

Commuting Patterns as at the 2001 Census, and their Relationship with Modes of Transport and Types of Occupation

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Executive Summary

This paper explores how commuting patterns vary for people in different occupations and people who use different means to travel to work. The analysis is based on 2001 Census data aggregated to Super Output Areas and data zones. The use of Census data allows patterns of resident proportions and distances travelled to be explored locally, showing how they differ across the UK.

The key findings are:

- Commuting by car/van is more common overall than by public transport, which is concentrated in urban areas
- In most of the UK, managers are more likely than elementary workers to use car/van, but this pattern is reversed in the zone around London due to the high number of managers who commute by rail
- Managers have much longer average commuting distances than elementary workers
- In more remote rural areas the total proportion of workers using car/van to get to work is also lower, due to the higher proportions of home workers
- Some occupational groups have very distinctive patterns: skilled trades people and process, plant and machine operatives tend to have high car usage and low public transport usage
- The sheer economic dominance of London means that the surrounding area has very distinctive commuting patterns
- Case studies from different parts of the UK illustrate how local factors are also important.

Introduction

Data from the Labour Force Survey (LFS) (ONS, 2007) show that in Autumn 2007 the average time spent travelling from home to work in Great Britain (GB) was 27 minutes. In addition the National Travel Survey 2006 (Department for Transport (DfT), 2006) found that one fifth of all kilometres travelled in GB were due to commuting. These figures suggest that commuting is highly important in terms of the way people spend their time, in contributing to overall travel patterns and, depending on the mode of transport used, in influencing national carbon emissions.

Commuting patterns vary according to a wide range of factors: geographic, demographic, and socio-economic. This research uses United Kingdom data from the 2001 Census to investigate two of these factors:

- mode of transport of commuter
- occupation of commuter

Having a better understanding of these facets of commuting and how they relate to each other will help groups such as transport planners and employers take informed policy decisions on transport infrastructure and recruitment strategies.

Previous research

Previous research has found various factors that relate to commuting patterns:

- Sex. The LFS (ONS, 2007) found that in Autumn 2007 male commuters in Great Britain took 30 minutes on average to get to work, compared to 24 minutes for females. And the National Travel Survey (NTS) 2005 (DfT, 2006) found that men in Great Britain made more commuting trips than women, and also travelled further: an average of 17km compared to 10km.
- Hours worked. The LFS (ONS, 2007) found that full-time workers in Great Britain spent 29 minutes commuting to work compared to 20 minutes for part-timers. And analysis of 2001 Census data for the UK (Dent & Bond, 2008) correspondingly found that full-timers tend to commute further.
- Income. People with higher incomes tend to travel further. For example, the NTS 2005 (DfT, 2006) found that people living in households in the highest income quintile (ie the highest earning 20%) in Great Britain travelled more than twice as far to work (20km) as people in households in the lowest income quintile (9km).
- Occupation. Owen and Green (2005), analysing 2001 Census data for England and Wales, found that people in higher occupational groups (eg managers and professionals) tend to travel further to work than people in lower occupational groups (eg personal service, sales and customer service, and elementary work).
- Place of residence. The NTS 2005 (DfT, 2006) found that people living in rural areas in Great Britain travelled further than people in urban areas. Rural residents travelled an average of 20km, residents of London travelled 13km,

and residents of other major cities averaged just 10km. And work by Dent & Bond (2008) found that, for full-time workers in the UK in 2001, those who lived in especially deprived neighbourhoods were much more likely to work locally than those living in the least deprived neighbourhoods.

- Mode of transport. The LFS Autumn 2005 (ONS, 2005, quoted in DfT, 2007) reported that 71% of people usually travel to work by car or van. And the NTS 2005 (DfT, 2006) reported that the proportion of people using private transport varies depending on the distance travelled. As might be expected those travelling less than 3km are split largely between those using a car and those who walk, with smaller percentages using a bicycle or bus. For the majority of people commuting over 3km car is the preferred method of transport, with a decreased proportion using a bus. However, an increasing percentage use surface rail as distance travelled increases.

These various factors are closely interlinked. For example, females are more likely to be part-time, and part-timers are inherently likely to earn less (although they may live in the same household as a higher earner). Income is related to occupation, and similarly place of residence will be influenced by ability to afford housing. In relation to this EMDA (2007) describe the concept of 'city flight', whereby people with higher occupational statuses are moving out of urban areas into more exclusive rural surroundings.

Occupation and income will also have a relationship with the ability to afford different types of transport, and on how far people are willing to travel. The Scottish Household Survey 2005 (Scottish Government, 2005) reported that 29% of those with an income of up to £10,000 per annum used private car as a means of commuting to work, compared to 70% of those with an income of over £40,000. Likewise, Balcombe et al (2004) concluded that those from higher income households travel further and use car more than bus; however, compared to lower income groups, they also make more journeys by train.

Aims of this research

As shown, previous literature suggests that many factors relate to commuting patterns, including mode of transport and occupation. However, although there has been research at a national level into transport and occupational factors separately, there has not been detailed work on how these two factors interact, and how this relationship varies across the UK. Work has also not been done using the new small area statistical geographies (Super Output Areas and data zones) which were introduced across the UK in 2004 and 2005 (For more details on these geographies, see <http://www.statistics.gov.uk/geography/soa.asp>).

This research uses these new geographies to look at commuter transport and occupational patterns across the UK. Specific research areas are:

- Proportions of commuters using different modes of transport, and how this differs by occupational group
- Distance commuted regarding a) mode of transport and b) occupational type

Method

Data

The key data source in this research was the 2001 Census, which was carried out in all parts of the UK. This collected information on:

- Place of usual residence
- Place of work (of their main job) for all people aged 16-74. This included students who were also in employment. However, in Scotland respondents were asked to state the place where they spent most time either working or studying, meaning that many students in employment will have provided their university/college address
- The nature of their main job
- The main mode of transport used to get to work (place of main job/study in Scotland). Specifically, respondents were asked to state the mode used for the longest part, by distance, of their usual journey

From the Census the researchers had access to unpublished origin-destination commuting data at the Lower Layer Super Output Area (England and Wales), Super Output Area (Northern Ireland) and data zone (Scotland) level (henceforth referred to as SOAs/DZs). This provided unrounded information on the flows of different types of commuter (by mode of transport or occupation) between each SOA/DZ.

In addition special (unpublished) tables were commissioned, showing, for each SOA/DZ, the numbers of each occupation type (main job) who commuted by each mode of transport. This was based on the nine occupation types specified in the Standard Occupational Classification (SOC) 2000:

- Managers and senior officials
- Professional occupations
- Associate professional and technical occupations
- Administrative and secretarial occupations
- Skilled trades occupations
- Personal service occupations
- Sales and customer service occupations
- Process, plant and machine operatives
- Elementary occupations

(For more details of SOC 2000, including lists of the jobs in each occupation group, see http://www.statistics.gov.uk/methods_quality/ns_sec/soc2000.asp)

Mode of transport data also reflected the range of different means by which people commute. However, this analysis studied two amalgamated groups:

- Public transport users (including rail, bus, minibuss, coach, underground, light rail and metro)
- Car/van users (drivers or passengers, including car pool users (but excluding taxis))

Calculating average distance commuted figures

For each group of workers (eg an occupation type), average distance figures were calculated for each SOA/DZ, based on the SOA/DZ of residence. These calculations used the following rules:

- People who work at or from home were included, and assigned a distance of 0km
- People who both lived and worked in the same SOA/DZ were assigned a distance of 0km (which will be less than the true value unless they work at or from home)
- People who worked in a different SOA/DZ to where they lived were assigned the straight line distance between the geometric centroid of their SOA/DZ of residence and their SOA/DZ of work. This may be either an under- or over-approximation, dependent on the relative positions of their residence and workplace in the respective SOA/DZs. [Note, of course, that the straight line distance between two centroids may also be substantially less than the minimum possible distance using available transport infrastructure.]
- People who worked outside the UK, or offshore, were excluded as information on their precise workplace location was unavailable
- If there were 19 or fewer workers in the group under study, the distance figures were suppressed (so appear as 'Data suppressed' on maps)

Note that the Census form only asked for details of usual place of residence and work. This means that some people with a 'flat in the city' where they live on week nights might appear to do a very long daily commute, but in fact they only do this once a week. However, because they may also have stated the means of transport they use for their normal daily journey, there can be anomalies such as people apparently travelling several hundred kilometres on foot! The same issue can apply to students, who may be recorded as living at their university address, but have employment at their vacation address. However, the number of such anomalies is small and doesn't have a significant effect on the conclusions of this paper.

Calculating percentages of workers using car/van or public transport

Summary tables and maps showing the percentages of different occupational groups commuting by either car/van or public transport were calculated from the commissioned tables. However, values on the maps have been suppressed in instances where:

- There are 19 or fewer commuters in that occupational group in the SOA/DZ (this ensures that each individual commuter will have an effect of no more than five percentage points on the value), and/or

- There are 3 or fewer commuters in that occupational group in the SOA/DZ who are using that form of transport (this is to prevent the identification of individuals, and also for precision – ie to prevent isolated ‘chance’ events having disproportionate influence on the value provided for a low total population)

So, for example, if there are only 18 elementary workers in an LSOA the values for both car/van and private transport would be suppressed. If there were 20 workers of whom 18 used car and 2 used public transport, just the public transport value would be suppressed etc.

Results

Car/van versus public transport

Map 1 (overleaf) is a reference map of the UK, intended to help with the interpretation of the other maps in this report.

Maps 2 and 3 show the percentages of all workers, by SOA/DZ, using car/van and public transport to get to work. The classes are quintiles, meaning that for each map one fifth of SOAs/DZs are in each band, with the 20 per cent of lowest values being in the bottom class, and the 20 per cent of highest values in the top class.

Map 2 suggests that there are two types of area where the percentage of people using cars/vans to get to work is relatively low. The first of these is large cities. London really stands out on the map, but there are also concentrations of lower values around major cities in all parts of the UK – for example Edinburgh, Belfast, Cardiff, Birmingham, Manchester and Newcastle. This may be explained by two factors. One is the greater availability and use of public transport in these areas, and the other is that in compact urban areas it is also easier for people to use other forms of transport such as walking and cycling.

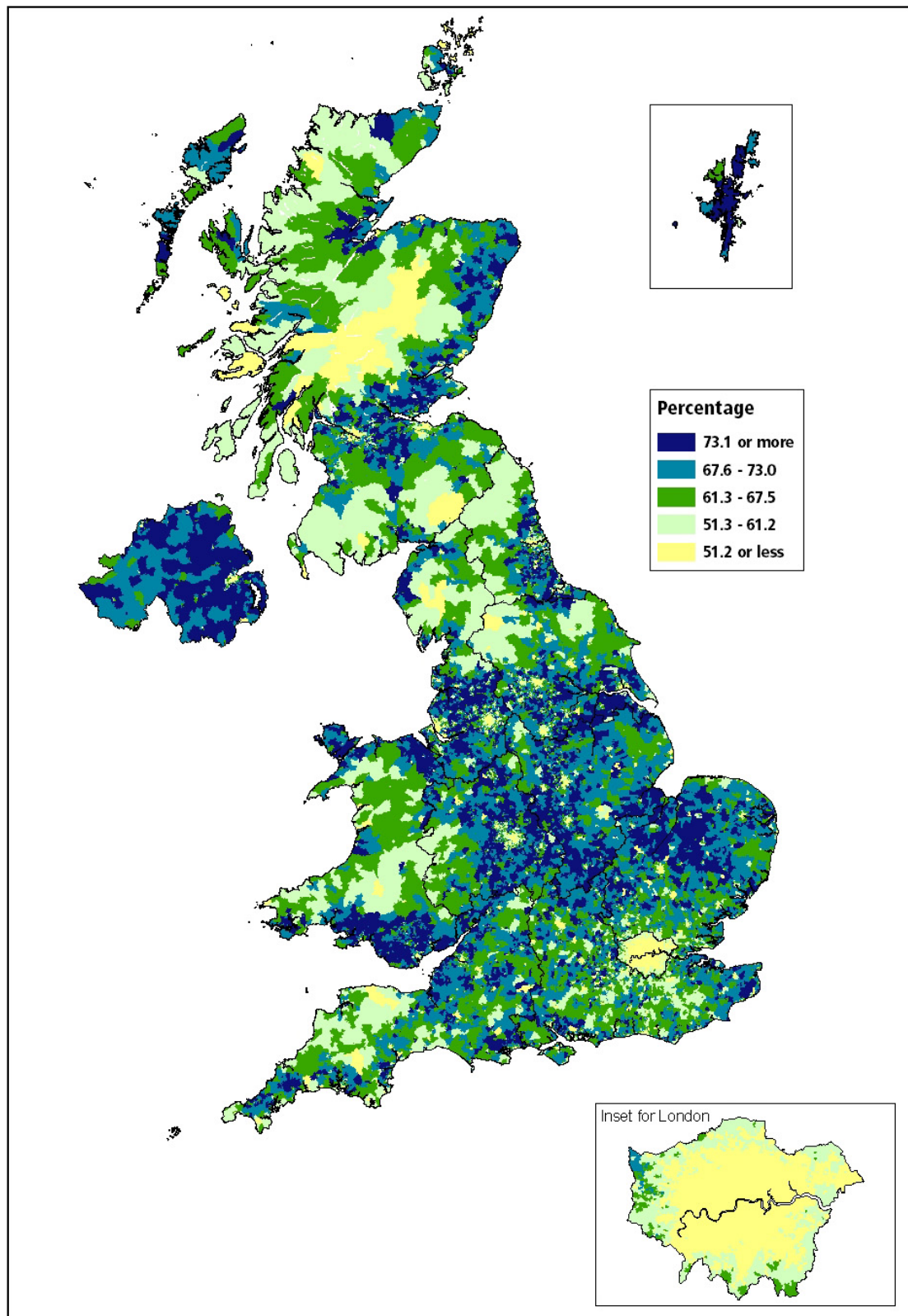
The second type of area with relatively low car/van percentages is more remote rural areas, such as parts of the South West, Central Wales and Northern England, as well as extensive areas in both the Southern Uplands and Highlands of Scotland. The main cause of this is probably the much higher proportion of people in these areas who work at or from home [in some of these areas over 30% of people work at home, compared to less than 10% in many urbanised areas (2001 Census dataset KS15)]. These people have no recorded mode of transport as they don’t commute as such (although it is still possible that they travel extensively as part of their job).

The opposite pattern, areas with a high proportion of people using cars/vans to get to work, occurs across much of South Wales, Central England, North East England and Eastern Scotland. These tend to be the more densely populated lowland parts of the country, but outside the large cities (so perhaps less immediately accessible by public transport, but without the high levels of homeworking associated with more remote rural areas). In addition, much of Northern Ireland has a high percentage of car/van users.

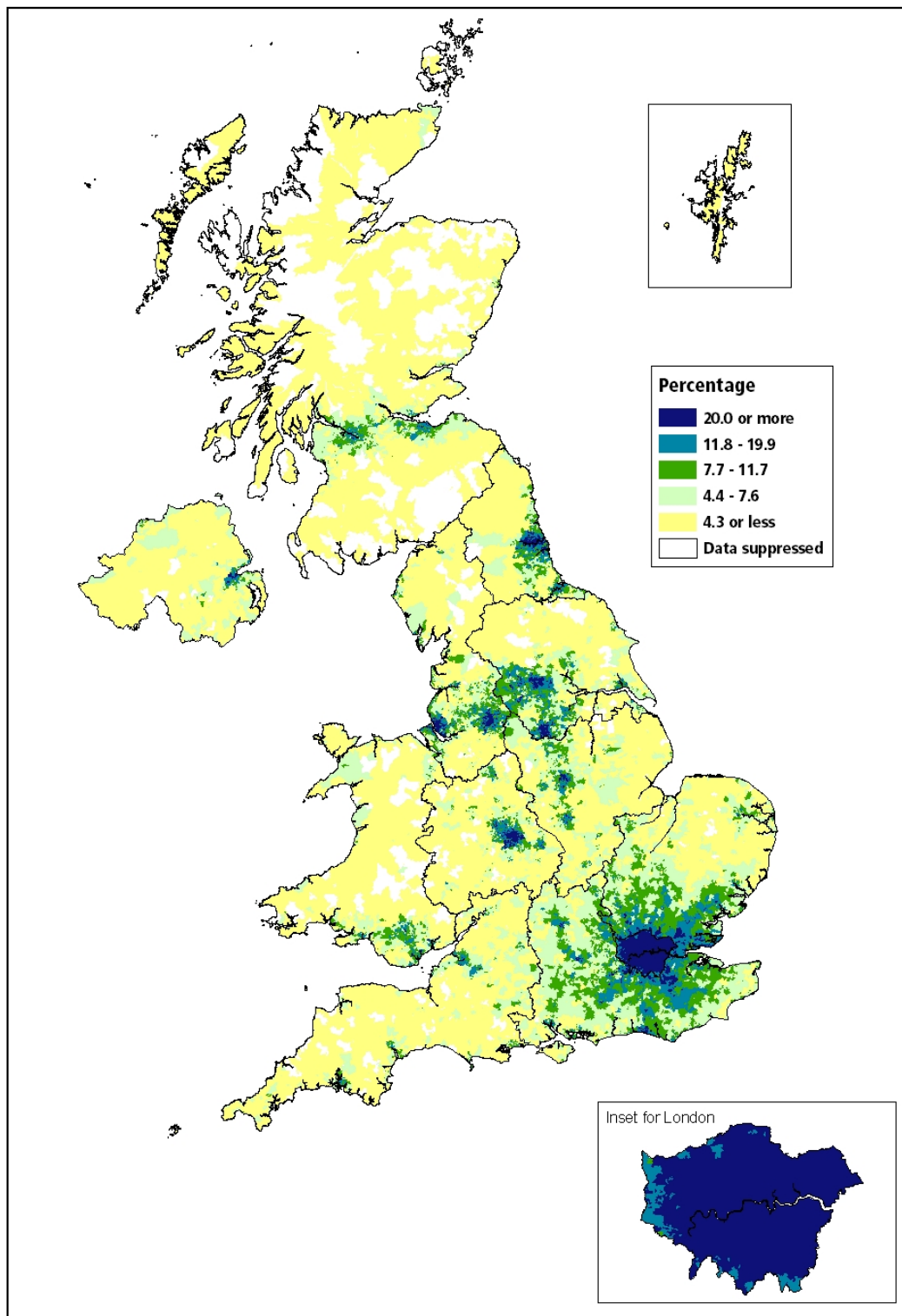
Map 1



Map 2: All occupations: percentage of workers using car/van transport by LSOA/DZ



Map 3: All occupations: percentage of workers using public transport by LSOA/DZ



Map 3 gives a very clear indication of the percentage of people using public transport. The highest concentrations (over 20%) are associated with large cities and densely populated areas (such as Central Scotland and industrial Northern England), with London, the South East and the southern parts of East of England being particularly prominent [from now on this combined area will be referred to as the 'Wider South East']. Such areas have a good public transport infrastructure, both locally and/or taking workers towards the larger commercial centres (although local specifics, such as socio-economic factors, will also affect the extent to which public transport is used in any area).

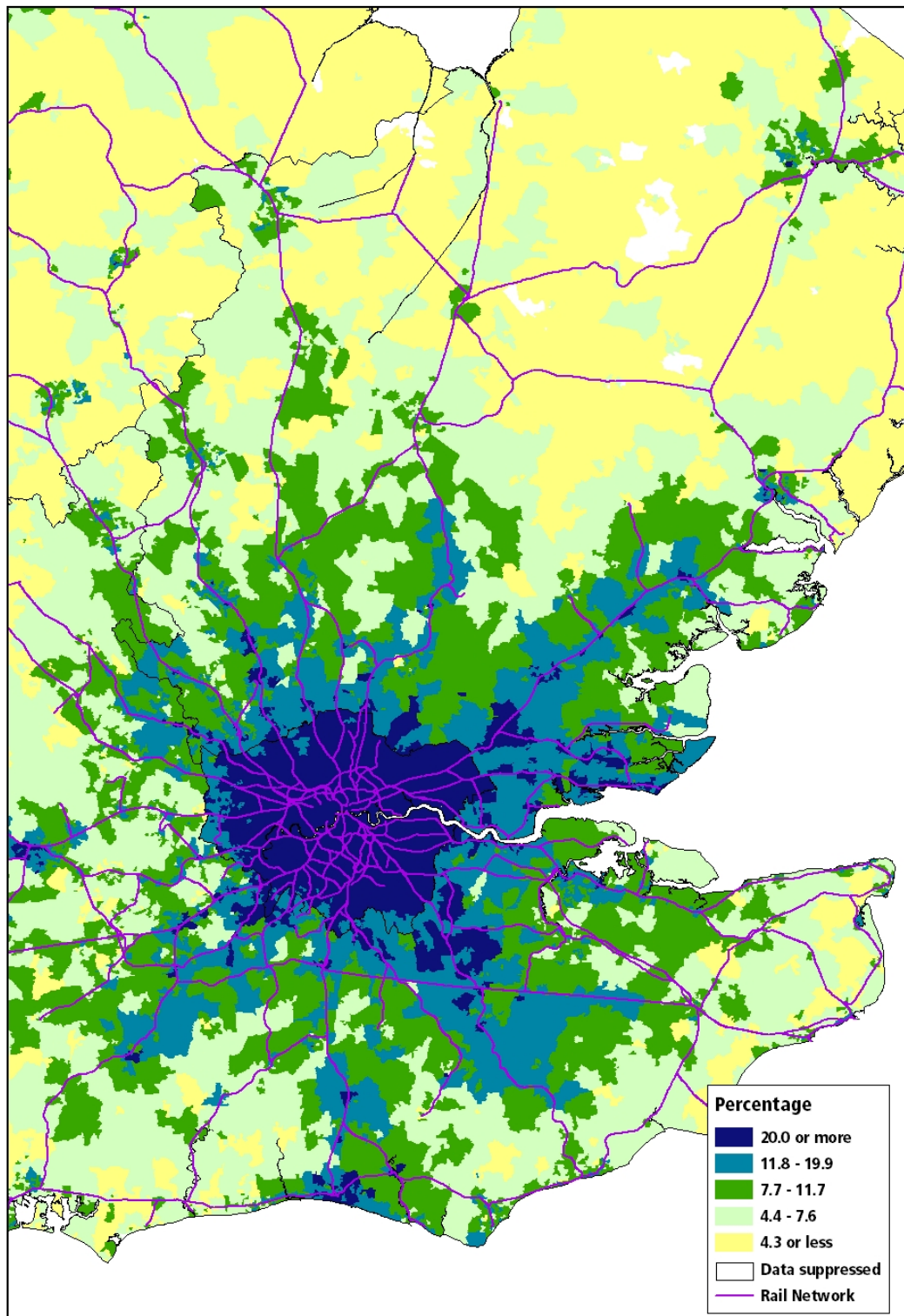
Away from these areas, however, public transport usage is much lower. And for people living in remoter rural areas (such as parts of the South West, Wales and much of Scotland) public transport is used very little, if at all.

One other notable feature is the spoke-like pattern forming around London, corresponding with the rail routes into the conurbation. Map 4 (overleaf) shows this Wider South East area, and it can be seen that the high concentrations of public transport usage fit exceptionally closely with the rail routes, for example the line heading in from the north-east (from Ipswich and Colchester), and the line heading in from the south-east (from Tunbridge Wells and beyond).

What this suggests is that in the Wider South East people are much more likely to commute by rail if a railway is proximate. However, this is not necessarily a simple product of people using what happens to be available in the area where they live. On the contrary, many commuters in these areas may have opted to live near a station specifically to allow them to use rail transport for their journeys to and from work.

It is also notable that this association between rail routes and public transport usage is much less distinct in other parts of the country. This suggests that the Wider South East is a special case, where the sheer economic dominance of London, and the relative ease of using rail as opposed to car/van, are key factors.

Map 4: All occupations: percentage of workers using public transport by LSOA (Wider South East), with rail network shown



Car/van versus public transport by occupation group

The previous section looked at overall proportions of car/van and public transport commuters. But do different occupation groups tend to have similar patterns, or are they very different? Table 1 shows figures for the nine occupation groups:

Table 1: Primary mode of transport used for commuting, by occupation group, UK, 2001

Occupation Type	Car/van	Public transport	Other	Work at or from home
	%	%	%	%
Managers and senior officials	66.1	12.6	9.0	12.3
Professional occupations	67.2	14.5	10.0	8.3
Associate professional and technical occupations	62.4	15.9	11.5	10.2
Administrative and secretarial occupations	60.6	21.3	11.4	6.7
Skilled trades occupations	68.2	6.7	11.4	13.7
Personal service occupations	55.3	13.6	21.8	9.3
Sales and customer service occupations	49.2	22.8	23.2	4.8
Process, plant and machine operatives	69.5	7.4	16.5	6.6
Elementary occupations	51.5	15.3	27.7	5.5
All occupations	61.7	14.4	14.9	8.9

The table reveals several key points:

- Car/van is the main means of commuting for all occupational groups, but is comparatively less used in some of the lower paid types of occupation (sales and customer service, elementary, and personal service)
- Workers in lower paid occupation types are more likely to use ‘other’ transport, predominantly walking. This main explanation for this is their higher propensity to work more locally
- Workers in skilled trades occupations have very specific commuting characteristics: high car/van usage and low public transport usage. In addition they have a high percentage of people working at or from home – for example self-employed electricians and plumbers, as well as farmers
- Process, plant and machinery operatives also have a high rate of car usage. Their jobs are widely dispersed, often away from urban centres, so are less easily accessible by public transport

These are overall UK patterns, but do different occupational groups have different patterns in different parts of the UK? This will be considered by looking in detail at two very different groups: managers and senior officials, and workers in elementary occupations.

The following maps show patterns across the UK:

- Map 5: Managers & Senior Officials: Percentage using car/van transport
- Map 6: Elementary Occupation Workers: Percentage using car/van transport
- Map 7: Managers & Senior Officials: Percentage using public transport
- Map 8: Elementary Occupation Workers: Percentage using public transport

The car/van transport maps (5 and 6) use the same ranges as Map 2 (all occupations) and show substantial difference between the patterns of managers & senior officials (henceforth referred to as ‘managers’), and elementary occupation workers.

Both groups have the expected lower car/van usage in London. However, for the other major cities the LSOAs/DZs in the bottom quintile (shaded yellow) are much more visible (having a greater geographic extent) for elementary workers than for managers. This suggests that elementary workers in these cities have low car/van usage in both city centres and suburbs, whereas for managers this pattern is more restricted to the city centres.

In rural areas across much of England and Central and Eastern Scotland, the manager map (Map 5) has much more dark blue, indicating a higher percentage of car/van users. However, in some of the remotest rural areas – the Highlands, Central Wales and the South West – managers are actually less likely to use a car or van. A contributory factor here is the greater propensity for managers to work at home (meaning they are not commuting at all).

But the pattern is very different in the Wider South East, where it is the managers who are less likely to use a car or van. This is because they are much more likely to use public transport (see Map 7); this again corresponds with the rail routes, with the starkest example being along the line coming in from the south-east (from Tunbridge Wells and beyond). In these areas many managers catch the train to London, giving a spoke-like pattern which reaches out further than when all occupations are considered together (Map 3). This is explained by a number of factors:

- London offers a particularly high concentration of managerial jobs
- Managers, on account of their comparatively high earnings, are more able to afford longer distance rail commutes
- Their earnings also mean they are able to afford to live in more expensive areas away from London

On the other hand, elementary workers in this ‘manager commuting zone’ around London tend to work more locally and are more likely to commute using a car or van.

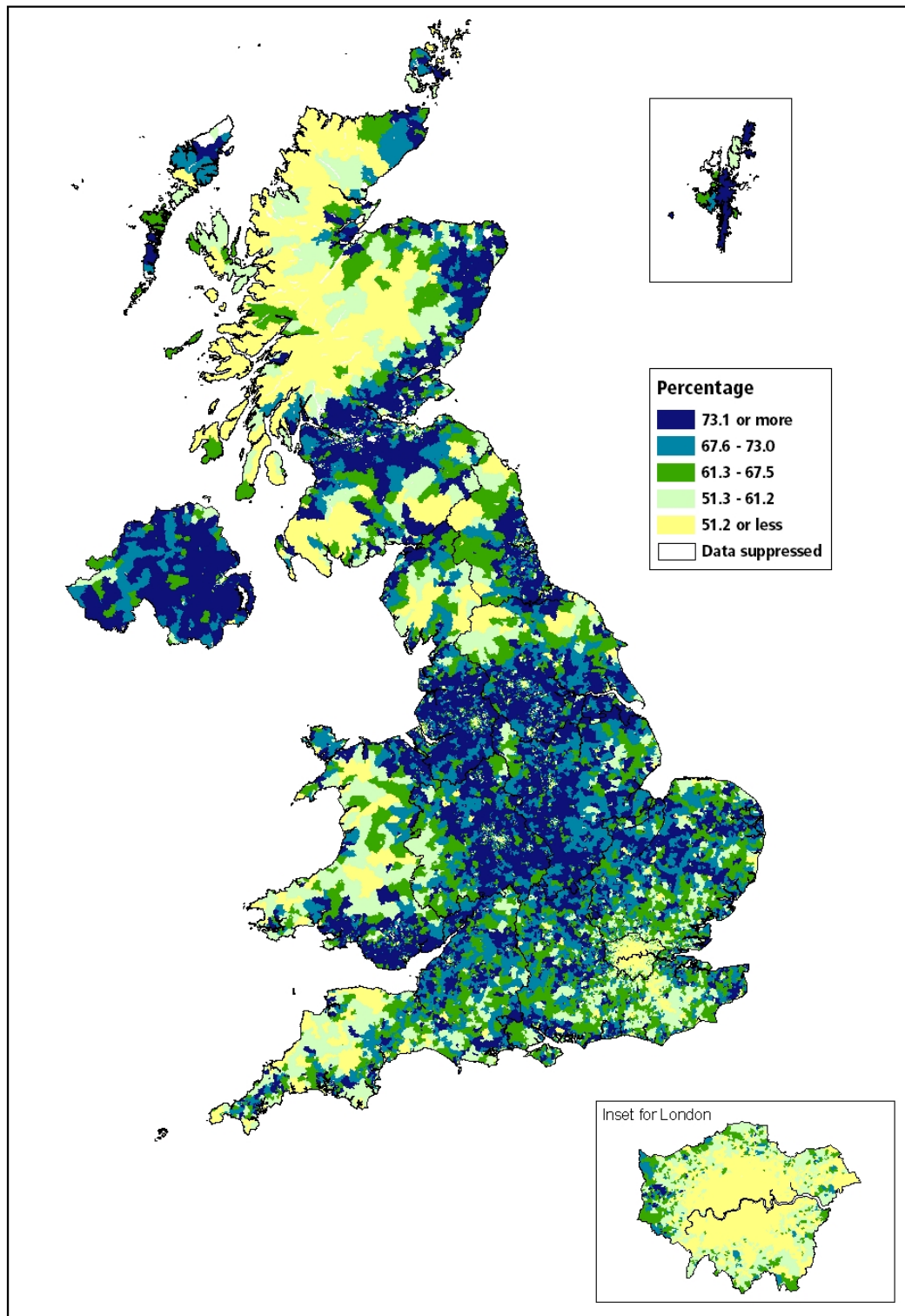
The public transport maps (7 and 8) use the same ranges as Map 3 (all occupations) and also show a very different pattern between the two groups. In both cases the urban areas are concentrations of high public transport usage, but the geographic extent of

the high usage zones (dark blue) is much greater for elementary workers (except in the Wider South East, as already described).

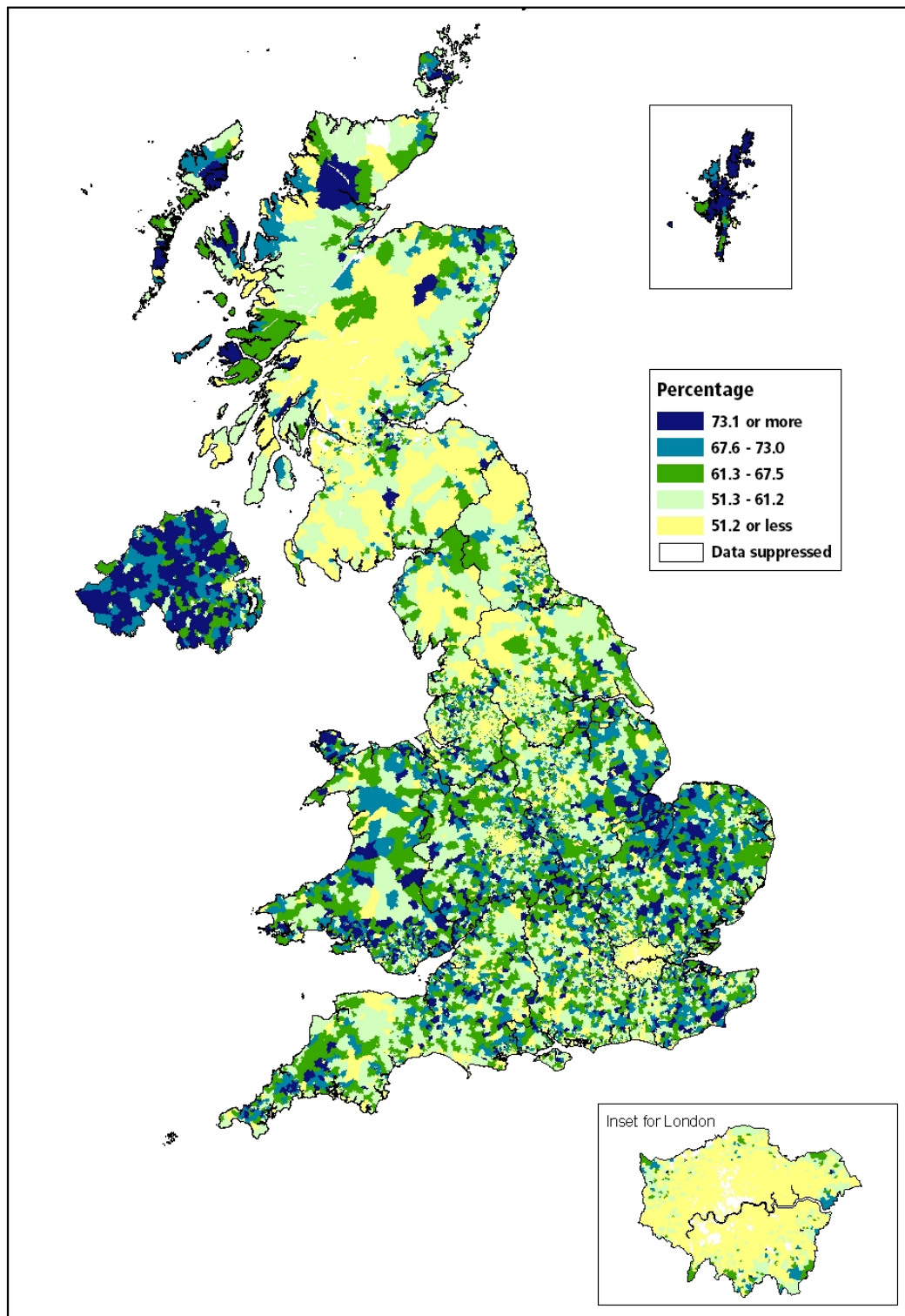
Zones with little or no public transport usage have been suppressed on both maps, and the location of this suppression differs greatly. For example, in the less urbanised parts of Scotland and Northern Ireland there is still considerable public transport usage among elementary workers, but very little among managers. On the other hand, across the Wider South East consistently high proportions of managers are using public transport, but there are many areas where the level of public transport usage amongst elementary workers is too low to be displayed.

This again suggests that something very different is happening in the Wider South East. In most areas managers are less likely to use public transport than elementary workers, and are instead likely to commute further using cars or vans. In the Wider South East, however, the importance of London as the UK's primary economic hub, and the extensive rail connections, mean that large numbers of managers commute into London by rail from across the region. But the types of jobs done by elementary workers tend to be much more local, so outside the London conurbation itself they do not have a high rate of rail commuting.

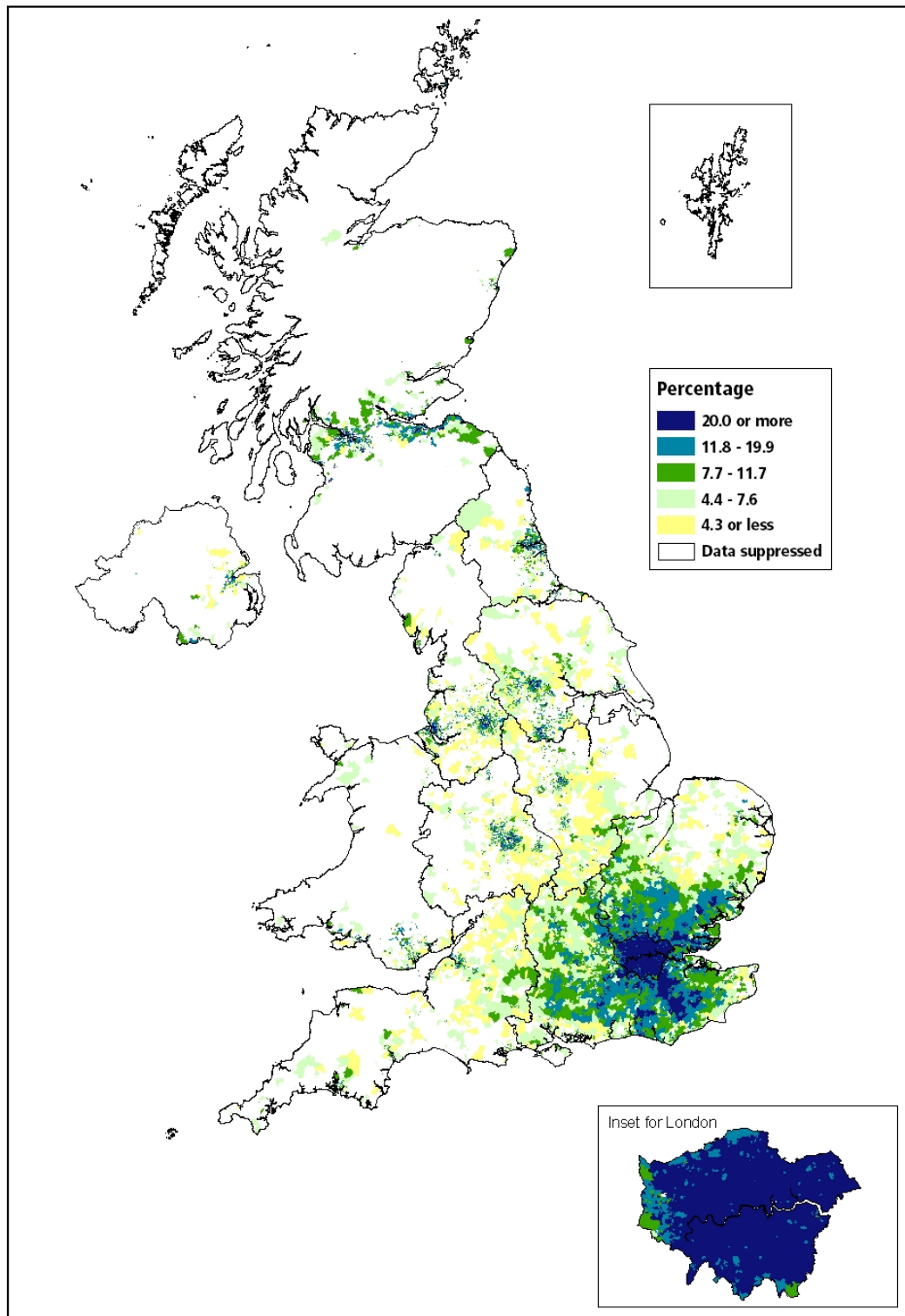
Map 5: Managers & senior officials: percentage using car/van transport by LSOA/DZ



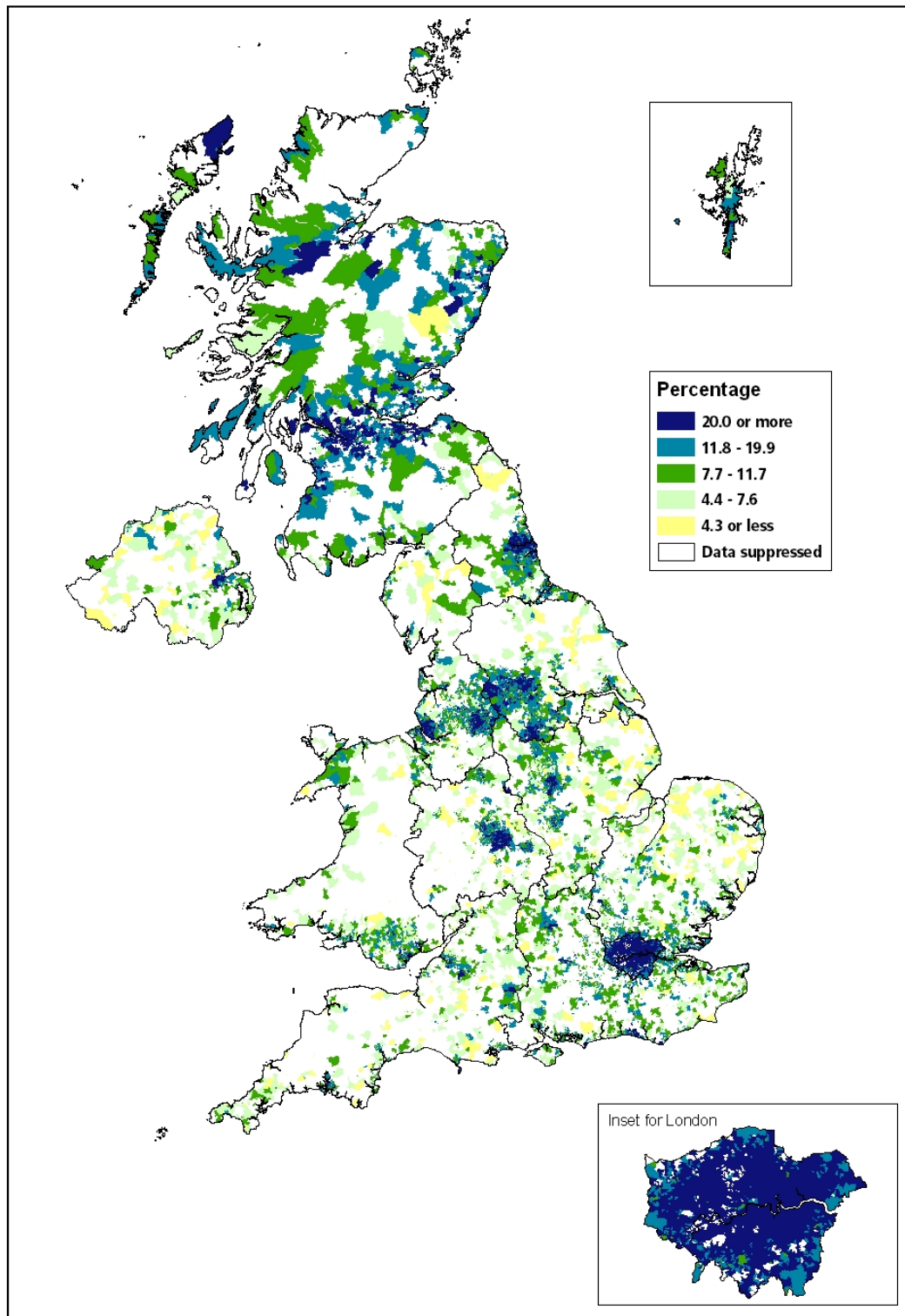
Map 6: Elementary occupation workers: percentage using car/van transport by LSOA/DZ



Map 7: Managers & senior officials: percentage using public transport by LSOA/DZ



Map 8: Elementary occupation workers: percentage using public transport by LSOA/DZ



Average distance commuted

Across the UK the average distance commuted to get to work (ie the one way journey) is 11.6km. However, the distance varies both geographically and by occupation group.

Maps 9 and 10 show the average distance commuted by SOA/DZ for car/van users and public transport users respectively. The ranges are the quintiles for the car/van dataset; the public transport map has been given the same break points so it can be compared directly.

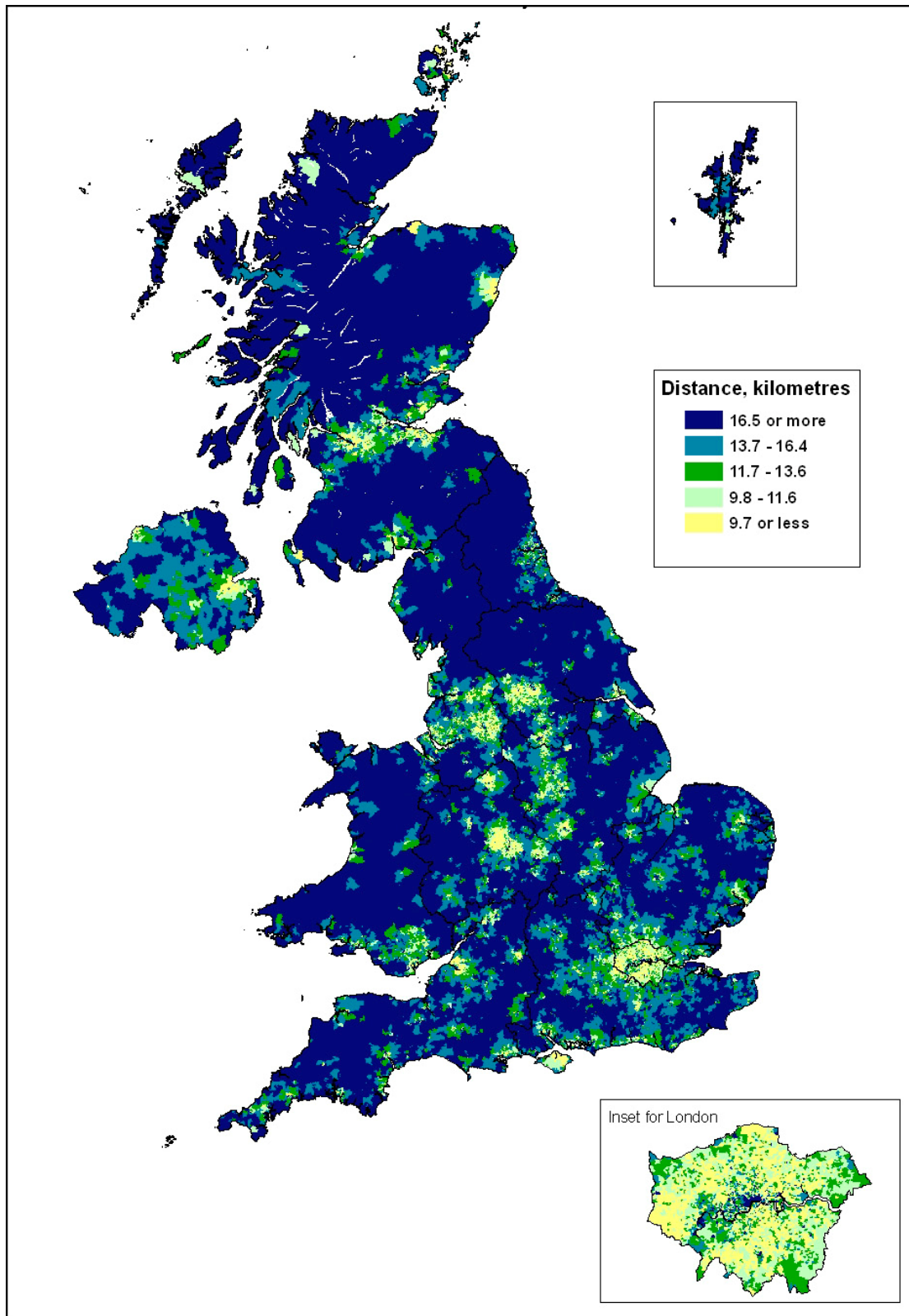
Looking at Map 9 (car/van transport) the first point to note is that the band width of most quintiles is narrow – for 80% of SOAs/DZs the average distance travelled is less than 16.5km. But despite the narrow band widths there is a clear geographic pattern of shorter distances around more urbanised areas such as London, the English Midlands, industrial Northern England, Belfast, and Central Scotland. This is unsurprising as work is concentrated in urban areas, so the people living there are less likely to have to travel far.

Longer commuting distances correspondingly tend to be found away from major centres, with the dark blue (16.5km or more) shade being dominant in more remote rural areas such as much of Scotland, Northern England and Wales. In such areas the location of suitable workplaces is inherently more dispersed, and many people commute into urban areas, which are often some distance away.

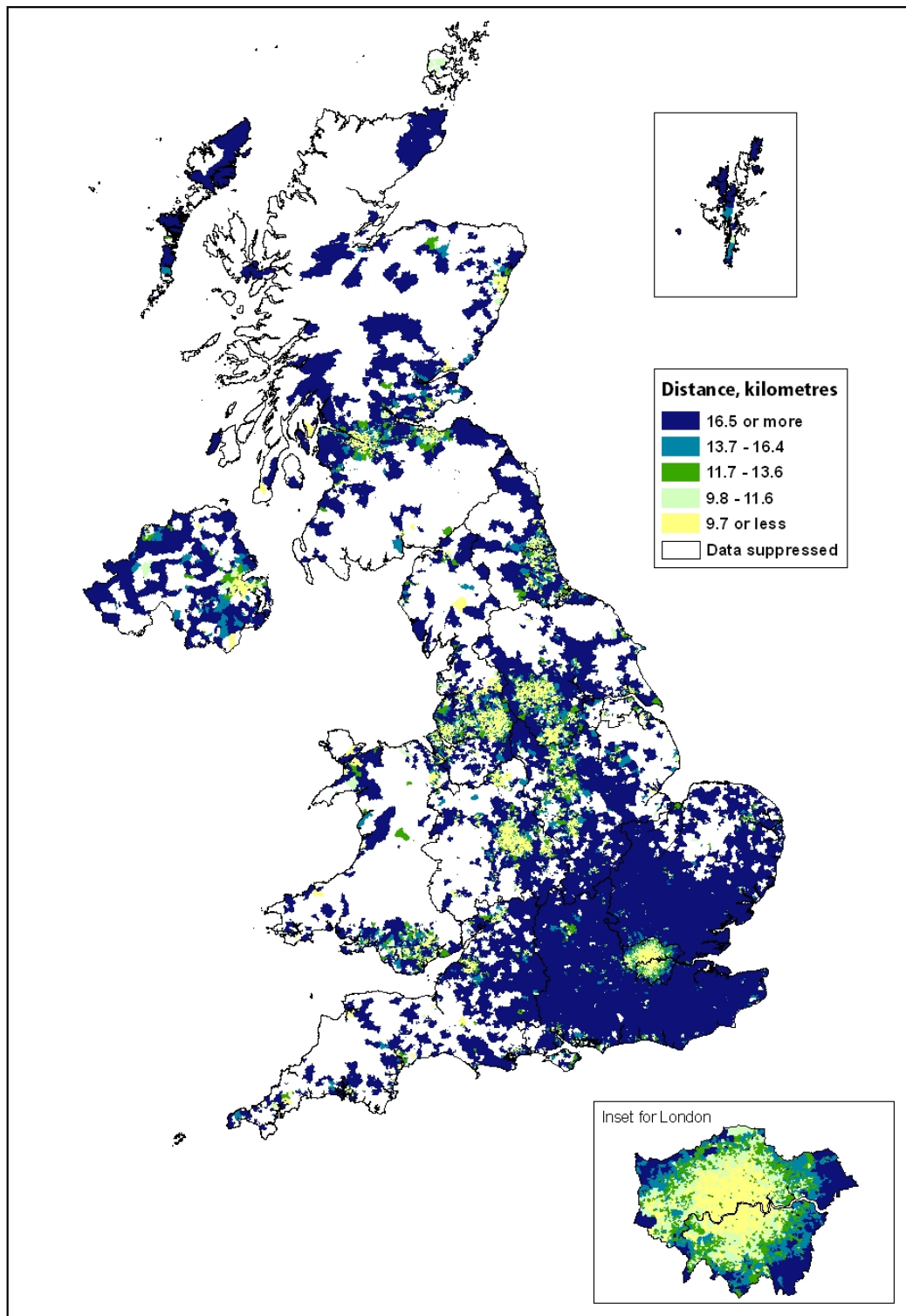
There are some interesting exceptions to the general pattern, however. For example:

- i) City centres. An area of darker colours (longer distances) can be seen in west-central London, and there is a similar effect in the centre of many other large built-up areas. An explanation is that most people working locally use the good public transport network (or foot / bicycle), so it is mainly people travelling comparatively longer distances who use a car.
- ii) The Isle of Wight. This is not a major urban centre, but an area of small towns and villages. Yet the majority of LSOAs on the island fall in the lowest two quintiles (ie average commutes less than 11.6km). This can be explained by the physical constraints of living on an island, where the effort and expense of crossing the Solent mean it is uncommon to take cars off the island to get to work.

Map 9: Average distance commuted (km): All occupations, car/van transport



Map 10: Average distance commuted (km): All occupations, public transport



Map 10 (public transport) also shows lower commuting distances in more urbanised areas, due to the relatively close proximity of workers and work. However, the proportion of areas in bands 3 and 4 (11.7km to 16.4km) appears less, with far more SOAs/DZs occurring in the top band (more than 16.5km).

This top band of longer public transport commutes is found across the great majority of those rural areas where data are present. However, for many rural parts of the UK data are unavailable as public transport is either non-existent or not commonly used.

The overall message is that commuting distances tend to be shorter in urban areas. However, compared to the car/van quintiles, public transport commuting distance tends to be more polarised: average distances tend to be either particularly short or particularly long. In addition (through inspection of the data underlying these maps) the highest average distances for public transport are higher than those for car/van transport. This can be explained by the tendency for relatively short bus and local rail journeys by the high proportion of urban residents who use public transport and, on the contrary, that many rural users of public transport are likely to be long distance rail commuters, travelling a long distance to get to urban centres, especially London.

Average commuting distance by occupation

Average commuting distances vary by occupation as follows:

Table 2: Average commute to work by occupation, UK, 2001

Occupation type	Average commute (km)
Managers and senior officials	16.9
Professional occupations	15.0
Associate professional and technical occupations	14.6
Administrative and secretarial occupations	9.8
Skilled trades occupations	9.6
Personal service occupations	7.8
Sales and customer service occupations	8.0
Process, plant and machine operatives	10.7
Elementary occupations	7.8
All occupations	11.6

This shows a strong difference between occupational types, with the average manager commuting more than twice as far as the average elementary worker. Overall it tends to be the higher paid types of job which are likely to have longer commutes, and lower paid types of job which are likely to have shorter commutes.

This pattern may be explained by a number of factors. Higher paid jobs (eg managers) tend to be more concentrated in large urban centres, but are also liable to attract people from further afield. Higher paid workers may also, due to their higher income and different expectations, have the financial means to live in more exclusive locations further from their workplaces (the ‘city flight’ concept referred to earlier).

Overall this means that the very longest average commuting distances in the UK are likely to be for people in relatively highly paid occupations (such as managers) who are living in comparatively rural areas, and are commuting to cities (especially London) by train.

Examples

The following three examples explore how the patterns identified apply in different parts of the country. These studies use the Office for National Statistics' CommuterView product, which displays flows of commuters as at the 2001 Census.

CommuterView has many different versions, including versions for each occupational group, and for different means of transport. Most versions use the Middle Layer Super Output Area (MSOA) level of geography, representing zones of approximately 7,000 residents in England and Wales [in Scotland the intermediate zones of around 5,000 residents are used, and in Northern Ireland the much smaller Super Output Areas of around 1,300 residents].

CommuterView uses arrows to indicate the number of commuters flowing from area to area, with the darker arrows indicating larger flows.

[Note: to obtain a free copy of the CommuterView product, please email better.info@ons.gsi.gov.uk]

Example 1: Tunbridge Wells

Tunbridge Wells is a large town in Kent and is located approximately 50km south-east of London. It is known to be a popular place of residence for London commuters. Maps 11 to 14 are CommuterView extracts showing commuting flows for each of the following groups of people resident in Tunbridge Wells 008, an MSOA which includes much of Tunbridge Wells town centre:

Map 11: Managers and senior professionals

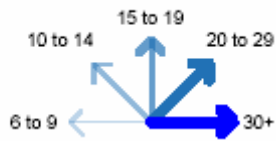
Map 12: Elementary occupation workers

Map 13: Rail commuters

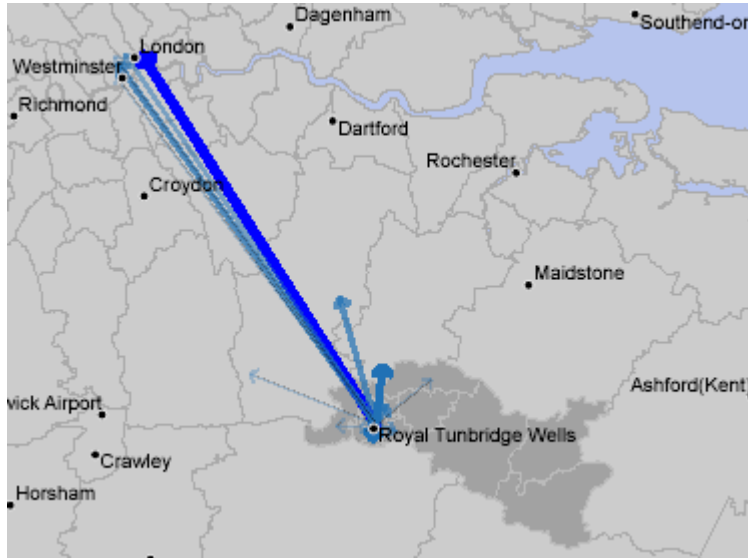
Map 14: Car/van commuters

CommuterView Legend

NUMBER OF COMMUTES:

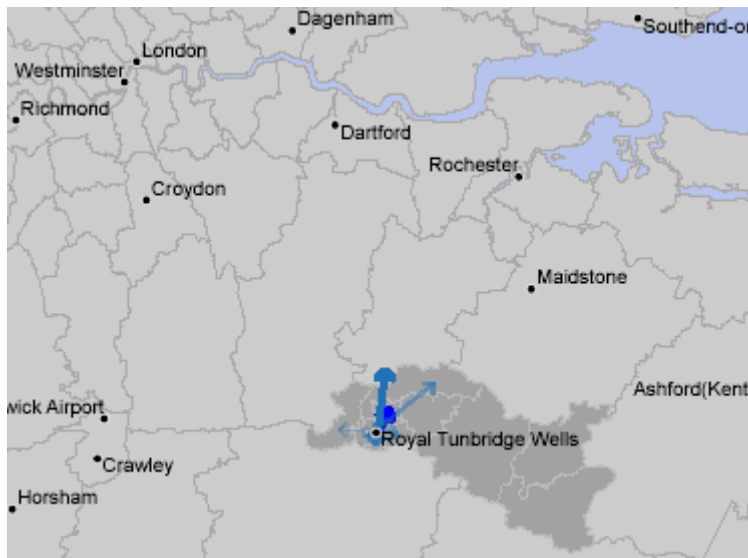


Map 11: Commutes by managers and senior officials from Tunbridge Wells 008



Scale 1cm = 8.5km

Map 12: Commutes by elementary occupation workers from Tunbridge Wells 008

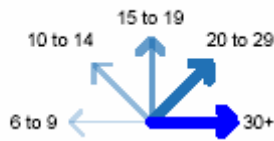


Scale 1cm = 8.5km

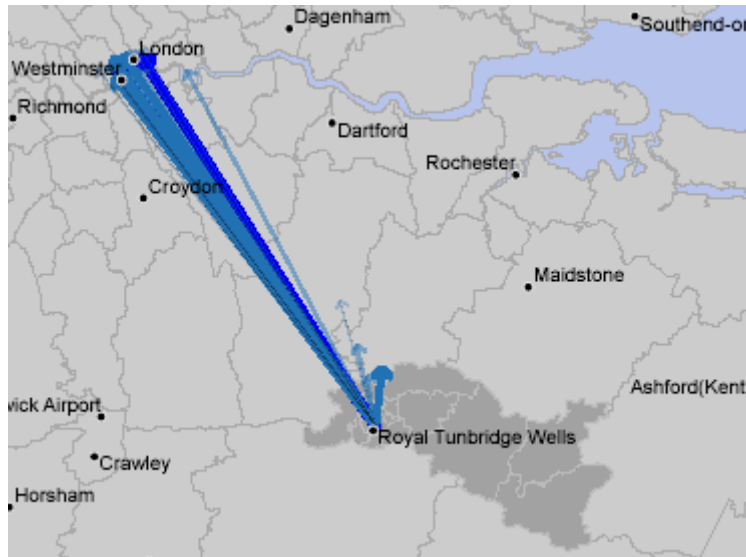
These maps correspond with our earlier analysis, indicating large flows of managers from Tunbridge Wells to London, whereas all elementary worker flows (of more than 6 persons) are much more local.

CommuterView Legend

NUMBER OF COMMUTES:

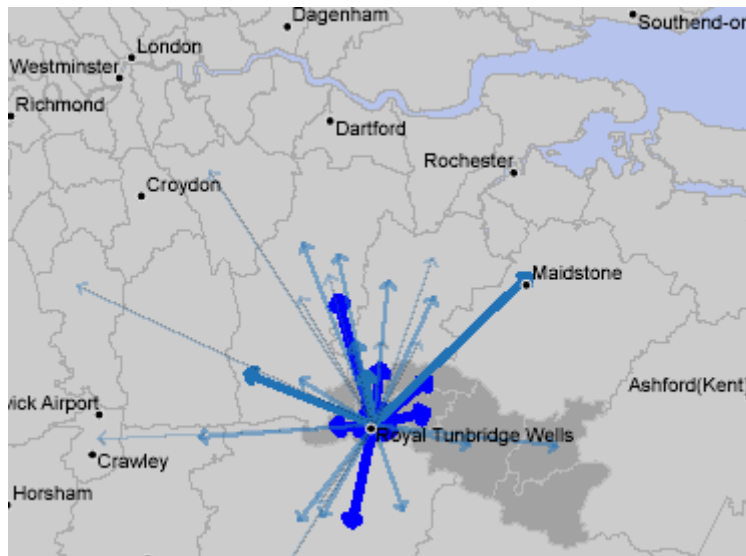


Map 13: Flows of rail commuters from Tunbridge Wells 008



Scale 1cm = 8.5km

Map 14: Flows of car/van commuters from Tunbridge Wells 008



Scale 1cm = 8.5km

These maps, reflecting all occupation groups, show high levels of rail commuting, almost exclusively towards London. There are also large flows of commuters using car or van. These go out in all directions, but none of the flows head into Central London at all.

In other words, for Tunbridge Wells (and indeed generally in the Wider South East), rail commuting has a very different dynamic to car/van commuting. And although this cannot be concluded directly from the screenshots, it is a reasonable assumption that

the many long distance rail commutes are being carried out by people in higher paid occupational classes, such as managers and senior officials. The shorter car commutes, on the other hand, are attributable to the full range of occupational types.

Example 2: Crewe

Crewe is a large town in Cheshire and is a little less than 50km from Manchester (so similar to the distance from Tunbridge Wells to London). It is also just over 50km from Liverpool, and about 75km from Birmingham. In addition it is famous as a railway hub, with good rail connections to all these cities.

However, CommuterView reveals that the commuting patterns in and around Crewe are very different to Tunbridge Wells. The elementary workers tend to work locally, but although the managers are travelling further, they are still going to comparatively local destinations (such as Stoke-on-Trent), with only small numbers going as far as Manchester.

In addition, although many Crewe residents use car/van to commute, very few use train, even though destinations such as Stoke-on-Trent are easily accessible by rail. For the relatively small numbers going to Manchester train is most popular, but there are also flows of cars/vans. It is only for the more distant Birmingham that flows are predominantly by rail.

Map 15 shows an example of rail commuting from an MSOA on the southern edge of Crewe, next to the station:

Map 15: Flows of rail commuters from Crewe and Nantwich 010



What might explain this pattern? Quite simply, although Manchester, Liverpool and Birmingham are major economic centres, they are of limited attraction as a place of work for people living as far away as Crewe, even for managers and senior officials. It can also be assumed that for people moving to take up work as a manager in these cities, the Crewe area is not a favoured location.

In addition, for the majority of people working locally it is likely quicker and more flexible to use a car/van, despite the good rail links. Even for people travelling to Manchester, car/van is still a possibility, maybe simply because it is physically easier to drive a car/van into Manchester than it is into London.

Example 3: Ayr

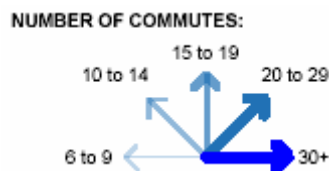
Ayr is a large town in Scotland, about 50km south-west of Scotland's largest city, Glasgow, to which it has good rail connections.

CommuterView shows that in common with other areas, elementary occupation workers from Ayr tend to work locally (although a small number do travel to Glasgow). In addition, although it doesn't have the strength of pull that London has on Tunbridge Wells, Glasgow attracts substantial flows of managers from Ayr.

However, a particularly interesting feature is the distribution of rail transport compared to car/van. Maps 16 and 17 demonstrate this by focussing on the intermediate zone named 'Ayr South Harbour and Town Centre'.

[Note: as intermediate zones tend to be about the half the size of MSOAs, the overall volume of flows displayed cannot be compared directly]

CommuterView Legend

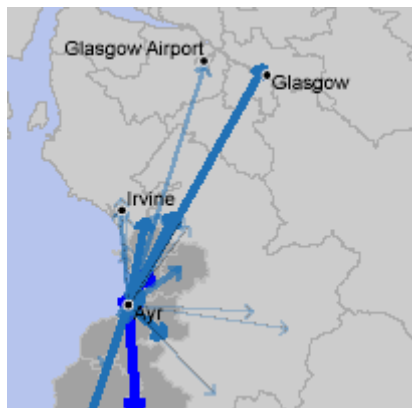


Map 16: Flows of rail commuters from Ayr South Harbour and Town Centre



Scale 1cm=14.3km

Map 17: Flows of car/van commuters from Ayr South Harbour and Town Centre



Scale 1cm=14.3km

This shows, as in the other examples, that local journeys are predominantly fulfilled by car, including to nearby locations (such as Irvine) which are easily accessible by rail.

However, the most notable impression here (at least for this intermediate zone) is that there are actually more journeys to Glasgow by car/van than there are by train. This is likely to be because, although there is a good rail service, there is also a dual carriageway / motorway leading almost directly into the centre of Glasgow, making it comparatively easily accessible by road.

Conclusions

This research has confirmed that, overall, people are more likely to commute by car/van than by public transport. Public transport usage is concentrated in urban areas and along the rail routes leading towards London, and is uncommon in rural areas. However, in more remote rural areas the total proportion of workers using car/van to get to work is also lower, due to the higher proportions of homeworkers.

Although car/van is the most common means of commuting for all occupational groups, it is relatively less used among lower paid occupations, in part because they tend to work closer to home so are more likely to go on foot. In addition some occupational groups have very distinctive patterns: skilled tradespeople and process, plant and machine operatives tend to have high car usage and low public transport usage, perhaps due to the nature and location of their jobs.

Focussing on two very different groups, managers and elementary workers, the overall proportions using public transport are fairly similar, but there is a strongly contrasting geographic pattern. Both groups use public transport extensively in the centres of major cities, but across most of the rest of the UK it is managers who are more likely to use car/van transport. In the Wider South East, however, the pattern is reversed, with extensive public transport usage by managers who are commuting by rail to London.

There are also distinct geographic patterns when considering average commuting distances. For car users the distance tends to be shorter for urban residents compared to rural residents (as workplaces are closer). However, in the city centres, distances travelled by car/van commuters increases again as they generally need to use a car or van if they are commuting outwards.

However, although the shortest commuting distances for public transport users also occur in cities, a swathe of longer public transport distances is found across the Wider South East. This is again explained by the major pattern of long distance rail commuting towards London, which is dominated by higher paid occupations such as managers.

Overall the Wider South East can be seen as a unique case where the sheer economic dominance of London, coupled with good rail and relatively less good road accessibility, means that higher paid occupations in particular tend to commute to London by train. Away from this area the tendency of managers to travel further than

elementary workers is still true, but they travel less far than managers in the Wider South East, indicating that smaller economic hubs have a smaller zone of influence. In addition, although long distance commuters outside the Wider South East do use rail travel extensively, it is less dominant, potentially because other major hubs tend to be relatively more accessible by road than is Central London.

In conclusion it can be seen that commuting patterns vary not only by mode of travel and occupation, but also that geographic context will have an effect. This includes the proximity to economic hubs, the relative dominance of economic hubs, and issues relating to the comparative merits of the road and rail infrastructure.

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