

# How will I use the 2011 Census to update my forecasts?



POP GROUP Guidance Note 4, September 2012, prepared by Ludi Simpson  
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This Guidance is intended to help you plan your work of updating forecasts, as data based on the 2011 Census become available during 2012 and 2013.

Two introductory sections describe choices that users of POP GROUP face:– when to start updating forecasts, and whether to retain information from years prior to 2011.

From page 3 the outputs based on the 2011 Census are discussed in the order they will be released. The timing of releases is different for each of England, Wales and Scotland, as summarised in the tables at the head of each page. The timings are subject to change, particularly for Scotland where first census results are awaited.

This Guidance covers work of the next two years, and is not a step-by-step guide to each specific procedure. Some parts of the Guidance will be expanded as official documentation and statistics are released, allowing the advice to be more precise and to be improved with examples from released data.

## 1. When do I need to start work on new projections?

The data from the 2011 Census are not released all at once, and not at the same time as government demographic projections. Do you update your projections as each new information is released, or do you wait until the fullest information has been released?

For example for England and Wales:

- Now, calculations can be made using the early releases of Mid-2011 population and Interim projections. The calculations about migration will be approximate.
- From March 2013, revised information on international and internal migration for each LA will be released.
- From November 2013, government projections for Countries of the UK will be released. LAs will be able to make use of the careful analysis made by national demographers, and will be able to adopt their projections of future fertility and mortality – or decide on alternative scenarios.
- By Spring 2014, government projections for each LA of Britain will have been produced. Only then will the cycle of Mid-Year Estimates and projections get back to some normality.

If you can avoid making projections with approximate calculations in the Autumn of 2012, which will be jettisoned when better data become available, then do so. Study the results and advise policy managers without doing forecasts. POP GROUP intends to produce Data Modules to help users with the later issues of official estimates and projections, another reason to wait.

However, wherever the discrepancy between the Census and previous population estimates is noticeably large, your financial directors are right to be interested in the impact so that they can argue for the best settlement for your area. You may not be able to wait before making projections.

These notes therefore are not prescriptive – you will judge what is needed according to your local circumstances. Each user of POPGROUP has different resources and different local priorities.

## 2. Do I start new projections from 2011 or continue the existing projections?

With all data being rebased on the 2011 Census, should one start new forecasts with 2011? Or should one add the 2011 data to existing forecasts as a Constraint, and keep the back series of demographic data in the forecasts?

There is again not a single answer to this question.

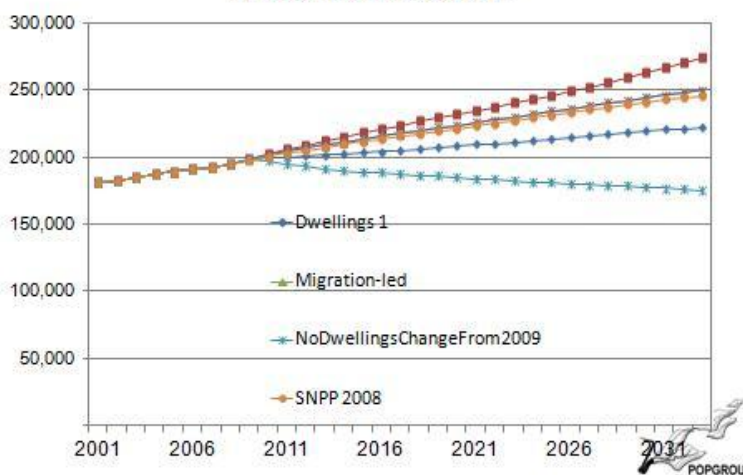
A new user may feel that the work of putting together the data for years before 2011 is not worthwhile, and will start from 2011.

However, they will be faced with the same decision each time a new set of Mid-Year Estimates is released, in 2012, 2013 and so on – whether to start anew or to incorporate new information into previous forecasts. There is no escaping this question!

Experienced forecasters may well like to keep the back-series in their spreadsheets, so that they can easily show the context of new forecasts. The chart below, for example, shows a projection which has the actual mid-year estimates before the forecast starts. The impact of the different scenarios can be judged against the population change of the past few years. Similarly, charts of migration, fertility, and mortality will have that historical context to give the forecaster and users a better sense of context.

For that reason, many users will start their projection from 2001, and use the past migration data when it is re-issued for 2001-2011 in March 2012.

Projections for York, with historical data from 2001



## Official demographic statistics, March – October 2012

	England subnational	Wales subnational	Scotland subnational	UK / national
2010-based population projections	March 21 <sup>st</sup> 2012	Not produced	Feb 29 <sup>th</sup> 2012	October 2011
2010-based household projections	Not produced	Not produced	June 14 <sup>th</sup> 2012	Not applicable
Census day 5-year age-sex populations and households	July 2012	July 2012	Dec 2012	July 2012 (Scotland estimates)
Mid-2011 population estimates	25 September 2012	25 September 2012	Spring 2013	September 2012 (Scotland estimates)
2011-based population projections	28 Sept 2012 Interim, to 2021	Summer 2013 full LA projections	Will not be produced	Will not be produced

### POPGROUP products:

Data Modules for 2010-based population projections (England, Scotland) and 2010-based household projections (Scotland). Already issued.

Guidance Note on use of mid-2011 population estimate and Interim projections. Due end September 2012.

### Notes for users:

The 2010-based population projections for LAs in Scotland and England (and 2008-based for LAs in Wales) will not be fully replaced until the Census-based sub-national projections expected in 2014 (earlier for Wales).

In the meantime a variety of census-based outputs will allow the projections to be assessed or updated by POPGROUP users.

**July 2012.** Census number of households and average household size. The difference from this and the average household size projected previously, shows whether to revise household representative rates. It is already clear that the 2011 Census has generally implied larger households than assumed previously. However, there is not yet information about the composition of households, to lead to anything other than a general change to household rates at all ages and all types of household.

**September 2012.** Population age structure at mid-2011. The difference with the pre-census 'rolled forward' estimates will tell for each LA whether population change has been similar to or different from what had been thought.

ONS data and comments on reconciling the census results with previous estimates: <http://www.ons.gov.uk/ons/guide-method/method-quality/specific/population-and-migration/population-statistics-research-unit--psru-/index.html>.

The change from previous estimates may be in the age structure as much as in the total population, so both must be examined carefully. The ONS data and spreadsheet tools allow this. The difference indicates that a revision is needed to the estimate of migration in each LA. However, some of the difference may be attributable to errors in the population estimate in 2001, to an extent that is as yet unknown (see below, March 2013).

**September 2012.** Interim population projections (ONS, England only). These are a re-run of the 2010-based projections but starting from the new mid-2011 population for each LA. The assumptions about fertility, mortality and migration rates have not been changed, but the number of births, deaths and migrants will be different because the base population has changed.

These interim projections are required for government funding to LAs, but are a 'half-way house' because they do not yet take account of what we can learn about migration from the 2011 Census results.

Local authorities whose census-based population is significantly different from the rolled forward estimates will be most cautious about the Interim population projections, because their migration is most likely to be different when projections are fully revised in 2014. They are likely to consider attempting their own projections, either now or in March when further estimates of recent years' migration are released. Separate POPGROUP Guidance is being prepared.

## Official demographic statistics approx November 2012 – March 2013

	England subnational	Wales subnational	Scotland subnational	UK / national
<b>Census Key and Quick statistics</b>	<b>November 2012</b>	<b>November 2012</b>	<b>Early Spring 2013</b>	
<b>2011-based household projections</b>	<b>Late January / early February 2012</b> From DCLG	<b>Autumn 2013</b> full LA projections	Will not be produced	Will not be produced
<b>Revised 2001-2011 population and migration for each LA</b>	<b>End March 2013</b>	<b>End March 2013</b>	<b>Autumn 2013</b>	

### POPGROUP products under consideration:

Data Module to incorporate into existing projections the revised estimates of population, migration, births, deaths for: 2001-02, 2002-03, ..., 2010-11 (10 years).

### Notes for users:

**November 2012.** The Census Key and Quick statistics provide for each Output Area, LSOA/DZ, and Local authority, mainly univariate statistics: counts for one census variable at a time. For England and Wales, Table layouts are available at <http://www.ons.gov.uk/ons/guide-method/census/2011/census-data/2011-census-prospectus/release-plans-for-2011-census-statistics/second-release-of-2011-census-statistics/index.html>, and for Scotland at <http://www.gro-scotland.gov.uk/census/censushm2011/consultation-and-research/formal-consultations-supplementary-work/feb-2011.html>.

Census Key Statistics provide the link between occupied households and total dwellings, required by housing-led forecasts. The data are given in Key statistics table KS401EW (KS16 for Scotland) and used in the POPGROUP file DFsupply.xls.

However, 2011 Census output in England and Wales does not distinguish vacant dwellings and second homes. Users should therefore enter the overall ratio households/dwellings, taking it from KS401EW: 'Occupied household spaces' / 'All dwellings'. It seems that estimates of vacant and second homes will have to depend on other data sources, in England and Wales.

**February 2012.** Interim 2011-based household projections (England). The methodology for these is expected to be as in the 2008-based round, and they will use the ONS Interim 2011-based population projections released in September 2012.

The extent to which these interim household projections will use 2011 Census information to revise current and projected household formation rates has not yet been clarified. In particular a trend to smaller households is embodied in the 2008-based projections, but will be in question for the next rounds of household projections because the 2011 Census has already shown household size to be stable in the 2000s.

**March 2013.** Revised population and migration series 2001-2011 (England, Wales; Scotland later). These will follow extensive research by ONS and, for each LA, will provide estimates of how much of the discrepancies between Census and rolled forward population estimates are due to errors in the 2001 population base, and how much due to errors in estimates of migration, either international or internal.

The Census is taken to improve our understanding of demographic change. These estimates are the government's best estimate of demographic change in the 2000s for each LA, using the Census results.

LAs will scrutinise the new estimates. Most LAs are likely to accept them as the basis for their own projections. If the LA requires demographic projections before the government's next releases in Autumn 2013 (Wales) or Spring 2014 (England, Scotland), then this is the best time to incorporate the revised estimates of population and migration into projections prepared locally.

The POPGROUP user making new projections after March 2013 may:

1. Create a model starting with base year 2001.
2. Include a constraints file with populations 2002 to 2011 taken from revised Mid-Year Estimates by single year of age.
3. Include births, deaths and migration as estimated 2001-02 to 2010-11.
4. Run a forecast for the period 2001-11, to calculate the fertility and mortality rates of the past decade in the outputs.
5. Enter future fertility and mortality that follow trends expected nationally (from the latest national projections which will be 2010-based) or from local intelligence.
6. Enter future migration that use an average of recent years. For example, the average number of migrants in each five-year age-sex group from the period 2006-2011.
7. Run this scenario as a first population projection.
8. Consider reasonable alternative scenarios, perhaps based on very recent levels of migration, fertility or mortality, or based on extremes that have been experienced in the past decade. The range of projections will give a good indication of what range of population outcomes are feasible.

Household projections are likely to await updated Census information about local household formation rates, not due until later in the year.

## Official demographic statistics 2013

	England subnational	Wales subnational	Scotland subnational	UK / national
Census Local Characteristics	March 2013	March 2013	Early summer 2013	
Mid-2012 population estimates	June 2013	June 2013	Spring/Summer 2013	
Census Detailed Characteristics	July 2013	July 2013	Early Autumn 2013	
Small area mid-2011 estimates	May 2013	May 2013	Spring 2014 also mid-2012 estimates	
Small area revised 2001-2010 population estimates	Summer 2013 (tbc)	Summer 2013 (tbc)	Late 2014	

### POPGROUP products under consideration:

Data Module to incorporate into existing projections the estimates of population, births, deaths, migration for 2011-12.

Detailed Guidance for small area demographic projections.

Guidance on use of further census data in demographic projections.

Other Guidance to improve the 'usability' of POPGROUP, including a revised User Guide.

### Notes for users:

**March and July 2013.** The Census Local and Detailed Characteristics are not finally specified yet, but will provide cross-tabulations of more than one census variable, for LAs and for smaller areas. See the outputs prospectus *and changes to it*, at <http://www.ons.gov.uk/ons/guide-method/census/2011/census-data/2011-census-prospectus/index.html> (England and Wales) and <http://www.gro-scotland.gov.uk/census/censushm2011/consultation-and-research/formal-consultations-supplementary-work/feb-2011.html> (Scotland).

Of particular interest for demographic projections:

- Household composition by type of household and by age – for all people and for household representatives. Numbers of people not in households. These can be used for household representative and household membership rates. They are not sufficiently detailed on their own, but tell how the detailed rates for larger areas projected by CLG/WAG/GROS should be scaled up or down in each of an LA's localities.

- Economic activity by age and sex. These will be compared to 2001 and trends from the LFS/IHS surveys, to help prepare labour force projections, for LAs and for smaller areas.
- The age composition of short-term immigrants, people with more than one address, visitors, students, and commuters, will each help to understand the relationship between our projections of residents, and the variety of other populations which use services.

**June 2013.** Mid-2012 population estimates. Users can update their projections using these data.

**May 2013** and later. Small area population estimates, for 2011, 2012, and the revised series for 2001-2010. It is now that demographic projections for small areas can get going in earnest. The estimates are prepared for each LSOA (DataZone in Scotland). Their boundaries will be adjusted in some areas as a result of the 2011 Census results. It is the revised estimates for the new boundaries that will be most useful.

The LSOAs/DZs are usually aggregated to the small areas of most interest to the LA, for example planning areas, community areas, or service areas.

The latest population estimate by age and sex for each small area provides the population base for a projection.

Comparison of past population estimates for adjacent years allows an estimate of migration that has impacted on each local area, at each age.

Census information required for household projections and economic activity may not be available for LSOAs/DZs. The latest information from ONS suggest that it will be available only for MSOAs.

Step-by-step guidance for making population and household projections for small areas is available for Scotland (<http://www.gro-scotland.gov.uk/statistics/theme/population/projections/small-area-population-projections/index.html>). Similar guidance for England and Wales is under consideration.



## Official demographic statistics 2013, 2014 onwards

	England subnational	Wales subnational	Scotland subnational	UK / national
<b>2012-based population projections</b>	<b>Spring 2014</b>	To be confirmed (2011-based projections produced Autumn 2013)	<b>Spring 2014</b>	<b>Autumn 2013</b>
<b>2012-based household projections</b>	<b>To be announced</b> by DCLG, possibly Autumn 2014	As above	<b>Summer 2014</b>	

### POPGROUP products under consideration:

Data Module for 2012-based population projections.

Data Module for 2012-based household projections.

Labour Force Data Module. Including assumptions for economic activity of the elderly as the state pension age rises, and a default projection of economic activity rates based on the past two censuses in the local authority.

Ethnic group Data Module, replicating an authoritative projection produced by independent research.

Illness Data Module, replicating an authoritative projection produced by independent research.

Disability Data Module, replicating an authoritative projection produced by independent research.

### Notes for users:

**Late 2013-2014.** ONS/NRS/WAG Population and household projections. By this time, these are now back to a likely biennial cycle.

The 2012-based sub-national population projections for Scotland and England are constrained to their national projections. Because of the later census processing, Scotland's national projection of fertility, mortality and migration will be based on the estimates prior to the 2011 Census.

In Wales, the sub-national population projections are not constrained to a national total, and so will be produced at an earlier date and with a 2011 base.

**Labour force, ethnic group, illness and disability projections.** These are not produced by any of the national statistical agencies in the UK. POPGROUP intends to follow and encourage academic and other organisations to produce them to a high standard, and to replicate their results through Data Modules where this proves possible. The Labour Force standard projection could be developed internally by POPGROUP.