

Article

Update on research and plans for population estimates and projections: May 2022

Outline of completed, ongoing and future work addressing recommendations in the Office for Statistics Regulation (OSR) review of ONS population estimates and projections.

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1 . Overview of ONS population statistics

The Office for National Statistics (ONS) produces a range of population statistics, including:

- mid-year population estimates
- national population projections
- subnational population projections (England)
- household projections (England)

In July 2021, we published [our article, Future plans for research on population estimates and projections](#). The article describes how we plan to meet the recommendations of the Office for Statistics Regulation's (OSR) [Review of population estimates and projections produced by the Office for National Statistics](#).

This article provides further updates since our publication [Update on research and plans for population estimates and projections: January 2022](#) on our progress towards meeting the OSR's recommendations, one year after the original review. It also provides information on our latest plans for continuing this work and the ongoing transformation of population statistics.

2 . Wider context to population statistics in 2022

We provide information on the different types of population estimates we plan to publish in 2022 and early 2023 in our article, [Population statistics and sources guide](#). For example, it includes information about population estimates from Census 2021, Labour Force Survey reweighting and the official mid-year population estimates. This also contains information about whether it is an official estimate of the population or used only for wider research, the periodicity and planned publication date, along with a summary of the main uses and comparability issues for the estimate. Our proposed plans for the release of Census 2021 data and analysis can be found in the article [Release plans](#).

We want to provide population and migration statistics more quickly and frequently. Throughout this year we will continue to publish research updates, building towards “experimental” monthly age and sex profiles of the population relating to 2022.

This will start with a proof of concept for admin-based monthly population estimates as soon as possible after the first Census 2021 results are released, using information from health, tax, benefits and education data sources, among others. As these admin-based monthly population estimates mature, we will embed them into our official population estimates and move on from the “experimental” status.

Providing these monthly population totals in the future will allow decision makers to have the most up to date information on the dynamics of the population. The information will show the impact of seasonal patterns of mobility in a timely manner and ensure that public services can be provided to the right population groups in the right places.

3 . Responding to the Office for Statistics Regulation’s review

This section outlines further work since our last update of January 2022 to address the Office for Statistics Regulation's (OSR's) recommendations. Where we have not yet been able to address a recommendation since the OSR's review, we include information on what we have accomplished and, where possible, when we plan to complete the work. An example of this is the longer-term work to transform the population statistics system.

As we progress through this work plan, we will publish our findings on each area. We will also continue to update the OSR and our users through our quarterly Population Statistics newsletter, making clear the contributions of these items in addressing the recommendations.

The following section lists the OSR’s recommendations and their suggested actions. It includes details of the work we have completed and are planning to carry out to meet these recommendations and further develop population estimates and projections.

Recommendation 1: Ensuring future population statistics are based on sound methods and suitable data

Complete detailed case studies on cities with large student populations

In January 2022, we outlined our plans for case studies of data relating to students in local population estimates. This will build on our work towards [Understanding students across administrative data in England and Wales](#), which we published in November 2021. This analysis used a combination of administrative data on health and higher education to find out, among other things, how well the data highlight moves of students into and out of student accommodation.

Our case studies will provide analysis of these features in more detail at the local level. We expect to engage with the local authority districts (LAs) selected for inclusion in the initial case studies as soon as possible after Census 2021 results are available. We postponed this work from the original date of March 2022 to enable the completion of census quality assurance by participating local authorities and to include Census 2021 results. Work to finalise the selected LAs and to analyse the mid-year population estimates in comparison with admin data will continue, and we will include Census 2021 data as they become available. This will enable us to provide a more complete picture of trends and changes in younger adult population age groups for student areas. We plan to produce and publish the studies during summer 2022.

The selection of the initial LAs for the case studies is in progress and will draw on three broad categories of LA:

- LAs which have a relatively high proportion of students, referred to as “pure student areas”
- LAs which have large absolute numbers of student populations, even if they also have a large population in general, referred to as “complex student areas”
- LAs where neighbouring areas have indistinct geographical boundaries between large student populations, for example where large student populations are not living in the same LA as the attended university, but may instead travel to it from a neighbouring district

Where there are many LAs in each category, we will sort them by proportion of the population deemed to be students according to admin data and the mid-2020 population estimates. We will also sort them in order of areas that have indicated a relatively rapid change in the number of students over recent years. We will review the initial selection considering the uncertainty measures that accompany the mid-2020 population estimates, to ensure we include areas which have a relatively large student population and high level of uncertainty.

Discuss evidence provided to the OSR in the review concerning the effect of assumptions being rolled forward

We plan to publish population estimates for mid-2021 in autumn 2022. These will be largely based on Census 2021 data plus the latest births, deaths and migration estimates that are being developed to provide estimates rolled forward from Census day to the mid-year point of 2021. We will publish detailed information about our proposed method in August 2022. We will also publish a comparison of the mid-2021 population estimates that have been rolled forward from Census 2021, with the mid-2021 population estimates that have been rolled forward from the 2011 Census (see Recommendation 4).

Our review of previous user engagement on subnational population and household projections has led us to plan to engage on each output ahead of the publication of 2021-based projections. This engagement will explore how we can meet user's output needs and any scope to further include local insights in our population projections.

Consider current method and concerns while developing admin-based population estimates (ABPEs)

We plan to publish on our research into the use of demographic accounts to produce estimates at the local authority level by age and sex in July 2022. This research output will use the admin-based population estimates (ABPEs) along with a range of other measures of population and population change as inputs to the proof of concept.

Recommendation 2: Enhancing the transparency of developments concerning the quality of the statistics

Integrate a more flexible and responsive approach to methodological changes and share insights from work to understand the changing nature of migration and population

Our article [Update on research and plans for population estimates and projections: January 2022](#) provides our general update and [Methods to produce provisional long-term international migration estimates](#) describes the changes made to the production of migration statistics.

Share insights from work to understand the changing nature of migration and population

Again, our article [Update on research and plans for population estimates and projections: January 2022](#) provides the latest information and progress.

Recommendation 3: Continuation of plans for the future of migration data

Being open with users about short-term solution to bridge the gap of migration data

We continue to produce long-term international migration statistics using the best information available, most recently publishing our bulletin, [Long-term international migration, provisional: year ending June 2021](#) on 26 May 2022. We describe the quality of these estimates and methodological changes we have made in our article, [Methods to produce provisional long-term international migration estimates](#).

The measures are built on previous admin-based migration estimates with statistical modelling but make greater use of administrative data. While our estimates continue to improve, they will inform our mid-June 2021 population estimates published later this year. We also published our [Revisions policy](#) for population and migration statistics on 26 May 2022.

We will update users on the future design of migration statistics in July 2022 and produce more timely estimates in November 2022, again using the best estimates we have at the time. Throughout our development we will consult with our Migration Statistics Expert and Steering Groups to help us best meet user needs.

Recommendation 4: Enhancement of approach to quality assurance

Collaborate with others to learn from best practice

We have engaged with academics and other experts in developing our plans for the methods to be used in producing the mid-2021 population estimates. We plan to publish details of our methods in August 2022.

We are continuing to investigate sensitivity analysis around the estimates to further enhance our approach to quality assurance. To assist users of official population estimates in understanding quality in more detail, the Quality and Methodology Information (QMI) report will be updated for the next set of mid-year population estimates currently planned for autumn 2022. See the [ONS release calendar for population estimates for the UK](#) for more information.

We have published measures of statistical uncertainty for the mid-2020 population estimates and have embedded them into our publication's accompanying datasets, rather than having them as a separate product only as was previously the case.

Incorporate local insight and evidence as part of deep dives and investigations into issues

We have been developing case studies of areas that have large student populations, as described in Recommendation 1. We will also use feedback received from local authorities as part of the Census 2021 quality assurance exercise, and the resulting improvements to census results.

This feedback has helped to ensure the census results are of the highest possible quality and guide the development of the mid-year population estimates so that we can maximise the benefits of local insight.

Our quality assurance work on Census 2021 is the most comprehensive ever, using the widest range of alternative and complementary data sources. We also offered all local authorities, combined authorities and county councils the opportunity to work in partnership with us. The positive response has resulted in more than 250 organisations being involved as part of our quality assurance processes. More information on this process can be found in [Census 2021 results update](#).

In addition, we are developing a framework for receiving user insight into local population levels and change. This framework will build on the process used to receive feedback as part of the local authority census quality assurance exercise. We will look to expand the remit of data sources and users we engage with from summer 2022. We will tell users how they can provide feedback and how we will process and act on their feedback.

Run sensitivity analyses to accompany the existing estimates and explain to users how these analyses should be interpreted

We will publish a comparison of the mid-2021 population estimates that have been rolled forward from Census 2021, with the mid-2021 population estimates that have been rolled forward from the 2011 Census. This is in addition to the sensitivity analysis described in the development of our QMI for the mid-year population estimates.

This will provide a basis for understanding the sources of error and bias that have occurred in the population estimates since the 2011 Census. It will help inform our decisions leading to a rebased set of population estimates for the years between mid-2012 and mid-2020, which we plan to publish in early 2023.

Recommendation 5: Supporting users' understanding of the uncertainty associated with ONS statistics

Research and implement additional ways to communicate the uncertainty around the population estimates and projections

We have made changes to the release [Population estimates for the UK, England and Wales, Scotland and Northern Ireland: mid-2020](#) (published in June 2021) to help users understand the quality of population estimates. This includes the use of warning boxes to highlight specific issues with the estimates and a more comprehensive explanation of the range of quality information available. The latest report contains uncertainty measures for the mid-2020 local authority population estimates, and we have embedded these measures for each local authority into the datasets that accompany the mid-2021 population estimates.

Work is ongoing to identify the best methods to use in our population estimates reconciliation and rebasing exercise following Census 2021, scheduled for completion in early 2023. This process will provide the most complete picture of the sources of uncertainty, bias and error in the mid-year population estimates between mid-2012 and mid-2020. Further insight on the level of uncertainty will be available when we publish our mid-2021 population estimates, which have been rolled forward from the 2011 Census, alongside the official estimates for mid-2021, which will have been rolled forward from Census 2021.

Provide more specific guidance on interpreting the levels of uncertainty associated with the statistics

We will help users understand uncertainty by embedding our measures of uncertainty in all subsequent mid-year population estimates datasets. This means that for any local authority estimates, the data will be accompanied by the associated level of uncertainty in that area. This will help inform decision makers on the weight to give the estimates in their area, compared with other areas.

We are in the process of revising the Quality and Methodology Information (QMI) that accompanies the mid-year population estimates. It will contain a compendium of quality indicators that highlight local authorities that score highly on the basis of a set of quality risk factors. These risk factors may include population churn, the estimated proportion of students and armed forces personnel, and confidence intervals from census data. The quality risk factors we include in the QMI will provide users with a clear indication of areas where uncertainty in the mid-year population estimates is high relative to other areas. We plan for the updated QMI to be published alongside the next set of population estimates currently planned for autumn 2022.

Recommendation 6: Maximising the use of ONS variant projections

We completed this work in November 2021 when we published [Variant national population projections for the UK and subnational population projections and household projections for England: user guide](#). This user guide provides guidance and examples for those wishing to understand and use variant projections in policy and planning. It also provides information on user insight and best practice. Users of projections can benefit from this best practice and we will use it to guide the development of variants in the 2021-based suite of projections, which are provisionally planned for publication towards the end of 2023.

Recommendation 7: Ensuring that ONS statistics remain relevant to users

Take a more open and constructive approach to user engagement by improving complaints procedure

In addition to our work developing a framework for receiving user insight into local population levels and change, as described in Recommendation 4, we have reviewed the information about the complaints procedure for population estimates and projections.

We found that our complaints procedure was in line with the [ONS complaints policy](#) and we are aware of the need for complaints being made regarding official statistics to be made to the [UK Statistics Authority](#).

We recognise users are likely to benefit from more clarity on how we handle complaints specifically relating to population estimates and projections. In particular, where the user would like to communicate concerns with the team producing the statistics directly. We will publish more information about how users can raise complaints and how they will be handled.

Identify potential solutions and best practice from the User Engagement Strategy for Statistics

As part of our work to publish the framework for user insight into local population levels and our approach to the mid-2021 population estimates (both planned for August 2022), we will publish more information about how users can raise complaints and how they will be handled. We will also update our outputs, newsletters and email communications with these details from August 2022 onwards.

Recommendation 8: Increasing public value of ONS statistics and supporting their use

Carry out user engagement to understand who is using the data and for what purposes

We will engage with users to understand their needs from 2021-based projections and beyond, including for variant projections. We plan to focus these engagements to each projection output ahead of their planned publication in 2023 (national population projections) and 2024 (subnational population projections and household projections).

For mid-year population estimates, we will publish our proposed approach to the methods and data sources in August 2022, ahead of the planned publication of the estimates in autumn 2022.

Collaborate with experts to frame the statistics for different audiences and scenarios

In Recommendation 1 we described the case studies for areas with large student populations currently under development and in Recommendation 6 the case studies published for the population and household projections. We have also liaised with demography experts to seek their feedback on our current plans for the methods to be used for the mid-2021 population estimates. We will consider feedback received from experts at both the national and local level in the development of the methods to be used for the mid-2021 population estimates.

4 . Future developments

We are committed to reviewing population statistics through using Census 2021 data and the wider transformation of the population and migration statistics system, which will embed administrative data sources into population and migration estimates.

Recent [feedback from the Office for Statistics Regulation \(OSR\) on migration statistics](#) has encouraged us to broaden our user engagement. More information on this can be found in our blog post [How did the pandemic impact international migration?](#) We will publish our future statistical design of migration statistics and how it fits with population statistics in July 2022. As our methods develop, we will regularly consult with external experts to ensure we are providing the best estimates for a wide range of users.

We will keep users updated with our future work on the OSR's recommendations and resulting changes to our processes and plans. We will continue to report back to the OSR outlining our progress and completion of research and findings.

We welcome feedback on our statistics and methods. Please email us at pop.info@ons.gov.uk.

[Sign up to the Office for National Statistics migration and population statistics mailing list](#) to receive the latest updates and our Population Statistics newsletter. For more information on how we process stakeholders' personal data, read [Privacy information for our stakeholders](#).

5 . Related links

[Update on research and plans for population estimates and projections: January 2022](#)

Article | Released 28 January 2022

Outline of work to address the recommendations in the Office for Statistics Regulation (OSR) review of ONS population estimates and projections, and future developments.

[Population statistics and sources guide](#)

Methodology | Released 2 March 2022

A comparison of the different types of population estimate that are planned for publication in 2022 and early 2023. Includes information about whether these are official estimates of the population or used only for wider research, as well as the sources, coverage and main uses and comparability issues for the estimate.

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

Bulletin | Released 12 January 2022

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.

[How we are improving population and migration statistics](#)

Article | Released 15 November 2021

Find out more about our population and migration statistics transformation journey.

[Future plans for research on population estimates and projections](#)

Article | Released 29 July 2021

Outline of our work plan to address the recommendations in the Office for Statistics Regulation (OSR) review of ONS population estimates and projections.

[Population estimates for the UK, England and Wales, Scotland and Northern Ireland: mid-2020](#)

Bulletin | Released 25 June 2021

National and subnational mid-year population estimates for the UK and its constituent countries by administrative area, age and sex.