

Article

Future plans for research on population estimates and projections

Outline of our work plan to address the 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) Centre for Ageing and Demography produces a range of population statistics including [mid-year population estimates](#), [national population projections](#), [subnational population projections \(England\)](#) and [household projections \(England\)](#). We work with external experts and groups to:

- ensure we continue to monitor and understand UK population change and learn from international experts, research institutes and national statistical institutes
- research and make methodological improvements to our statistical production processes including the use of data science and quality assurance techniques
- understand and integrate new data sources to enhance our statistics
- seek user, expert demographer and expert methodologist feedback and input through our review and development processes

Some of these initiatives are part of the [transformation of the population and migration system](#). This is a long-term project, which aims to change our approach to producing population and migration statistics by embedding administrative data sources into these statistics.

In June 2021 we published the latest [mid-year population estimates for 2020](#) and an update on [future plans for population and household projections](#) after Census 2021.

Wider context to population statistics around Census 2021

The mid-2021 population estimates for England, Wales and Northern Ireland will be based primarily on the results of the 2021 censuses adjusted for births, deaths, and migration in the period between census day and mid-year 2021. Mid-2021 population estimates for Scotland will be rolled forward from 2020 as the census in Scotland is taking place in March 2022.

Following the publication of the [Census 2021 results for England and Wales](#), we will conduct reconciliation work to understand how and why the estimates based on Census 2021 differ from those based on the mid-year estimates rolled forward from 2011. The insights gained will be used to improve the production of future population estimates and projections. They will also provide a revised back series of population estimates for the period 2012 to 2020, which will increase the coherence between the census and mid-year estimates, improve the quality of our estimates, and provide a revised back-series of input data for our projections.

2 . OSR and its review of population estimates and projections

The Office for Statistics Regulation (OSR) is the regulatory arm of the UK Statistics Authority. The OSR assesses official statistics for compliance with the Code of Practice for Statistics, and reports on system-wide issues and on how statistics are used. They celebrate when the standards are upheld, and challenge publicly when they are not.

OSR review of ONS population estimates and projections

In May 2021, [OSR published a review of population estimates and projections](#), which was initiated in response to concerns raised with OSR in November 2020. This was regarding the population projections and mid-year population estimates for Coventry. The concerns were around the perceived inaccuracies of the population estimates on which the household projections and subsequent housing need are based. The OSR review findings were summarised in the [executive summary of the OSR review](#).

The ONS always welcomes and invites feedback on our statistics; we engaged with OSR as part of the review and are grateful for their review insights. While we welcome that the OSR has said our "approach is generally seen as fit for purpose and is highly regarded internationally", we recognise that there are areas where we can make improvements and accept their recommendations. We set out our plans for implementing them in this article.

3 . Planned responses to the Office for Statistics Regulation's review

This section outlines our work plan to address the Office for Statistics Regulation's (OSR's) recommendations. As we progress through this work plan and publish our findings, we will continue to update OSR and our users through [our regular Population Statistics newsletter](#) and subsequent published updates, making clear the contributions of these items in addressing the recommendations. Some of the solutions and improvements will become clearer once data from Census 2021 are available, and where possible, we aim to meet the recommendations by May 2022. Where we are not able to implement a recommendation within this timeframe, such as longer-term work to transform the population statistics system, we will state what has been accomplished and advise users on when we plan to complete the necessary work. We will update users on our progress to meet the recommendations between now and May 2022 and we will publish a timeline of planned work with our next update. We always welcome feedback on our data, methods, outputs and statistics and welcome this on the plans we are publishing. For more information on how to provide us with feedback, see section 4.

The following section lists the recommendations made by OSR and provides a summary of the key actions suggested by OSR (in the subheadings beneath each recommendation). It also includes details of the work we are planning to carry out to meet these recommendations and to 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

We plan to complete a detailed study of several cities with large student populations using a systematic selection criteria. This will incorporate relevant, recently completed work and use data from across the Office for National Statistics (ONS), including the use of administrative sources. When Census 2021 data become available, we will seek to use this to understand implications for mid-year population estimates and projections for cities with large student populations. If possible, we will make greater use of the [Higher Education Leavers Methodology](#) in our rebasing work. We will review how recent work using administrative sources can provide insights on student population movement into and out of local areas and explore how student populations change in combination across our population estimates and projections. We will involve local areas or knowledge in this exercise and share insights with experts to gather input and consider further areas for development.

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

The ONS engages with experts on an ongoing basis and will seek their feedback on our current mid-year estimates methodology. We will review our user engagement ahead of each set of subnational population and household projections to explore how we can further include local insights and information in our population estimates and projections.

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

The ONS continues to engage with a range of stakeholders on the methods for the admin-based population estimates, including topic experts, academics, National Statistics Institutes (NSIs) and a range of users of population statistics. We plan to publish an update on what we have learnt about the quality of our admin-based population estimates (ABPEs) in the context of the pandemic by the end of 2021. This will include the influence it has had on administrative data sources and how we measure particular population groups. We will be engaging with users on the outcomes of this research as we build towards the 2023 recommendation. This is to ensure concerns about the current methods used for population estimates are considered in future iterations of the ABPEs and throughout the development of the transformed population and migration statistics system.

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

Integrate a more flexible and responsive approach to methodological changes

We will seek and understand user feedback in our approach to methodological change. We will consider the best way to integrate the findings from this feedback in the timing, communication and planning of methodological change and the delivery of our statistics. Over the last five years we have made methodological improvements to our estimates and projections, and continue to welcome feedback on both the methodological changes we have made, the way we have gone about making these changes and the resulting statistics.

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

Within our Transformation Overview updates, expert group meetings, blogs, conference presentations and publications, we continually seek user feedback on our future plans. We will now seek to share the insights the transformation work is providing in a timely manner. We also plan to continue using user feedback to inform the way the work is taken forwards, and outline how user feedback has done this already.

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

In June 2021, alongside our 2020 mid-year population estimates, the ONS Centre for International Migration updated [plans for the development of administrative based migration estimates \(ABMEs\)](#). It reflected the challenges in using administrative sources to measure migration. First, they are estimated using actual behaviours, which entails waiting at least 12 months after a person has moved to or left the UK before being able to identify them as a migrant under the United Nations (UN) definition. This would result in significant time lags for migration statistics if these sources were used in isolation. Secondly, we have also identified gaps in these data that are harder to measure, such as students, children and UK citizens.

Reflecting this, the future development of ABMEs will need to be supported by statistical modelling. This will build on the development of [our previous modelling research](#) published in April 2021 and our [ABMEs research](#), with a greater focus on the use of Registration and Population Interaction Database (RAPID) data. This will make these statistics timelier and improve coverage. ABMEs will also allow insightful analysis on subpopulations of migrants, including migrant workers, students, and families and dependents.

In our future publications we will continue to address this recommendation, reporting on the development of ABMEs supported by statistical modelling to produce estimates of international migration. We will provide an update in autumn 2021 as we build on our methods to keep users informed of our progress.

Recommendation 4: Enhancement of approach to quality assurance

Collaborate with others to learn from best practice

We will engage with stakeholders and other producers of statistics to share and further learn from best practices on quality assurance. We will also continue to investigate sensitivity analysis around the estimates to further enhance our approach to quality assurance, and to better understand and describe potential uncertainty around the estimates and projections. This will include engagement with expert advisory groups and through speaking with other statistical offices and producers of population estimates and projections.

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

As part of our approach in developing case studies, we will seek local insights and evidence. We will use the findings from case studies to shape our approach to the use of local insights in our development of estimates and projections. We will maintain methodological consistency across local areas as far as possible, particularly through improvements to internal and international migration.

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

We will explore the potential to include sensitivity analyses alongside the mid-year population estimates, their fit with our existing uncertainty measures and how users might interpret them.

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

In response to the OSR review, we made several changes to the mid-2020 population estimates release to assist users in understanding the quality of population estimates. These changes included the use of warning boxes to highlight specific issues with the estimates and a more comprehensive explanation of the range of quality information available alongside each release of the mid-year estimates. Furthermore, the release referenced the short-and-medium term development of population estimates. The release discussed the incorporation of the 2021 Census data into the mid-year estimates, the OSR review into population estimates and projections, and the development of new international migration estimates.

At present, we publish [measures of statistical uncertainty in ONS local authority mid-year population estimates](#). We will publish updated uncertainty measures and analyses when these become available. Furthermore, we will consider alternative ways to communicate uncertainty and plan to publish a paper on it. This will be accessible to a wide range of users, and will explain the origins of uncertainty, help with use of the population estimates and projections, explain limitations in their use and also refer to uncertainty work already published. In developing this, we will ensure that we are meeting user need through seeking feedback to ensure this contributes to helping user understanding.

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

Related to the point above on communicating uncertainty, we will provide more guidance in bulletins and other methodology documentation to help users understand how to use the population estimates and projections in short and longer-term planning.

Recommendation 6: Maximising the use of ONS variant projections

Develop case studies of where variant projections have been used in practice

We will provide more guidance to users on the variant projections, which are normally included in each release. More specifically we will look at the benefits a user guide on variants would have for our users, including use of feedback from our recent [user engagement exercise of autumn 2020](#) to help with this process. We will discuss with existing users how their use of variant projections may be used as case studies to help non-expert users understand when to use variant projections with reference to the principal projection.

Recommendation 7: Ensuring that ONS statistics remain relevant to users

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

We welcome and value all feedback. We will do more to inform users of population statistics, how to share their views on the data and methods we use to develop these statistics. We will ensure our complaints procedure is clear and accessible. In addition to inviting feedback in our correspondence and publications, we will highlight this and any further guidance in newsletters and bulletins.

We have engaged with those who wish to comment on and challenge our methods and statistics. We are always looking to develop new opportunities to engage and involve users of our statistics and will also continue our ongoing engagement with users at relevant conferences, events, and groups.

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

All user feedback is important to us and we will review and redevelop our approach to handling challenging user feedback. In doing this, we will also consider the [User engagement strategy for statistics](#) in developing best practice and solutions.

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

User engagement and ensuring the relevance and suitability of our statistics is important to us. In autumn 2020 we completed a [user engagement exercise on the national and subnational population projections](#) to understand how these are used and what users require in the future. We will continue to complete such engagements across our statistics, including the mid-year estimates, to fully understand who is using the data and for what purposes. We will then respond to this to ensure that we are able to guide users on the appropriate use of our statistics.

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

In collaboration with experts and users, we will explore the potential for case studies, which will show how our statistics are being used. Examples of appropriate uses could be included in the proposed user guide on variant projections.

4 . Future developments

We continue to welcome feedback on the planned approach we have outlined to respond to the OSR review and on our statistics and methods. Please provide us feedback at pop.info@ons.gov.uk.

The ONS is committed to reviewing its population statistics through using Census 2021 and the wider transformation of the population and migration statistics system, which will embed administrative data sources into population and migration estimates. Users can provide feedback on our [proposals for the content design and release of Census 2021 data and analysis](#) from now until 5 October 2021. Later this year, we will launch a further major phase of engagement to inform our plans for our longer-term journey to a near real-time measurement of our population and communities that makes the best use of all available data. You can find out more about how we will be maximising the value of the data collected from Census 2021 in our [blog](#). We regularly engage with users to ensure they are aware of how this wider programme of work is progressing and to seek feedback from them on their future requirements and the planned direction of our work.

As we address the recommendations made by OSR, we will continue to provide updates on the findings from the work we complete and resulting changes to our processes and plans, so all users are aware of the changes we make. We will report back to OSR on a quarterly basis starting in October 2021, outlining our progress. We will make clear when we publish research that addresses the issues raised by the OSR review, and also how it fits into the wider review of population statistics across the ONS.

[Sign up to the ONS migration and population statistics mailing list](#) to receive the latest updates and the Population Statistics newsletter.