



A Guide to ONS Geography Postcode Products

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Introduction

This guide explains how postcodes are allocated to a range of geographies, on which statistics are published. It explains the main differences in how postcodes are allocated between our two main postcode products, the National Statistics Postcode Lookup (NSPL) and the ONS Postcode Directory (ONSPD). This guide also describes another ONS postcode product, 2011 Census enumeration postcodes, containing only those postcodes that were recorded at the 2011 Census.

Summary

Use the NSPL for producing statistics

- You should use the NSPL for all statistical production, to ensure geographic consistency across all official statistics.
- A key principle of the Geography Policy for National Statistics is that statistics for higher level geographies should be built from statistical building bricks: for England and Wales, these are Output Areas (OA). Scotland and Northern Ireland have OAs and small areas respectively.
- The NSPL allocates postcodes to higher geographies on the basis of the postcode's OA. All the postcodes in an OA will be allocated to the same higher geography using a best-fit method. Using the NSPL ensures that statistics for a higher geography will always be built from OA.

Use the ONSPD for more exact allocation of postcodes, for example for operational or administrative applications, but not for statistical applications

- The ONSPD allocates postcodes directly to a number of higher geographies, but not on the basis of its OA - as is the case with the NSPL - but by using the postcode's 1-metre grid reference. In the ONSPD, postcodes that are in the same OA can be allocated to different higher geographies in cases where an OA falls across two or more of the higher geographies.
- Whilst the ONSPD method is more exact in allocating postcodes to a higher geography, it does not support the Geography Policy for National Statistics. You should not therefore use it for producing statistics.

Use the 2011 Census enumeration postcodes if you need to link to 2011 Census population estimates

- 2011 Census enumeration postcodes are those postcodes that were recorded during the 2011 Census as containing one or more usual residents. These postcodes were assigned directly to selected higher geographies, such as parishes and wards, on the same basis as the ONSPD, and not on the basis of the postcode's OA.
- These postcodes were also assigned on the basis of their recorded location at the time of the 2011 Census. Use these postcodes with 2011 Census estimates of the number of males, females and households for each enumeration postcode, published in June 2013.

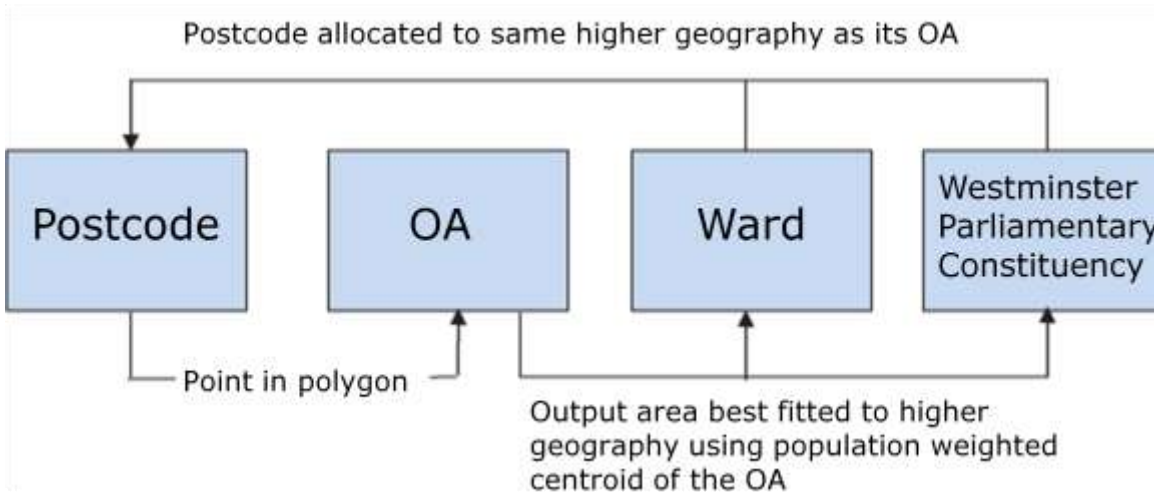
Methodology

NSPL postcode allocation method:

The method used to allocate postcodes to higher geographies aligns with the Geography Policy for National Statistics. Using the NSPL to reference postcoded source data enables statistics to be produced for all geographies on the basis of whole OAs.

The postcodes are allocated to OAs by plotting each postcode's centroid (the 1-metre grid reference location of the mean address in the postcode snapped to the nearest property) directly into the OA boundaries. The postcodes are then allocated to the higher geographies that the postcode's OA falls in by plotting the OA's population weighted centroid into the digital boundary of the higher geography. A population weighted centroid is a grid reference that in a single summary point reflects the spatial distribution of the 2011 Census population in the OA.

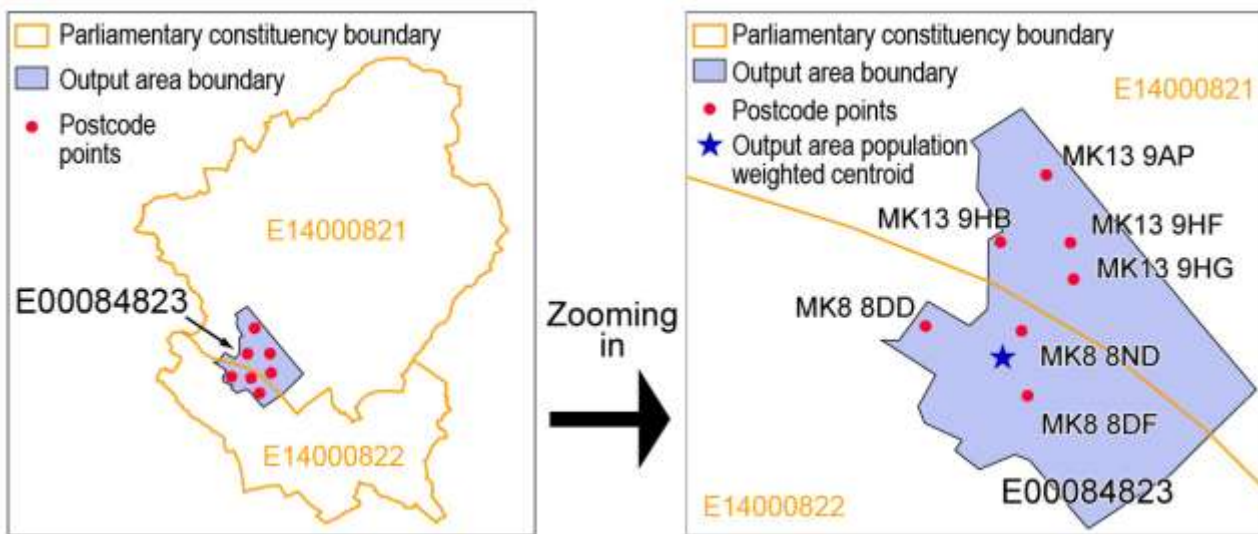
Method:



The diagram shows that postcodes are allocated to OAs based on the 'point in polygon' process. The centroid of each postcode is plotted into the OA boundaries. The OAs are then allocated to higher geographies by best-fitting them, by plotting each OA's population weighted centroid into the boundaries of each higher geography. The postcode is allocated to the same higher geography as its OA.

Example:

The example below shows a number of postcodes (red dots) within the same OA (E00084823) but which straddle 2 different Westminster parliamentary constituency boundaries (E14000821 and E14000822). The postcodes are allocated to the Westminster parliamentary constituency boundary based on where the OA's population weighted centroid falls.



Therefore all the postcodes within OA E00084823 are allocated to Westminster parliamentary constituency E14000822 as the OA has been fitted to it, using its population weighted centroid.

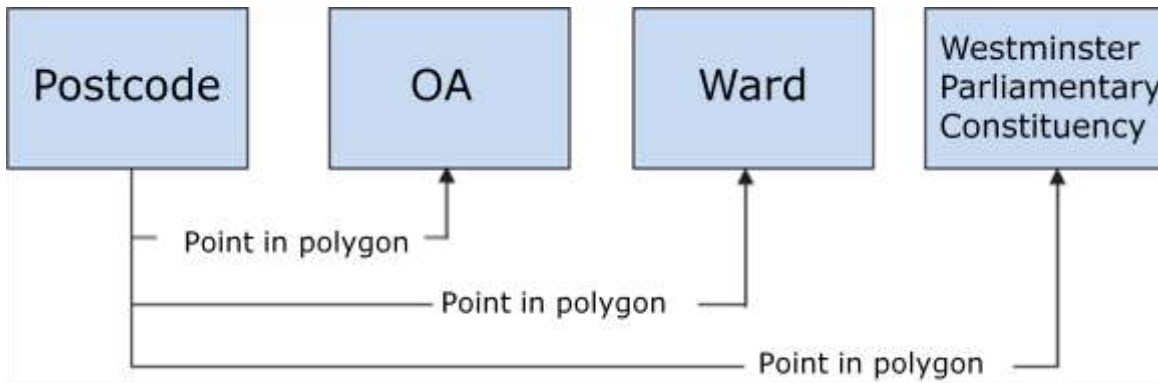
Postcode	Westminster parliamentary constituency code	OA code
MK13 9HB	E14000822	E00084823
MK13 9AP	E14000822	E00084823
MK13 9HF	E14000822	E00084823
MK13 9HG	E14000822	E00084823
MK8 8DD	E14000822	E00084823
MK8 8ND	E14000822	E00084823
MK8 8DF	E14000822	E00084823

The NSPL supports the Geography Policy for National Statistics.

ONSPD postcode allocation method:

The ONSPD associates postcodes with a number of other geographies. The postcode is directly allocated to most of the higher geographies by plotting each postcode's centroid (the 1-metre grid reference location of the mean address in the postcode snapped to the nearest property) directly. This places each unique postcode in the actual boundary of the geography it falls within. The remainder of the allocations are made from lookups.

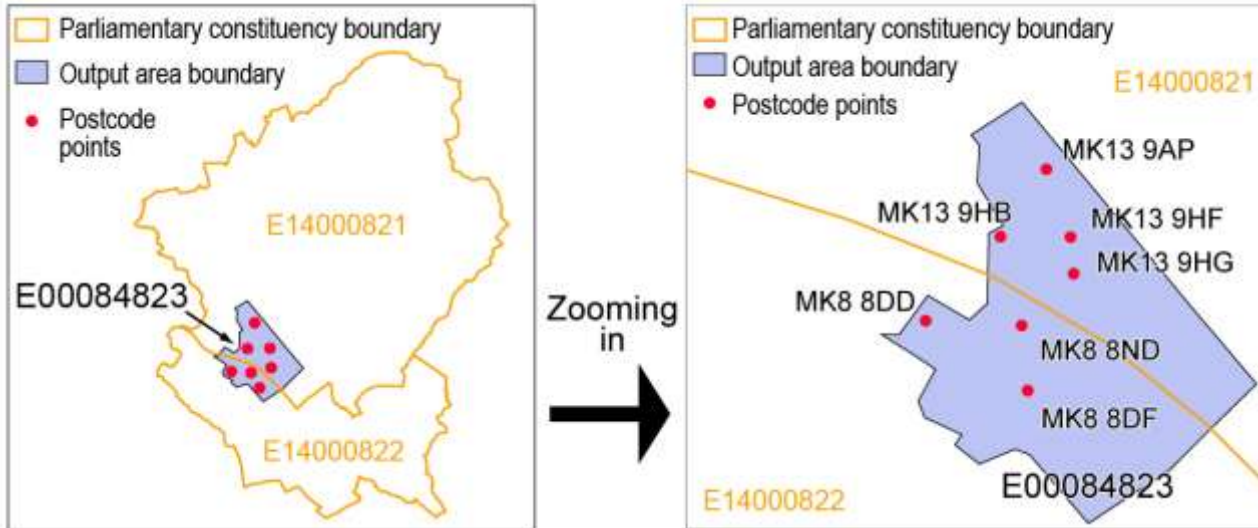
Method:



The diagram shows that for each of the different higher level geographies, the postcodes are allocated using a 'point in polygon' process each time. The centroid of the postcode is plotted separately each time into the boundaries of each higher geography. The first part of the point in polygon (postcode to OA) is the same as for the NSPL, but from that point the allocation method is different to the NSPL.

Example:

The example below shows a number of postcodes (red dots) within the same OA (E00084823) but which straddle 2 different Westminster parliamentary constituency boundaries (E14000821 and E14000822). The postcodes are allocated directly to the Westminster parliamentary constituency based on where the postcode's centroid falls.



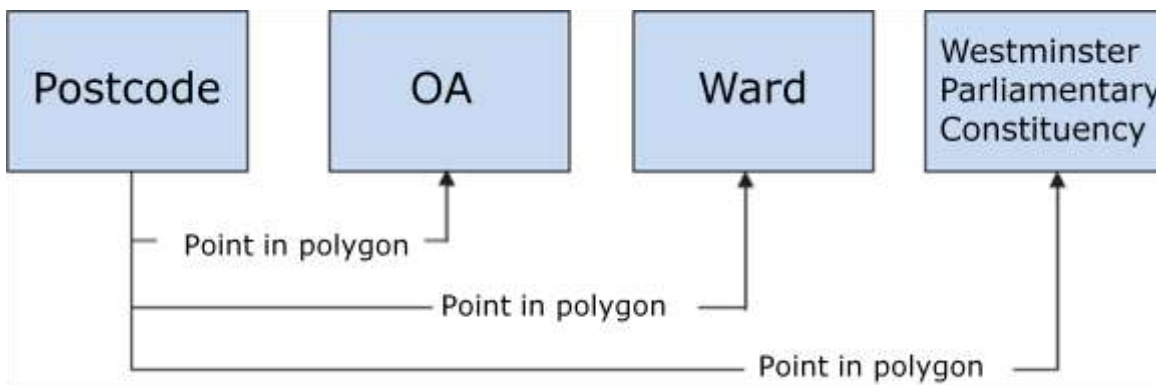
The postcodes are therefore allocated to the 2 different Westminster parliamentary constituency boundaries (E14000821 and E14000822) as shown below, regardless of the fact they are within the same OA.

Postcode	Westminster parliamentary constituency code	OA code
MK13 9HB	E14000821	E00084823
MK13 9AP	E14000821	E00084823
MK13 9HF	E14000821	E00084823
MK13 9HG	E14000821	E00084823
MK8 8DD	E14000822	E00084823
MK8 8ND	E14000822	E00084823
MK8 8DF	E14000822	E00084823

2011 enumeration postcodes allocation method

2011 Census enumeration postcodes are those postcodes that were recorded during the 2011 Census as containing one or more usual residents. This file only contains these postcodes, so will not contain the full list of current and terminated postcodes that both the NSPL and the ONSPD provides.

The 2011 enumeration postcodes are directly allocated to each type of higher geography by plotting each postcode's centroid directly. This places each postcode in the actual boundary of the geography it falls within. This is the same methodology as the ONSPD. The 2011 enumeration postcodes were also assigned on the basis of their recorded location at the time of the 2011 Census.



Percentage of postcodes with different allocations on the NSPL and the ONSPD

Only a very small percentage of postcodes are allocated differently between the NSPL and the ONSPD.

The amount of postcodes affected depends on the size of the geography they are being allocated to. If the postcodes are being allocated to small geographies, more of them will be affected than for larger geographies. Just 0.002% of postcodes have different allocations to local authority districts (LAD).

Just 0.3% of postcodes have different allocations to Westminster parliamentary constituency, between the NSPL and ONSPD, whereas 1.65% of postcodes have different allocations to wards.

Contact ONS Geography

If you need further guidance or support, please contact [ONS Geography](#).