Office for National Statistics

CENSUS ADVISORY GROUP

AG (13) 05 – ONS Geography update

1.1 Introduction

ONS Geography has released a number of geographic referencing products to support the census statistical releases. The policy for 2011 Census output geographies has been informed by four public consultations from 2007 to 2011, and by the Geography Policy for National Statistics that ensures the all official statistics, including 2011 Census releases, will be consistent and comparable for the geographies they are produced for. This paper gives an update on the geographic data releases, plans for future releases, and any issues related to 2011 Census geography.

1.2 2011 Census Geography Products - October 2012 Release

The first release of Census Geography products was on 31st October 2012. Products included:

1.2.1 2011 OA, LSOA and MSOA boundaries

2011 OAs and SOAs were created by applying the 2011 Census populations to the 2001 OA and SOAs.

2001 OAs were modified only in the following circumstances:

- their 2011 population fell below 100 persons or 40 households: in which case it was merged with another OA.
- their 2011 population rose above 625: in which case it was split into two or more OAs.
- they were aligned to local authority district boundaries that had changed between 2003 and 2011.
- they were independently assessed as lacking social homogeneity when they were created for 2001.

Similar corresponding criteria were applied to the SOAs.

After modifications, there are now 181,408 OAs, 34,753 LSOAs and 7,201 MSOAs in England and Wales. This means that 2.6 per cent of 2001 OAs have been changed as a result of the 2011 Census, along with 2.5 per cent of LSOAs and 2.1 per cent of MSOAs.

2011 OAs and SOAs align to local authority boundaries, including those that changed between 2003 and 2011, and also align at the border between Scotland and England. 161 OAs and SOAs were modified because they were considered to be not socially homogeneous. The average population in an OA has increased from 297 in 2001 to 309 in 2011.

Boundaries are available for mapping (clipped to the coastline), as well as for geographic information systems and analysis (extent of the realm), as full resolution, generalised (to 20m) or super generalised (to 200m) boundaries, in ESRI (shape) or Mapinfo (mid/mif) formats. All 2011 OAs and SOAs have unique nine character codes, in line with all statistical geographies provided by ONS.

1.2.2 Lookups from 2001 to 2011 OAs/SOAs

Lookups that map 2001 OAs/SOAs to their 2011 equivalents show:

- 170,859 (97.4%) of the 2001 OAs are unchanged. This means that direct comparisons can be made between these 2001 and 2011 OAs.
- 3,239 (1.9%) have been split into two or more OAs. This means direct comparisons can be made between estimates for the single 2001 OA and the aggregated 2011 OAs' estimates.
- 1,115 (0.6%) have been merged with one or more other 2001 OAs. This means direct comparisons can be made between the aggregated 2001 OAs' estimates and the single 2011 OA's estimates.
- 215 (0.1%) have been redesigned because of local authority boundary changes, and to improve their social homogeneity. These can't be easily mapped to equivalent 2011 OAs, and therefore like for like comparisons of 2001 and 2011 estimates are not possible.

1.2.3 Population weighted centroids for 2011 OA, LSOA and MSOA

Each OA, LSOA and MSOA has a population weighted centroid, representing how the census population was spatially distributed in each area, tied to a single summary reference point on the ground. This is used to determine how each area best fits to any higher geography.

1.2.4 Lookups from 2011 OAs, LSOAs and MSOAs to a number of output geographies

These lookups allocate the statistical building blocks of OAs and SOAs to a number of output geographies, by plotting the population weighted centroids to those geographies. This "best-fits" the OAs and SOAs to the higher geographies and is used to build estimates for those higher geographies by aggregating whole building blocks of estimates. All 2011 Census estimates are best-fitted to output geographies, in line with the Geography Policy for National Statistics, to ensure consistent and comparable statistics for all geographies, for all official statistics.

1.2.5 Postcodes that were enumerated in the 2011 Census linked to 2011 OA, LSOA, MSOA

These postcodes are only the ones that appeared on a completed census (so limited to residential postcodes) allocated to the statistical geographies by plotting the mean address point of the postcode into the geography's digital boundary.

All geographic data released by ONS are freely available under the terms of the Open Government Licence .

2011 Census Geography products can be accessed from http://www.ons.gov.uk/ons/guide-method/geography/products/census/index.html

1.3 2011 Census Geography Products – January 2013 Release

1.3.1 Workplace Zones (WZs)

This is a new geography derived from splitting or merging the 2011 OAs until they contain consistent numbers of workers. WZs are intended as a more suitable statistical and mapping base for business statistics than the residence-based 2011 Output Areas (OAs).

There are 53,578 WZs, with a mean worker population of 456.

1.3.2 Merged Wards

Census merged wards are a frozen geography created specifically for 2011 Census Detailed Characteristics (DC) tables. DC tables have a higher minimum population threshold than other tables as the more detailed information carries an increased risk of identifying persons or households using the lower population threshold (100 persons) applied to other tables. If the 2011 Census estimate for a ward falls below 1,000 persons or 400 households, the ward is merged with a neighbouring ward, or wards, until the aggregated census estimate for the merged wards is above both the minimum person (1,000) and household (400) threshold.

Census merged wards include the 2011 wards whose estimates are above the higher threshold, without the need to merge with another 2011 ward, as well as the 2011 wards that have had to be merged. This gives complete coverage of England and Wales.

All Census merged wards are given a different entity code to indicate they are a set of census merged wards, distinguishing them from the 2011 wards. The set of census merged wards includes those 2011 wards that have not had to be merged to be above the set thresholds (and so are exactly the same boundary as the 2011 wards), as well as those 2011 wards that have had to be merged to be above the thresholds.

1.3.3 Best-fit percentage indicator

For each lookup from OA, LSOA and MSOA to a higher geography, a best-fit percentage indicator is provided. This shows (where the population of the best-fitted OA/LSOA/MSOA is not wholly contained within the higher geography) the percentage of the OA/LSOA/SOA population that actually falls within the boundary of the higher geography it is best-fitted to.

Also included are population (worker) weighted centroids for WZs; standard area measurements for OAs, LSOA, and MSOAs; OA to WZ lookups; and OA to other geographies lookups.

1.4 Future Releases

Future geography releases will include Built Up Areas (known as Urban Areas in 2001), in advance of the statistical releases for Built Up Areas (publishing date to be confirmed at a later date), and standard area measurements for WZs.

1.5 Coming soon – Open Geography, ONS's portal for geographic data

During April 2013, ONS will launch its Open Geography portal, a new dissemination channel for all its spatial products. This will provide customers open access to view, query, download and visualise the spatial products that support national statistics, including all the 2011 Census geographic data products. The portal will meet ONS strategic objectives to provide open, digital services and in particular the portal will comply with the EU INSPIRE directive for harmonising the supply and access to spatial datasets across Europe. Over the next year the ONS geographic data framework will be available in machine-readable formats to allow system to system integration.

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