User Guide

Local Level Household Income Estimates

Background

The Scottish Government (Housing, Regeneration and Welfare Division) commissioned work to generate annual estimates of total gross household income distribution for data zones and higher geographies in 2015. The estimates were seen as having potential use both within the Scottish Government's Analytical Services and Local and other Planning Authorities (e.g. in housing plans/strategy development and anti-poverty work).

Following the initial publication of local level income estimates in 2017, the methodology was refined and the estimates updated on three occasions. The most recent estimates were released in 2020 and refer to income estimates for 2018.

How the income estimates were constructed

Our approach has drawn upon previous work on small area income estimation, in particular:

- An Improvement Service/Scottish Government Study (Bramley and Watkins 2013); and
- An exercise to generate local income data for Transport Scotland's strategic transport model (DSC and Heriot Watt University, 2014).

The approach draws on a range of datasets including 5 rolling years of data from the Scottish Household Survey (SHS), Family Resources Survey (FRS), Annual Population Survey, Business Register and Employment Survey, SIMD, DWP benefit claimant count, House price data, specially commissioned tables from the 2011 Census for households by type at Data Zone level and Housing Completions Data.

The methodology is described in greater detail in the 2017 report that accompanied the release of the first set of local level income estimates. In short it:

- Draws on the SHS data to develop lognormal distributions for each of 41 household types
- Generates local variations to these national income profiles, based upon the additional data on the economic profile and other local characteristics (based on the sources described above)
- The outputs of this process have been compared with area type and regional level distributions observed in the SHS.
- The final version of the income estimates is controlled for consistency with the Family Resources Survey data for Scotland.

The updating of the original income estimates drew upon new or updated data sources. These included:

- Recently published releases from the SHS and new information on housing completions that was used to update the inputs to the modelling process;
- Recently published data that was only available at higher-level geographic areas that could be used to adjust model coefficients; and
- Updated output from the other national surveys used for comparison and control.

What is available

There is a wealth of information available. In preparing the outputs we have provided the following income estimates at data zone level and Intermediate zone level.:

Mean Gross Household Income
Median Gross Household Income
Proportion of households earning less than £300 per week, gross
Proportion of households earning less than £600 per week, gross
Poverty indicator: a close approximation to the former UK Government target measure of relative low income i.e. the proportion of households with an income below 60% of the median net equivalent income before housing costs.

Similar information on mean, median etc is also available for the following:

Household Type	Information is reported for the nine main household types used to create the estimates
Area Typology	Income levels are reported for three broad regions and for the ONS 2011 Census based small area typology. This provides a disaggregation to 27 groups
Local Authority	Income estimates are reported for the 32 Local Authority areas

Interpretation

This is both a new and complex dataset. We would urge care in its application.

Means and Medians

The dataset includes estimates of both the mean gross household income and the median gross household income.

The mean is the sum of the individual incomes households divided by the number of households.

The median is the middle number in a set of data; half of the observed incomes will be lower than this, half greater.

Behind these two values, there will be a range of income levels for individual households, some higher than the mean and/or median, others lower.

Estimates are provided of the proportion of households with incomes below 18 bands (and Scottish government derive percentile estimates from these)

Temporal Change

There have been four releases of the Local Level income estimates. These are for 2014, 2015, 2017 and 2018. We urge caution when comparing estimates for different years for small areas. Whilst there may be genuine changes in income, the differences may also reflect refinements to the methodology that were introduced over the course of the first two rounds..

Year-on-year changes may also be influenced by 'data noise' in key sources, such as the SHS data, that may be attributed to sampling variance.

Geographic reporting

As with most datasets that set out to estimate statistics there will be a greater confidence when the outputs are reported for large, homogenous areas, than when they are reported for smaller, local areas. In the latter, particular local factors that are not captured in the estimation methodology may come into play. Given this, we would recommend that, in many cases, Intermediate zone estimates are used rather than Data zone level estimates, particularly when looking at particular household types. However, the data zone level estimates may be useful for aggregating to bespoke geographical areas within local authorities.

Pensioner Households

The estimates of pensioner household incomes should be treated with caution. Currently the methodology draws upon information from the 2011 Census on retired persons' previous employment. There was a low response rate to the relevant Census question which may have introduced some imprecision into the estimation of pensioner incomes. We continue to look for alternative sources of data to address this weakness.

Comparison with other data sources

Care must be taken when comparing these income estimates with other sources. Differences with SIMD and similar measures of low income poverty that are based mainly on benefits reflect the well-recognised fact that there are significant numbers of low income households who are not claiming low income benefits.

These estimates are designed to fit observed levels and patterns in terms of median incomes and proportions of households below certain band levels. While estimates of mean income are also given, these may be less strictly comparable with other sources, such as the FRS, which is augmented to better capture high income levels of some households. Also for this reason, the estimates may somewhat understate the levels of income in the small areas with the highest average income.

Project summary

Other local level income estimates may differ due to both different approaches to their calculation and the use of different data. When making comparisons it is advisable to consider the different methodologies and data sources in order to understand why their estimates may diverge.