NISRA STATISTICAL BULLETIN

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Theme: Population
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2020-based Interim Population Projections for Northern Ireland

This statistical report provides population projections for Northern Ireland between mid-2020 and mid-2045, by age and sex.

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Contents

Note:

1. All population projections are subject to uncertainty. These projections are based on the most recent mid-year population estimates covering the period up to 30 June 2020. Therefore, they only include some of the impacts on the UK population from the early part of the Covid-19 (Coronavirus) pandemic.

2. Assumptions of future fertility, mortality and migration are based on observed long-term demographic trends. It is not yet clear how changes in demographic behaviour since the start of the Covid-19 (Coronavirus) pandemic will translate into long-term demographic trends.

3. 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

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. Principal Projections are produced based on long-term assumptions about future fertility, mortality and migration levels.

2 Things you need to know about this release

The use of the term "interim" in the publication title is to reflect the interval between the 2020-based principal projection and subsequent projections which will incorporate data from the 2021 Census. It also recognises this as a period of uncertainty in the mid-2020 base year and in setting long-term demographic assumptions following the onset of the coronavirus (COVID-19) pandemic.

For the reasons set out above, we have not developed variant projections. Our principal projection is based on assumptions considered to best reflect recent patterns of fertility, life expectancy and migration. The principal projection has been completed to meet core user needs.

3 What are population projections used for?

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 property 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.

4 Key information on population projections

4.1 Overview

It is important to note that population 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. Due to the inherent uncertainty of demographic behaviour, any set of projections will inevitably differ from actual future outcomes to a greater or lesser extent.

4.2 Accuracy of projections

The national population projections use the latest official population estimates as their base year and are inevitably dependent on the accuracy of these estimates. Northern Ireland population estimates are produced using the internationally recognised cohort component method – starting with the

population data from the last decennial census and updating each year with the available data on births, deaths and migration.

When considering these projections it should be noted that their degree of reliability is closely associated with their proximity to the base year (mid-2020). It is acknowledged that projections become increasingly uncertain the further they are carried forward and it is noted that long-term assumptions should be treated with caution.

For this reason, we have limited our analysis to a **25 year projection period**. We would encourage users to read the National Population Projections Accuracy Report to fully understand the limitations of long-term projections.

4.3 Consequences of projections

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.

4.4 Setting the principal projection assumptions

An executive summary outlining how the assumptions are set has been published, we would encourage users to review this document for a detailed account of how decisions were made when setting the fertility, mortality and migration assumptions for the 2020-based population projections.

Each component of the population projections (fertility, mortality and migration) are considered separately when setting the assumptions for each set of projections. The assumptions are based largely on extrapolation of past trends. Inevitably there is some element of subjective judgement, however, choices of main assumptions are informed by the views of an Expert Advisory Panel. Individual papers outlining the rational for the fertility, mortality and migration assumptions can be found on the ONS website.

The assumptions summarised below relate to those applied to the **principal projection**.

Population projections are by definition based on long-term assumptions about future fertility, mortality and migration levels, in summary the main assumptions are:

- Fertility[1] – In the long-term, the hypothetical woman will have 1.74 children in her lifetime.

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[1] Projected fertility rates are based on trends in birth registration data. The latest birth registration data show that there may have been a pandemic-related impact on the timing of birth registration data for Northern Ireland. As there was insufficient time to include this data in the assumption setting process, there is additional uncertainty in the fertility assumptions. A more robust set of 2021-based National Population Projections will be published after the release of Census 2021 results.

- <u>Mortality</u> – In the long-term, improvements in mortality rates are projected to be around 1.2 per cent per annum.
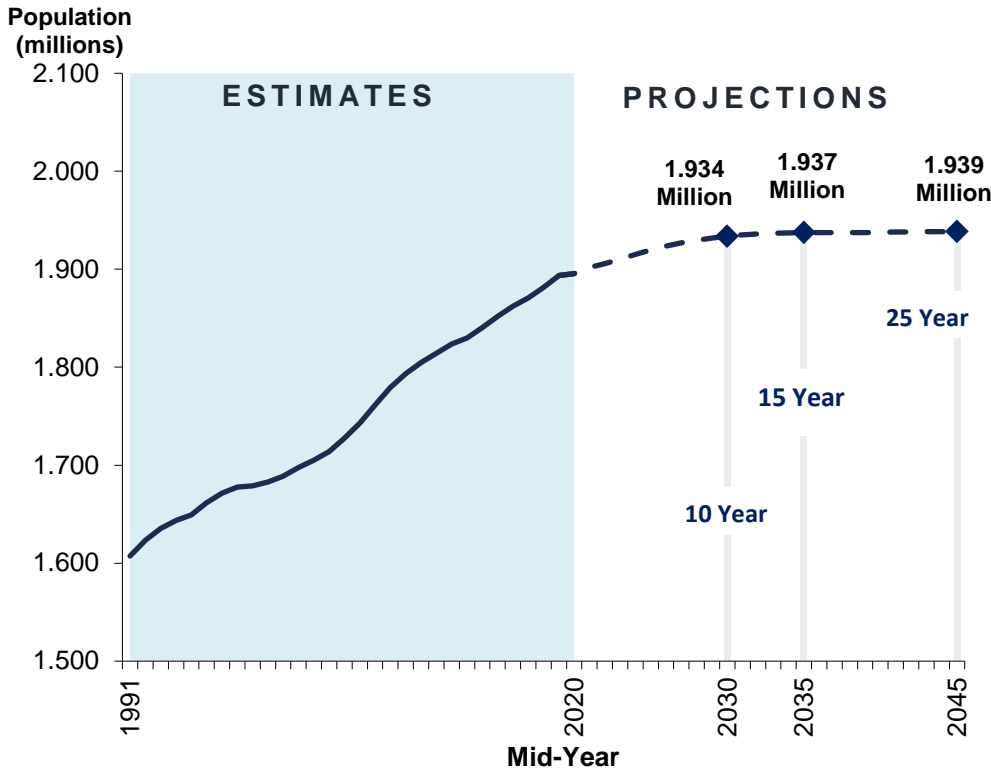
- <u>Migration</u>[2] – In the long-term, beginning mid-2027, net international migration will be observed at +2,000 inflows.

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.

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[2] These assumptions are based on recent trends in migration and do not attempt to predict the impact of the UK leaving the EU or any impact of the Covid-19 pandemic on future migration flows.

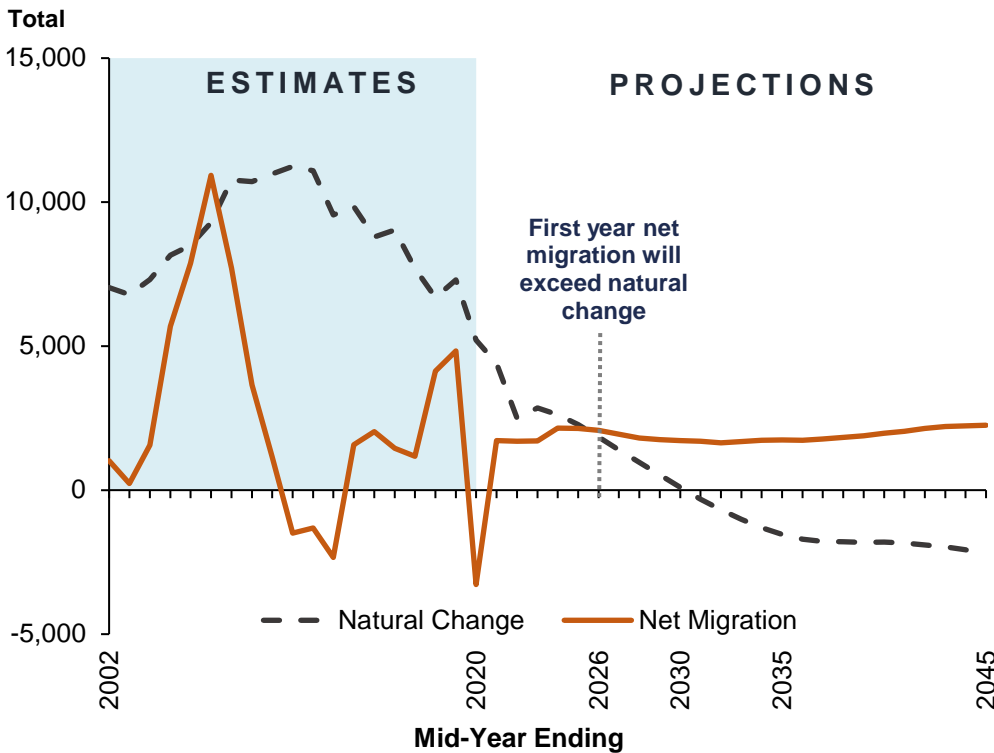## 5   The population of Northern Ireland is projected to increase

Figure 1: Population of Northern Ireland, estimated and projected, mid-1991 to mid-2045 (non-zero y-axis)

The population of Northern Ireland is projected to reach 1.939 million by mid-2045

In mid-2020, the population in Northern Ireland was estimated to be 1.896 million people. Over the next 15 years, from mid-2020 to mid-2035, the population of Northern Ireland is projected to increase by 41,900 people to 1.937 million. In the longer term (mid-2045), the population of Northern Ireland is projected to increase by 43,000 people, reaching 1.939 million.

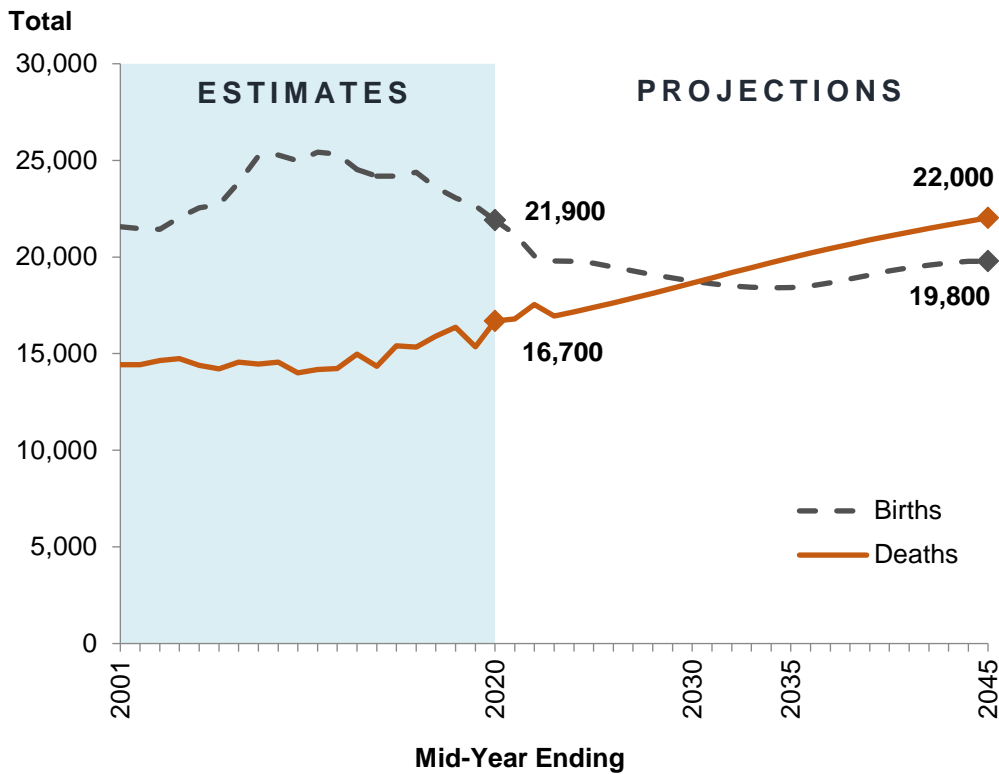Figure 2: Natural change and net migration, year ending mid-2002 to year ending mid-2045

Net migration projected to exceed natural change by mid-2026

Historically, natural change (births minus deaths) has been the main driver of population growth in Northern Ireland. However, by mid-2026, net migration is projected to overtake natural change. Natural change is projected to decrease over the next 25 years and in the long term is projected to become negative (meaning more deaths than births). Natural change is projected to contribute to a loss of 200 people per year, on average. Alternatively, net migration is projected to remain positive over the next 25 years and add an average of 1,900 people per annum.

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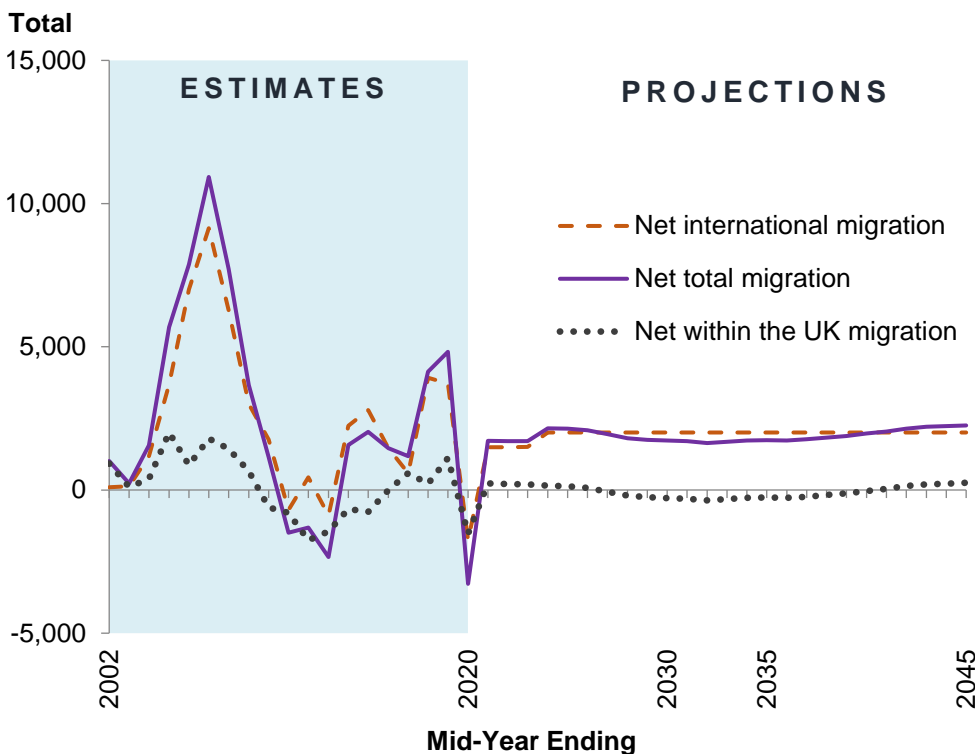## 6   Why is natural change projected to decrease?

Figure 3: Estimated and projected births and deaths, year ending mid-2001 to year ending mid-2045

Natural change in Northern Ireland is projected to decrease due to a rise in deaths and a fall in births by mid-2045.

Between mid-2020 and mid-2045, the number of births in Northern Ireland is projected to decrease by 9.6 per cent (2,100 births) to 19,800. Throughout the projection period, the number of births is projected to decrease to a low of 18,400 in mid-2034 (a decrease of 15.9 per cent from mid-2020). In contrast, between mid-2020 and mid-2045, the number of deaths is projected to increase by 32.0 per cent during the same period, from 16,700 to 22,000.

Figure 4: Estimated and Projected migration, year ending mid-2002 to year ending mid-2045

Net migration is projected to remain positive between mid-2020 and mid-2045.

Past trends in migration point to Northern Ireland experiencing a net inflow of 2,000 international migrants each year, in the long term. However, within UK migration is projected to vary over the next 25 years, resulting in a net outflow to the rest of the UK (1,300 people from mid-2020 to mid-2045). Despite the net UK outflow, Northern Ireland is projected to experience a positive net migration due to higher levels of international migrants arriving. In total, net migration is projected to average 1,900 people per annum over the next 25 years.

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7   How is the age structure of Northern Ireland projected to change?

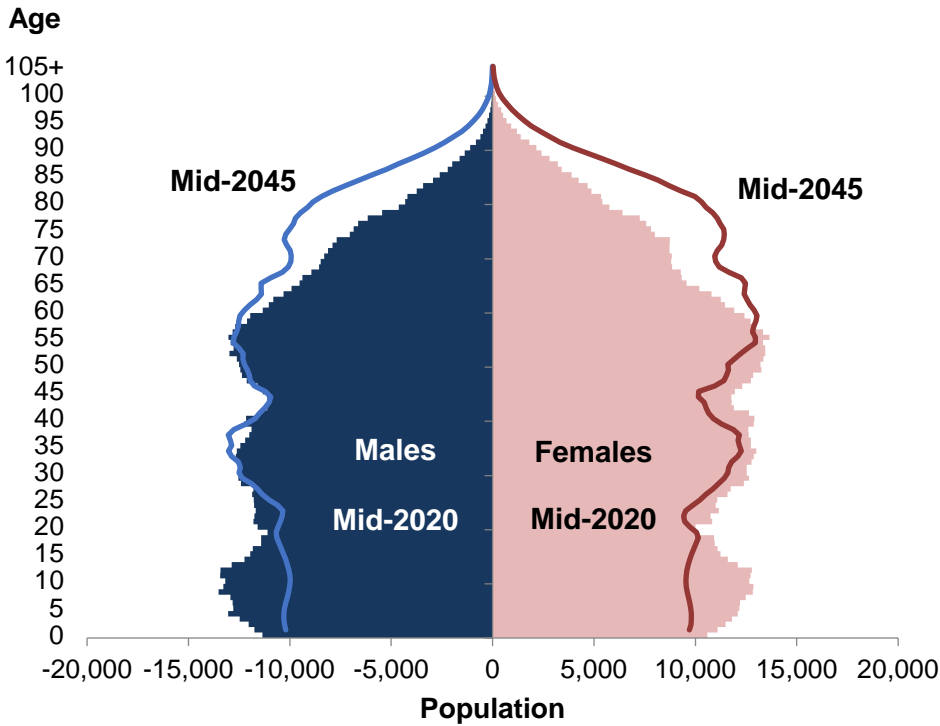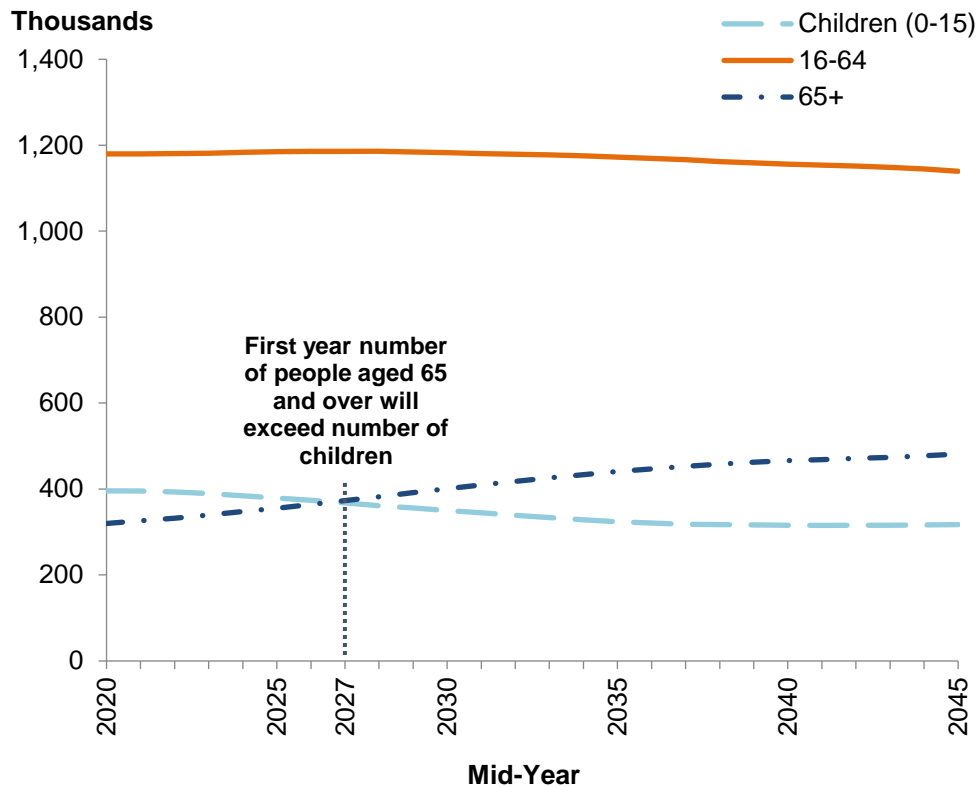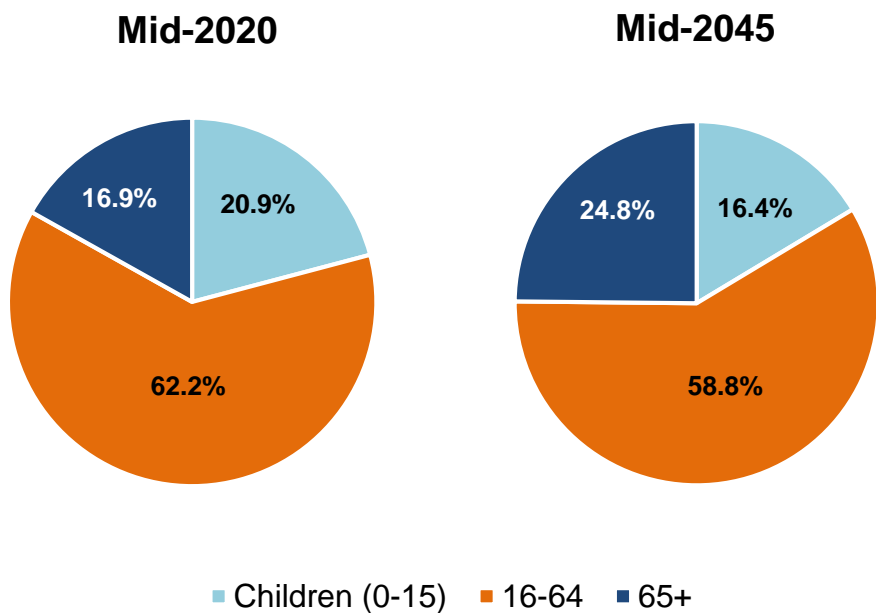Figure 5: Estimated and projected population by age and sex, mid-2020 and mid-2045

The ageing of the population is projected to continue.

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 5, a population pyramid, is an illustrative way of showing that the age profile of both males and females is projected to get older. By mid-2045, it is evident that the population around the older ages (65 and over) is projected to increase significantly.

Figure 6: Projected population by age, mid-2020 to mid-2045

By mid-2027, the number of people aged 65 and over is projected to overtake the number of children.

The number of children (aged 0-15) is projected to decrease by 19.8 per cent (78,200 people) from 395,800 in mid-2020 to 317,600 in mid-2045. Similarly, it is projected that number of people aged 16-64 will decrease from 1,179,700 to 1,139,400 people (3.4 per cent) by mid-2045. In contrast, the number of people aged 65 and over is projected to increase from 319,900 to 481,500, (50.5 per cent) over the next 25 years. As a result of this increase, by mid-2027, the number of people aged 65 and over will outnumber children in Northern Ireland.
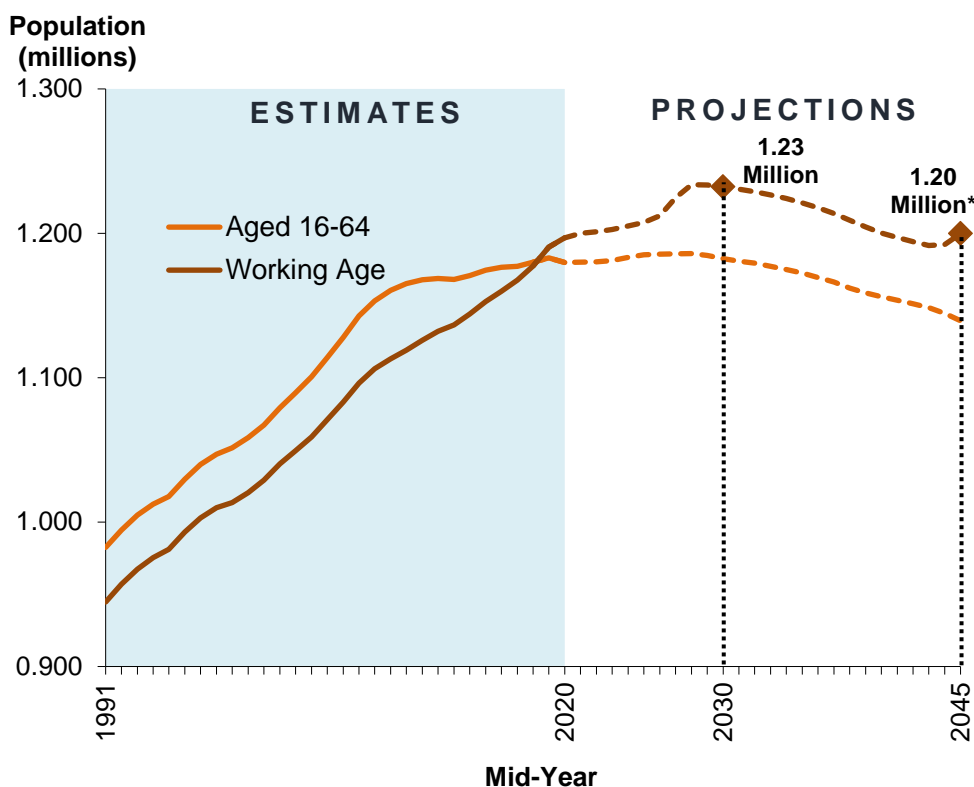
Figure 7: Estimated and projected proportion of population by age, mid-2020 and mid-2045

Mid-2020

16.9%
20.9%
62.2%

Mid-2045

24.8%
16.4%
58.8%

■ Children (0-15) ■ 16-64 ■ 65+

Figure 8: Estimated and projected population aged 16 to 64 and working age, mid-1991 to mid-2045 (non-zero y-axis)

Population (millions)

ESTIMATES

PROJECTIONS

1.23 Million

1.20 Million*

Aged 16-64
Working Age

Mid-Year

*The SPA for both men and women will increase to reach 66 by October 2020 (Pensions Act 2011). Between 2026 and 2027 SPA will increase to 67 years for both sexes (Pensions Act 2014). SPA will increase to 68 years for both men and women between 2044 and 2046 (Pensions Act 2007).

By mid-2045, almost 1 in 4 people in Northern Ireland are projected to be aged 65 and over.

The proportion of children is projected to decrease from 20.9 per cent in mid-2020 to 16.4 per cent in mid-2045. Similarly, the proportion of people aged 16 to 64 is projected to decrease between 2020 and 2045, from 62.2 per cent to 58.8 per cent. Conversely, the proportion of people aged 65 and over is projected to increase from 16.9 per cent to 24.8 per cent over the next 25 years.
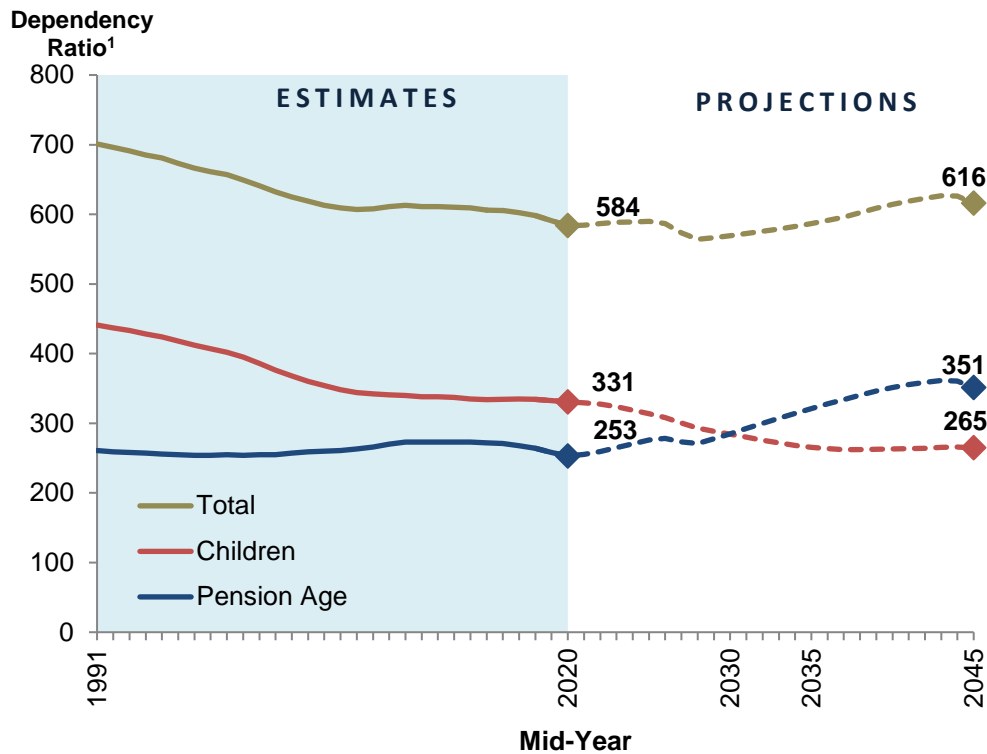
The 'working age' population is projected to increase by 0.2 per cent between mid-2020 and mid-2045.

It is planned that the state pension age will increase to 67 by 2028 and to 68 by 2046 for both men and women. Taking this into account, the number of people of working age in Northern Ireland is projected to rise by 3.1 per cent from 1,196,900 in mid-2020 to a peak of 1,233,700 people in mid-2028. Between mid-2028 and mid-2045, the working age population is then projected to decrease by 2.7 per cent to 1,199,800.

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Figure 9: Estimated and projected dependency ratios for children and pension age, mid-1991 to mid-2045

[1]Dependency ratio gives insight into the number of people of non-working age compared to the number of those of working age (expressed per 1,000). A simple interpretation is the number of children and older people who are 'dependent' on the working age population.

Total dependency ratio is projected to rise to 616 per 1,000 people of working age in mid-2045.
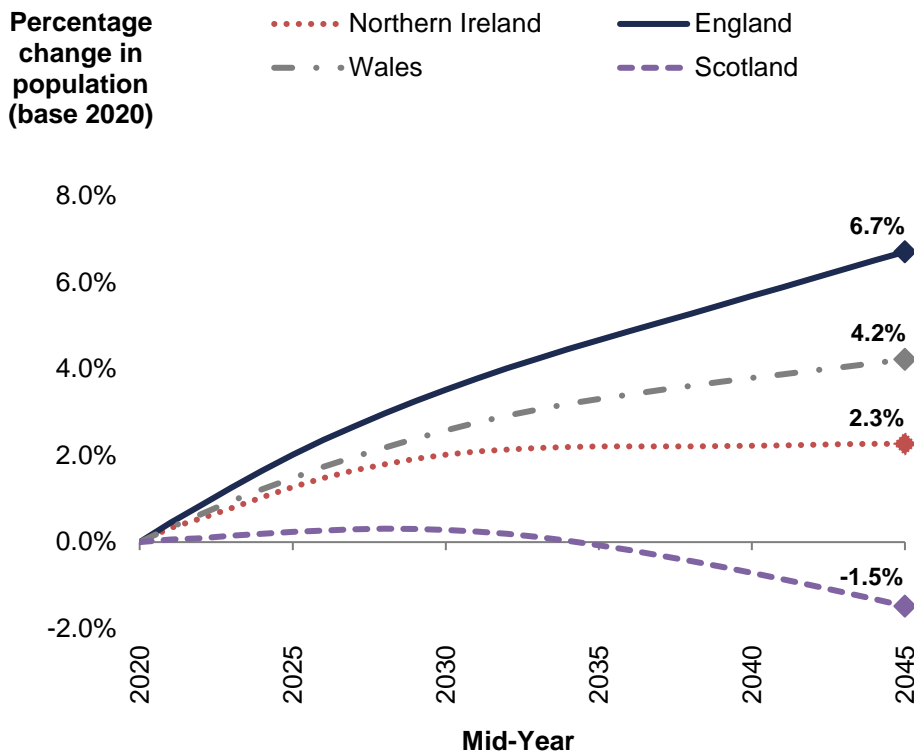
A high dependency ratio means those of working age face a greater burden in supporting a greater number of people of non-working age. Northern Ireland's total dependency ratio is projected to increase over the next 25 years from 584 to 616 per 1,000. This increase is the result of a significant rise in the dependency ratio for people of pensionable age, from 253 to 351 per 1,000 between mid-2020 and mid-2045.

Table 1: Expectation of life at birth (EOLB) and median age, 2020 to 2045 (selected years)

Year	EOLB Males	EOLB Females	Median Age Males	Median Age Females
2020	78.7	82.4	38.0	40.4
2025	79.4	83.0	39.3	41.8
2030	79.9	83.4	40.6	43.4
2035	80.5	83.9	41.9	44.9
2045	81.6	84.9	43.4	46.7

EOLB and median age are projected to increase over the next 25 years.

Life expectancy for females is projected to increase from 82.4 years in 2020 to 84.9 years in 2045. Males are projected to experience a more significant increase in life expectancy, from 78.7 years in 2020 to 81.6 years in 2045. The median age for females is projected to rise from 40.4 in 2020 to 46.7 in 2045. Similarly, an increase is projected for the median age for males from 38.0 in 2020 to 43.4 in 2045.
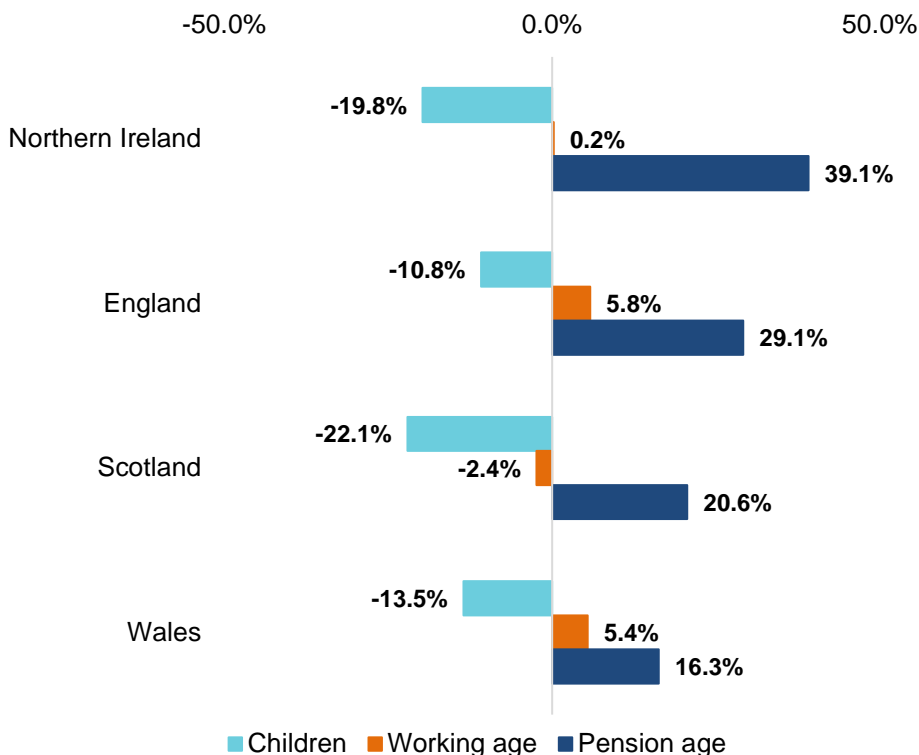
Figure 10: Percentage population change for UK countries, mid-2020 to mid-2045

The UK population is projected to increase from an estimated 67.1 million in mid-2020 to 71.0 million by mid-2045 (an increase of 3.9 million (5.8 per cent)).

The population of Northern Ireland is projected to have the third largest increase over the period by 2.3 per cent (43,000 people). England is projected to increase by 6.7 per cent (3.8 million people) by mid-2045. Followed by Wales, whose population is projected to increase by 4.2 per cent (133,800 people). Conversely, Scotland is projected to experience population decline by mid-2045, 1.5 per cent (80,900 people).

Northern Ireland is projected to have the largest increase in the pension age population across the UK.

Ageing of the population is projected across all four nations of the UK. Alongside ageing, each UK country is projected to see a decline in the population of children. Northern Ireland is projected to have the largest increase in the pension age population (39.1 per cent) and second largest decrease in the population of children (19.8 per cent) over the next 25 years.

Figure 11: Percentage population change by age group across the UK, mid-2020 to mid-2045

10 Background information

10.1 Methodology

Estimates of the usually resident population of the UK and its constituent countries at mid-2020 are used as the starting (base) population for projections. The usually resident population is defined by the standard United Nations definition for population estimates, and includes people who reside in an area for a period of at least 12 months. Members of the armed forces throughout the UK are included within the usual resident definition. Northern Ireland population projections are based on the mid-2020 estimates.

Projections are produced for successive years, starting with the base year, and running from one mid-year to the next using the cohort component method. In short, the cohort component method involves ageing the population on by one year, with births added and deaths removed. An adjustment is then made to the population to account for net migration. A detailed overview of the method of projection is outlined within the background and methodology report.

10.2 Data Quality

Population projections for the UK and the four constituent UK countries are produced 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 that they are plausible, and calculating and analysing sex ratios.

The following sections take each element of the projections in turn and provide information relating to the quality of the underlying data.

10.3 Base Population – Population Estimates for Northern Ireland (2020)

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 population estimates and projections data quality document. Population estimates have been designated as National Statistics which means that our statistics meet the highest standards of trustworthiness, quality and public value. The last full assessment of population estimates for Northern Ireland by the Statistics Authority was in July 2015, with the continued designation of these statistics as National Statistics confirmed in August 2016.

10.4 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 and Methodology Branch, and again by the Population and Migration team when the relevant data are supplied to them.

Projected fertility rates are based on trends in birth registration data. The latest birth registration data show that there may have been a pandemic-related impact on the timing of birth registration data for Northern Ireland. As there was insufficient time to include this data in the assumption setting process, there is additional uncertainty in the fertility assumptions. A more robust set of 2021-based National Population Projections will be published after the release of Census 2021 results.

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

10.5 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[3] are collated by the Business Services 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 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.

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

10.6 Limitations

Population projections are based on assumptions derived from recent observed trends in fertility, mortality and migration. Therefore, 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 (e.g. the UK leaving the EU). 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 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.

Figures for the number of children are more difficult to project than for the number of adults, due to assumptions around 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) was used by England, Wales and Scotland to estimate international migration until March 2020, when it was suspended because of the impact of the coronavirus pandemic. 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[4] .

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[4] UKSA Assessment Report – Population Estimates and Projections for Northern Ireland

11 Links to related statistics

Population projections for Northern Ireland (2020-based) are available from the NISRA website.

Analysis within the statistical bulletin is limited to a **25 year projection period**. The associated data tables, which can be found on the NISRA website, provide population projections up to 2068 (50 years). Users on request can be provided with projections 100 years into the future, however we would encourage users to read the National Population Projections Accuracy Report to fully understand the limitations of long-term projections.

An infographic highlighting the important figures and trends in the data has also been released.

Population projections for sub-national areas (2018-based) are available from the NISRA website. 2021-based sub-national population projections will be published following the release of Census 2021 results.

Population estimates for the UK and its constituent countries are available from the Office for National Statistics website.

Mid-year population estimates for Northern Ireland for mid-2020 were published in June 2021. The estimates refer to the size of the usually resident population at 30 June and include more detailed population estimates for Local Government Districts, Parliamentary Constituencies and associated administrative and statistical geographies.

Estimates of the population aged 85 and over are were released in September following the mid-year population estimates in June.

Population estimates for small areas in Northern Ireland are released in November following the mid-year population estimates in June.

12 National Statistics

National Statistics status means that our statistics meet the highest standards of trustworthiness, quality and public value, and it is our responsibility to maintain compliance with these standards.

Population Projections for Northern Ireland last underwent a full assessment by the Statistics Authority against the Code of Practice in July 2015. The assessment report can be found here. Following the Statistics Authority assessment the continued designation of these statistics as National Statistics was confirmed in August 2016.

National Statistics status was confirmed subject to NISRA implementing six specific requirements. An action plan outlining how and when NISRA addressed each of these requirements can be found here.

An action plan checklist with supporting documentation can also be found on the NISRA website.

In 2019, UK National Population Projections were subject to a compliance check by the UK Statistics Authority. As a result of this compliance check, it was confirmed that National Population Projections should continue to be designated as National Statistics.

Since the assessment by the UK Statistics Authority, we have continued to comply with the Code of Practice for Statistics, and have made the following improvements.

- Improved clarity and insight by reviewing the commentary to remove unnecessarily detailed narrative and bring forward the key messages. In addition, key point headlines have been included throughout the bulletin so users are alerted to main points of interest.

- We have designed a key point's summary infographic to disseminate key messages from the projections to improve clarity and insight for users.

- The associated data tables for population projections are disseminated in a more innovative way by including a flat file and tabular format which users can interact with.

- We have improved the accessibility of population projections by publishing data in 3* open data format on Open Data NI. We have also included a new 'Links to related statistics' section within the bulletin so users can explore the whole population statistics package, including older person estimates, population projections, small area population estimates and a range of other supplementary material.

- To add value to the bulletin we have included a 'Key information on population projections' section up front to provide users with an overview of the projections, details on their accuracy and information on how the projection assumptions have been set.

Enquiries and suggestions

1.   The revisions policy for Northern Ireland population and migration statistics is available [here](#).

2.   We welcome feedback from users on the content, format and relevance of this release. Users can send feedback directly to census@nisra.gov.uk.

3.   Follow NISRA on [Twitter](#) and [Facebook](#).

4.   All media inquiries should be directed to the DoF Communications Office:

        Telephone: 028 9081 6724

5.   Further statistical information can be obtained from NISRA Customer Services:

        Telephone: 028 9025 5156
        E-mail: census@nisra.gov.uk
        Responsible Statistician: Jonathan Harvey