

SB 10/2008

13 March 2008

“Rural Wales” – definitions and how to choose between them

A common question for the Statistical Directorate is “what is rural Wales?” While the question is simple the answer has many facets. There are many sensible ways to consider rurality. The aim of the bulletin is to give an introduction to the range of options available and to help you make informed decisions about what sort of definition is appropriate for a particular task.

As a starting point for general statistics about people in “rural Wales” the bulletin includes an introduction to the National Statistics classification of settlement type and context.

Highlights

- There is no single definition that applies for all purposes. There are many options, which may be more or less appropriate in different circumstances.
- Specifically, different definitions of rurality will be required when considering “rural people”, “rural land” and “rural activities”.
- Also there may be different definitions depending on whether, for example, we want descriptive statistics where we can accept a degree of fuzziness and funding mechanisms where we cannot.

Contents

- An overview of the type of measures of rurality that are available
- Advice about how to choose between the various options
- Introduction to the National Statistics classification of settlement type and context

Further information

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Types of rurality measures

This section contains a brief introduction to the main types of rurality measures that we might use. The measure are presented in broadly the order of their complexity, starting with the simplest.

Sparsity measures

In general we calculate the number of people living in a given unit of land (persons per square kilometre, for example). We then set a threshold below which areas are considered to be “sparse” or “rural”.

The key requirements are that we can define and measure the areas and that we can estimate their population. The simplicity of the approach and the likelihood that data are available to make the calculations are the great strengths of using a simple sparsity measure.

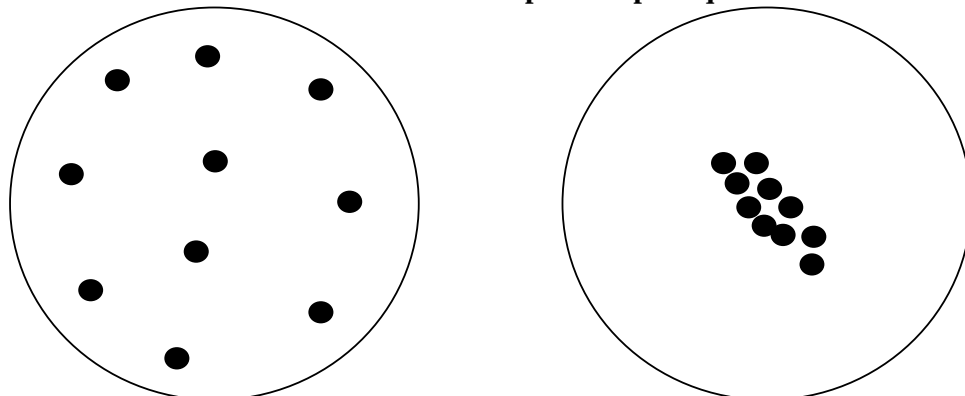
For example,

We might want to use the OECD density threshold of 150 persons per square kilometre. Applying this threshold at different scales will show the following shares of the Welsh population as living in sparsely populated areas.

- National – 100% (Wales average is 140 persons per square kilometre)
- Local authority – 33%
- Electoral division – 19%
- Census Output areas – 15%

However, the simplicity also means that these measures cannot reflect the subtleties of the distribution of population. The fact that two areas have similar numbers of people per square kilometre can conceal significant differences between areas. The following diagram shows this effect in a schematic way. We have two areas of the same size each with the same number of people. In one area the people are scattered evenly and in the other they cluster into a settlement (with the surrounding area empty). Comparing the two local authorities of Anglesey and Denbighshire gives a practical example of this. In Anglesey most people live in small settlements that are quite evenly spaced across the island. In Denbighshire there is a densely populated coastal strip with a very sparsely populated hinterland. However, both authorities have around 100 persons per square kilometre.

Two areas with the same number of persons per square kilometre



Land use measures

Classifications of land use – residential, industrial, commercial, agricultural, forestry, common land and so forth. It might also include land under statutory designations (such as National Parks or SSSI) or involved in environmental schemes. These measures will tell us about use of land (and perhaps some indication of environmental impact). They will not tell us about the people who live on or use the land. The planning and transport systems have their own land use classifications to meet their specific needs.

For example,

We can classify land as being in one of 4 categories that can be identified from definitive data that the Assembly holds.

- Registered for agricultural subsidy
- Forestry Commission estate (commercial and amenity)
- Legal status as common land
- Other (land not in one of the above categories including non-claiming agricultural land, private woodland, MOD firing ranges and domestic, industrial and commercial built up areas)

This allows a general summary of broad land use at, say, local authority level.

The main problem with these land use measure is to find definitive data sources. In the above example, the Assembly holds definitive information about all agricultural land for which the owner claims subsidy. This will exclude agricultural land for with no claim (although we know that in Wales this figure is small).

Settlement size measures

Based around identifying individual settlements. These settlements may then be classified. Generally we would define as “rural” settlements with less than a given population. In the UK the figure of 10,000 persons is often used as the threshold, settlements of less than 10,000 people being “rural” and those with more than 10,000 people “urban”.

This type of measure allows us to take into account the difference between two areas when one has many small settlements and one has a few larger settlements but more empty land. The drawback of this type of measure is the lack of agreement of how to define “a settlement”. While there is broad agreement about general principals, these can be put into practice in many different ways. While a simple limit on settlement size is easy to understand and apply the main problem is that the threshold is essentially arbitrary.

For example,

The share of the population that lives in settlements of less than 10,000 people using statistical settlements defined by the Office for National Statistics

- Powys – 87%
- Ceredigion – 69%
- Caerphilly – 22%

- Swansea – 12%
- Cardiff – 3%
- Wales – 36%
- England – 19%

Dispersion measures

Based on estimating the average distance between residents in an area and the centre of the area. This type of measure can show not only when people live outside the larger settlements but also how far these people need to travel. This allows the classification to take account of the fact that some Welsh authorities are not only relatively sparsely populated but that this sparseness is sustained over relatively large distances. Thus a dispersion measure would give very different values to the two areas in the diagram above.

The complexity of the measure means that there are a large number of ways to calculate it.

For example,

The Local Government distribution formula now includes a dispersion element from specially commissioned research.

Access measures.

This is a specific form of dispersion measure, adding further levels of complexity – and, hopefully, sophistication. The concept is to calculate travel time from individual households to a particular service delivery point. We can then use the calculated travel times to set up categories based on the share of the population in an area that is within a given time of the service.

The simplest method for doing this is to calculate the time it would take to drive in a car. This has the obvious disadvantage that not everyone has access to car, however, it may still be useful as an upper limit. The travel time for people without a car cannot be less than the car drivers. However, building in the use of public transport leads to a great increase in the complexity of the calculations.

These measures are most appropriate when we want to assess access to a specific service – say a primary school or a general practitioner. It is more difficult to combine services to give a general feel of, for example, access to a range of key services. There are a number of ways to combine individual services to get an overall picture rather than a definitive method.

These access methods have the advantage of being an intuitively reasonable measure that people can understand. The two big disadvantages of this method are the resources needed to make the calculations and the need for highly accurate point data for the households and the services.

For example,

Considering the drive time to the nearest primary school for Welsh households (as at January 2007).

- 4% of Welsh households are more than 5 minutes drive from a primary school.

- 12% of Welsh households are within 5 minutes drive of a single primary school
- 84% of Welsh households are within 5 minutes of at least 2 primary schools

Specific modelling exercises

Having a specific model can be an advantage because it ensures relevance but a disadvantage because of the extra resources needed to model each system.

For example,

The formula for the allocation of funds to Local Health Boards has a rural costs adjustment that is applied to 7.5% of expenditure. This corresponds to the travel intensive elements of community health services. This adjustment is based on a modification for Wales of a model estimating extra costs developed for the Scottish review of resource allocation (Fair Shares for All, Final Report, Scottish Executive Health Department, 2000).

Combinations

To provide a general classification we might want to combine these measures into a single classification.

For example,

The National Statistics classification of settlement type and context in Wales and England. The context measure is based on the density of settlement at a range of scales. This classification is later in this bulletin.

Using rural measures

That a range of different solutions can be adopted in a range of situations is not necessarily a problem. Flexibility can be important if it allows us to analyse statistics or target resources in an appropriate way. The most important thing is that a decision is made to assess a range of alternatives and to select the most appropriate.

A key question therefore is when the different types of measure are appropriate. To answer this we need to consider three factors.

- What is the measure trying to achieve?
- The availability, timeliness and quality of data.
- The appropriate level of complexity for the calculations.

Purpose

Which particular “rural issues” are we trying to capture and what do we intend to use the classification for? If we are particularly interested in access to services issues, for example, we would use a different measure to one that is used to determine planning applications.

There are no magic “right” answers for this. There are many feasible options. The objective is to have a robust justification for our choice. Understanding what it is that we are trying to do and why we need to do it are the keys to this justification.

Data

For the data to be used in the calculations there are four key issues to consider.

- Are the data available at a suitable scale and level of detail?
- Are the data sufficiently robust to be “fit for purpose”? No data set is perfect since they all have limitations. Are the limitations of a particular data set sufficient to undermine the credibility of the classification? A realistic consideration of data quality is essential if we are to avoid having “garbage in: garbage out”.
- Are the data timely or are they considerably out of date?
- Are the data updated sufficiently regularly to reflect important changes over time?

Complexity

We need to strike a balance between the extremes of over simplification and over complication.

Simple systems are easy to use and can be transparent, stable and predictable. Their problem is that they cannot reflect the subtleties of the real world.

Conversely, a more complicated system can reflect more of the real world issues but this may be at the expense of clarity.

National Statistics classification of settlement type and context

This classification was developed by a group of Government Departments including the Welsh Assembly Government and covers Wales and England. The classification was first published in July 2004. Full details can be found on the Office for National Statistics Internet site:

<http://www.statistics.gov.uk/geography/nrudp.asp>

The classification provides a tool for statistical analysis. It is designed to link with the standard Output Area and Lower Super Output Areas geographies. With these geographies the classification can be used with a range of National Statistics sources. For any particular area the classification is based on the majority of people in the area. There may be minorities in other categories.

Instead of having a simplistic split between urban and rural, the classification attempts to demonstrate some of the richness of the settlement pattern. To do this it divides Wales and England by settlement type and context. This is based on where people live. It does not look at the socio-economic characteristics of the people or land use.

To build up the classification we divide Wales and England into a grid with cells with an area of 1 hectare. Wales has an area of approximately 2 million hectares. Each of these cells is classified according to the settlement type and context. Output Areas and Lower Super Output Areas are classified according to the majority of cells in the area.

The four settlement types are:

- Large towns – settlements with over 10,000 persons.
- Small towns – below 10,000 persons, includes the fringes of large settlements.
- Villages – smaller settlements with a lower housing density than small towns.

- Others – the very smallest settlements and isolated dwellings.

The cut off for large towns at 10,000 persons is essentially arbitrary. It has been maintained to allow continuity with previous classifications. In England the large town category is usually referred to as “urban”. There is no such simple population threshold for the other categories. A small town has a higher density of settlement over a wider area than a village and a village has a higher and more extended density than an “other” area.

Two contexts are defined.

- The sparsest context. These are areas with very low settlement density within a radius of 10km, 20km and 30km. An area needs to be in the sparsest 20% of Wales and England *at all three scales* to be classified as in the sparsest context.
- All other areas are considered to be in the less sparse context.

This defines 8 categories. Note that for Lower Super Output Areas the “villages” and “other” are merged to give a general “other” or “not towns” category.

How to use the classification

The classification is meant to be a tool for reporting statistics about people. It does not try to classify land or land use. It is not based on socio-economic characteristics of the people in an area.

It allows more sophistication than a simple urban/rural dichotomy reflecting the richness of the subject. However, we can produce flexible rural measures if this is required.

As statistical tool the classifications involve a degree of fuzziness at the boundaries. This means that while it is appropriate to use the classification for statistical purposes, it does not make definitive statements about a single local area.

Thus it would not be appropriate to use the directly classification for funding an individual area. However, it may be appropriate to use the classification to identify those areas that are clear cut and those that need further discussion.

It can be linked to a wide range of data sources because it uses standard National Statistics geographical building blocks.

Local authorities and other higher level groupings

We may use the Lower Super Output Areas to build up to local authority, constituency and other higher geographies. However, at these higher levels the categories tend to be highly mixed. For example, all local authorities in Wales contain a mixture of large towns, small towns and other smaller settlements (see local authority table below).

Because of this mixture of settlement types it is very difficult to justify a single general classification of the higher geographies. For specific applications we may be able to use the aggregated figures – for example classifying on the share of the population in the smallest settlements if we are looking at the provision of local services.

However, some sort of classification of rural authorities is often required because that is the lowest level at which we have data. Experience within the Statistical Directorate suggests that the following four-way classification is at least a useful starting point.

- Rural authorities – Isle of Anglesey; Gwynedd; Conwy; Denbighshire; Powys; Ceredigion; Pembrokeshire; Carmarthenshire; and Monmouthshire. Often referred to as the nine “broadly rural” local authorities.

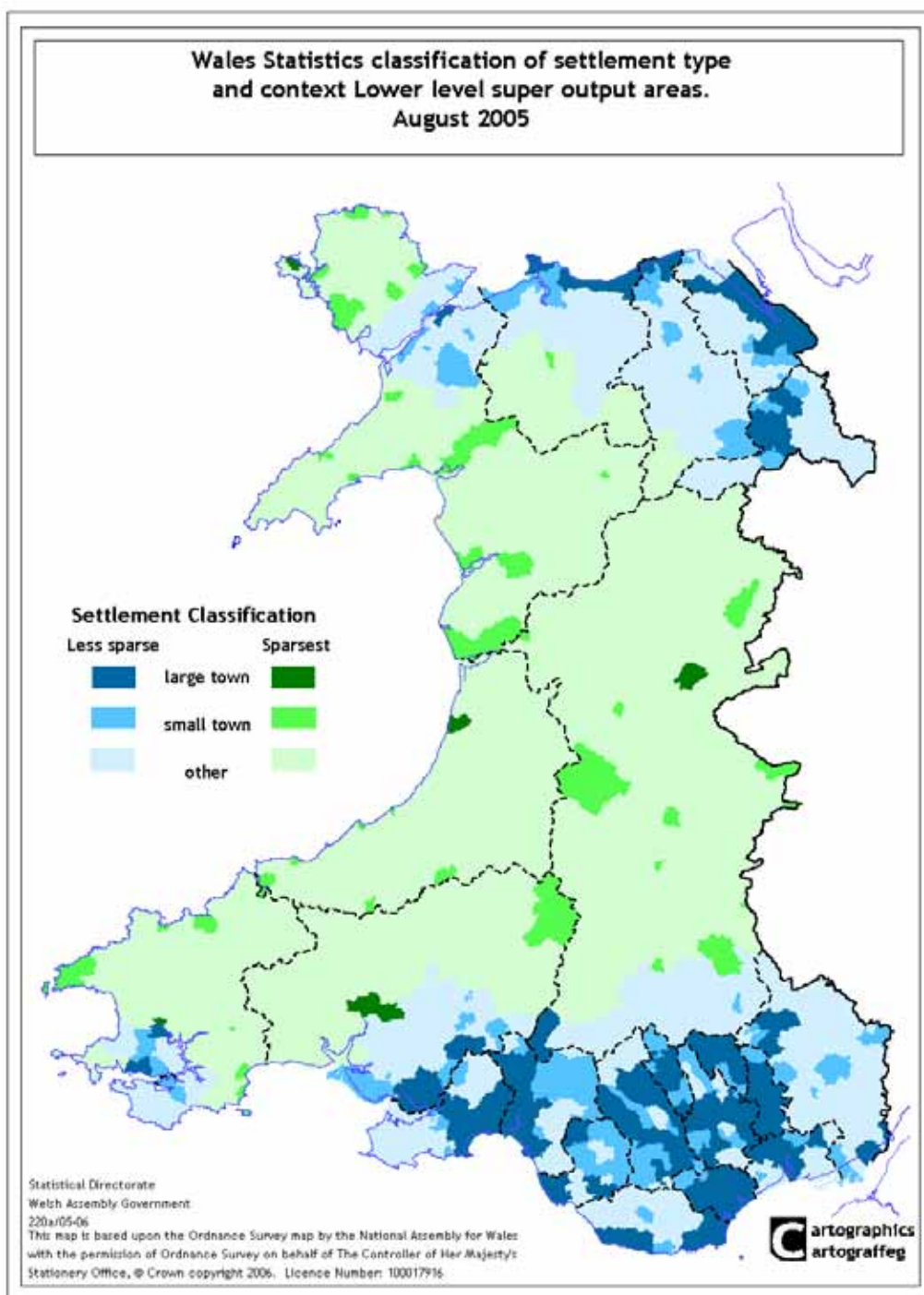
- Valleys authorities – Rhondda Cynon Taff; Merthyr Tydfil; Caerphilly; Blaenau Gwent; and Torfaen. Selected as the five authorities that contain parts of the Heads of the Valleys action area.
- Urban authorities – Swansea; Cardiff; and Newport. The largest settlements in Wales.
- Other authorities – Flintshire; Wrexham; Neath Port Talbot; Bridgend; and Vale of Glamorgan.

Illustrating the classification

Attached are examples showing the classification at Lower Super Output Area level.

- Map of the classification in Wales (map 1)
- Map of the classification for Wales and England (map2)
- Share of local authority populations in Wales by classification group (table 1)
- Share of population for Wales and the English regions by classification group (table2)

Map 1



Map 2

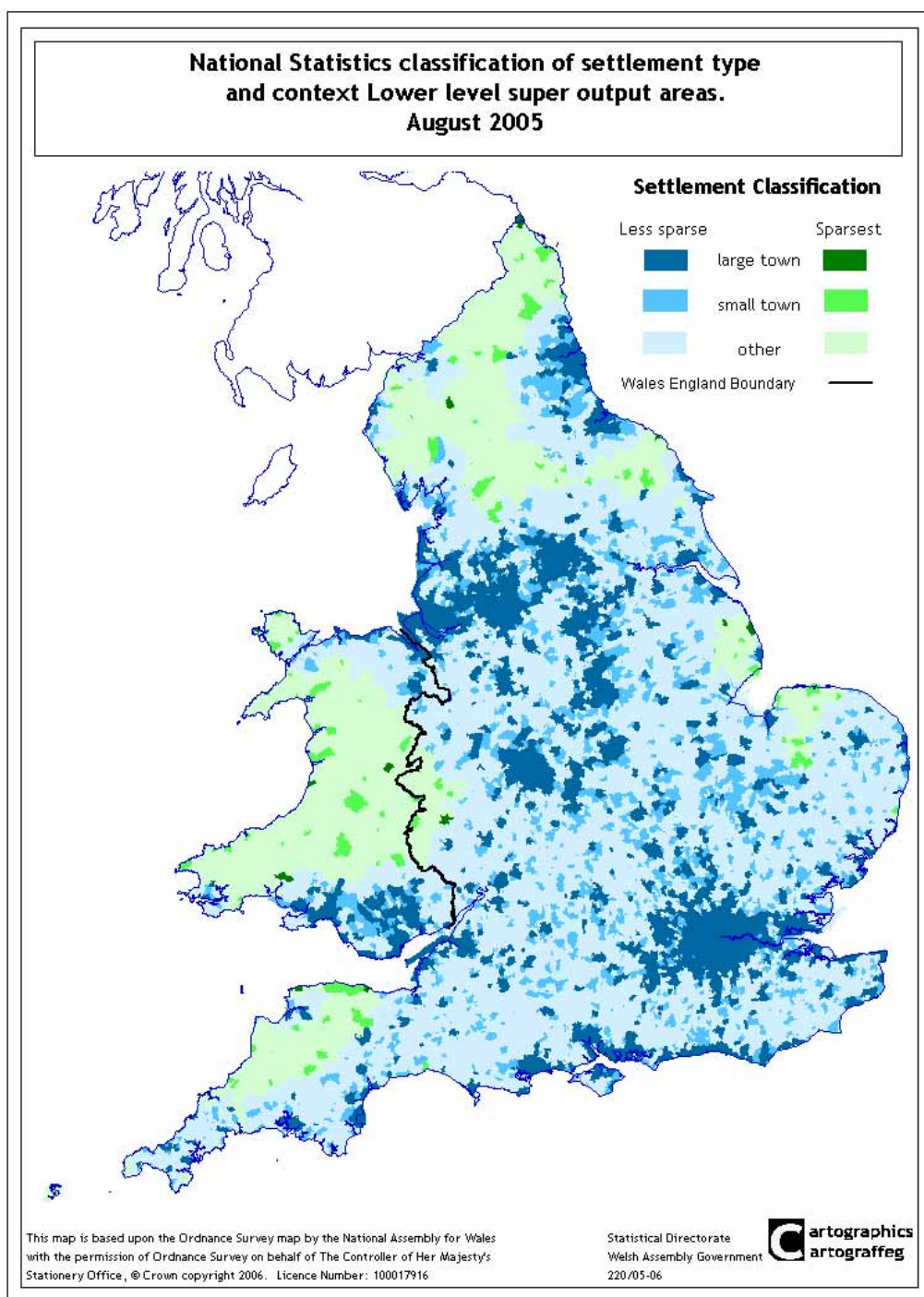


Table 1**Share of population by classification group for local authorities in Wales, 2001**

	Less sparse context			Sparsest context			Total ('000)
	Large towns	Small towns	Others	Large towns	Small towns	Others	
Wales & England	80%	9%	9%	-	1%	1%	52,042
Wales	63%	14%	8%	2%	4%	9%	2,903
Isle of Anglesey	None	12%	17%	17%	21%	34%	67
Gwynedd	13%	19%	12%	None	22%	35%	117
Conwy	58%	26%	8%	None	3%	5%	110
Denbighshire	49%	29%	19%	None	None	3%	93
Flintshire	67%	15%	17%	None	None	None	149
Wrexham	70%	17%	13%	None	None	None	128
Powys	5%	1%	8%	9%	27%	49%	126
Ceredigion	None	None	None	23%	17%	61%	75
Pembrokeshire	20%	20%	8%	3%	14%	36%	114
Carmarthenshire	35%	13%	19%	9%	2%	23%	173
Swansea	88%	5%	7%	None	None	None	223
Neath Port Talbot	74%	19%	8%	None	None	None	134
Bridgend	67%	28%	5%	None	None	None	129
Vale of Glamorgan	81%	6%	12%	None	None	None	119
Cardiff	97%	3%	None	None	None	None	305
Rhondda Cynon Taff	74%	24%	3%	None	None	None	232
Merthyr Tydfil	79%	21%	None	None	None	None	56
Caerphilly	77%	19%	4%	None	None	None	170
Blaenau Gwent	89%	11%	None	None	None	None	70
Torfaen	92%	6%	2%	None	None	None	91
Monmouthshire	45%	28%	28%	None	None	None	85
Newport	88%	9%	4%	None	None	None	137

Source: Office for National Statistics using population data from the 2001 Census

Blue values are greater than the Wales level population share, red values are below. Green values show where an area has no Lower Super Output Areas in the given category. Cells with “-” are below 0.5% but not zero.

Table 2**Share of population by classification group for Wales and English regions, 2001**

	Less sparse context			Sparsest context			Total ('000)
	Large towns	Small towns	Others	Large towns	Small towns	Others	
Wales & England	80%	9%	9%	-	1%	1%	52,042
Wales	63%	14%	8%	2%	4%	9%	2,903
England	81%	9%	9%	-	-	1%	49,139
South West	66%	13%	17%	-	1%	2%	4,928
West Midlands	84%	6%	8%	-	-	1%	5,267
North West	88%	6%	4%	-	1%	1%	6,730
North East	81%	12%	4%	1%	1%	2%	2,515
Yorkshire & Humber	80%	10%	7%	-	1%	1%	4,965
East Midlands	70%	16%	12%	1%	-	1%	4,172
Eastern	69%	14%	15%	None	1%	1%	5,388
South East	78%	10%	11%	None	None	-	8,001
Greater London	100%	-	-	None	None	None	7,172

Source: Office for National Statistics using population data from the 2001 Census

Blue values are greater than the Wales level population share, red values are below. Green values show where an area has no Lower Super Output Areas in the given category. Cells with “-“ are below 0.5% but not zero.