NISRA STATISTICAL BULLETIN

Frequency: Biennial
Coverage: Northern Ireland

Date: 29 October 2015 (9.30am)
Geographical Area: Northern Ireland
Theme: Population
Time period: mid-2014 to mid-2039

2014-based Population Projections for Northern Ireland

Key Points:

- In the first 10 years to mid-2024, the population is projected to increase to 1.939 million (an increase of 5.3%); rising again to 1.974 million by mid-2029 (an increase of 7.3% from mid-2014).

- The 1.9 million milestone is projected to be reached by 2020, with the 2.0 million milestone being reached by mid-2034.

- The Northern Ireland population is projected to increase to 2.021 million in the 25 year period from mid-2014 to mid-2039, an average annual rate of growth of 0.4 per cent. Natural growth is projected to be the main driver of this 180,800 population increase, with 169,300 more births projected than deaths.

- The population aged 65 and over is projected to increase by 74.4 per cent to 498,500 people from mid-2014 to mid-2039 with the result that one in four people (24.7 per cent) will be in this age category. The population aged 85 and over projected to increase by 157.3 per cent to 88,600 people over the same period, which will see their share of the population increase from 1.9 per cent to 4.4 per cent.

- These projections show the real impact of the marked increase in the size of the population at older ages. The proportion of the population aged 65 and over is projected to overtake that of children (those aged 0 to 15 years) by mid-2028 (20.4 per cent and 19.8 per cent respectively).

- The Northern Ireland population is projected to grow by 9.8 per cent by mid-2039, compared to a growth of 15.0 per cent for the UK as a whole.

More detailed figures and analysis are included in the bulletin.

Content

Note: Throughout the report figures have been presented in a rounded form to ease readability. For example population figures have been presented to the nearest 100 and percentage changes have been presented to 1 decimal place. However, all calculations have been undertaken on the basis of unrounded numbers which will, in some instances, give rise to apparent discrepancies.

1   Introduction

This report details the key findings from the 2014-based national population projections, which replaced the 2012-based projections published in November 2013. National population projections by age and sex are produced every two years for the UK and each of the UK constituent countries by the Office for National Statistics (ONS) on behalf of the National Statistician and the Registrars General of Scotland and Northern Ireland.

National population projections provide an estimate of the future size and age structure of the population of Northern Ireland. Population projections are widely used in policy development in areas such as housing, healthcare and education. One such use is in projecting the growth of the population aged 65 and over in future years and how this will affect decisions in i) private and communal house planning, and ii) suitable levels of elderly health care. Population projections are also used as the base for other national statistics releases, such as population projections for areas within Northern Ireland, and household projections.

It is important to note that these projections are <u>not</u> forecasts and do not attempt to predict the impact that future government policies, changing economic circumstances or other factors might have on demographic behaviour.

2   Background

The current set of national projections was published on 29 October 2015[1] and is based on the mid-2014 population estimates and a set of underlying demographic assumptions regarding future fertility, mortality and migration levels (see Section 3 for a summary of the applied assumptions).

When considering these projected figures it should be noted that projections become increasingly uncertain the further they get from the base year (2014). For example, long-term fertility assumptions are applied to a female population that hasn't been born yet in mid-2014, which affects the number of births in the long run. Therefore, this bulletin will focus mainly on the intermediate projections in the 15 and 25 year[2] periods to mid-2029 and mid-2039.

In addition, since there are many years within the projection period, tables of information will be limited to five year intervals in order to concisely present the figures. However, the information may also be extended to include years of particular interest where, for example, trends reach a maximum or minimum.

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[1] Reports and detailed figures are available at http://www.nisra.gov.uk/demography/default.asp20.htm

[2] NISRA has incorporated projections on a 25 year period in order to align with projections across the rest of the UK.

Work will begin on the 2014-based population projections for areas within Northern Ireland after the release of the national population projections, with publication currently planned for Spring 2016.

3   Assumptions

Population projections are by definition based on long-term assumptions about future fertility, mortality and migration levels. The assumptions inherent in these projections are detailed in full in Section 6. However, in summary the main assumptions are:

- Fertility – The hypothetical woman will have 2.00 children in her life time.

- Mortality – Death rates will continue to fall and thus lead to a higher life expectancy. In the long term, improvements in mortality rates are projected to be 1.2 per cent per annum.

- Migration[3] – Net international migration will reduce linearly from 3,000 inflows in mid-year ending 2015 to the long-term assumption of 1,000 inflows from mid-year ending 2020 onwards[4].

These long-term assumptions are applied in order to calculate the projected number of births, deaths, and net migration occurring each year in the projection period. However, there is a transition period for fertility, mortality and migration to gradually move from current levels to the long-term assumptions.

Figure 1 shows that for each year, while there is an initial fall in total net migration, the projected number of births and deaths (and the difference between them - i.e. natural change), is projected to be much greater than total net-migration. Therefore, overall population growth is projected to be mainly due to natural change with the projected number of births exceeding the projected number of deaths. For example, over the 25 year period between mid-2014 and mid-2039, the number of births is projected to exceed the number of deaths by 169,300.

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[3] These assumptions are based on recent trends in migration and do not attempt to predict the impact of government policies on, for example, migration and student fees.

[4] Migration estimates between the UK countries are set as rates, and the gross flows will vary by year depending on the underlying population data.

Figure 1: Projected number of births, deaths and total net migration, mid-2015 to mid-2039
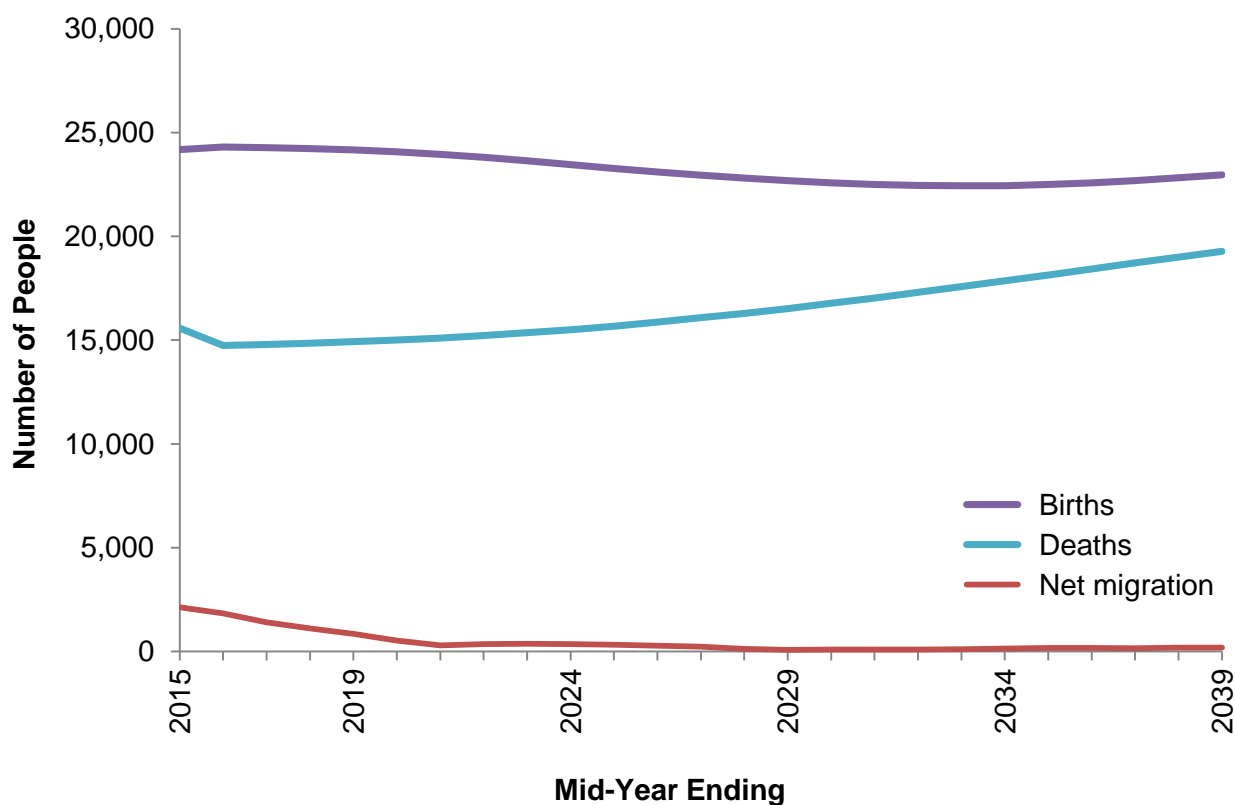

(XLS Format 3,486KB)

4   Population Projections for Northern Ireland

In mid-2014, the population in Northern Ireland was estimated to be 1.840 million people. The population projections show that this is projected to rise by 180,800 people to 2.021 million over the next 25 years to mid-2039 (see Figure 2). This equates to a 9.8 per cent increase, which is equivalent to an average annual growth rate of 0.4 per cent. By way of contrast, over the past 25 years (mid-1989 to mid-2014) the population grew by 250,100 people (15.7 per cent) which is equivalent to an average annual growth rate of 0.6 per cent.

Over the next 15 years from mid-2014 to mid-2029, the population in Northern Ireland is projected to increase by 133,600 people to 1.974 million. This equates to a 7.3 per cent increase, which is equivalent to an average annual growth rate of 0.5 per cent.

Figure 2: Population of Northern Ireland, estimated and projected, mid-1989 to mid-2039 (non-zero y-axis)
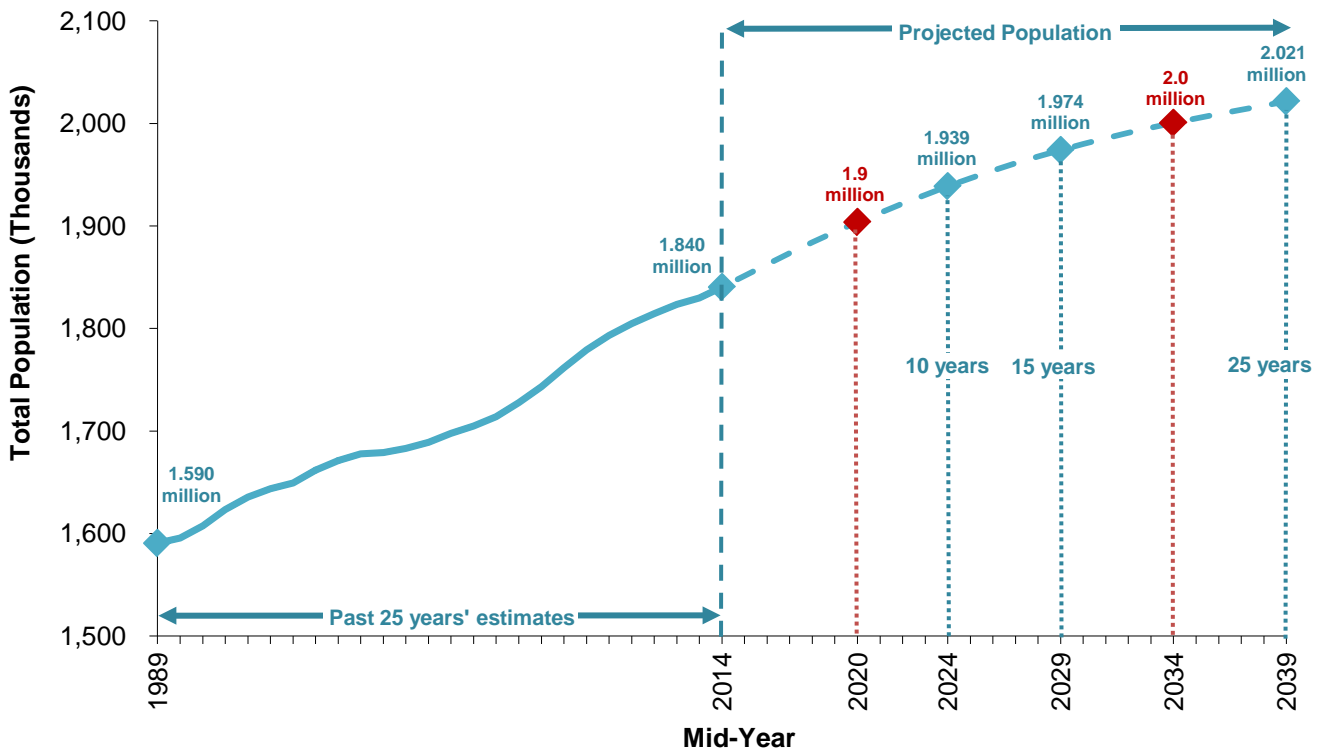
*Figures for mid-1989 to mid 2014 relate to mid-year estimates.
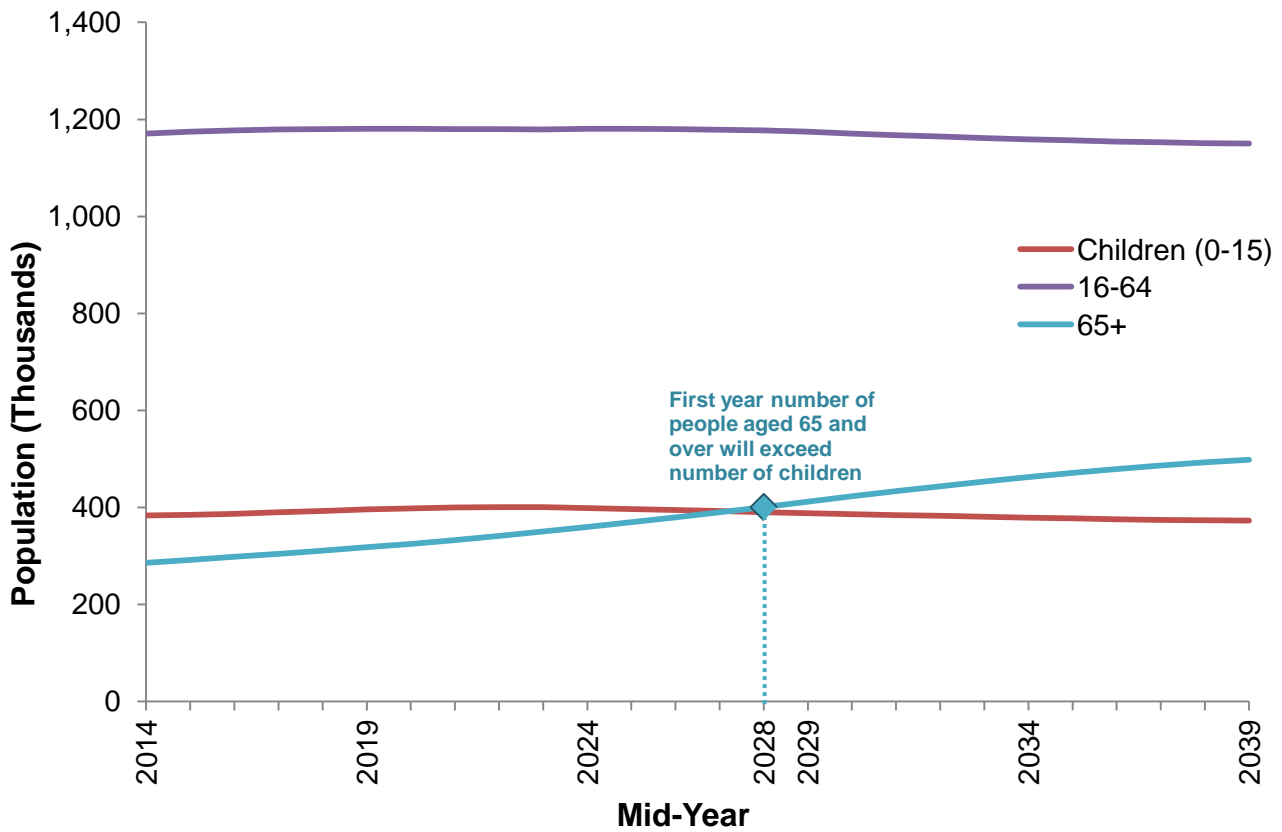Download Chart (XLS Format 3,547KB)

The population of Northern Ireland is projected to reach 1.9 million people in 2020, with the 2 million milestone being reached by mid-2034. By mid-2038, annual population growth is projected to fall below 0.2 per cent for the first time since mid-1999, due to a falling number of births and rising deaths as a result of an ageing population.

5   Population Projections by Age

As well as a projected growth in the overall numbers of people in Northern Ireland over the 25 year projection period, the age structure of the population is also projected to change.

Figure 3 below shows the projections for those aged 0 to 15 years (i.e. children), those aged 16 to 64 years and for those aged 65 and over.

**Figure 3a: Projected population by age, mid-2014* to mid-2039**

*Figures for mid-2014 relate to mid-year estimates.

Download Chart (XLS Format 3,489KB)

While the number of children and people aged 16 to 64 are both projected to decrease over the next 25 years, the number of people aged 65 and over is projected to increase. Figure 3a shows that by mid-2028, there is projected to be more people aged 65 and over than children, with the gap projected to widen.

Between mid-2014 and mid-2039, the population aged 65 and over is projected to increase by 74.4 per cent to reach 498,500 people. By mid-2039, it is projected that almost one in four of the population (24.7 per cent) will be aged 65 and over, whereas 18.4 per cent will be children (see Figure 3b).

Figure 3b: Estimated and projected proportion of population by age, mid-2014 and mid-2039
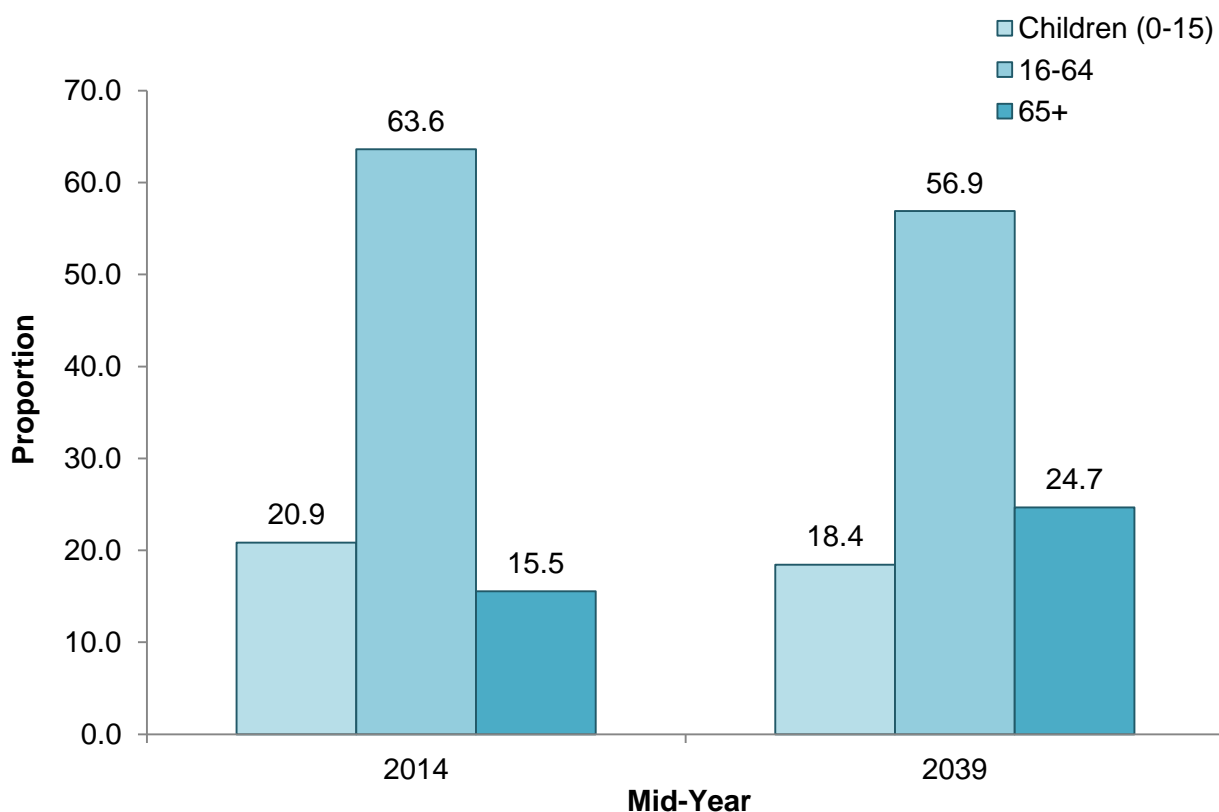
(XLS Format 3,485KB)

The projected change in age distribution over the 25 year projection period can be illustrated in a population pyramid (see Figure 4), which shows the estimated mid-2014 and projected mid-2039 population by single year of age and sex.

Each bar in the pyramid represents a single year of age up to 104 (with the top bar referring to those aged 105 and over) and the length of the bar relates to the number of people of that age in the population. The bars represent the estimated population of mid-2014 and the lines represent the projected population for mid-2039.

Figure 4: Estimated and projected population by age and sex, mid-2014* and mid-2039[5]
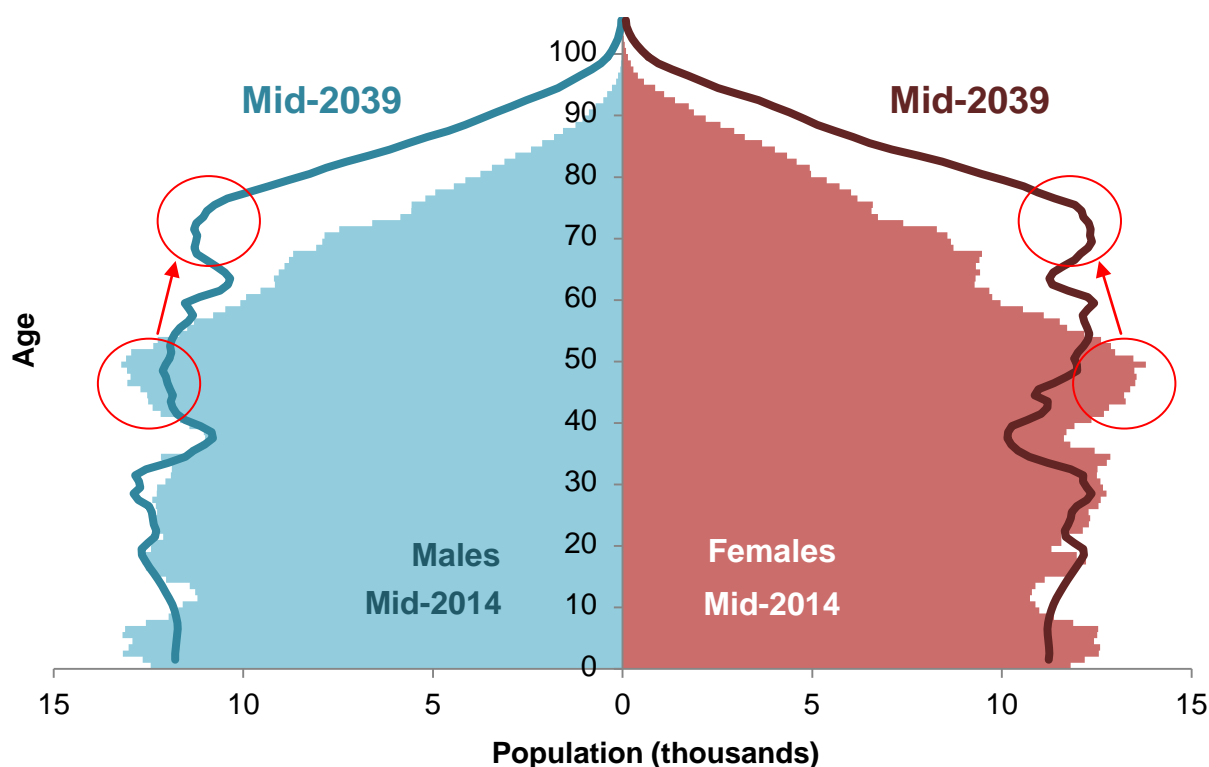
*Figures for mid-2014 relate to mid-year estimates.

Download Chart (XLS format – 3,566Kb)

Figure 4 shows that the age profile of the population is projected to increase by mid-2039. Furthermore, an ageing population is also evident through the projected rise in the median age[6] from 38.0 years in mid-2014 to 43.0 years by mid-2039.

Figure 4 can also be used to illustrate the projected progression of the population as they age from mid-2014 to mid-2039. For example, those aged between 40 and 50 in mid-2014 (and therefore aged between 65 and 75 by mid-2039) have been identified for reference. The change in shape of the population pyramid to a more rectangular outline is evidence of an ageing population.

In terms of gender, although the life expectancy of females continues to be higher than that of males on average, the gap is closing, with the life expectancy of males projected to increase from 78.2 years at birth in mid-year ending 2015, to 83.3 years in mid-year ending 2039. This projected increase of 5.1 years for males is a larger improvement than for females, which is projected to increase by 4.4 years over the same period. By mid-2039 it is projected that males will account for 42.9 per cent of the population aged 85 and over, rising from an estimated 32.1 per cent in mid-2014.

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[5] An Interactive Population Pyramid is also available.

[6] Median age is the age at which half of the population is older and half the population is younger.

In general, the male population is projected to increase by more than the female population (11.1 per cent for males and 9.8 per cent for females) over the 25 year projection period. In mid-2014 the sex ratio for the population was estimated to be 96.3 males per 100 females. By mid-2039 this ratio is projected to increase to 98.5 males per 100 females. The projected improvement in the life expectancy of males contributes to the overall increase in the male population.

Another factor adding to the projected increase in the male population is migration. Between mid-2014 and mid-2015, a net number of 1,100 males are projected to have entered Northern Ireland. While this net inflow is projected to decrease, it will remain positive over the projected period, with approximately 200 males overall projected to enter Northern Ireland each year from mid-2026 to mid-2039. In contrast, the number of females is projected to change from a net inflow of 1,000 people between mid-2014 and mid-2015 to a minor net outflow (less than 100) each year from mid-2026 to mid-2039.

5.1   Children

The population of children (those aged 0 to 15) is projected to increase by 4,100 people in the 15 year period from mid-2014 to mid-2029, before decreasing by 15,000 people between mid-2029 and mid-2039 (an overall 2.8 per cent decrease in the number of children over the 25 year period mid-2014 to mid-2039).

Table 1 below shows that the number of children is projected to increase from 383,800 in mid-2014 to a high of 400,800 in mid-2022 (an increase of 4.4 per cent) before falling back to similar levels estimated in mid-2014 by mid-2031 (384,400 children); then further declining to 372,900 by mid-2039.

Table 1: Projected population of Children, mid-2014 to mid-2039

| Mid Year	Children	Population Proportion	Change from Mid-2014	Total Population
2014*	383,800	20.9	-	1,840,500
2018	392,900	20.9	2.4	1,884,000
2019	395,800	20.9	3.1	1,894,100
2022	400,800	20.9	4.4	1,921,700
2024	398,700	20.6	3.9	1,938,700
2029	387,800	19.6	1.1	1,974,100
2031	384,400	19.4	0.2	1,985,600
2034	378,900	18.9	-1.3	2,000,500
2039	372,900	18.4	-2.8	2,021,300

*Figures for mid-2014 relate to mid-year estimates.

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The number of deaths among children is projected to remain at around 100 per annum throughout the 25 year period. While there is projected to be a year-on-year net inflow of children in the projection period, this net inward migration is projected to decrease from 1,200 in mid-year ending 2015, to 1,000 in mid-year ending 2039. The relatively minimal role that deaths and net-migration have on the change in projections of children from year to year can be seen in Figure 5, where the dashed green and red lines follow a broadly level trend.

Since deaths and net migration in children are projected to have little change over the next 25 years, the projected change in the population of children during the projection period can be mainly attributed to the changes in the number of babies born and those "ageing out"[7] of this age group each year.

This is demonstrated in Figure 5 where the projected trend in "net age group change" (i.e. the number of babies born minus the number of people "ageing out") closely follows the projected population change in children over the 25 year period.

Figure 5: Projected population change for children (aged 0-15 years), mid-year ending 2015 to mid-year ending 2039
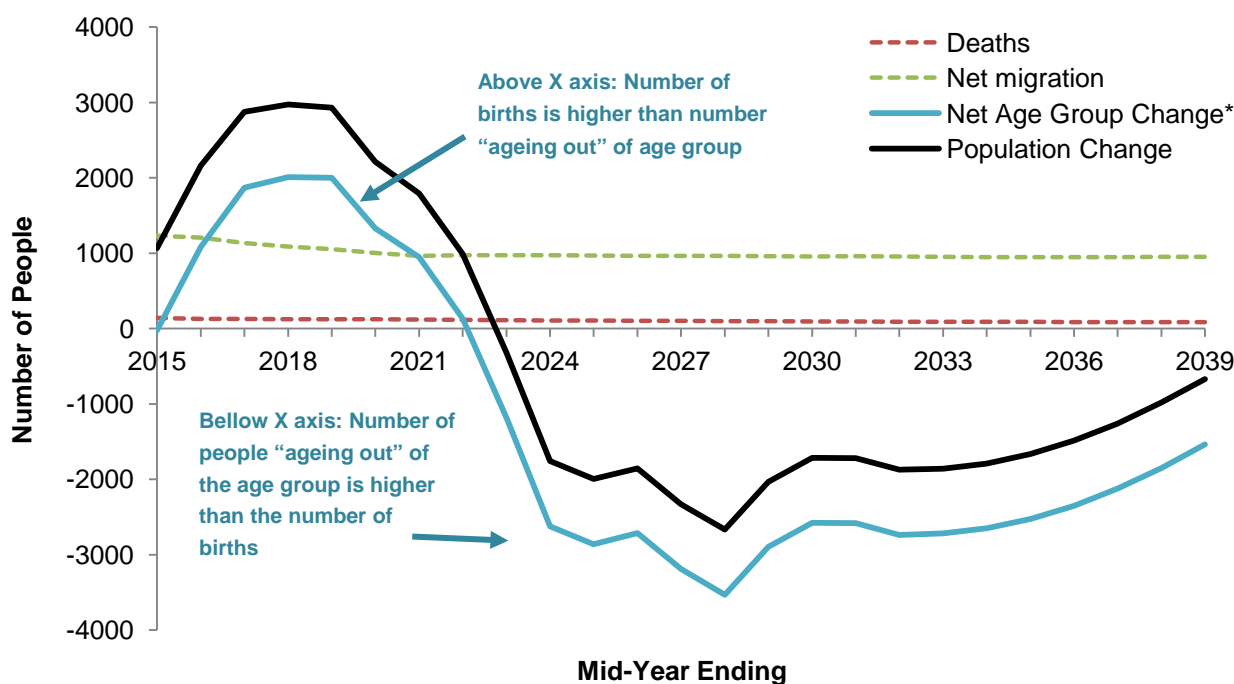
*Net Age Group Change is defined as those ageing into the age group (i.e. Births) minus those 'ageing out'.

Download Chart (XLS Format 3,498KB)

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[7] People ageing out of this group each year refers to those turning 16.

Births are projected to increasingly outnumber people "ageing out" of this age group between the mid-year ending 2016 and mid-year ending 2018 due to a drop in the number of people turning 16 each year in this time period (related to an historically low period of fertility in the early 2000s[8]). Consequently, the population of children is projected to increase to 392,900 by mid-2018. However, from mid-2018 onwards, the number of people "ageing out" of this age group is projected to increase, due to a period of increased fertility 15 years previously.

From mid-2018 to mid-2022, the projected number of births still outnumber people ageing out of the age group, however this difference is projected to become smaller, leading to the population increase in children slowing down during this period (from 0.7 per cent between mid-2018 and mid-2019, to 0.2 per cent between mid-2021 and mid-2022), until finally there is a projected decrease in the population of children between mid-2022 and mid-2023.

Thereafter, a decrease in the population of children is projected to continue year on year over the remainder of the projection period (i.e. mid-2023 to mid-2039).

5.2 People Aged 16 to 64

The population of people aged 16 to 64 is projected to increase by 3,600 people in the 15 year period from mid-2014 to mid-2029. Table 2 shows that the population aged 16 to 64 is projected to reach a high of 1.181 million in mid-2025 (a 0.8 per cent increase from mid-2014). Over the following 14 year period, a steady decrease in the number of people aged 16 to 64 is projected, falling to 1.150 million by mid-2039. Between mid-2014 and mid-2039 the population aged 16 to 64 is expected to decrease by 1.8 per cent.

Table 2: Projected population of people aged 16 to 64, mid-2014 to mid-2039

Mid Year	Adults (16-64)	Population Proportion	Change from Mid-2014	Total Population
2014*	1,170,800	63.6	-	1,840,500
2019	1,180,300	62.3	0.8	1,894,100
2024	1,180,300	60.9	0.8	1,938,700
2025	1,180,600	60.6	0.8	1,946,600
2029	1,174,400	59.5	0.3	1,974,100
2034	1,159,000	57.9	-1.0	2,000,500
2039	1,149,900	56.9	-1.8	2,021,300

*Figures for mid-2014 relate to mid-year estimates.
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Net migration among those aged 16 to 64 is projected to decrease from 700 more people entering Northern Ireland between mid-2014 and mid-2015, to 800 more people leaving

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[8] Details of historic trends on Births are available in the Registrar General's Annual Report 2014

between mid-2020 and mid-2021. Thereafter, net migration stays relatively stable (as can be seen in Figure 6), with an average of around 1,000 more people per year projected to leave between mid-2021 and mid-2039. In addition, deaths of people aged 16 to 64 are projected to decrease from 2,600 in mid-year ending-2015 to 1,800 in mid-year ending 2039 (a decrease of 33.4 per cent).

Despite these changes, as was seen for children, the projected change in the population aged 16 to 64 between mid-2014 and mid-2039 broadly follows the projected change in the difference of people "ageing into" (those turning 16) and "ageing out of" (those turning 65) this age group, i.e. the "net age group change".

Figure 6: Projected population change for people aged 16-64, mid-2014 to mid-2039
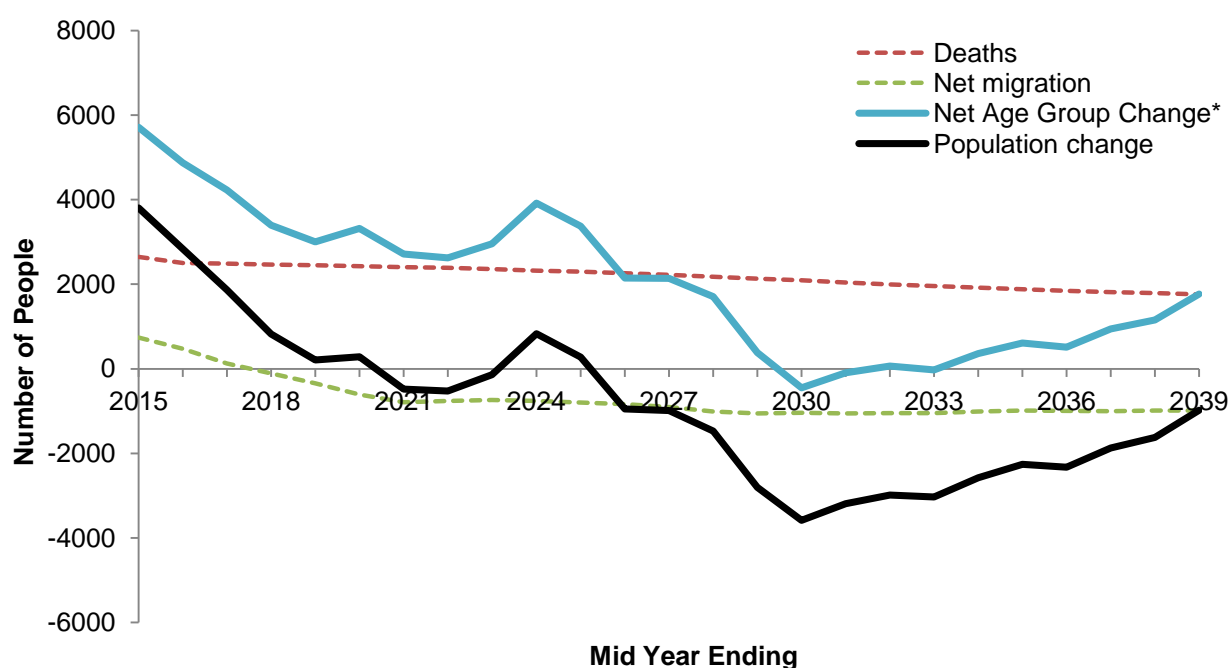
*Net Age Group Change is defined as those ageing into the age group (i.e. Births) minus those 'ageing out'.
[Download Chart](#) (XLS Format 3,492KB)

The large projected increase in the number of people ageing out of the 16 to 64 age group means that there will, in turn, be a large increase in the number of people ageing into the age group of those aged 65 and over. This, along with a general decrease in the population aged under 65, is indicative of an ageing population over the projection period.

5.3   People Aged 65 and Over

The number of people aged 65 and over is projected to increase by 44.1 per cent (126,000 people) in the 15 years to mid-2029, increasing by a further 86,600 people to 498,500 by mid-2039 (an overall increase of 74.4 per cent from mid-2014). Table 3 shows that, more specifically, those aged 65 and over are projected to account for 20.4 per cent of the projected population by mid-2028; overtaking children who are projected to account for 19.8 per cent of the population in the same year.

Table 3: Projected population of people aged 65 and over, mid-2014 to mid-2039

Mid Year	Adults (65 and Over)	Population Proportion	Change from Mid-2014	Total Population
2014*	285,900	15.5	-	1,840,500
2019	317,900	16.8	11.2	1,894,100
2024	359,700	18.6	25.8	1,938,700
2028	400,800	20.4	40.2	1,967,900
2029	411,900	20.9	44.1	1,974,100
2034	462,600	23.1	61.8	2,000,500
2039	498,500	24.7	74.4	2,021,300

*Figures for mid-2014 relate to mid-year estimates.

Download Table (XLS Format 3,475KB)

For those aged 65 and over, migration accounts for less than one per cent per annum of the total increase of people. Therefore, the population growth is due to more people ageing into this age group than deaths.

5.4 People Aged 85 and Over

The population aged 85 and over is projected to grow by 75.9 per cent (26,100 people) in the first 15 years to mid-2029, and by a further 46.3 per cent (28,000 people) in the following 10 years to mid-2039 (an overall increase of 157.3 per cent from mid-2014). By mid-2032, it is projected that there will be more than twice as many people aged 85 and over than there were in mid-2014 (see Table 4).

Table 4: Projected population of people aged 85 and over, mid-2014 to mid-2039

| Mid Year	Adults (85 and Over)	Population Proportion	Change from Mid-2014	Total Population
2014*	34,400	1.9	-	1,840,500
2019	39,700	2.1	15.2	1,894,100
2024	48,100	2.5	39.7	1,938,700
2029	60,600	3.1	75.9	1,974,100
2032	70,200	3.5	103.7	1,990,800
2034	76,300	3.8	121.4	2,000,500
2039	88,600	4.4	157.3	2,021,300

*Figures for mid-2014 relate to mid-year estimates.

Download Table (XLS Format 3,475KB)

It is interesting to note that in mid-1999 the estimated number of people aged 85 and over was almost the same as the number of births in that year, while by mid-2023 (24 years later) there

is projected to be almost twice as many people aged 85 and over than the number of births. Looking further ahead, it is projected to be only another eight years later (i.e. by mid-2031) before the number of people aged 85 and over becomes almost three times the number of births. These relationships between the number of births and the older population give a further indication of the ageing population of Northern Ireland.

Figure 7: Projected population aged 85+ and the number of births, mid-1999*, mid-2023, and mid-2031
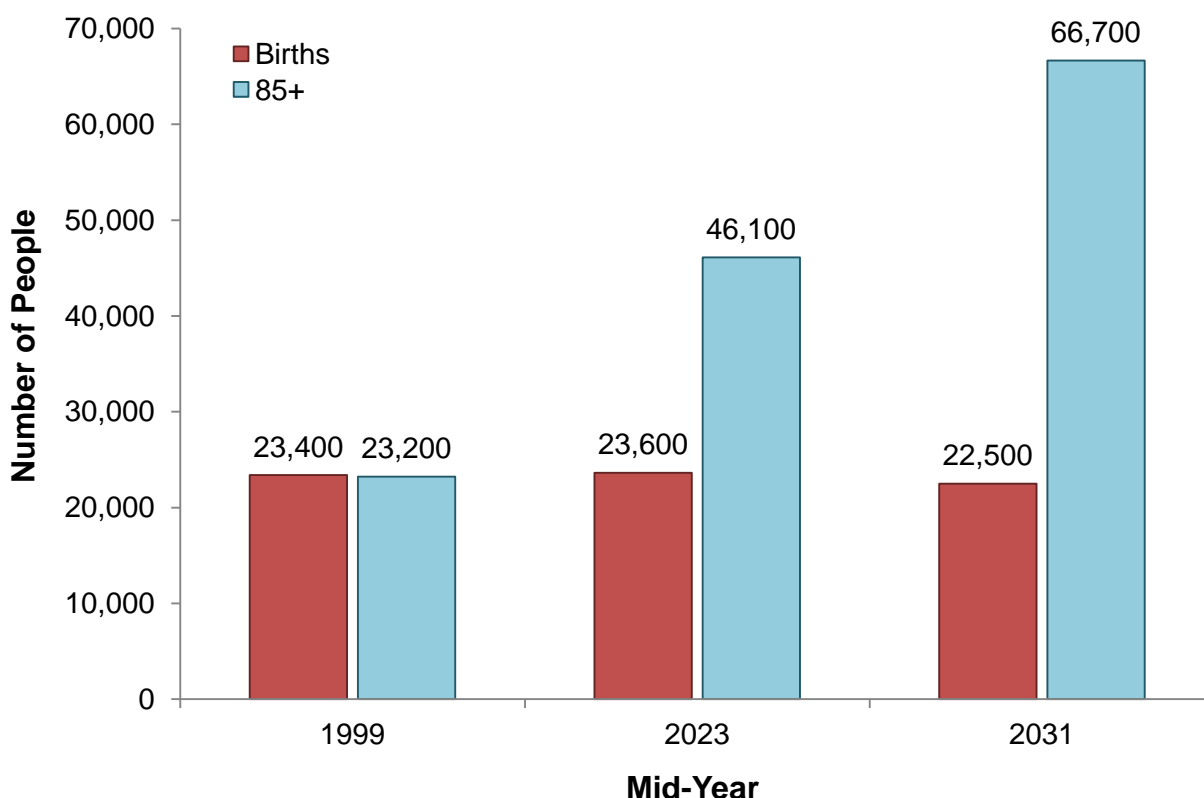
*Figures for mid-1999 relate to mid-year estimates.

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5.5   Working Age[9] Population

Since 6 April 2010, the state pensionable age for women has been gradually increasing from 60 to bring it in line with the state pensionable age of 65 for men[10]. Under current legislation[11], women's state pensionable age will reach 65 by November 2018. Furthermore, from December 2018, the state pension age for both men and women will start to increase to reach 66 by October 2020 and subsequently increase to 67 between 2026 and 2028.

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[9] Working age population takes into account the changes in pensionable age from Pension Acts that have been passed.

[10] Further information on State Pension Age and a current timetable can be found [here](#).

[11] Full Legislation for the latest [Pensions Act 2014](#).

Taking this into account, the number of people of working age in Northern Ireland is projected to rise by 7.1 per cent from 1,144,200 in mid-2014 to a peak of 1,225,300 people in mid-2028. Between mid-2028 and mid-2039, the population of working age is then projected to decrease by 2.4 per cent to 1,195,700 (see Figure 8).

Figure 8: Estimated and projected population aged 16 to 64 and working age, mid-1989 to mid-2039 (non-zero y-axis)
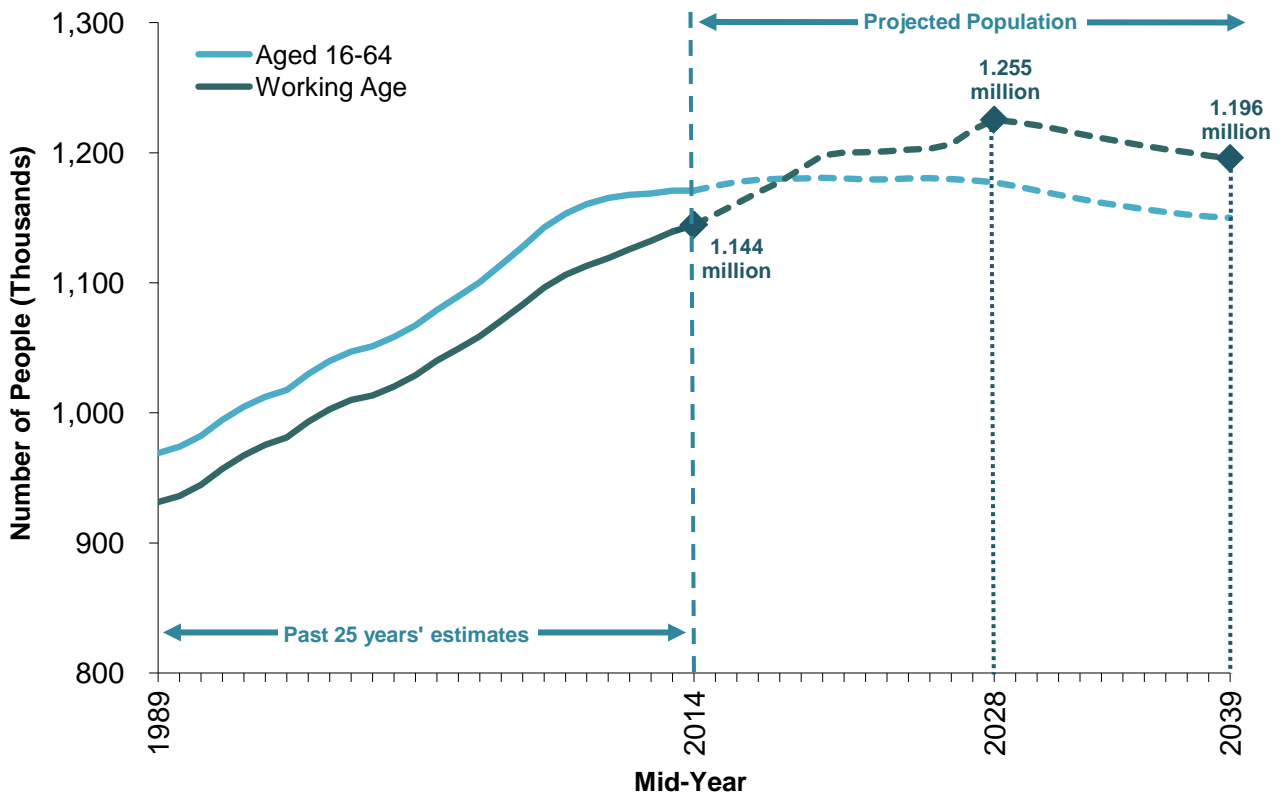
[Download Chart](#) (XLS Format 3,516KB)

5.6   Dependency Ratios

A dependency ratio gives insight into the number of people of non-working age compared to the number of those of working age. A high ratio means that those of working age, and therefore the overall economy, face a greater burden in supporting the greater number of people of non-working age (typically the elderly and/or young).

The dependency ratio deployed in this bulletin is defined as:

> **The number of children (aged 0 to15)**
> **and/or**
> **the number of people at pensionable age**
>
>
> **per 1,000 of the working age population**

It is important to note that dependency ratio figures should be used with care. For example, not all people of working age will be economically active or in full time employment, (e.g. students). Furthermore, not all people who are eligible for retirement will leave their employment, or become dependent on others if they do retire. Despite these limitations, dependency ratios remain a useful tool for analysing the population's relative age structure.

Figure 9 shows that the total dependency ratio is projected to decrease between mid-2014 and mid-2020 before beginning to rise again. Between mid-2014 and mid-2039, an overall increase of approximately 100 children and people of pensionable age per 1,000 people of working age is projected (rising from 600 per 1,000 to 700 per 1,000). In mid-2039 the total dependency ratio is protected to reach the level it was in 1993 (700 people per 1000 people of working age).

Figure 9: Estimated and projected dependency ratios for children and pension age, mid-1989 to mid-2039
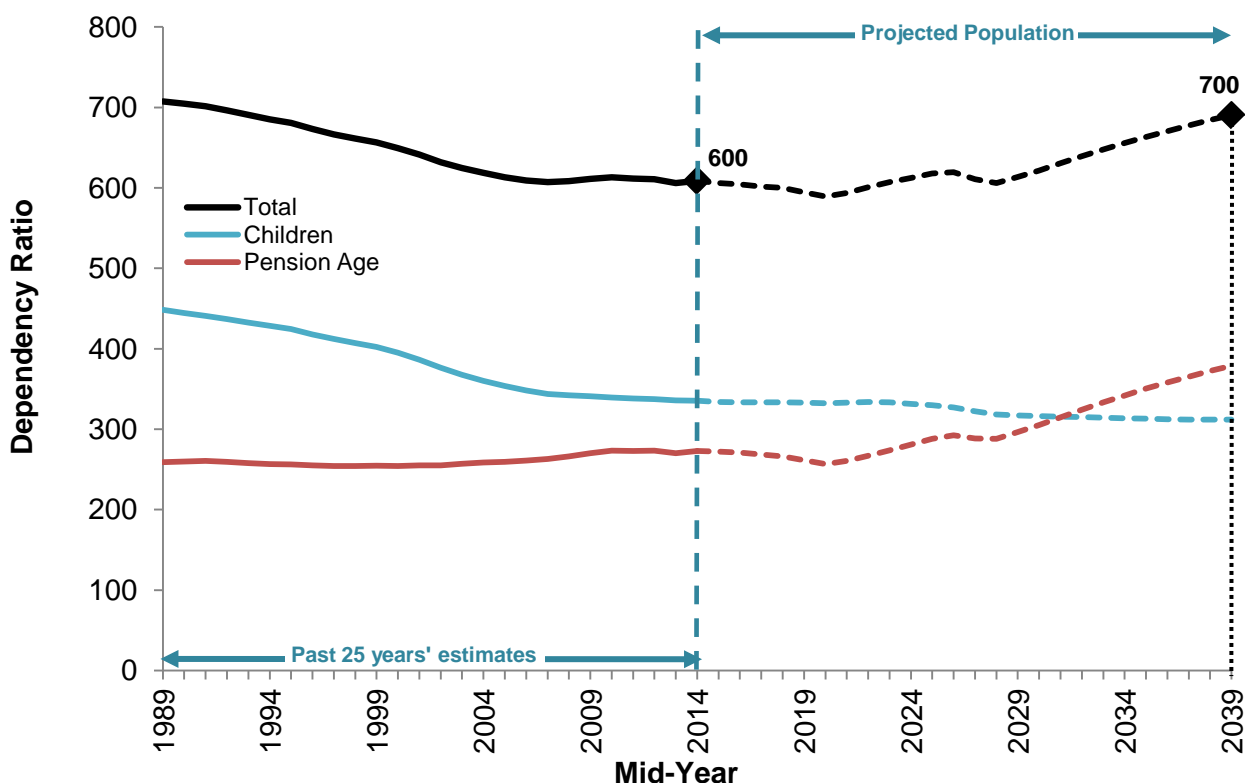
The composition of the total dependency ratio has been changing over the past thirty years to mid-2014. In mid-1984 children accounted for approximately two thirds (65.2 per cent) of the total number of "dependents" per 1,000 of people of working age. This decreased to just over half (55.1 per cent) in mid-2014. Figure 9 shows that the reason for this change is mainly due to a decrease in the ratio of children per 1,000 of the population of working age. However, by mid-2015, the children's ratio dependency more or less stabilises. This stability is projected to continue, relative to the dependency ratio of people of pensionable age, which is projected to increase from 273 to 379 people between mid-2014 and mid-2039. By mid-2039, the change in total dependency ratio is projected to be largely attributed to an increase in the number of people of pensionable age per 1,000 of the working age population.

6   Projected Components of Change

6.1   Births and Deaths

The projected number of births results from the assumptions on age-specific fertility rates (see Section 9 on Methodology) and the size of the female population of child-bearing years. The number of births is projected to increase to 24,300 by the year ending mid-2016, before steadily decreasing to 22,700 by the year ending mid-2029 (see Figure 10).

Overall, births are projected to decrease from 24,200 in mid-2014 to mid-2015, to 23,000 in mid-2038 to mid-2039 (5.0 per cent). In contrast, the number of deaths is projected to increase by 23.8 per cent during the same period (from 15,600 to 19,300).

Figure 10: Estimated and projected births and deaths, mid-2001 to mid-2039
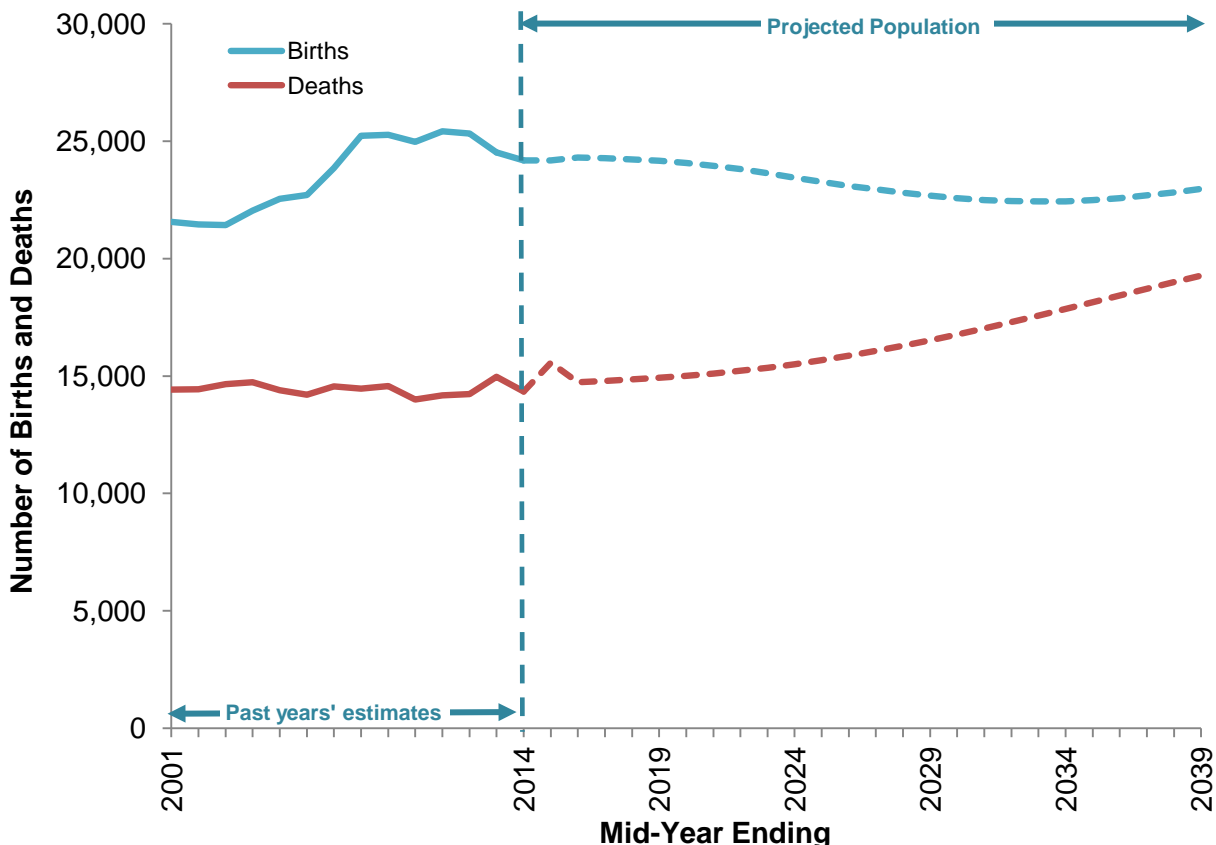
6.2 Migration

The projected total migration figures are a result of the assumptions (see Section 9 on Methodology) made on international migration (between Northern Ireland and the rest of the world), and on crossborder migration (between Northern Ireland and the rest of the UK).

Assumptions on international migration are made using migration flows or numbers of people entering and leaving Northern Ireland. Total international migration flows are broken down by single year of age and sex by applying the average age/sex distribution of migration in the last five years. In contrast, crossborder migration assumptions between the UK countries are set as age-sex-specific rates which are applied to the projected population for each year. Therefore, the gross cross border flows between the UK countries will vary by year depending on the underlying population data, while the projected flows in international migration will remain stable each year.

Each year between mid-2014 and mid-2039, more people are projected to <u>enter</u> Northern Ireland than <u>leave</u>. However, this positive **net inflow** is projected to decrease by 91.6 per cent, from 2,100 people in mid-year ending 2015 to just 200 people in mid-year ending 2039 (see Table 5). The main reason behind this change is a projected increase in the number of people leaving Northern Ireland (7.8 per cent from mid-2014 to mid-2039).

The majority of this increase in out migration is projected to take place between mid-2014 and mid-2021, where the number of people leaving Northern Ireland is projected to grow by 7.3 per cent. The number of people coming to live in Northern Ireland, however, is projected to decrease relatively moderately by 1.1 per cent from mid-2014 to mid-2039.

Table 5: Projected total migration, mid-year ending 2015 and mid-year ending 2039

	(Mid-Year Ending)			Percentage
	2015	**2039**	**Difference**	**Change***
In-Migration				
0-15	3,900	3,800	-100	*-3.0*
16-24	6,400	6,300	-100	*-1.8*
25-39	9,000	8,800	-200	*-2.5*
40-64	3,700	3,600	-100	*-2.3*
65+	700	1000	300	*39.2*
All Ages	**23,700**	**23,500**	**-300**	***-1.1***
Out-Migration				
0-15	2,600	2,800	200	*6.3*
16-24	6,800	7,100	300	*5.1*
25-39	8,600	9,300	700	*8.4*
40-64	3,100	3,300	200	*7.7*
65+	600	800	200	*37.8*
All Ages	**21,600**	**23,300**	**1,700**	***7.8***
Net-Migration				
0-15	1,200	1,000	-300	-
16-24	-300	-800	-500	-
25-39	400	-500	-1000	-
40-64	700	300	-300	-
65+	100	200	100	-
All Ages	**2,100**	**200**	**-1,900**	**-**

*Percentage change is not calculated for net figures due to their inherent nature.

[Download Table](#) (XLS Format 3,485KB)

For mid-years ending 2015 and 2039, the largest changes in the projected <u>numbers</u> of people migrating occurs among those aged 25-39 (an overall net-migration of -1,000 people), the <u>percentage changes</u> for in-migration and out-migration are relatively low (a 2.5 per cent

decrease and an 8.4 per cent increase respectively) when compared to those aged 65 and over. Those aged 65 and over have the largest projected <u>percentage increases</u> of in-migration and out-migration between mid-2014 and mid-2039 (at around 40 per cent each) while having the smallest projected net-migration with an overall inflow of 100 people (see Table 5). The contrast in projected percentage changes of migration for these age groups is mainly due to the overall smaller numbers of people aged 65 and over involved in migration to and from Northern Ireland.

It should be noted that the projected migration flows have an indirect effect on the projected number of future births and deaths. For example, if people of childbearing age are leaving/entering Northern Ireland, this will affect the number of births projected to take place in the future. A similar relationship occurs with mortality rates.

7 Population projections for the UK and the Republic of Ireland

The Northern Ireland population projections are produced as part of the <u>UK population projections</u>. These include figures for each of the four UK countries (England, Wales, Scotland and Northern Ireland) and, as such, provide consistent comparable results for across the UK. Long-term assumptions are set for each country separately based on regional demographic trends.

Between mid-2014 and mid-2039, the Northern Ireland population is projected to grow by 9.8 per cent, compared to a growth of 15.1 per cent for the rest of the UK. The projected increase in the rest of the UK can be mainly attributed to England (a 16.5 per cent increase), which historically receives the vast majority of net migration and has the highest life expectancy of the four countries. Aided by relatively high fertility rates, the projected Northern Ireland population growth of 9.8 per cent is greater than that in Wales and Scotland (6.1 per cent and 6.6 per cent respectively). Northern Ireland's share of the United Kingdom population is projected to decrease from 2.9 per cent in mid-2014 to 2.7 per cent in mid-2039.

Whilst Northern Ireland has the highest fertility assumption (with the total fertility rate (TFR) projected to reach 2.00 by mid-2039), it also has the largest percentage decrease in births from 24,200 in mid-year ending 2015 to 23,000 in mid-year ending 2039 (a 5.0 per cent decrease). This is due to a net outflow of women of childbearing age projected to occur each year between mid-2015 and mid-2039. Scotland's TFR is projected to reach 1.70 by mid-2039, the lowest of all UK countries, and is the only other country projected to have an overall percentage decrease in births during the same period (0.1 per cent). The TFR of both England and Wales is projected to reach 1.90 by mid-2039, and both are projected to have an overall increase in births over the projection period (7.1 and 2.3 per cent respectively).

Northern Ireland is projected to have the largest increase in deaths between mid-2014 and mid-2039 (23.8 per cent), followed by England (17.5 per cent), Scotland (9.6 per cent), and

then Wales (8.6 per cent). This may be partly related to an ageing population. For example, growth among the Northern Ireland population aged 65 and over (74.4 per cent) is projected to exceed that in the rest of the United Kingdom (57.8 per cent).

Out of all the UK countries, at 43.1 per cent Northern Ireland had the largest percentage growth of people aged 85 and over between mid-2004 and mid-2014 (see Estimates of the population aged 85 and over 2014 for more information). This is projected to continue over the 25 year period between mid-2014 and mid-2039, with the number of people aged 85 and over projected to increase by 157.3 per cent in Northern Ireland, compared with 136.7 per cent for the rest of the UK.

Figure 11 shows that between mid-year ending 2015 and mid-year ending 2039, all UK countries are projected to experience a proportional decrease in the number of inflows into their territories, with Northern Ireland having the smallest projected proportional decrease in inflows at 1.1 per cent. In contrast, Scotland is the only country projected to experience a proportional decrease in outflows (2.3 per cent). Overall, a net decrease in the number of people entering all four UK countries is projected between mid-2014 and mid-2039.

Figure 11: Projected change in migration* inflows and outflows by Country, mid-year ending 2015 to mid-year ending 2039
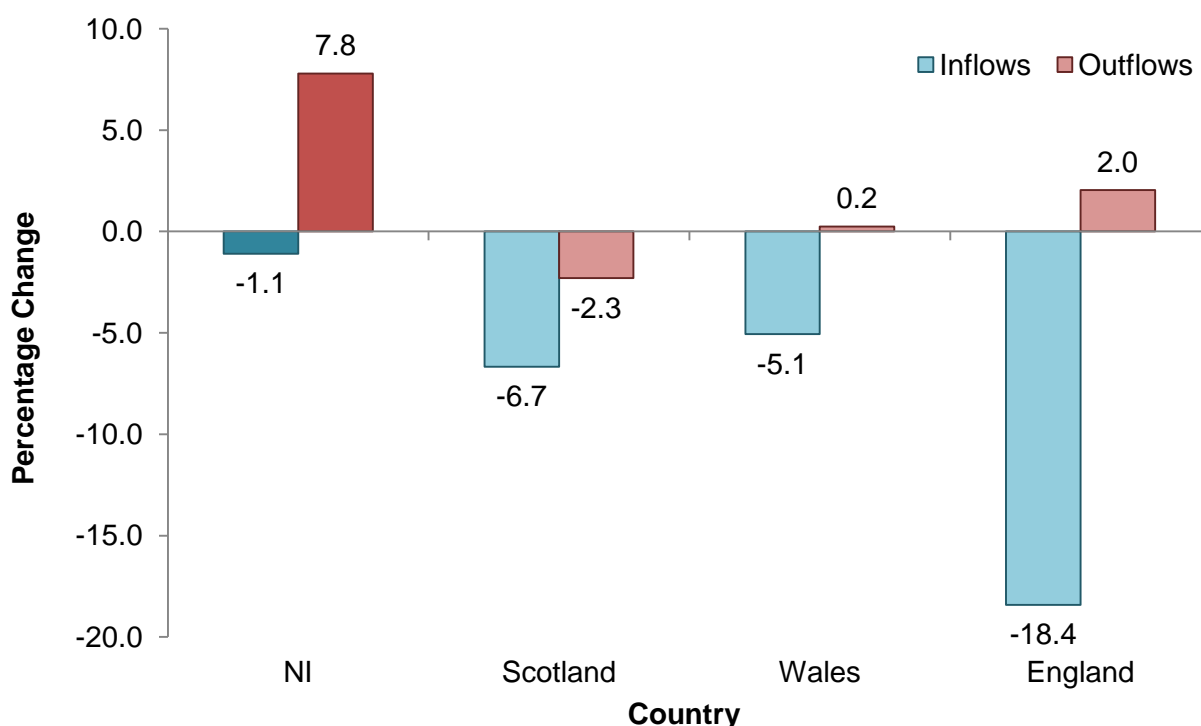
* The International Passenger Survey (IPS) is used by England, Wales and Scotland to estimate international migration, while in Northern Ireland Medical Card data[12] are used. More details are available in the Limitations Section of this bulletin.
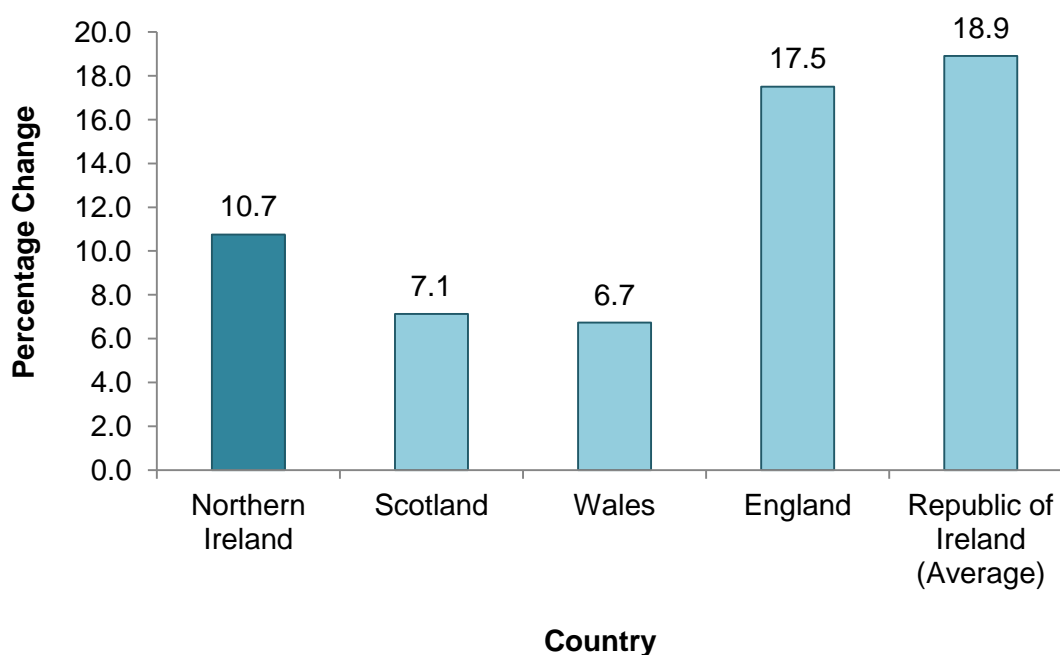
Download Chart (XLS Format 3,492KB)

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[12] In previous reports, medical card data was referred as "health card" data.

Population projections for the Republic of Ireland (RoI) are produced by the Central Statistics Office (CSO). Unlike UK projections, the CSO does not produce a principal projection; whilst there is a single assumption on life expectancy, there are two variant fertility assumptions (high/low) and three migration scenarios. Data is also only available in five year intervals.

Their most recent projections (2011-based projections) show projected population growth between 2011 and 2036 varying from 7.8 per cent under low fertility/migration assumptions to 30.9 per cent under high fertility/migration assumptions. The average of all six combinations of assumptions suggests a projected population growth of 18.9 per cent over a 22 year period. This average increase is higher than projected for all four UK countries over the same period (see Figure 12).

Part of this increase may be linked to a high fertility rate in the RoI. For instance, RoI's long-term high fertility assumption is that the TFR remains at 2.1. In contrast the low fertility variant assumes that the TFR will decrease to 1.8 by 2026. This low fertility assumption is still higher than the principal fertility assumption of 1.7 for Scotland (which is the lowest for the UK countries).

Figure 12: Projected population change by UK countries and Ireland, 2011* to 2036

*Figures in the period 2011 to 2014 relate to mid-year estimates.

Download Chart (XLF Format 3,488KB)

8   Variant Projections

Projections are uncertain and become increasingly so the further they are carried forward in time. In addition to the principal projection, variant projections are produced based on alternative, but generally plausible, assumptions of future fertility, mortality and net migration. These variant projections are intended to provide an indication of uncertainty and sensitivity to alternative assumptions. They do not represent upper or lower limits of future demographic behaviour.

Variant projections for the UK constituent countries are produced by ONS. Full details and figures can be found on the [ONS website](). However, the following is a brief summary of how variant assumptions affect the projections for the population of Northern Ireland.

For example, the low life expectancy variant assumes that there is no continued improvement in mortality rates. Although this assumption has a moderate effect on the total population – 8.6 per cent growth between mid-2014 and mid-2039 compared to 9.8 per cent in the principal projections – its impact on the older population is markedly different with the population aged 65 and over growing by 54.3 per cent rather than 74.4 per cent under the principal projection (see Figure 13).

Another example is the low migration assumption variant, which assumes a change in long-term net-migration (from +1000 to -4000) from mid-2020 to mid-2021 onwards. When this variant is applied, the projected population growth over the 25 year period from mid-2014 to mid-2039 falls from 9.8 per cent to 2.0 per cent (180,800 people to 37,600 people).

Figure 13: Northern Ireland Variant Projections
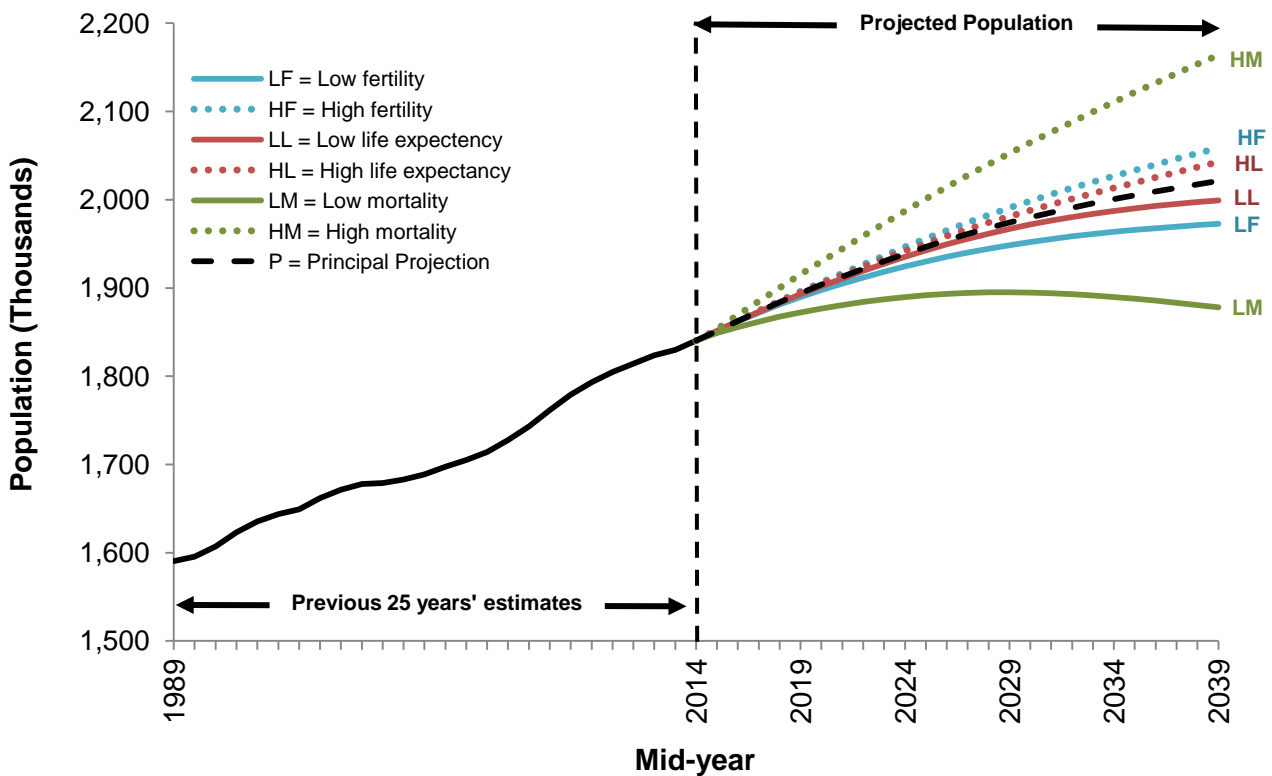
(XLS Format 3,525KB)

9 Methodology

Population projections are produced using the cohort component methodology, akin to the mid-year population estimates. Population projections use a base population, i.e. the most recently published mid-year estimates (currently the mid-2014 population estimates). Recent years' information on births, deaths and migration flows are used to create future assumptions on the number of children each woman will have (fertility), the chance of dying (mortality) and movement of people into and out of Northern Ireland (migration). Each year the population is "aged on" by one year and these assumptions on future fertility, mortality, and migration are applied to the resulting projection figures. More information on how the population projections are produced can be found in the accompanying Background and Methodology Paper.

9.1 Assumptions

As mentioned, population projections are by definition based on assumptions about future fertility, mortality and migration levels. It should be noted that there is a transition period for fertility, mortality and migration to gradually move from current levels to the long-term assumptions. In these population projections it is assumed that:

Fertility -   There is a 10 year period where the current fertility level will move gradually to the long-term assumption that applies from mid 2024 onwards, i.e. that the hypothetical woman will have 2.00 children in her life time.

Mortality -   People will continue to live longer, with mortality rates continuing to fall and thus leading to a higher life expectancy. In the long term, improvements in mortality rates are projected to be 1.2 per cent per annum.

Migration -   Over the first seven years, net international migration flows will change from a net inflow of 3,000 more people entering Northern Ireland than are leaving between mid-2014 and mid-2015, to the long-term assumption of a net inflow of 1,000 people (13,000 in and 12,000 out) from mid-2020 to mid-2021 onwards. Total international migration was broken down by single year of age and sex by applying the average age/sex distribution of migration in the last five years. Migration estimates between the UK countries are set as age-sex-specific rates and the gross flows will vary by year depending on the underlying population data.

10   Data Quality

10.1   Base Population – Population Estimates for Northern Ireland (2014)

Mid-year population estimates are created using a variety of administrative data sources. A brief outline of these sources, and how quality is assured for each one, is detailed in the latest population estimates statistical bulletin. A more in-depth description of these processes is available in the associated population and migration Quality Report.

The estimates of the population aged 85 and over provide a further age breakdown of those aged 90 and over, by single year of age up to 104 years, and for those aged 105 and over. A brief outline of the data used to create these figures, and how quality is assured for each one, is detailed in the latest 85 and over statistical bulletin. A more in-depth description of these processes is available in the associated population and migration Quality Report.

10.2   Assumptions – Births and Deaths

Information supplied at birth / death registration is generally believed to be correct since wilfully supplying false information may render the informant liable to prosecution for perjury. Birth and death figures by sex (and also by single year of age for deaths) are obtained from registrations with the General Register Office (GRO). All such events which occurred in the year between 1 July and 30 June are included in the mid-year population estimates.

During registrations, information provided is first checked by the informant before being finalised on the GRO's electronic system. Appropriate validation checks are embedded within

the system to help the Registrar with this process. Statistics are extracted directly from the system and are subjected to further checks by the Vital Statistics team in NISRA's Demography & Methodology Branch, and again by the Population and Migration team when the relevant data are supplied to them.

Quality Assessment Reports are available online and contain further details on the quality of birth and death statistics.

10.3 Assumptions – Migration

Migration is the most difficult component of population change to measure, as unlike births and deaths, there is no complete system for registering migration. Migration is estimated using transfers observed in medical cards, detailing the list of patients registered with a family doctor:

- inflows (people who come to live in Northern Ireland for a period of at least one year) are estimated by counting the number of people who registered or re-registered with a family doctor

- outflows (people who leave Northern Ireland for a period of at least one year) are estimated by counting the number of people who de-registered with a family doctor .

Medical card data[13] are collated by the Business Service Organisation (BSO) and validation checks are undertaken by the statisticians within that organisation. When the data are then sent to NISRA further checks are carried out, including data cleansing and comparisons with previous years' data. When the medical card data are then processed to calculate migration estimates, figures for migration to / from Great Britain are agreed between the different UK administrations to provide as much accuracy and comparison between UK administrations as is possible for users.

10.4 Assumptions – Final Figures

The projection assumptions are based on the best and most recent births, deaths, and migration data available. Data for Northern Ireland, Scotland, and Wales are sent to the Office for National Statistics (ONS) by the country's corresponding statistics agency: Northern Ireland Statistics and Research Agency (NISRA), National Records of Scotland (NRS), and Welsh Government (WG). ONS liaises with NISRA, NRS, and WG in order to produce provisional assumptions. An expert academic advisory panel is involved in analysing the assumptions in order to advise ONS on current and emerging demographic trends and their possible implications for the national population projections. The expert panel provides advice only. The responsibility for final decisions on the assumptions remains with ONS, NISRA, NRS, and WG.

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[13] In previous reports, medical card data was referred as "health card" data.

Each statistical organisation also issues a consultation paper to key stakeholders detailing the provisional agreed assumptions. Any issues brought up at this point are addressed where possible, before the final assumptions are agreed by the four UK countries. The consultation paper issued, as well as papers containing more in-depth information on the final agreed assumptions on future fertility, mortality, and migration, is available on the ONS website.

10.5   Comparison of Population Projections

Population projections for the UK and the four constituent UK countries are calculated by ONS, and figures for each UK country are sent to their respective statistical organisations for quality assurance. This process includes such exercises as analysing the future fertility, mortality and migration figures (and associated assumptions) to make sure they are plausible, and calculating and analysing sex ratios.

The latest population projections are also compared with the previous projections (in this case 2012-based) in order to analyse the differences between them and any impacts these may have on the figures[14].

For information, the 2012 estimates were the first population estimates to incorporate a revision of the methodology used to create them, after consideration was taken of the 2011 Census results. This led to a revision of population and migration estimates for the period 2001 to 2011. Subsequently, when producing the population projections based on the mid-2012 population estimates, fertility and mortality rates of recent years were also revised, which in turn were considered to set the long-term assumptions for these population projections.

The 2012-based population projection for mid-2014 was 1,400 people (0.1 per cent) above the mid-2014 population estimate. Therefore, when projecting forward from mid-2014, both 2012 and 2014 based projections started from roughly the same figure. The difference between the projections then gradually increases over the next 25 years, until the 2014-based projection for mid-2039 is 9,900 people more (0.5 per cent) than the equivalent figure from the 2012-based projections (see Figure 14).

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[14] Further comparisons with historical projections can be found in the ONS National Population Projections Accuracy Report

Figure 14: Estimated and Projected Population (mid-2012 and mid-2014 based), mid-1989 to mid-2039
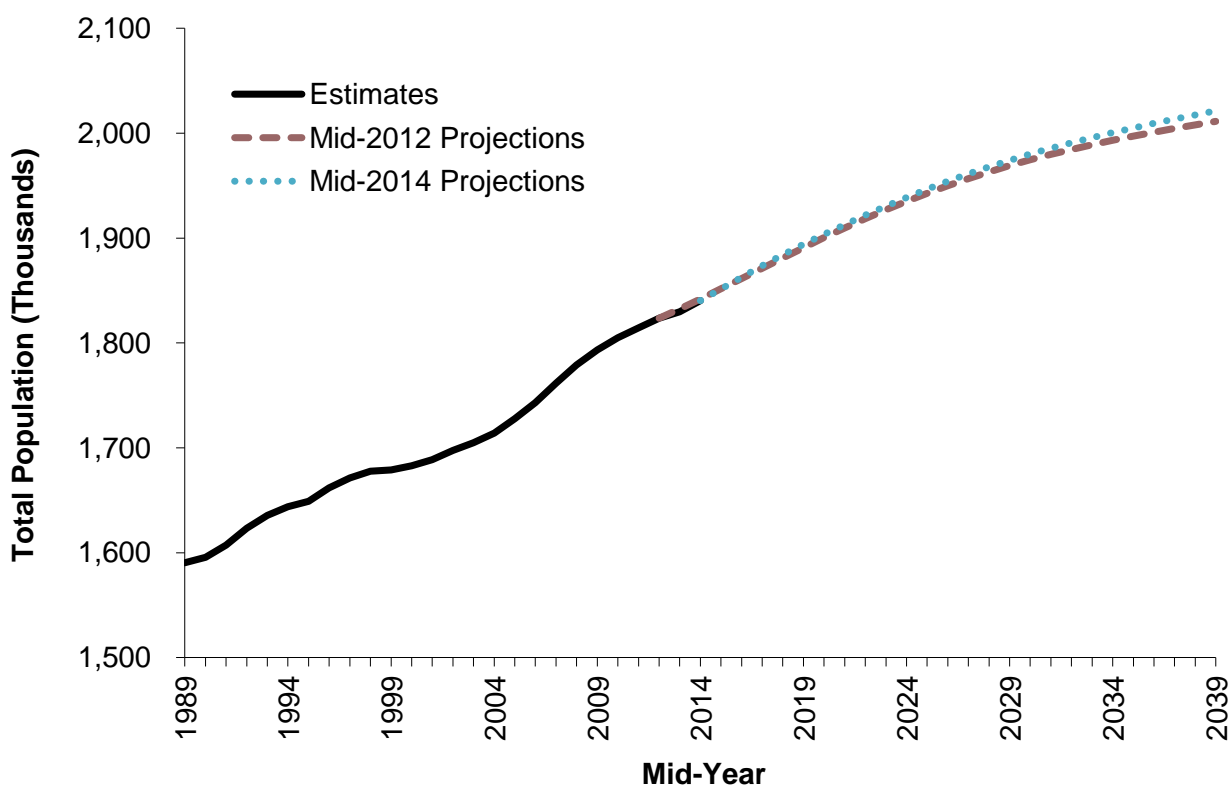
(XLS Format 3,499KB)

As fertility and mortality assumptions have not changed between the two projection sets, this difference can be attributed to the change in migration assumptions between the two projection sets[15].

Between mid-2012 and mid-2014, there was an estimated shift from an overall outflow of people leaving Northern Ireland to a net inflow of people entering Northern Ireland. Since this shift occurred after the production of the 2012-based projections, the 2012-based migration projections do not reflect this trend. However, the 2014-based migration projections accounted for this shift.

Consequently, when comparing the 2012-based and the 2014-based projections, there is a resultant movement from an overall net outward migration of 1,400 people between mid-2014 and mid-2039 within the 2012 based projections, to an overall net inward migration of 11,600 people during the same period within the 2014-based projections.

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[15] More information can be found in the assumptions section of this bulletin, and in the assumptions consultation paper available on the ONS website.

10.6 National Statistics

National Statistics are produced to high professional standards which are set out in the Code of Practice for Official Statistics. They undergo regular quality assurance reviews to ensure they meet customer needs and are produced free from any political interference.

The Population Estimates and Projections, and related information published by NISRA, have recently undergone a reassessment of compliance by the UK Statistics Authority. The result of this assessment confirmed that the relevant statistics for Northern Ireland continue to warrant designation as National Statistics, subject to NISRA implementing certain requirements within a specific timeframe. The full report and associated NISRA action plan for meeting the stated requirements can be accessed on the NISRA website.

As such, in line with the Statistics and Registration Service Act 2007, and signifying compliance with the Code of Practice for Official Statistics in 2011, the United Kingdom Statistics Authority appointed these statistics as National Statistics – and by association, this publication as a National Statistics publication.

Designation can be broadly interpreted to mean that the statistics:

- meet identified user needs;
- are well explained and readily accessible;
- are produced according to sound methods; and
- are managed impartially and objectively in the public interest.

Once statistics have been designated as National Statistics it is a statutory requirement that the Code of Practice shall continue to be observed.

11   Limitations

Population projections are based on assumptions derived from recent observed trends in fertility, mortality and migration. Therefore, these projections are <u>not</u> forecasts and <u>do not</u> attempt to predict the impact that future government policies, changing economic circumstances or other factors might have on demographic behaviour. While future policy changes are not taken into account, projections do reflect the impact of past policy and economic changes.

The future population of an area is often strongly influenced by the initial base population. The reliability of projections decreases over time due to the cumulative process of population change, as well as the inherent uncertainty of demographic behaviour.

As projections are trends based, they are less reliable in periods of rapid change, such as the European Union expansion in 2004 which resulted in a large net inflow of people into Northern Ireland, which was not observed in the trends for previous projections.

Figures for the number of children are more difficult to project than for the number of adults, due to assuming fertility levels and parental migration. In contrast, the number of older adults are relatively more straightforward to project as they are not affected by fertility assumptions, and are less likely to be affected by migration assumptions (the numbers of inflows and outflows decrease with age).

The International Passenger Survey (IPS) is used by England, Wales and Scotland to estimate international migration. NISRA is unable to use this source due to issues relating to the use of the IPS in Northern Ireland. The main issues are i) that the IPS does not cover the land border between Northern Ireland and the Republic of Ireland, and ii) there is uncertainty introduced when "Ireland" is given in response to survey questions – some people stating "Ireland" as their origin or destination may be referring to Northern Ireland. This means there is a methodological inconsistency for the international migration statistics of Northern Ireland and the rest of the UK. Northern Ireland migration statistics have been previously assessed by the UK Statistics Authority, who found them to be fit for purpose[16] .

NISRA
October 2015

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[16] UKSA Assessment Report - Statistics on Demography and Vital Events in Northern Ireland (2011)

12   Background Notes

1. The Office for National Statistics (ONS) calculates national population projections for the UK and UK countries at the request of the Registrars General for England and Wales, Scotland, and Northern Ireland. National population projections are calculated in collaboration and agreement with statistical organisations for Northern Ireland (Northern Ireland Statistics and Research Agency [NISRA]), and National Records of Scotland [NRS]).

2. Northern Ireland population projections provide an estimate of the future size and age structure of the population of Northern Ireland which is used as a common framework for national planning in a number of different fields.

3. Projections are the result of applying long-term assumptions based on recent trends in fertility, mortality and migration to the base population. These projections use the mid-2014 population estimates as the base population. See the Background and Methodology Paper for further Information.

4. These projections are not forecasts and do not attempt to predict the impact that future government policies, changing economic circumstances or other factors might have on demographic behaviour. If different assumptions are used different results would result: a series of alternative population projections (variants) are also produced by the ONS and are available on the ONS website.

5. The calculation of population projections for all UK countries at the same time ensures that the many users of population projections can work on consistent assumptions.

6. Statistics for Northern Ireland population projections are available on the NISRA Website. An infographic highlighting the important figures and trends in the data has also been released, as well as an interactive population pyramid.

7. Full results of the 2014-based national population projections for the United Kingdom and all UK countries, including variant projections, are available on the ONS website. Population projections and additional analyses specific to Scotland can be found on the NRS website.

8. 2016-based national population projections are expected to be published around Oct/Nov 2017.

9. The revisions policy for Northern Ireland migration statistics is available here.

10. We welcome feedback from users on the content, format and relevance of this release. Please complete a short survey or send feedback directly to census.nisra@dfpni.gov.uk.

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