

Mid-year population estimates – age distribution errors, questions and answers

As at 1 October 2015

1. How did the age distribution errors happen?

We assume a two month lag between someone moving and telling their General Practitioner (GP) that they have moved house. In 2008 we changed the lag to two months from three months to better reflect how long it took between moving house and telling your GP that you had moved. However, when the lag was changed a formula was not updated to correctly calculate the age of the person moving from one area to another. This meant that everyone moving in the month of September had their age calculated as a year younger than they should have been at the mid-year point. As September includes a lot of moves to and from areas for study a relatively large number of moves were affected. Also, when we revised the population estimates after the 2011 Census we took the opportunity to use a two month lag from 2002 onwards which is why the estimates from 2002 to 2014 are affected. The estimates for 2011 are not affected as they were rolled forward from the 2011 Census day of 27 March 2011 to 30 June 2011 and hence September moves were not used in this period. The errors in the 2002 to 2010 population estimates are partly resolved by the retrospective revisions made to these estimates as a result of the 2011 Census. More information on the [Mid-2002 to Mid-2010 Revisions](#) made to the population estimates as a result of the 2011 Census can be found on the National Records of Scotland (NRS) website. There were also unrelated minor processing errors, these include an error in the age distribution of Scotland to England & Wales migrants, a minor correction to the lookup used to map postcodes to higher areas in 2013 and 2014 and a minor correction to the sex-ratio of overseas out-migrants in 2012.

2. Should I still use the population estimates?

Yes, you should still use the population estimates. However, if you are carrying out analysis by age then check what effect the net cumulative errors have for your use of the estimates. The total population for Scotland has not been affected and the differences for total population for councils and NHS Boards are small. Take care when using the population estimates by age, particularly for the 17 to 25 year age group. Refer to the table in the Excel [Population](#) section of the NRS website for more detail of the net cumulative errors.

3. What will this mean for funding allocations?

Funding allocations are made using the most up to date population information available. Scottish Government colleagues responsible for local government and health funding allocations are currently considering the most suitable population estimates to use in the upcoming funding settlements. For further information please contact gregor.berry@gov.scot for local government funding allocations and paudric.osborne@gov.scot for health funding allocations.

4. What does this mean for comparing population estimates by Council and NHS Board over time?

Population estimates from 2002 to 2011 are fine to compare over time. The cumulative errors build over 2012 to 2014 and the maximum estimated effect is given in the Excel table in the [Population](#) section of the NRS website.

5. When will the population estimates be corrected?

Population estimates for councils and NHS board areas for years 2012, 2013 and 2014 will be corrected in April 2016 when the 2015 mid-year population estimate is published. Small Area Population Estimates for 2012, 2013 and 2014 for new 2011 Data Zones will be corrected in August 2016 when the 2015 Small Area Population Estimates are published. No correction will be made to the 2001 Data Zone Small Area Population Estimates. Other NRS publications using population estimates will be corrected, if needed, when they are next updated. [Future publication](#) dates are available on the NRS website.

6. What is the impact for my area?

The following Excel table in the [Population](#) section of the NRS website shows the net cumulative impact of the errors by council and NHS Board area. Population estimates for smaller areas will also be affected and the errors for these areas are likely to be larger. However, the errors by age for student areas are partly resolved due to adjustments made to age distributions in these areas as part of the Small Area Population Estimates methodology, but caution when using the estimates by age should still be taken.

7. What will this mean for the 2014-based national population projections?

The National Population Projections published by the Office for National Statistics will use the existing 2014 mid-year estimate as the base population and the existing migration estimates to form assumptions. The total Scotland population is not affected by the errors and the effect by age is in line with the size of errors you would expect for population estimates. Refer to the [Reconciliation Reports](#) of the mid-year population estimates with the 2011 Census results on the NRS website for more information about population errors between censuses.

8. What will this mean for the 2014-based sub-national population projections?

We will aim to have a corrected base population for 2014 and revised migration estimates for use in the sub national population projections. We will need to think carefully about any implications of constraining to the national population projections published by Office for National Statistics (ONS). We will consult with our users through the Population and Migration Statistics Committee on the data and method to be used.

9. What does it mean for the Scottish Government Population Target?

The [Scottish Government Population Purpose Target](#) is not affected by the errors as it uses the total population of Scotland only.

10. What do the errors mean for estimates of migration?

The cumulative effect on the net migration estimates is the same as that for the population estimates. Please refer to the Excel table in the [Population](#) section of the NRS website for more information about the errors. The migration estimates for 2012, 2013 and 2014 will be corrected in summer 2016.

11. Will any publications be delayed?

We plan to delay some development work until we have corrected the errors. We will also delay the production of the revised back series for the 2011 Data Zone Small Area population estimates until late 2016. We do not intend to correct Small Area Population Estimates based on 2001 Data Zones.

11. What do the errors mean for household projections?

We believe that any impact on the household projections would be fairly small. We will use NRS's 2014-based population projections in the production of our 2014-based household projections, in 2016 (see section 7). We will consult with our users through the Household Analysis Review Group on the data and method to be used.

12. What do the errors mean for using the population estimates in per capita calculations e.g. for birth and death rates?

When using the population estimates as denominators in per capita calculations please refer to the Excel table in the [Population](#) section of on our website to see if the errors will affect your analysis. It is expected that these changes will have a negligible effect on death rates as there are so few deaths at ages 17-25. The impact on birth rates may be slightly greater but again, this will be very small. Vital events reference tables will be revised to take account of the revised population estimates when they are next published in August 2016.

13. How did we decide on the approach to deal with the errors?

We consulted the members of the Population and Migration Statistics Committee (PAMS) and key users of population statistics when deciding on the approach for dealing with the errors. More information can be found in two papers on the [PAMS](#) section of our website.

14. Who do I contact if I need more information about the errors?

Please contact our statistics customer services team via email: statisticscustomerservices@nrscotland.gov.uk