



# Population Estimates for England and Wales, Mid-2002 to Mid-2010 Revised (Subnational)

Coverage: **England and Wales**

Date: **30 April 2013**

Geographical Area: **Local Authority and County**

Theme: **Population**

## Mid-2002 to Mid-2010 Subnational Population Estimates revised following the 2011 Census

- The subnational population estimates for England and Wales for mid-2002 to mid-2010 have been revised following the 2011 Census. The revised series provides a consistent time-series of population estimates to mid-2011 for each local authority (LA) in England and Wales.
- The size of the revisions is dependent on the size of the difference between the official (Census-based) mid-2011 estimates for each LA, and what the mid-2011 estimates would have been had 2011 Census results not been available.
- More than 70% of LAs were revised by fewer than 5,000 people across the decade, although some LAs had larger revisions. In 88% of LAs the total population was revised by less than 5% across the decade.
- Most of the largest revisions were for LAs in London. The largest revision was for Newham, with an upward revision of 68,000 people across the decade. The largest percentage revision was for the City of London, with a downward revision of 38% across the decade.

## Introduction

This release presents the mid-2002 to mid-2010 subnational population estimates for England and Wales, revised following the 2011 Census. This follows the publication of the [revised national population estimates](#) on 13 December 2012.

The revised estimates go down to local authority (LA) level and create a consistent series between the mid-2001 and mid-2011 population estimates. They are based on the LA boundaries existing

as at 30 June 2011. The revised estimates are certified as National Statistics by the UK Statistics Authority.

## Background

The population estimates for mid-2002 to mid-2010 have been revised to bring them into line with the [official mid-2011 estimates](#), which are based on the 2011 Census estimates of the usually resident population, plus population change between Census Day (27 March) and 30 June 2011.

The former mid-2002 to mid-2010 estimates were based on population change since mid-2001. However, any estimates are subject to uncertainty – meaning that the true value may be higher or lower – and this particularly applies to the ‘hard to estimate’ measures of internal and international migration. As there is no means of verifying the true population in any year between censuses, the amount of uncertainty has inevitably accumulated as the decade has progressed.

The 2011 Census and the resulting mid-2011 estimates, however, provide a new base point at which certainty is much greater. Therefore, by revising the mid-2002 to mid-2010 estimates to bring them into line with the Census-based mid-2011 estimates, a more accurate and consistent series has been created.

This release contains revised mid-2002 to mid-2010 population estimates for LAs in England and Wales. Revised population estimates for Northern Ireland will be produced by the Northern Ireland Statistics and Research Agency ([NISRA](#)) and for Scotland by National Records of Scotland ([NRS](#)). Further details of the timetables for population outputs are available for each country on their respective websites, and also on the [UK National Statistics Publication Hub release calendar](#). A time-series of population estimates for all LAs in the UK will be published once estimates for all constituent countries of the UK are available.

The availability of an improved and continuous back series is important as population estimates are essential building blocks for a wide range of National Statistics. They are used directly as a base for other population statistics such as population projections, population estimates by ethnic group and population estimates for small geographic areas. They are also an important input to a wide number of key economic and social statistics.

Key users of ONS’s population estimates include central and local government and the health sector, with the estimates being used in planning and monitoring service delivery, managing the economy, and resource allocation. The estimates are also used by a wider range of organisations such as commercial companies (for market research), special interest groups and academia, as well as the general public. For further information on how ONS population estimates meet user needs along with information on their fitness for purpose, please see the [Quality and Methodology Information \(145.2 Kb Pdf\)](#).

## How have the revised mid-year estimates been calculated?

The mid-year estimates are broken down by LA, age and sex, and provide an estimate of the usual resident population as at 30 June each year. The usual resident population excludes the effects of

short-term international migration. This means that immigrants who intend to stay in the UK for less than 12 months are excluded. However, emigrants who intend to stay outside of the UK for less than 12 months are included.

Except in Census years, the annual mid-year population estimates are calculated by a process known as 'rolling forward'. This involves:

1. Taking the population estimate for the previous year.
2. Ageing everyone by one year.
3. Adding in births.
4. Taking out deaths.
5. Making adjustments for the amount of migration - both internal (between LAs in the UK) and international.

The former and the revised mid-2002 to mid-2010 estimates both follow this method. However, the revised estimates use updated source data based on the 2011 Census estimates and other evidence. A full explanation and analysis of what has changed is provided in the [methods report \(640 Kb Pdf\)](#).

## How much have the estimates changed?

As described, the official mid-2011 estimates are based on the 2011 Census estimates and the population change between Census Day (27 March) and 30 June 2011. Had the Census estimates not been available, however, the official mid-2011 estimates would have been rolled forward in the usual manner from mid-2010.

For comparison purposes a set of rolled-forward mid-2011 estimates has been created, and in this section they are compared against the official (Census-based) mid-2011 estimates. Please note that these comparisons differ from those in the paper that accompanied the September 2012 release of the official mid-2011 estimates, where an alternative set of comparator estimates was used. Background note 4 provides more details of the September paper.

For England and Wales as a whole the official (2011 Census-based) mid-2011 estimates were 464,000 (0.8%) higher than the rolled-forward mid-2011 estimates. This reflects the fact that the Census revealed that the rolled-forward estimates were slightly underestimating the total population.

At LA level the situation is more complex. From a total of 348 LAs, the official estimates had a higher population in 216 (62%) and a lower population in 132 (38%).

Overall 251 LAs (72%) had a difference of less than +/- 5,000, but 97 LAs (28%) had a difference of +/- 5,000 or more. Tables 1 and 2 show the LAs where the rolled-forward and official estimates differed most.

**Table 1: LAs where the official (Census-based) mid-2011 estimates had the largest positive difference compared with the rolled-forward mid-2011 estimates**

Local authority	Rolled-forward mid-2011 population	Official mid-2011 population	Difference
Newham	242,400	310,500	68,100
Brent	260,700	312,200	51,500
Haringey	225,600	255,500	29,900
Waltham Forest	230,900	259,700	28,900
Birmingham	1,047,100	1,074,300	27,200

**Table source:** Office for National Statistics

**Table notes:**

1. Official estimates for mid-2011 were published on 25 September 2012. The rolled-forward estimates have been produced for comparison only.
2. Figures may not sum because of rounding.

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**Table 2: LAs where the official (Census-based) mid-2011 estimates had the largest negative difference compared with the rolled-forward mid-2011 estimates**

Local authority	Rolled-forward mid-2011 population	Official mid-2011 population	Difference
Leeds	809,000	750,700	-58,300
Westminster	256,100	219,600	-36,600
Newcastle upon Tyne	300,600	279,100	-21,500
City of Bristol	448,200	428,100	-20,100
Camden	239,900	220,100	-19,800

**Table source:** Office for National Statistics

**Table notes:**

1. Official estimates for mid-2011 were published on 25 September 2012. The rolled-forward estimates have been produced for comparison only.
2. Figures may not sum because of rounding.

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The areas in tables 1 and 2 are all large urban LAs, with 6 of the 10 LAs listed being in London. However, it would be expected that large LAs are liable to have larger differences, so it is useful to do the same comparison in percentage terms.

A total of 306 LAs (88%) had a difference of less than 5%, but 42 LAs (12%) had a difference of 5% or more. Tables 3 and 4 show the LAs with the largest percentage difference.

**Table 3: LAs where the official (Census-based) mid-2011 estimates had the largest positive percentage difference compared with the rolled-forward mid-2011 estimates**

Local authority	Rolled-forward mid-2011 population	Official mid-2011 population	Difference (%)
Newham	242,400	310,500	28.1
Brent	260,700	312,200	19.8
Haringey	225,600	255,500	13.3
Waltham Forest	230,900	259,700	12.5
Hackney	222,400	247,200	11.2

**Table source:** Office for National Statistics

**Table notes:**

1. Official estimates for mid-2011 were published on 25 September 2012. The rolled-forward estimates have been produced for comparison only.

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**Table 4: LAs where the official (Census-based) mid-2011 estimates had the largest negative percentage difference compared with the rolled-forward mid-2011 estimates**

Local authority	Rolled-forward mid-2011 population	Official mid-2011 population	Difference (%)
City of London	12,000	7,400	-38.5
Westminster	256,100	219,600	-14.3
Forest Heath	67,500	60,000	-11.1
Norwich	145,600	132,200	-9.2
Camden	239,900	220,100	-8.3

**Table source:** Office for National Statistics

**Table notes:**

1. Official estimates for mid-2011 were published on 25 September 2012. The rolled-forward estimates have been produced for comparison only.

## Download table

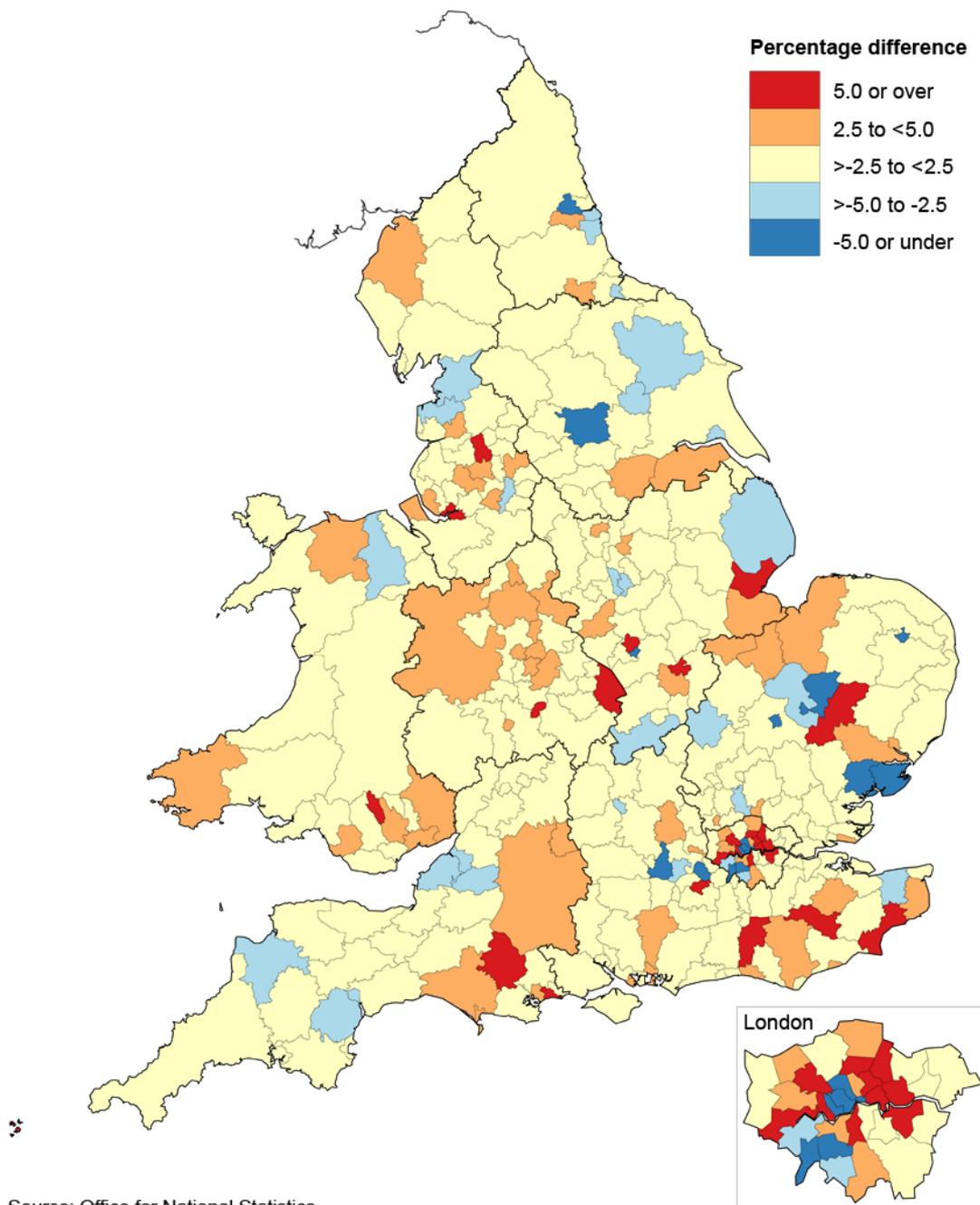
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Tables 3 and 4 indicate that the largest percentage difference is in the City of London, a particularly small LA. However, as with tables 1 and 2, the majority of LAs in tables 3 and 4 are in London. A key explanation is that London is an area with high levels of migration, both internal and international. It therefore has greater uncertainty in population estimates over the decade, and so has the potential for a larger difference to arise.

Map 1 also shows the percentage difference between the official and rolled-forward mid-2011 estimates. There is no over-riding geographic pattern: LAs where the official (Census-based) mid-2011 estimates are higher and LAs where they are lower are dispersed across the whole of England and Wales. However, it is once again notable that London has a high concentration of LAs with large differences, both positive and negative.

**Map 1: Percentage difference between the rolled-forward and official mid-2011 estimates**



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This section has focused on the differences between the official (Census-based) and the rolled-forward mid-2011 estimates. The size of this difference for each LA is important, as it is that amount

which has been distributed over the decade in the revised mid-2002 to mid-2010 estimates, in order to create a consistent time series up to the official mid-2011 totals.

## How have the revisions been distributed across the decade?

ONS has undertaken extensive research to identify what is likely to have caused the difference between the rolled-forward and official mid-2011 estimates; the revisions have been based on this research. Although the amount of revision for each LA (and also for each age/sex category within each LA) varies from year to year, the end point is that the revised series completely fills the difference between the rolled-forward and the official mid-2011 estimates.

At national level the difference is believed to be largely due to international migration, in particular an underestimate of the number of immigrants from the countries of central and eastern Europe that joined the European Union in 2004. The issues identified mostly relate to methods used in the earlier and middle part of the decade, which have now been refined. Therefore ONS's current methods are considered to be more accurate.

At subnational level part of the revision methods has involved distributing the national level changes to LA level. Another key change, however, has been the replacement of LA-level immigration estimates for the years ending mid-2006 onwards with new estimates based on a method developed by ONS's Migration Statistics Improvement Programme.

Other revisions at LA level include changes to the way the internal migration of school boarders is accounted for, and changes to various estimation processes relating to the armed forces. Any difference which could not be attributed to any specific cause has been described as 'Other' and distributed evenly across the decade.

The 'Other' difference, which occurs to a greater or lesser extent in all LAs, could have arisen in any aspect of the population estimates. It is assumed that births and deaths data, which are derived from a national register, are accurate. However, the Other difference could be based on any other inaccuracy in international or internal migration estimates, or uncertainty around the mid-2001 or mid-2011 estimates used as the start and end points of the series.

For a full explanation of the methods used to create the revised estimates, please see the [Methods paper \(640 Kb Pdf\)](#). The methods paper also includes three case studies – Newham, Luton and Manchester – to demonstrate how the revisions process has worked in different LAs.

## Implications for related statistics

The revised subnational population estimates for mid-2002 to mid-2010 complete the consistent time series of official population estimates up to mid-2011. The estimates will:

- inform the demographic assumptions for the 2012-based subnational population projections for England, which are due to be published in May 2014,
- provide the LA-level totals to which population estimates for small areas (such as wards and Super Output Areas) are constrained, and

- allow the creation of revised rates for social and economic statistics. For example, in due course ONS will be publishing revised data on conceptions, fertility, ageing, life expectancy and mortality, and the labour market.

## Future improvements to migration and population statistics

In March 2012 ONS completed a four year [Migration Statistics Improvement Programme \(149.6 Kb Pdf\)](#) to improve migration and population statistics. This has led to a number of improvements, including the new methods for estimating immigration at LA level that have been used in this set of revisions.

The new LA-level immigration method has now been adopted as the official method, so will also be used in the mid-2012 estimates, due for publication in June/July 2013. The mid-2012 estimates are also likely to feature a new method for estimating the age and sex distribution of immigrants, as well as refinements to the methods used to estimate moves of students after they finish their studies.

Other research, informed by consultation with users, is set to inform improvements in future years. This will ensure that ONS's population estimates continue to be of the highest possible quality.

## Publication schedule

The revised mid-2002 to mid-2010 subnational population estimates complete the consistent time series of subnational population estimates to mid-2011. Future releases of population estimates include:

- June/July 2013: Mid-2011 population estimates for the UK (2011 Census-based),
- June/July 2013: Mid-2012 population estimates for the UK,
- October/November 2013: 2012-based UK national population projections,
- Spring 2014: Subnational population projections for England, and
- various release dates for small area population estimates.

Some dates given here are provisional. Any changes or finalisation of dates will be announced on the [UK Statistics Publication Hub release calendar](#).

## Background notes

1. National Statistics are produced to high professional standards set out in the Code of Practice for Official Statistics. They undergo regular quality assurance reviews to ensure that they meet customer needs. They are produced free from any political interference.
2. An [Overview of Population Statistics](#) is available on the ONS website.

3. The revised mid-2002 to mid-2010 population estimates data for England and Wales, at both national and subnational levels, are available on the [ONS website](#). Published tables for mid-2002 to mid-2010 include population by single year of age and sex and broad components of population change. Unformatted tables to enable re-use of the data are also published by single year of age and sex. Mid-2001 and mid-2011 population estimates have been included in all the tables to provide a complete and consistent time-series. Note that the mid-2001 and mid-2011 estimates have not been revised as part of this release and there are no plans to revise them. Mid-2001 population estimates for England and Wales were published in September 2004 and mid-2011 population estimates were published on 25 September 2012.
4. The comparisons between the official and rolled-forward estimates differ from the comparisons in the September 2012 paper '[Examining the difference between the rolled-forward mid-2011 population estimates and the 2011 Census-based MYEs at local authority level](#)' (1.19 Mb Pdf). This is mainly because the rolled-forward estimates in the September 2012 paper already included the improved method for estimating international immigration to LAs. This bulletin, however, makes a comparison with mid-2011 rolled-forward estimates based on the former official series from mid-2001 onwards. Both sets of [rolled-forward mid-2011 estimates](#) (6.91 Mb Excel sheet) are available for all LAs in England and Wales.
5. [2011 Census results for England and Wales](#) are produced by ONS, [2011 Census results for Scotland](#) are produced by National Records of Scotland (NRS) and [2011 Census results for Northern Ireland](#) are produced by the Northern Ireland Statistics and Research Agency (NISRA).
6. [Population estimates for Scotland](#) are also produced by NRS and [population estimates for Northern Ireland](#) are also produced by NISRA.
7. A [methods guide](#) (640 Kb Pdf) describing the methods used to produce the revised mid-2002 to mid-2010 subnational population estimates is also available.
8. Further information on the quality of mid-year population estimates can be found in the [Quality and Methodology Information \(QMI\)](#) (145.2 Kb Pdf).
9. Information on those people that have pre-release access can be found on the [ONS website](#).
10. Details of the policy governing the release of new data are available by visiting [www.statisticsauthority.gov.uk/assessment/code-of-practice/index.html](http://www.statisticsauthority.gov.uk/assessment/code-of-practice/index.html) or from the Media Relations Office email: [media.relations@ons.gsi.gov.uk](mailto:media.relations@ons.gsi.gov.uk)

The United Kingdom Statistics Authority has designated these statistics as National Statistics, in accordance with the Statistics and Registration Service Act 2007 and signifying compliance with the Code of Practice for Official Statistics.

Designation can be broadly interpreted to mean that the statistics:

- meet identified user needs;
- are well explained and readily accessible;
- are produced according to sound methods; and
- are managed impartially and objectively in the public interest.

Once statistics have been designated as National Statistics it is a statutory requirement that the Code of Practice shall continue to be observed.

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This document is also available on our website at [www.ons.gov.uk](http://www.ons.gov.uk).

## Statistical contacts

Name	Phone	Department	Email
Pete Large	+44 (0)1329 444661	Population Estimates Unit	<a href="mailto:pop.info@ons.gsi.gov.uk">pop.info@ons.gsi.gov.uk</a>

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### Issuing Body:

Office for National Statistics

### Media Contact Details:

Telephone: 0845 604 1858  
(8.30am-5.30pm Weekdays)

Emergency out of hours (limited service): 07867 906553

Email:

[media.relations@ons.gsi.gov.uk](mailto:media.relations@ons.gsi.gov.uk)