

Small Area Population Estimates
Mid-2002 to Mid-2010 (Revised)
Internal Q & A document

November 2013

Contents

Page number

1.	<u>What has been released and where can I find it?</u>	3
2.	<u>Why and how have these estimates been revised?</u>	5
3.	<u>Summary of the revised mid-2002 to mid-2010 small area population estimates</u>	5
4.	<u>Quality of the revised small area population estimates</u>	6
5.	<u>Relevant links</u>	7

1. What has been released and where can I find it?

1.1. Which are the latest available population estimates?

The revised small area population estimates released on 26 November are for 10 years: from the year ending June 30 2002 to the year ending June 30 2010. These estimates have been revised following the 2011 Census. Estimates are also available for mid-2011 and mid-2012.

1.2. Which population estimates are available?

- **Super Output Area Population Estimates, Mid-2002 to Mid-2010:** This release includes population estimates for lower layer and middle layer Super Output Areas (SOAs) in England and Wales by age and sex, revised in line with the results of the 2011 Census.
- **Health Geography Population Estimates, Mid-2002 to Mid-2010:** This release includes population estimates for the 211 clinical commissioning groups (CCGs) and the former 151 primary care organisations (PCOs) in England, by age and sex, revised in line with the results of the 2011 Census. CCGs replaced the former PCOs in England from 1 April 2013.
- **Electoral Ward Population Estimates, Mid-2002 to Mid-2010:** This product includes population estimates **based on 2012 electoral wards** in England and Wales by age and sex, revised in line with the 2011 Census results.
- **Westminster Parliamentary Constituency Estimates, Mid-2002 to Mid-2010:** This product includes population estimates **based on 2010 parliamentary constituency boundaries** in England and Wales by age and sex, revised in line with the 2011 Census results.
- **Mid-2011 and mid-2012 population estimates** for SOAs, CCGs, PCOs, wards and parliamentary constituencies are also available on the ONS website.

1.3. Are there equivalent estimates for Scotland and Northern Ireland?

Population estimates are produced for similar small areas in both Scotland and Northern Ireland, however they are not produced using the same methodology as Super Output Areas (SOAs) in England and Wales.

- **National Records of Scotland:** produce population estimates for Scottish data zones, parliamentary constituencies which are slightly smaller areas than lower layer SOAs designed to contain approximately 500 to 1,000 household residents. Mid-2011 and mid-2012 small area estimates (based on the 2011 Census results) are planned for publication by the end of 2013. Estimates are also produced for health geographies and parliamentary constituencies.

Further information can be found on their website:

<http://www.gro-scotland.gov.uk/statistics/theme/population/estimates/special-area/sape/index.html>

- **Northern Ireland Statistics & Research Agency:** produce population estimates for Super Output Areas in Northern Ireland. These are of a similar size to English and Welsh lower layer SOAs with populations of approximately 1,300 to 2,800 with a target size of 2,000. Estimates are also produced for health geographies and parliamentary constituencies.

Further information can be found on their website:

<http://www.nisra.gov.uk/demography/default.asp125.htm>

1.4. What information has been released to support users and where can I find it?

Two statistical bulletins are available with this release - [SOAs](#) and [health geographies, wards and parliamentary constituencies](#) – present the key messages on the size and age structure of the population and changes that have happened between mid-2002 and mid-2011 in England and Wales.

Standard reference tables are available for SOAs (England and Wales), health geographies (England), wards and parliamentary constituencies (England and Wales) by single year of age and sex in an unformatted file. In addition detailed single year of age and sex estimates for Output Areas (OAs) have also been made available on the [ad-hoc section](#) of the ONS website

The more detailed estimates provided in these reference tables are intended to enable and encourage further analysis and use of the estimates. Particular caution should be exercised in using estimates at a greater level of disaggregation - for example, for OAs, or for single year of age groups, as these would not be expected to have the same level of accuracy as the aggregated estimates.

1.5. Are these estimates consistent with revised estimates produced earlier in 2012 and 2013?

These estimates are consistent with the published revised mid-2002 to mid-2010 national, local authority and region population estimates produced in December 2012 and April 2013 respectively.

1.6. Are specific individuals able to be identified in the detailed estimates?

Small area estimates are protected against disclosure of individuals' information. The disclosure control processes applied to the estimates include small adjustments made to selected cells. Adjustments are made in such a way that inference of an underlying count is not possible but that the usefulness of the aggregated estimates is not materially affected.

1.7. Does this mean that there is a consistent set of small area population estimates from 2002-2011?

Yes. These estimates are consistent with the 2011 Census.

1.8. What about 2001 small area estimates?

We are planning to also provide mid-2001 small area estimates based on the 2011 Census geographies as soon as possible. These estimates will not be revised but simply rebased on to the 2011 Census geographies to provide a consistent series between mid-2001 and mid-2011.

1.9. Where can I find out more about population estimates and characteristics of the population in small areas?

ONS produce statistics on the size, structure and geographic distribution of the population, on the factors driving population change (births, deaths and migration) and on topics such as families and older people.

In addition, detailed results from the [2011 Census](#) provide information on the characteristics, for example country of birth and marital status for small areas.

1.10. Who else uses these population estimates?

- These small area estimates are particularly important for central government and local government for the planning and monitoring of services, as well as providing detailed information on the population of small

local areas for parliamentary organisations, researchers and MPs, academics and commercial organisations.

2. Why and how have these estimates been revised?

2.1. Why have these estimates been revised?

The small area estimates have been revised following the 2011 Census to account for population change over the intercensal period and to provide a consistent time series for future estimates based on the 2011 Census.

The revised small area population estimates series allow an understanding of how populations in England and Wales have changed across the decade in small areas. We have illustrated this in a case study for Birmingham in [SOA](#) Statistical Bulletin.

2.2. How have the estimates been revised?

- **SOA population estimates** were revised by identifying the differences between the mid-2011 lower layer Super Output Area (LSOA) census based estimates and the mid-2011 'rolled forward' LSOA estimates. The observed difference in the intercensal period was distributed over time.
- **Revised health geography population estimates** were derived from aggregating the revised LSOA estimates.
- **Revised parliamentary constituency and ward population estimates** were derived from aggregating whole Output Area (OA) estimates (based on the OA boundaries introduced for the publication of the 2011 Census results).

A full explanation of the methods used to revise these estimates is provided in the [methods reports](#) that accompany this release.

3. Summary of the revised mid-2002 to mid-2010 small area population estimates

3.1. How much have these estimates changed?

For England and Wales the mid-2011 population estimate, based on the 2011 Census, was 464,200 (0.8%) higher than the 'rolled forward estimate' for mid-2011 (that is the estimate originally based on the 2001 Census but updated year-on-year to account for population change).

3.2. What are the key messages from the revised small area population estimates?

Super Output Areas

- The Super Output Area (SOA) estimates for England and Wales for mid-2002 to mid-2010 have been revised following the 2011 Census. The revised series allows an understanding of how populations in England and Wales have changed across the decade in small areas, illustrated in the case study for Birmingham.
- The size of the revision is dependent on the size of the difference between the official (census based) mid-2011 estimate for each lower layer SOA (LSOA) and what the mid-2011 LSOA estimates would have been had the 2011 Census results not been available.
- More than 60% of LSOAs and more than 75% of middle layer SOAs (MSOAs) were revised by less than $\pm 5\%$ across the decade.
- The largest LSOA revisions were mostly in university areas, with the largest revision in Leeds 055H where the population was overestimated by approximately 2,800 people.
- Some of the largest MSOA revisions were in Newham local authority which saw an overall upward revision of 68,000 people across the decade.

Health Geographies

- NHS Tower Hamlets, NHS North Manchester and NHS Newham had the largest percentage increases in population between mid-2002 and mid-2011 (23.7%, 23.2% and 21.6% respectively).

Westminster Parliamentary Constituencies

- The two parliamentary constituencies with the largest percentage population increase were Manchester Central (30.7%) and Poplar and Limehouse (30.2%).

Electoral Wards

- Forty four per cent of wards saw population growth of more than 5% between mid-2002 and mid-2011.

Further information on these key messages can be found in the accompanying [statistical bulletin for SOAs](#) and [health geographies, wards and parliamentary constituencies](#)

4. Quality of the revised small area population estimates

4.1. Are the small area population estimates robust?

Super Output Area population estimates are certified as National Statistics by the UK Statistics Authority. They are produced using well established methods described in the [Quality and Methodology Information](#) for small area population estimates and the [methods reports](#).

Health geography, parliamentary constituency and ward population estimates are experimental statistics as they have not yet been assessed against the quality standards required for National Statistics. Feedback over the quality of these estimates is welcome (see contact details below).

4.2. How did you decide what was the best method to revise the estimates?

Research work undertaken prior to the publication of the revised mid-2002 to mid-2010 SAPE identified three possible methods to produce a backseries of population estimates. Whilst a 'full assessment method' - using census and administrative data along with an individual consideration of each area, where required - would have resulted in more accurate estimates overall, the advantages of increased accuracy were weighed against the impact on timeliness - that is, how soon the estimates could be published. Here there was a trade-off between different aspects of the quality of the estimates.

The 'distribution of the difference' method provided the best balance in the majority of small areas between producing a plausible backseries of population estimates for each individual area and using a relatively straightforward method to allow timely publication. The method was designed to identify the difference between the census based and rolled forward mid-2011 estimates for each OA and LSOA and distribute this difference across the backseries in order to remove any 'jump' in the estimates between mid-2010 and mid-2011.

4.2. What checks have been made to ensure the quality of these revised estimates?

Extensive analysis is carried out to validate and quality assure the data and estimates at every stage of the process. Checks are carried out to ensure the consistency and completeness of the input data as well as quality assurance checks at each processing stage to ensure that processing has been carried out correctly. The final estimates are analysed to ensure the revised figures are plausible.

4.2. Are there limitations with using the 'distribution of the difference' method?

Limitations of this method are that it relies on making an assumption on how the difference between the two sets of estimates for mid-2011 has developed over time. This is particularly true for OAs or LSOAs where the 2011 Census estimates were very different from the 'rolled forward' estimates. In such cases this was either due to very small or no populations at some point in the rolled forward mid-2002 to mid-2010 small area estimates but the 2011 Census estimate was much higher.

As the difference is distributed across the OA and LSOA backseries by age-sex cohort an assumption is also made that populations in mid-2011 would have been in an area in 2002 at a younger age (that is a 19 year-old male in mid-2011 would have been in the same area in 2002 but aged 10). This was a particular issue in LSOAs with high student aged populations. Constraining the LSOA estimates to the revised subnational mid-year estimates will have corrected for this to a certain degree: however, a minority of LSOAs show very small counts at younger ages as a result of this assumption. Care must be taken in interpreting age distributions for areas affected by this issue.

5. Relevant links

5.1. Material released on 26 November 2013

[Super Output Area Statistical Bulletin](#) and [Data Tables](#)

[Health Geography, Parliamentary Constituency, and Ward Statistical Bulletin](#)

[Health Geography Data Tables](#) for Clinical Commissioning Groups and Primary Care Trusts

[Parliamentary Constituency Data Tables](#)

[Ward Data Tables](#)

5.2. Methodology and Quality Information on Small Area Estimates

[Super Output Area Methods Document](#)

[Parliamentary Constituency and Ward Methods Document](#)

[Quality and Methodology Information](#)

5.3. Small Area Estimates for Each UK Country

[England and Wales \(ONS\)](#) including [Welsh Local Health Boards](#) published by the Welsh Government

[Scotland \(NRS\)](#)

[Northern Ireland \(NISRA\)](#)

5.4. Contact information

Population Estimates Unit:

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