GLAECONOMICS

London's Housing Submarkets

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Background and purpose

GLA Economics recently published a report titled *Valuing Greenness* which studied the relationship between housing attributes and house prices. The report showed that travel time, income support claimants and schools (based on performance indexes) significantly affect house prices (GLA Economics, 2003). However, it also revealed an inner-outer split in London implying that people have differenthousing preferences.

This report expands on the work in *Valuing Greenness* and aims to:

- Undertake a housing market analysis disaggregated further than borough/ward level. This analysis is undertaken at postcode sector level with a sample size of 924 postcode sectors.[1] The postcode sector data has been aggregated from Census Output Areas.[2]
- Analyse the housing market in terms of factors that affect both demand and supply, such as: property and tenure type, demographic and social conditions, location, environmental and accessibility characteristics.
- Create housing submarkets on the basis of specific housing attributes and see what drives each submarket.
- Study what makes each submarket distinct from the other and the degree of segmentation between each submarket.
- Highlight the distinguishing characteristics of each submarket. This is intended to better inform policy decision making.
- Compare the explanatory power of submarket analysis with overall housing market analysis.

The recently published Barker review[3] on housing supply also reinforces the importance of submarket housing options. The review states that increasing housing supply and having better balance of housing tenures can reduce the difficulties first-time buyers face when accessing the housing market. Building new homes and good tenure management would also address the backlog of housing and keep up with demographic changes. More affordable housing would lead to a shift from social housing options towards affordable owner-occupied housing.

Identifying submarkets and understanding the links between them can help to illustrate the required level of government intervention. Without a strong submarket analysis, a highly interventionist approach will have unexpected and unintended consequences. The London housing market actually consists of a number of submarkets and this report presents a methodology to identify them and analyse them in depth.

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[1] The postcode is the number that defines a district or a neighbourhood (eg SE1 2 is a postcode sector and SE1 2AA is a unit postcode). See Appendix B for further description of the postcode data.

[2] In the 2001 Census, the output area is the smallest area for which Census data are available. The output area is an aggregate of contiguous unit postcodes where the households have a certain uniformity based on mostly tenure but also other factors. There are nearly 24,000 output areas in London and the postcode sector aggregation is a good representation of the area.

[3] Review of Housing Supply: Delivering Stability: Securing our Future Housing Needs, Kate Barker, March 2004

London boroughs

While the housing submarkets extend across the borders of London's 33 boroughs, the maps in the report show borough boundaries so that broad areas can be identified. Map 1 is labelled with the borough names for cross-referencing with the other maps in the report.

Map 1. London Boroughs

Inner London boroughs are Kensington and Chelsea, City, Camden, Westminster, Islington, Wandsworth, Hackney, Haringey, Lambeth, Lewisham, Newham, Southwark, Tower Hamlets and Hammersmith and Fulham.

The outer London boroughs are Barking and Dagenham, Barnet, Brent, Bexley, Bromley, Croydon, Ealing, Enfield, Greenwich, Harrow, Havering, Hillingdon, Hounslow, Kingston upon Thames, Merton, Redbridge, Richmond upon Thames, Sutton and Waltham Forest

Introduction

Urban housing markets are not uniform and comprise a set of distinct housing submarkets, and London's housing market is a case in point. Submarkets can be defined on the basis of their individual structural and regional characteristics, for example owner-occupied houses. A submarket analysis can help governments to make more informed policy decisions by looking at a more detailed level of housing and household characteristics.

Why submarket analysis is useful

Segments in the housing market arise because of differences in both supply and demand for housing. Dwellings differ by location, proximity to services, type, size, age, design, building material, land leasing policies and geographic characteristics. These differences provide a prospective homebuyer with many choices. Some important factors that affect people's decisions about where to live are proximity to transport connections, shops, schools and health facilities. Housing preferences themselves depend on income level, employment status and occupation, household composition, special requirements and previous housing experiences, among other things. A homebuyer is likely to be interested in dwellings that fall within a few similar housing groups. It also takes time for housing supply to adjust to changes in demand. A growing population, changing household size, labour mobility and international and domestic migration patterns mean London requires different housing submarket options to house people in the future. These options include building more specific types of dwellings, such as flats and maisonettes, and encouraging more private rented accommodation.

Housing submarkets have distinct attributes, and it can be assumed that dwellings within one sub market are similar. Submarket analysis can provide a better explanation of housing demand and supply than an overall market analysis. This is because each submarket will have attributes specific to the characteristics of the submarket and would be more accurate in explaining house prices compared to the overall market. For example, owner-occupied detached properties are mainly found in outer London and private rented accommodation is more common in inner London. Analysing these two regions as individual submarkets with more closely associated attributes provides a clearer picture than combining them together. For this report, housing submarkets have been created using household characteristics as well as property type and tenure.

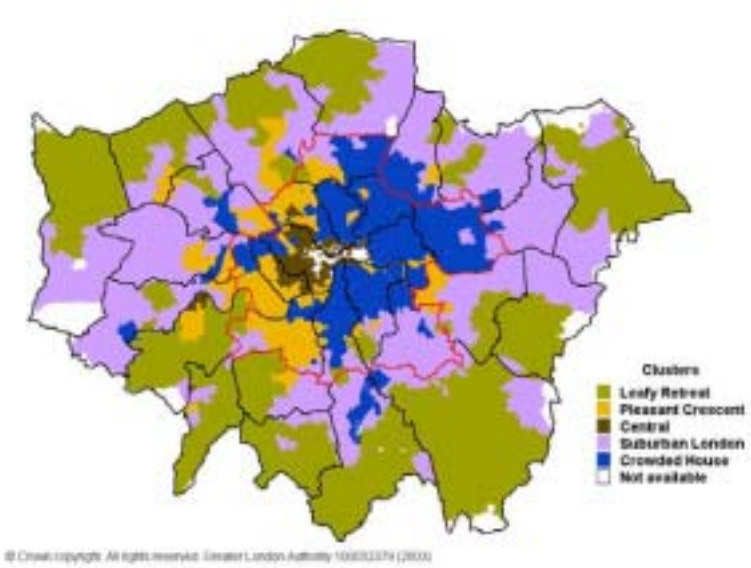
The key findings of the study are outlined in the next section of the report. Chapter 1 contains the overall structure of London's housing by property and tenure type. Chapter 2 describes the methodology and the data used to undertake the submarket analysis. In Chapter 3 each submarket is discussed in more detail. The advantages of a submarket approach compared to analysis of the overall housing market are covered in Chapter 4.

This report is accompanied by *Working Paper 7: Defining and Analysing London's Housing Submarkets*, which contains the technical econometric analyses and statistical tests undertaken for this study.

Key findings

London was divided into five housing submarkets using cluster analysis. Submarket house prices were further analysed using variables that were most significant in explaining house prices in each of them. The findings are discussed in Chapter 3.

Map 2. London's housing submarkets



Splitting the overall market into five submarkets (shown in Map 2) greatly increases the level of statistical explanation of the relationship between house prices and housing attributes compared to the overall market analysis.

Each submarket is quite distinct in terms of the average values of housing indicators, such as type of dwelling, household and tenure.

The **Central** cluster is characterised by high house prices, more private rented accommodation (predominantly flats/maisonettes) and fewer rooms per household. It also has better performing secondary schools on the basis of Key Stage 3[4] scores. It has the highest proportion of working age and self-employed people in London.

The **Crowded House** cluster mainly consists of a relativelyhigh proportion of income support claimants and households living in socially rented accommodation. It also has the highest proportion of households living in overcrowded conditions.

[4] An educational quality indicator of secondary schools.

Pleasant Crescent is primarily characterised by a high proportion of people in full-time employment. It also has good schools with high average Key Stage 3 scores for secondary schools.

Suburban London has the lowest average house prices even though the properties are quite large (in terms of average rooms per household). Nearly 67 per cent of households live in whole houses[5] or bungalows. It has the highest proportion of households living in terraced properties. Suburban London also has the highest proportion of people aged 0-19 years.

Leafy Retreat has the highest proportion of households living in owner-occupied accommodation. Around 80 per cent of households live in detached houses or bungalows. It also has the highest average household size and number of rooms per household. Leafy Retreat has the highest proportion of couples with dependent children.

Factors that explain house prices in each submarket

The variables listed below were the most significant in explaining the house price in each submarket. The variables are different, or they have a different impact on house prices, for each submarket. The different variables and their relationship with house prices is what drives each cluster and makes it a distinct housing submarket.

Central

- A 1 per cent fall in **overcrowded households** can be associated with a 1.5 to 3 per cent[6] increase in house prices.
- A 1 per cent reduction in **households living in flats/maisonettes** can relate to a 0.5 to 2.2 per cent increase in house prices.
- An increase in **average Key Stage 3 point score** by one point is associated with a 1.4 to 8.3 per cent house price increase.

Crowded House

- A 1 per cent increase in **households living in flats/maisonettes** relates to a 0.3 to 0.8 per cent increase in house prices.
- On average a 1 per cent decrease in **socially rented households** is associated with an increase in house prices by 0.3 to 1 per cent.
- A reduction in **overcrowded households** by 1 per cent can be associated with a 0.2 to 2 per cent increase in house prices.

[5] Whole houses include detached, semi-detached and terraced homes.
[6] Using 95 per cent confidence intervals of the coefficient of each indicator.

Pleasant Crescent

- A 1 per cent increase in **households with couples and dependent children** can be associated with a 2 to 4.2 per cent increase in house prices.
- An increase in **average Key Stage 3 point score** by one point is associated with a 0.8 to 4 per cent increase in house prices.
- A 1 per cent increase in **households living in flats/maisonettes** relates to a 0.4 to 1.2 per cent increase in house prices.

Suburban London

- A 1 per cent reduction in **owner-occupied households** can be associated with a 1.7 to 2.5 per cent increase in house prices.
- On average a reduction in **households in socially rented accommodation** by 1 per cent can be associated with house prices rising by 1.4 to 2.2 per cent.
- A 1 per cent increase in the proportion of **self-employed** on average is associated with a 6 to 8 per cent increase in house prices.

Leafy Retreat

- A 1 per cent increase in the proportion of **self-employed** on average can be associated with a 3.7 to 7.2 per cent increase in house prices.
- A 1 per cent increase in **households living in detached properties** is associated with a 0.2 to 0.7 per cent increase in house prices.
- On average a reduction in **households in socially rented accommodation** by 1 per cent can be associated with a 0.7 to 3 per cent increase in house prices.

Table 1. Variables with the most significant impact on house prices

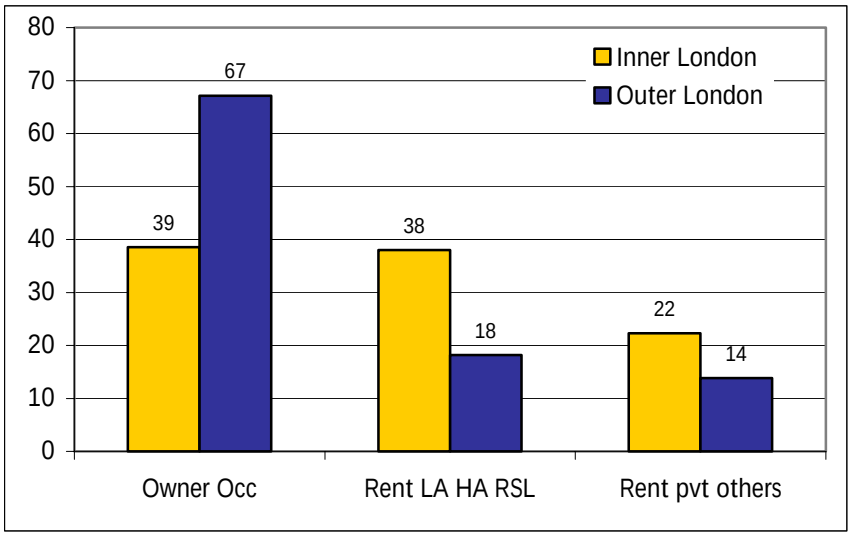
Variables	Central	Crowded House	Pleasant Crescent	Suburban London	Leafy Retreat
Ethnicity white %		+	+		
Household – detached %					+
Household – terraced %				-	
Household – flats/maisonettes %	-	+	+		
Household – owner-occupied %				-	-
Household – social rented %		-		-	-
Overcrowded households %	-	+			
One-person households %				-	
Couple with dependent children households %			+		
British Rail and London Underground less than 1.5km away		+	+		+
Average KS3 scores	+		+		
People aged 30-64 years %	+				
Full time employment %	-				
Self employment %				+	+

Chapter 1. London's housing and household structure

Housing is a major public policy concern in London, where demand for housing greatly outstrips supply. New housing supply each year is only 1 per cent of total supply in London. This rate of supply would not be sufficient to house the additional 800,000 people projected to be living in London by 2016, taking the population to 8.1 million. Moreover, growth in the number of households by 2016 is now estimated to be 336,000 (or 22,400 new households each year between 2001 and 2016).

Most of the housing stock in London was built during the start of the 20th century and is older than the stock of England as a whole. Nearly 30 per cent of private housing and about 14 per cent of London's social housing stock was built before 1919, compared with 25 per cent of private and about 6 per cent of social housing in England.[7] The old nature of the stock and underinvestment has implications for housing conditions and standards. In 2001, 35 per cent of London's private sector housing and 41 per cent of its social housing did not meet decent homes standard. This was higher than the England average of 32 per cent and 38 per cent for private and social sector housing respectively.[8]

Figure 1. Percentage of households by tenure type

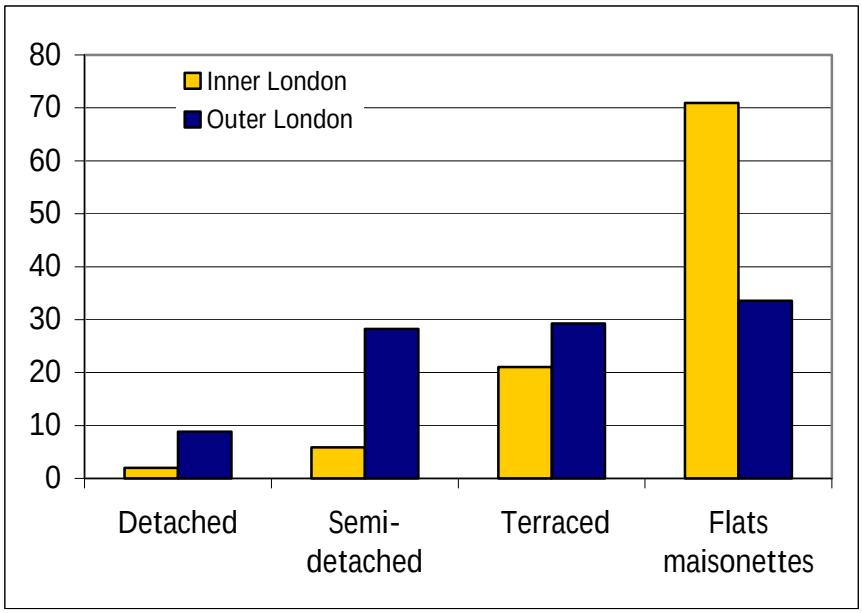


Source: ONS Neighbourhood statistics, 2001
Notes: Owner occupied includes owned outright and owned with a mortgage/loan.
LA: Local Authority; HA: Housing Association; RSL: Registered Social Landlord.
Sum of all tenure type might not add up to 100 due to rounding errors.

[7] Homes and Communities in London, London Housing Strategy 2003.
[8] Regional volume of the 2001 English House Condition Survey report, published by ODPM.

London has around 3 million households, and around 1.2 million live in owner-occupied accommodation in outer London. About 850,000 households live in flats/maisonettes in inner London.

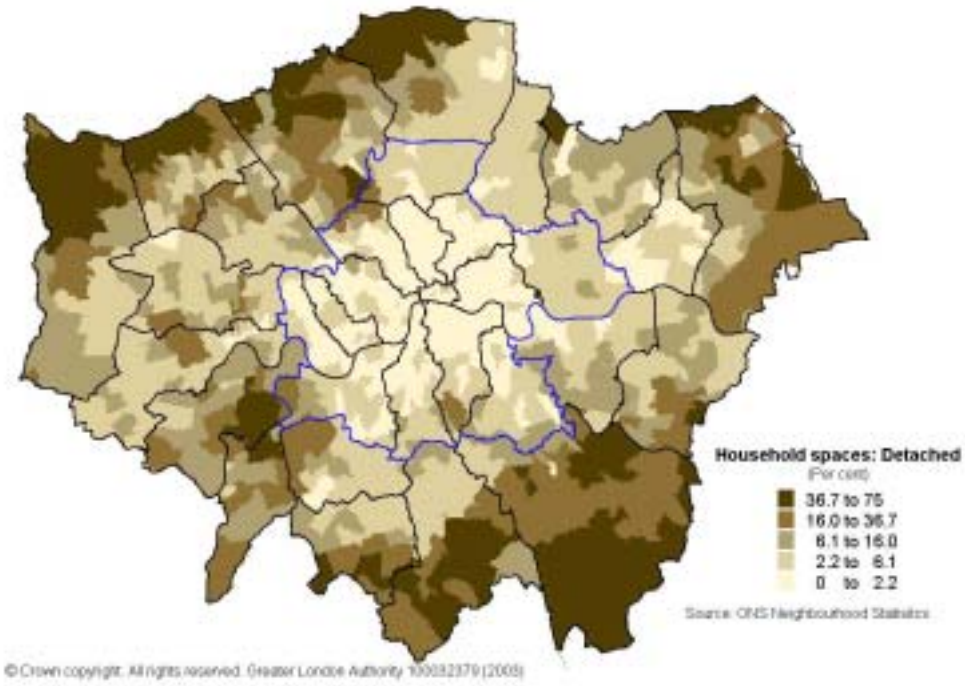
Figure 2. Percentage of households by accommodation type



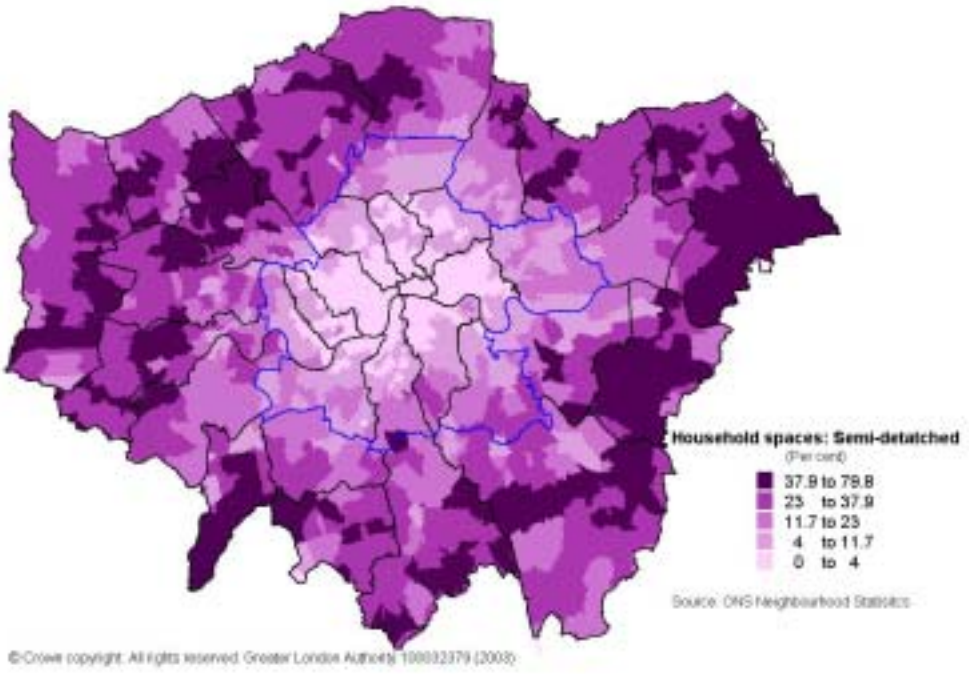
Source: ONS Neighbourhood statistics, 2001

1.1 Housing by tenure and property type

Map 3. Detached households



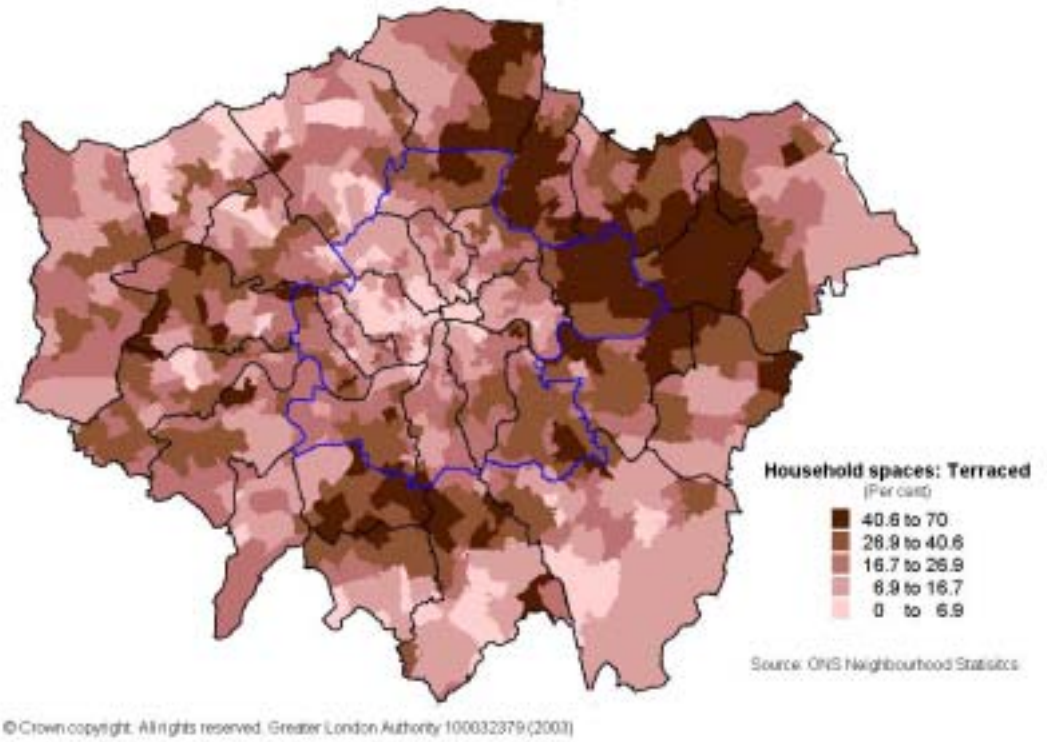
Map 4. Semi-detached households



A greater proportion of households live in detached and semi-detached properties (Maps 3 and 4) in the outer fringes of London. Bromley in the southeast has the highest percentage of households living in detached and semi-detached dwellings. The upper limit of the proportion of households living in detached properties in the top most range[9] (Map 3) is 75 per cent. This shows that very few postcode sectors have a proportion of households living in detached properties of greater than 75 per cent. Two postcode sectors in Sutton, SM7 1 and SM2 7, are outliers where 97 and 85 per cent of households live in detached properties.

Postcode sector DA7 5 in Bexley has the highest proportion (80 per cent) of households living in semi-detached properties.

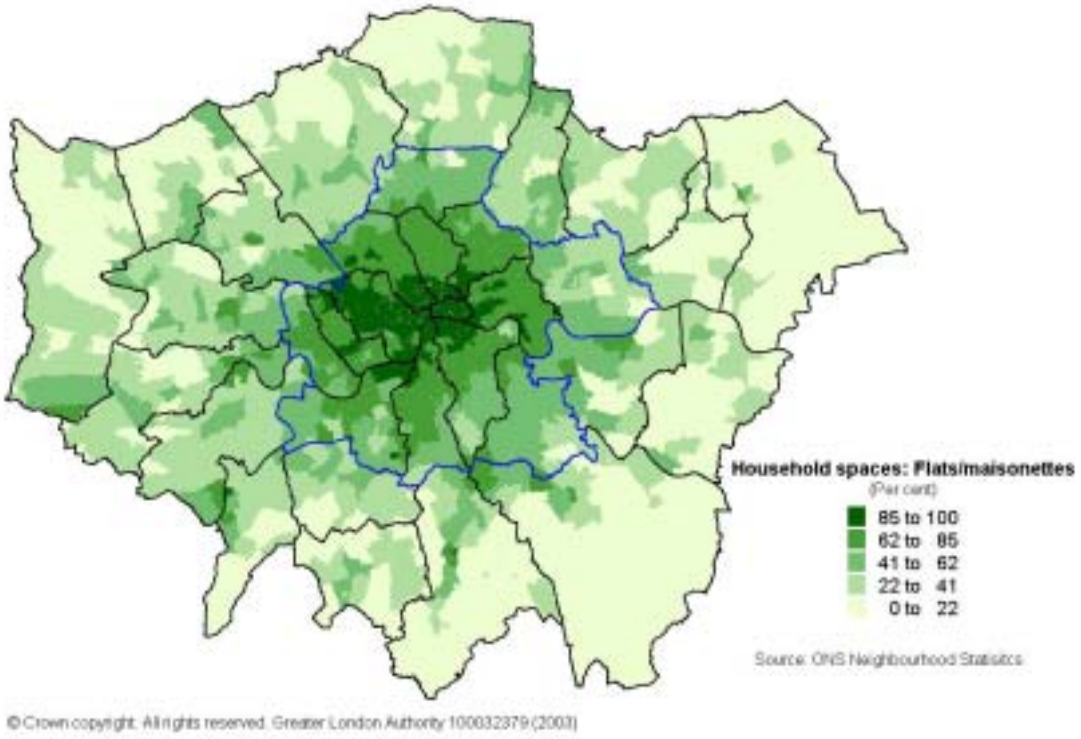
Map 5. Terraced households



A high proportion of households living in terraced properties (Map 5) are located in the northeast of London in Redbridge, and Barking and Dagenham. Around 70 per cent of households live in terraced properties in the postcode sector RM9 5 in Barking and Dagenham.

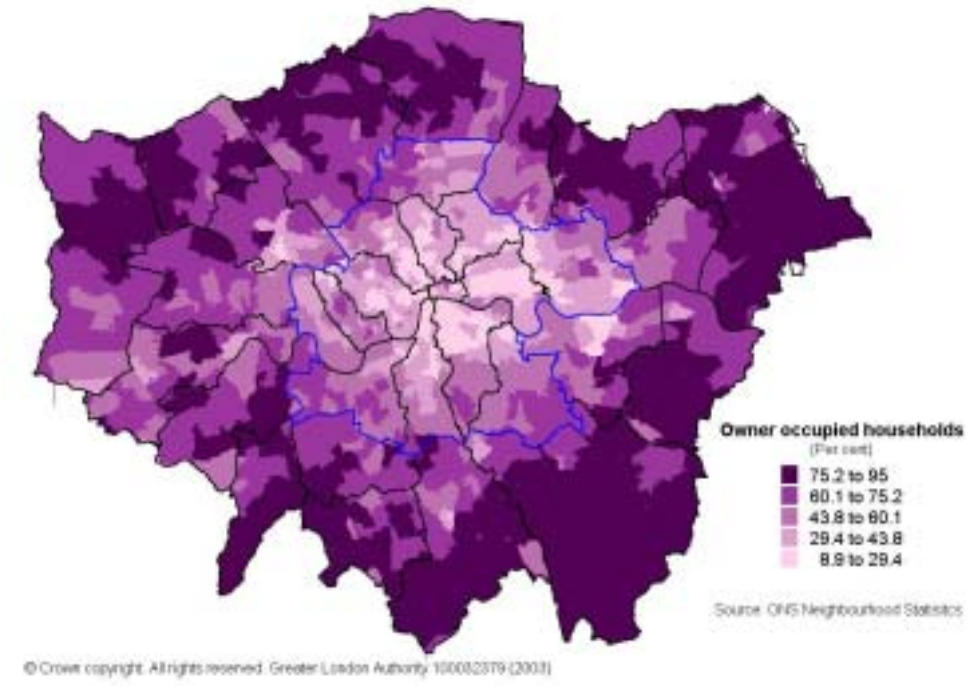
[9] The ranges have been created using the natural break method for ranges in Mapinfo (GIS software). The natural break method minimises the difference between the individual data values and the average values on a per range basis. This method provides a more accurate representation of the data distribution than the other built-in MapInfo functions. This method attempts to ensure that the ranges are represented by their averages and that data values within each range are close to the average for the range (and close to each other).

Map 6. Flats/maisonettes



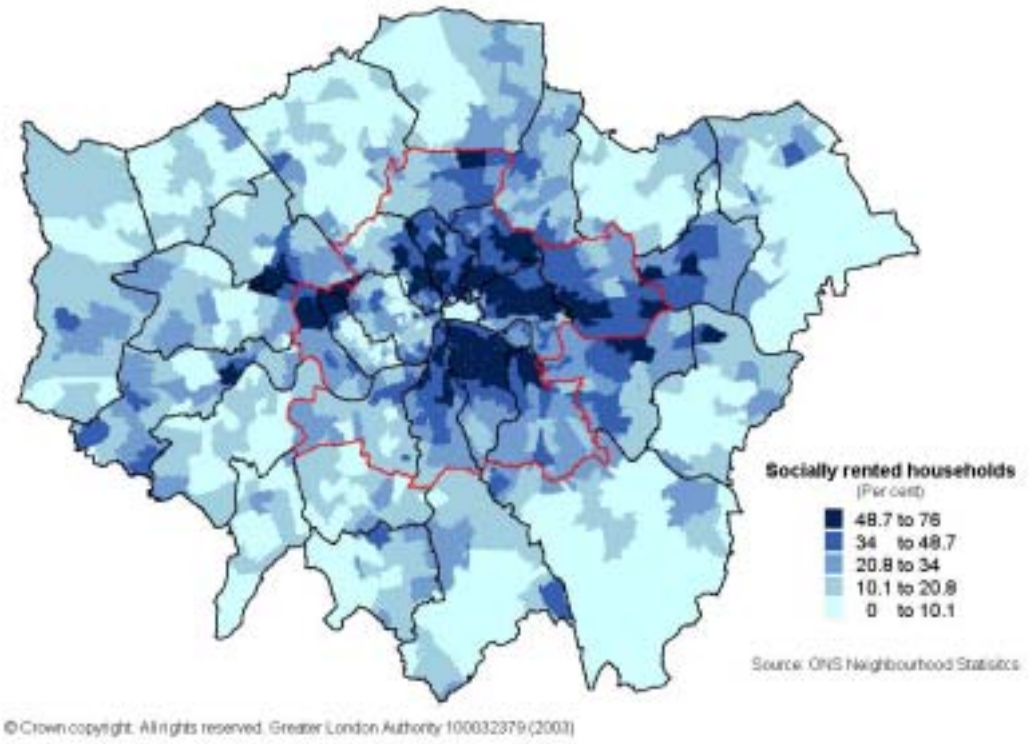
In stark contrast to the rest of London, a higher proportion of households live in flats or maisonettes (Map 6) in inner London. In some postcode sectors almost all households live in flats or maisonettes. It should be noted that in inner London people also live in flats or maisonettes converted from warehouses and other types of whole houses or bungalows.

Map 7. Owner-occupied households



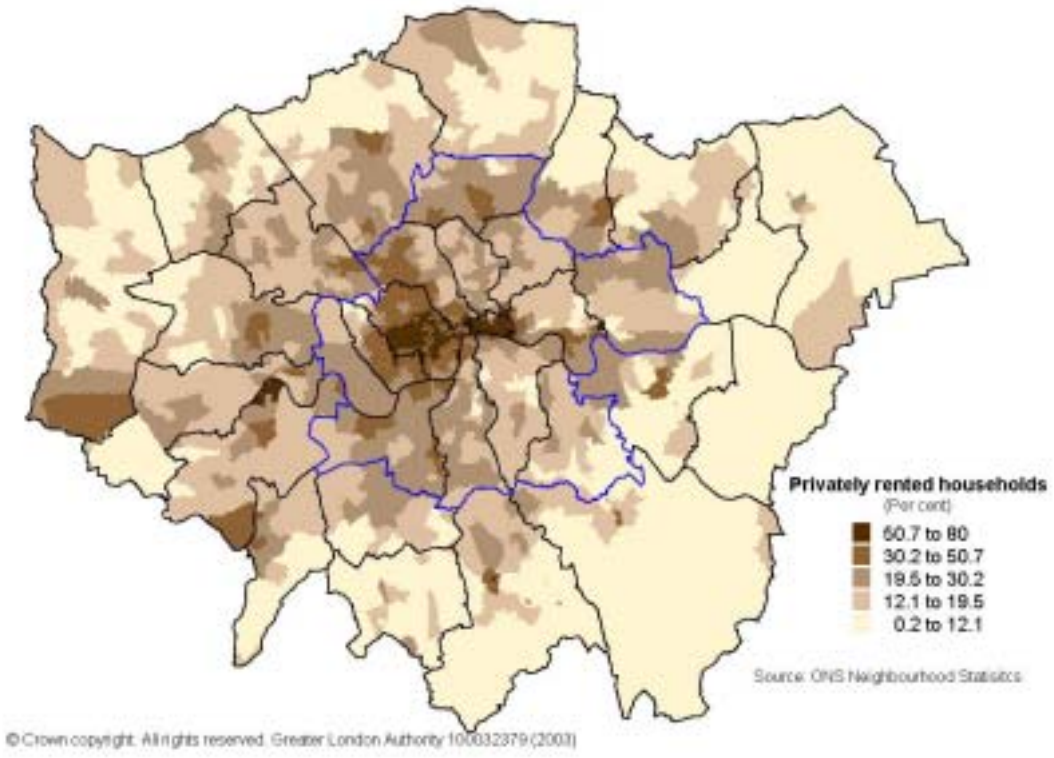
Home ownership is quite high in England compared to many other European countries, with nearly 70 per cent of households owning their property outright or with a mortgage or loan. In London 57 per cent of households own their homes (either outright or with a mortgage or loan), reaching as high as 95 per cent in postcode sector DA7 5 in Bexley (Map 7).

Map 8. Socially rented households



In Hackney, Tower Hamlets, Islington and Southwark, a high proportion of households live in the socially rented sector (Map 8). Nearly 76 per cent of households in SE15 6 in Southwark live in socially rented dwellings.

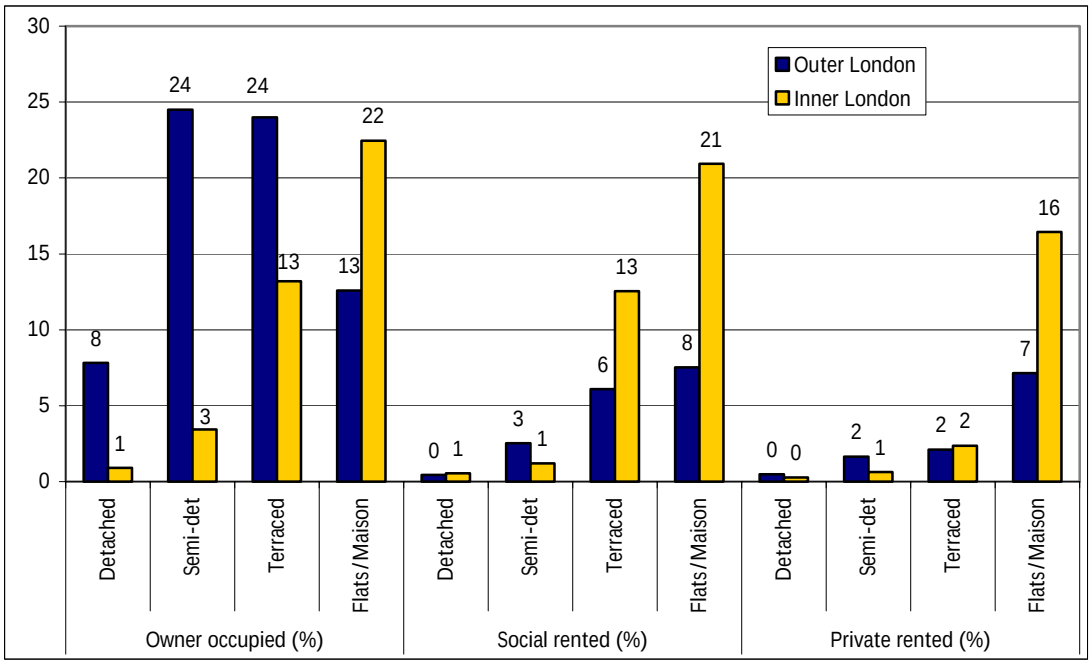
Map 9. Privately rented households



There is a high rate of households in private rented accommodation (Map 9) in inner western parts of London. Very few people live in the Heathrow and Kew Garden areas and their high proportions should be considered as outliers. Westminster has the highest proportion of households, 36 per cent (nearly 33,000), living in private rented accommodation.

It is also useful to see households differentiated by a particular tenure type and dwelling type for inner and outer London.

Figure 3. Dwelling type and accommodation type by tenure – Inner and outer London



Source: SASPAC Census statistics, 2001
Note: Figures for inner and outer London may not add up to 100 per cent due to rounding errors and housing types that are not included, such as caravans and second homes.

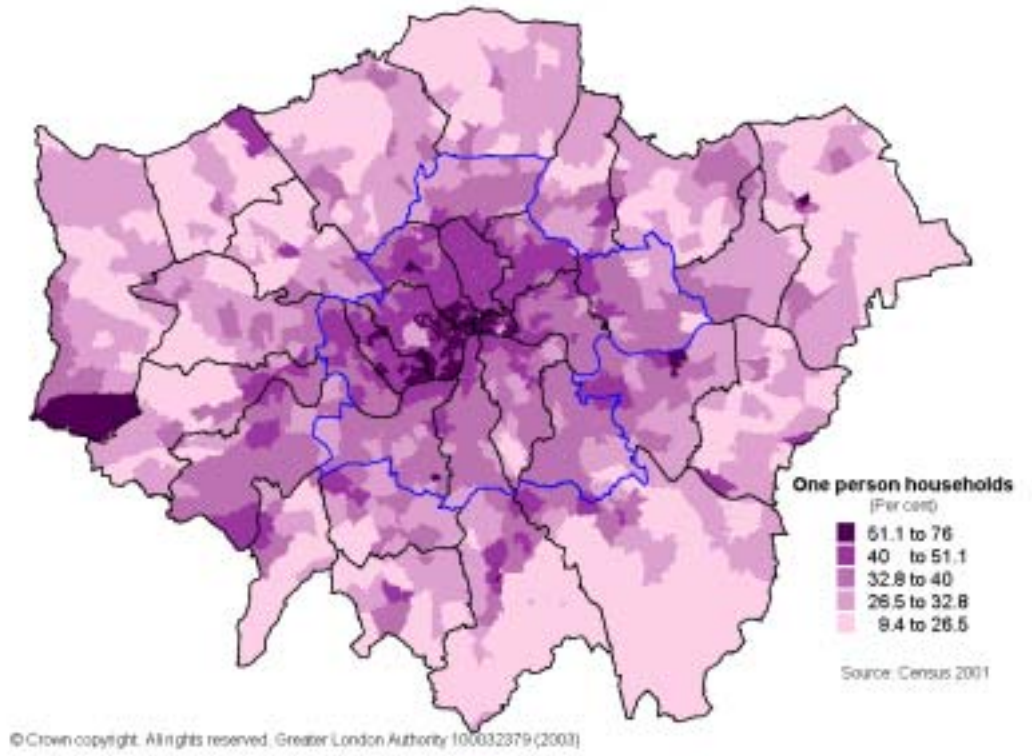
Nearly 56 per cent[10] of households in outer London live in owner-occupied whole houses, whereas 37 per cent[11] of households in inner London live in private and socially rented flats/maisonettes. Bromley has the highest proportion, 20 per cent, of owner-occupied households living in detached properties. Twenty-eight per cent of privately rented households live in flats/maisonettes in Westminster. Borough profiles by dwelling type and accommodation type by tenure are provided in Appendix 3.

[10] 56 per cent comprises of 8 per cent owner-occupied households living in detached houses, 24 per cent in semi-detached houses and 24 per cent in terraced properties in outer London.
[11] 37 per cent comprises of 21 per cent of households living in flats/maisonette in the socially rented sector and 16 per cent of households flats/maisonettes in the private rented sector in inner London

1.2 Household characteristics

Household type is a key factor which determines housing tenure and property type. If there are two adults in a household and assuming there are two incomes as well, the ability to afford to buy a house is likely to be higher. Households with children have a higher tendency to buy a property (preferably a bigger one) than those with no children.

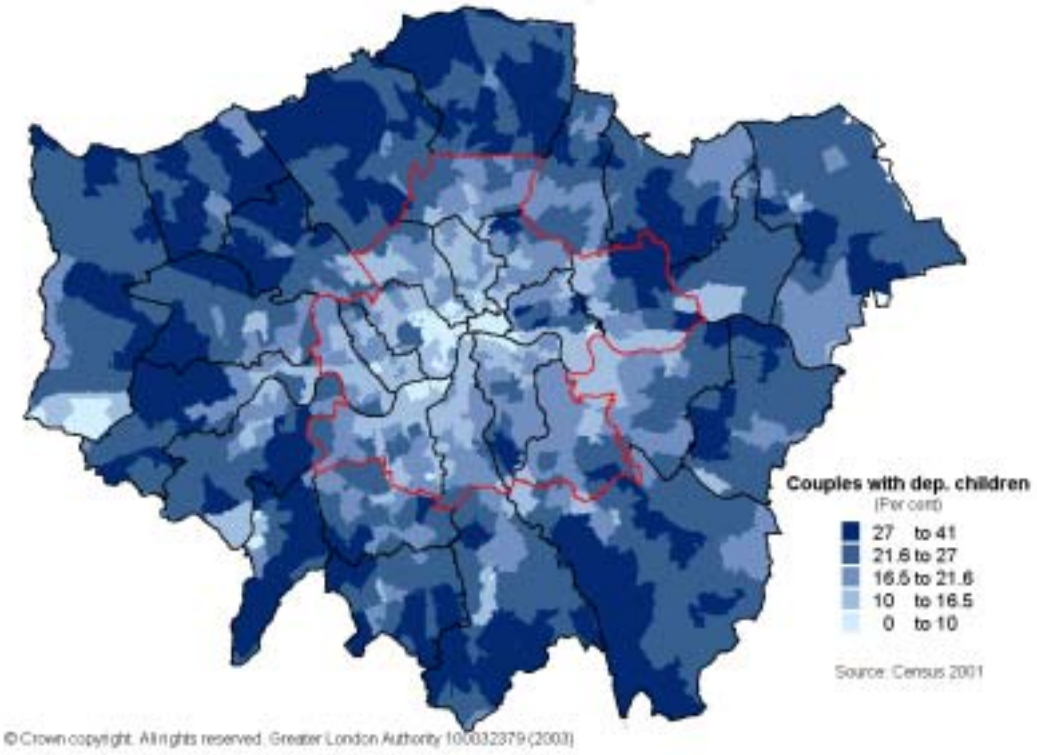
Map 10. One-person households



A high proportion of one-person households are located in western inner parts of London. Comparing Map 10 with Map 6 (Flats/maisonettes) and Map 9 (Private rented households) reveals that most one-person households seem to live in private rented flats/maisonettes in inner London. In 2000/01, 49 per cent of all one-person households in London were owner-occupiers,[12] compared with 56 per cent across England.

[12] Owner-occupier is defined as owned outright or with a mortgage. Data from SASPAC Census 2001.

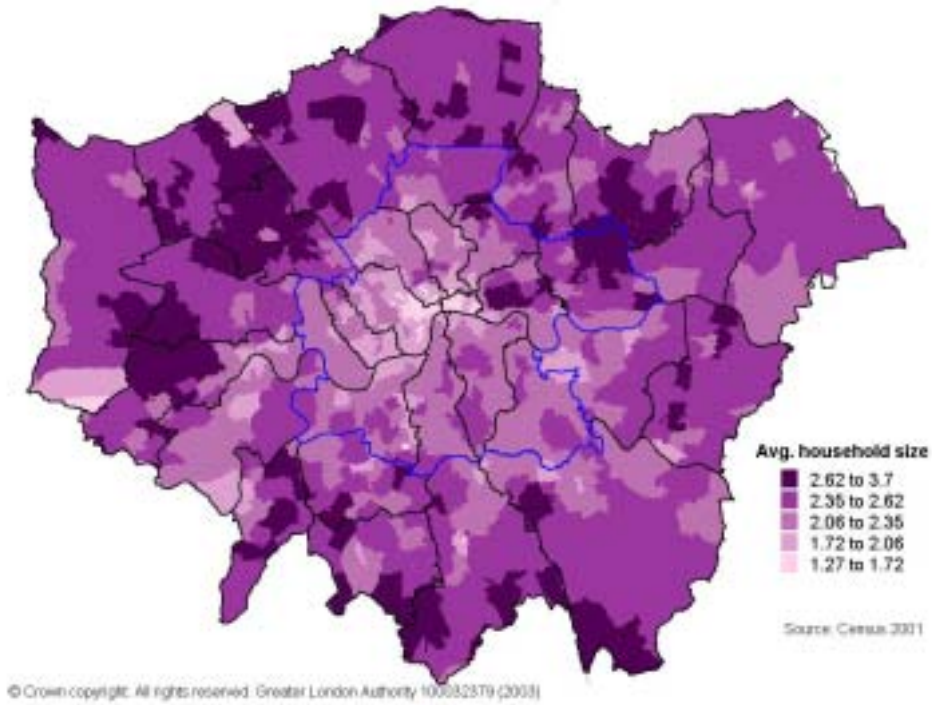
Map 11. Couples with dependent children



On the other hand couples with dependent children (Map 11) are predominantly located in outer London. Ealing has a high proportion of couples with dependent children with the highest proportion (41 per cent) in postcode sector UB1 1. Households with dependent children include both married and cohabiting couples. For all households in this category, nearly 70 per cent were owner-occupiers in London and 80 per cent in England in 2000/01.[14]

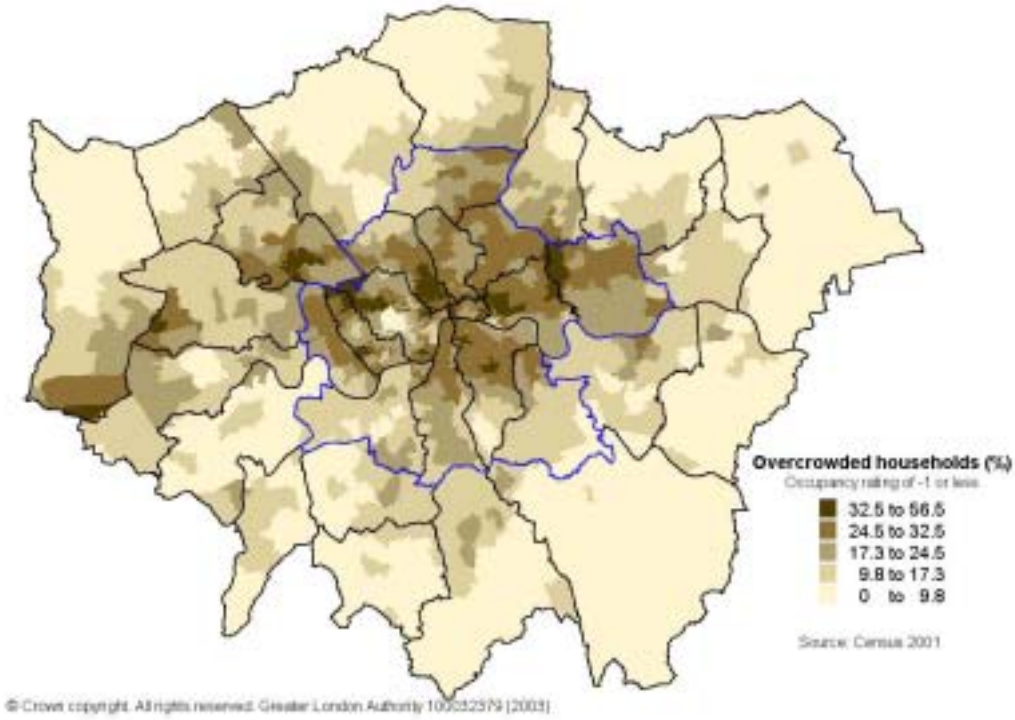
[14] SASPAC Census 2001 data.

Map 12. Average household size



Average household size increases as households move away from inner London. The postcode sector E6 7 in Newham has the largest average household size (3.7).

Map 13. Overcrowded households

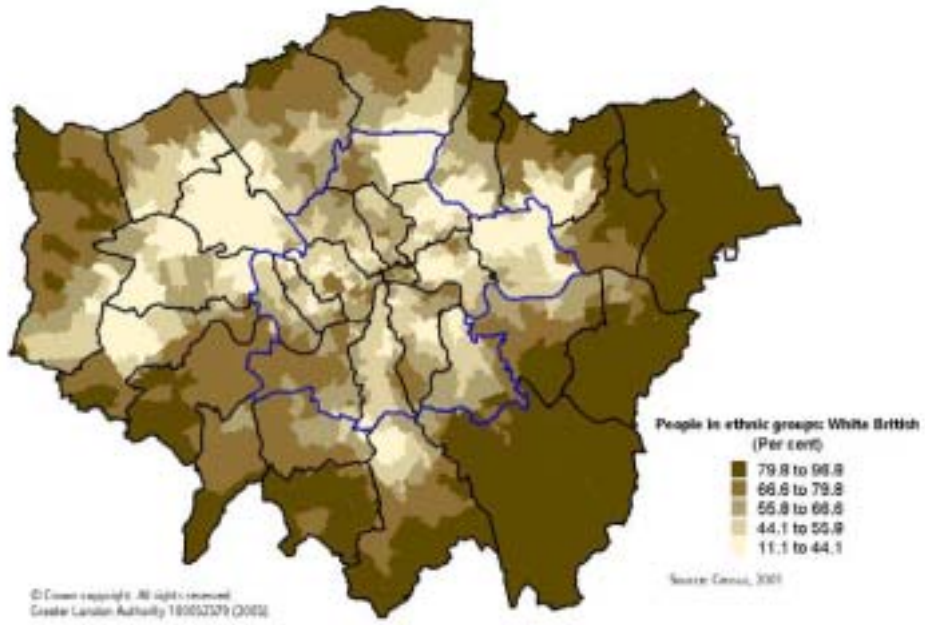


Over crowding is high in the northeastern part of inner London. Nearly 57 per cent of households live in overcrowded conditions in the postcode sector WC1 H0 in Camden.

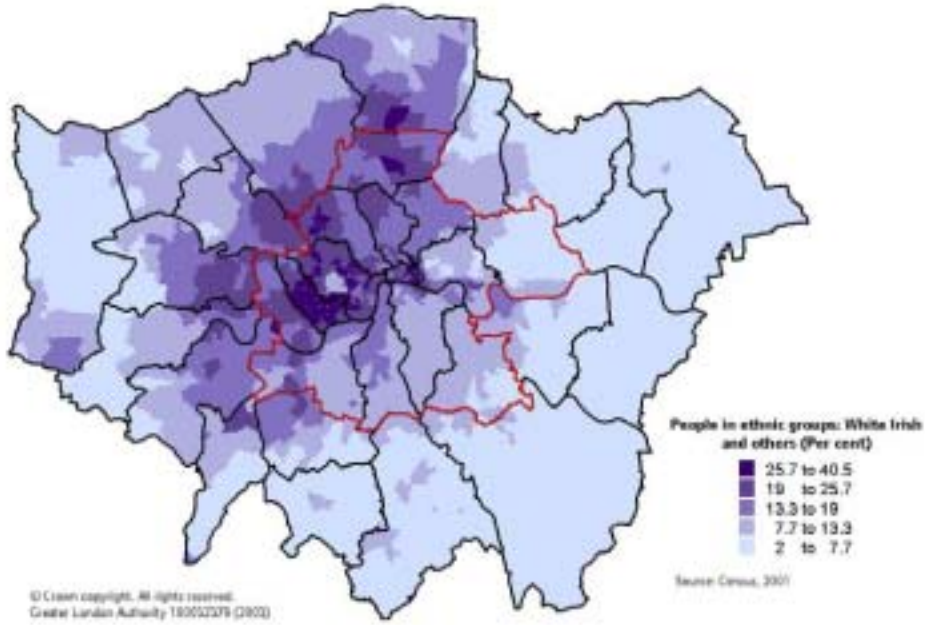
1.3 Ethnicity

Ethnic background is also an important issue for understanding London's housing patterns. Map 14 shows that London's outer fringes have a high proportion of people who are white British. People in the British white ethnic group are mainly concentrated in the area stretching from Richmond to Enfield.

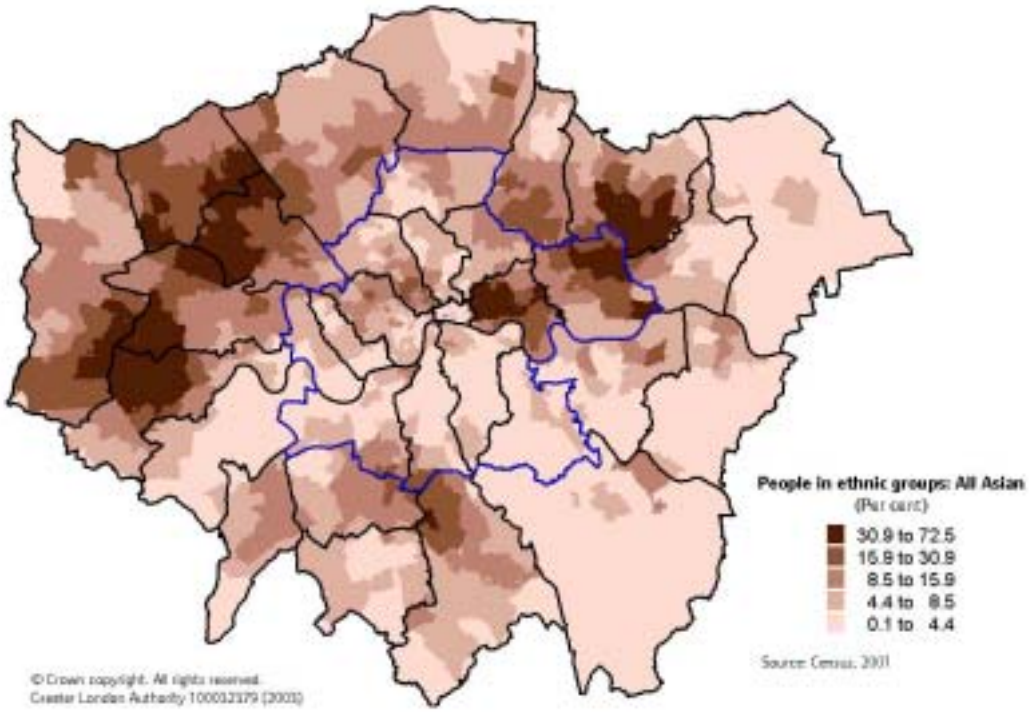
Map 14. White British ethnic group



Map 15. White Irish and white others ethnic group

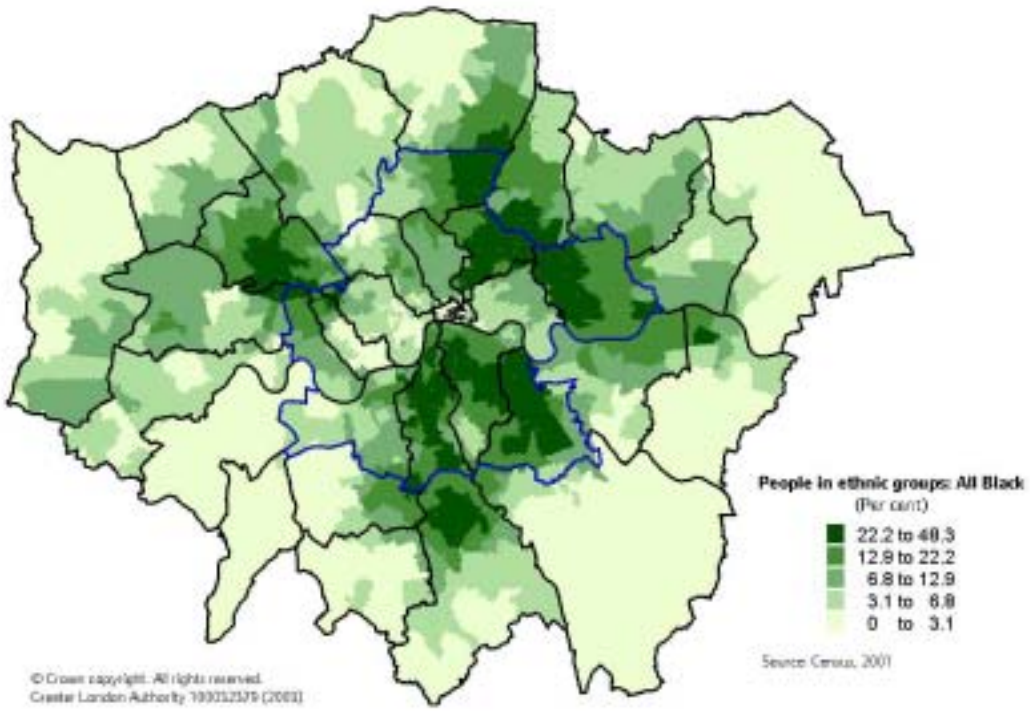


Map 16. All Asian ethnic group



Map 16 shows that areas with high proportion of Asians correlate with Map 11 (Couples with dependent children) and Map 12 (Average household size). Postcode sectors UB1 1 and UB1 2 have the highest proportion of Asians with 72 and 65 per cent respectively.

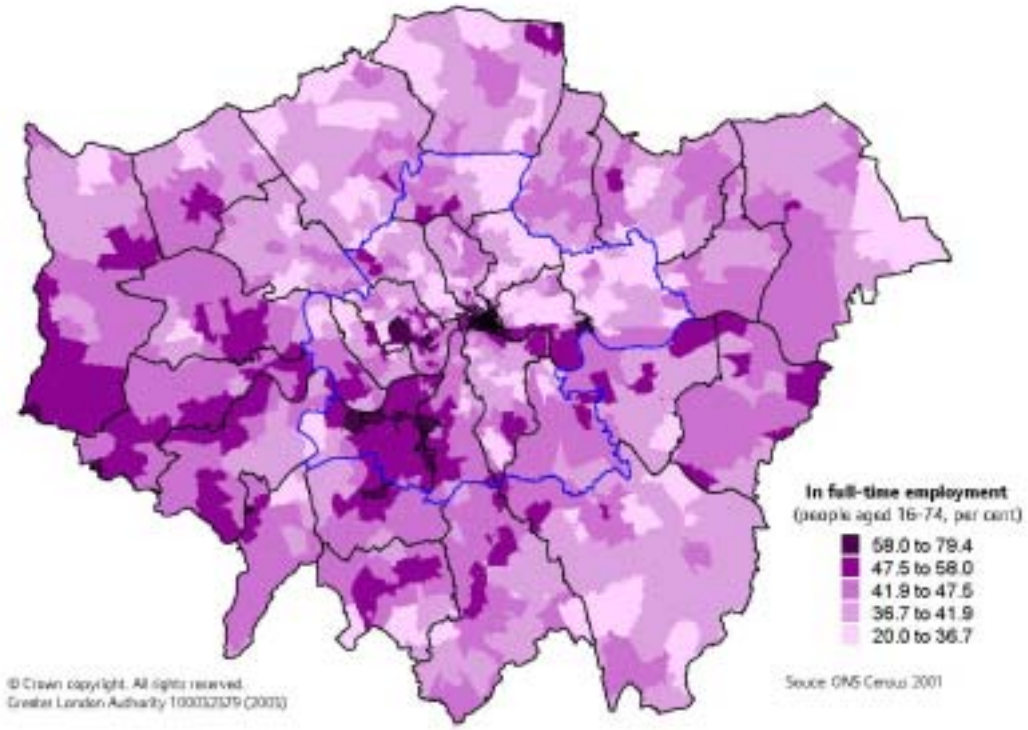
Map 17. All Black ethnic group



Lambeth, Southwark and Lewisham have a high rate of people belonging to Black ethnic groups. Forty-eight per cent of people in postcode sector SE15 6 in Southwark belong to Black ethnic groups.

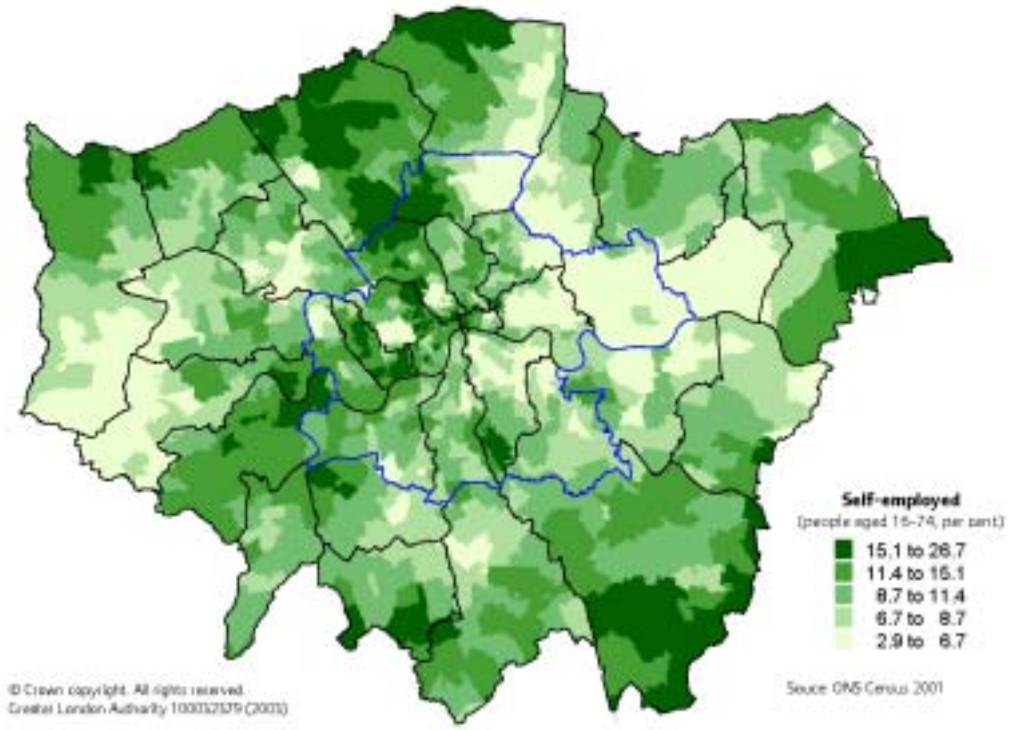
1.4 Employment characteristics

Map 18. People in full-time employment



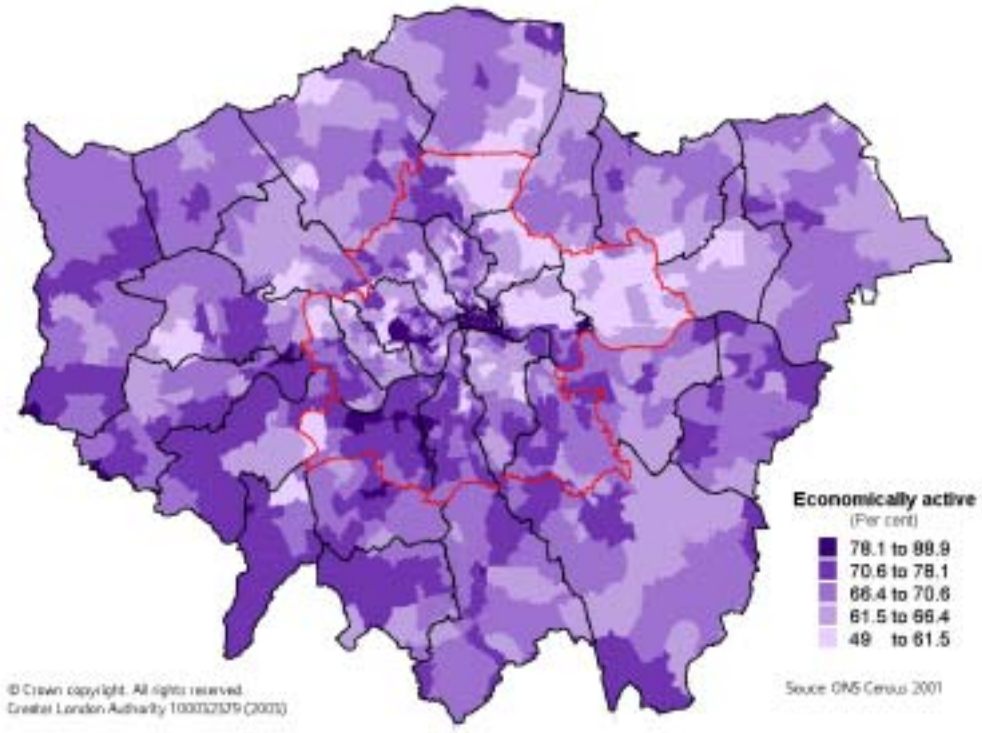
A high number of people in full-time employment (residence-based) live in the City and around Canary Wharf, in Wandsworth and near Heathrow (Map 18).

Map 19. Self-employed



A high proportion of self-employed people live in the northwest and southeast of London (Map 19).

Map 20. Economically active

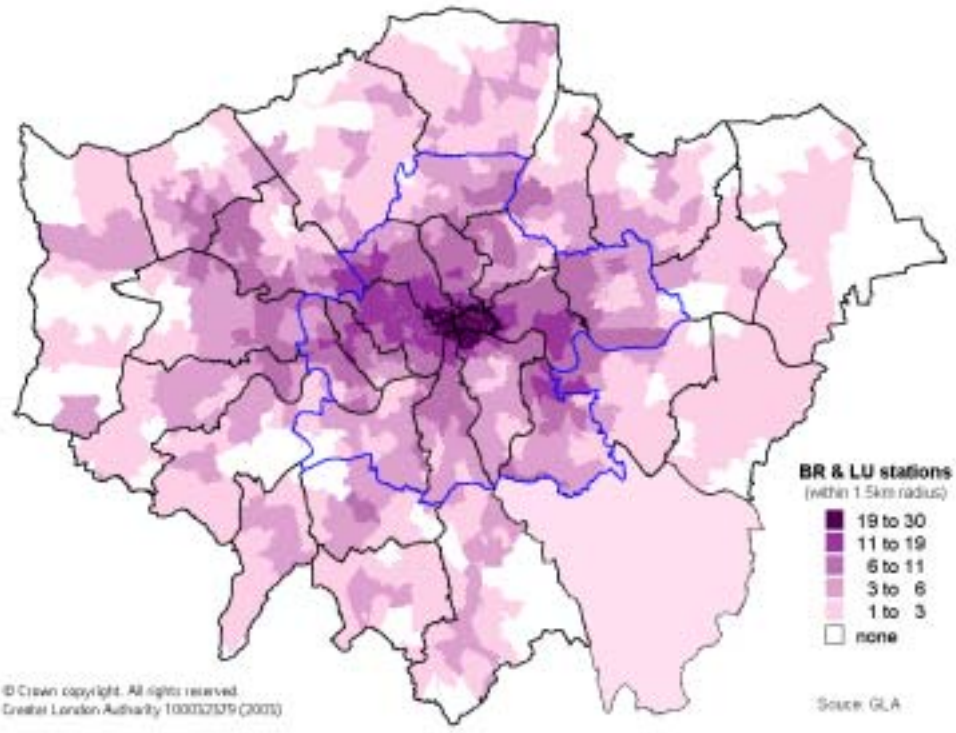


Central and southwest London have a higher proportion of people who are economically active,[15] which includes those who are employed part time, full time and self-employed.

[15] People who are defined as economically active are part of the labour force, either actively seeking work or in work. The economic activity rate is the percentage of the population in a given age group in the labour force.

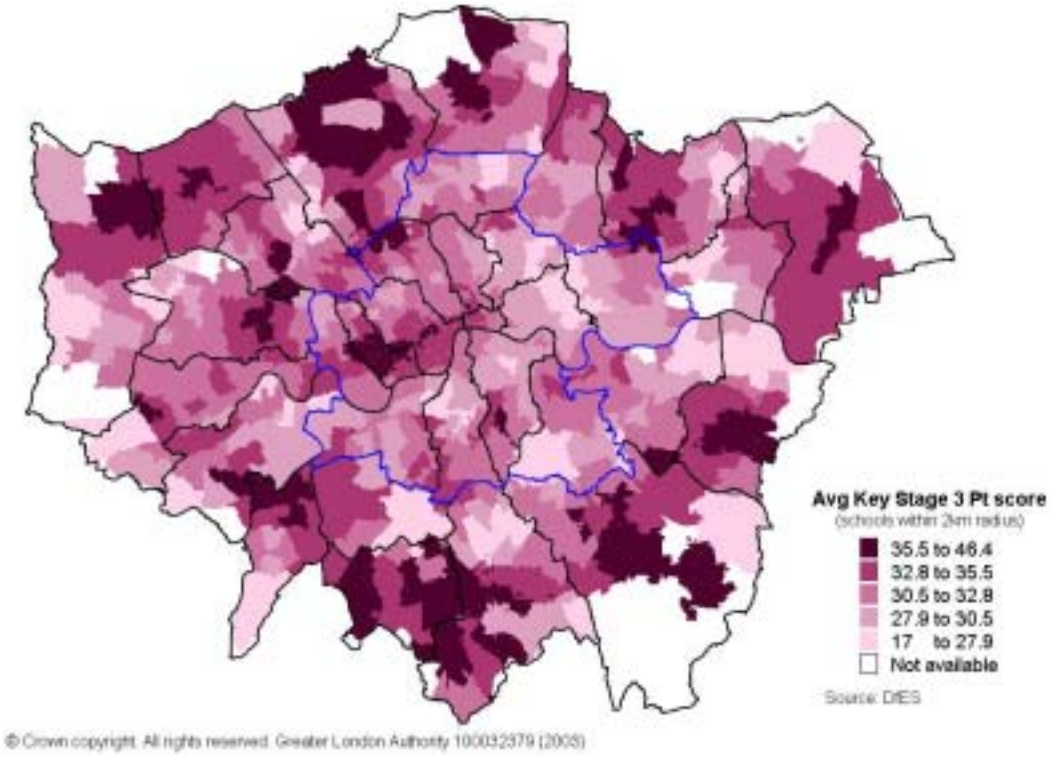
1.5 Transport and secondary schools

Map 21. Number of British Rail and London Underground stations within a radius of 1.5km



Map 21 can be compared with Map 9 (Privately rented households). It shows that a higher proportion of private rented accommodation exists in areas with a high concentration of British Rail and London Underground stations.

Map 22. Average Key Stage 3 point score for schools within a radius of 2km



Comparing this map with Map 11 (Couples with dependent children) shows that in outer London a large proportion of households with children live in postcode sectors with a high proportion of better performing secondary schools. House prices in London are increasingly being influenced by the quality of schools in the surrounding area. A study by Barclays Private Clients Premier Banking found that the average house price in the catchment areas of top community primary schools was £273,835 in 2002 compared to an average of £226,780 in London as a whole.[16]

[16] Barclays News Release, 28 May 2003, Education, location, location – Inflated London house prices boost the cost of a good state education

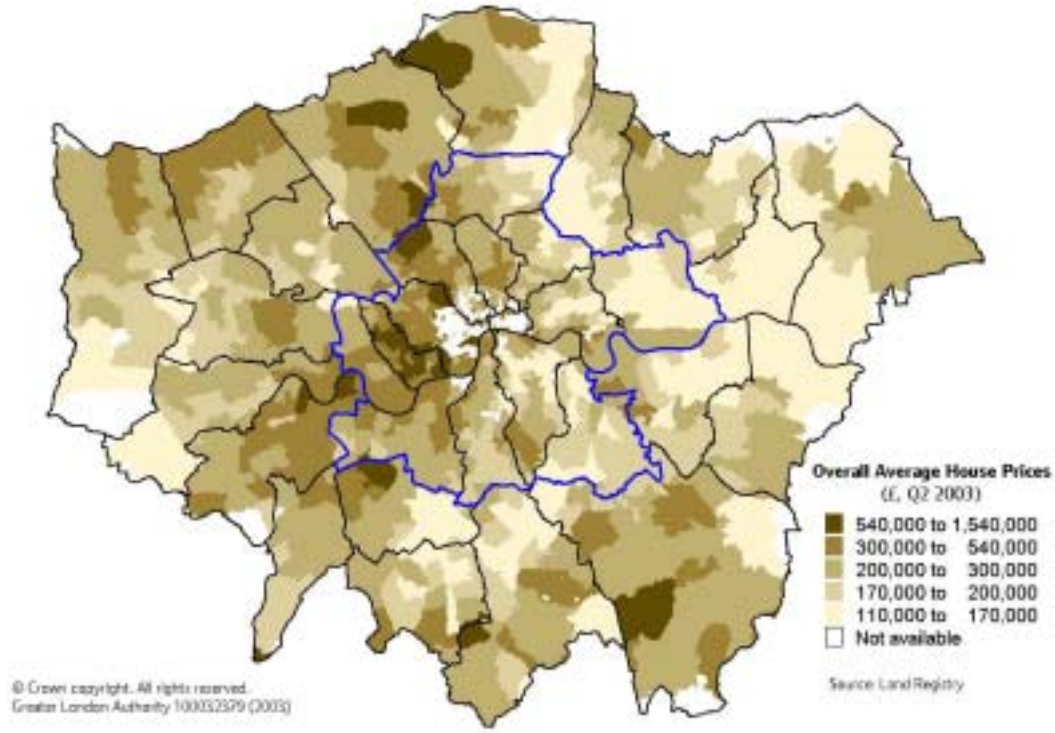
1.6 House prices

Map 23 shows average house prices at postcode sector level for London in the second quarter of 2003. Postcode sectors in the northwest and southeast of London have a higher proportion of detached or semi-detached properties. Consequently, a low number of sales for these property types and hardly any flat or maisonette sales in some of the outer postcode sectors result in a higher-than-average postcode sector price. The average overall house price for each postcode sector is weighted by the number of sales for each property type. The Land Registry only provides an average price for each property type if there are three or more sales in a postcode sector.

The premium for houses in the catchment area of good schools and transport links to central London is high. Chapters 2 and 3 discuss in greater detail the factors that affect house prices in different parts of London.

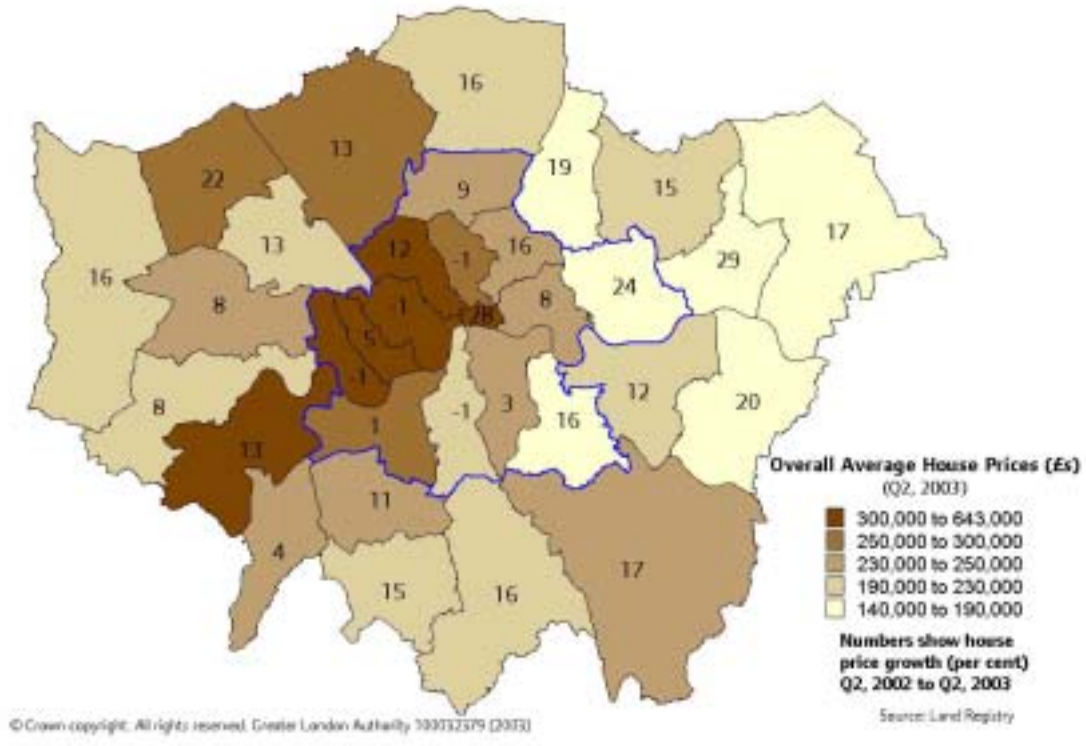
Maps that show house prices by property type (subject to data availability) by taking an average of six quarters (first quarter 2002 to second quarter 2003) are in Appendix D.

Map 23. Average house prices (second quarter 2003)



Average house prices in London rose by only 6 per cent in the second quarter of 2003 compared to the second quarter of 2002. The total number of houses sold fell by 30 per cent from 47,550 to 33,104 in the same period. However, the increase in house prices has varied considerably within different parts of London.

Map 24. House price growth



Outer boroughs such as Barking and Dagenham, Newham, Enfield, Redbridge and Hillingdon registered the highest percentage growth in house prices between the second quarters of 2002 and 2003. This could be due to many reasons:

- a slowdown in the central London economy
- structural reasons, for example outer boroughs had a low price base in the first place
- an increase in activity in employment hubs such as the Isle of Dogs and Heathrow
- low interest rates may have encouraged people to buy larger houses with more potential for price increase in outer London.

This chapter has provided a picture of the distinct characteristics of housing demand and supply in London. It is quite clear from the maps that people and households across London have different social and economic characteristics. Moreover, London's housing stock is divided, with more flats/maisonettes in inner London and whole houses in outer London. House prices reflect the contrasting attributes of location, type/build and access to services. On the basis of these differences a methodology has been developed to segment London's overall housing market into a few submarkets, or smaller and differentiated markets. This analysis is provided in the next chapter.

Chapter 2. Methodology – defining the submarkets

Submarkets can be identified on an ad hoc or systematic basis. The idea is to have a simple model with as few submarkets as is reasonable. Attributes should be as similar as possible within a submarket and different across submarkets.

Submarkets can be identified on the following ad hoc basis:

- geographic location (spatial submarkets), for example areas grouped by postcodes
- house type (structural submarkets), for example flats, detached, terraced
- tenure type, for example owner-occupied, private rented.

However, there is no strong basis to assume that, based on the classifications above, dwellings in the areas grouped for analysis will be similar. In London, within one postcode there can be a myriad of different types of dwellings, prices and households.

A systematic approach was used to identify the five submarkets in this report. The most influential variables that explain house prices were first identified from a representative dataset.[17] Subsequently, a cluster analysis was performed to determine the submarkets. Clustering is defined as the classification of a number of observations into a few groups on the basis of the individual characteristics. This method allows housing attributes (the influential variables) to define the submarkets, and is a much more transparent and accurate way of identifying housing submarkets. Relevant statistical techniques[18] are used to explain each submarket and to determine whether the submarkets are distinct. Further statistical tests were conducted to check the accuracy and explanatory power of a submarket analysis compared to the overall market analysis.

Using a stepwise selection process,[19] four variables which best fit the model were identified from a set of accessibility, structural and socio-economic indicators at postcode sector level (the variables are described in Appendix A):

1. Travel time by public transport to central London (Map 25)
2. Percentage of households in private rented accommodation (Map 9)
3. Average number of rooms per household (Map 26)
4. Percentage of income support claimants (Map 27).

Access to good transport links is a strong indicator of house prices. The commuting pattern in London is primarily driven by the majority of workers entering central London[20] by public

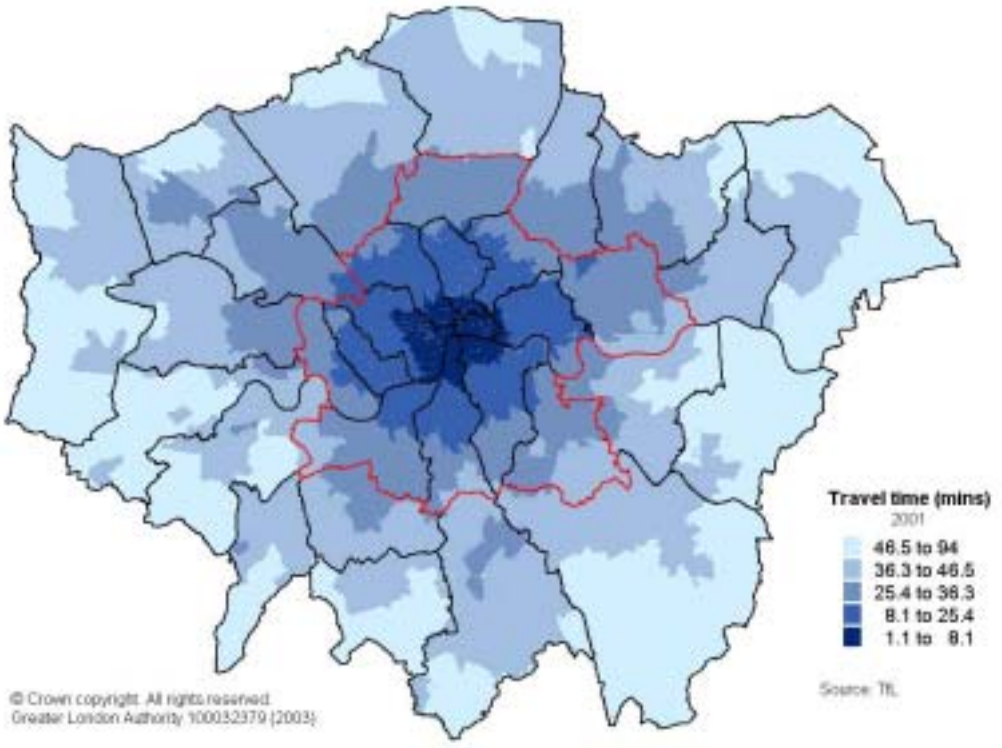
[17] See Table A.1 in Appendix A.

[18] Relevant statistical techniques include Hedonic modelling, which is based on the proposition that the price of a house is based on various attributes such as geographic location, socio-economic characteristics and accessibility to services.

[19] The stepwise process balances the residual sum of squares with the number of variables to find the best possible model. More details can be found in Working Paper 7: Defining and Analysing London's Housing Submarkets, GLA Economics, April 2004.

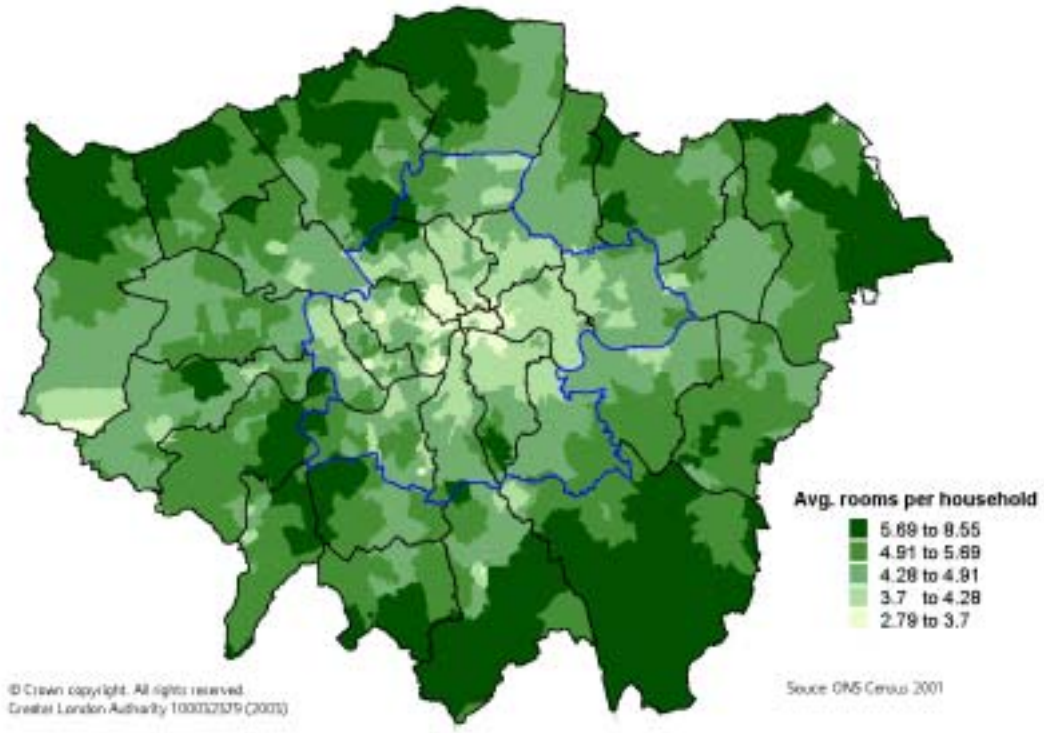
transport. On average, house prices are higher in areas where travel time to central London is lower.

Map 25. Travel time to central London by public transport



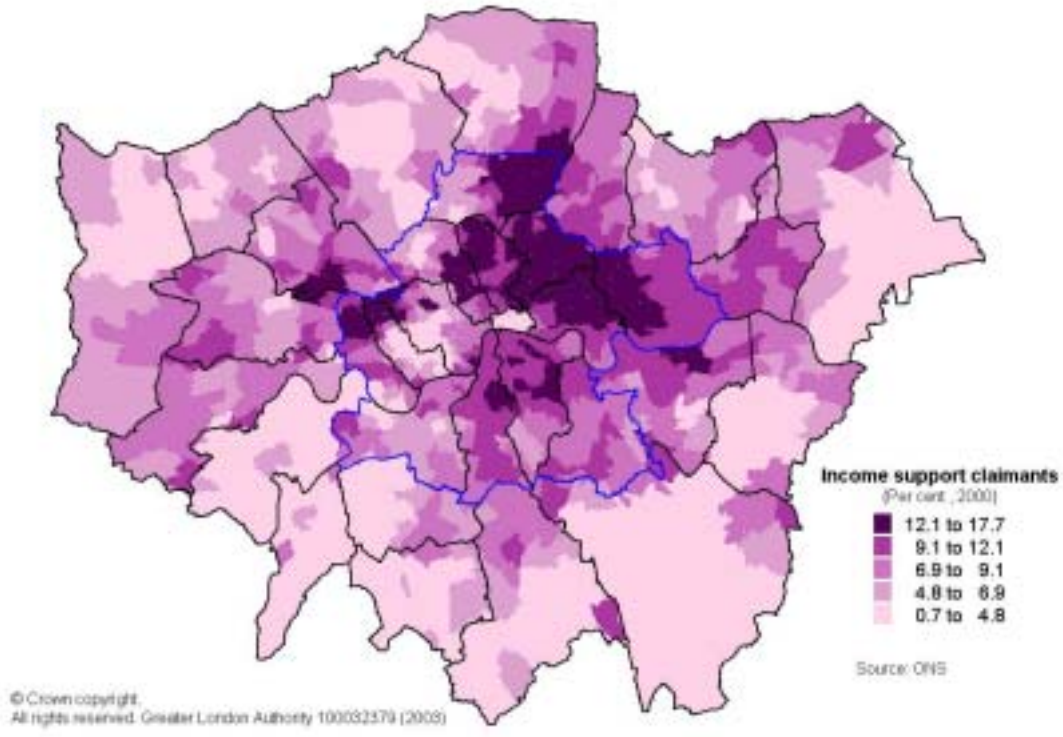
[20] Central London is defined as roughly the same as zone 1 of the London Underground map.

Map 26. Average number of rooms per household



Map 26 shows that larger properties, in terms of the average number of rooms per household, are mainly concentrated in the outer boroughs. Areas with more rooms per household seem to be generally found in areas with a high proportion of households living in detached properties (Map 3).

Map 27. Income support claimants



A greater proportion of income support claimants live in areas with high deprivation index scores. In inner London, it is common for areas of affluence and deprivation to exist side by side. However, on average, postcode sector level (and ward) house prices are lower in areas of high deprivation.

Five clusters, or submarkets, have been constructed on the basis of the four best-fitting variables. These variables are correlated with other variables in the dataset. Each submarket is analysed in detail in Chapter 3.

Table 2a. Cluster averages – without house prices (924 postcode sectors)

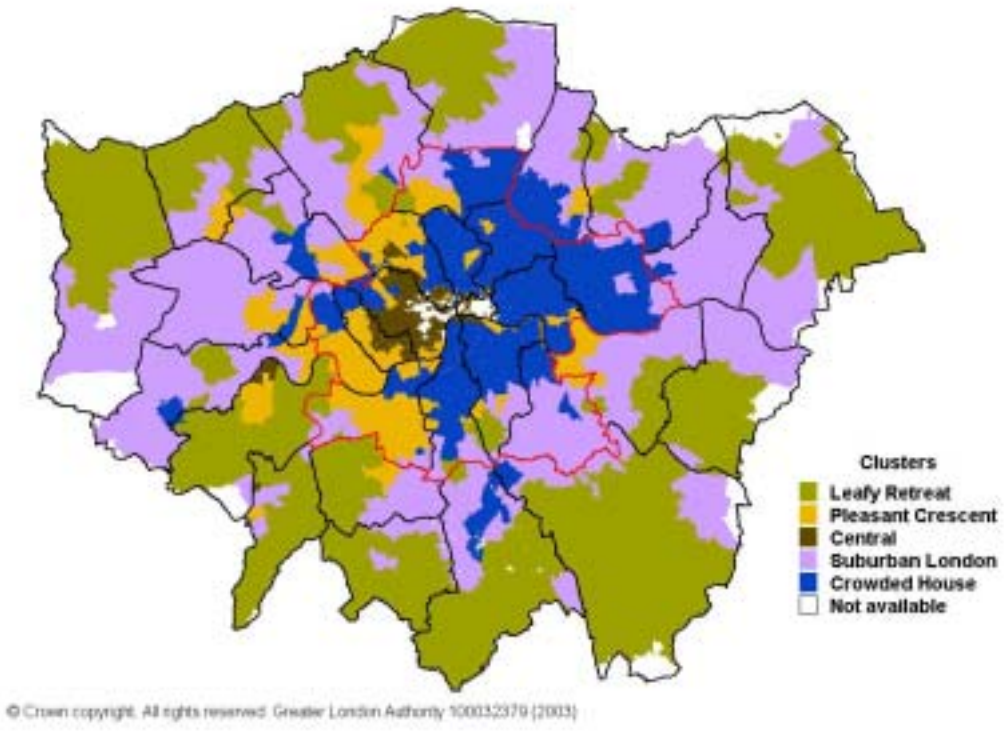
Cluster name	Travel time by public transport (mins)	Private rented %	Average rooms per household	Income support %	No of postcode sectors	Calculated average house price (£s)
Central	5.21	45.96	3.80	6.99	130	458,821
Crowded House	19.78	19.15	4.08	12.75	174	219,199
Pleasant Crescent	29.99	23.86	4.57	8.41	171	258,148
Suburban London	40.86	14.28	5.01	7.03	253	188,467
Leafy Retreat	45.49	10.37	5.80	4.06	196	273,107

Table 2b. Cluster averages – including house prices (924 postcode sectors)

Cluster name	Average house prices (£s)	Travel time by public transport (mins)	Private rented %	Average rooms per household	Income support %	Number of postcode sectors
Central	445,966	6.75	45.06	3.89	6.99	131
Crowded House	230,451	19.55	20.83	4.09	12.13	213
Pleasant Crescent	327,686	36.86	20.13	5.47	5.04	103
Suburban London	184,794	37.41	16.79	4.75	8.37	265
Leafy Retreat	216,133	45.13	10.54	5.49	4.79	212

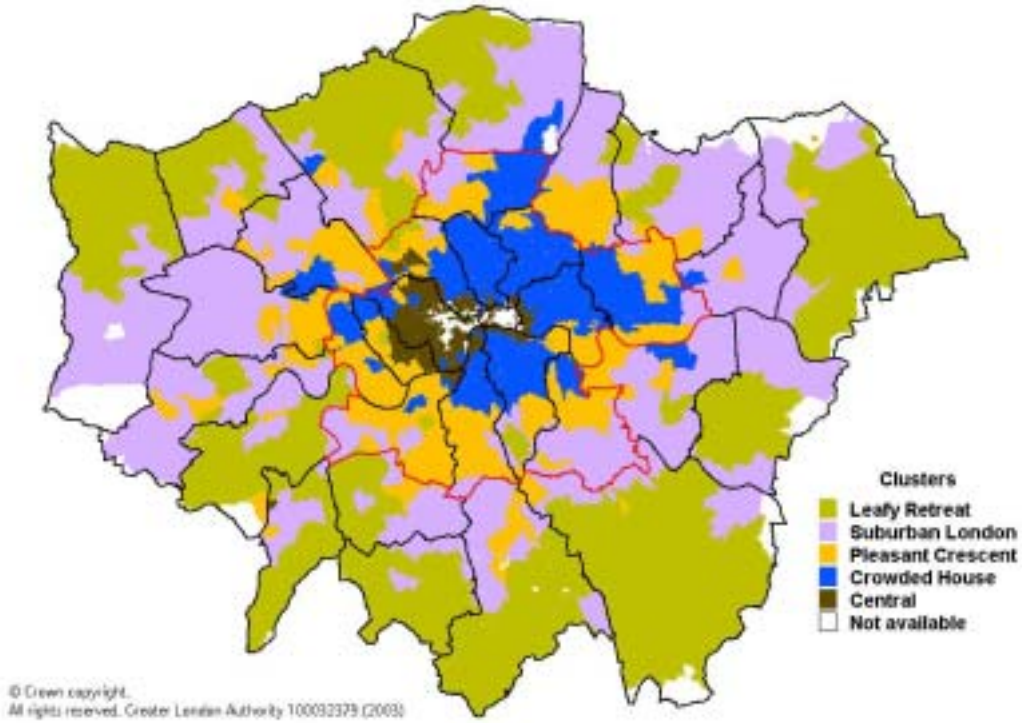
Tables 2a and 2b give the average value for each variable for the respective cluster. In Table 2a, the averages were calculated omitting house prices. In Table 2b, overall house prices were added as a fifth variable. The house price cluster averages in Table 2b can be compared to the calculated average overall house price for Table 2a (shaded column). This is calculated by taking the average of the house prices in each cluster (eg average of 130 postcode sectors in the Central submarket). The calculated average house prices in Table 2a (except for Pleasant Crescent and Leafy Retreat) are very close to the average house prices in Table 2b. This means that the submarkets created by housing attributes (which affect house prices) closely match the submarkets when house prices are included.

Map 28. London's five submarkets – including house prices



In Map 28, the four significant variables and house prices give five distinct submarkets. Starting from the centre of London, the Central submarket is primarily characterised by high house prices, a high private rented household structure and less rooms per household. To the east of the Central submarket is Crowded House, which has a high income support claimant rate and low house prices compared to the Pleasant Crescent and Central submarkets. Pleasant Crescent is defined by high house prices, households with more rooms and far fewer income support claimants. Suburban London forms a ring around the three inner submarkets. This submarket is mainly characterised by low house prices, even though houses may be large, and a high proportion of income support claimants. The outermost submarket, Leafy Retreat, is highlighted by owner-occupied households living in large properties, which are more expensive than Suburban London. Even though this submarket is further away from central London based on average travel time by public transport, it is more attractive because of other factors such as lower housing density and closeness to open green spaces.

Map 29. London's five submarkets – without house prices



The submarkets can also be defined without using house prices and by only using housing attributes. This enables us to compare what makes house prices differ in each submarket, or why they are different. Removing house prices changes some of the submarkets. For example, Pleasant Crescent is now more of a ring around Central London rather than stretching from Richmond to Enfield (Map 29).

An important point to bear in mind for Crowded House and Pleasant Crescent is that the average figures do not completely represent some highly localised areas. This is because these two submarkets have highly affluent and deprived areas existing in close proximity to each other. This also explains why Pleasant Crescent and Crowded House are more scattered and appear as isolated patches in some areas. However, since the postcode data has been aggregated from Census output areas, they are still highly representative. On balance the postcode sectors in Pleasant Crescent have more attractive housing attributes than Crowded House. The other three submarkets are more distinct than Pleasant Crescent and Crowded House as their attributes do not have such high extremes.

A list of postcode sectors for each submarket is provided in Appendix B.

Chapter 3. London's five housing submarkets

Regression equations and cluster averages for each variable are used to discuss each submarket in more detail. A stepwise option, such as forward selection of variables, backward elimination or a combination of both, has been used to develop the regression equation from all variables based on their statistical significance.[21] A balance has to be struck between the number of variables used in the model and the ability to isolate the significance of each of them.

The aggregate nature of the data is not an ideal form of measurement for housing regression analysis. This is because the variables at postcode sector level are not unique to any individual property but to a group of properties. However, the variables are used in a ratio or percentage format (values between 0 and 1) in order to be more representative for each postcode sector. The variables from the Census survey have been aggregated from Census output areas[22] and are more accurate than the other variables.

This report only contains the descriptive statistics for the most significant variables in each submarket. Detailed statistical analysis such as correlations, tests for multicollinearity and other statistics are provided in *Working Paper 7: Defining and Analysing London's Housing Submarkets.*

[21] Using explanatory variables which provide the best or optimum level of explanation following rejection of variables displaying high levels of multicollinearity. Multicollinearity is the undesirable situation where the correlations among the independent variables are strong, that is the effect of explanatory variables is strong and it becomes difficult to isolate the significance of any one indicator.

[22] In 2001, the output area was the Census Area, which is the smallest area for which Census data are available. The output area is an aggregate of contiguous unit postcodes where the households have a certain uniformity based on mostly tenure but also using other factors. There are nearly 24,000 output areas in London and the postcode sector aggregation is good representation of the area.

Table 3. Submarket averages

	Central N=130 Population: 245,705 Households: 123,932		Crowded House N=174 Population: 1,355,983 Households: 583,929		Pleasant Crescent N=171 Population: 1,547,344 Households: 676,124		Suburban London N=253 Population: 2,436,363 Households: 990,239		Leafy Retreat N=196 Population: 1,573,060 Households: 639,945	
Variables	**Mean**	**Median**	**Mean**	**Median**	**Mean**	**Median**	**Mean**	**Median**	**Mean**	**Median**
House price	458,821	376,273	219,199	211,468	258,148	224,044	188,467	167,293	273,107	238,738
Private rented %	45.88	43.27	18.96	18.33	24.86	24.76	14.03	13.71	10.95	9.45
Average rooms per household	3.85	3.80	4.05	4.05	4.58	4.54	4.96	4.97	5.87	5.75
Income Support claimants %	6.65	7.18	12.97	12.76	8.15	8.27	7.24	7.16	3.97	3.86
Travel time by public transport (mins)	6.28	2.79	19.09	20.04	29.90	30.09	41.59	41.03	45.91	45.38
Ethnicity white %	78.92	80.98	63.09	63.14	70.13	73.36	73.03	77.86	86.94	89.03
Economically active %	69.58	69.25	63.30	63.30	69.58	69.68	67.82	67.52	68.99	68.95
Household: detached %	1.17	0.89	1.80	1.39	3.95	3.05	7.02	5.15	26.30	22.26
Household: semi-detached %	1.59	1.35	4.83	3.44	12.24	10.48	28.53	27.47	35.63	34.08
Household: terraced %	6.97	4.82	19.70	17.26	25.67	23.57	32.05	30.29	17.67	15.80
Household: flats/ maisonettes %	90.28	92.44	73.49	77.55	58.00	58.73	32.10	30.50	19.96	18.45
Household: owner-occupied %	34.84	35.26	31.28	30.61	50.99	51.78	66.29	67.47	80.89	81.21
Household: social rented %	19.28	16.87	49.76	50.52	24.15	22.99	19.68	18.56	8.16	6.92
Average household size	1.79	1.78	2.27	2.27	2.29	2.24	2.47	2.45	2.52	2.52
Overcrowded households %	27.65	26.67	27.59	27.45	19.66	19.06	13.06	12.50	5.88	5.78
One-person households %	53.34	52.88	40.20	40.58	36.98	36.77	30.34	29.75	25.89	25.27
Couples with dependent children households %	9.60	8.72	17.58	17.43	18.60	17.83	24.52	24.21	26.91	26.63
Green spaces less than 1.5km	20.42	19.00	18.91	18.00	22.71	18.00	28.37	23.00	32.79	25.00
British Rail and London Underground less than 1.5km	15.02	15.00	8.30	7.00	4.96	4.00	2.24	2.00	1.65	1.00
Schools less than 2km	9.19	7.00	9.40	9.00	8.20	8.00	5.47	5.00	4.44	4.00
Average KS3 scores	33.36	33.60	30.02	30.16	31.84	31.66	30.35	31.33	31.42	34.17
People aged 0-19 years %	13.69	12.89	24.43	24.31	21.42	20.45	25.21	25.33	23.92	23.92

	Central N=130 Population: 245,705 Households: 123,932		Crowded House N=174 Population: 1,355,983 Households: 583,929		Pleasant Crescent N=171 Population: 1,547,344 Households: 676,124		Suburban London N=253 Population: 2,436,363 Households: 990,239		Leafy Retreat N=196 Population: 1,573,060 Households: 639,945	
Variables	**Mean**	**Median**	**Mean**	**Median**	**Mean**	**Median**	**Mean**	**Median**	**Mean**	**Median**
People aged 20-29 years %	25.52	25.35	21.25	20.57	21.74	21.12	15.32	14.89	11.48	11.19
People aged 30-64 years %	49.74	50.05	44.38	44.75	45.80	45.98	45.88	45.96	47.87	47.87
People aged 65 above years %	11.04	10.77	9.94	9.68	11.04	10.70	13.59	13.37	16.73	16.63
Part-time employment %	4.83	4.95	7.14	7.23	7.01	7.03	9.15	9.11	10.61	10.70
Full-time employment %	45.20	44.05	38.41	37.80	45.31	45.40	43.21	43.03	41.11	41.15
Self-employment %	13.20	13.16	7.83	7.58	9.90	9.11	8.77	8.48	12.53	12.11
Total employment %	63.23	62.65	53.38	53.00	62.22	62.29	61.13	61.25	64.24	64.16

Note: Grey and green shades denote the highest and lowest values for each variable respectively. The highest and lowest values have been calculated by averaging the mean and median values.

3.1. Central

Population: 245,705
Households: 123,932
Area: 30 sq km
Population density: 8190 per sq km
Household density: 4131 per sq km

The Central submarket is the smallest submarket, and it has the highest house prices of all submarkets. A majority of households live in flats/maisonettes and a high number of households live in private rented accommodation. This submarket also has a high proportion of one-person households.

Table 4. Central submarket: Highest and lowest averages

High		Low	
Variables	**Average**	**Variables**	**Average**
House price	458,821	Average rooms/household	3.85
Private rented %	45.88	Travel time by public transport (mins)	6.28
Households: flats/maisonettes %	90.28	Households: detached %	1.17
One-person households %	53.34	Households: semi-detached %	1.59
British Rail and London Underground less than 1.5km	15.02	Households: terraced %	6.97
Schools less than 2km	9.19	Average household size	1.79
Average KS3 scores	33.36	Couple with dependent children households %	9.6
People aged 20-29 years %	25.52	People aged 0-19 years %	13.69
People aged 30-64 years %	49.74		
Self-employment %	13.2	Part time employment %	4.83

The Central submarket also has the highest proportion of self-employed people and the lowest proportion of people employed part-time.

Using the systematic selection process, five variables that significantly explain the variation in house prices in this submarket are:

1. Households living in overcrowded conditions
2. Households living in flats/maisonettes
3. People in full time employment
4. Average Key Stage 3 point score in 2002 for schools within a radius of 2km
5. People aged between 30 to 64 years.

Overcrowding is defined by the occupancy rating, which also provides a measure of under-occupancy. An occupancy rating of –1 implies that there is one room too few and that there is over-crowding in the household. The occupancy rating assumes that every household, including one-person households, requires a minimum of two common rooms (excluding bathrooms). Consequently, overcrowding gives an implicit indication of the size of the house in term of rooms per household.

Table 5. Scatter plot matrix for Central submarket

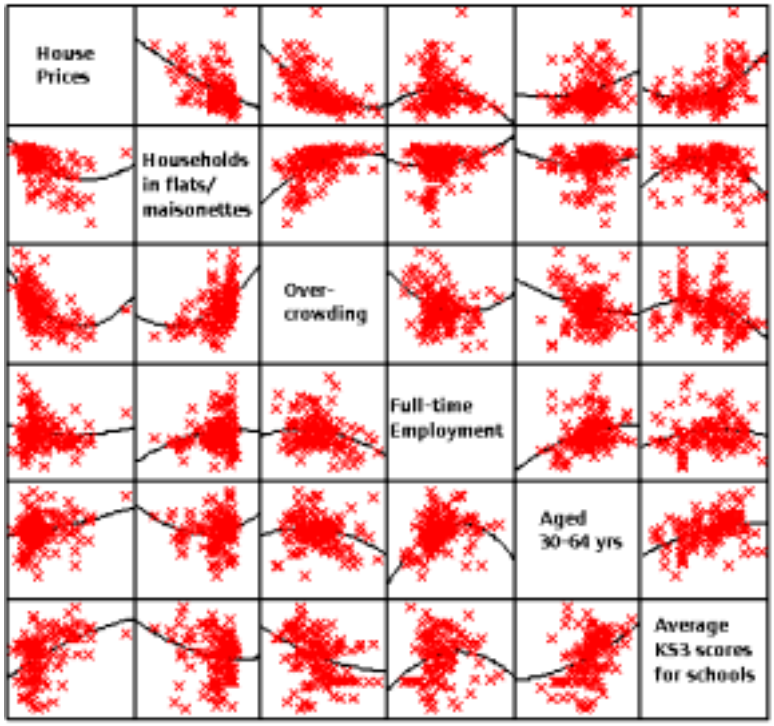


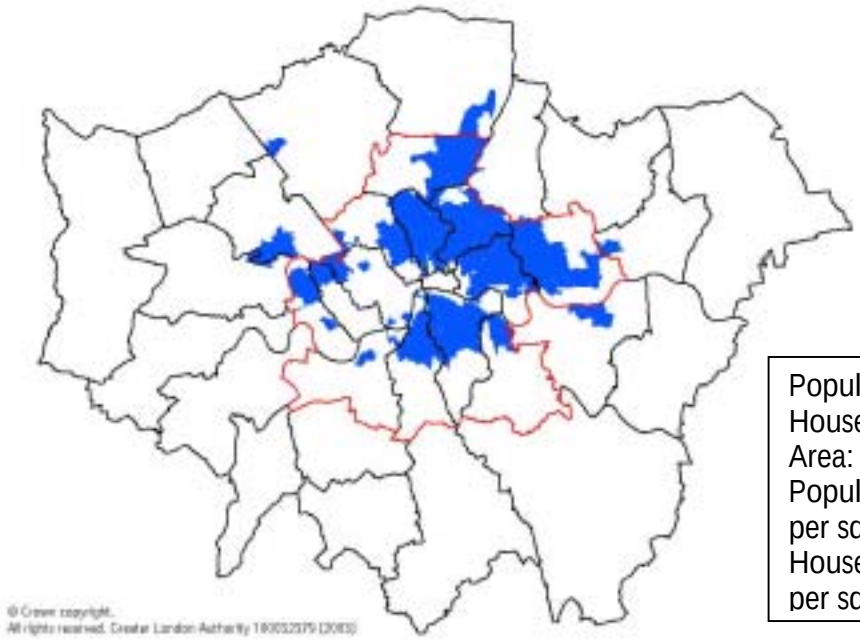
Table 4 shows the scatter plots[23] of five pairs of variables. Most pairs do not have a linear relationship. For example, some postcode sectors with low house prices have a low proportion of people in full-time employment, and some postcode sectors with low house prices have a high proportion of people in full-time employment. House prices are normally assumed to be higher in areas with more people in full-time employment. However, the Central submarket has a high proportion of self-employed people, and lower house prices in areas where there is a high proportion of people in full-time employment. House prices are lower in postcode sectors with more flats/maisonettes and more overcrowded households. House prices are higher in postcode sectors close to well-performing schools, and areas with overcrowded households tend to have fewer well-performing schools.

The model can also be used to show how an absolute change in the explanatory variables can result in a relative change in house prices:

- A 1 per cent fall in overcrowded households can be associated with a 1.5 to 3 per cent[24] increase in house prices.
- The premium for living in whole houses or bungalows is very high in the Central submarket. A 1 per cent reduction in households living in flats/maisonettes can be related to a 0.5 to 2.2 per cent increase in house prices.
- An increase in Average Key Stage 3 score by one point is associated with a 1.4 to 8.3 per cent house price increase.

[23] A scatter plot shows the relationship between two variables, or indicators. The Y-axis denotes the response variable and the X-axis denotes variables related to the response.
[24] Using 95 per cent confidence intervals of the coefficient of each indicator.

3.2. Crowded House



Population: 1,355,983
Households: 583,929
Area: 142 sq km
Population density: 9549 per sq km
Household density: 4112 per sq km

This submarket is situated in inner east London. It adjoins or is located close to many parts of the more attractive housing submarkets such as Central and Pleasant Crescent. Some highly localised parts of this submarket, such as Islington, have some postcode sectors with neighbourhood characteristics similar to Pleasant Crescent. However, this submarket is predominantly associated with a high proportion of income support claimants, households living in socially rented accommodation and overcrowded households. It is also the most densely populated submarket.

Table 6. Crowded House submarket: Highest and lowest averages

High		Low	
Variables	**Average**	**Variables**	**Average**
Income support claimants %	12.97	Ethnicity white %	63.09
Households: social rented %	49.76	Economically active %	63.3
Overcrowded households %	27.59	Households: owner-occupied %	31.28
		Green spaces less 1.5km	18.91
		Average KS3 scores	30.02
		People aged 30-64 years %	44.38
		People aged 65 years and above %	9.94
		Full-time employment %	38.41
		Self-employment %	7.83
		Total employment %	53.38

The Crowded House submarket has the lowest proportion of owner-occupied households, economically active people, people belonging to white ethnic groups and people aged 30-64 years. On average, it has the least number of open green spaces, and the education performance of schools is the lowest.

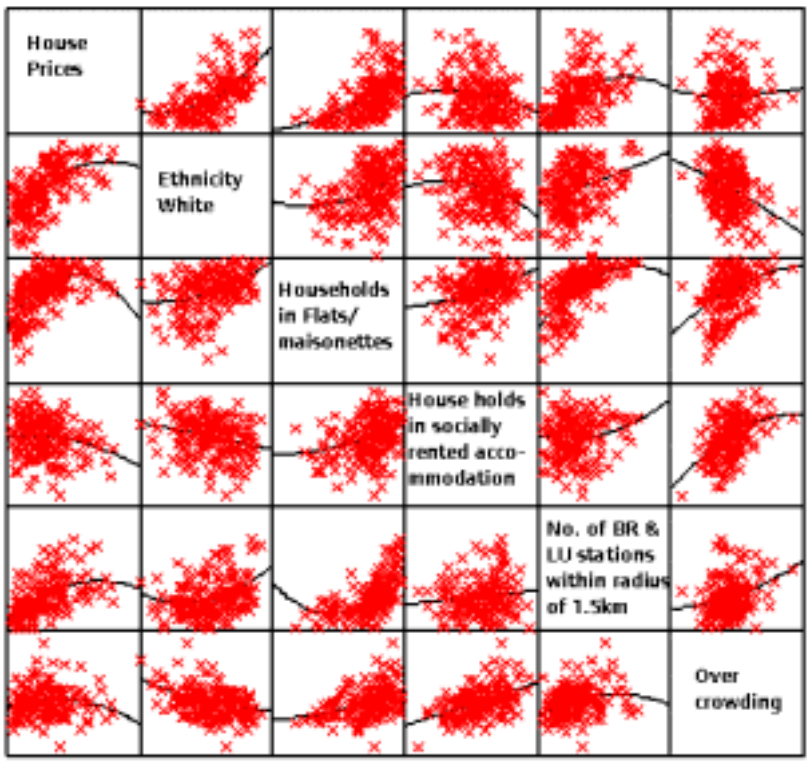
The five variables that significantly explain the variation in house prices in this submarket are:

1. People in Ethnic group: white[25]
2. Households living in flats/maisonettes
3. Households in socially rented accommodation
4. Number of British Rail and London Underground stations within a radius of 1.5km
5. Overcrowded households.

These variables were successful in explaining nearly 62 per cent of the variation in house prices.

[25] This group comprises of British, Irish and other white taken from the SASPAC census 2001 dataset.

Table 7. Scatter plot matrix for Crowded House submarket

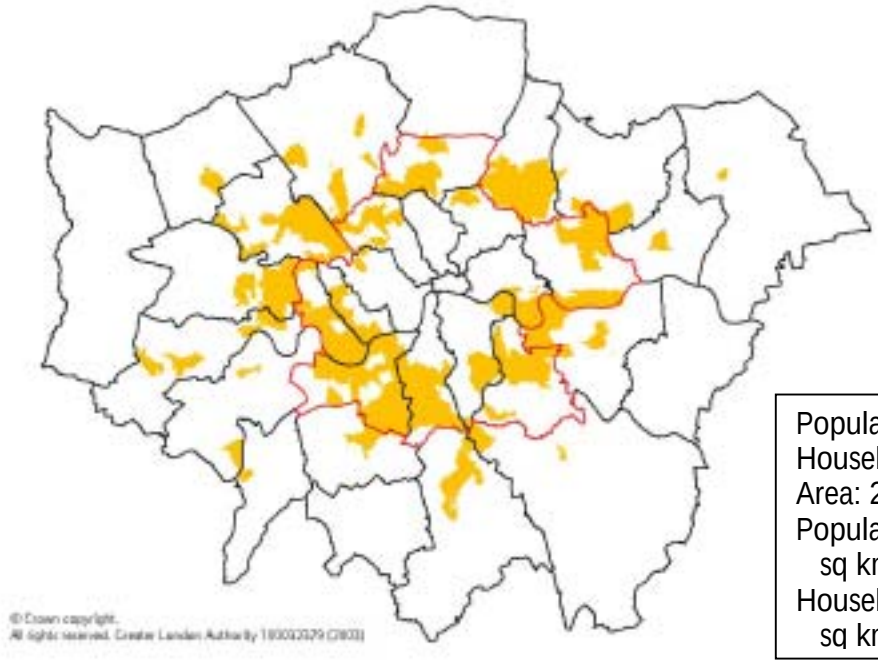


There are some interesting relationships in Table 7. House prices are higher in postcode sectors with more white ethnic groups and more households living in flats/maisonettes. In areas with a higher proportion of white ethnic groups, there also are fewer overcrowded households. Overcrowding is more prevalent in areas with a higher proportion of socially rented household accommodation. Correlation tests with other variables in the dataset show that house prices are higher in areas with more employed people. Even though a low proportion of people are employed in this submarket, postcode sectors with higher relative house prices are strongly associated with a high proportion of employed people.

The absolute change in the explanatory variables gives the following relative change in house prices:

- A 1 per cent increase in households living in flats/maisonettes relates to a 0.3 to 0.8 per cent increase in house prices.
- On average a 1 per cent decrease in socially rented households is associated with a 0.3 to 1 per cent increase in house prices.
- Reducing overcrowded households by 1 per cent is associated with a 0.2 to 2 per cent increase in house prices.

3.3. Pleasant Crescent



Population: 1,547,344
Households: 676,124
Area: 205 sq km
Population density: 7548 per sq km
Household density: 3298 per sq km

Most of the Pleasant Crescent submarket is situated in inner western London, mainly in Wandsworth and parts of Camden and Hammersmith and Fulham. In this submarket, highly affluent and deprived areas exist next to each other. Pleasant Crescent also has some postcode sectors with similar neighbourhood characteristics to Crowded House.

On average, Pleasant Crescent has the highest proportion of people who are economically active and employed full-time. Nearly 70 per cent of people in this submarket are economically active.

Table 8. Pleasant Crescent submarket: Highest and lowest averages

High	
Variables	**Average**
Economically active %	69.58
Full-time employment %	45.31

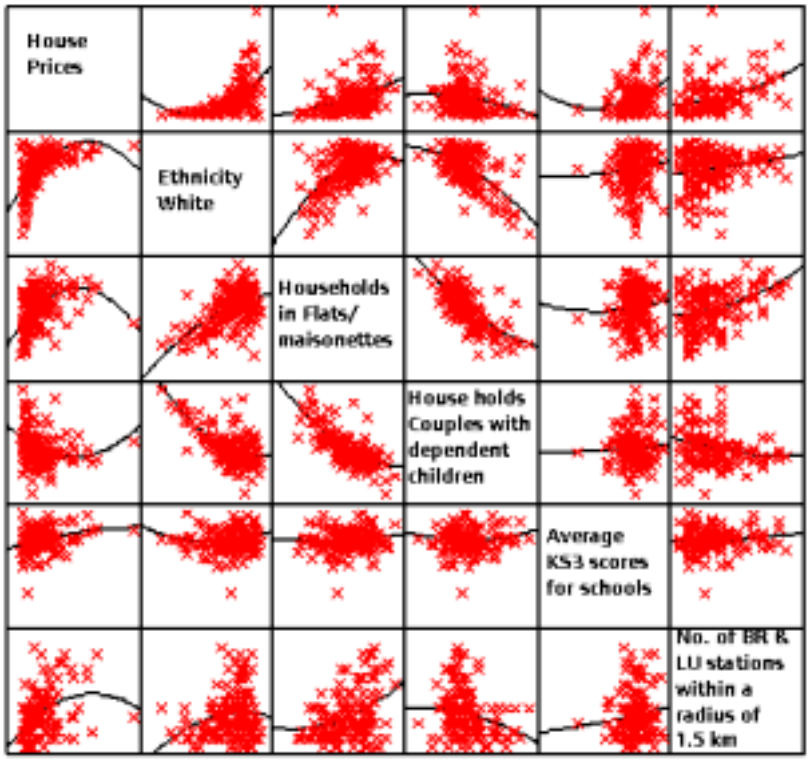
Nearly half the households in this submarket live in owner-occupied dwellings, with a quarter in private and a quarter in socially rented accommodation. Nearly 60 per cent of households live in flats/maisonettes and around 4 per cent in detached properties. House prices are considerably higher in the western part of the submarket, which includes highly sought after areas such as Wimbledon Village.

The five variables that significantly explain the variation in house prices in this submarket are:

1. People in ethnic group: white
2. Household composition: couples with dependent children
3. Households living in flats/maisonettes
4. The number of British Rail and London Underground stations within a radius of 1.5km
5. Average Key Stage 3 point score in 2002 for schools within a radius of 2km.

This submarket provided a good set of results with low multicollinearity and the variables above explained nearly 64 per cent of the variation in house prices.

Table 9. Scatter plot matrix for Pleasant Crescent submarket

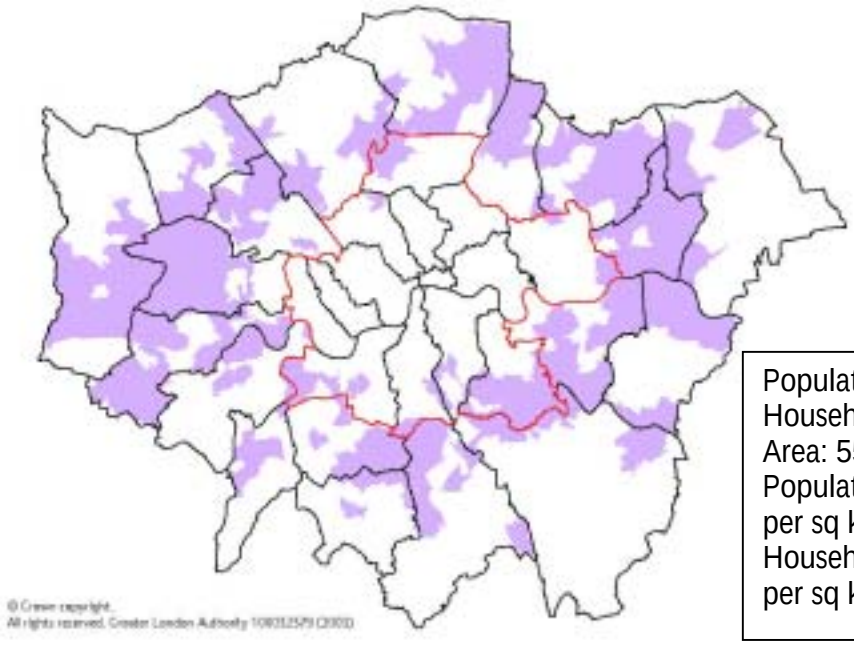


Most relationships in this submarket are linear. House prices are high in areas which have a higher proportion of white ethnic groups, households in flats/maisonettes and a higher number of British Rail and London Underground stations. On average, postcode sectors with a high proportion of white ethnic groups are associated with a low proportion of households with couples with dependent children. There is also a higher proportion of single households in areas with a higher representation of white ethnic groups. House prices, while not linearly related, are higher in areas with better performing secondary schools.

The absolute change in the explanatory variables gives the following relative change in house prices:

1. A 1 per cent increase in households with couples and dependent children is associated with a 2 to 4.2 per cent increase in house prices.
2. An increase in the Average Key Stage 3 point score by one is associated with a 0.8 to 4 per cent increase in house prices.
3. Unlike the Central submarket, a 1 per cent increase in households living in flats/maisonettes relates to a 0.4 to1.2 per cent increase in house prices.

3.4. Suburban London



Population: 2,436,363
Households: 990,239
Area: 556 sq km
Population density: 4382 per sq km
Household density: 1781 per sq km

The Suburban London submarket has the lowest house prices on average even though there are a higher proportion of larger properties (in terms of average number of rooms per household). Most households live in terraced properties and around 66 per cent of households own their properties. This submarket can be defined as an intermediate submarket for London, where house prices start falling and then rise again towards the outer fringe.

Table 10. Suburban London submarket: Highest and lowest averages

High		Low	
Variables	**Average**	**Variables**	**Average**
Households: terraced %	32.05	House price	188,467
People aged 0-19 years %	25.21		

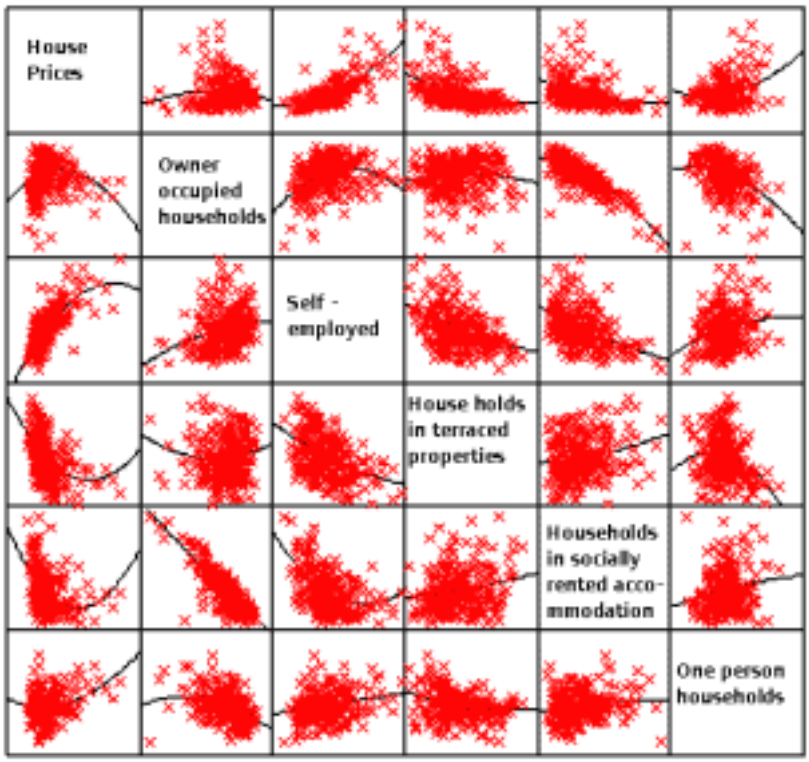
This submarket has the highest proportion of children and teenagers but the secondary schools on average do not perform as well as in the other submarkets. It has a low rate of households living in socially rented accommodation compared to Crowded House and Pleasant Crescent.

The five variables that significantly explain the variation in house prices are:

1. Households in owner-occupied dwellings
2. Households in socially rented accommodation
3. Proportion of self employed people
4. One-person households
5. Households living in terraced properties.

These variables were able to explain 72 per cent of the variation in house prices.

Table 11. Scatter plot matrix for Suburban London submarket

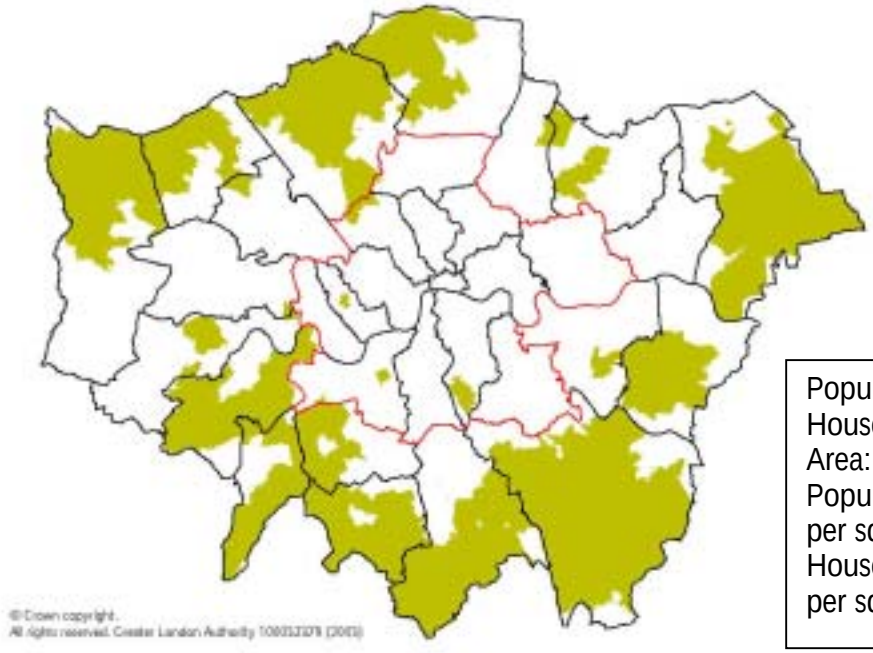


House prices are higher in areas with a higher proportion of self-employed people and one-person households. House prices are lower in areas with a greater proportion of households in terraced and socially rented homes. The analysis shows that there is a lower proportion of self-employed people in postcode sectors with a high proportion of households living in terraced properties.

The absolute change in the explanatory variables gives the following relative change in house prices:

1. A 1 per cent reduction in owner-occupied households is associated with a 1.7 to 2.5 per cent increase in house prices.
2. On average a reduction in households in socially rented accommodation by 1 per cent is associated with house prices rising by 1.4 to 2.2 per cent.
3. A 1 per cent increase in the proportion of self-employed is associated with a 6 to 8 per cent increase in house prices.

3.5. Leafy Retreat



Population: 1,573,060
Households: 639,945
Area: 751 sq km
Population density: 2095 per sq km
Household density: 852 per sq km

Leafy Retreat is very different to the rest of the submarkets. House prices are defined by a different set of indicators due to the geographic location and type of properties. Nearly 81 per cent of households own their houses and a high proportion of households live in detached properties. This submarket has the highest proportion of white ethnic groups, the highest average household size and the highest average number of rooms per household.

Table 12. Leafy Retreat submarket – highest and lowest averages

High		Low	
Variables	**Average**	**Variables**	**Average**
Average rooms per household	5.87	Private rented %	10.95
Travel time by public transport (mins)	45.91	Income Support claimants %	3.97
Ethnicity white %	86.94	Household: flats/maisonettes %	19.96
Households: detached %	26.3	Household. social rented %	8.16
Households: semi-detached %	35.63	Overcrowded households. %	5.88
Households: owner-occupied %	80.89	One-person households %	25.89
Average household size	2.52	British Rail and London Underground less than 1.5km	1.65
Couple with dependent children households %	26.91	People aged 20-29 years %	11.48
Green spaces less than 1.5km	32.79		
People aged 65 and above %	16.73		
Part time employment %	10.61		
Total employment %	64.24		

The Leafy Retreat submarket has the lowest proportion of income support claimants and 64 per cent of people are employed. It has the second highest proportion of self-employed people after the Central submarket. In Leafy Retreat, nearly 11 per cent of people are employed part time. Just 8 per cent of households live in socially rented accommodation.

The five variables that significantly explain the variation in house prices are:

1. The proportion of self employed people
2. Households in owner-occupied dwellings
3. Households in socially rented accommodation
4. Households living in detached properties
5. The number of British Rail and London Underground stations within a radius of 1.5km.

The variables above explain nearly 55 per cent of the variation in house prices.

Table 13. Scatter plot matrix for Leafy Retreat submarket

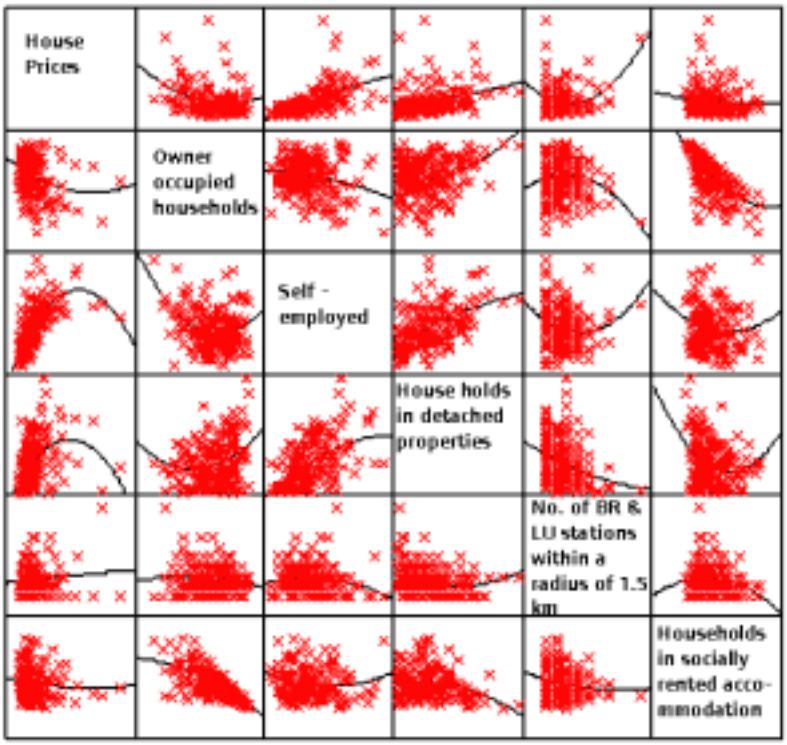


Table 13 shows house prices are higher in postcode sectors where there is a higher proportion of self-employed people and more households in detached properties. Areas with a higher proportion of owner-occupied households also have a higher proportion of detached properties. Households in socially rented accommodation are not generally associated with households in detached properties. There is a higher proportion of self-employed people living in households in detached properties. There is also a lower proportion of households in detached properties in areas with a higher number of British Rail and London Underground stations.

The absolute change in the explanatory variables gives the following relative change in house prices:

- A 1 per cent increase in the proportion of self-employed is associated with a 3.7 to 7.2 per cent increase in house prices.
- A 1 per cent increase in households living in detached properties is associated with a 0.2 to 0.7 per cent increase in house prices.
- A 1 per cent reduction in socially rented accommodation is associated with a 0.7 to 3 per cent increase in house prices.

Chapter 4. Advantages of a submarket approach

This submarket analysis provides a clearer picture of the variation in house prices caused by different housing attributes. A discussion of the submarket approach compared to the overall market approach is provided in *Working Paper 7: Defining and Analysing London's Housing Submarkets*.

The submarket approach can provide useful insights for urban housing policy and its impact. It shows the characteristics of each submarket, along with what drives each submarket and makes it distinct from the others. Since housing policies are localised in nature, analysing the impact on the overall market rather than submarkets can provide inadequate or inaccurate results.

A submarket analysis can show whether increasing the quality of housing stock or investing in socio-economic infrastructure can improve certain housing areas.

The submarket analysis also avoids errors in the analysis, as it looks at a similar set of house price indicators for each submarket. This means each submarket will have a lower level of variance and provide a higher level of statistical explanation.

4.1 Criticisms of a submarket approach

The main criticism of submarket housing analysis is the process of identifying submarkets. Households' choices and preferences differ considerably and their methods of searching for and selecting houses is unpredictable. Empirical analysis such as this fails to take into account the ways that households acquire and use information about housing availability and how they match their preferences to housing supply.[26]

The results are dependent on the functional form of the model and the choice of variables. Unique or optimal results cannot be obtained as conclusions are restricted by data availability and ease of calculation.

Submarkets are dynamic in nature and need to be re-identified on a regular basis.[27] This would mean comparisons over time would not be possible as the base data would change in every period.

[26] R Palm 1978, Spatial Segmentation of the Urban Housing Market, Economic Geography 54, 210-221
[27] Tu Yong, 2003, Segmentation, Adjustment and Disequilibrium, in Housing Economics and Public Policy, ed Tony O'Sullivan and Kenneth Gibb, Blackwell Publishing

Conclusion

Submarket analysis can be used to compare how housing attributes vary across London. It provides valuable insights into the importance of improving the capital's physical environment as well as the need to build more homes. Suburban London, with the lowest average house price, is more affordable as it has larger properties (in terms of average rooms per household) with nearly 67 per cent of households living in whole houses or bungalows. Crowded House, with excellent travel links and proximity to Central London, has the second lowest average price of all sectors. Besides being an attractive market for homebuyers, the Central and Pleasant Crescent submarkets have a high proportion of households living in private rented accommodation. On average, larger households tend to live in the outer submarkets where the proportion of people under the age of 19 is relatively higher. A higher proportion of people employed part time live in outer submarkets, whereas in the Central and Pleasant Crescent submarkets a high proportion of people are employed full time.

In the light of the Barker Review, the importance of rigorous housing market analysis should not be understated. This needs to include the development of submarket housing analysis. Submarket analysis can help policymakers to understand the issues that need to be addressed for each cluster. For example, it can help to answer the following questions:

- What changes, if necessary, would be required to address certain areas of any particular submarket?
- How do labour market and household characteristics affect housing preferences?

Undertaking this submarket study at postcode sector level provides a level of detail about London's housing market that is much greater than could be done at borough level. The results could be improved if the analysis was carried out using attributes of individual properties, rather than a group of properties as used in this study. The Valuation Office Agency is revaluating all domestic properties in England and Wales by 1 April 2007, and this dataset will be very useful for undertaking another housing submarket study for London.

Appendix A. Variables

Housing submarket database

This dataset has house prices at postcode sector level by property type from the first quarter of 2002 to the second quarter of 2003. An average of all six quarters has been calculated. The variables in the dataset have also been computed at postcode[29] sector level using Mapinfo.

Table A.1 Variables used in the study

No.	Variable	Description	Source
1	House price	Average overall house prices over six quarters Q1-02 to Q2-03	Land Registry
2	Private rented %	Percentage of households: private rented (private landlord or letting agency and others)	Census 2001, ONS
3	Average rooms/household	Average number of rooms per household‡	Census 2001, ONS
4	Income support claimants %	Percentage of people who are Income Support claimants*, all ages, 2000	Neighbourhood statistics, ONS
5	Travel time by public transport (mins)	Travel time to Central London by public transport (mins), 2001. This has been averaged for each postcode sector. Central London is defined as roughly the same as zone 1 of the underground map. Transport for London divides London into 1,019 travel zones. The following modelling periods have been used: morning (07:00-09:59), interpeak (10:00-15:59) and evening peak (16:00-18:59).	Transport for London, GLA Economics
6	Ethnicity white %	Percentage of people in ethnic groups: white (British, Irish and other white)	Census 2001, ONS
7	Economically active %	Percentage of people aged 16-74 employed part-time**, full-time**, self-employed, unemployed or full-time student	
8	Household: detached %	Percentage of household spaces of detached type	Census 2001, ONS
9	Households: semi-detached %	Percentage of household spaces of semi-detached type	Census 2001, ONS
10	Households: terraced %	Percentage of household spaces of terraced type (including end-terrace)	Census 2001, ONS
11	Households: flats/maisonettes %	Percentage of household spaces that are flats, maisonettes or apartments	Census 2001, ONS
12	Households: owner-occupied %	Percentage of households: owner-occupied (owns outright, owns with a mortgage or loan, or shared ownership)	Census 2001, ONS
13	Households: social rented %	Percentage of households: social renting (housing association/registered social landlord or council/local authority)	Census 2001, ONS
14	Average household size	Average household size	Census 2001, ONS
15	Overcrowded households %	Percentage of households with an occupancy rating‡‡ of –1 or less	Census 2001, ONS

[29] See Notes at the end of this section.

16	One-person households %	Percentage of household comprising one person household (pensioner or other)	Census 2001, ONS
17	Couple with dependent children households%	Percentage of households comprising couples with dependent children (married, cohabiting or others)	Census 2001, ONS
18	Green spaces less 1.5km	Number of open green space sites within a 1.5 km radius	GLA Economics and the GLA Biodiversity Unit
19	British Rail and London Underground less than 1.5km	Number of British rail or London underground stations within a 1.5 km radius	Greater London Authority
20	Schools less than 2km	Number of schools within a 2km radius	GLA Economics and Department for Education and Skills
21	Average KS3 scores	Average Key Stage 3 point score of schools within a radius of 2km in 2002 (901 postcode sectors)	GLA Economics and Department for Education and Skills
22	People aged 0-19 years %	Percentage of people aged 0-19 years	Census, ONS 2001
23	People aged 20-29 years %	Percentage of people aged 20-29 years	Census, ONS 2001
24	People aged 30-64 years %	Percentage of people aged 30-64 years	Census, ONS 2001
25	People aged 65 and above years %	Percentage of people aged 65 and above years	Census, ONS 2001
26	Part time employment %	Percentage of people aged 16-74 employed part time**	Census, ONS 2001
27	Full-time employment %	Percentage of people aged 16-74 employed full time**	Census, ONS 2001
28	Self-employment %	Percentage of people aged 16-74 who are self-employed	Census, ONS 2001
29	Total employment %	Total of part time, full time and self employed as a percentage of all people aged 16 – 74 years	Census, ONS 2001
	All households	Number of households, 2001	Census, ONS 2001 and GLA Economics
	All people	Total number of people	Census 2001, ONS

Notes

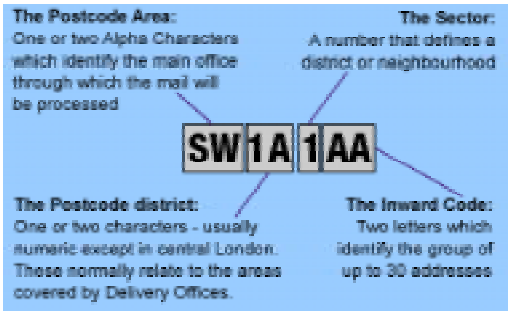
ǂ This variable records the number of rooms in a household space. Bathrooms, toilets, halls or landings, or rooms that can only be used for storage are not counted. All other rooms, for example, kitchens, living rooms, bedrooms, utility rooms and studies are counted. If two rooms have been converted into one, they are counted as one room. Rooms shared between a number of households, for example a shared bathroom or kitchen, are not counted. This figure is then divided by the number of household residents. The total number of household rooms are added together and divided by the number of residents to give average figures. Please note that this calculation is not exact as more than 12 rooms and more than eight household residents are rounded down to these figures.

** Income Support is a non-contributory benefit. From October 1996, the Jobseeker's Allowance replaced Income Support for unemployed people. In general Income Support is now only available to people who are not required to be available for work such as pensioners, lone parents, the sick and disabled people. The conditions for entitlement are in the Income Support regulations.*

*** For the Census, part time is defined as working 30 hours or less a week. Full time is defined as working more than 30 hours a week.*

++ The occupancy rating provides a measure of under-occupancy and over-crowding. For example, a value of -1 implies that there is one room too few and that there is over-crowding in the household. The occupancy rating assumes that every household, including one-person households, require a minimum of two common rooms (excluding bathrooms).

Appendix B. Postcode data



Source: Land Registry

Table B1. Postcode sectors in each submarket (for Map 28 with house prices)

Central		Crowded House			Pleasant Crescent		Suburban London			Leafy Retreat		
EC1A7	W2 3	E1 1	N22 6	E17 8	EC1R5	W4 5	HA8 0	HA0 4	SE231	N6 4	EN4 0	SW148
EC1A9	W2 4	E1 6	N4 1	E17 9	NW6 3	W5 2	N17 7	HA1 4	SE232	DA145	EN5 1	SW193
EC1M3	W8 4	E1 7	N4 2	E6 1	SE1 2	W5 5	N18 2	HA2 0	SE233	EN1 3	EN5 2	SW194
EC1M4	W8 5	E1 8	N4 3	E6 2	SW1V3	W6 0	N9 0	HA2 8	SE254	EN2 0	EN5 3	SW195
EC1M5	WC1B4	E1W 1	N5 1	E7 8	SW3 3	W6 7	NW107	HA2 9	SE265	EN2 6	EN5 4	SW197
EC1M6	WC1B5	EC1M7	N5 2	E7 9	SW8 5	W6 8	SE185	HA3 5	SE266	HA4 6	HA2 6	SW200
EC2A3	WC1E6	EC1V0	N7 0	HA9 0	W2 1	W6 9	SE186	HA3 7	SE280	HA7 4	HA2 7	SW209
EC2A4	WC1E7	EC1V4	N7 6	IG1 1	WC1B3	W8 6	SE187	HA3 9	SE288	HA8 7	HA3 0	TN147
EC2Y8	WC1H0	SE1 7	N7 7	IG1 2	WC1N3	W9 1	BR1 1	HA7 1	SE3 7	HA9 9	HA3 6	TN163
EC3A5	WC1H9	W2 6	N7 8	N16 5	E14 2	HA1 3	E10 6	HA8 5	SE3 8	KT2 6	HA3 8	TW1 1
EC3N2	WC1N1	WC1X8	N7 9	N16 6	E14 4	N10 3	E12 5	HA8 6	SE3 9	KT3 3	HA4 0	TW1 4
EC3R8	WC1N2	E1 0	NW1 0	N2 8	E14 5	N6 6	E17 3	HA8 9	SE6 1	KT5 8	HA4 7	TW105
EC4A1	WC1R4	E1 2	NW1 1	N22 5	EC1N8	SE249	E6 3	HA9 6	SE6 2	KT6 5	HA4 8	TW107
EC4M7	WC1V6	E1 3	NW1 2	N22 8	N1 2	SW138	HA0 1	HA9 7	SE6 3	RM5 2	HA4 9	TW110
EC4V3	WC2B4	E1 4	NW1 3	N8 0	N16 0	SW183	HA0 2	HA9 8	SE6 4	RM5 3	HA5 1	TW118
EC4V5	WC2B5	E1 5	NW1 9	NW100	NW1 7	SW185	HA1 1	IG1 3	SE7 7	RM7 9	HA5 2	TW119
EC4V6	WC2E7	E13 0	NW104	SE136	NW1 8	TW1 2	KT1 4	IG1 4	SE7 8	SE128	HA5 3	TW121
EC4Y0	WC2E8	E13 8	NW108	SE145	SW1P4	TW106	N8 7	IG110	SE9 4	SE182	HA5 4	TW122
KT1 1	WC2E9	E13 9	NW109	SE154	SW1V4	TW9 2	NW101	IG118	SE9 5	SE183	HA5 5	TW123
NW1 4	WC2H8	E14 0	NW5 2	SE165	W14 9	W4 2	NW106	IG119	SE9 6	SE218	HA6 1	TW2 5
NW1 5	WC2H9	E14 6	NW5 3	SE166	E11 1	W5 3	NW2 2	IG2 6	SM1 1	SE9 2	HA6 2	TW2 6
NW1 6	TW9 3	E14 7	NW5 4	SE167	HA1 2	N12 7	NW2 6	IG2 7	SM1 4	SE9 3	HA6 3	TW2 7
NW3 4		E15 1	NW6 2	SE192	KT6 4	N3 1	NW2 7	IG3 8	SM4 5	SW155	HA7 2	TW3 2
NW3 5		E15 2	NW6 4	SE208	N12 8	N3 3	NW9 5	IG3 9	SM4 6	SW163	HA7 3	TW7 4
NW8 6		E15 3	NW6 5	SE240	N4 4	NW117	RM1 3	IG6 1	SM5 1	SW198	HA8 8	TW7 5
NW8 7		E15 4	NW8 8	SE255	N6 5	NW3 7	RM9 4	IG6 2	SW153	SW208	IG4 5	UB100
NW8 9		E16 1	SE1 0	SE256	N8 8	SW116	SE135	IG6 3	SW154	TW1 3	IG5 0	UB108
SE1 9		E16 3	SE1 1	SW113	N8 9	W4 1	SE137	IG8 7	SW164	TW9 4	IG8 0	UB109
SW1A2		E16 4	SE1 3	SW115	NW102	W8 7	SE153	IG8 8	SW165	UB8 3	IG8 9	UB8 1
SW1E6		E1W 2	SE1 4	SW162	NW105		SE184	KT1 2	TW134	UB9 4	KT199	UB9 5

Central	Crowded House			Pleasant Crescent	Suburban London			Leafy Retreat		
SW1H0	E1W 3	SE1 5	SW176	NW110	SE191	KT1 3	TW135	BR1 2	KT2 5	UB9 6
SW1H9	E2 0	SE1 6	SW2 1	NW118	SE220	KT6 6	TW136	BR1 3	KT2 7	
SW1P1	E2 6	SE1 8	SW2 2	NW119	SE264	N10 1	TW137	BR2 0	KT220	
SW1P2	E2 7	SE114	SW2 3	NW2 3	SE270	N10 2	TW140	BR2 6	KT3 4	
SW1P3	E2 8	SE115	SW2 4	NW2 4	SE279	N11 1	TW148	BR2 7	KT3 5	
SW1V1	E2 9	SE116	SW2 5	NW2 5	SE4 1	N11 2	TW149	BR2 8	KT3 6	
SW1V2	E3 2	SE146	SW4 0	NW3 1	SE4 2	N11 3	TW3 4	BR2 9	KT4 7	
SW1W0	E3 3	SE151	SW4 7	NW3 2	SW161	N12 0	TW4 7	BR3 3	KT4 8	
SW1W8	E3 4	SE152	SW4 8	NW3 3	SW166	N12 9	TW5 0	BR3 4	KT5 9	
SW1W9	E3 5	SE155	SW8 3	NW3 6	SW179	N13 4	TW5 9	BR3 6	KT6 7	
SW1X0	E5 0	SE156	W3 6	NW5 1	SW196	N13 5	TW7 6	BR4 0	KT9 1	
SW1X7	E5 8	SE162	W3 8	NW6 1	TW3 1	N13 6	TW7 7	BR4 9	KT9 2	
SW1X8	E5 9	SE163	TW4 5	NW6 6	TW3 3	N14 4	TW8 8	BR5 1	N14 6	
SW1X9	E6 5	SE164		NW6 7	TW4 6	N14 5	TW8 9	BR6 0	N14 7	
SW1Y4	E6 6	SE171		NW8 0	TW8 0	N18 1	UB1 1	BR6 6	N2 0	
SW1Y5	E8 1	SE172		SE100	W3 0	N2 9	UB1 2	BR6 7	N20 8	
SW1Y6	E8 2	SE173		SE108	BR1 4	N22 7	UB1 3	BR6 8	N20 9	
SW3 1	E8 3	SE5 0		SE109	BR1 5	N3 2	UB2 4	BR6 9	N21 1	
SW3 2	E8 4	SE5 7		SE229	BR3 1	N9 7	UB2 5	BR7 5	N21 2	
SW3 4	E9 5	SE5 8		SE3 0	BR3 5	N9 8	UB3 1	BR7 6	N21 3	
SW5 0	E9 6	SE5 9		SW100	BR5 2	N9 9	UB3 2	CR0 5	NW116	
SW7 1	E9 7	SE8 3		SW109	BR5 3	NW103	UB3 3	CR0 7	NW7 1	
SW7 2	EC1N7	SE8 4		SW111	CR0 0	NW2 1	UB3 4	CR0 8	NW7 4	
SW7 3	EC1R0	SE8 5		SW114	CR0 3	NW4 2	UB3 5	CR0 9	RM1 4	
SW7 4	EC1R1	SW112		SW120	CR0 4	NW4 3	UB4 0	CR2 0	RM111	
SW7 5	EC1R4	SW4 6		SW128	CR0 6	NW4 4	UB4 8	CR2 7	RM112	
W1B 1	EC1V1	SW8 1		SW129	CR2 6	NW9 0	UB4 9	CR2 8	RM113	
W1D 3	EC1V2	SW8 2		SW151	CR4 1	NW9 6	UB5 4	CR2 9	RM124	
W1D 4	EC1V3	SW8 4		SW152	CR4 2	NW9 7	UB5 5	CR3 0	RM125	
W1F 7	EC1V7	SW9 0		SW156	CR4 3	NW9 8	UB5 6	CR3 5	RM126	
W1F 8	EC1V8	SW9 6		SW170	CR4 4	NW9 9	UB6 0	CR5 1	RM137	
W1G 6	EC1V9	SW9 7		SW177	CR7 6	RM1 1	UB6 7	CR5 2	RM141	
W1G 8	EC1Y0	SW9 8		SW178	CR7 7	RM1 2	UB6 8	CR5 3	RM142	
W1G 9	EC1Y2	SW9 9		SW181	CR7 8	RM107	UB6 9	CR6 9	RM143	
W1H 1	EC1Y8	W10 4		SW182	DA146	RM108	UB7 0	CR8 1	RM2 5	
W1H 2	IG117	W10 5		SW184	DA175	RM109	UB7 7	CR8 2	RM2 6	
W1H 4	N1 0	W10 6		SW191	DA176	RM138	UB7 8	CR8 3	RM3 0	
W1H 5	N1 1	W11 1		SW192	DA184	RM3 7	UB7 9	CR8 4	SE217	
W1H 6	N1 3	W12 0		SW3 5	DA8 1	RM3 8	UB8 2	CR8 5	SE9 1	
W1H 7	N1 4	W12 7		SW3 6	DA8 2	RM3 9	W13 0	DA144	SM1 2	
W1J 5	N1 5	W12 8		SW4 9	DA8 3	RM6 4	W13 8	DA157	SM1 3	
W1J 7	N1 6	W2 5		SW5 9	E11 3	RM6 5	W13 9	DA158	SM2 5	
W1J 8	N1 7	W9 2		SW6 1	E17 4	RM6 6	W4 3	DA159	SM2 6	
W1K 1	N1 8	W9 3		SW6 2	E17 5	RM7 0	W5 1	DA161	SM2 7	
W1K 2	N1 9	WC1H8		SW6 3	E18 1	RM7 7	W5 4	DA162	SM3 8	

Central		Crowded House			Pleasant Crescent		Suburban London			Leafy Retreat		
W1K 3		N15 3	WC1X0		SW6 4		E18 2	RM7 8	W7 1	DA163	SM3 9	
W1K 4		N15 4	WC1X9		SW6 5		E4 6	RM8 1	W7 2	DA5 1	SM4 4	
W1K 6		N15 5	CR0 1		SW6 6		E4 7	RM8 2	W7 3	DA5 2	SM5 2	
W1K 7		N15 6	CR0 2		SW6 7		E4 8	RM8 3	BR5 4	DA5 3	SM5 3	
W1T 1		N16 7	E10 5		TW9 1		E4 9	RM9 5	EN4 8	DA6 7	SM5 4	
W1T 4		N16 8	E10 7		W11 2		E6 7	RM9 6	EN4 9	DA6 8	SM6 0	
W1U 3		N16 9	E11 4		W11 3		E7 0	SE120	EN5 5	DA7 4	SM6 7	
W1U 4		N17 0	E12 6		W11 4		EN1 1	SE129	N20 0	DA7 5	SM6 8	
W1U 5		N17 6	E14 3		W12 9		EN1 4	SE181	NW4 1	DA7 6	SM6 9	
W1U 6		N17 8	E14 8		W14 0		EN3 4	SE193	NW7 2	E11 2	SM7 1	
W1W 5		N17 9	E14 9		W14 8		EN3 5	SE2 0	NW7 3	EN1 2	SM7 3	
W1W 6		N19 3	E16 2		W3 7		EN3 6	SE2 9	RM139	EN2 7	SW130	
W1W 7		N19 4	E17 6		W3 9		EN3 7	SE207		EN2 8	SW139	
W2 2		N19 5	E17 7		W4 4		HA0 3	SE228		EN2 9	SW147	

Table B2. Postcode sectors in each submarket (for Map 29 without house prices)

Central		Crowded House		Pleasant Crescent		Suburban London			Leafy Retreat		
E1 1	W1J 8	E1 0	N22 6	BR1 1	SE191	BR1 4	KT5 8	SE7 7	BR1 2	HA7 2	TN147
E1 6	W1K 1	E1 2	N4 1	CR0 1	SE192	BR1 5	KT6 5	SE7 8	BR1 3	HA7 3	TN163
E1 7	W1K 2	E1 3	N4 2	CR0 2	SE208	BR3 1	KT6 6	SE9 2	BR2 0	HA8 8	TW1 1
E1 8	W1K 3	E1 4	N4 3	E10 5	SE220	BR3 5	N10 1	SE9 3	BR2 6	IG4 5	TW1 4
E1W 1	W1K 4	E1 5	N5 1	E10 6	SE229	BR5 2	N10 2	SE9 4	BR2 7	IG5 0	TW105
EC1A7	W1K 6	E13 0	N5 2	E10 7	SE240	BR5 3	N10 3	SE9 5	BR2 8	IG8 0	TW107
EC1A9	W1K 7	E13 8	N7 0	E11 1	SE255	CR0 0	N11 1	SE9 6	BR2 9	IG8 9	TW110
EC1M3	W1T 1	E13 9	N7 6	E11 4	SE256	CR0 3	N11 2	SM1 1	BR3 3	KT199	TW118
EC1M4	W1T 4	E14 0	N7 7	E12 5	SE264	CR0 4	N11 3	SM1 4	BR3 4	KT2 5	TW119
EC1M5	W1U 3	E14 2	N7 8	E12 6	SE270	CR0 6	N12 0	SM4 5	BR3 6	KT2 7	TW121
EC1M6	W1U 4	E14 4	N7 9	E14 3	SE279	CR2 6	N12 9	SM4 6	BR4 0	KT220	TW122
EC1M7	W1U 5	E14 5	N9 0	E14 8	SE3 0	CR4 1	N13 4	SM5 1	BR4 9	KT3 4	TW123
EC1R5	W1U 6	E14 6	NW1 0	E14 9	SE4 1	CR4 2	N13 5	SW138	BR5 1	KT3 5	TW2 5
EC1V0	W1W 5	E14 7	NW1 1	E16 2	SE4 2	CR4 3	N13 6	SW153	BR5 4	KT3 6	TW2 6
EC1V4	W1W 6	E15 1	NW1 2	E17 3	SW100	CR4 4	N14 4	SW154	BR6 0	KT4 7	TW2 7
EC2A3	W1W 7	E15 2	NW1 3	E17 6	SW109	CR7 6	N14 5	SW155	BR6 6	KT4 8	TW3 2
EC2A4	W2 1	E15 3	NW1 7	E17 7	SW111	CR7 7	N18 1	SW163	BR6 7	KT5 9	TW7 4
EC2Y8	W2 2	E15 4	NW1 8	E17 8	SW113	CR7 8	N2 9	SW164	BR6 8	KT6 7	TW7 5
EC3A5	W2 3	E16 1	NW1 9	E17 9	SW114	DA145	N22 7	SW165	BR6 9	KT9 1	UB100
EC3N2	W2 4	E16 3	NW104	E6 1	SW115	DA146	N3 2	SW183	BR7 5	KT9 2	UB108
EC3R8	W2 6	E16 4	NW107	E6 2	SW120	DA175	N6 6	SW185	BR7 6	N12 7	UB109
EC4A1	W8 4	E1W 2	NW108	E6 3	SW128	DA176	N9 7	SW198	CR0 5	N14 6	UB8 1
EC4M7	W8 5	E1W 3	NW109	E7 8	SW129	DA184	N9 8	SW208	CR0 7	N14 7	UB9 5
EC4V3	WC1B3	E2 0	NW5 2	E7 9	SW151	DA8 1	N9 9	TW1 2	CR0 8	N2 0	UB9 6
EC4V5	WC1B4	E2 6	NW5 3	HA0 1	SW152	DA8 2	NW103	TW1 3	CR0 9	N20 0	W4 1
EC4V6	WC1B5	E2 7	NW5 4	HA0 2	SW156	DA8 3	NW2 1	TW106	CR2 0	N20 8	W8 7
EC4Y0	WC1E6	E2 8	NW6 2	HA1 1	SW161	E11 3	NW4 2	TW134	CR2 7	N20 9	
KT1 1	WC1E7	E2 9	NW6 4	HA1 2	SW162	E17 4	NW4 3	TW135	CR2 8	N21 1	
NW1 4	WC1H0	E3 2	NW6 5	HA9 0	SW166	E17 5	NW4 4	TW136	CR2 9	N21 2	
NW1 5	WC1H9	E3 3	NW8 8	IG1 1	SW170	E18 1	NW9 0	TW137	CR3 0	N21 3	
NW1 6	WC1N1	E3 4	SE1 0	IG1 2	SW176	E18 2	NW9 6	TW140	CR3 5	N3 1	
NW3 4	WC1N2	E3 5	SE1 1	KT1 4	SW177	E4 6	NW9 7	TW148	CR5 1	N3 3	
NW3 5	WC1N3	E5 0	SE1 3	KT6 4	SW178	E4 7	NW9 8	TW149	CR5 2	NW116	
NW6 3	WC1R4	E5 8	SE1 4	N12 8	SW179	E4 8	NW9 9	TW3 4	CR5 3	NW117	
NW8 6	WC1V6	E5 9	SE1 5	N16 5	SW181	E4 9	RM1 1	TW4 5	CR6 9	NW3 7	
NW8 7	WC1X8	E6 5	SE1 6	N16 6	SW182	E6 7	RM1 2	TW4 7	CR8 1	NW4 1	
NW8 9	WC2B4	E6 6	SE1 8	N2 8	SW184	E7 0	RM107	TW5 0	CR8 2	NW7 1	
SE1 2	WC2B5	E8 1	SE114	N22 5	SW191	EN1 1	RM108	TW5 9	CR8 3	NW7 2	
SE1 7	WC2E7	E8 2	SE115	N22 8	SW192	EN1 3	RM109	TW7 6	CR8 4	NW7 3	
SE1 9	WC2E8	E8 3	SE116	N4 4	SW196	EN1 4	RM138	TW7 7	CR8 5	NW7 4	
SW1A2	WC2E9	E8 4	SE146	N6 4	SW2 1	EN2 0	RM3 7	TW8 8	DA144	RM1 4	
SW1E6	WC2H8	E9 5	SE151	N6 5	SW2 2	EN2 6	RM3 8	TW8 9	DA157	RM111	
SW1H0	WC2H9	E9 6	SE152	N8 0	SW2 3	EN3 4	RM3 9	TW9 2	DA158	RM112	
SW1H9		E9 7	SE155	N8 7	SW2 4	EN3 5	RM5 2	TW9 3	DA159	RM113	

Central		Crowded House		Pleasant Crescent		Suburban London			Leafy Retreat		
SW1P1		EC1N7	SE156	N8 8	SW2 5	EN3 6	RM5 3	TW9 4	DA161	RM124	
SW1P2		EC1N8	SE162	N8 9	SW3 5	EN3 7	RM6 4	UB1 1	DA162	RM125	
SW1P3		EC1R0	SE163	NW100	SW3 6	HA0 3	RM6 5	UB1 2	DA163	RM126	
SW1V1		EC1R1	SE164	NW101	SW4 0	HA0 4	RM6 6	UB1 3	DA5 1	RM137	
SW1V2		EC1R4	SE171	NW102	SW4 7	HA1 3	RM7 0	UB2 4	DA5 2	RM139	
SW1V3		EC1V1	SE172	NW105	SW4 8	HA1 4	RM7 7	UB2 5	DA5 3	RM141	
SW1W0		EC1V2	SE173	NW106	SW4 9	HA2 0	RM7 8	UB3 1	DA6 7	RM142	
SW1W8		EC1V3	SE185	NW110	SW5 9	HA2 8	RM7 9	UB3 2	DA6 8	RM143	
SW1W9		EC1V7	SE186	NW118	SW6 1	HA2 9	RM8 1	UB3 3	DA7 4	RM2 5	
SW1X0		EC1V8	SE187	NW119	SW6 2	HA3 5	RM8 2	UB3 4	DA7 5	RM2 6	
SW1X7		EC1V9	SE5 0	NW2 2	SW6 3	HA3 7	RM8 3	UB3 5	DA7 6	RM3 0	
SW1X8		EC1Y0	SE5 7	NW2 3	SW6 4	HA3 9	RM9 5	UB4 0	E11 2	SE217	
SW1X9		EC1Y2	SE5 8	NW2 4	SW6 5	HA4 6	RM9 6	UB4 8	EN1 2	SE9 1	
SW1Y4		EC1Y8	SE5 9	NW2 5	SW6 6	HA7 1	SE120	UB4 9	EN2 7	SM1 2	
SW1Y5		HA8 0	SE8 3	NW2 6	SW6 7	HA7 4	SE128	UB5 4	EN2 8	SM1 3	
SW1Y6		IG117	SE8 4	NW2 7	SW8 3	HA8 5	SE129	UB5 5	EN2 9	SM2 5	
SW3 1		N1 0	SE8 5	NW3 1	TW3 1	HA8 6	SE181	UB5 6	EN4 0	SM2 6	
SW3 2		N1 1	SW112	NW3 2	TW3 3	HA8 7	SE182	UB6 0	EN4 8	SM2 7	
SW3 3		N1 2	SW1P4	NW3 3	TW4 6	HA8 9	SE183	UB6 7	EN4 9	SM3 8	
SW3 4		N1 3	SW1V4	NW3 6	TW8 0	HA9 6	SE193	UB6 8	EN5 1	SM3 9	
SW5 0		N1 4	SW4 6	NW5 1	TW9 1	HA9 7	SE2 0	UB6 9	EN5 2	SM4 4	
SW7 1		N1 5	SW8 1	NW6 1	W11 2	HA9 8	SE2 9	UB7 0	EN5 3	SM5 2	
SW7 2		N1 6	SW8 2	NW6 6	W11 3	HA9 9	SE207	UB7 7	EN5 4	SM5 3	
SW7 3		N1 7	SW8 4	NW6 7	W11 4	IG1 3	SE218	UB7 8	EN5 5	SM5 4	
SW7 4		N1 8	SW9 0	NW8 0	W12 9	IG1 4	SE228	UB7 9	HA2 6	SM6 0	
SW7 5		N1 9	SW9 6	NW9 5	W14 0	IG110	SE231	UB8 2	HA2 7	SM6 7	
SW8 5		N15 3	SW9 7	RM1 3	W14 8	IG118	SE232	UB8 3	HA3 0	SM6 8	
W1B 1		N15 4	SW9 8	RM9 4	W3 0	IG119	SE233	UB9 4	HA3 6	SM6 9	
W1D 3		N15 5	SW9 9	SE100	W3 6	IG2 6	SE249	W13 0	HA3 8	SM7 1	
W1D 4		N15 6	W10 4	SE108	W3 7	IG2 7	SE254	W13 8	HA4 0	SM7 3	
W1F 7		N16 0	W10 5	SE109	W3 8	IG3 8	SE265	W13 9	HA4 7	SW116	
W1F 8		N16 7	W10 6	SE135	W3 9	IG3 9	SE266	W4 2	HA4 8	SW130	
W1G 6		N16 8	W11 1	SE136	W4 4	IG6 1	SE280	W4 3	HA4 9	SW139	
W1G 8		N16 9	W12 0	SE137	W4 5	IG6 2	SE288	W5 1	HA5 1	SW147	
W1G 9		N17 0	W12 7	SE145	W5 2	IG6 3	SE3 7	W5 3	HA5 2	SW148	
W1H 1		N17 6	W12 8	SE153	W5 5	IG8 7	SE3 8	W5 4	HA5 3	SW193	
W1H 2		N17 7	W14 9	SE154	W6 0	IG8 8	SE3 9	W7 1	HA5 4	SW194	
W1H 4		N17 8	W2 5	SE165	W6 7	KT1 2	SE6 1	W7 2	HA5 5	SW195	
W1H 5		N17 9	W9 2	SE166	W6 8	KT1 3	SE6 2	W7 3	HA6 1	SW197	
W1H 6		N18 2	W9 3	SE167	W6 9	KT2 6	SE6 3		HA6 2	SW200	
W1H 7		N19 3	WC1H8	SE184	W8 6	KT3 3	SE6 4		HA6 3	SW209	
W1J 5		N19 4	WC1X0		W9 1						
W1J 7		N19 5	WC1X9								

Appendix C. Borough household data

Table C1. Household by property type in each borough %

Borough	Detached	Semi-detached	Terraced	Flats / maisonettes
Barking and Dagenham	2.27	17.62	54.16	25.9
Barnet	11.37	31.18	18.11	39.19
Bexley	7.09	44.5	26.07	22.27
Brent	6.47	27.69	18.87	46.85
Bromley	18.77	30.2	22.46	28.41
Camden	1.81	3.56	8.81	85.71
City of London	0.3	0.26	1.47	97.95
Croydon	12.44	25.23	29.95	32.33
Ealing	4.37	23.45	29.61	42.47
Enfield	5.81	23.89	35.29	34.91
Greenwich	3.77	17.94	35.7	42.52
Hackney	1.55	3.91	18.79	75.61
Hammersmith and Fulham	1.18	4.81	23.09	70.84
Haringey	3.13	9.49	31.79	55.49
Harrow	12.21	39.93	20.27	27.54
Havering	11.13	42	27.97	18.65
Hillingdon	14.63	36.23	24.61	24.32
Hounslow	4.1	30.95	26.81	37.99
Islington	0.99	2.68	16.01	80.23
Kensington and Chelsea	1.25	2.9	12.75	82.96
Kingston upon Thames	13.04	32.08	18.73	36.04
Lambeth	2.01	7.73	18.9	71.27
Lewisham	2.93	12.86	31.46	52.66
Merton	5.93	18.09	40.56	35.36
Newham	4.27	8.58	45.52	41.53
Redbridge	5.58	26.77	40.35	27.23
Richmond upon Thames	8.86	24.69	27.78	38.4
Southwark	1.97	6.05	17.62	74.24
Sutton	11.1	27.97	26.47	34.39
Tower Hamlets	1.03	2.25	12.98	83.62
Waltham Forest	3.42	16.27	41.55	38.68
Wandsworth	2.34	7.08	26.25	64.25
Westminster	1.04	1.87	7.97	89.07

Source: ONS Neighbourhood statistics
Note: Grey and green shades denote highest and lowest values respectively.

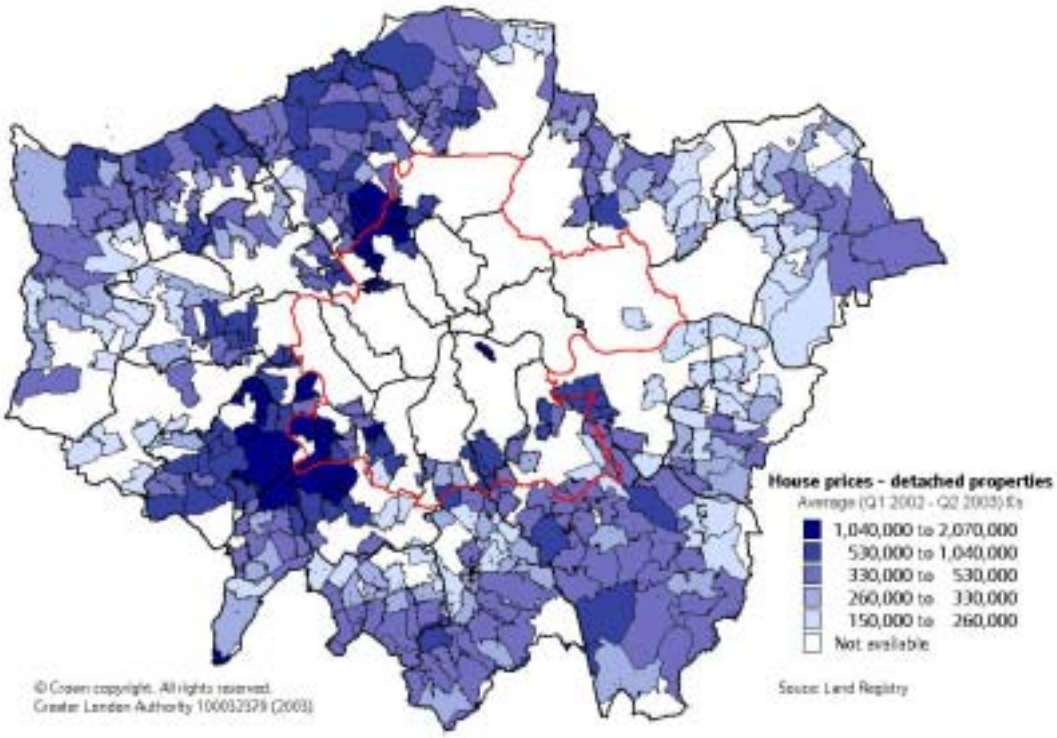
Table C2. Household by tenure type in boroughs %

Borough	Owner-occupied	Rent: Local Authority, Registered Social Landlords, Housing Association	Rent: private and others
Barking and Dagenham	55.27	37.07	7.00
Barnet	65.72	14.94	18.48
Bexley	78.24	13.63	7.45
Brent	54.50	23.88	20.18
Bromley	75.26	14.16	9.73
Camden	34.34	37.38	27.72
City of London	49.12	21.62	28.86
Croydon	67.85	16.79	14.49
Ealing	61.68	18.88	18.11
Enfield	69.88	17.48	11.87
Greenwich	48.36	39.46	11.59
Hackney	30.55	50.76	17.15
Hammersmith and Fulham	43.02	32.65	23.40
Haringey	44.62	30.26	23.91
Harrow	74.27	11.13	13.71
Havering	78.77	14.19	6.64
Hillingdon	70.73	16.71	11.20
Hounslow	59.22	23.49	15.92
Islington	31.10	49.20	18.65
Kensington and Chelsea	42.83	25.99	30.29
Kingston upon Thames	70.82	11.12	17.38
Lambeth	36.07	41.36	21.48
Lewisham	48.52	35.56	14.33
Merton	68.29	14.23	16.93
Newham	42.45	36.49	19.89
Redbridge	74.77	10.14	14.57
Richmond upon Thames	68.70	11.73	18.98
Southwark	30.04	53.53	15.06
Sutton	73.79	15.38	10.31
Tower Hamlets	27.38	52.51	18.53
Waltham Forest	58.06	23.82	17.23
Wandsworth	51.20	22.95	24.98
Westminster	34.19	28.92	36.17

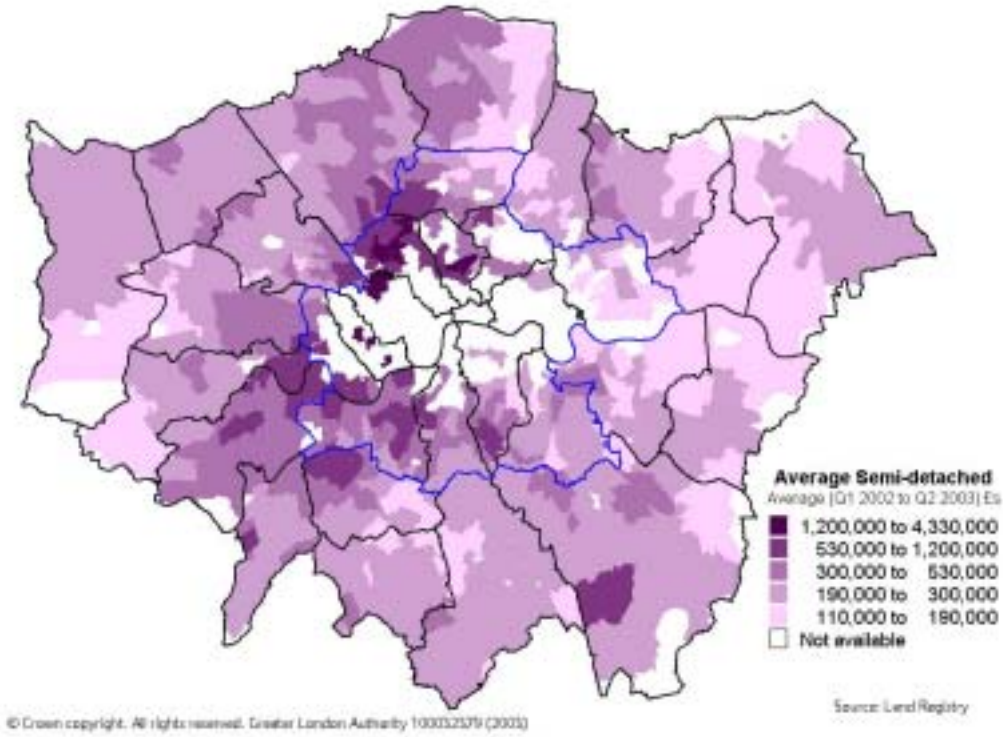
Note: Grey and yellow shades denote highest and lowest values respectively.
Source: ONS Neighbourhood statistics

Appendix D. Maps of house prices by property type

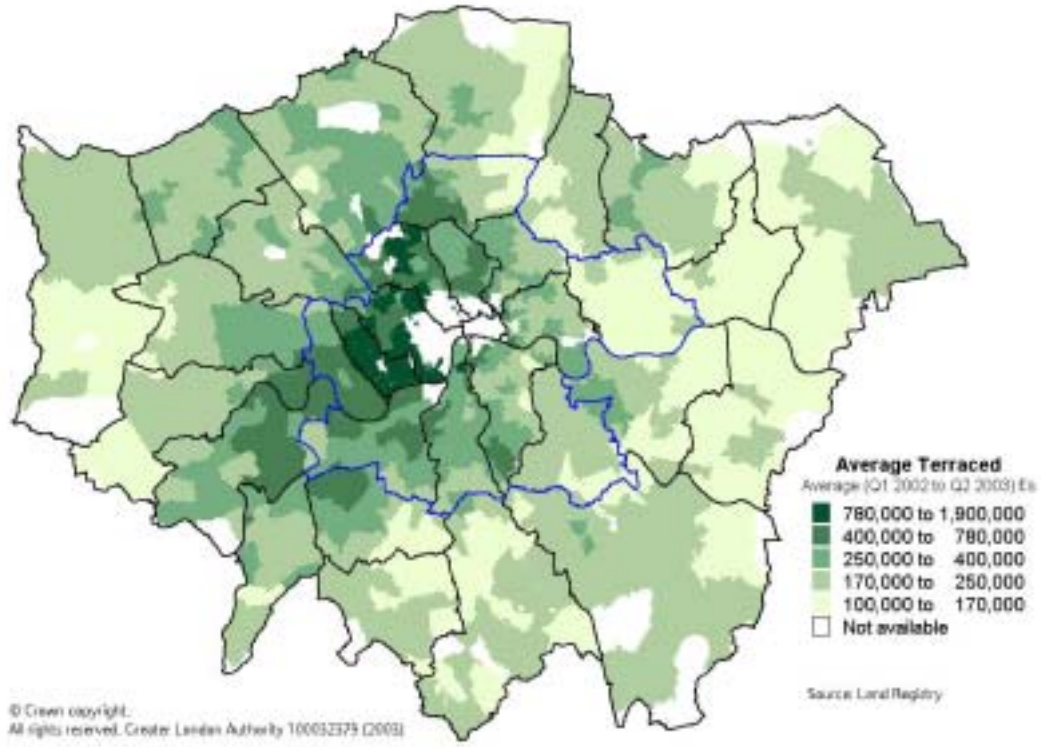
Map D1. Detached house prices (average over six quarters)



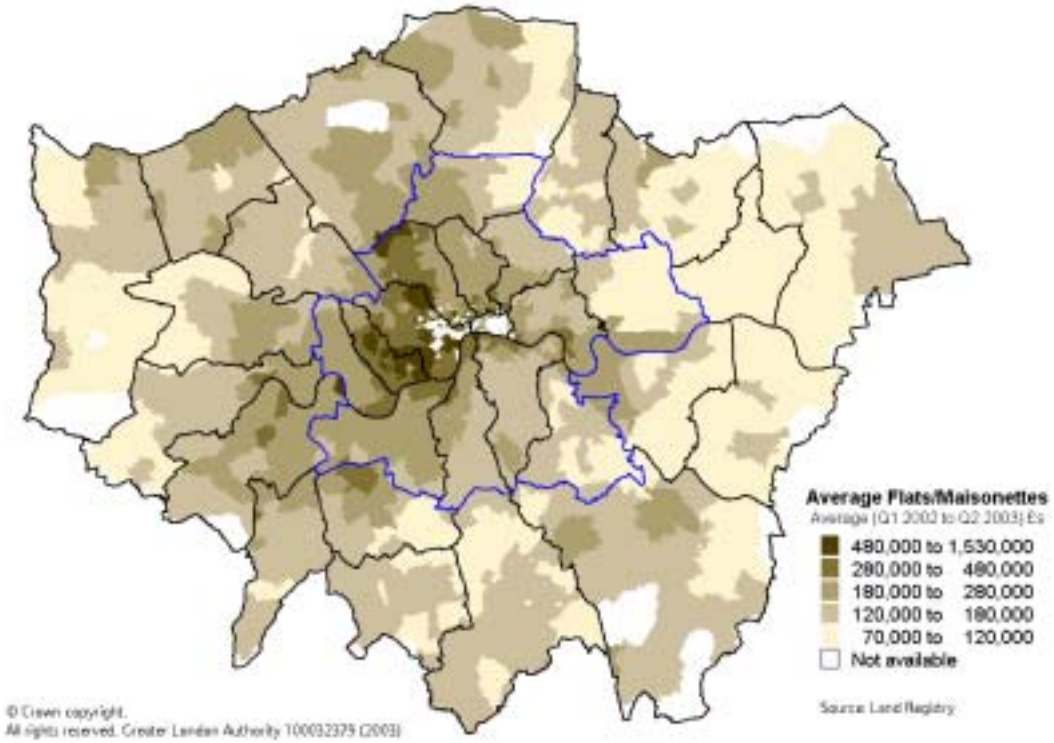
Map D2. Semi-detached house prices (average over six quarters)



Map D3. Terraced house prices (average over six quarters)



Map D4. Flats / maisonettes house prices (average over six quarters)



Appendix E. Bibloigraphy

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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

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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 پتے پر رابطہ قائم کریں۔

Turkish

Bize telefon ederek ya da yukarıdaki adrese başvurarak bu belgenin Türkçe'sini isteyebilirsiniz.

Arabic

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

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 જોઈતી હોય તો, કૃપા કરી આપેલ નંબર ઉપર ફોન કરો અથવા નીચેના સરનામે સંપર્ક સાધો.

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