Office for National Statistics

Statistical bulletin

National population projections: 2020-based interim

The potential future population size of the UK and its constituent countries. These statistics are widely used in planning, for example, fiscal projections, health, education and pensions.

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1 . Main points

- The population of the UK is projected to increase by 3.2% in the first 10 years of the projections, from an estimated 67.1 million in mid-2020 to 69.2 million in mid-2030.

- England's population is projected to grow more quickly than the other UK nations: 3.5% between mid-2020 and mid-2030, compared with 2.6% for Wales, 2.0% for Northern Ireland and 0.3% for Scotland.

- UK population growth over the next 10 years is projected to be driven by a net 2.2 million people migrating into the country.

- There will be an increasing number of older people; the number of people aged 85 years and over was estimated to be 1.7 million in 2020 (2.5% of the UK population) and this is projected to almost double to 3.1 million by 2045 (4.3% of the UK population).

- Over the next 10 years, there is projected to be a total of 59,000 more deaths than births; this reflects lower projected fertility rates for all countries and an increasing number of older people as those born in the baby boom generations after World War Two and in the 1960s reach older ages.

- The projected UK population growth is slower than in the 2018-based projections; the projected population is 0.6 million fewer in mid-2030 and 1.8 million fewer in mid-2045.

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.

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 pandemic will translate into long-term demographic trends.

Statistician's comment

"The UK population is projected to grow by 2.1 million over the ten years to mid-2030, with England's population expected to increase more quickly than the other UK nations.

"These projections suggest slower growth than we've previously said. This is because of lower assumptions both about future levels of fertility and mortality improvements.

"Given a higher number of deaths and fewer births are projected, net international migration is expected to play an increasing role in population growth."

James Robards, Population and Household Projections, Office for National Statistics.

2 . Interim projections

The use of the term "interim" in the release title is to reflect the interval between the 2020-based principal projection and subsequent projections, which will incorporate Census 2021 data. 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.

Principal projection

For these reasons, 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. We are planning for future releases to include variant projections.

3 . UK population

The UK population, which was estimated to be 67.1 million in mid-2020, is projected to rise by 2.1 million to 69.2 million over the decade to mid-2030 (3.2% increase). In comparison, between 2010 and 2020 the population is estimated to have grown by 4.3 million (6.9% increase).
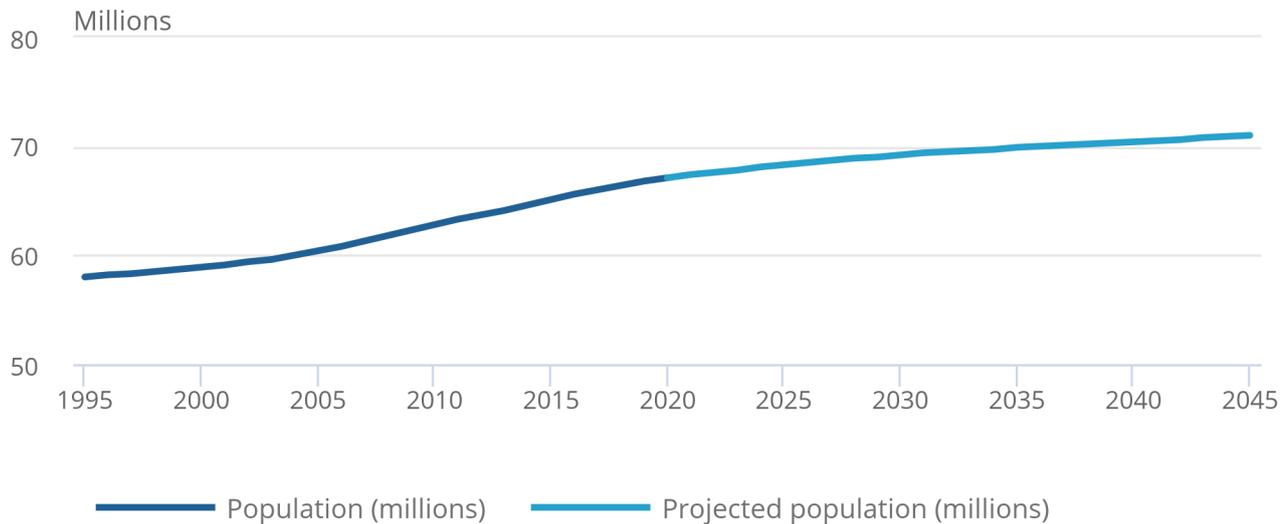
The total projected increase in the UK population over the next 25 years is less than that over the past 25 years (Figure 1). Between mid-1995 and mid-2020, the population grew by 9.1 million (15.6%); between mid-2020 and mid-2045, it is projected to grow by another 3.9 million (5.8%).

Figure 1: UK population projected to rise to 69.2 million by mid-2030 and to 71.0 million by mid-2045

UK population estimates, mid-1995 to mid-2020, and projections to mid-2045

Figure 1: UK population projected to rise to 69.2 million by mid-2030 and to 71.0 million by mid-2045

UK population estimates, mid-1995 to mid-2020, and projections to mid-2045

Source: Office for National Statistics – National population projections

Notes:

1. Some cells in this table are empty because data is not available for these time points.

Focusing on the 10 years between mid-2020 and mid-2030 (Table 1), the total projected growth for the UK population is 2.1 million, or 3.2%. Projected growth over the 10 years varies between the four countries of the UK: England's population is projected to grow by 3.5%, for Wales the figure is 2.6%, for Northern Ireland it is 2.0%, and Scotland has the lowest projected growth of 0.3%.

Table 1: Estimated and projected population of the UK and constituent countries, mid-2020 to mid-2045
Office for National Statistics - National population projections

	2020	2025	2030	2035	2040	2045
UK	67.1	68.3	69.2	69.9	70.4	71
England	56.6	57.7	58.5	59.2	59.8	60.3
Wales	3.2	3.2	3.3	3.3	3.3	3.3
Scotland	5.5	5.5	5.5	5.5	5.4	5.4
Northern Ireland	1.9	1.9	1.9	1.9	1.9	1.9

Notes

1. Figures may not sum because of rounding.

Over the 25-year period between mid-2020 and mid-2045, England is projected to have the largest increase in population, at 6.7%. The projected increase over the same period for Wales is 4.2% and for Northern Ireland it is 2.3%. Scotland is projected to see a decrease of 1.5% over this time.

4 . Births, deaths and migration

During the 10 years between mid-2020 and mid-2030, the population of the UK is projected to increase by 2.1 million. The projections suggest:

- 6.6 million people will be born

- 6.7 million people will die

- 5.6 million people will immigrate long-term to the UK

- 3.4 million people will emigrate long-term from the UK

By 2025 it is projected that there will be more deaths than births. Natural change is the difference between the number of live births and deaths. Over the 10 years between mid-2020 and mid-2030, natural change is projected to be negative 59,000. Over the same time period it is projected that net migration will lead to a total of 2.2 million people coming into the UK.

Over the 25-year period between mid-2020 and mid-2045 it is projected that there will be 1.4 million more deaths than births. During this period, the population will grow by 3.9 million, again driven by projected net migration of 5.3 million.
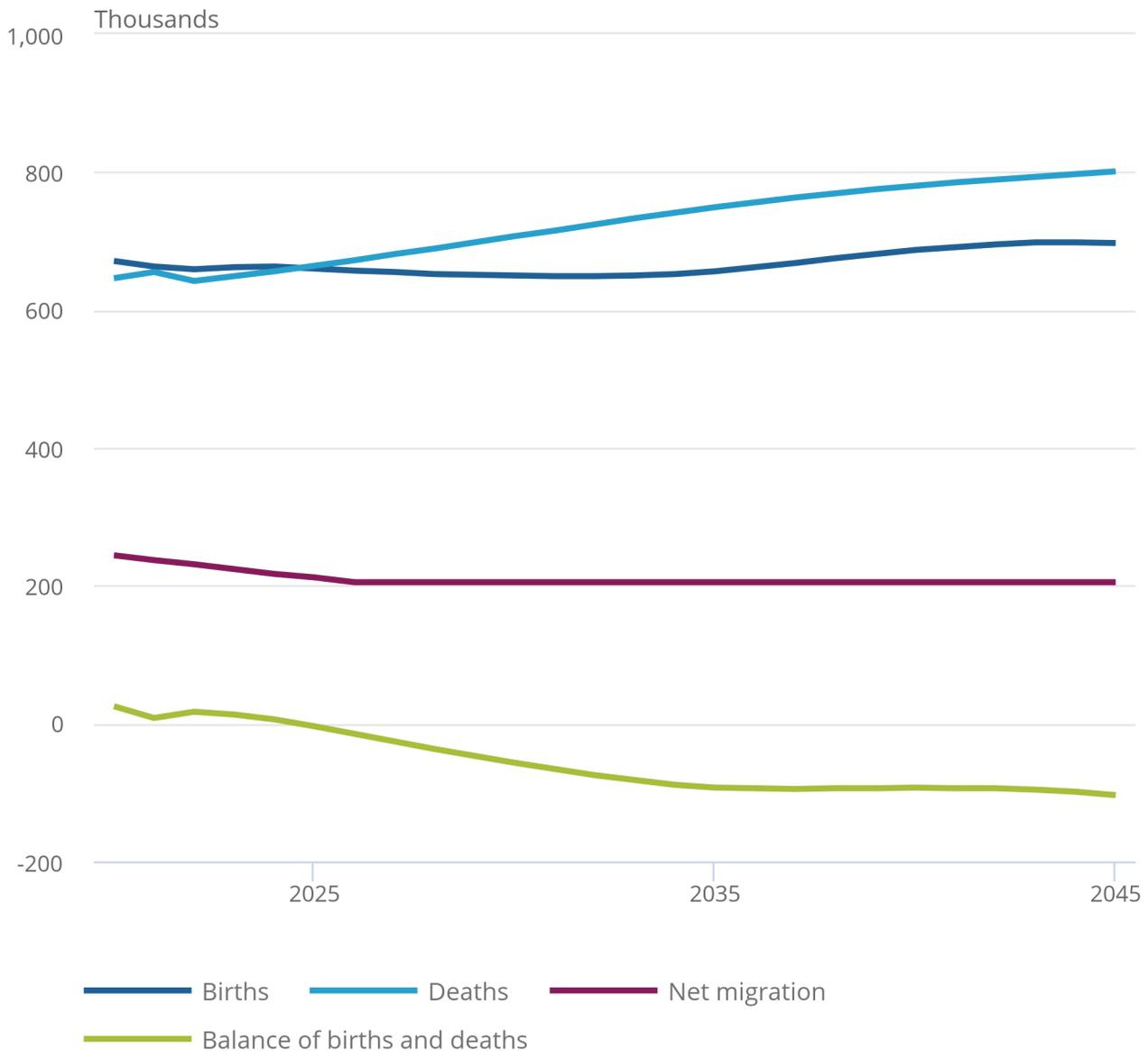
As Figure 2 shows, projected net international migration is projected to decline at first and then remain constant from the year ending mid-2026 (the start of the long-term assumption). In the first year of the projections there is an increase in the number of deaths, reflecting mortality arising from the coronavirus (COVID-19) pandemic in the year to mid-2021. The number of deaths is then projected to decrease slightly and be followed by a steady increase in the number of deaths, as people born in the baby boom generations after World War Two and in the 1960s reach older ages.

Figure 2: Over time, births and deaths are projected to reach similar levels so net international migration causes most growth

Projected births, deaths and net migration, UK, years ending mid-2020 to mid-2045

Source: Office for National Statistics – National population projections

Section 6 provides details of our long-term assumptions for fertility, mortality and migration and how these assumptions have changed since the 2018-based projections.

5 . Changing age structure

The population pyramid in figure 3 shows the age structure of the population in mid-2020 with the projected age structure in mid-2030.

In mid-2020, there were more females than males at older ages, reflecting their higher life expectancy. The spike at age 73 years reflects the baby boom after World War Two, and the second peak around age 55 years reflects the baby boom of the 1960s. The decreases in the teenage years are because of lower birth rates around the turn of the millennium.

By mid-2030, all these features are still present, with the peaks and troughs now located 10 years higher up the age scale. The changes to the numbers at each age are constantly evolving as a result of births, deaths, migration and ageing.

Figure 3: There is a growing number of older people in the UK

Age structure of the UK population, mid-2020 and mid-2030

Download the data

More people at older ages

In mid-2020 there were 1.7 million people aged 85 years and over, making up 2.5% of the UK population. By mid-2045, this is projected to have nearly doubled to 3.1 million, representing 4.3% of the total UK population. There are projected to be many more people at older ages by 2045, in part because of the baby boomers from the 1960s now being aged around 80 years as well as general increases in life expectancy.

Fewer young children and more adolescents

There are projected to be fewer young children in mid-2045. This is influenced by our assumed fertility rates in the 2020s and 2030s being lower than those around 2001 when UK fertility was at a record low.

Figure 4 shows the changing age structure by life stage: children, working age and pensionable age. By mid-2030, the number of children (those aged from 0 to 15 years) is projected to decrease by 1.1 million (8.8%). Conversely, the number of people of pensionable age is projected to increase by 1.3 million (11.3%). This takes into account the planned increases in State Pension age to 67 years for both sexes. The number of working age people is projected to increase by 1.9 million (4.5%) over the same period.
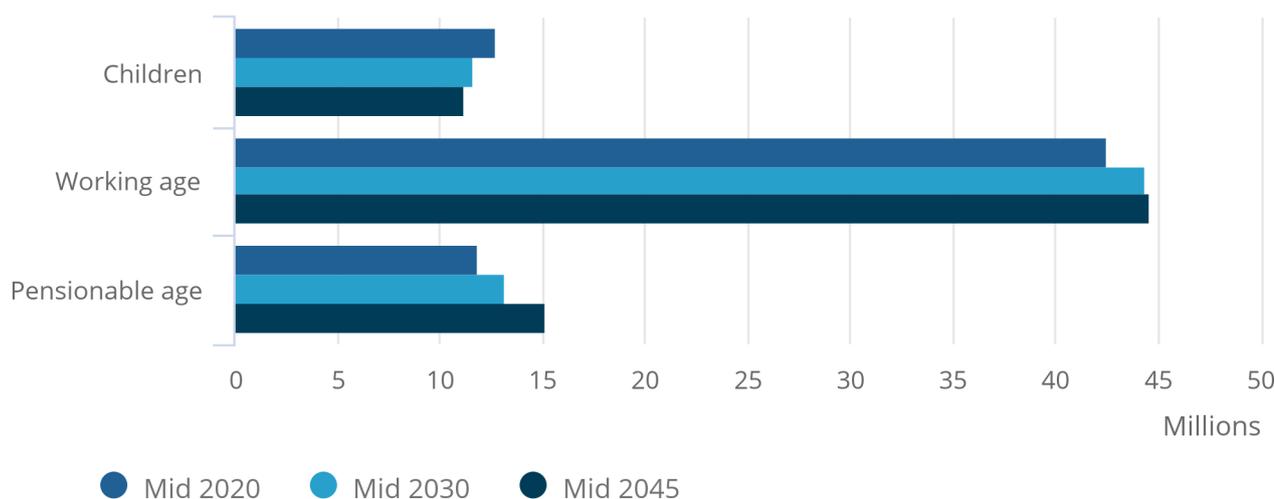
By mid-2045, the number of working age people and children is projected to remain around the mid-2030 levels. During the same period, the number of people of pensionable age will grow to 15.2 million, an increase of 28% on the level in 2020.

Figure 4: The number of people of pensionable age is projected to grow the most

UK population by life stage, mid-2020, mid-2030 and mid-2045

Figure 4: The number of people of pensionable age is projected to grow the most

UK population by life stage, mid-2020, mid-2030 and mid-2045

Source: Office for National Statistics – National population projections

Notes:

1. Children are defined as those aged 0 to 15 years.

2. Working age and pensionable age populations are based on State Pension age for the stated year according to current legislation.

The numbers of people in each life stage are important when considering dependency ratios, which inform government financial planning. A common measure is the old-age-dependency ratio (OADR), which is the number of people of pensionable age for every 1,000 people of working age. It is projected that the OADR will increase from 280 in mid-2020 to 298 in mid-2030, reaching 341 by mid-2045.

Interactive population pyramids

Explore in more detail how the UK population is projected to change over time in our interactive population pyramids.

Figure 5: Use our interactive population pyramids to explore our projections

6 . Changes since the 2018-based projections

The 2020-based interim projections are based on the population estimate from mid-2020 and use the latest data on births, deaths and migration along with updated assumptions of future fertility, migration and mortality. The changes in our assumptions are summarised in National population projections, background, methodology and assumption setting: 2020-based interim and detailed in the papers:

- [National population projections, fertility assumptions: 2020-based interim](#)

- [National population projections, mortality assumptions: 2020-based interim](#)

- [National population projections, migration assumptions: 2020-based interim](#)

A summary of changes from the 2018-based national population projections assumptions is in Table 2.

Table 2: Summary of changes to long-term assumptions in UK projections, 2018-based and 2020-based
Office for National Statistics – National population projections

	2018-based	2020-based
Net annual long-term international migration (year ending mid 2025 onwards)	190,000	205,000
Long-term average number of children per woman	1.78	1.59
Life expectancy at birth, males, 2043 (years)	82.8	82.2
Life expectancy at birth, females, 2043 (years)	85.7	85.3

Notes

1. Life expectancies are period expectations of life for the start of 2045. They do not account for future improvements in mortality projected after that point.

The mid-2020 UK population estimate is around 115,000 fewer than projected in the 2018-based projections, meaning a slightly lower starting point. This further reduces future population growth when combined with the changes indicated in Table 2.

Table 3 shows key projected changes and enables comparison between 2020-based and 2018-based projections.

Table 3: Summary of UK projected outcomes, 2018-based and 2020-based NPPs
Office for National Statistics - National population projections

	2018-based	2020-based
Projected UK population in mid-2030	69.8 million	69.2 million
Projected UK population in mid-2045	72.8 million	71.0 million
UK population projected to pass 70 million	mid-2031	mid-2037
Projected old-age-dependency ratio (OADR) in mid-2045	346	341

7 . Future plans for projections

In June 2021 we published [future plans for population and household projections](#). It is currently planned for the next national population projections (NPP) to be 2021-based and include Census 2021 data for England, Wales, and Northern Ireland and the latest mid-year population estimates for Scotland. These will also include an updated set of demographic assumptions and a range of variant projections. The plan is to publish these in 2023, although this plan is subject to change and yet to be confirmed by the NPP Committee.

Transformation

At the Office for National Statistics (ONS) we are transforming the way we produce population and migration statistics to better meet the needs of our users. We aim to produce statistics from the best-available data at any given point in time by embedding administrative data at the core of what we do. As part of this, we are working with other government departments and using a range of new and existing data sources to meet the needs of our users. You can find an accompanying summary of recent updates on our statistics and research.

8 . Glossary

Long-term assumptions

The 2020-based interim national principal projections are based on a set of long-term assumptions considered to best reflect recent patterns of future fertility, mortality and net migration. The assumptions are:

- average UK completed family size will reach 1.59 children per woman by 2045, remaining at that level for the rest of the projection

- by 2045, the annual improvement in UK mortality rates will be 1.2% for most ages for both males and females

- from the year ending mid 2027 onwards, average annual net international migration to the UK will be plus 205,000

Life expectancies

Life expectancies at birth are period expectations of life; this is the average number of years that a newborn baby could expect to live if the mortality rates at the time of their birth stayed constant through their lives. For example, life expectancy in the year between mid-2044 and mid-2045 reflects that projected for the start of 2045. They do not account for future improvements in mortality projected after that point.

Old-age-dependency ratio (OADR)

The number of people of pensionable age for every 1,000 people of working age.

Population projections

Population projections provide statistics on potential future population levels of the UK and its constituent countries by age and sex. They are based on assumptions of future levels of births, deaths and migration.

Total fertility rate

The total fertility rate (TFR) represents the average number of children born per woman if women experienced the age-specific fertility rates (ASFRs) of the year in question throughout their childbearing lives.

9 . National population projections data

National population projections dataset
Datasets | Released 12 January 2022
You can use our table of contents tool to navigate through this release. The tool contains links to our full range of data and documentation. It lists all the datasets available and allows you to filter by geography. You can also access methodological information and all related background information associated with the 2020-based interim national population projections (NPPs).

10 . Measuring the data

The 2020-based interim national population projections (NPPs) provide statistics on potential future population levels of the UK and its constituent countries by age and sex. We base them on the estimated population on 30 June 2020, using an internationally accepted methodology that accounts for the impact over time of the latest births, deaths and migration flows. This release supersedes the 2018-based projections.

To create this projection, we use a set of demographic long-term assumptions for fertility, mortality and migration, which are derived through extrapolation of past trends and consideration of expert views.

More information on the quality and methodology of the NPPs, including the accuracy of the release and how the outputs meet users' needs, is available in National population projections Quality and Methodology Information (QMI).

Information on uncertainty in the estimates used for the base year of the projections is detailed in Population estimates for the UK, England, Wales, Scotland and Northern Ireland: mid-2020.

11 . Strengths and limitations

The Office for National Statistics' (ONS) national population projections (NPP) are used both within and outside of government as the definitive set of NPPs. We produce them for the constituent countries of the UK using the internationally accepted cohort component methodology.

We base the projections on the latest mid-year population estimates for each UK country and the latest births, deaths and migration data. The projections are not forecasts and so will differ from actual future outcomes to a greater or lesser extent.

There is already a margin of error in the underlying data, such as with the estimates of the current population and past migration flows. In addition, our assumptions about the future cannot be certain because patterns of births, deaths and migration are always liable to change and can be influenced by many factors. In most cases, each set of projections is superseded when the next scheduled release is published.

Factors such as political and economic change may affect future population growth, although it is not possible to know in advance what impact these might have. For this reason, the projections do not attempt to predict the impact of events such as the UK leaving the EU or the lasting effect of the coronavirus (COVID-19) pandemic. However, the projections of people of State Pension age (SPA) do reflect future changes under existing legislation.

This bulletin focuses on the first 10 and 25 years of the projections, up to mid-2045. The data files include projections going forward 100 years, up to mid-2120. However, such long-term projections are inevitably very uncertain as much may change over that timescale.

Projected fertility rates

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. It is planned that a more robust set of 2021-based NPPs will be published after the release of Census 2021 results.

12 . Related links

National population projections, background, methodology and assumption setting: 2020-based interim
Article | Released 12 January 2022
Information on the data, methods and assumption setting process used to produce the 2020-based interim national population projections.

National population projections quality and methodology information (QMI)
Article | Released 12 January 2022
Quality and methodology information (QMI) for national population projections, detailing the strengths and limitations of the data, methods used and data uses and users.

National population projections table of contents
Dataset | Released 12 January 2022
Tools to locate the dataset tables and supporting documentation for the 2014, 2016, 2018 and 2020-based interim national population projections. Contains links to the principal and (where available) variant projections for the UK and constituent countries for 100 years ahead.