

Projected Population of Scotland (2012-based)

National population projections by sex and age, with
UK comparisons

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Contents

Limitations of projections	6
Main Points	6
1. Background.....	8
2. Uses and limitations of projections.....	9
3. Summary of results	10
4. The base population and assumptions used in the projections.....	18
5. Comparison with previous projections.....	20
6. Scotland's position within the United Kingdom.....	23
7. Scotland's position within Europe.....	24
8. Long term and variant projections.....	25
9. Further information.....	31
Annex A: Fertility assumptions.....	38
Annex B: Mortality assumptions.....	40
Annex C: Migration assumptions	42
Annex D: Variant projections and assumptions.....	43
Notes on statistical publications.....	45
Related organisations	47

List of Tables

Table A:	Projected age structure of Scotland's population (percentage of total population)	22
Table B:	Projected number of dependents per 100 population of working age, Scotland	22
Table 1:	Projected population of Scotland (2012-based): 2012-2082	32
Table 2:	Projected components of population change, Scotland, 2012-2037	33
Table 3:	Projected population of Scotland (2012-based), by age group, 2012-2037	34
Table 4:	Projected number of dependents per 100 population of working age, Scotland, 2012-2037	34
Table 5a:	Projected number of births, Scotland, 2016-2037	35
Table 5b:	Projected number of deaths, Scotland, 2016-2037	35
Table 5c:	Projected population, Scotland, 2017-2037	35
Table 6:	Projected population of Scotland (2012-based), by sex and age group, 2012-2037	36
Table 7:	Principal and selected variant projections (2012-based), Scotland, 2012-2082	37
Table 8:	Projected population change for selected variant projections (2012-based), Scotland, 2012-2037	37
Table A1:	Assumptions of long-term average completed family size, 2010 and 2012-based projections	38
Table D1:	Assumptions for the 2012-based principal and nine variant projections for Scotland	44
Table D2:	Variants and Scenario	44

List of Figures

Figure 1: Estimated population of Scotland, actual and projected, 1952- 2087	10
Figure 2: Births and deaths, actual and projected, Scotland, 1952-2037	11
Figure 3: Estimated and projected net migration, Scotland, 1952-2037.....	12
Figure 4: Estimated and projected age structure of Scotland's population, mid-2012 and mid-2037	13
Figure 5: The projected percentage change in Scotland's population by age group, 2012-2037	14
Figure 6: Estimated and projected numbers of children aged 0 to 15, Scotland, mid-2012, mid-2022 and mid-2037	15
Figure 7: Estimated and projected population aged 70 and over, Scotland, mid-2012, mid-2022 and mid-2037	16
Figure 8: Dependency ratio (dependents per 100 working age population) Under the 2012-based principal projection, 2012-2037	17
Figure 9: Expectation of life at birth actual and projected, Scotland, 1984-2037.....	19
Figure 10: Actual and projected total population compared with previous projections, 1983-2037	20
Figure 11: Actual and projected natural change (births minus deaths) compared with previous projections, 1984-2037	21
Figure 12: Actual and projected net migration compared with previous projections, 1983-2037	22
Figure 13: Comparison of population change for UK countries, 2012-2037	23
Figure 14: Projected percentage population change in selected European countries, 2010-2035, 2010-based projections.....	24
Figure 15: Actual and projected total population of Scotland, under the 2012-based principal and selected variant projections, 1982-2087	25
Figure 16: Percentage change in age structure under the 2012-based principal and selected variant projections, 2012-2037	27
Figure 17: Average (median) age of Scotland's population under the 2012-based principal and selected variant projections, 2012-2037	27
Figure 18: Dependency ratios (dependents per 100 working age population) under the 2012-based principal and selected variant projections, 2012-2037	28
Figure 19: Children per 100 working age population under the 2012-based principal and selected variant projections, 2012-2037.....	29
Figure 20: Pensioners per 100 working age population under the 2012-based principal and selected variant projections, 2012-2037.....	30

Figure A1: Scotland age specific fertility, 1983-2012	39
Figure B1: Period Expectations of life (Eol) for Scotland less respective expectation of life for UK – for males at birth and ages 20, 40, 60 and 80, 1983-2012	40
Figure B2: Period Expectations of life (Eol) for Scotland less respective expectation of life for UK – for females at birth and ages 20, 40, 60 and 80, 1983-2012	41
Figure C1: Net Migration, 1952 to 2012.....	42

Correction: 29 November 2013

The totals for 'All ages' in [Table 3](#) were corrected on 29 November 2013. This correction did not affect any other figures within this table.

Limitations of projections

When using a projection it is important to note some key limitations.

- A projection is a calculation showing what happens under certain assumptions about future fertility, mortality and migration.
- The assumptions are based on past trends and do not take account of any future changes that may occur as a result of policy initiatives but may reflect the past impact of policy and economic changes. These projections are not, therefore, forecasts of what the government expects to happen based on policy.

Main Points

The key points in this report are as follows:

Principal projection

- The population of Scotland is projected to rise from 5.31 million in 2012 to 5.52 million in 2022, and to continue to rise to 5.78 million in 2037 – an increase of 9 per cent over the 25 year period.
- Over the next decade, 28 per cent of the projected increase in Scotland's population can be attributed to natural increase (more births than deaths) while 72 per cent of the increase is due to assuming continuing inward net migration to Scotland.
- Between 2012 and 2022 the number of children aged under 16 is projected to increase by 4 per cent from 0.91 to 0.95 million. It is then projected to increase to 0.96 million by 2037 (a 5 per cent increase compared with the 2012 estimate).
- The number of people aged 75 and over is projected to increase by around 28 per cent in the first ten years of the projection period, from 0.42 million in 2012 to 0.53 million in 2022. It is then projected to continue rising, reaching 0.78 million in 2037 – an increase of 86 per cent over the 25 year period.
- The number of people of working age¹ is projected to increase from 3.35 million in 2012 to 3.51 million in 2022 (an increase of 5 per cent). The projected working age population then decreases to 3.48 million by 2037 (an overall increase of 4 per cent from the 2012 estimate).
- The number of people of pensionable age¹ is projected to decrease from 1.05 million in 2012 to 1.02 million in 2020 (a decrease of 3 per cent).

Footnote

1) Working age and pensionable age populations based on State Pension Age (SPA) for a given year. Between 2012 and 2018, SPA will change from 65 years for men and 61 years for women, to 65 years for both sexes. Then between 2019 and 2020, SPA will change from 65 years to 66 years for both men and women. Between 2034 and 2046, SPA will increase in two stages from 66 years to 68 years for both sexes. This is based on SPA under the 2011 Pensions Act.

It is then projected to rise, reaching 1.34 million in 2034. It then remains relatively constant and is projected to be 1.33 million by 2037 (an increase of 27 per cent from the 2012 estimate).

- The dependency ratio² – the ratio of people aged under 16 and over pensionable age to those of working age – is projected to rise from around 59 per 100 in 2012 to 66 per 100 in 2037. This rise is mainly due to the increase in the population of state pension age.
- The populations of the other countries in the UK are also projected to increase with England's population projected to increase by 16 per cent, Northern Ireland's population by 10 per cent and Wales's population by 8 per cent between 2012 and 2037.

Variant projections

- Under each of the alternative scenarios illustrated by the nine available variant projections, Scotland's population is projected to increase between 2012 and 2030. All but the natural change only variant show an increase over the first 25 years of the projection.
- All the variant projections show Scotland's population ageing significantly over the next 25 years with the number of people aged 75+ projected to increase by between 71 per cent and 101 per cent under these variant assumptions.

Footnote

2) Dependency ratios can be defined in different ways, but here are defined as the number of children aged under 16 and the number of people of state pension age per 100 people of working age. These ratios should be interpreted with care. For example, a simple interpretation is the number of older people or children who are 'dependent' on the working age population, the assumption being that most older people and children are not economically active. The reality is of course much more complex, since – to give just a few reasons – many people of typically working age are unemployed or economically inactive (e.g. at school or university), the age at which people retire varies greatly and many retired people are financially independent. However, these 'dependency' ratios provide a useful way to examine the relative age structure of the population.

1. Background

- 1.1 The Office for National Statistics (ONS), on behalf of the National Records of Scotland (NRS), prepares population projections for the United Kingdom and its constituent countries. This publication presents the main results of the latest, 2012-based, projection for Scotland and outlines the fertility, mortality and migration assumptions used in its preparation. Some additional tables showing more detailed figures for Scotland can be found within the Projected Population for Scotland section of the NRS website whilst full results of the (2012-based) projections can be found on the [ONS website](#).
- 1.2 The results in this paper concentrate on the period up to 2037, although they occasionally refer to up to 75 years ahead and ONS makes available projections up to 2112. However, projections this far ahead become increasingly uncertain.
- 1.3 As well as producing the main principal projection, ONS also produces variant projections using alternative plausible assumptions. At the time this paper was written (06 November 2013) ONS had published 9 variant projections on the ONS website. Additional variants will follow in December 2013. More information on the variant projections is given in [Section 8](#).
- 1.4 The base population used in these projections are the 2012 based mid-year estimates rolled forward from the 2011 Census. The assumptions used in these projections use the old mid-year estimates series rolled-forward from the 2001 Census. While the level of the population changed the trends did not. More information on the differences between the 2011 Census and the mid-year estimates for 2001 are explained in the [2011 Census reconciliation report](#) on the NRS website. More information on the assumptions used in the projections is available in the Annexes at the end of this publication ([Annex A](#), [Annex B](#) and [Annex C](#)).
- 1.5 Population projections were assessed by the UK Statistics Authority in May 2011, along with other population and demographic statistics for Scotland. These statistics have been designated as National Statistics, as they meet the requirements set out in the assessment report³. One of the five requirements set out by the UK Statistics Authority was 'Review the summary text in the population projections release to convey more prominently the nature of projections and their difference from forecasts, to aid user understanding', and the following section and additions to the main points and news release addresses this.

Footnote

- 3) UK Statistics Authority (2011). [Assessment Report 113: Statistics on Population and Demography in Scotland](#) PDF document which can be found on the UK Statistics Authority website.

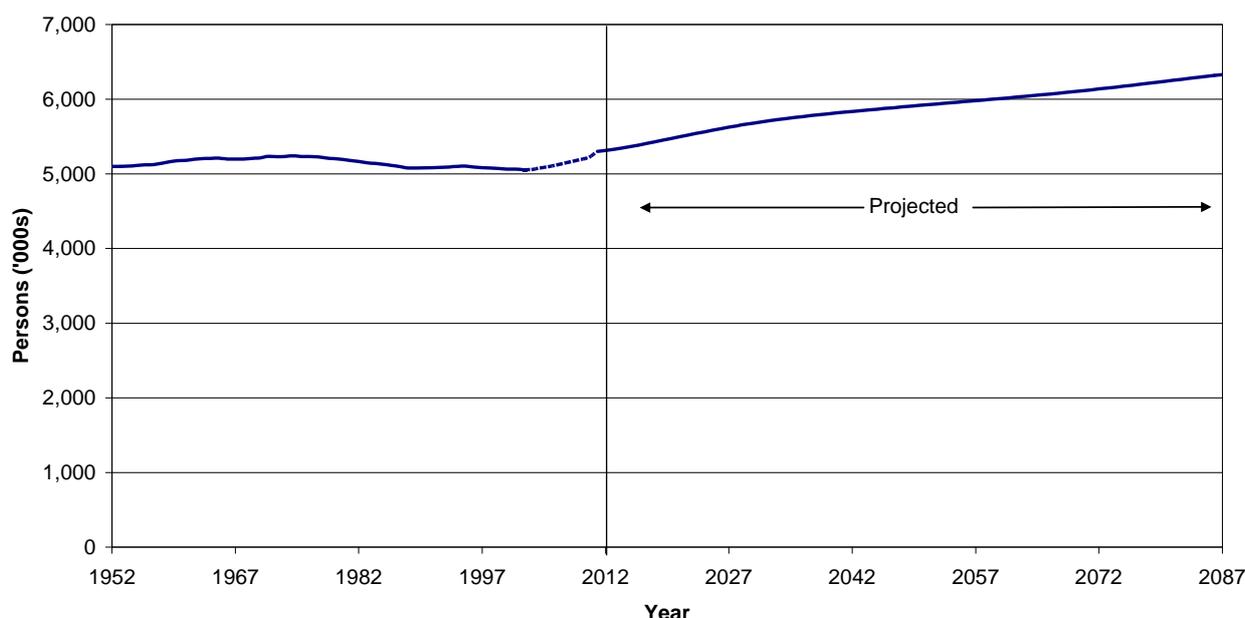
2. Uses and limitations of projections

- 2.1. It is increasingly important to have high quality population statistics and also projections of the population, for both policy development and for planning and providing public services in different geographic areas.
- 2.2. The primary purpose of the national population projections is to provide an estimate of the future population of Scotland as a common framework for use in national planning in a number of different fields such as education and health. Projections are used for teacher workforce models, and looking at the implications of an ageing population. They are also used for making national and international comparisons, benchmarking other projections, and as a control for smaller area projections.
- 2.3. Population projections have limitations. A projection is a calculation showing what happens if particular assumptions are made. The population projections are trend-based. They are, therefore, not policy-based forecasts of what the government expects to happen. 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. While future policy changes are not taken into account projections will reflect the impact of past policy and economic changes
- 2.4. The effect of the assumptions about future migration, fertility and mortality is often limited by the inertia in population change, the future population of an area is strongly influenced by the initial base population. As the process of change is cumulative, the reliability of projections decreases over time. Change affects some populations more rapidly and more seriously than others. Projections of the number of adults are usually more reliable than those for children because of difficulties in projecting levels of fertility and parental migration. The size of the 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.
- 2.5. Population projections, like some other types of projections, may indicate that existing trends and policies are likely to lead to outcomes which are judged undesirable. If new policies are then introduced, they may result in the original projections not being realised. However, this means the projections will have fulfilled one of their prime functions, to show the consequences of present demographic trends with sufficient notice for any necessary action to be taken.
- 2.6. It should be noted that as these population projections are trend based, they are less reliable in periods of rapid change. For example, the change in volume of migrants from the EU A8 accession countries to Scotland was not picked up by earlier projections.
- 2.7. The Scottish Government has set a target to match average European (EU15) population growth over the period from 2007 to 2017. More details can be found within the [Scotland Performs section](#) of their website.

3. Summary of results

- 3.1. The results of this new set of projections, summarised in [Table 1](#) and illustrated in [Figure 1](#), show the total population of Scotland increasing from 5.31 million in 2012. After this, the population is projected to reach 5.52 million in 2022 (an increase of about 206,000 or 4 per cent compared with 2012) and then 5.78 million by 2037 (a 9 per cent increase on the 2012 level). Looking further ahead, the population is projected to continue to rise, reaching around 6.3 million by 2087.

Figure 1: Estimated population of Scotland, actual¹ and projected², 1952- 2087



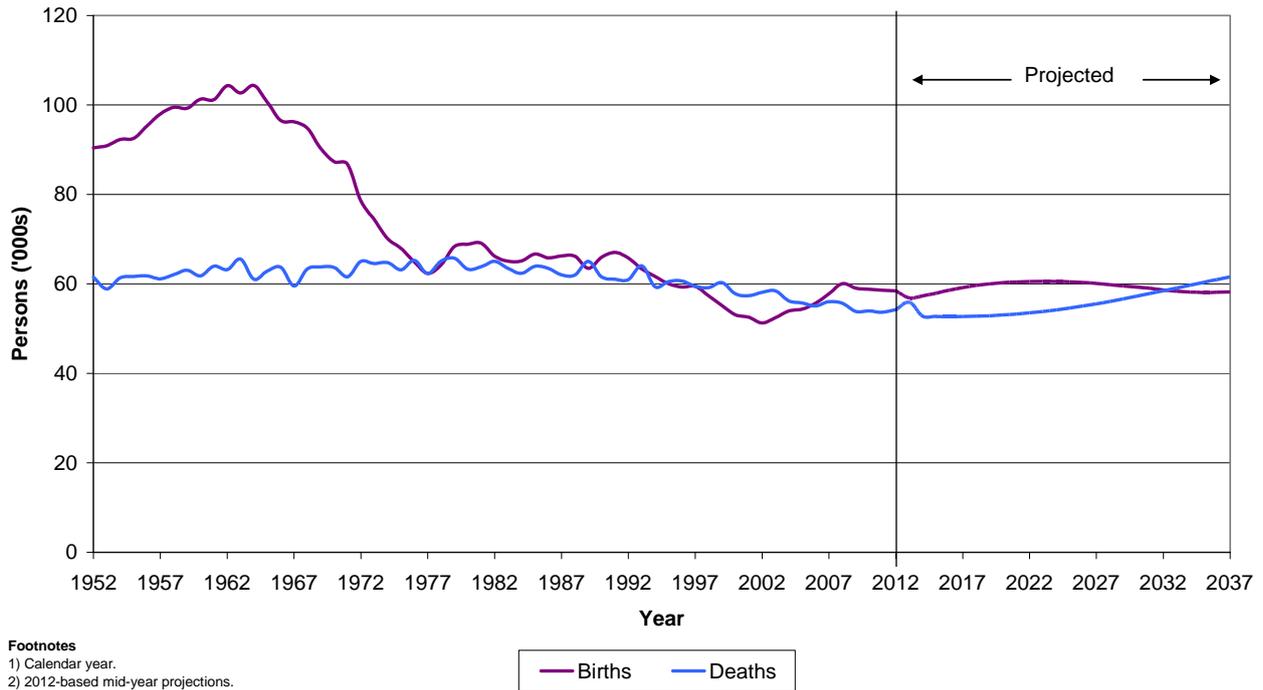
Footnotes

- 1) Continuous line shows final population estimates and the broken line (2002 to 2010) shows those years which will be rebased using information from the 2011 Census.
2) 2012 based projection.

- 3.2. [Table 2](#) provides information on the projected components of change between 2012 and 2037. The table shows that up until around 2033 natural change and migration both act to increase the size of the population as the number of births exceeds the number of deaths and there are more people coming to Scotland than leaving. After that point, the number of deaths exceeds the number of births whilst net in-migration continues.
- 3.3. Over the next decade, 28 per cent of the projected increase in Scotland's population can be attributed to natural increase (more births than deaths) while 72 per cent of the increase is due to assuming continuing inward net migration to Scotland.
- 3.4. As [Figure 2](#) shows, the number of births in Scotland fell significantly between the early 1960s and 2002, dropping below the number of deaths in 1995. Between 2002 and 2009, the number of births increased steadily but then it dipped (by around 900 births) to 58,500 in 2012. Since 2010 the level of natural increase (more births than deaths) has been decreasing, as the numbers of births has decreased and the number of deaths has increased. The projections suggest a slight increase in the number of births until a peak in 2023 of around 60,600. Thereafter births generally decline but only to about 58,200, remaining well above the historically low number of births observed in 2002 (51,300). Meanwhile, the number of deaths is projected to fall until 2016 reaching a low of around 52,700,

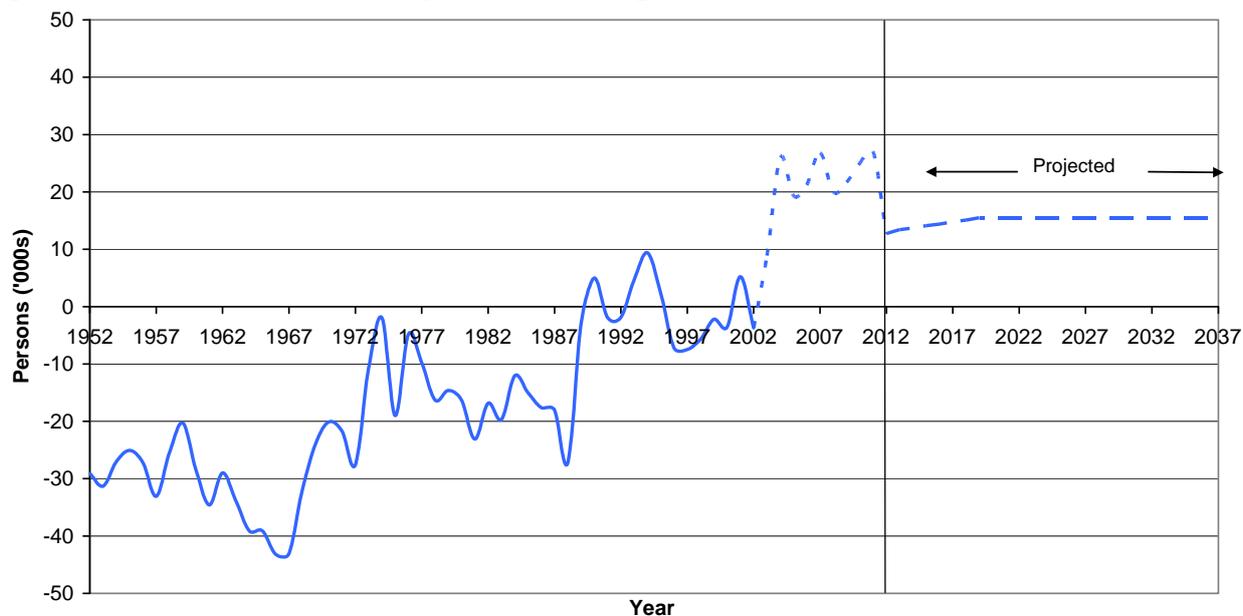
before increasing back to the levels experienced in the 1990s by 2037. This results in a change from natural increase (more births than deaths) to natural decrease (more deaths than births) from 2033 onwards.

Figure 2: Births and deaths, actual¹ and projected², Scotland, 1952-2037



3.5. As Figure 3 shows, Scotland has historically been a country of net out-migration with more people leaving the country than coming in. However, since 2002-2003 Scotland has experienced net in-migration, and therefore these projections have assumed that Scotland will continue to experience a net inflow. The size of this net inflow is assumed to rise steadily to 15,500 by 2018-19, and staying at this level for the remainder of the projection period.

Figure 3: Estimated¹ and projected² net migration, Scotland, 1952-2037

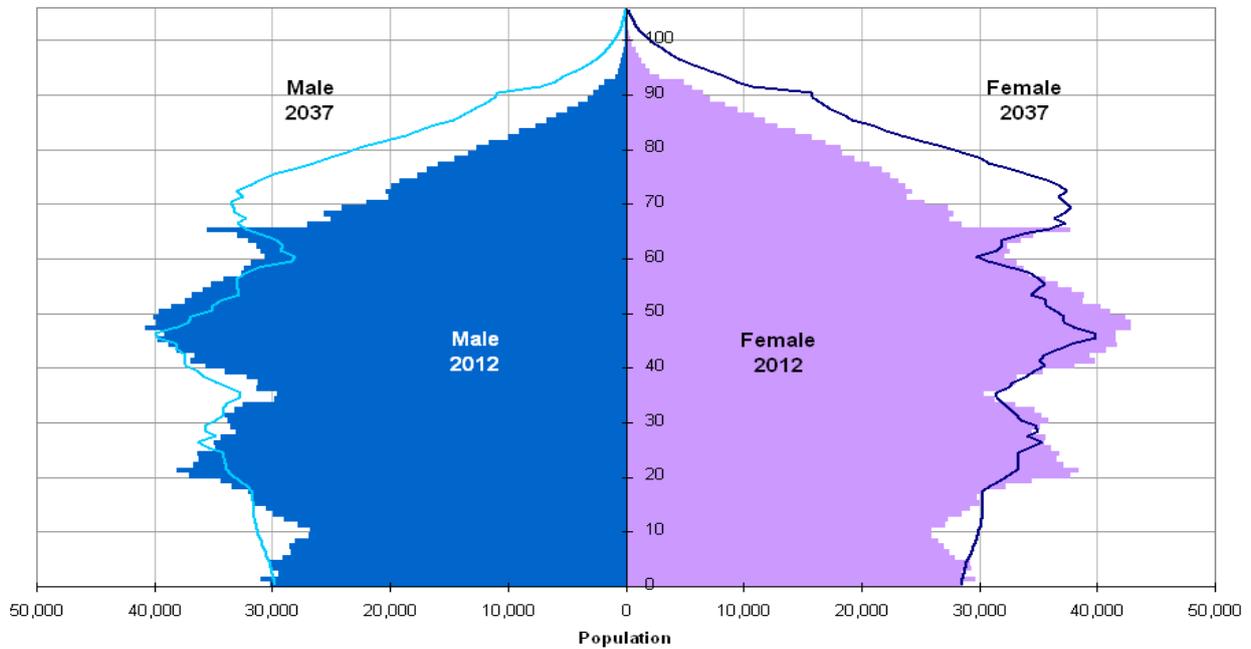


Footnotes

- 1) Continuous blue line shows final population estimates and the broken line (2002 to 2010) shows those years which will be rebased using information from 2011 Census.
- 2) 2012 based projections.

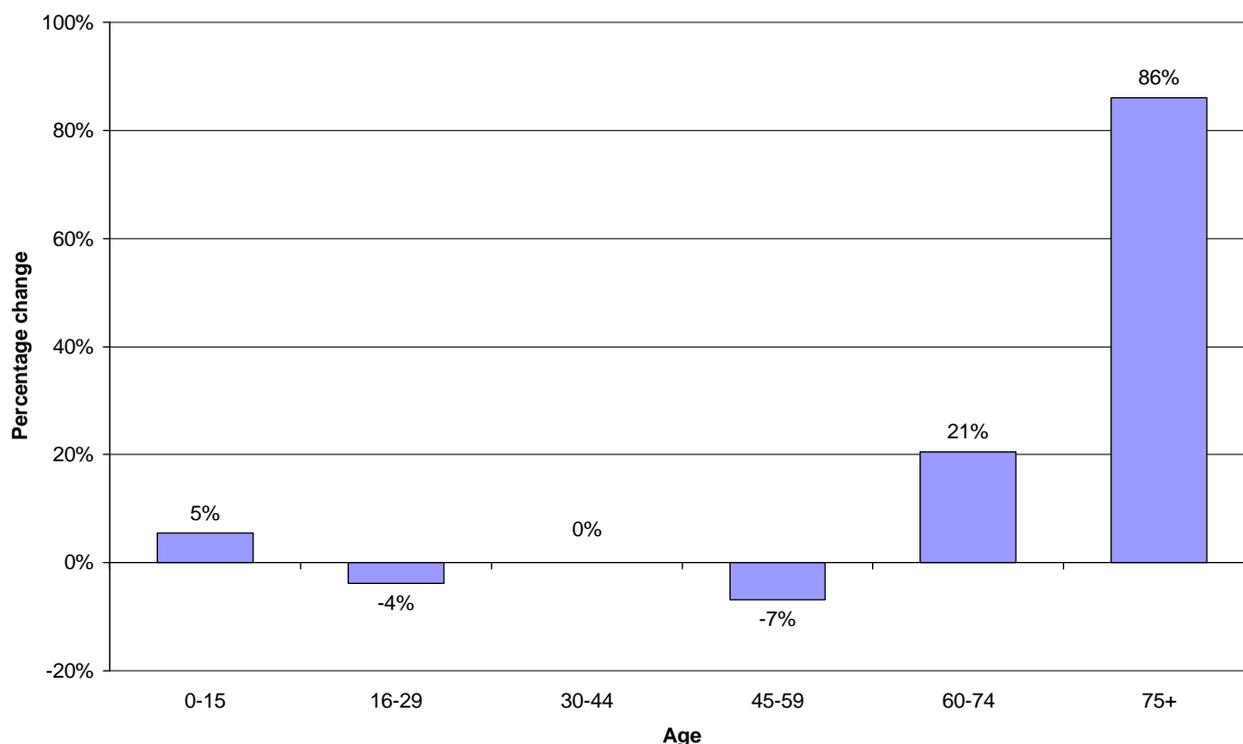
- 3.6. More detailed information on the fertility, mortality and migration assumptions leading to these results is given in [Section 4](#) and [Annex A](#), [Annex B](#) and [Annex C](#).
- 3.7. A population pyramid is a good way of illustrating the age and sex structure of the population. [Figure 4](#) represents the population of Scotland as estimated in mid-2012 and projected for mid-2037 and shows that Scotland's population is projected to age markedly. Each bar in the pyramid represents a single year of age and the length of the bar relates to the number of people of that age in the population. The size and composition of the population is determined by the pattern of births, deaths and migration which have taken place in previous years. The solid bars represent the estimated population for mid-2012 and the lines represent the projected population in mid-2037.

Figure 4: Estimated and projected age structure of Scotland's population, mid-2012 and mid-2037



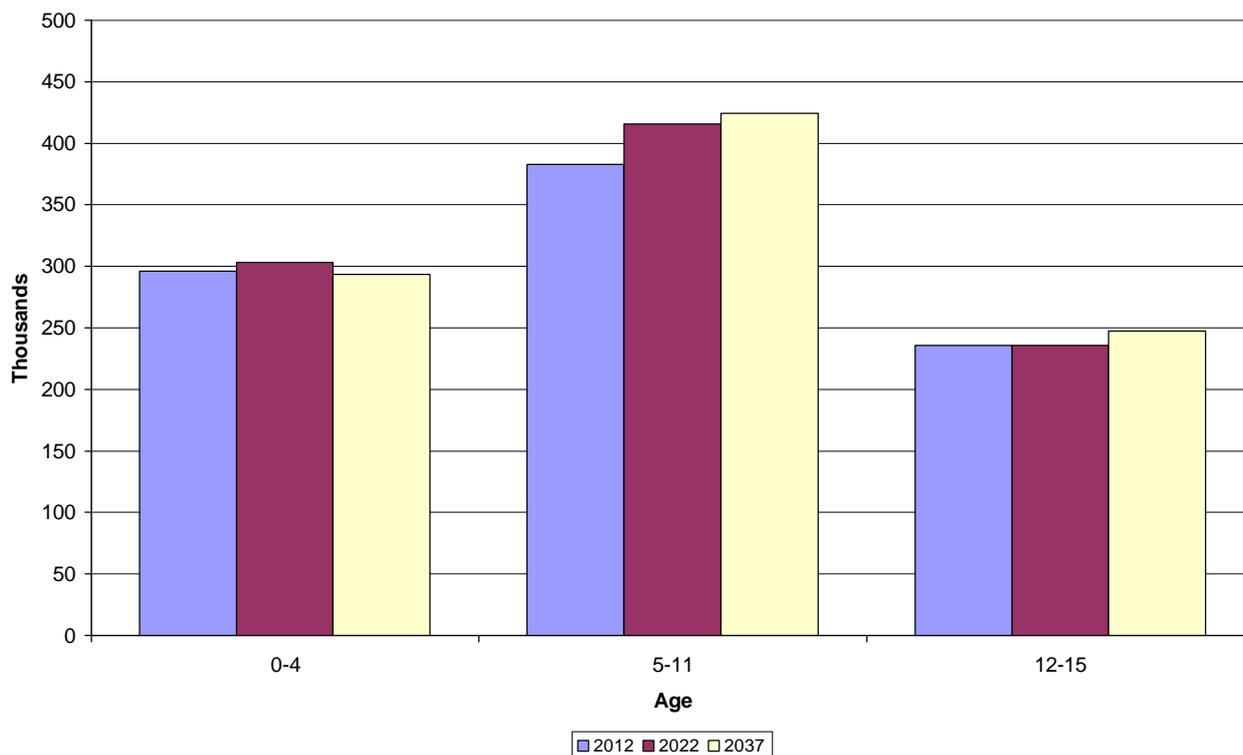
3.8. A summary of projected populations in broad age groups is given in [Table 3](#), and projected populations by sex and five year age groups are given in [Table 6](#). These tables and [Figure 5](#) also show that the age structure of the population is projected to age noticeably between 2012 and 2037.

Figure 5: The projected percentage change in Scotland's population by age group, 2012-2037



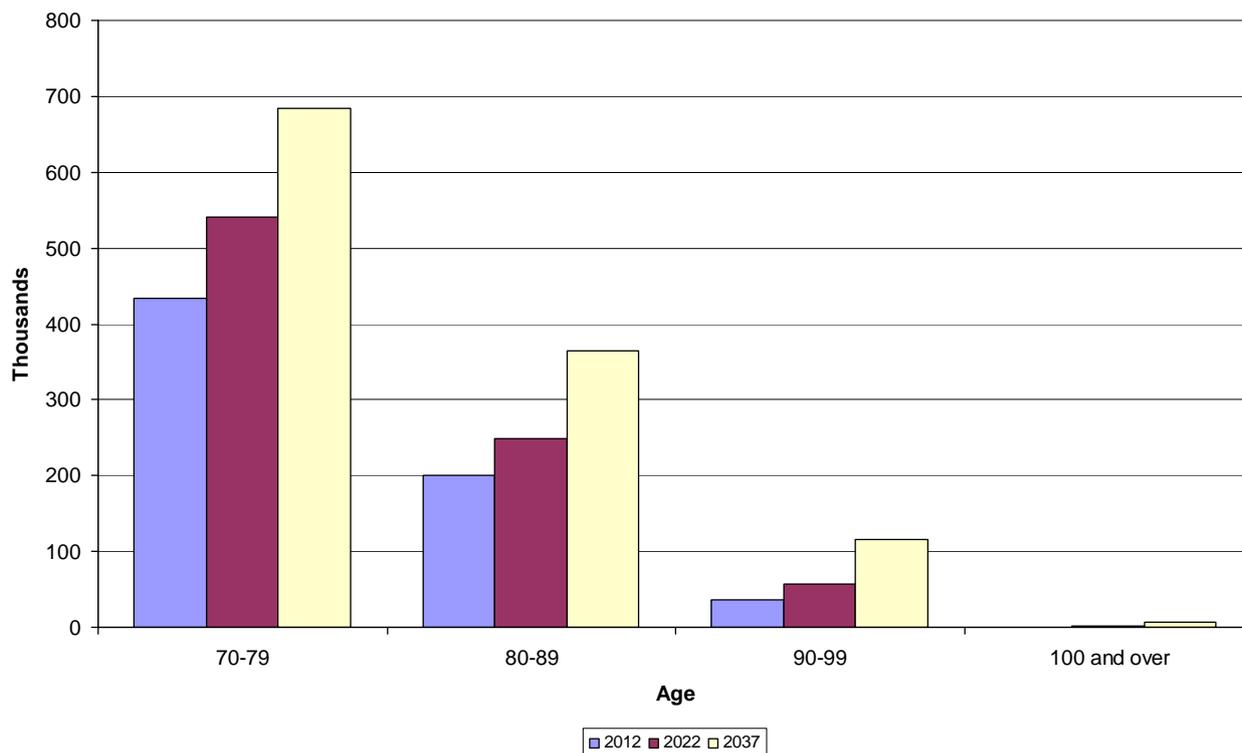
- 3.9. Scotland's population is projected to increase by 9 per cent between 2012 and 2037, however this increase is not spread evenly across all age groups of the population. As Figure 5 shows, the population aged under 60 is projected to remain fairly constant with a small decrease in the 45-59 age group and a small increase in the number of the 0-15 age group whilst the number of older people is projected to increase significantly especially the 75+ age group.
- 3.10. Between 2012 and 2037, the number of children (those aged 0-15) is projected to increase by 5 per cent from 0.91 to 0.96 million. Figure 6 shows that most of this increase is due to children in the 5-11 age group who are projected to increase from 383,000 in 2012 to 424,000 in 2037 (an increase of 11 per cent).

Figure 6: Estimated and projected numbers of children aged 0 to 15, Scotland, mid-2012, mid-2022 and mid-2037



- 3.11. The number of people aged 75 and over is projected to increase by around 28 per cent from 0.42 million in 2012 to 0.53 million in 2022. It is then projected to continue rising, reaching 0.78 million in 2037 – an increase of 86 per cent over the 25 year period. This is because mortality rates are projected to improve, increasing the population at older ages.
- 3.12. [Figure 7](#) shows that Scotland’s population aged 70 and over is projected to rise considerably over the next 25 years. The number of people aged 80 and above is projected to more than double by 2037 (increase of about 105 per cent) and the number of centenarians (those aged 100 or more) is projected to rise from 800 to 7,800 by 2037, more than an eightfold increase.

Figure 7: Estimated and projected population aged 70 and over, Scotland, mid-2012, mid-2022 and mid-2037



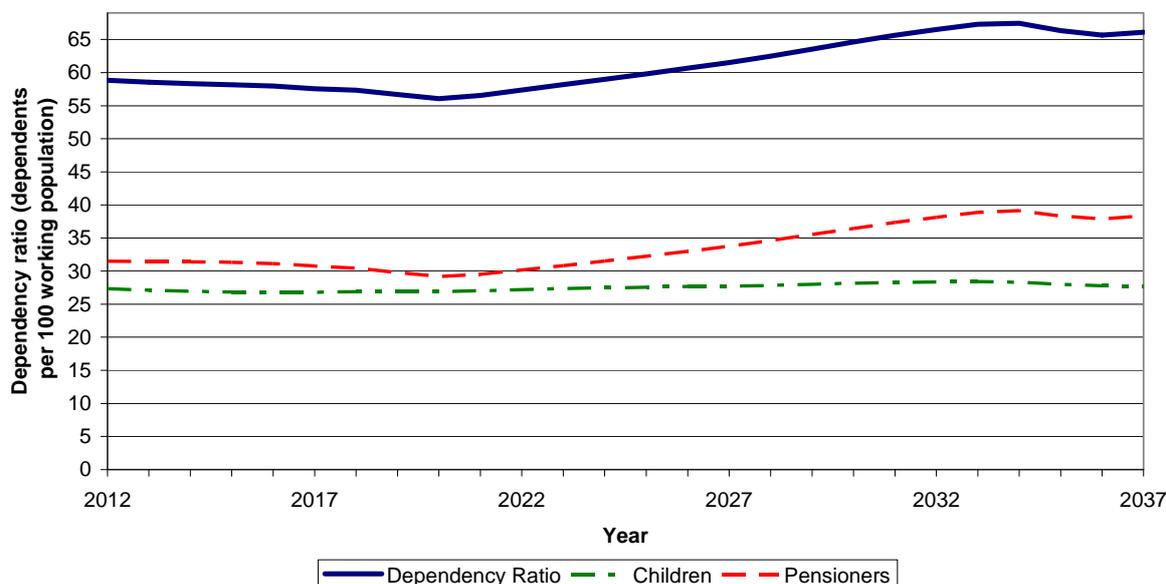
- 3.13. The figures for working age and pensionable age take into account the increases in the state pension age as set out in the 2011 Pensions Act. Between 2012 and 2018, the state pension age will change from 65 years for men and 61 years for women, to 65 years for both sexes. Then between 2019 and 2020, it will rise from 65 years to 66 years for both men and women. A further rise in state pension age will take place in two stages between 2034 and 2046 to bring the state pension age from 66 to 68 for both sexes. The data presented here do not reflect proposed further changes to the state pension age published by the UK government. They propose bringing forward the increase to State Pension age 67, to be phased in between 2026 and 2028. These proposed changes are not yet law and still require the approval of the UK Parliament. Further information regarding these changes can be found at: www.gov.uk/changes-state-pension.
- 3.14. The population of working age is projected to increase from 3.35 million in 2012 to 3.51 million in 2021 (an increase of 6 per cent). It is then projected to decrease to 3.43 by 2032, before rising to 3.48 million by 2037. This is a 4 per cent increase over the 25 year period.
- 3.15. The number of people of pensionable age is projected to be relatively constant over the next ten years, rising slightly from 1.05 million in 2012 to 1.06 million in 2022 (an increase of 0.4 per cent over the 10 year period). It is then projected to rise more rapidly, reaching 1.34 million in 2037 (an increase of around 27 per cent compared with 2012). There are some noticeable changes in the projected population for this age group over the 25 year period but these are mostly due to the changes in state pension age.
- 3.16. A useful summary measure of the age structure of a population is the dependency ratio which is shown in Figure 8 – the ratio of people aged under 16 and those over pensionable age, to those of working age. Dependency ratios can be defined

in different ways, but here are defined as the number of children aged under 16 and the number of people of state pension age per 100 people of working age. These ratios should be interpreted with care. For example, a simple interpretation is the number of older people or children who are 'dependent' on the working age population, the assumption being that most older people and children are not economically active. The reality is of course much more complex, since – to give just a few reasons – many people of typically working age are unemployed or economically inactive (e.g. at school or university), the age at which people retire varies greatly and many retired people are financially independent. However, these 'dependency' ratios provide a useful way to examine the relative age structure of the population.

3.17. Table 4 shows that the dependency ratio is projected to decrease to around 56 per 100 by 2020. Between 2020 and 2024 the dependency ratio is projected increase to 59 per 100 working age population. It then starts rising steadily, reaching 66 per 100 by 2037.

3.18. In 2012, the 59 dependents per 100 working age population were made up relatively evenly of children (27 per 100) and pensioners (31 per 100). By 2037 the distribution is projected to have changed to 28 children and 38 pensioners per 100 population of working age. Therefore, the increase in dependency ratio can be mainly attributed to the increase in people of state pension age per 100 working age population over the 25 year period.

Figure 8: Dependency ratio^{1,2} (dependents per 100 working age population) Under the 2012-based principal projection, 2012-2037



Footnotes

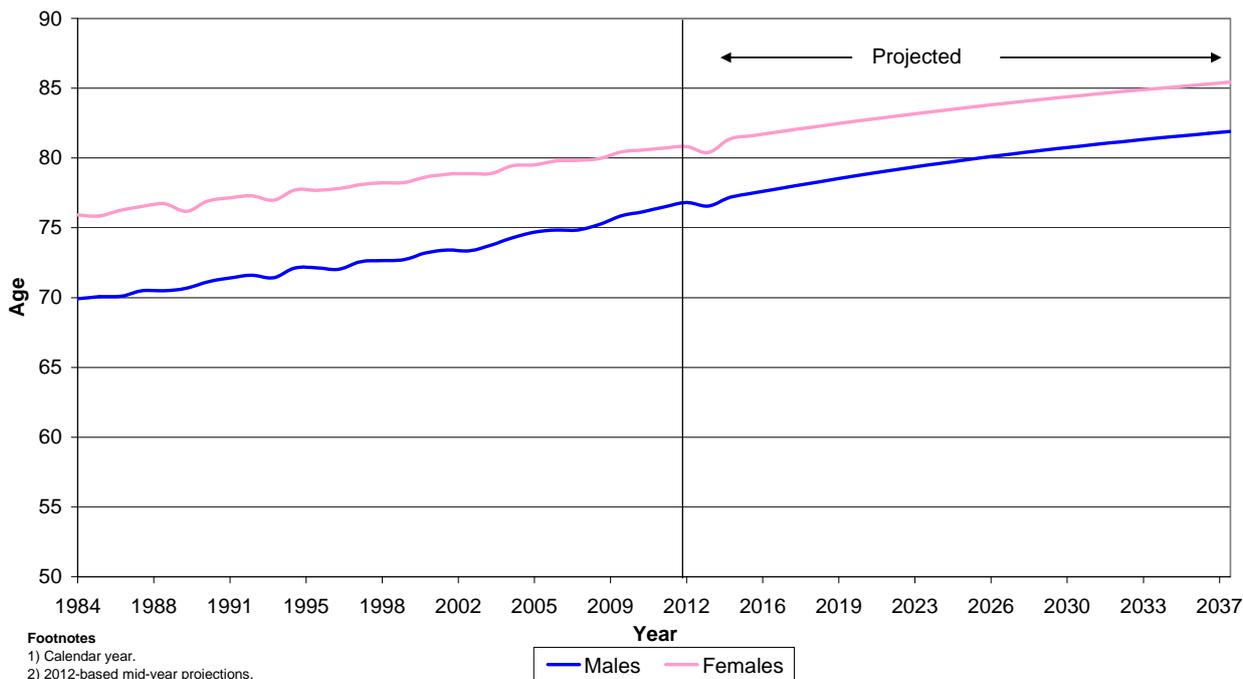
1) Dependency ratios can be defined in different ways, but here are defined as the number of children aged under 16 and the number of people of state pension age per 100 people of working age. These ratios should be interpreted with care.

2) Continuous line shows dependency ratio and the broken line shows the number of children and pensioners per 100 working age population respectively

4. The base population and assumptions used in the projections

- 4.1. **The base population:** The projection is based on the National Records of Scotland's population estimates for mid-2012 which means that the 2012 based projections are the first set of projections to incorporate the 2011 Census results. The population covered includes all persons usually resident in Scotland, whatever their nationality. Members of HM forces and non-UK armed forces stationed in Scotland are included; HM forces stationed outside Scotland are excluded. Students are treated as being resident at their term-time address.
- 4.2. The assumptions about future patterns in fertility, mortality and migration are based on analysis of past trends. The final decisions on assumptions take into account the views of a range of groups who are consulted including a UK expert advisory panel and key users in Scotland. These consultations discussed the likely impact of, for example, increasing child obesity and the demographic effects of the economic downturn.
- 4.3. The assumptions for the 2012-based projections have been reviewed to take into account two years of extra information on fertility, mortality and migration. The fertility and mortality rates have been updated to reflect the rebased population estimates for all the countries of the UK except Scotland as the rebased population estimates for 2002 to 2010 are not yet available. Hence the results from the 2011 Census have been analysed and this analysis has highlighted no concerns in taking this approach.
- 4.4. **Fertility:** The fertility rates used in the projection are based on assumptions about the average completed family size of successive cohorts of women. It has been assumed that the average completed family size will continue to decline from around 1.80 children per woman for those born in the mid-1960s and now reaching the end of their childbearing lives, before levelling off at 1.75 for those born in the 2000s and later. The number of births is expected to rise initially from its 2012-2013 level of around 56,800 to a peak of around 60,600 in 2022-2023 before falling to around 58,200 by 2037. More details on the fertility assumptions are available in [Annex A](#).
- 4.5. **Mortality:** Future improvements in mortality rates are based on the trend observed in the period 1961 to 2011. It is assumed that the reduction in mortality rates will tend towards a common reduction at each age of 1.2 per cent per year by 2037 for most ages and then continue to improve at this constant rate thereafter. Based on these rates, expectations of life at birth are projected to increase from 76.5 in 2013 to 81.9 in 2037 for males; and from 80.4 in 2013 to 85.4 in 2037 for females as shown in [Figure 9](#). More details on the mortality assumptions are available in [Annex B](#).
- 4.6. In [Figure 9](#), the estimates of Expectation of Life are unrebased for 2002-2010 and are rebased from the 2011 Census for the years 2011 and 2012. These estimated figures are based on calendar year data. The projected figures from 2013 onwards are based on mid-year data.
- 4.7. The projected Expectation of life (Eol) figure for 2013 has been controlled to the latest provisional deaths figures for the period in the projection. This explains the small dip in Eol at the start of the projection period (mid-2013 figure).

Figure 9: Expectation of life at birth actual¹ and projected², Scotland, 1984-2037



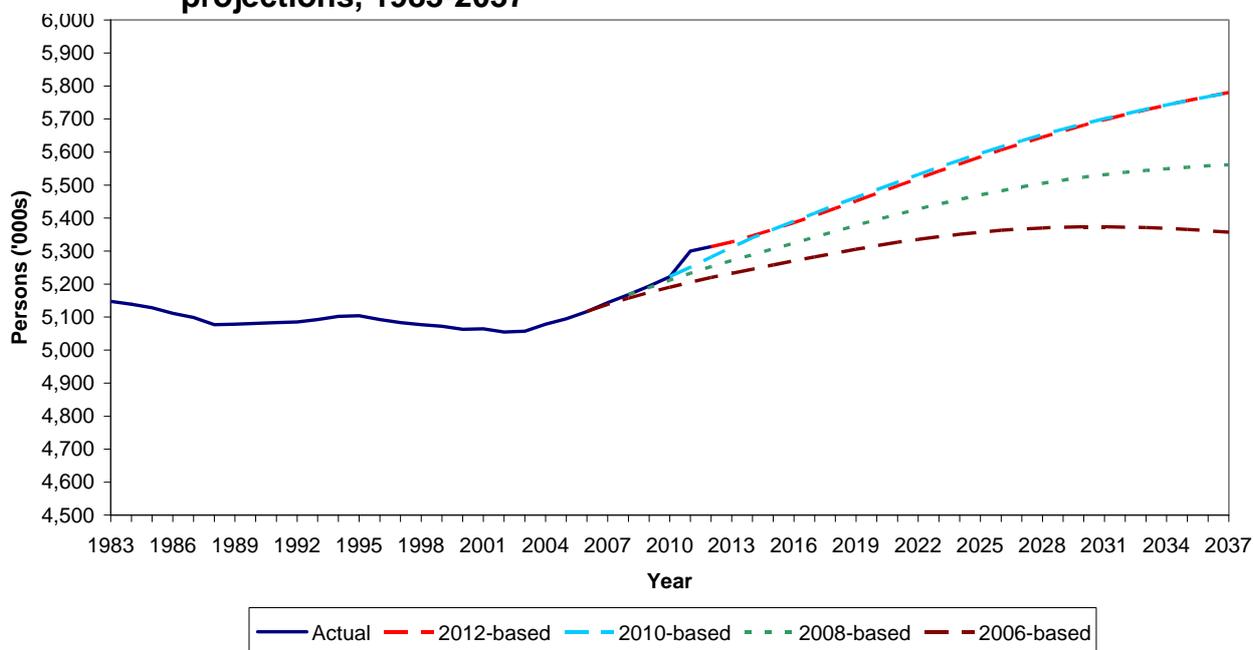
4.8. **Migration:** In the first six years of the projection higher net inflows are assumed reflecting recent migration trends as described in [Section 3.4](#). From 2018-19 onwards, it is assumed that there will be a net inflow of 15,500 people per year to the end of the projection period, (i.e. the total number of people entering Scotland as migrants is assumed to be 15,500 greater than the number leaving Scotland). This assumption has been derived from analyses of trends in civilian migration to and from the United Kingdom as well as cross-border migration between the four constituent countries. Since the last round of projections, improvements have been made to the methods used to produce the migration assumptions. More information on the review and the methods used can be found on the [ONS website](#). More details on the migration assumptions can be found in [Annex C](#).

4.9. Projected natural change and assumed net migration are not independent of each other. The projected numbers of future births and deaths are themselves partly dependent on the assumed level of net migration. A note considering the overall impact of assumed net migration on the future population growth for the UK is available at: [ONS migration note](#).

5. Comparison with previous projections

- 5.1. The last set of projections, published in October 2011, were based on the mid-year population estimates for 2010. These projections did not incorporate the 2011 Census results. Previous projections were based on the mid-2010 population estimates, and the mid-2008 population estimates. The key changes from previously published projections in terms of births, deaths and total population are shown in [Table 5a](#), [Table 5b](#) and [Table 5c](#) respectively. [Section 5.5](#) looks at the differences in the migration assumptions between the projections.
- 5.2. [Figure 10](#) compares the 2012-based projection with previous projections. These latest projections, based on the population estimate for mid-2012, are broadly in line with our last projections (based on 2010 data). However there have been some underlying demographic changes to note. In the intervening two years, the birth rate has remained relatively high and there has been a decrease in net migration. We also rebased our population estimates for 2011 and 2012 with information from the 2011 Census which meant that the base population used in the projections was higher by about 49,000 to what we had previously estimated. So while the overall population projection total for the next 25 year period is very similar to that projected for the 2010 based projections, the underlying demographic trends differ and the base population has taken into account information from the 2011 Census. More information on the differences between the rolled forward estimates from 2001 for 2011 and the 2011 Census are available in the [2011 Census Reconciliation Report](#) on the NRS website. Looking further ahead, the population is projected to rise continually until 2110 in line with the 2010 based projection, whereas the 2008-based and 2006-based projections all showed the population declining at some stage during the projection period.

Figure 10: Actual¹ and projected total population compared with previous projections, 1983-2037



Footnote

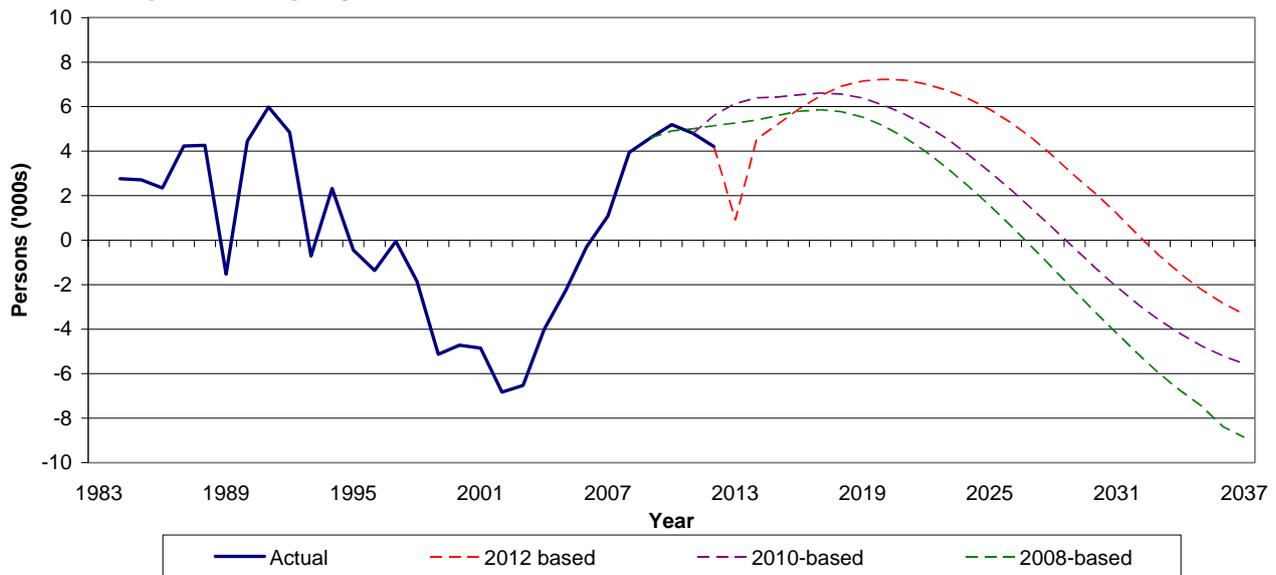
¹) The blip in the actual series in 2011 is due to unrevised 2002-2010 population estimates, these will be revised to include information from the 2011 Census.

- 5.3. [Figure 11](#) compares the natural change (the difference between the number of births and deaths) underlying the 2012-based projection with that underlying previous projections. Looking at the first 25 years of the projection period and comparing with the 2010-based projections, the number of births is projected to

be higher (by an average of around 700 per year) and the number of deaths also slightly lower (by an average of around 900 per year). As a result there is a higher natural increase for the 2012-based projections from 2017 onwards. More information on the reasons for the differences is given in [Section 4](#) and in [Annex A](#), [Annex B](#) and [Annex C](#).

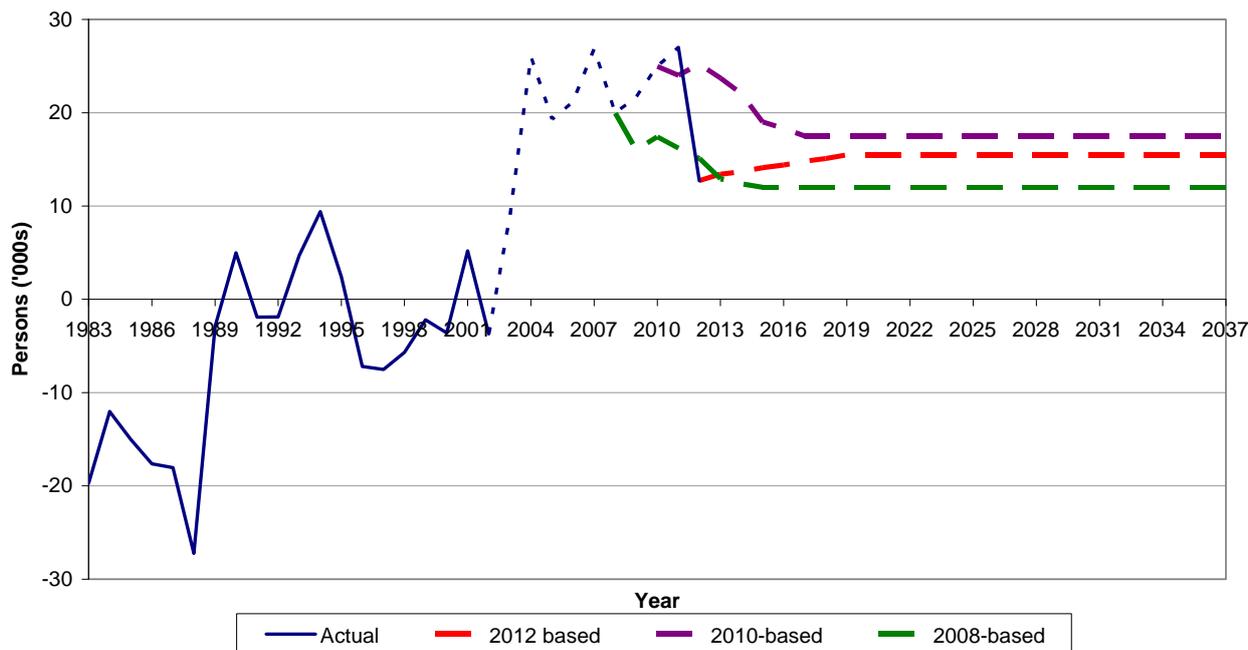
- 5.4. The births and deaths for the first year of the projection period (2013) are based on the trends on the years leading up to the base year (2012) which are then controlled to the latest available mid-year data. In this projection there is a noticeable increase in the number of deaths for 2013 due to controlling the figures to the provisional 2013 figures available at the time the projection was run.

Figure 11: Actual and projected natural change (births minus deaths) compared with previous projections, 1984-2037



- 5.5. As [Figure 12](#) demonstrates, the long-term migration assumption has been decreased from +17,500 in the 2010-based projections to +15,500. This change reflects the most recent trends in international migration and in cross-border migration to Scotland. New methods have been used to model migration trends in setting the migration assumptions for the 2012 based projections, more information can be found on the [ONS website](#). The migration variants in [Section 8](#) show what would happen to the population under various different levels of migration.

Figure 12: Actual¹ and projected net migration compared with previous projections, 1983-2037



Footnote

1) Continuous blue line shows final population estimates and the broken blue line (2002 to 2010) shows those years which will be rebased using the 2011 Census results.

5.6. Table A and Table B below summarise the differences between the 2012-based and the 2010-based projections. The difference in results for the projected age structure of Scotland is fairly small. There is a slightly higher percentage of children in the 2037 population. Working age is projected to make up a slightly smaller percentage of the population in 2037 (both differences of about 1 percentage point). As a result the projected number of dependents per 100 of working age in 2037 are higher for the 2012-based projections than in the 2010-based projections.

Table A: Projected age structure of Scotland’s population (percentage of total population)

Age Group	2010-based		2012-based	
	2012	2037	2012	2037
Children	17%	16%	17%	17%
Pension age	20%	23%	20%	23%
Working age	63%	61%	63%	60%

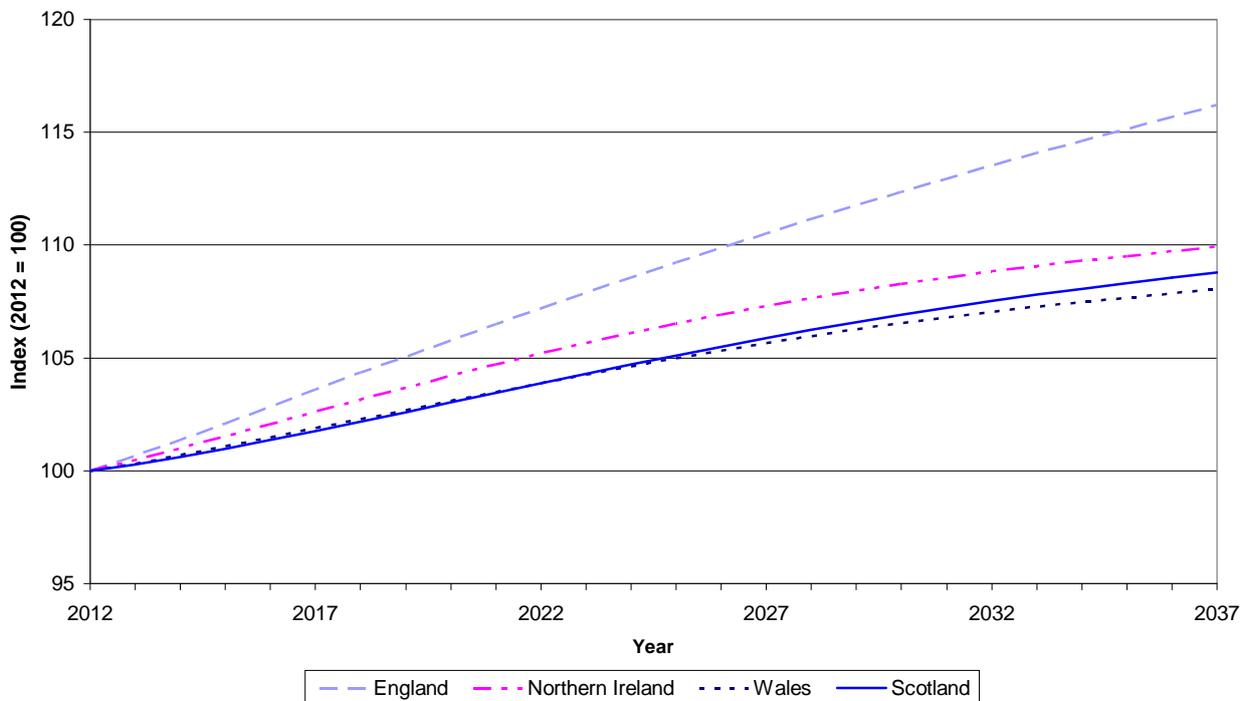
Table B: Projected number of dependents per 100 population of working age, Scotland

Age Group	2010-based		2012-based	
	2012	2037	2012	2037
Children	28	27	27	28
Pensioners	32	38	31	38
All dependents	59	64	59	66

6. Scotland's position within the United Kingdom

- 6.1. The United Kingdom population is projected to increase from an estimated 64 million in 2012, reaching 68 million in 2022, rising above 70 million in 2027 and reaching 73 million by 2037. Over the 25 year period this equates to a 15 per cent increase – a slightly smaller percentage than the 17 per cent increase which was projected in the 2010-based projections.
- 6.2. Figure 13 illustrates the projected change in the populations of the four countries of the United Kingdom from 2012 to 2037. It shows that the populations of England and Northern Ireland are projected to grow more quickly than that of Scotland but Wales's population is projected to grow at a slower rate than Scotland's population. By 2037 England's population is projected to be 16 per cent higher than in 2012, Northern Ireland's is projected to be 10 per cent higher and Wales's 8 per cent higher. During the same period Scotland's population is projected to grow by 9 per cent.

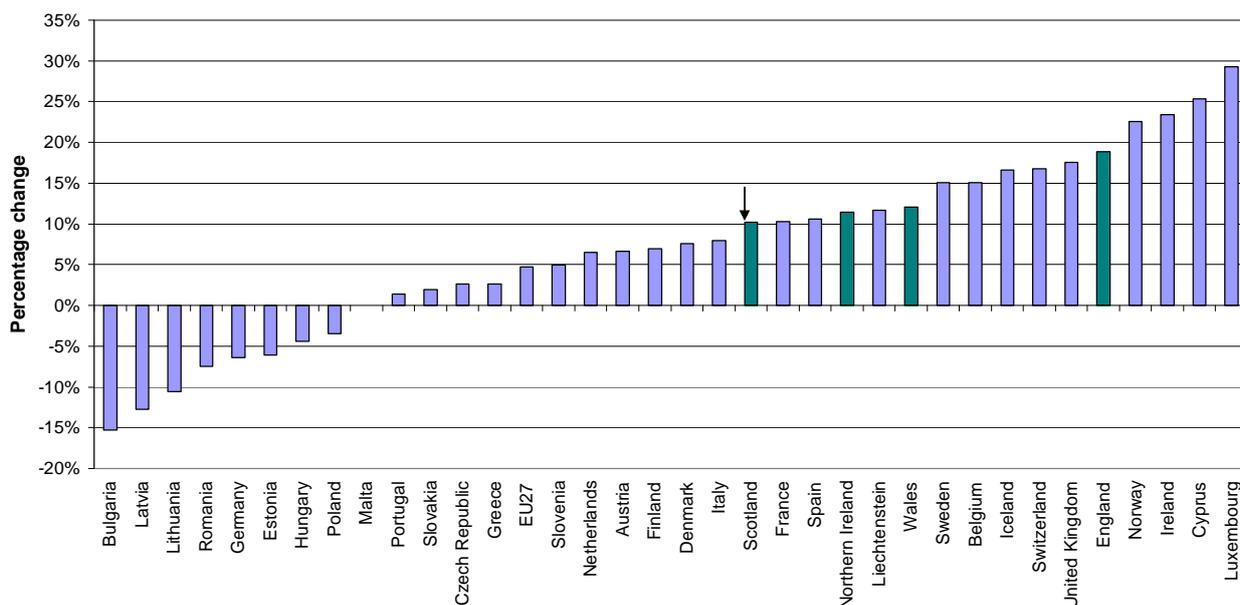
Figure 13: Comparison of population change for UK countries, 2012-2037



7. Scotland's position within Europe

- 7.1. There has not been a new set of projections published by Eurostat⁴ from European countries since the 2010- based projections. Therefore it is not possible to find an appropriate comparable European Union (EU) projection for the 2012 based population projections. Since the difference between the 2010 based projections and the 2012 based projections is on average 5,000 over the projected period, comparing the 2010-based projection with Eurostat's 2010-based convergence scenario projection⁴ may still be informative.
- 7.2. Figure 14 compares the projected change in Scotland's population between 2010 and 2035 with that for other countries in Europe. For UK countries these have been calculated using the 2010-based principal projection. For the other countries the figures are taken from Eurostat's 2010-based convergence scenario projection, which was the last set of projections produced at the European level. Countries such as Germany and most of the recent accession states in Eastern Europe are projected to experience a decline in population. The populations of Portugal, Slovakia, Czech Republic, Greece, Slovenia, the Netherlands, Austria, Finland, Denmark and Italy are all projected to increase but by less than in Scotland. The population of the remaining 12 EU member states, including the UK, are projected to increase by more than Scotland.

Figure 14: Projected percentage population change in selected European countries^{1, 2}, 2010-2035, 2010-based projections



1) The Eurostat projections of population in selected European countries are not directly comparable to the Office for National Statistics (ONS) projections of population in the countries of the UK. The Eurostat projections are based on estimates of the population at 1 January while the ONS projections are based on estimates of the population at 30 June. The methodologies in determining the underlying fertility, mortality and migration assumptions also differ.

2) More information on the Eurostat projections can be found on the Eurostat website .

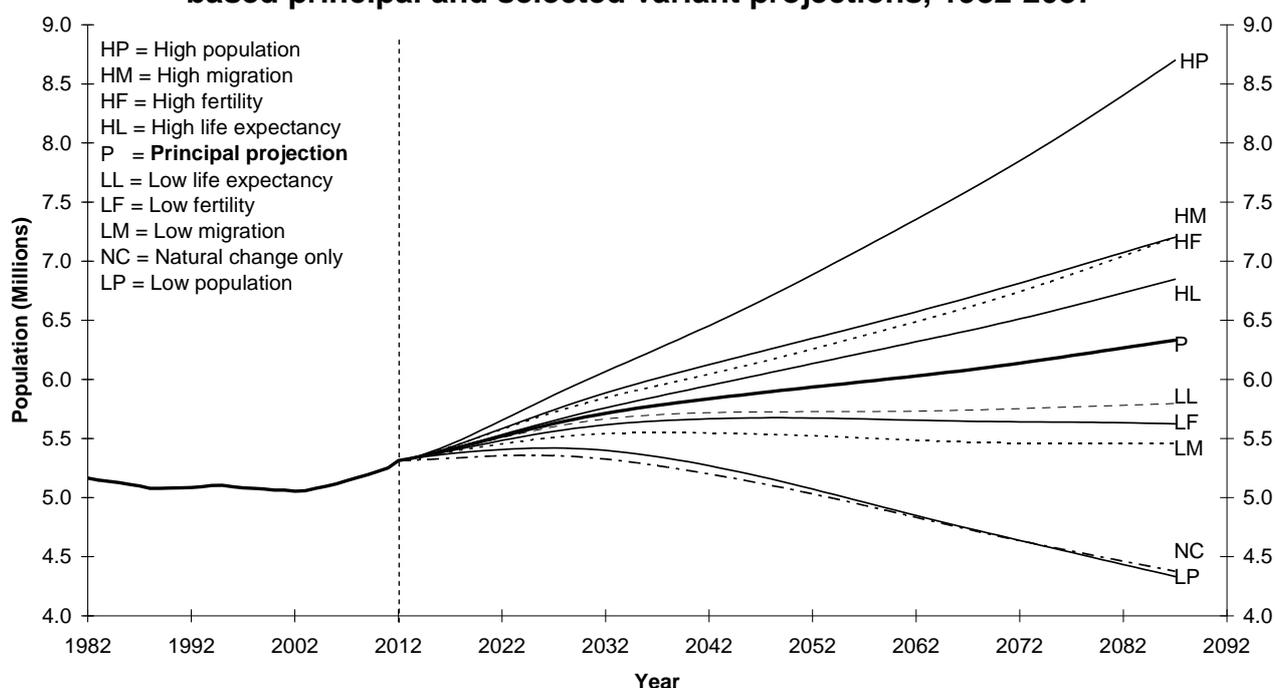
Footnote

- 4) More information on the Eurostat projections can be found on the [Eurostat](#) website.

8. Long term and variant projections

- 8.1. The Office for National Statistics (ONS) produces projections for Scotland for up to 100 years ahead. Projection results for the next 100 years are available from the [ONS website](#). The reliability of projections decreases as you go further into the future. Therefore projections far into the future should be treated with caution.
- 8.2. This report concentrates on the principal projection but ONS also produces a number of variant projections. These variant projections are based on alternative assumptions of future fertility, mortality and migration. The variants are produced to give users an indication of the inherent uncertainty of demographic behaviour, especially for the long-term projections. The purpose is to illustrate plausible alternative scenarios and not to represent upper or lower limits for future demographic behaviour. These projections are simply scenarios (the certain outcome of a given set of assumptions), rather than forecasts of the most likely course of future events.
- 8.3. The scenarios in this publication, in addition to the principal projection, are six standard high/low variants associated with the three components of fertility, life expectancy and migration, a special case zero migration variant (with natural change only), and the combination variants which produce the high and low population. These final two variants are produced by combining the high (or low) variant assumptions for fertility, life expectancy and migration and can, for all practical purposes, be considered as giving plausible upper and lower bounds for future total population size. [Annex D](#) gives more information about these variants, and the remaining variants which will be released in December.
- 8.4. Figure 15 and [Table 7](#) show Scotland's population under each of the alternative variant projections.

Figure 15: Actual and projected total population of Scotland, under the 2012-based principal and selected variant projections, 1982-2087



- 8.5. The high fertility variant results in a 2037 population that is 0.17 million higher than the principal projection. This is due to the extra births associated with the higher fertility assumption. In contrast, the low fertility variant results in the population in 2037 being 0.13 million lower than the principal projection.
- 8.6. The high and low life expectancy variants project the population to be 0.08 million higher or lower than the principal projection respectively, due to the changes in the number of projected deaths.
- 8.7. In [Figure 15](#) it can be seen that the single component variants which lead to the highest and lowest projected population for 2037 are the migration variants. [Table 8](#) focuses on the migration variants, and shows the projected components of population change in the period to 2037 for the principal projection, the high and low migration variants and the zero migration variant. This shows the effect of different migration assumptions on the size of the future population. Under each of these projections the fertility and mortality assumptions are the same but the number of births and deaths change. This highlights the fact that the numbers of births and deaths are partly dependent on the assumed level of net migration. For the high migration variant the increase in the population over the 25 year period due to natural change is 0.13 million whereas with the principal projection natural change only results in an increase of 0.09 million.
- 8.8. The principal projection shows Scotland's population increasing by 0.47 million (9 per cent) between 2012 and 2037. By comparison, the zero migration projection variant indicates a 0.04 million (1 per cent) decrease and the high migration variant projects a 0.7 million (13 per cent) increase. The total effect of migration in the principal projection summed over the first 25 years is to add 0.38 million people to Scotland's population by 2037 and, under the high migration variant, to add 0.54 million – and this does not take into consideration the increase in natural change as the result of increased migration. It is clear that the projected increase in Scotland's population between 2012 and 2037 under the principal projection is dependent on continuing migration into Scotland.
- 8.9. As [Figure 15](#) shows, under all of the variant projections, and the principal projection, Scotland's age structure is projected to change dramatically between 2012 and 2037. In each case, the number of people aged 60 and over is projected to increase significantly (particularly the number of persons aged 75+) while, in most cases, the numbers in each of the age categories below 60 are projected to decrease except for children aged 0-15 which are projected to increase under the principal and 4 other variants by 2037. The ageing of the population is further demonstrated by [Figure 17](#) which shows that the average (median) age of Scotland's population increases steadily across the projection period under all of the available variant projections.

Figure 16: Percentage change in age structure under the 2012-based principal and selected variant projections, 2012-2037

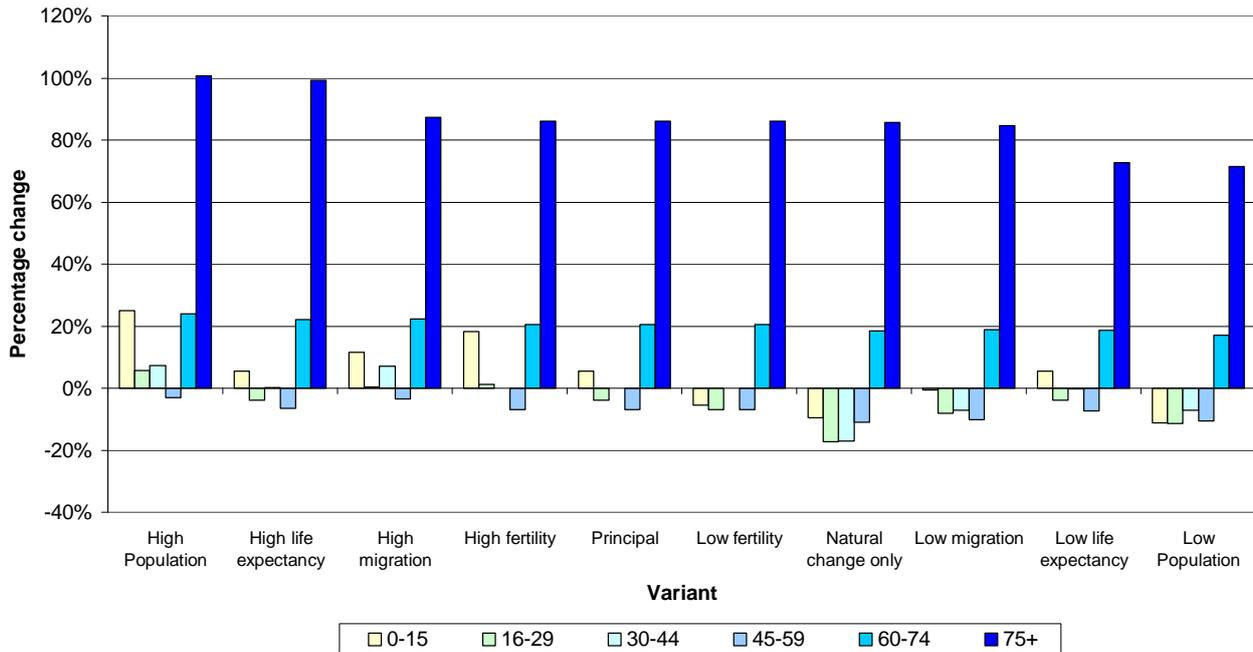
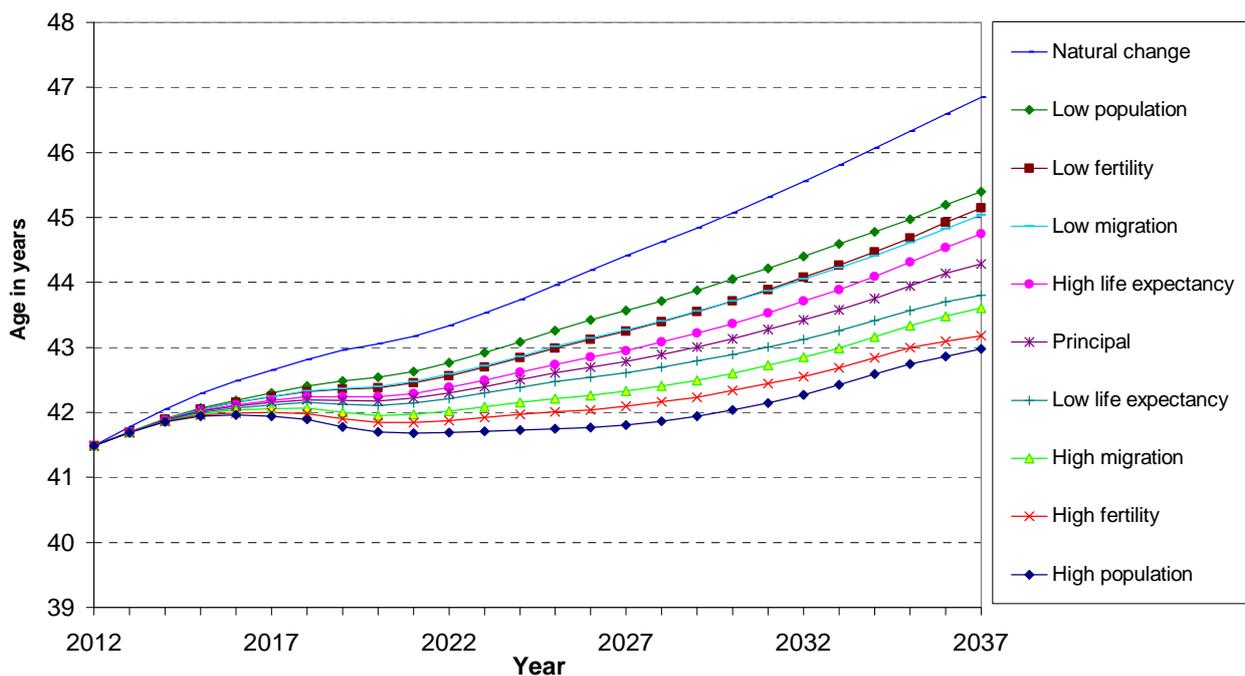


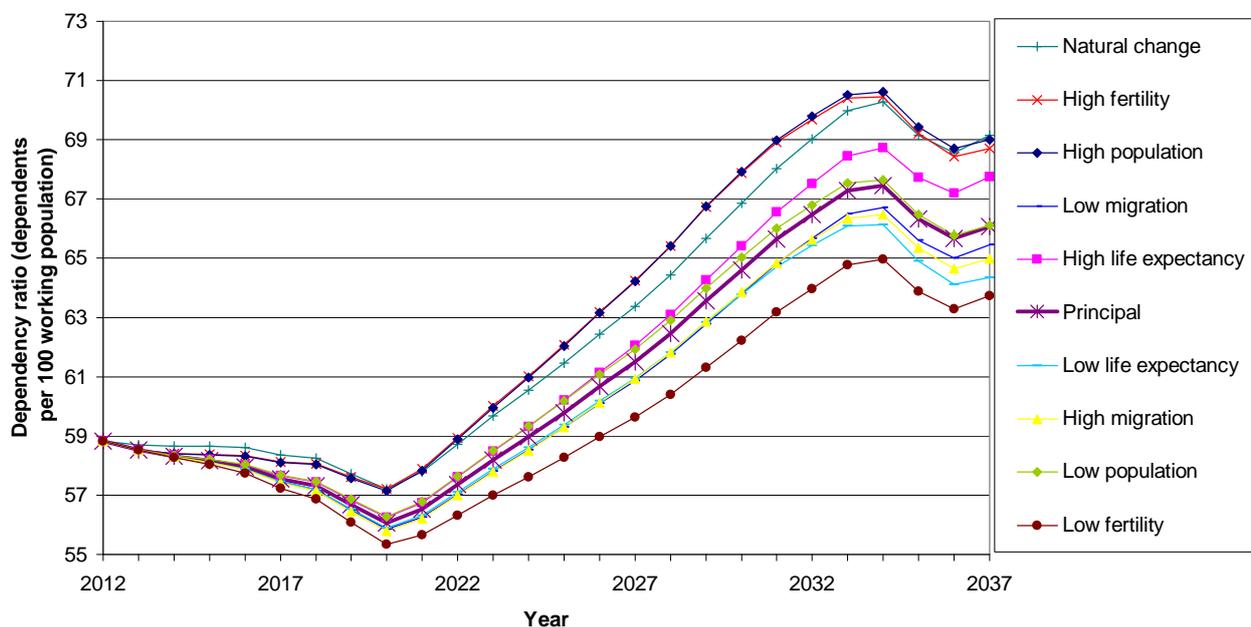
Figure 17: Average (median) age of Scotland's population under the 2012-based principal and selected variant projections, 2012-2037



8.10. Figure 18 shows that the dependency ratio (number of dependents per 100 people of working age population) will decrease under all available variant projections until 2020 when it will begin to rise due to the increase in the state pension age to 66 for both men and women. The dependency ratio is then projected to increase year on year until 2034-2035, when the pension age will rise to 67. Amongst the available variants, the biggest projected increase in the dependency ratio from 2012 to 2037 will occur under the natural change only, the high population variant and the high fertility variant. In all three scenarios the dependency ratio is projected to increase from 59 to 69 per 100 working

population over the next 25 year period. The smallest increase over the period occurs under the low fertility variant as it only increases to 62 per working age population by 2037.

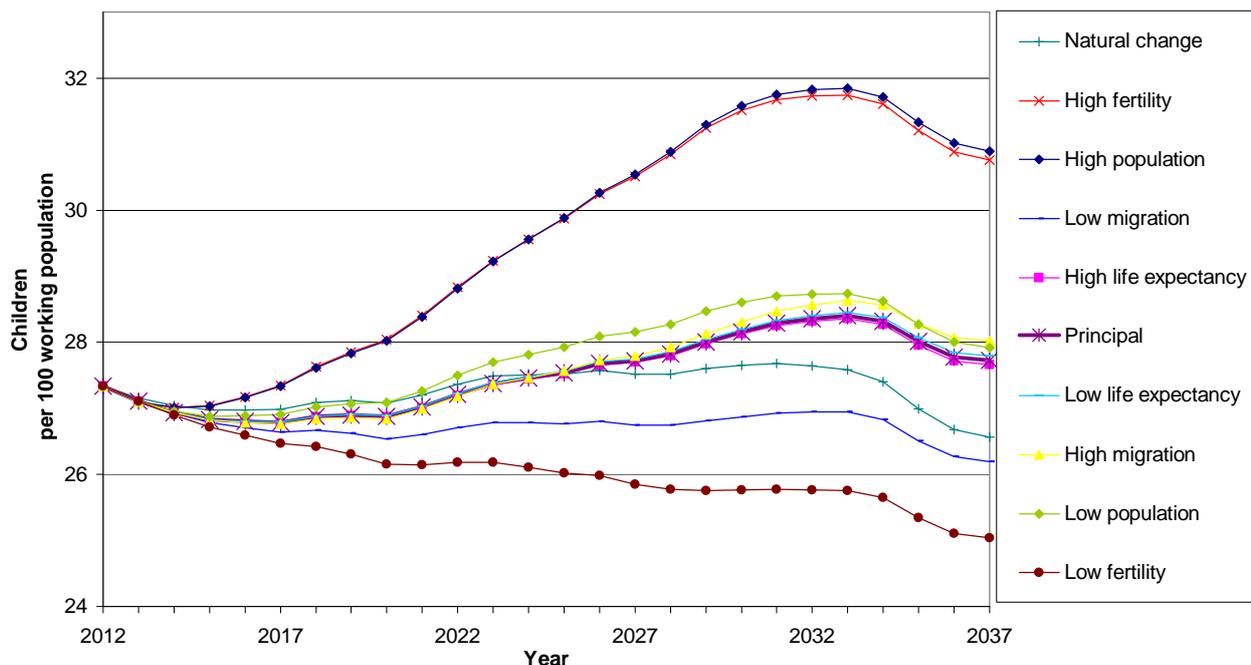
Figure 18: Dependency ratios¹ (dependents per 100 working age population) under the 2012-based principal and selected variant projections, 2012-2037



1) Dependency ratios can be defined in different ways, but here are defined as the number of children aged under 16 and the number of people of state pension age per 100 people of working age. These ratios should be interpreted with care.

8.11. Figure 19 shows the ratio of the number of children per 100 working population under each variant projection. The high fertility and high population variant projection show the largest increase over the 25 year period reaching 31 per 100 working age while the low fertility variant shows the largest decrease to 25 per 100 working age.

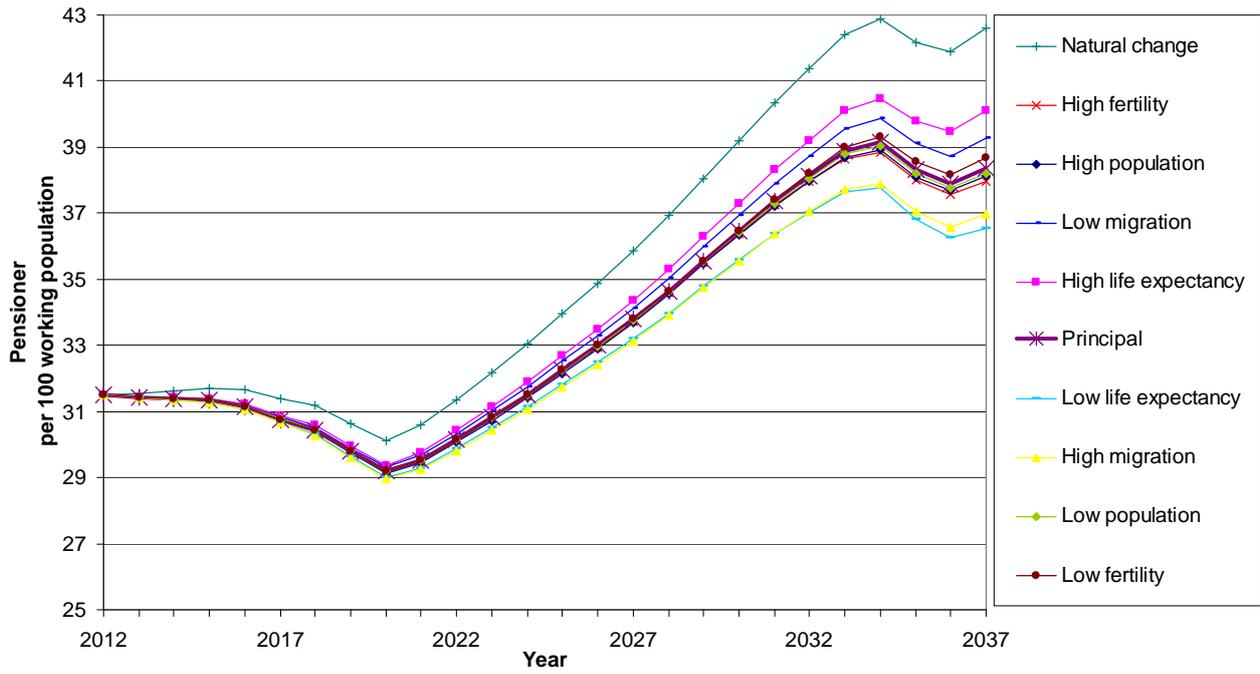
Figure 19: Children per 100 working age population under the 2012-based principal and selected variant projections, 2012-2037



8.12. Figure 20 shows the ratio of the number of people of state pension age per 100 working population under each variant projection. In the principle and every variant projection there is an increase projected in the number of people of state pension age per 100 working age population. The Natural change variant shows the largest increase over the 25 year period reaching 43 people of state pension age per 100 working age by 2037 while the high migration and low life expectancy variant shows the largest decrease to 37 per 100 working age by 2037.

8.13. As mentioned in previous sections of this report these dependency ratios should be interpreted with caution.

Figure 20: Pensioners per 100 working age population under the 2012-based principal and selected variant projections, 2012-2037



9. Further information

Corresponding data for the United Kingdom and its constituent countries, along with detailed information on the assumptions which are made, is available from the [Office for National Statistics](#) website or by contacting ONS at:

Office for National Statistics
Population Projections Unit
Room 2300
Segensworth Road
Titchfield PO15 5RR

Tel: 01329 444652

E-mail: projections@ons.gsi.gov.uk

More detailed age and sex breakdowns of the Scottish results are available from: [Population Projections](#) section of the NRS website; National Records of Scotland customer service team; or [Population Projections](#) section of the Office for National Statistics (ONS) website.

The next set of sub-national projections for Council and NHS Board areas in Scotland are due to be released in March/April 2014. These will be consistent with the latest 2012-based projection for Scotland. Further details can be obtained from:

Customer Services
National Records of Scotland
Statistics Information Services
Ladywell House
Ladywell Road
EDINBURGH EH12 7TF

Telephone: 0131 314 4299

E-mail: customer@gro-scotland.gsi.gov.uk

Table 1: Projected population of Scotland (2012-based): 2012-2082

											('000s)
							<i>Longer term projections</i>				
	2012 (base)	2017	2022	2027	2032	2037	2042	2052	2062	2072	2082
All Ages	5,314	5,407	5,520	5,626	5,714	5,780	5,836	5,935	6,029	6,138	6,267

Table 2: Projected components of population change, Scotland, 2012-2037

	('000s)						
	2012	2013	2014	2015	2016	2017	2018
	-2013	-2014	-2015	-2016	-2017	-2018	-2019
Population at start	5,314	5,328	5,346	5,365	5,386	5,407	5,429
Births	57	57	58	59	59	60	60
Deaths	56	53	53	53	53	53	53
Natural change	1	5	5	6	6	7	7
Migration	13	14	14	14	15	15	16
Population at end	5,328	5,346	5,365	5,386	5,407	5,429	5,452
Total change	14	18	19	20	21	22	23

	('000s)						
	2019	2020	2021	2022	2023	2024	2025
	-2020	-2021	-2022	-2023	-2024	-2025	-2026
Population at start	5,452	5,474	5,497	5,520	5,542	5,564	5,585
Births	60	60	61	61	61	60	60
Deaths	53	53	54	54	54	55	55
Natural change	7	7	7	7	6	6	5
Migration	16	16	16	16	16	16	16
Population at end	5,474	5,497	5,520	5,542	5,564	5,585	5,606
Total change	23	23	23	22	22	21	21

	('000s)						
	2026	2027	2028	2029	2030	2031	2032
	-2027	-2028	-2029	-2030	-2031	-2032	-2033
Population at start	5,606	5,626	5,645	5,664	5,681	5,698	5,714
Births	60	60	60	59	59	59	58
Deaths	56	56	57	57	58	58	59
Natural change	5	4	3	2	1	0	-1
Migration	16	16	16	16	16	16	16
Population at end	5,626	5,645	5,664	5,681	5,698	5,714	5,728
Total change	20	19	18	18	17	16	15

	('000s)			
	2033	2034	2035	2036
	-2034	-2035	-2036	-2037
Population at start	5,728	5,742	5,756	5,768
Births	58	58	58	58
Deaths	60	60	61	62
Natural change	-2	-2	-3	-3
Migration	16	16	16	16
Population at end	5,742	5,756	5,768	5,780
Total change	14	13	13	12

Table 3: Projected population of Scotland (2012-based), by age group, 2012-2037

	('000s)					
	2012 (base)	2017	2022	2027	2032	2037
All Ages	5,314	5,407	5,520	5,626	5,714	5,780
0-15	915	919	954	966	973	965
16-29	976	967	910	895	909	939
30-44	1,040	1,005	1,069	1,104	1,092	1,041
45-59	1,134	1,164	1,097	1,022	992	1,057
60-74	830	891	955	1,022	1,057	1,000
75+	418	460	535	616	690	779
Median age(years)	41.5	42.2	42.3	42.8	43.4	44.3
Children	915	919	954	966	973	965
Working ages ¹	3,345	3,432	3,508	3,483	3,432	3,481
Pensionable ages ¹	1,054	1,056	1,057	1,177	1,308	1,335

Footnote

1) Working age and Pensionable age populations based on state pension age (SPA) for the given year. Between 2012 and 2018, SPA will change from 65 years for men and 61 years for women, to 65 years for both sexes. Then between 2019 and 2020, SPA will change from 65 years to 66 years for both men and women. Between 2034 and 2046, SPA will increase in two stages from 66 years to 68 years for both sexes. This is based on SPA under the 2011 Pensions Act.

Note: Not all figures will sum due to rounding.

Correction

The totals for 'All ages' in Table 3 were corrected on 29 November 2013. This correction did not affect any other figures within this table.

Table 4: Projected number of dependents per 100 population of working age, Scotland, 2012-2037

Age group	2012 (base)	2017	2022	2027	2032	2037
All dependents	59	58	57	62	66	66
Children under 16	27	27	27	28	28	28
Pensionable ages	31	31	30	34	38	38
Old age support ratio (working age / pensionable age)	3.18	3.25	3.32	2.96	2.62	2.61

Footnotes

1) Children under 16, working age and pensionable age populations based on state pension age (SPA) for a given year. Between 2012 and 2018, SPA will change from 65 years for men and 61 years for women, to 65 years for both sexes. Then between 2019 and 2020, SPA will change from 65 years to 66 years for both men and women. Between 2034 and 2046, SPA will increase in two stages from 66 years to 68 years for both sexes. This is based on SPA under the 2011 Pensions Act.

2) Dependency ratios can be defined in different ways, but here are defined as the number of children aged under 16 and the number of people of state pension age per 100 people of working age. These ratios should be interpreted with care.

Table 5a: Projected number of births¹, Scotland, 2016-2037

	2016-17	2021-22	2026-27	2031-32	2036-37
2012-based	59,200	60,500	60,100	58,700	58,200
2010-based	60,200	59,800	58,100	56,600	56,900
2008-based	57,900	57,000	55,200	53,700	53,800

Footnote

1) Rounded to nearest 100.

Table 5b: Projected number of deaths¹, Scotland, 2016-2037

	2016-17	2021-22	2026-27	2031-32	2036-37
2012-based	52,700	53,500	55,500	58,400	61,600
2010-based	53,600	54,600	56,700	59,500	62,400
2008-based	52,000	53,100	55,500	58,900	62,400

Footnote

1) Rounded to nearest 100.

Table 5c: Projected population¹, Scotland, 2017-2037

	2017	2022	2027	2032	2037
2012-based	5,407,000	5,519,600	5,625,900	5,713,500	5,780,400
2010-based	5,414,300	5,531,600	5,634,200	5,715,600	5,779,700
2008-based	5,342,100	5,427,100	5,494,600	5,538,400	5,561,500

Footnote

1) Rounded to nearest 100.

Table 6: Projected population of Scotland (2012-based), by sex and age group, 2012-2037

		('000s)					
Age	Sex	Estimated population 30	Projection year				
		June 2012	2017	2022	2027	2032	2037
All ages	Persons	5,314	5,407	5,520	5,626	5,714	5,780
	Males	2,577	2,630	2,692	2,750	2,798	2,835
	Females	2,736	2,777	2,828	2,876	2,916	2,945
0-4	Persons	296	292	303	304	299	293
	Males	151	149	155	156	153	150
	Females	145	142	148	148	146	143
5-9	Persons	276	298	294	306	307	301
	Males	141	152	151	156	157	154
	Females	134	146	144	149	150	147
10-14	Persons	282	277	300	296	307	308
	Males	144	141	153	151	157	157
	Females	138	135	147	145	150	151
15-19	Persons	320	288	283	306	302	314
	Males	163	147	145	156	154	160
	Females	156	141	138	150	148	154
20-24	Persons	371	352	321	316	339	336
	Males	184	178	163	160	171	170
	Females	186	174	159	156	168	166
25-29	Persons	347	380	363	333	328	351
	Males	171	190	185	169	167	178
	Females	176	190	179	163	161	173
30-34	Persons	333	350	384	368	337	333
	Males	163	173	193	188	172	170
	Females	170	177	191	180	165	163
35-39	Persons	322	334	351	386	369	339
	Males	158	164	174	194	189	174
	Females	164	170	177	192	180	165
40-44	Persons	385	321	334	351	385	369
	Males	186	158	164	174	193	189
	Females	199	164	170	178	192	181
45-49	Persons	410	383	320	332	350	384
	Males	200	184	156	162	172	192
	Females	211	199	164	170	178	192
50-54	Persons	385	405	379	317	330	347
	Males	188	196	181	154	160	170
	Females	196	209	197	163	169	177
55-59	Persons	339	376	398	373	313	326
	Males	166	183	192	178	151	158
	Females	173	193	206	195	162	168
60-64	Persons	323	327	365	387	364	306
	Males	158	159	176	185	172	147
	Females	165	168	189	202	191	159
65-69	Persons	286	304	310	348	370	349
	Males	137	147	149	166	176	164
	Females	148	157	161	181	194	185
70-74	Persons	222	260	279	287	323	346
	Males	102	122	132	136	153	162
	Females	120	138	147	151	171	184
75-79	Persons	181	190	227	246	256	290
	Males	78	84	104	114	118	134
	Females	102	106	123	132	138	156
80-84	Persons	129	140	152	186	203	214
	Males	51	58	64	82	91	96
	Females	78	83	88	104	113	118
85-89	Persons	72	83	97	108	136	151
	Males	25	31	37	43	57	64
	Females	47	53	60	65	79	87
90 & over	Persons	37	46	59	77	95	123
	Males	10	14	19	27	34	47
	Females	27	32	40	50	61	76

Note: Not all figures will sum due to rounding.

Table 7: Principal and selected variant projections (2012-based), Scotland, 2012-2082

							(‘000s)				
	2012 (base)	2017	2022	2027	2032	2037	<i>Longer-term projections</i>				
							2042	2052	2062	2072	2082
Principal projection	5,314	5,407	5,520	5,626	5,714	5,780	5,836	5,935	6,029	6,138	6,267
High Migration	5,314	5,426	5,584	5,742	5,885	6,010	6,125	6,346	6,572	6,814	7,074
High Fertility	5,314	5,427	5,577	5,723	5,845	5,947	6,044	6,257	6,488	6,742	7,044
High Life expectancy	5,314	5,412	5,532	5,652	5,760	5,856	5,948	6,134	6,318	6,512	6,733
High population	5,314	5,450	5,655	5,867	6,067	6,258	6,455	6,887	7,355	7,850	8,406
Low Migration	5,314	5,388	5,455	5,510	5,542	5,551	5,547	5,523	5,485	5,460	5,458
Low Fertility	5,314	5,396	5,484	5,561	5,616	5,649	5,667	5,673	5,655	5,641	5,634
Low Life expectancy	5,314	5,402	5,507	5,600	5,666	5,702	5,719	5,727	5,731	5,753	5,781
Low population	5,314	5,372	5,407	5,420	5,399	5,346	5,270	5,072	4,848	4,638	4,433
Natural change only	5,314	5,333	5,354	5,355	5,326	5,270	5,200	5,032	4,833	4,636	4,462

Table 8: Projected population change for selected variant projections (2012-based), Scotland, 2012-2037

	(‘000s)			
	High migration variant	Principal projection	Low migration variant	Natural change only variant
Population at mid-2012	5,314	5,314	5,314	5,314
Population change (2013-2037)				
Natural change	129	87	44	-44
Births	1,529	1,480	1,431	1,347
Deaths	1,400	1,393	1,387	1,390
Migration	567	380	193	0
Population at mid-2037	6,010	5,780	5,551	5,270
Total population change between mid-2012 and mid-2037	696	467	237	-44

Annex A: Fertility assumptions

Fertility assumptions are agreed in two stages. The long term assumption is decided as part of the consultation process between the UK countries and the Office for National Statistics. Then there is detailed assumption setting to produce the age-specific fertility rates for each year of the projection period that are consistent with the long-term assumption.

The fertility assumptions for the long-term average completed family size have been increased by 0.05 for each UK constituent country since the 2010-based population projections. This increase is based on the observation that the falling completed family size of women has slowed and period fertility rate levels have stabilized in recent years. The Scottish long-term assumption is still lower than the assumptions for other UK countries. The assumptions for Scotland and other constituent countries of the UK are given in Table A1.

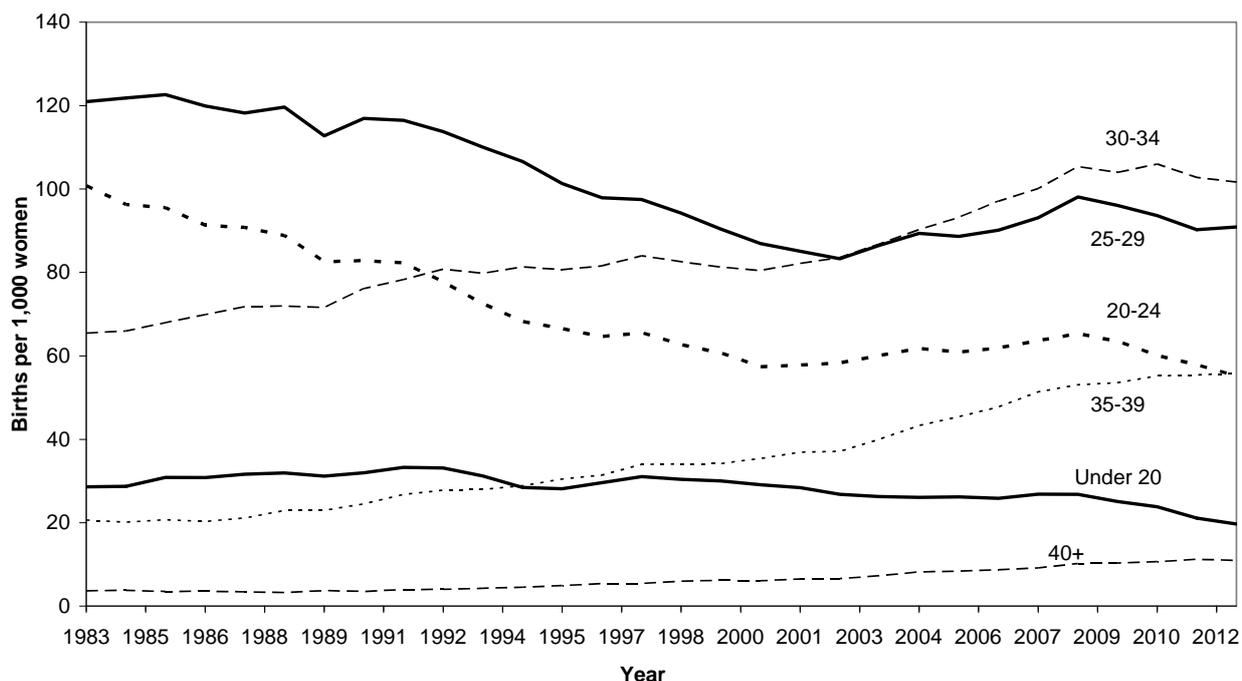
Table A1: Assumptions of long-term average completed family size, 2010 and 2012-based projections

	2012-based	2010-based
England	1.90	1.85
Wales	1.90	1.85
Scotland	1.75	1.70
Northern Ireland	2.00	1.95
United Kingdom	1.89	1.84

The trends in age specific fertility for Scotland are shown in [Figure A1](#). Until 2002, there is a general pattern of falling fertility at younger ages coupled with rises in fertility at older ages.

Recent data have shown increases in fertility rates until 2008, and then a slight decrease in the last two years. The biggest increases in fertility rates are for women in their thirties. Fertility rates increased for women in their twenties from 2001 to 2008, but they have fallen in recent years. Fertility rates for women over 40 is the only age group to see a continued rise to 2011 although there has been a stabilization in 2011 and 2012.

Figure A1: Scotland age specific fertility, 1983-2012



Fertility assumptions are formulated in terms of the average number of children that women born in particular years will have. This cohort measure of fertility is more stable than the analogous calendar year or period measure (the total fertility rate). This is because it is affected only by change in the total number of children women have and not by the timing of births within their lives. Period rates may rise or fall if births are brought forward or delayed for any reason.

The assumptions about completed family size are based on family building patterns to date and other relevant data. For the UK as a whole, the steady decline in achieved family size at each age, a clear pattern for the 1945 to 1975 cohorts, appears to be bottoming out among the most recently-born cohorts of women.

For Scotland, fertility rates are assumed to continue to increase for women in their 40s, remain stable for women in their 30s and fall slightly for women in their 20s.

The Total Fertility Rate (TFR) for Scotland is projected to increase until 2030 before reaching the long term level.

The high and low fertility variants assume long-term family sizes of 0.2 children per women higher or lower than the principal projection, that is, 1.95 and 1.55 children per women for Scotland.

Annex B: Mortality assumptions

The mortality rates for the first year of the projection, mid-2012 to mid-2013, are based on the best estimates that could be made in the autumn of 2013 of the numbers of deaths at each age in 2012-13.

Assumed improvements in mortality rates after 2011-12 are based on trends in mortality rates before 2011. Improvements in mortality rates by age and gender in the base year of the projection are estimated from the trends in years from 1961 to 2012. It is assumed that annual rates of mortality improvement will converge to a common rate of 1.2 per cent per year in 2037 for most ages, and continue to improve at that constant rate thereafter. However, those born after 1922 and before 1939 have exhibited greater rates of improvement over the last 25 years than those born on either side.

A comparison of period Expectations of life (Eol) for Scotland with the UK as a whole (Figure B1) suggests there has been a gradual widening in the difference in expectations of life for males under the age of 80, since the early 1980s. There have also been increases in divergence for females since 2000 (Figure B2).

Figure B1: Period Expectations of life (Eol) for Scotland less respective expectation of life for UK – for males at birth and ages 20, 40, 60 and 80, 1983-2012

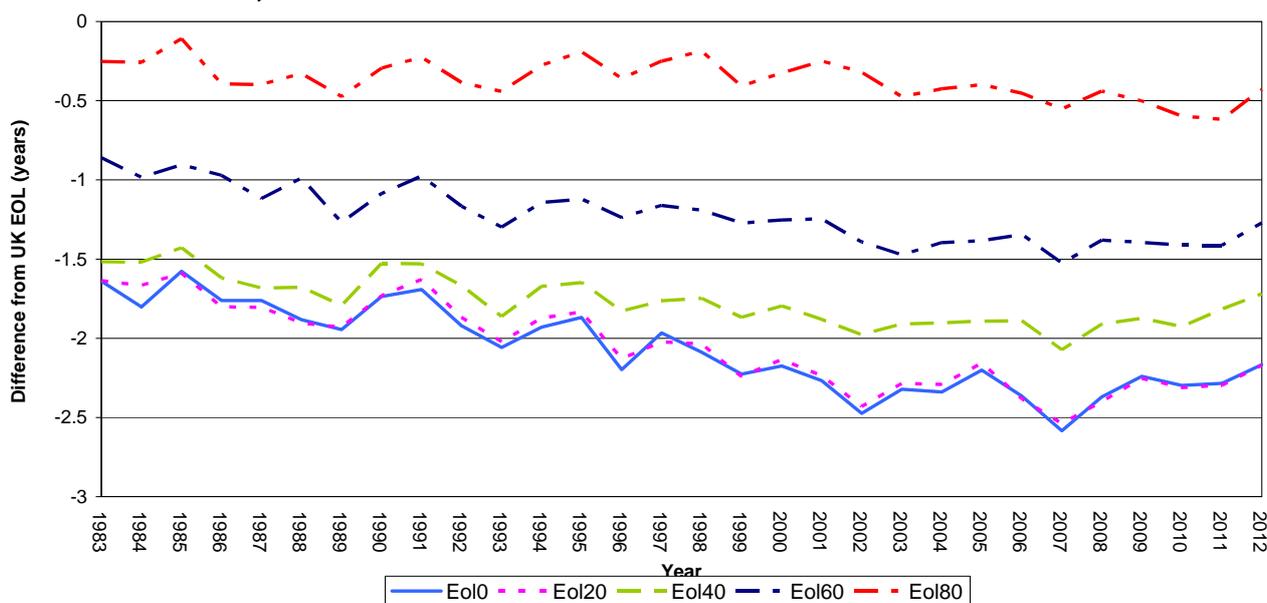
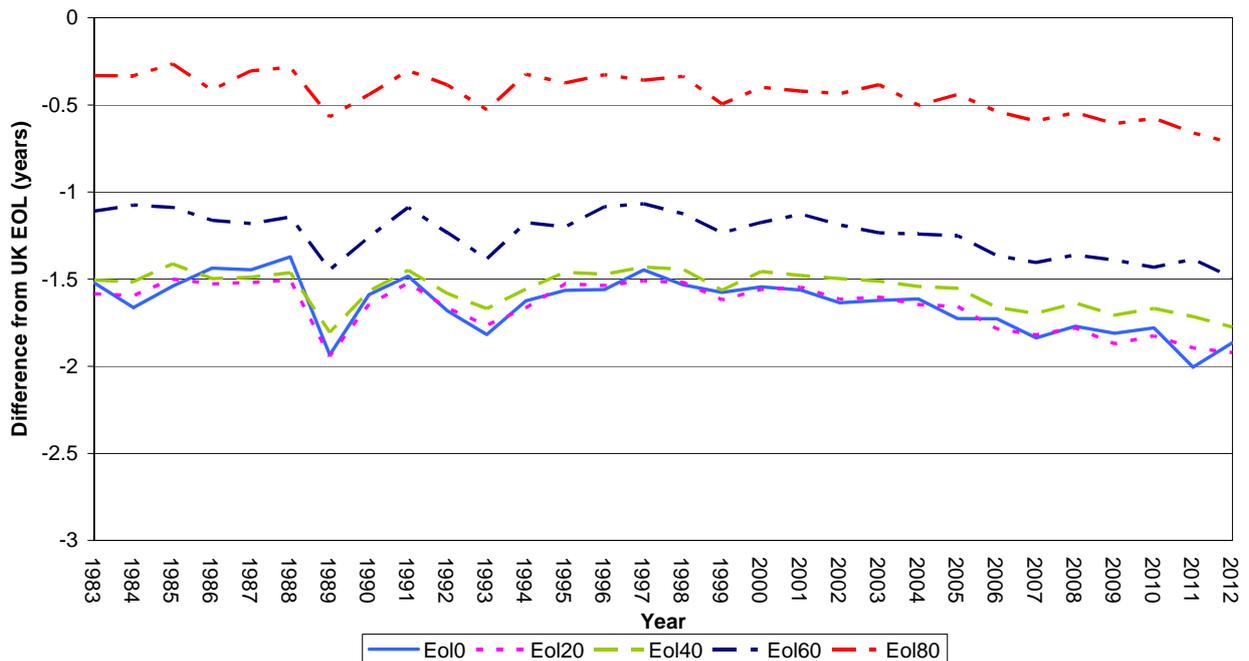


Figure B2: Period Expectations of life (Eol) for Scotland less respective expectation of life for UK – for females at birth and ages 20, 40, 60 and 80, 1983-2012



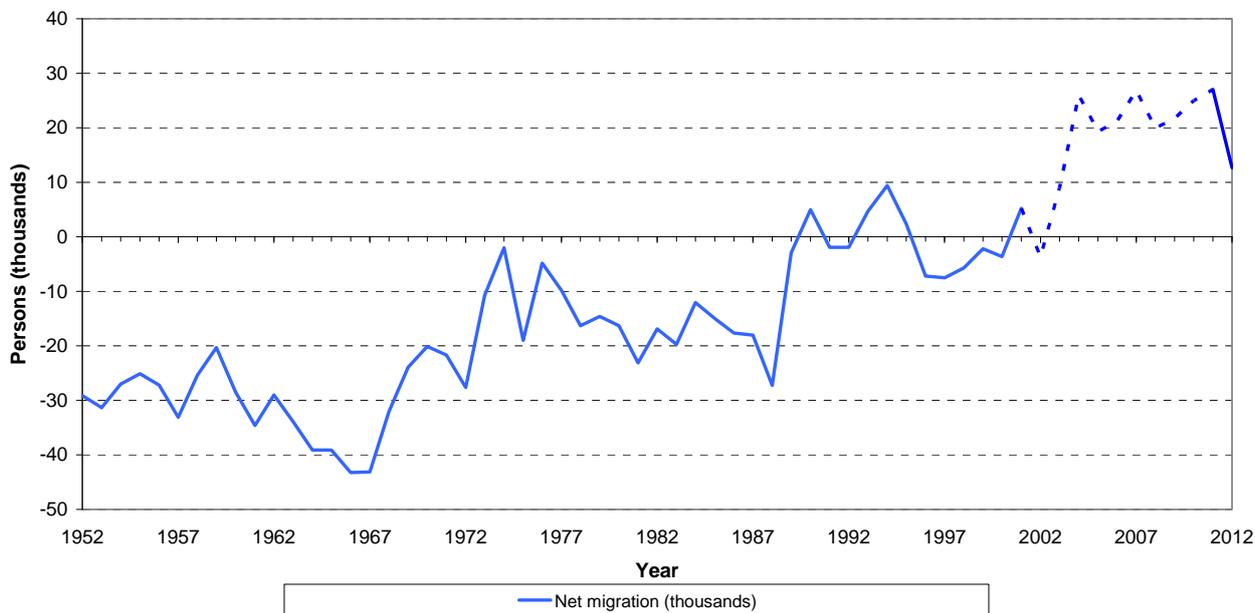
Although there have been decreases in the differentials between Scotland and the UK in 2008 and 2009, this is not sufficient evidence to suggest a change in the overall trend. Therefore, following further analysis (and as similarly done in previous sets of projections), lower rates of improvement were adopted in Scotland for males aged 27 to 59 and 66 to 95, and for females aged 28 to 41 and 65 to 92, than for the UK as a whole. At all other ages the UK levels have been used. By 2037 all improvement rates are projected to converge to the same annual rates of improvement as for the UK.

The impact of these new assumptions can be summarised using the period expectation of life at birth, based on the mortality rates for the given year. Life expectancy is assumed to rise from 75.8 years in 2009 to 81.9 years in 2037 for men, and from 80.3 years in 2009 to 85.4 years in 2037 for women.

Annex C: Migration assumptions

The long-term assumption for net migration to Scotland is +15,500 each year compared with +17,500 in the 2010-based projections. This decrease is due to lower levels of migration recorded from 2010-2012. Figure C1 illustrates the trends since 1951.

Figure C1: Natural Change and Net migration¹, 1952 to 2012



Footnote

1) Continuous line for net migration represents final estimates while the broken line from 2002 to 2011 may be recalculated as part of rebasing population estimates with results from the 2011 Census between Scotland and rest of the UK.

The long-term migration assumptions comprise of +3,500 from cross-border migration and +12,000 from international migration. New methods have been used to model migration trends in setting the migration assumptions for the 2012 based projections. More information on the review and new methods can be found on the [ONS website](#).

Migration assumptions for the initial years are designed to reflect recent rates of migration, and gradually converge to the long-term assumptions. The long-term migration assumption is projected from 2018-2019 onwards.

The assumptions for total net migration are:

- 2012-13 + 13,400
- 2013-14 + 13,700
- 2014-15 + 14,100
- 2015-16 + 14,400
- 2016-17 + 14,800
- 2017-18 + 15,100
- 2018-19 onwards + 15,500

The high and low migration variants assume long-term net migration to Scotland to be 8,500 persons higher or lower than the principal assumptions (that is, +24,000 and +7000).

Annex D: Variant projections and assumptions

Every two years the Office for National Statistics (ONS), in consultation with the Registrars General, produces a principal population projection and a number of variant projections, based on alternative assumptions of future fertility, mortality and migration, for the UK and its constituent countries. The variants are produced to give users an indication of the inherent uncertainty of demographic behaviour. There are two distinct types of variant produced: standard variants and special case scenarios.

As well as the principal assumptions, high and low assumptions are prepared for each of the components of population change (fertility, life expectancy and net migration). These are used to generate what are referred to as the standard variants. There are 27 possible combinations of these sets of assumptions although, besides the principal projection, only 10 are published by ONS. These are the six possible single component variants and also four selected combination variants. The single component variants vary one component at a time from the principal assumptions, the purpose being to illustrate plausible alternative scenarios rather than to represent upper or lower limits for future demographic behaviour. The combination variants which are published are those which produce the largest/smallest total population size and the oldest/youngest age structure.

As well as producing the standard variants ONS produce special case scenarios or what if projections to illustrate the consequences of a particular, but not necessarily realistic set of assumptions. Three sets of special case scenarios are prepared:

- Replacement fertility
- Constant fertility
- No mortality improvement.

In addition a special case projection, based on combinations of these assumptions, will be prepared:

- No change projections – shows what would happen if fertility, mortality and net migration were to remain at current levels

More details on the variants referred to in this paper and their assumptions are contained in [Table D1](#) and [Table D2](#) on the next page.

On the date of the publication of this paper (6th November 2013) only the six standard variants, the high and low population combination variants and the zero migration variant were published. The remaining variants will be published on the ONS website in December 2013. More details about all the variants mentioned in this paper can be obtained from the [Population Projections section](#) of the ONS website.

Table D1: Assumptions for the 2012-based principal and nine variant projections for Scotland

	Assumptions	Long-term Fertility (Total Fertility Rate - TFR)	Life Expectancy Males (2037)	Life Expectancy Females (2037)	Long-term Migration
Standard variants	High variant	1.95	84.2	87.4	+24,000
	Principal	1.75	81.9	85.4	+15,500
	Low variant	1.55	79.6	83.5	+7,000
Special case scenario	Zero migration	1.75	81.9	85.4	0

Table D2: Variants and Scenario

		Fertility	Life expectancy	Migration
1	Principal projection	Principal	Principal	Principal
Standard 'single component' variants				
2	High fertility	High	Principal	Principal
3	Low fertility	Low	Principal	Principal
4	High life expectancy	Principal	High	Principal
5	Low life expectancy	Principal	Low	Principal
6	High migration	Principal	Principal	High
7	Low migration	Principal	Principal	Low
Combination variants				
8	High population	High	High	High
9	Low population	Low	Low	Low
Special case scenario				
10	Zero migration	Principal	Principal	Zero

Notes on statistical publications

National Statistics

The United Kingdom Statistics Authority (UKSA) has designated these statistics as National Statistics, in line with the Statistics and Registration Service Act 2007 and signifying compliance with the Code of Practice for Official Statistics (available on the [UK Statistics authority](#) website).

This can be broadly interpreted to mean that the statistics:

- meet identified needs of users;
- are well explained and readily accessible;
- are produced according to reliable methods, and
- are managed in a fair, independent and unbiased way in the public interest.

Once statistics have been designated as National Statistics, the Code of Practice for Official Statistics must continue to be followed.

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- Recording the present – At our network of local offices, we register births, marriages, civil partnerships, deaths, divorces and adoptions in Scotland.
- Informing the future – We are responsible for the Census of Population in Scotland which we use, with other sources of information, to produce statistics on the population and households.

You can get other detailed statistics that we have produced from the [Statistics](#) section of our website. Statistics from the 2001 Census are on [Scotland’s Census Results On-Line \(SCROL\)](#) website and the 2011 Census results are held on the [Scotland’s Census](#) website.

We also provide information about future publications on our website. If you would like us to tell you about future statistical publications, you can register your interest on the Scottish Government [ScotStat](#) website.

Enquiries and suggestions

Please visit our [enquiries](#) page if you need any further information.

Email: customer@gro-scotland.gsi.gov.uk

If you have comments or suggestions that would help us improve our standards of service, please contact:

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Related organisations

Organisation	Contact
<p>The Scottish Government (SG) forms the bulk of the devolved Scottish Administration. The aim of the statistical service in the SG is to provide relevant and reliable statistical information, analysis and advice that meets the needs of government, business and the people of Scotland.</p>	<p>Office of the Chief Statistician Scottish Government 3WR, St Andrews House Edinburgh EH1 3DG</p> <p>Phone: 0131 244 0442</p> <p>Email: statistics.enquiries@scotland.gsi.gov.uk</p> <p>Website: www.scotland.gov.uk/Topics/Statistics</p>
<p>The Office for National Statistics (ONS) is responsible for producing a wide range of economic and social statistics. It also carries out the Census of Population for England and Wales</p>	<p>Customer Contact Centre Room 1.01 Office for National Statistics Cardiff Road Newport NP10 8XG</p> <p>Phone: 0845 601 3034 Minicom: 01633 815044</p> <p>Email: info@ons.gsi.gov.uk</p> <p>Website: www.ons.gov.uk/</p>
<p>The Northern Ireland Statistics and Research Agency (NISRA) is Northern Ireland's official statistics organisation. The agency is also responsible for registering births, marriages, adoptions and deaths in Northern Ireland, and the Census of Population.</p>	<p>Northern Ireland Statistics and Research Agency McAuley House 2-14 Castle Street Belfast BT1 1SA</p> <p>Phone: 028 9034 8100</p> <p>Email: info.nisra@dfpni.gov.uk</p> <p>Website: www.nisra.gov.uk</p>

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