumption, investment, housing and intergenerational transfers. However, it would be wrong to conclude that all aspects of population ageing and population decline are negative. It is simply that there are ultimately going to be some sizeable costs (Lisenkova and Wright, 2009). As the number of people aged 65 and older grows, the demand for state-supplied health and personal care, residential services, housing, pensions and other services increases. Simultaneously, the base expected to pay for this increase, people of working age who are employed, is becoming progressively smaller in both absolute and relative terms. It is not difficult to conclude that such a situation of increasing imbalance is not sustainable indefinitely into the future (Lisenkova and Wright, 2009).
This section looks into the drivers of cost in the future and provides some scenario analysis to understand how these drivers could influence government spending looking ahead. The areas of policy that can be affected by demographic change are highlighted in Chart 9. Although many Scottish policy areas could be influenced by demographic change, this report analyses the areas that are sizeable and most susceptible to an accelerated ageing. The areas covered are:

- Health
- Public pensions administered by Scotland
- Universal benefits such as free personal care

Between them, they do not account for all expenditure affected by an ageing population. However, in the Draft budget of 2010-11 released by the Scottish Government, the administration of the Scottish Public Pensions Agency and the NHS stand to represent 47.3 per cent of the total budget DEL. The addition of spending on free personal care will likely bring this figure close to 50 per cent. These are not exhaustive of the costs associated with an ageing population in these spending areas. They exclude, for example, out of pocket spending on medical insurance and private health and long-term care, and also the cost of informal care (Mayhew, 2009).

**HEALTH**

Unlike social security and social care, almost everyone is a consumer of healthcare. The incidence of limiting long-term conditions increases with age for both men and women. Musculoskeletal, circulatory, and respiratory disorders, along with sensory impairments, account for a large proportion of the illness and disability seen in the older population. Dementia and stroke are also particularly common causes of disability among older people living in long term care (Wood and Bain, 2001).

Primary care refers to the health services that play a central role in the local community such care provided by GPs, pharmacists, dentists and midwives. Primary care providers are usually the first point of contact for a patient and follow them throughout their care pathway (Department of Health, 2010). Health promotion activities provided to older people in primary care include the provision of the influenza vaccination and the annual health screening of patients aged 75 and over. In recent years, there has been a shift towards private nursing home care, resulting in an increase in the number of older people with complex health problems and health care needs.
living in community-based nursing homes and being cared for by general practitioners and other members of the primary care team. Research confirms that this group of patients requires particularly high levels of GP time and workload (Wood and Bain, 2001). As people age they become more likely to consult primary care physicians, according to ISD Scotland. Three major cost drivers relating to primary care have been identified as:

- The volume of ageing patients
- The cost of consultation
- The frequency of consultation

To understand how these drivers influence the level of spending going forward, a scenario analysis is used to provide indicative conclusions. The baseline scenario makes the following assumptions: 1) the frequency of consultations per age group does not change over time, 2) prices per consultation stay at current levels, 3) the population changes according to GROS baseline population projections and 4) the length of a primary care consultation remains at a length of 15 minutes. All spending estimates have been adjusted to reflect 2010-2011 prices. Based on these assumptions the results show that spending on primary care for people aged 65 and older could increase by 23 per cent by 2018 and 70 per cent by 2033 in real terms.

Varying these assumptions according to the cost drivers: demographic change, cost of consultation, and frequency of consultation, provides further clarity on the effect of these drivers on spending. The following section examines how realistic the baseline assumptions are, how the alternate scenarios differ from the assumptions made in the baseline scenario and their implications. The results of this model, from both the baseline and alternative scenarios, should only be treated as indicative and are not exhaustive. This is due to the limited data availability on the cost of primary care consultations and data on the frequency of consultation by age group is also limited and dated.

Chart 10: Scotland Public Expenditure Forecast by Scenario: Primary Care Consultations for Aged 65+
**Cost Driver: Demographic Change**

<table>
<thead>
<tr>
<th>Baseline Assumption</th>
<th>Alternate Scenario 1</th>
<th>Alternate Scenario 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>GROS baseline projection</td>
<td>Life Expectancy increases at a faster pace</td>
<td>Life Expectancy increases at a slower pace</td>
</tr>
</tbody>
</table>

How realistic is the baseline assumption?
Life expectancy is the least volatile of the drivers of demographic change. Therefore, it is fairly realistic to assume that life expectancy will continue to increase at a constant rate. However, unexpected events such as technological breakthroughs or epidemics could influence to what extent the population changes as the projections indicate they will.

Results
An increase or decrease in life expectancy, due to a medical breakthrough or another unanticipated change, would not substantially change the projected cost of primary care consultation. This is likely due to fact that those who live to be 80 or above are a smaller number than other age groups. Therefore a slight extension or reduction of their lives will not have a notable increase on spending, albeit that these age groups rely more frequently on primary care health services. Change in life expectancy trends will likely not ameliorate the potential for large increases of spending on primary care as the population ages.

**Cost Driver: Cost of Primary Care Consultation**

<table>
<thead>
<tr>
<th>Baseline Assumption</th>
<th>Alternate Scenario 3</th>
<th>Alternate Scenario 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average cost of primary care consultation remains constant</td>
<td>Average cost of primary care consultation increases by 10 per cent every five years</td>
<td>Average cost of primary care consultation decreases by 5 per cent every five years</td>
</tr>
</tbody>
</table>

How realistic is the baseline assumption?
Without a direct intervention to reduce costs, it would be highly unlikely that the average cost of primary care consultations would remain constant in real terms for the next 25 years. This is due to the wage variability and potential changes in service delivery which could greatly affect the cost of consultation. Increases in cost could be due to wage increases or further investment in medical equipment. Changes in the delivery of primary care consultations could result in either an increase or a decrease in the cost. Investment in telemedicine where patients have online consultations, for example, could lead to cost savings. The degree of variability and unpredictability of the future of primary care health makes it unlikely for costs to remain constant going forward.

Results
Even a fairly modest change in cost leads to a noticeable change in spending and causes a diverging trend line from the base scenario. It is clear that as the population ages, even modest increases in cost can cause large increases in spending as more people are getting older and relying on primary care more frequently and at a higher cost. A decrease in the cost per consultation shows the potential to drive down spending as the population ages and the rates of consultation remain constant.

The cost of consultation would need to be reduced by more than 38 per cent from 2008 to 2033 for the cost of primary care to remain constant in real terms by 2033. This cost is influenced by factors such as wage levels and the time attributed to each consultation.
Cost Driver: Annual Rate of Primary Care Consultation

<table>
<thead>
<tr>
<th>Baseline Assumption</th>
<th>Alternate Scenario 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average annual rate of primary care consultation remains constant at 4.6 times per year for 45 to 54 year-olds; 5.5 times per year for 55 to 64 year-olds; 7.9 times per year for 65 to 74 year-olds; 10.8 times per year for 75 to 84 year-olds and 13.3 times per year for those 85 years old and older.</td>
<td>Average annual rate of primary care consultation is reduced by 20 per cent for each age group every five years.</td>
</tr>
</tbody>
</table>

How realistic is the baseline assumption?
It is unlikely that the current assumption regarding the average annual primary care consultations for an individual will remain constant going forward. It is likely that the average annual rate will be reduced with medical advancements and improvements in primary care service delivery. Any significant decreases in the rate of consultation may require a government intervention. This might include public interventions to promote healthier lifestyles at an early age to avoid chronic diseases that can burden the primary care health system.

Results
A 20 per cent reduction in annual consultations for each age group could provide a reduction in spending on primary care as the Scottish population ages compared to the baseline scenario. A reduction in the number of annual consultations does not change the rate that costs increase going forward but merely lowers the total spending amount.

If costs of consultation are not reduced, the annual frequency of consultation would then need to be reduced by more than 38 per cent for the cost of primary care to remain constant in real terms by 2033. The average annual frequency of visits could be reduced with medical advancements, improvements in primary care service delivery or education campaigns to promote healthier lifestyles.

Key Findings
Despite data limitations, there are conclusions that can be drawn from these projections. The baseline scenario suggests the cost of primary care for those aged 65 and older will rise by 70 per cent in real terms by 2033. Demographic change alone will likely not be enough to bring down spending. Without state intervention the spending on primary health care alone stands to double and may even triple under some scenarios. The forecasts show that modest reductions in the cost of consultation and the rate of consultation are associated with reductions in spending on primary care. Therefore policy interventions in these areas are most likely to help mitigate spending increases.

In addition to increases in primary care spending, Scotland can expect to face spending increases in most other areas of health, particularly in secondary care, geriatric services, geriatric psychiatry, end of life care, and prescription use. Emergency admissions for those aged 65 to 74 have been shown to be more than twice the rate of those aged 45 to 54. Geriatric medicine and psychiatry of old age account for approximately half of all day-patient activity in

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2 Such projections must be taken merely as indicative as they rely on data with some considerable limitations. The most recent data available on the volume of consultations by age group dates to 2001 before the introduction of Free Personal Care. Therefore, the reliance on primary care consultations may be lesser for those aged 65 and older than the data reflects, due to the introduction of this service. The cost of primary care consultations is not calculated by the NHS due to the large variation across boards. There is no established method that determines the cost of each individual consultation at a GP. Rather, for primary medicine, costs are typically presented by dividing the total expenditure of the practice by the number of patients treated by the practice. The methodology of deducing the cost is widely debated by health economists and therefore the cost used in these forecasts should be treated merely as arbitrary. Finally, these figures cannot be considered exhaustive. GP consultation data only reflect disease that presents to, and is managed in, primary care, hence they seriously underestimate the true cost of an ageing population on health spending.
the NHS Scotland (Wood and Bain, 2001). This evidence suggests that an ageing population will be a large cost driver across a wide range of health services particularly at proximity to death. The extent of this cost is still widely debated in the field of health economics and has yet to be fully explained.

Past trends show that older people rely more heavily on health services than younger people. It is difficult to anticipate if future generations of older Scots will age with similar health patterns as today. It is possible that changes in behaviour (such as the smoking ban and improved diet) and medical advancements could mean that future generations of older people will be healthier than today’s older people. Demographic projections indicate that life expectancy will be slowly increasing but the extent to which this is considered a prolongation of a “healthy” life expectancy is still unknown.

Increasing costs to care for an ageing population will likely occur in all health board areas but some areas could face more exaggerated challenges than others. Understanding the extent of the increase is difficult since it is not merely considering the volume increase of services and products but also additional costs, such as building more facilities and hiring more staff. The extent of these costs is likely to vary based on each NHS board’s demographic make-up as well as their current ability to accommodate an ageing population. Given that projections for the number of people of pensionable age in Aberdeenshire, West Lothian and the Shetland Islands are particularly high there is an even greater need for policy intervention in these areas. It is also important to consider the possibility that some board areas may be able to capitalise on economies of scale due to the increase usage of health services and their health provision may not suffer from efficiency deficiencies going forward.

PUBLIC PENSIONS

The UK Government is primarily responsible for setting policy for occupational pensions in the public sector. However, administrative responsibility for five of the six main schemes in Scotland lies with the Scottish Government. The sixth scheme is the Principal Civil Service Pension Scheme (PCSPS), which is wholly controlled at UK level, as are the terms and conditions of civil servants (Audit Scotland, 2010).

There are six main public sector schemes in Scotland: NHS, teachers, local government, civil servants, police and fire-fighters. Employer contributions vary across the schemes, ranging from 13.5 per cent to 22 per cent. With the exception of the NHS Superannuation Scheme, employer contribution rates continue to rise. The pension schemes for police and fire fighters do not currently have a set employer contribution rate but the annual costs are based on pensions paid less employee contributions. The estimated 2009-10 contributions for Scottish teachers are £373 million and £559 million for NHS staff. A recent actuarial valuation of the Local Government Pension Scheme resulted in an increase in employer contribution rates for each of the three financial years from 2009-10 to 2011-2012. Audit Scotland was not able to establish employer contributions for fire-fighters and police pensions but as of 31 March, 2008, their unfunded liabilities were £6.3 billion and £1.7 billion respectively (Audit Scotland, 2010).
The spending entitlements for public pensions in Scotland are driven by a myriad of factors but the primary drivers include: 1) demographic change as the number of people above the pension age increases, 2) the rate of employer contribution or the percentage of salary that the government commits to providing a pensioner after retirement and 3) the age of retirement which has been reformed and extended in recent years.

This analysis examines NHS and Teachers schemes as examples to understand how public pension schemes may respond to impending demographic change. To understand how these drivers have the potential to influence the level of spending going forward, a scenario analysis provides indicative conclusions. Due to data limitations, only the NHS scheme and the Scottish teachers’ scheme administered by Scotland are examined in this analysis.

The baseline scenario makes the following assumptions: 1) the average annual employer cost is evenly distributed across the number of pensioners in the scheme, 2) the average annual employer cost per pension remains constant, 3) reforms on the pensionable age will occur as currently determined and 4) the number of pensioners belonging to these schemes follows the same demographic changes as the overall Scottish pensioner population. Given these assumptions, the results show that annual spending on NHS and teacher public pension schemes could increase in real terms by 5 per cent by 2018 and 24 per cent by 2033.
Cost Driver: Demographic Change

<table>
<thead>
<tr>
<th>Baseline Assumption</th>
<th>Alternate Scenario 1:</th>
<th>Alternate Scenario 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>GROS baseline population projection</td>
<td>Younger population age structure</td>
<td>Older population age structure</td>
</tr>
</tbody>
</table>

How realistic is the baseline assumption?
The baseline assumptions are the GROS baseline projections for the population based on 2008 estimates. Mortality is the least volatile of all of the factors with trends progressing with a steady rate of change. Fertility has had a recent unexpected increase in recent years, suggesting that there could be further unexpected trends. A higher or lower level of migration would most likely alter the baseline scenario.

Results
A small alteration in age structure does not considerably change the spending for NHS and teacher schemes. The spending forecasts for these scenarios show similar trend lines to the baseline scenario. Scenario 1 is 3 per cent lower and scenario 2 is 2 per cent higher than the spending in real terms according to the baseline scenario by 2033. This is likely due to the fact that a change in life expectancy affects only the very old and does not considerably reduce the number of expected pensioners going forward. A higher migration and a higher fertility do not seem to help reduce spending. However, such trends could help counter-balance the high costs of an ageing population. An increased flow of migrants and an increase in the number of children could improve the dependency ratio in the short and long term. Although improving the dependency ratio may not reduce spending, it can make it easier to fund the public pension schemes if a greater proportion of the population is economically active.
Cost Driver: Employer Contribution

Baseline Assumption | Alternate Scenario 3 | Alternate Scenario 4
--- | --- | ---
Current employer contribution rates remain constant over the projection period | Assumes a 10 per cent increase every five years in the annual cost per pensioner | Assumes a 10 per cent decrease every five years in the annual cost per pensioner

How realistic is the baseline assumption?
Recently, employer contribution has trended downwards as public spending has become over extended and concern over an ageing population has mounted. Therefore, it would be unlikely that employer contributions would remain at current levels for the next 25 years. It seems more likely that contribution levels might decrease slowly and lower the cost of each individual pensioner in order to be able to accommodate a higher volume of pensioners. This eventuality is depicted by Scenario 4. Scenario 3, at this junction and given the current political climate, seems unlikely.

Results
Even a modest increase in the cost per pensioner notably changes the projected spending on NHS and teacher public pension schemes. Scenario 3 shows the highest projection of government spending. Spending is more sensitive to changes in cost per pensioner than to changes in demographic scenarios. Reducing employer contribution rates as in Scenario 4 shows a potential for a greater reduction in spending than demographic scenarios. Contribution rates would need to decrease by 20.9 per cent from 2008 to 2033 for costs to remain constant in real terms.

Cost Driver: Pension Age

Baseline Assumption | Alternate Scenario 5 | Alternate Scenario 6
--- | --- | ---
Pensionable age is 65 for men, 60 for women until 2010; between 2010 and 2020 pensionable age for women increases to 65. Between 2024 and 2046, state pension age will increase in three stages from 65 years to 68 years for both sexes | Pensionable age increases to 70 for both men and women in 2013 and remains at that age for the duration of the forecast period | Pensionable age remains at current rates and then increases to 75 for both men and women in 2018 and remains at that age for the duration of the forecast period

How realistic is the baseline assumption?
Facing mounting political pressure, the pensionable age has already been scheduled to be pushed back through 2033. This assumption is fairly realistic as it incorporates recent reforms to amend public pension schemes to support an ageing population. Scenario 5 seems fairly unlikely in the short term. If current demographic trends continued, such a scenario could occur in the longer term. Scenario 6 is unlikely, given that it a pensionable age of 75 is dramatically older and there are likely to be physical and mental constraints that would prevent people from working up to this age.

Results
Increasing the pensionable age to 70 by 2013 shows 26 per cent less spending than the baseline case in 2033. This increase in the retirement age shows the potential to curb spending because it limits the number of pensioners. Pushing back the pensionable age also has the additional benefit of improving the dependency ratio and using the taxable earnings of the almost-retired. Increasing the pensionable age to 75 by 2018 shows even further reductions in spending. Under this scenario, spending would be 56 per cent lower than in the baseline scenario in 2018 and 61 per cent lower in 2033. Of all the scenarios considered in the analysis, Scenario 6 indicates the lowest level of spending. For spending to remain close to today’s levels in real terms by 2033, the pensionable age would have to be raised to 70 by 2013.
Key Findings
Scenario analysis shows that changes in demographic trends do not considerably drive public pension spending as much as other drivers. Both the annual cost per pensioner and the pensionable age affect spending more noticeably. Even a modest increase or decrease in the cost per pensioner can increase or reduce spending on pension schemes by a considerable amount. Increasing the retirement age is the most impactful way to reduce public pension spending although this option may not be politically viable.

Although slight modifications in demographic trends may not have a considerable affect on public pension spending, they are far from irrelevant. Changes in fertility and migration help fund existing pension schemes in both the short and long term. If the Scottish Government can encourage fertility and migration this will help mitigate some of the spending implications of an ageing population for future generations.

FREE PERSONAL CARE

Free personal and nursing care in Scotland provides a set of universal services for people with care needs which are not subject to means-testing. Free personal care is now a legal entitlement for people aged 65 or over who have been assessed as having personal care needs. Free nursing care is available to people of all ages who are assessed as requiring nursing care services. Those who are liable for their full residential care costs and described as ‘self-funders’ receive a weekly contribution of £156 towards their personal care and £71 towards their nursing care costs (Independent Budget Review, 2010).

Current research identifies three main drivers of spending:

- Demographic change
- Eligibility criterion
- Average annual cost per person provided with the service

To understand how these drivers have the potential to influence the level of spending going forward, a scenario analysis is used to provide indicative conclusions.

The baseline scenario makes the following assumptions: 1) number eligible people grows at the rate projected by the GROS, 2) the percentage of people who enrol for the services out of the total number of eligible people grow at a constant rate (this rate is determined to be the average rate of increase from 2003-2008) and 3) the proportion of total expenditure to the total people enrolled in the benefit remains constant. This proportion is set at the average proportion from 2003-2008. Given these assumptions, the results show that annual spending on free personal and nursing care could increase by 96 per cent by 2018 and 212 per cent by 2033. All spending estimates have been adjusted to reflect 2010-2011 prices.
Cost Driver: Demographic Change

<table>
<thead>
<tr>
<th>Current Assumption</th>
<th>Alternate Scenario 1</th>
<th>Alternate Scenario 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>GROS Baseline Population Projection</td>
<td>Life expectancy increases at a slower pace</td>
<td>Life expectancy increases at a faster pace</td>
</tr>
</tbody>
</table>

How Realistic is the Current Assumption?
Life expectancy is the most stable driver of demographic change. Therefore, it is fairly realistic to assume that life expectancy will continue to increase at a similar rate. Currently there is little evidence to indicate that increases in life expectancy would slow in the medium term. However, there could be unanticipated shocks, particularly medical ones such as epidemics that could conceivably affect the elderly and therefore reduce gains in life expectancy.

Results
If life expectancy increases, it would not have a significant impact on reducing the cost of free personal care. Free personal care is largely driven by the volume of people who are poised to turn 65 in the next 25 years and less by the length of time that they live. Although there is no hard evidence to indicate that increases in life expectancy might speed up in the medium term, it is not entirely unlikely. In fact, Scotland has a lower life expectancy than other European countries, indicating that there is room for greater improvement through lifestyle changes. Furthermore, life expectancy could increase more rapidly with medical advancement.
Cost Driver: Eligibility Criterion

<table>
<thead>
<tr>
<th>Current Assumption</th>
<th>Alternate Scenario 3</th>
<th>Alternate Scenario 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current eligibility remains</td>
<td>Minimum age of eligibility is pushed out to 75 years of age but all other conditions of eligibility remain</td>
<td>Enrolment is capped at 40 per cent of the total number of people who are currently eligible for the service but minimum age to qualify remains at 65 years of age</td>
</tr>
</tbody>
</table>

How Realistic is the Current Assumption?
Currently, Scots over the age of 65 who participate in home care are legally entitled to free personal care. This is a universally provided benefit regardless of financial status. Although there are no firm plans to change this, the policy has come under substantial scrutiny, most recently in the Independent Budget Review. Considering the tightening of the budget and increasing call for reform, it could likely be that the eligibility for the provision of the service may be revisited.

Results
Scenarios that reduce the number of people who enrol in free personal care by limiting eligibility prove to be important drivers to keeping spending from rising as the population ages. However, the results show that this eligibility changes would need to be aggressive in order to be an effective tool. Currently, 66% of people eligible for free personal or nursing care are enrolling in the benefit. In order to keep spending at 2008 levels, this enrolment rate would need to be 28 per cent by 2033, which represents a 58 per cent reduction over the 25 year period.

Cost Driver: Cost of Providing Free Personal Care

<table>
<thead>
<tr>
<th>Current Assumption</th>
<th>Alternate Scenario 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Costs of providing the service continue to rise at the current pace. From 2003 to 2008, the average year-on-year increase is 8.3 per cent in cash terms</td>
<td>Average expenditure per person stays at the 2008 amount (£6,192 per year)</td>
</tr>
</tbody>
</table>

How Realistic is the Current Assumption?
The annual spend per person has increased considerably since 2003 however the trend has been erratic. In 2006 the annual spend per person increased by over 18 per cent. However in 2008 there was a slight dip in the rate of cost increase. The cost increases in the past years have been attributed to wage negotiations and increases in the wages of care workers. Although more recent years have shown that costs are not climbing as sharply as in the past this does not mean that wages will not face further increases in the future.

Results
Demographic change is a large driver of spending even if costs remain unchanged. However, containing costs does appear to have significant cost savings over the baseline scenario. Given the current age structure of the population, a growing proportion of the population will become eligible for free personal care. Although certain measures can be taken by the government to fund the care (such as improving the dependency ratio or increasing fertility levels) this does not negate the fact that costs are poised to rise considerably. A comparison of scenarios shows that demographic changes have little effect on the cost of the policy where as changing the eligibility criteria or reigning in costs have a much greater impact on cost reduction. The annual average cost of free personal care per enrolee would need to drop by 52 per cent to contain free personal care spending to today’s level in real terms by 2033.
Key Findings

As the Scottish population ages, the provision of free personal and nursing care is vulnerable to spending increases with the potential to increase by 200 per cent in the next 25 years. Slight deviations from the current population projections will not be enough to reduce spending going forward. Spending can be reduced by cutting the costs of administering the benefit or reducing the number of people who enrol in the benefit. Pushing the minimum age required to qualify for free personal care shows to mitigate spending increases effectively by reducing the number of people eligible for the benefit while allowing for the service to remain universal, one of the major tenets of its creation. However, the additional cost of an increase of emergency room visits and other medical costs for those who are no longer covered by the service should also be considered, as they are currently not included in this scenario analysis. Means testing is also an effective tool to mitigate cost increases and has the advantage of controlling the volume of the enrollees. Under this scenario, the only associated increase in the spending is associated with increases in providing the service rather than demographic changes. “In light of future demographic and financial challenges, the extent to which personal and nursing care should remain a free universal service is a critical issue which needs to be tackled urgently” (Independent Budget Review, 2010).

CONCLUSION

Given recent population projections, certain areas of Scottish public spending will come under severe pressure. These areas include health, public pension schemes and universal benefits such as free personal care. Given the geographical variation of the population projections areas such Aberdeenshire, West Lothian and the Shetland Islands will be faced with more exaggerated pressures than Scotland as a whole.

Influencing demographic change will not be enough to mitigate the effects of an ageing population. Certain policies, such as those that encourage migration or encourage people to work past the current pensionable age, may help generate additional revenue to help pay for the increased spending. According to the modelling undertaken for this study, implementing key changes such as eligibility for universal benefits, reduced cost of delivering healthcare and reduced pension contribution rates will be required if costs are to be kept at current levels. However, the substitutability between these services must be further understood before making any significant policy changes. A reduction of a benefit in one area, such as free personal care, could then result in an increase in another area, such as the NHS. These issues should be addressed if further spending increases are to be avoided.

FURTHER CONSIDERATIONS

Given that spending will clearly rise as population ageing accelerates in the next decades, it is important that Scotland consider how to finance these changes. Scottish policy-makers have three major policy options to mitigate the affect of an ageing population on the public purse in the next few decades: 1) reduce the spending on current benefits by limiting eligibility and cutting costs, 2) redistributing funds from other policy areas that are not squeezed by demographic change such as education or 3) generate additional government revenue, for example by boosting labour market participation. An increase in labour market participation, such as through migration and expansion of women into the labour force, will help improve the dependency ratio and keep the economy buoyant throughout the ageing acceleration. The scope of this report has been on the first policy option but the remaining two options should be given considerable attention in further research.
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