Household Analysis Review Group (HARG)

HARG (19) 3

Review of household projections methodology

Introduction

This paper outlines the work we have been doing since summer 2018 to review the methodology we use to produce household projection for Scotland, taking into account changes that the Office for National Statistics (ONS) have been making to the methodology they use in producing household projections for England.

Current differences between NRS and ONS household projection methodologies

The key differences between the projection methodologies used by NRS and ONS are:

1) ONS use only two sets of census data (2001, 2011) in their projection, while NRS uses data from three censuses (1991, 2001, 2011). This makes the projection more reactive to recent trends, potentially at the cost of factoring in long-term trends

2) ONS stop varying the headship rates at the year 2021 and project unchanging headship rates beyond that. This implicitly recognises an uncertainty in how headship trends will continue and potentially avoids over-projecting these trends. NRS currently vary our headship rates throughout the whole period of projection – the point at which we would should hold these rates constant is an open question

3) ONS smooth the headship rates by age group to remove generational 'baby boomer' effects. We have not yet decided if this step is needed in the projections methodology for Scotland, and there may be some loss of accuracy from using this smoothing.

4) ONS use household representative person (HRP) instead of head of household when deciding who represents the household for age groupings. HRP is based on economic status and age, and is probably a better indicator. Head of household is based on the first (adult) person who filled in the census form and so is probably more subjective. We currently use head of household as it is the only metric available for the 1991 census. However, we could change to using HRP if we go to just using two census data points.

Welsh Assembly Government and the Northern Ireland Statistics and Research Agency also produce household projections, for Wales and Northern Ireland respectively. ONS is currently updating a technical note which will compare the projections methodology in each of the UK countries.

Sensitivity analysis

We have been carrying out some sensitivity testing of our household projections. In particular, we have looked at the impact of the communal establishment data that feed into the projections, and on

how adopting a methodology more closely aligned to that used by ONS would likely effect our projections.

<u>-communal establishments:</u>

The household projections gather communal establishment data in order to calculate the proportion of the population in private households. We did a sensitivity analysis on the effects of using the communal establishment data gathered in 2012 instead of regathering it in 2016.

The biggest changes are with adult care for older age groups, with numbers being up to 6% off for the private household population. Armed forces can also be off as the population of bases changes over time, off by around 7% of the private household population for younger males. Student data has some effect, but only in large cities for student ages.

Hospital, child care and prison data adds very little. Armed forces and adult care seem to be the key sources that require current data, while for other types of communal establishment it seems possible to extrapolate without much error (or at least negligible impact on the household projections).

<u>-methodology:</u>

We have used the 2016-based data to analyse the effects of changing to an ONS-like methodology. We used only two census and froze headship rates at their 2021 values. This ONS-like method gives a lower projection. Our current 25 year projection method shows a gain of ~320 thousand households over the period, while the ONS methodology would yield only ~250 thousand households. The methods therefore produce significantly different results.

Other methodology questions

To make the household projections more responsive to recent trends, we would like to include the Scottish Household Survey (SHS) breakdown of household types in the projections. This would involve varying the line projected from the census by some factor to account for the SHS data points for more recent years. The exact method for incorporating SHS data into the household projections has not yet been determined

Summary

We would welcome views from HARG members on:

each of these four key areas of difference as we look to update our methodology for the next set of household projections for Scotland.

National Records of Scotland
June 2019