

Summary of research results: Updated UK Area Masterfiles

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Dan Abbott, Mike Noble. Website: <http://convert.mimas.ac.uk/afpd>

Background:

Geography conversion tables (or 'lookup tables') are most often used to convert quantitative data from one set of geography units to another. The purpose of estimating data for a new set of geography units in this way can be to:

- Aggregate data to units sufficiently large to provide reliable results (for example from postcoded events to local authority districts)
- Present results for areas that are familiar to the audience for the research (for example from small census units to current parliamentary constituencies).
- Estimate a time series on a consistent basis (for example electoral data from wards before and after boundary changes).
- Merge data sets drawn from different sources (for example for neighbourhood profiles containing both census data and data based on postal geography).

Achievements:

As a product of this research project, a website (www.convert.mimas.ac.uk) provides 225 UK-wide geography conversion tables between census, electoral, administrative, postal, health and statistical geographies. The website also transfers a researcher's own table of data between geographies, for example from 1991 Census areas to health service Primary Care Groups. The data conversion uses the geography conversion tables, which allocate the source data to the target geography units. Data are appropriately shared between (in this example) Primary Care Groups where these overlap the boundaries of a census area.

The full list of 25 geographies is as follows (with example codes):

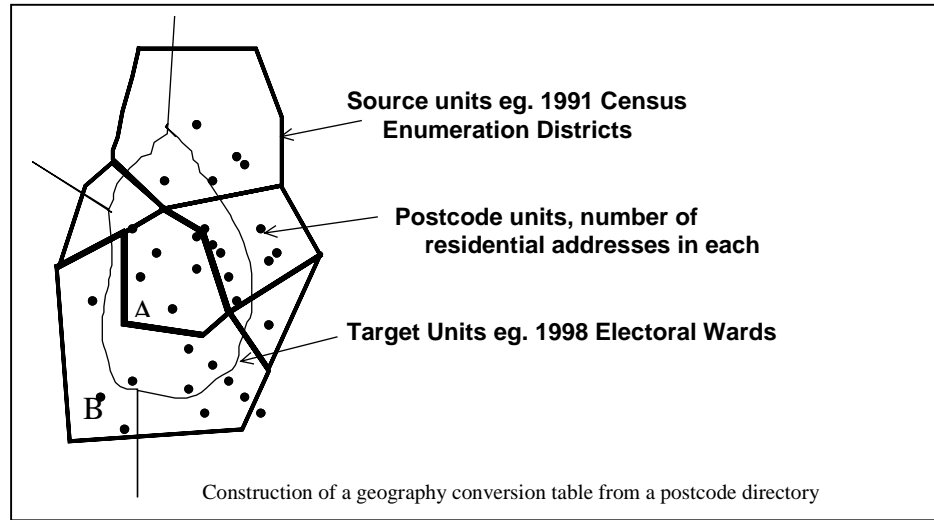
Census ED/OA 91 (EGFA01)	Postal district 99 (BD1)
Census wardlevel 91 (EGFA)	Postal sector 99 (BD1 5)
Census District 91 (EG)	Postcode99 (BD1 5DT)
County 98 (47)	Primary Care Group 99 (4AA01)
Ward 98 (JAMA).	Health Authority 98 (QAA)
Local Authority district 98 (JA)	NHS regional office 99
Parliamentary constituency 97 (001)	
European electoral region 98 (01)	Standard Statistical Region 98 (1)
	Travel To Work Area 98 (001)
Country 98 (044)	NUTS-1 98 (UK4)
Gov. office for the region 98 (A)	NUTS-2 98 (UK41)
Local Education Authority 98 (201)	NUTS-3 98 (UK411)
Training Enterprise Council/LEC 99 (001)	NUTS-4 98 (UK41100)
	NUTS-5 98 (UK41100001)

The website <http://convert.mimas.ac.uk/afpd> is fully documented with construction details of the geography conversion tables, and the calculations involved in data conversion.

Construction of geography conversion tables:

Most of the tables are constructed from version 1999b of the Office for National Statistics' (ONS) All Fields Postcode Directory (AFPD). There have been relatively few electoral boundary changes since then. The AFPD is a list of all postcodes in the UK. Each record includes the number of residential addresses in that postcode, and a field for each of the geographies listed above, indicating the unit of that geography that the postcode mainly lies within. The project 'cleaned' the AFPD by removing the small number of duplicate postcodes and adding Census geography codes for Northern Ireland and Scotland.

Postcodes were used as an intermediary to construct geography conversion tables as indicated in the diagram. Where the AFPD indicates that all the postcodes in a source geography unit lie within one target geography unit (A), the



conversion table has a single record for that source unit, with weight one. Where the source unit contains residential postcodes allocated to different target units (B), the AFPD provides a weight based on the number of residential addresses in the overlap of the source unit and target geography units.

Conversion tables between geography units whose boundaries do overlap are usually not *hierarchical*, but their *degree of fit* is an indication of the degree to which *data conversion* will involve *estimation*. These concepts and the measurement of errors in conversion tables and data conversion are addressed in the project report.

Website development:

The validation of the AFPD, the creation of conversion tables, and the use of those conversion tables for data conversion are available as stored generalised routines. These can be used to include more conversion tables from future versions of the AFPD, and conversion tables from different sources. Indeed the website already includes conversion tables for 1991 census EDs from improved sources.

The government statistical offices gave permission for the site to be available more widely than the academic community, provided that the original postcode records cannot be reproduced in whole or in part. Recommendations for development of geography conversion tables in general and the website in particular, are included in the main report.

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