MAYOR OF LONDON

Working Paper 2: The economic and social structure of London and the South East

An analysis of the economic and social structure of London, the South East and the Eastern regions, using the technique of fuzzy clustering

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Executive summary

In this report we examine the relationship between London and the surrounding geographic regions of the southeast of England, both in terms of employment and demographic structure.

We use the powerful technique of fuzzy clustering to identify groups of local area districts within these areas that share similar characteristics. We perform two fuzzy clusterings, one based on the employment structure and one based on the physical attributes of the districts. The results of these clusterings are projected onto maps of the southeast, which allows us to visualize the groupings of districts.

From the employment fuzzy clustering, we draw the following conclusions. Firstly, and most clearly, London's employment is business oriented, having a significantly high proportion of employment in business services. This weighting towards business services declines as we move into the southeast region, and more so moving into the eastern region. The rest of the UK has lower weighting again, with around one third the allocation to the business group of London.

More generally, we can see a similar pattern in the employment clustering, with the southeast region being the most like London, followed by the eastern region. The rest of the UK looks to be quite different in terms of its employment structure, having higher weighting towards manufacturing and public sector employment.

When we perform the clustering based on the physical attributes of the districts, we identify one group that is completely distinct from the rest of the UK. The inner core of London boroughs exhibits characteristics not seen anywhere else, with extremely high population and employment densities and a large proportion of people who move between districts to reach their work.

In the eastern and southeast regions, we see the weighting of area definition shift to cities, suburbs and market towns. Moving from the southeast into the eastern region and then into the rest of the UK, rural characteristics increase, with market town and suburb allocation decreasing.

As an extension to the analysis we look to find those places in the UK that are most like London in terms of the results obtained from the two fuzzy clusterings. Not surprisingly, these areas turn out to be in the southeast around London. Interestingly though, we find three boroughs inside the Greater London boundary that are not particularly like the rest of London, namely Enfield, Redbridge and Havering. The two districts outside of London most like London turn out to be Slough and Watford.

1. Introduction

In this report we examine the relationship between London and its surrounding regions, in terms both of its employment and demographic structure. We use the modern technique of cluster analysis to distinguish groupings of areas that similar to each other in respect of these characteristics.

The analysis aims to use this data to determine whether it is possible to define an edge to London and the extent to which central London differs from outer London. We also examine the how similar the eastern region of the UK is to the southeast, and how different both these regions are to London and the rest of the UK.

2. Methodology

The UK as a whole can be broken down into 459 Local Authority Districts[1], or LADs. In London there are 33 LADs, comprising the 32 London Boroughs and the Corporation of London. We start by with the available data on employment and demography at this geographic level of disaggregation.

The employment data comes from the 2001 Annual Business Inquiry, and breaks down into 60 employment types, ranging from sectors such as Post and Telecommunication to Mining of Metal Ores. In terms of the demographics, we have available to study the land area, the total population, and consequently the population density. We hope to include additional data and a further disaggregation of the geography in due course. We use all of this data to analysis the LADs using the technique of fuzzy clustering.

The idea behind clustering is to form groups of areas so that the areas within any one group have similar characteristics but the typical characteristics of each of the groups are sufficiently different from those of the others. These patterns provide a way of understanding or describing social and economic properties of areas.

In standard methods of clustering each area is allocated unequivocally to a single group. This procedure has a significant drawback as there is no way of distinguishing between those on the margin of any particular group from those in the centre. Fuzzy clustering offers a way around this drawback. It combines the ideas of standard clustering methods and fuzzy logic. Instead of forcing each area into a single group, it is given some degree of membership of every one of the groups. In this way, an area can have some aspect of each of the groups. This is not only a natural extension of the usual clustering techniques but also turns out to be a very powerful way of understanding patterns of local economies.

With the data available, we perform two fuzzy clusterings, one which creates sets that group areas with similar employment structure together, the other grouping areas with similar physical properties together. Each LAD then has its own unique pattern of

[1] Under the 1991 classification, excluding Northern Ireland

membership of both the employment clustering and the area type clustering. These degrees of membership allow us to describe and compare the areas.

3. Employment fuzzy clustering

With the employment fuzzy clustering, we look to group areas together that have similar employment structure. At the full level of disaggregation we have 60 employment sectors. Fuzzy clusterings should ideally be performed on between three and ten variables. Using more variables can lead to unstable results, and many more variables to an intractable problem. We therefore start by aggregating together the 60 sectors in order to reduce the number of variables.

One way in which this aggregation could be done is to use a higher-level standard classification. Standard aggregations however tend to be based on their function, for example anything to do with paper and printing are combined into one sector and both can also be considered to be part of manufacturing. However, this takes no account of where these industries might be located, nor does it recognise different industries that are related and often found in the same place.

Rather than imposing such a standard classification, we obtained a much better description of employment patterns using sectors based on those categories that were most often located in the same place. These sectors better reflect the way industries are arranged than a system based on more theoretical considerations about links between different sorts of jobs. Those sectors from the full set of data that are not highly correlated with any other we leave alone, providing the total level of employment within them is justifiably large.

An important feature of this approach is that the sectors of employment we use are based upon industries which are in practice located near to each other. Conventional classifications are based upon industries whose outputs are similar to each other. In other words, these use a product-driven definition of which industries are part of which aggregate sector of the economy. Our classification is based upon the preferences of companies themselves as expressed through market-based decisions.

We obtained eleven sectors of employment. The full breakdown of these sectors can be found in the appendix. For the purposes of the fuzzy clustering, we only use six of these sectors. Three of the eleven did not improve the quality of the fuzzy clustering, not enabling us to distinguish places any better. On the other hand, two of the eleven we found to be too dominant in the clustering, detracting from other employment characteristics. These two were rural employment and financial services.

If financial services is included in the analysis then we find that the City of London is identified as being completely different from all others, with a far higher proportion of people employed in this sector. All the other districts in the UK then effectively form one separate group that is only best defined as not being the City of London. We therefore exclude financial services from the analysis. It is worth noting at this stage that City of London and the surrounding areas are still identified as being completely different in the area type fuzzy clustering, examined later.

We remove rural from the employment fuzzy clustering on two grounds. Firstly, it contributes only around 0.6 per cent of the UK employment. Further, the degree of rurality is also captured in our second fuzzy clustering.

The six new sector definitions used in the employment fuzzy clustering are therefore as follows:

- **Soft manufacturing** Food, textiles, apparel, wood and furniture.
- **Hard manufacturing** Rubber, non-metallics, metals, fabricated metals and machinery.
- **Printing** Publishing and printing.
- **Hotels** Hotels, bars and restaurants.
- **Other business** Other business activities (not financial services) and computing.
- **Tax paid** Public administration, education, health and social wWork.

Using these six employment classifications, we identified four distinct employment groups. Each of these four groups has a different mix of the six employment categories. We have labelled these groups, Business, Manufacturing, Public and Mixed. These names are based upon the bias within the groups towards the different elements of employment.

In figure 1 we can see the employment split within each of the groups, along with the number of LADs in the group. For example, the Business group contains 115 of the 489 LADs. It should be stressed that these 115 represent the LADs which have a stronger membership of this group than of any others, as it is true that all 489 have some degree of membership in all of the groups. The other numbers in the table show us the average level of employment for LADs within the groups. So for example again with the Business group, on average, six per cent are employed in hotels (which includes bars and restaurants).

Examining this table a little more closely reveals the logic for the group names. The Business group has relatively high proportions of employment in Printing and Other Business, with lower average proportions of employment within the other four employment categories. The Manufacturing group has higher rates of soft and hard manufacturing than the other three groups, with the lowest level of other business. The Public group has the highest level of tax paid employment. Finally the mixed group has a mix of all the employments, not taking the highest or lowest proportions in any of the six employment groups.

Figure 1: Average employment proportions in the four employment groups

Employment groups	Percentage of employment by sector						Count
	Soft manuf.	Hard manuf.	Printing	Hotels	Other business	Tax paid	
Business	2.2	3.3	1.6	6.0	17.5	20.7	115
Mixed	4.7	6.1	1.2	7.0	10.1	23.2	115
Manufacturing	6.7	6.8	1.0	7.5	7.5	25.5	106
Public	3.9	4.0	1.0	8.4	7.9	31.4	123

The next step is to locate these groups physically. Figures 2 to 5 in the Appendix show the degrees of membership of LADs in the southeast of the UK. Each of these maps is shaded according to extent to which each of the LADs belongs to the specified group. The darker is the shading, the higher is the membership.

The maps show that the Business group is primarily located in south central England, to the west of London. Evident also is a belt running up from just north of London to Cambridgeshire. Noticeably, the London Boroughs do not have the highest levels of membership of this group in the country, although for most, this is still the group of which their membership is highest.

The manufacturing group is not located in southeast region or Greater London to any significant extent. In the north of the eastern region of the UK, north Norfolk does have strong membership to the manufacturing group. The bulk of this group however can be found further north, spreading also into Wales and the further southwest of England.

The location of the Public Sector group is less easy to describe, as it is far more spread out than the previous two groups, as one might expect. High levels of Public Sector membership can be found in Wales, the southwest and the southeastern tip of England. Inside Greater London, only Greenwich has a high membership of the group.

The Mixed group, although by definition mixed in its employment structure, is well grouped together geographically, occupying large amounts of the Midlands, along with the eastern part of the eastern region. The gap left by the business group can be seen to the west of London.

4. Area Fuzzy Clustering

We now move on to look at the demographic, or area fuzzy clustering. For the area fuzzy clustering, four variables in total are used. These are:

- **Land area** (hectares)
- **Employment density** (employment / hectare)
- **Population density** (people / hectare)
- **The proportion of people working locally** (%)

The first three of these variables vary enormously between different LADs. The order of magnitude of difference between the smallest and the largest values is around 1000. For the process of the analysis we therefore work with the square root of their value. This serves to improve the power of the clustering algorithm. The results however are presented in the untransformed state, for ease of interpretation.

We find that the best results for the area fuzzy clustering are obtained with either four or five groups. With four groups, we can identify four different types of area relatively easily, these being Cities, Suburbs, Market Towns and Rural. With just four groups, we find that the number of LADs within each of the groups is well balanced. However, if we increase the number of groups to five, Cities splits out a further smaller group of around 24 LADs.

These 24 LADs turn out all to be inside Greater London, with the exception of one, Watford, which itself is not far from London. We have named this fifth group Metropolis. The reason for not calling this group London is that the analysis specified the LADs that it contains, and not vice versa. That is to say, with only information on the demographics of all the LADs, and not the location or proximity, the analysis found a part of London to be significantly different to all other LADs in the country.

Figure 2 shows us the characteristics of the five area fuzzy groups. We can see that our Metropolis group has LADs that are very small in physical size, but have high employment and population density. The number of people who work locally is the lowest of the five groups. This is for two reasons. Firstly, the LADs described are not self-contained, rather they operate as one group, so commuting movement between LADs is common. Secondly, if an LAD is small, it is also more likely that the people within will move to another LAD for work.

The Cities group on the other hand has a high proportion of people who work locally. Cities such as Norwich, Coventry and Oxford are predominantly contained within one LAD. People who live inside the LAD, work inside the LAD. As we move from Cities to Rural, we see that the average land area increases rapidly, while the population density and employment density fall rapidly. The proportion of people who work locally falls as

we move from the Cities to the Suburbs, as we would hope to see, and then rises as the LADs become more rural.

Figure 2: Average area, employment and population density and proportion of people who work locally in the five area groups

Area groups	Area (hect.)	Employment density (jobs per hect.)	Population density (people per hect.)	People who work locally (%)	Count
Metropolis	3,300	40.0	70.2	43	24
Cities	6,600	14.3	27.5	72	73
Suburbs	13,300	3.8	9.6	53	108
Market towns	45,200	1.0	2.5	64	165
Rural	126,500	0.3	0.7	80	89

Figures 6 to 10 in the appendix again show mappings for the southeast of the memberships of these five area groups. We can see in the Metropolis mapping that the group does indeed cover a large proportion of central Greater London. Membership decreases as we move away from the centre, with Slough and Watford being highlighted to the north and west. The only other LAD that comes close to being similar to Greater London in terms of its area characteristics is Hove, next to Brighton on the south coast. This LAD however has higher membership of the Cities group than the Metropolis group.

Moving on to the Cities membership mapping, we see a completely different picture. Instead of seeing one physical group, the LADs are scattered throughout the southeast and the Midlands. Not surprisingly Birmingham and Wolverhampton turn out to be the largest physically joined LADs. Also noteworthy is the ring of LADs around outer London that have been classified as Cities. Clearly these LADs are not all Cities in their own right, but their characteristics are far away enough from the Metropolis group for them to have high Cities membership.

We named the next group out from the Cities as Suburbs. This group does not contain the suburbs to the smaller Cities. Instead it contains the suburbs to the larger cities, namely London, Birmingham and Cardiff. The strongest concentration can be found the east and west of London.

Moving out again from the large cities, we have the Market Towns group. Looking at this map we have a completely different picture. We have moved out of the Cities (which can now be seen as holes in the map) into the countryside. These LADs cover

much larger areas, and therefore do not map dotted market towns in the countryside, rather they highlight the areas that contain market towns. The strongest concentration of these towns can be found in the Midlands and south of England outside Greater London and its suburbs.

Finally we move out into the real countryside, into our Rural group. The LADs that can be described as truly rural are not to be found at all around London, the Midlands or indeed the southeast region. They can only be found in the eastern region, particularly in north Norfolk, Wales and the southwest of England.

5. The position of London, the southeast region and the eastern region

Having constructed the two fuzzy clusterings at a national level, we can start to describe the economic geography of the different regions in the southeast of England as a whole, specifically London, the southeast region[2] and the eastern region[3].

From the area fuzzy clustering it has become clear that central London is quite different to outer London, so we seek to capture these further differences by making a central/outer split, where central London contains the Boroughs of Camden, Hackney, Islington, Kensington and Chelsea, Lambeth, Southwark, Tower Hamlets, Westminster and the City of London.

For each of these regions, we can work out the average group membership for each of the fuzzy clusterings. In figure 3 we have a table giving the average group memberships for the specified regions to the employment fuzzy clustering. These results are also displayed in figure 4 as a bar chart.

The predominant feature of this bar chart is that London is most strongly associated with the Business group, with central London having slightly higher membership than outer. The southeast has next highest Business membership, dropping away as we move to the eastern region and then into the rest of the UK. The eastern region has significantly higher membership of the Mixed group than the southeast.

Manufacturing membership is higher in the eastern region than elsewhere in the southeast but not as high as rest of the UK. Public group membership in the eastern region is comparative to that of London, but higher in the southeast and higher again in the rest of the UK.

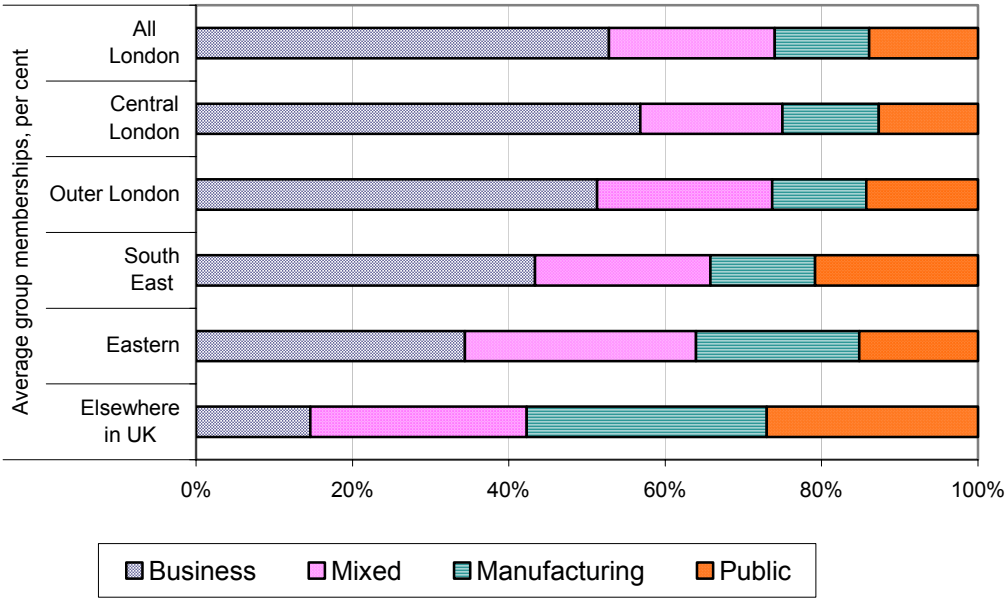
[2] South East Region consists of the counties of Berkshire, Buckinghamshire, East Sussex, Hampshire, the Isle of Wight, Kent, Oxfordshire, Surrey and West Sussex

[3] Eastern Region consists of the counties of Befordshire, Cambridgeshire, Essex, Hertfordshire, Norfolk and Suffolk

Figure 3: Average employment group memberships for London and other regions of the UK

Employment groups	Average group membership across LADs, per cent[4]					
	All London	Central London	Outer London	South East	Eastern	Elsewhere in UK
Business	52.8	56.8	51.3	43.3	34.4	14.6
Mixed	21.2	18.2	22.4	22.4	29.6	27.7
Manufacturing	12.1	12.3	12.0	13.4	20.9	30.7
Public	13.9	12.7	14.3	20.8	15.2	27.0
Total	100	100	100	100	100	100

Figure 4: Stacked bar chart of average employment group memberships for London and other regions of UK



If we examine the average memberships of the different regions, it becomes clear that, in term of their employment structure, the southeast is the most similar to London. The eastern region is slightly 'further away' from London. The rest of the UK has a very

[4] For all regional cluster analysis, averages are taken across membership levels of LADs within the region and are not equal to total regional proportions. This is done to give equal weighting to all LADs within a region, and avoid bias from specific LADs within a region.

different employment structure, with less weighting in business employment and more weighting in manufacturing and public sector employment.

With the area fuzzy clusterings we see some much more stark distinctions between the regions. The table of figure 5 shows the average memberships by region, with the results replicated again as a bar chart in figure 6.

We now see a much stronger divide between London and the southeast and the eastern regions. Not surprisingly central London is predominantly fixed in the Metropolis group. This drops away significantly as we move to outer London and practically all together outside of London.

City group membership on the other hand is relatively even across the regions, with the exception of central London that has a below average membership (due to the high Metropolis membership).

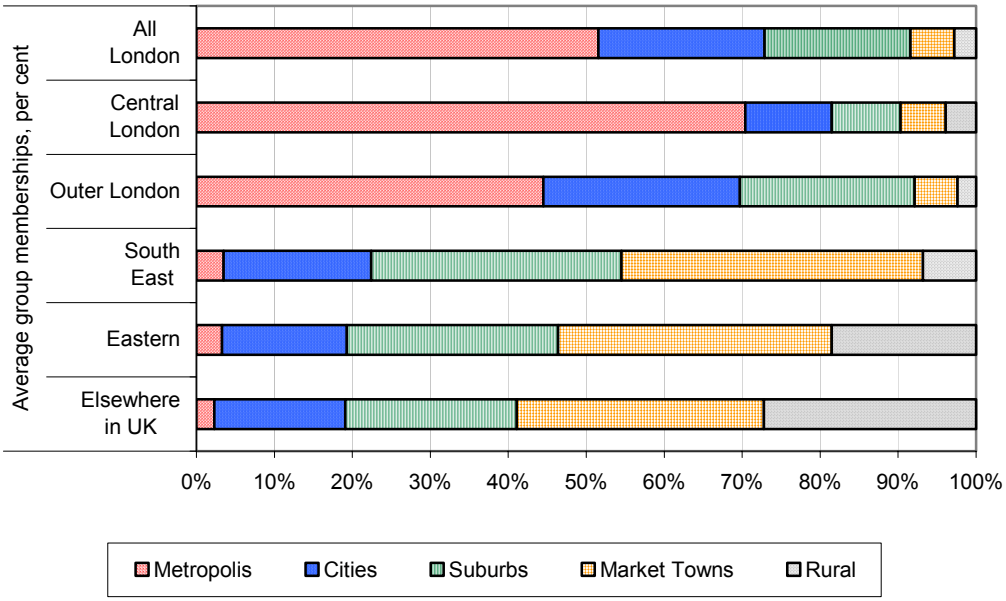
In terms of splitting out parts of London, this is done best by the Suburban group, having significantly higher membership in outer London to central London.

Moving out of London, the southeast maintains a low membership to the Rural group, shifting its weight to the Suburban and Market Towns groups. The eastern region is similar in average membership breakdown to the southeast, with some of the emphasis moving away from Suburbs towards Rural. The shift towards Rural increases as we move out of the eastern region into the rest of the UK.

Figure 5: Average area group memberships for London and other regions of UK

Employment groups	**Average group membership across LADs, per cent**					
	All London	Central London	Outer London	South East	Eastern	Elsewhere in UK
Metropolis	51.5	70.4	44.5	3.5	3.3	2.3
Cities	21.3	11.1	25.2	18.9	16.0	16.8
Suburbs	18.7	8.8	22.4	32.1	27.1	22.0
Market Towns	5.6	5.8	5.5	38.7	35.1	31.7
Rural	2.8	3.9	2.4	6.8	18.5	27.2
Total	100	100	100	100	100	100

Figure 6: Stacked bar chart of average area group memberships for London and other regions of UK



6. Other employment characteristics

With the employment fuzzy clustering we have discovered the broad employment characteristics of the regions we are studying. Importantly however, certain employment categories were not included in the clustering technique, as they either did not serve to distinguish groups of LADs better, or at the other extreme they distinguished the places too well, as was the case for rural employment. For completeness therefore, we take a look at the complete break-down of employment for the regions being studied.

Figure 7 shows the proportions of employment within each of our employment categories for the regions of interest. Sectors here that were not included in the employment clustering are rural employment, construction, retail, financial services and other employment. Rural employment as a proportion is very low across the UK, but for the southeast and eastern the level is around the same for rest of the UK.

Construction and retail employment are relatively uniform across the UK, accounting for around 4.5 per cent and 11.5 per cent respectively. The only area that is noticeably different is central London. This area has a lower proportion of employment in these sectors, but this is more a function of high employment in other sectors, as in absolute terms central London clearly does have high retail and construction employment.

Across the UK, financial services accounts for around three to four percent of the employment. When we restrict our focus to central London, this proportion rises to 13.4 per cent. Central London is a financial services hub.

Figure 7: Employment distributions for London and other regions of UK

Employment groups	Proportions of employment within regions, per cent					
	All London	Central London	Outer London	South East	Eastern	Elsewhere in UK
Rural	0.2	0.2	0.1	0.6	0.6	0.7
Soft manufacturing	1.5	0.8	2.2	1.8	3.5	4.6
Hard manufacturing	1.1	0.3	1.8	3.2	4.6	5.7
Printing	2.3	3.1	1.6	1.4	1.6	1.1
Construction	3.3	1.7	4.9	4.2	5.0	4.9
Retail	9.5	7.3	11.6	11.8	12.3	11.4
Hotels, bars and restaurants	6.9	7.8	6.1	6.2	6.2	6.6
Financial services	8.1	13.4	3.2	4.0	3.5	3.3
Other business	21.7	26.5	17.3	16.0	12.9	10.3
Tax paid	19.4	16.5	22.1	22.7	22.5	26.5
Other employment	25.9	22.4	29.2	28.1	27.4	25.0
Total	100	100	100	100	100	100

7. Where else is like London?

For all of the LADs studied within a fuzzy clustering we have a degree of membership to all the associated groups. Some LADs clearly have very similar memberships to others, while others are completely distinct. For any given LAD it is possible to find our which of the other LAD is closest in terms of these memberships. The LAD that is most similar we can call its 'nearest neighbour', and consequently we can also find the second nearest neighbour, the third nearest neighbour and so on.

The nearest neighbour in terms of these memberships is not necessarily the physically closest neighbouring LAD. For example, the nearest neighbour to Glasgow City turns out to be Hove, on the south coast. Often the nearest neighbour does turn out to be physically close, as is the case for many of the London boroughs. For example, the closest nearest neighbour to the borough of Wandsworth is the borough of Lambeth.

This concept can be used to illuminate the issue of where London ends. London consists of 33 LADs, and so for any particular LAD we can find the top 32 nearest neighbours and see how many of them are inside the Greater London boundary. If a

particular LAD was very like London, it could theoretically have all of its top 32 nearest neighbours in London.

In order to find out where in the South East is like London, we have therefore examined the top 32 nearest neighbours of all LADs, and for each one established how many are within London. To determine the membership distance between the LADs we have used the memberships of both the employment and the area fuzzy clusterings.

The results of this analysis can be seen mapped in figure 11 of the appendix. This chart has been shaded with two colours, blue and red. The red shaded LADs have a higher number of nearest neighbours inside London than the blue. This map illustrates several things. Firstly, it shows us which areas inside define London in terms of being a single entity. These are most darkly shaded red LADs, and they have a high proportion of their top 32 nearest neighbours inside London.

It also shows us which boroughs outside of the core are most like core. This fringe area spreads mainly towards the South West, and just pokes outside the Greater London boundary towards Epsom (which has 9 of its top 32 nearest neighbours inside).

The boroughs furthest to the North and North West, Enfield, Redbridge and Havering are less like the central core having only three or four nearest neighbours inside London.

Several centres outside of London are similar in their employment and social structure to London. Particularly noteworthy LADs are Watford (with 16 from 32), Slough (with 11 from 32) and Hove (with 14 of 32).

Reducing the threshold of similarity, we see in the blue shaded LADs (which have between one and four from the top 32 inside London) that London's influence spreads far and wide in the southeast of England, most noticeably to the southwest, south towards Brighton and east towards southend.

8. Conclusions

Using the powerful technique of fuzzy clustering we have identified key similarities and differences between the various regions of the southeast of England, both in terms of their employment and social/demographic structure.

The most noticeable overall impression we are left with is that London is very different from the surrounding regions, and in fact from all other areas of the UK. The City stands out with such high employment and low population density that it is unique in its ability to attract commuters from other districts.

The degree of urbanisation appears very strong for the central boroughs, where employment becomes heavily weighted towards financial and business services. In outer London we find that boroughs to the southwest and northwest is some sense typify what we think of as Greater London, where-as a few boroughs to the north and northeast seem quite detached, having only weak links with the rest of London in terms of their employment and demographic structure.

Moving out into the southeast region we find an area that has an employment structure that is similar that of outer London, with slightly lower business type employment and slightly higher public sector employment. Physically however, the characteristics of the southeast are quite different. Most LADs are best described with the Market Towns area group, unlike London, which is a mixture of Metropolis and Cities. The key area of the southeast that is not best described with the Market Towns group consists of those LADs directly adjacent to the southwest of London having high membership of the Suburbs group.

The eastern region is less similar to London than the southeast. In terms of its employment structure, it has higher manufacturing and mixed employment, with less business employment. In terms of its area characteristics there is a split. The southern section of the eastern region is best described with the Market Towns group, like the southeast region, but further north we find truly rural areas, the like of which cannot be found elsewhere in the whole of the southeast. These places are more like the countryside of Wales and the southwest of England than they are like London.

Appendix

Figure 1: Employment re-classification, from 60 SIC sectors to 11 new employment sectors

Rural	Soft manufacturing	Hard manufacturing	Printing	Construction	Retail	Hotels	Financial Services	Other business	Tax paid	Other
agriculture	food	rubber	printing	construction	retail	hotels	financial intermediation	computers	public admin	All other categories
forestry	textiles	non metallic					financial auxiliary	other business	education	
fishing	apparel	metals					insurance		health social	
coal	wood	fabricated metals								
petroleum	furniture	machinery								
mining										
quarrying										

Figure 2: Employment fuzzy clustering - Business group memberships

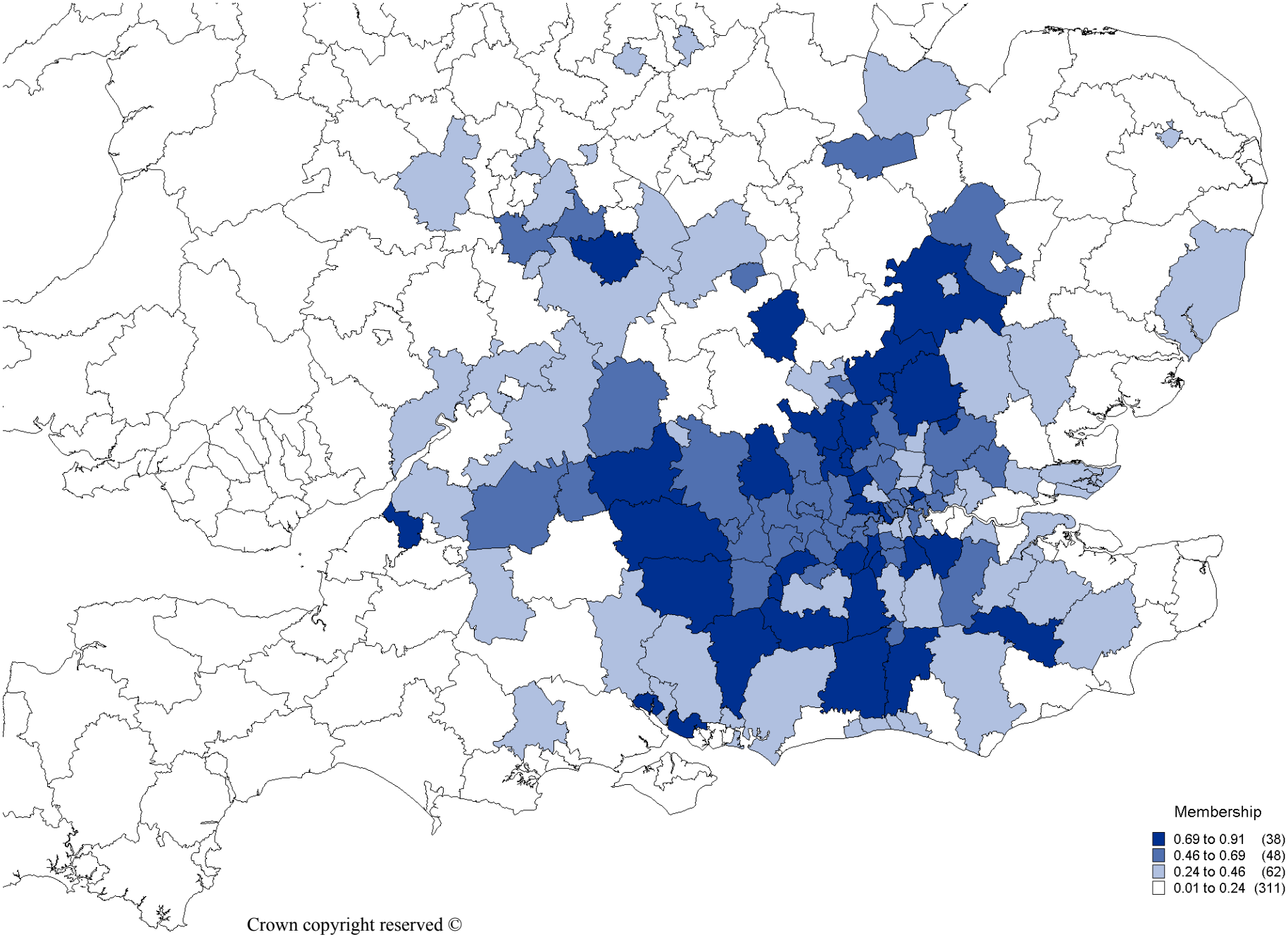


Figure 3: Employment fuzzy clustering - Manufacturing group memberships

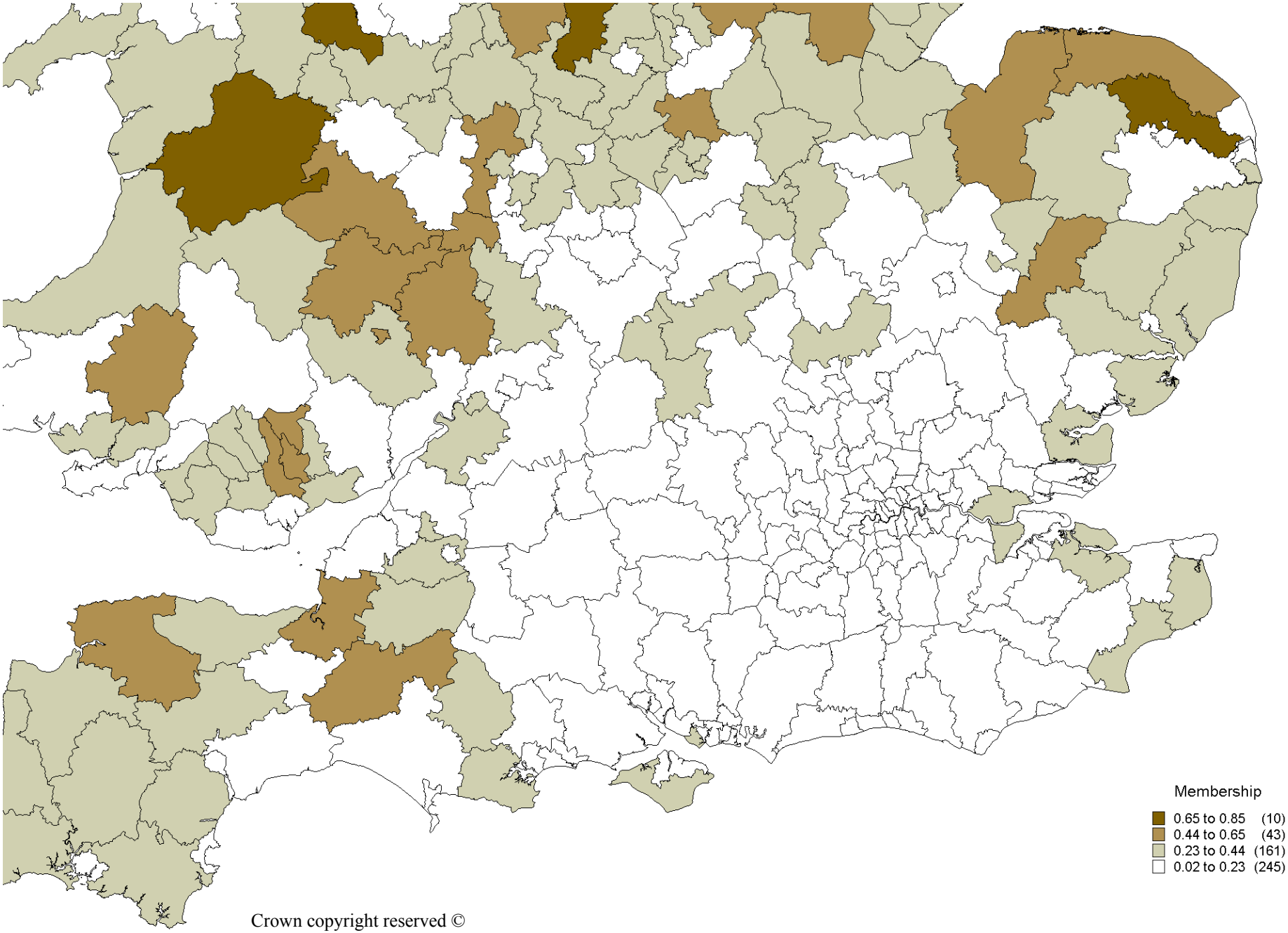


Figure 4: Employment fuzzy clustering - Public group memberships

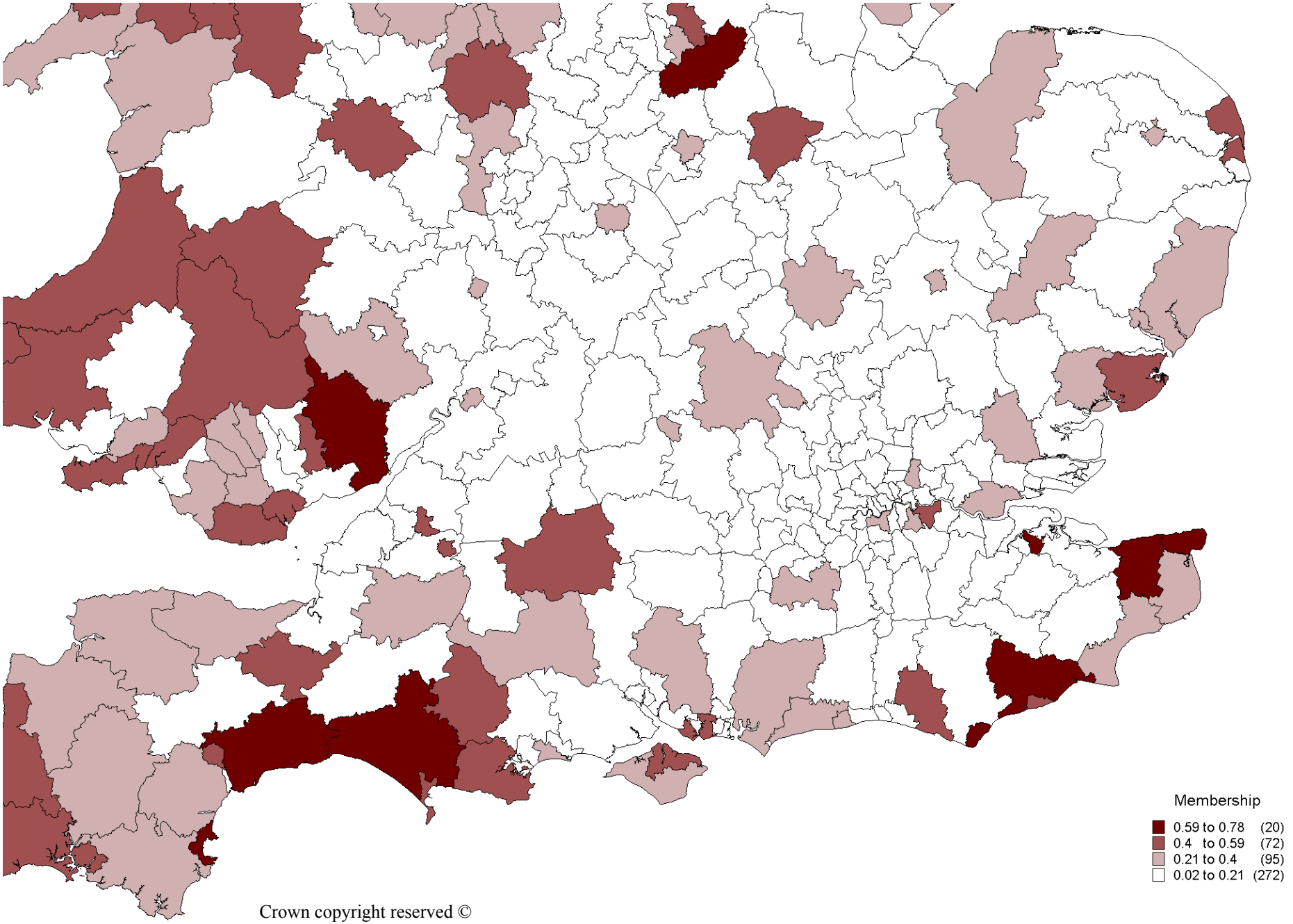


Figure 5: Employment fuzzy clustering - Mixed group memberships

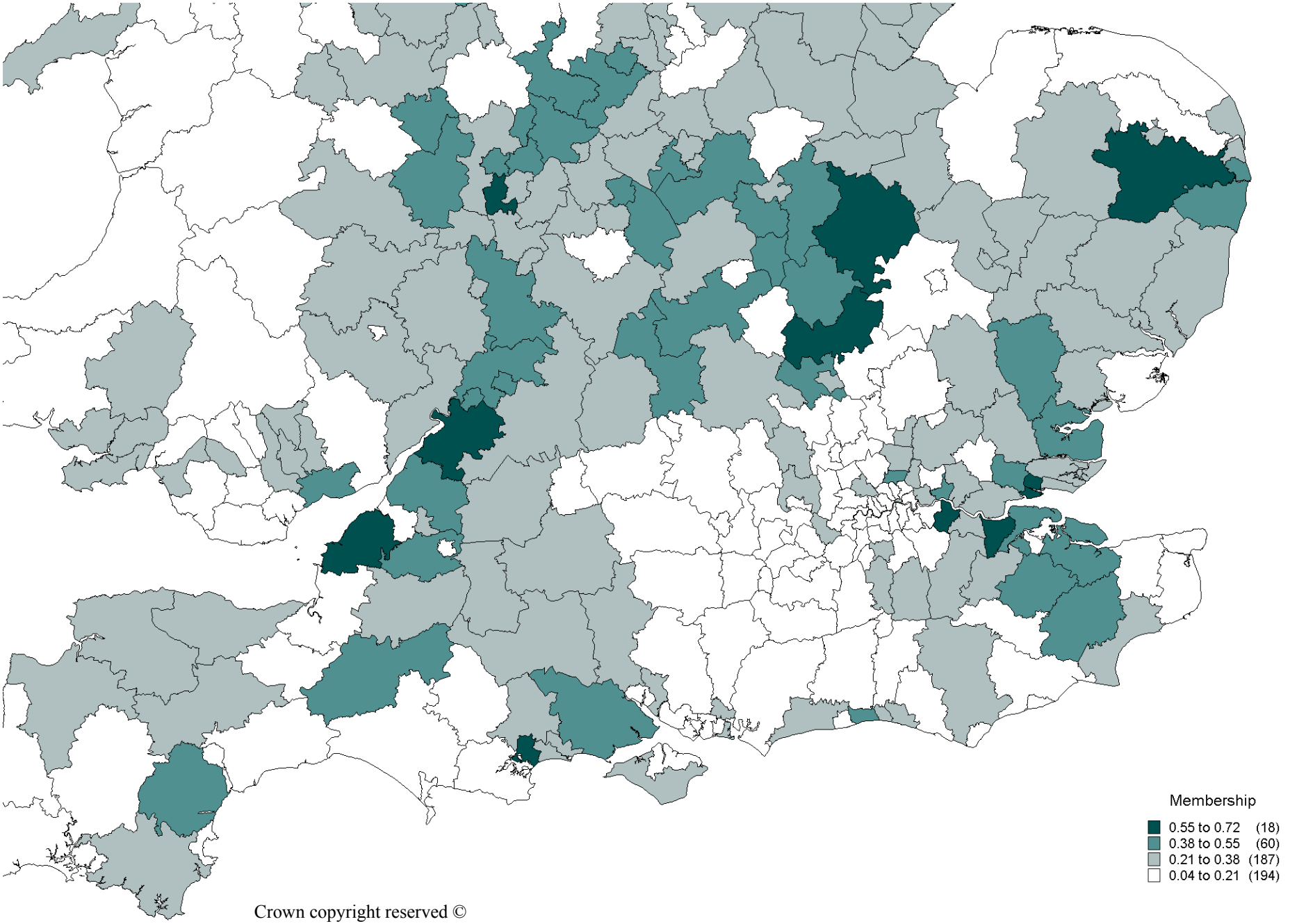


Figure 6: Area fuzzy clustering - Metropolis group memberships

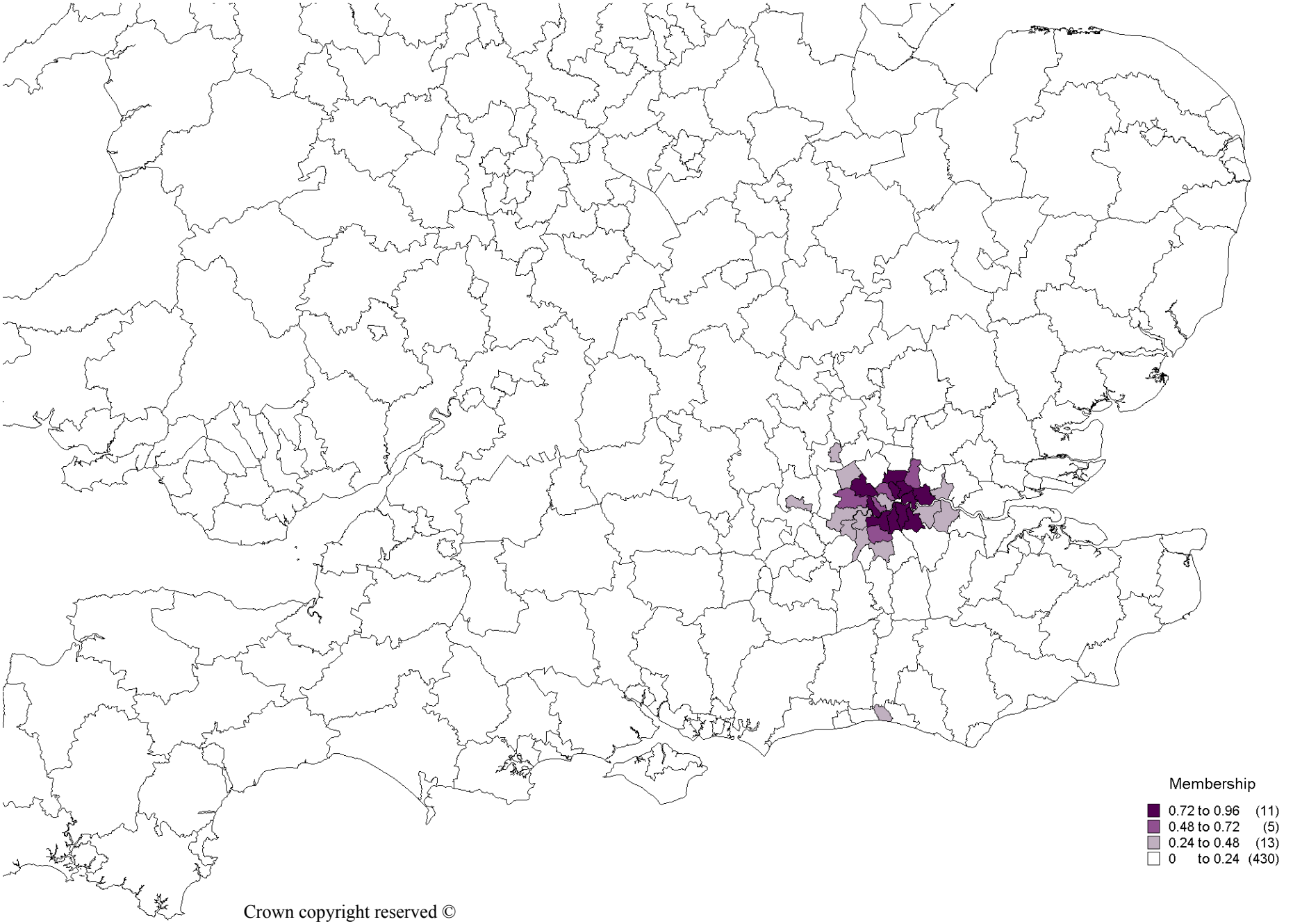


Figure 7: Area fuzzy clustering - Cities group memberships

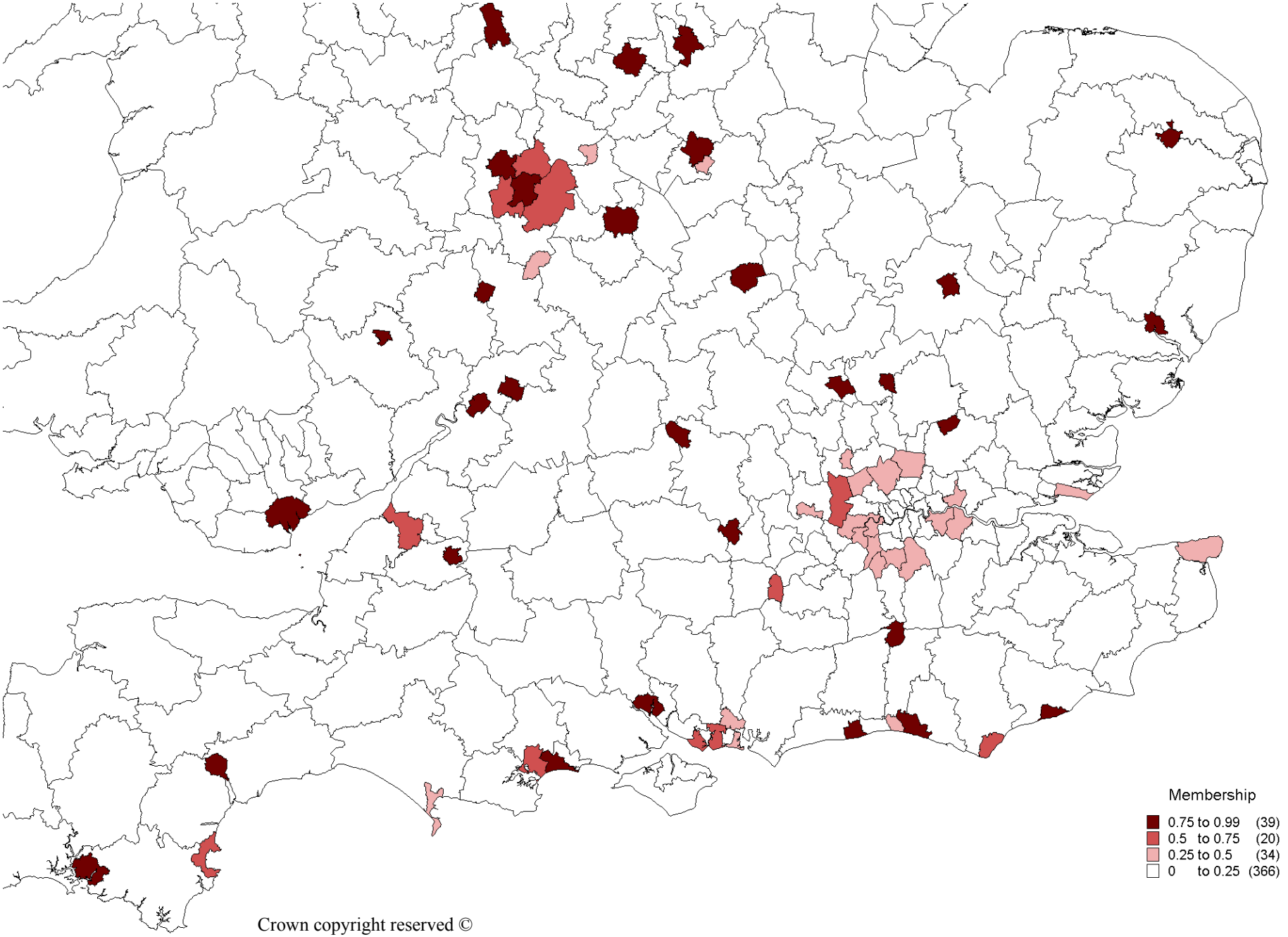


Figure 8: Area fuzzy clustering - Suburbs group memberships

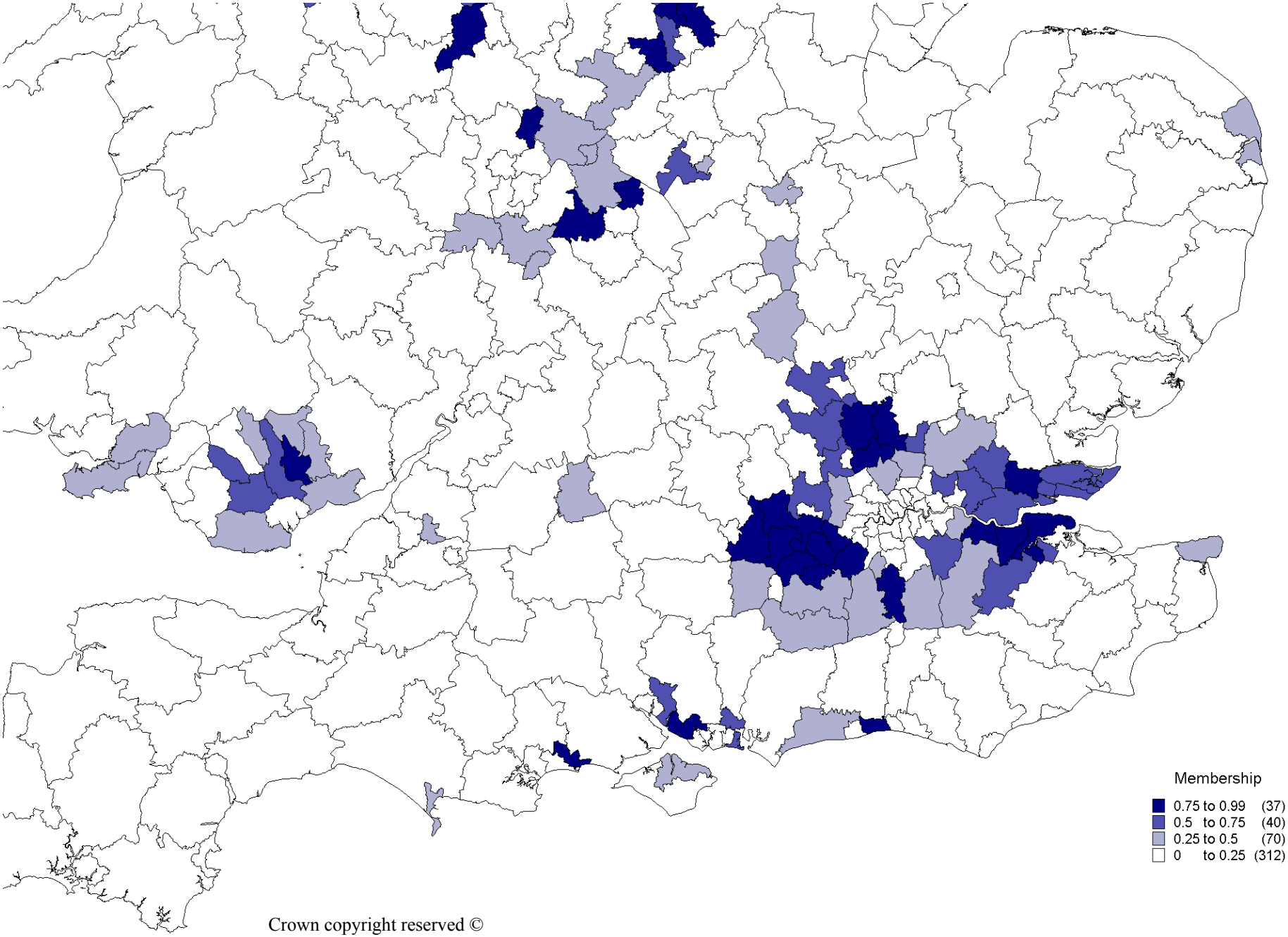


Figure 9: Area fuzzy clustering – Market Towns group memberships

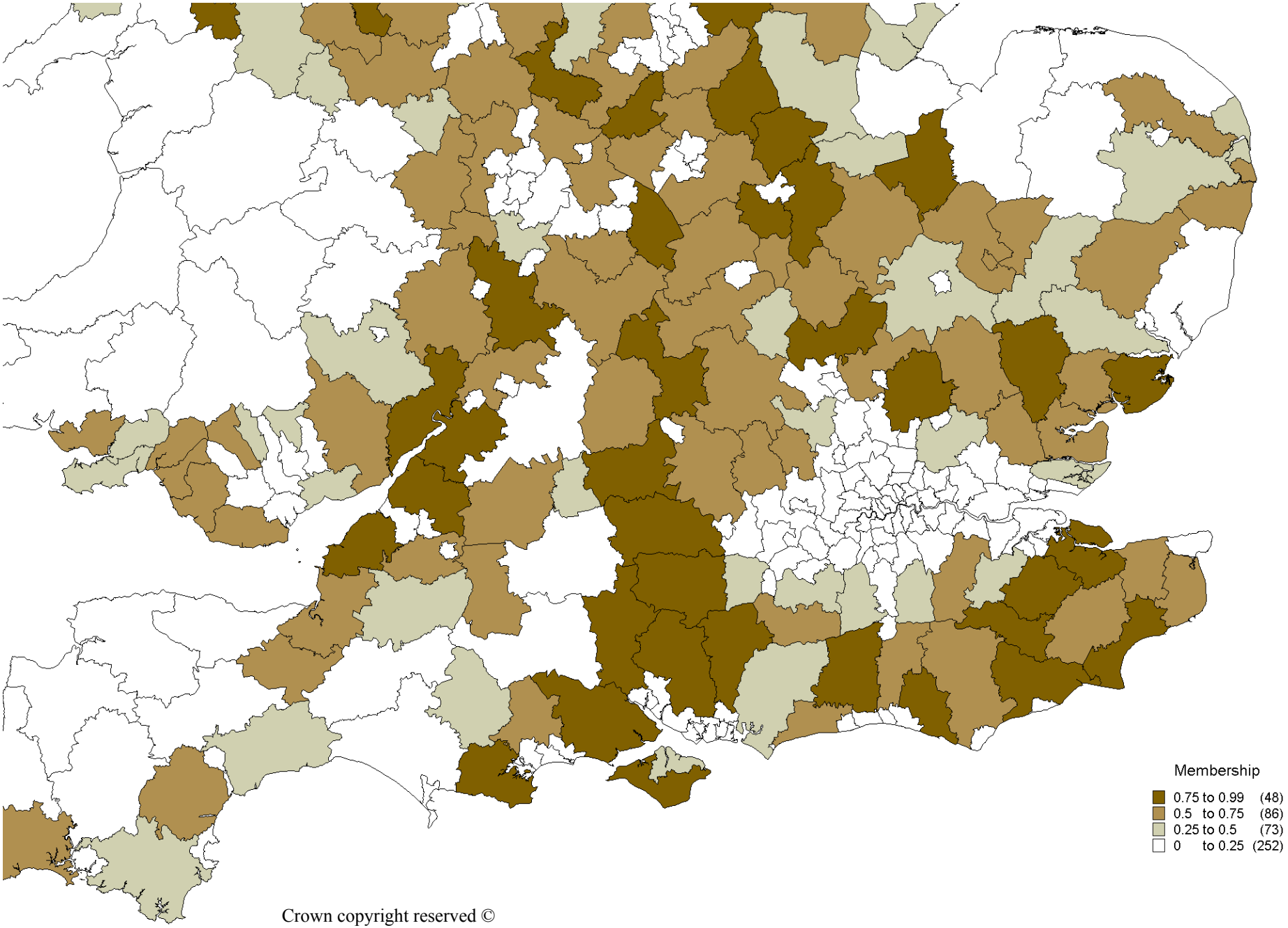


Figure 10: Area fuzzy clustering – Rural group memberships

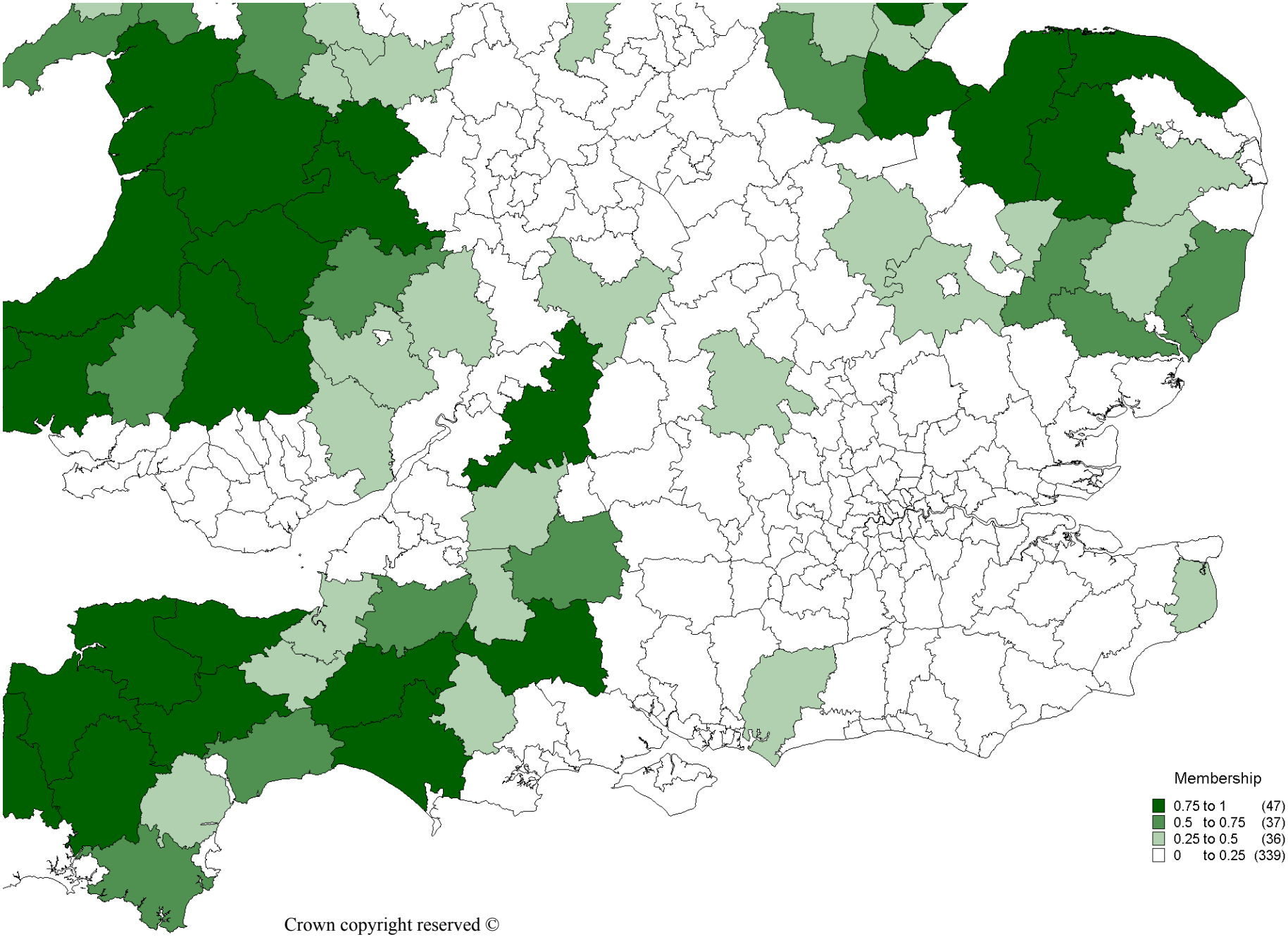
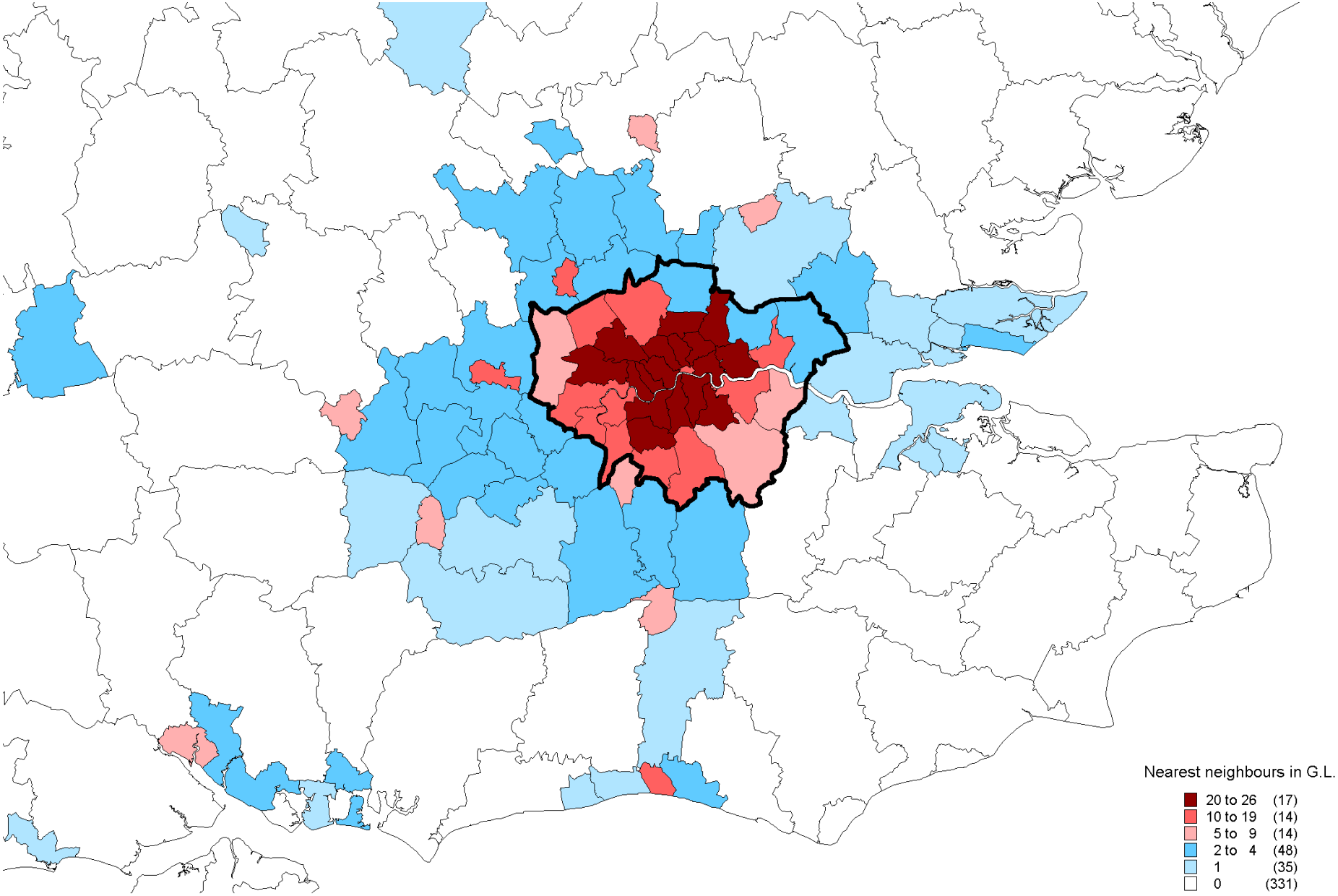


Figure 11: Similarity to Greater London

Number of nearest neighbours (based on both employment and area fuzzy clustering memberships) from top 32 inside Greater London for all LADs



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Hindi

यदि आप इस दस्तावेज़ की प्रति अपनी भाषा में चाहते हैं, तो कृपया निम्नलिखित नम्बर पर फोन करें अथवा दिये गये पता पर सम्पर्क करें।

Vietnamese

Tiếng Việt
Nếu bạn muốn bản sao của tài liệu này bằng ngôn ngữ của bạn, hãy gọi điện theo số hoặc liên lạc với địa chỉ dưới đây.

Bengali

আপনি যদি আপনার ভাষায় এই দলিলের প্রতিলিপি (কপি) চান, তা হলে নীচের ফোন্ নম্বরে বা ঠিকানায় অনুগ্রহ করে যোগাযোগ করুন।

Greek

Αν θα θέλατε ένα αντίγραφο του παρόντος εγγράφου στη γλώσσα σας, παρακαλώ να τηλεφωνήσετε στον αριθμό ή να επικοινωνήσετε στην παρακάτω διεύθυνση.

Urdu

اگر آپ اِس دستاویز کی نقل اپنی زبان میں چاہتے ہیں، تو براہِ کرم نیچے دیئے گئے نمبر پر فون کریں یا دیئے گئے پتہ پر رابطہ قائم کریں.

Turkish

Bu brosürü Türkçe olarak edinmek için lütfen asagidaki numaraya telefon edin ya da adrese basvurun.

Arabic

إذا أردت نسخة من هذه الوثيقة بلغتك، الرجاء الاتصال برقم الهاتف او الكتابة الى العنوان أدناه:

Punjabi

ਜੇ ਤੁਹਾਨੂੰ ਇਸ ਦਸਤਾਵੇਜ਼ ਦੀ ਕਾਪੀ ਤੁਹਾਡੀ ਆਪਣੀ ਭਾਸ਼ਾ ਵਿਚ ਚਾਹੀਦੀ ਹੈ, ਤਾਂ ਹੇਠ ਲਿਖੇ ਨੰਬਰ 'ਤੇ ਫ਼ੋਨ ਕਰੋ ਜਾਂ ਹੇਠ ਲਿਖੇ ਪਤੇ 'ਤੇ ਰਾਬਤਾ ਕਰੋ:

Gujarati

જો તમને આ દસ્તાવેજની નકલ તમારી ભાષામાં જોઇતી હોય તો, કૃપા કરી આપેલ નંબર ઉપર ફોન કરો અથવા નીચેના સરનામે સંપર્ક સાધો.

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