

Understanding housing affordability to determine the best property search areas for homeowners moving out of London

Bin Chi^{*12}, Adam Dennett^{†1}, Thomas Oléron-Evans^{‡1} and Robin Morphet^{§1}

¹Centre for Advanced Spatial Analysis, University College London

²Department of Geography, University College London

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Summary

In this paper we created a novel framework for understanding housing affordability in England using a linked house price dataset. Regional house price studies revealed that after the global economic crisis, there was an unprecedented regional house price divergence driven by faster price increases in London from 2009 onwards. To ease England's resulting housing affordability issues, we consider the scenario of a typical London homeowner to offer a new insight into local housing affordability by different property type in England and explore the best property search areas for homeowners moving out of London.

KEYWORDS: House price per square meter, affordable property size, housing affordability, local authority.

1. Introduction

Post 2007, the financial crisis pushed house prices in England into a two-year recession then with different rates of recovery afterwards at regional scales. At local authority (LA) scale, house prices per square metre (HPM) recovered between 2009 and 2016 but at differing rates driven by the dominant HPM increase in London (Chi et al., 2020). This London effect reduces housing affordability in London, increasingly causing Londoners to move out (Bembridge, 2020). The 2011 UK Census shows 48.42% of people work outside their home LA with 29.22% commuting into London.

Housing affordability issues result from the interplay of price, available income, available housing types and locational characteristics (Collinson, 2014; John, 2015). For the same property, households with different structures and characteristics will suffer different levels of housing affordability issues, which will also vary by location. These will vary spatially and socially giving rise to a complexity that can be difficult to quantify.

Housing regulation and delivery in England has been carried out by LAs since the 1980s (Morphet and Clifford, 2020). A more nuanced understanding of residential house affordability at LA level will support better understanding of the housing affordability issue and assist LAs in housing-policy delivery. Households seeking a house purchase normally know approximately the property type and size they can afford. Our new approach considers property type, size, location and price. A new housing affordability index defined as the estimated affordable property size for a given property type (i.e. detached, semi-detached, terraced and flats/maisonettes) at a given geographic unit and time for a

* bin.chi.16@ucl.ac.uk

† a.dennett @ucl.ac.uk

‡ thomas.evans.11@ucl.ac.uk

§ r.morphet@ucl.ac.uk

typical London homeowner.

2. Data

We use a newly created HPM dataset in England between 2009 and 2016. This is a linked address-level database which uses the Land Registry Price Paid Data (PPD) together with property geo-referenced information from the Ordnance Survey datasets and total floor area from Domestic Energy Performance Certificates (Chi et al., 2019). The new dataset records 4,682,468 full market sales, representing 80% of the full market housing sales in the original Land Registry PPD. Five fields are used, namely HPM**, property type, transaction year, Middle Level Super Output Areas (MSOA) codes and LA district codes.

Commuting time to London is assessed using data on areas reachable from each railway station in England departing at 7a.m. within 30 minutes, 60 minutes, 75 minutes, 90 minutes, 105 minutes and 120 minutes by all public transport modes, which were extracted from the TravelTime platform on 18th October 2019. For each LA outside London, the shortest commuting time to London is chosen as its commuting time to London.

3. Method

The research is divided into three stages. First, a series of three-level growth curve models (GCMs) are created to explore the spatial-temporal pattern of house price variation in England by property type (i.e. detached, semi-detached, terraced and flats/maisonettes) between 2009 and 2016. Level 1 is the individual residential property, level 2 the MSOA level and level 3 is the LA level. Within the same property type models, two different types of GCM are created, one is the random intercept model (RIM), assuming all LAs share the same growth trend. The other is a random slope model (RSM), assuming all LAs have different growth trends. HPM is measured on a natural log scale. A Likelihood-Ratio (LR) test is used to identify which type of GCM fits the data better. With the best fitted model for each property type, the estimated intercept at LA level is then recast back to a natural scale. We refer to this as the LA's "starting-price".

Second, we define the typical household as that which has the most common property value in London in a given year and we assume that this household wishes to find a larger affordable property within the same year. The most common property value in London is chosen as the median transaction price (i.e. £250,000) in London in a given year (i.e. 2009). Furthermore, we assumed a typical London homeowner that has enough extra money to pay for travel, home moving and other related costs during housing transaction such as stamp duty, which is not accounted for within the transaction price.

Third, combining the above results, the estimated average affordable total floor area (m²) as a proxy of housing affordability by property type for the typical-household is calculated at LA scale with the equation below:

$$A_{pj} = v/\beta_{0j} \quad (1)$$

Here A_{pj} is the affordable property size for the property type p in LA j in a given year in m², v is the property value in the same year. β_{0j} is estimated HPM at LA level for property type p using the relevant GCM.

4. Results

Within each property type model, the LR tests suggest that RSM that fits the data significantly better than RIM. This reveals that for any property type, its LAs' house price trends vary across England. Meanwhile, covariance between the intercept and slope in the RSMs are positive, reflecting a fanning out pattern in LA HPMs between 2009 and 2016.

** HPM was calculated by using transaction price divided by total floor area

Figure 1 demonstrates the estimated starting-price through RSM for the four property types at LA level in England. Each point represents one LA and the red horizontal line presents the overall starting-price in 2009. Figure 1 also labels the LAs with prices over 4,000 £/m² in orange text and prices over 4,500 £/m² in black text. It is obvious that these labelled LAs are the key contributors to large HPM variations at LA level. The remaining LAs show HPMs below 4,000 £/m².

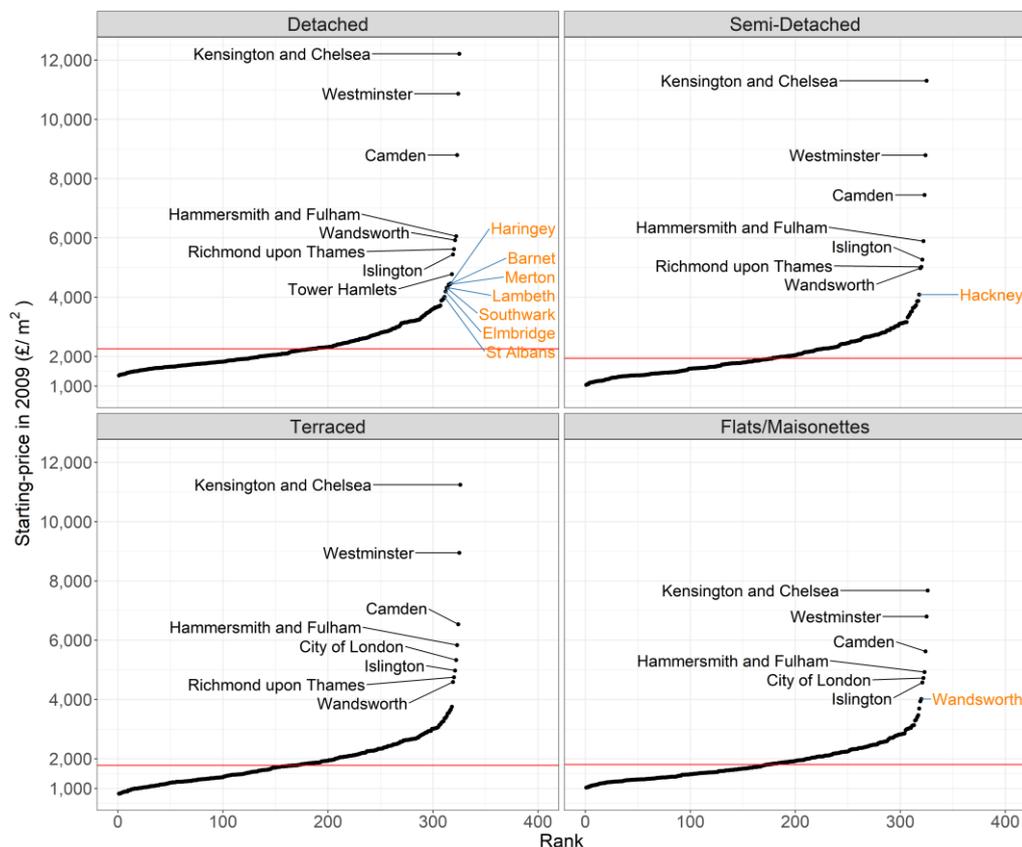


Figure 1 Starting-price at LA level for four property types

With the results shown in Figure 1, the affordable property size for the typical London homeowner with £250,000 is estimated for different LAs and property types. The spatial patterns for affordable property size are similar between property types, with high house prices located in or nearby London, but they vary in some details. Figure 2 presents the typical London homeowner's affordable size for terraced properties at LA level compared with the LA's commuting time to London. The difference between these two spatial patterns reveals potential opportunities for the homeowner to find larger properties with the same commuting time to London.

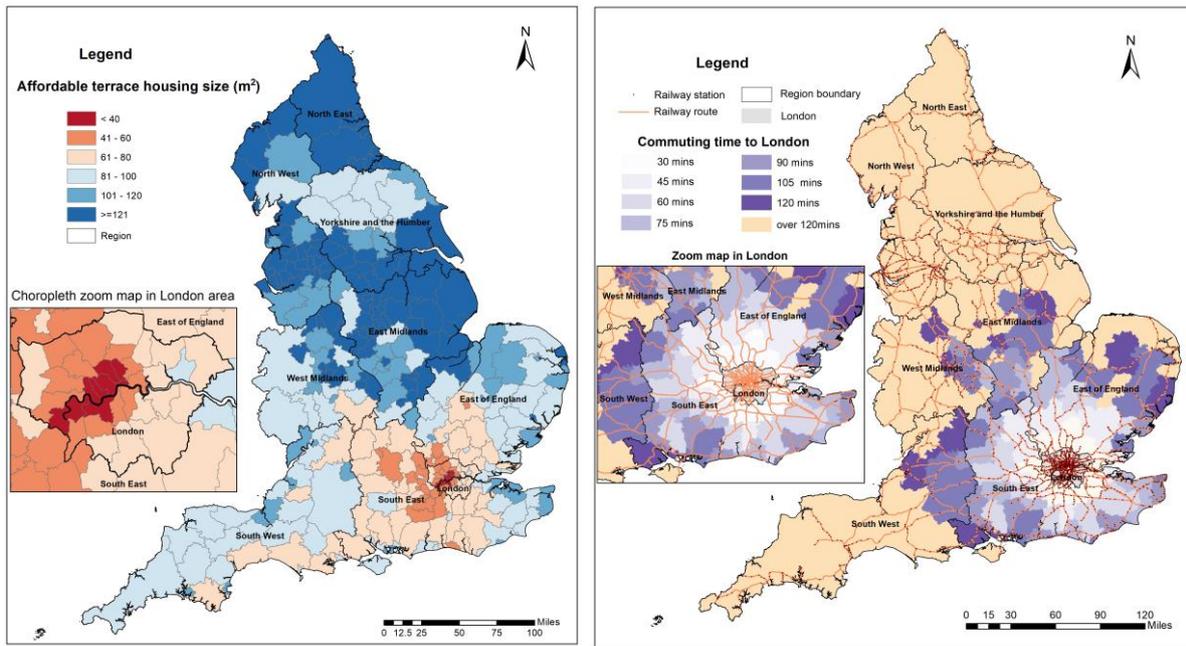


Figure 2 The spatial patterns of affordable terrace property size (left) and commuting time to London (right) at LA level

To better understand the variation of affordable property size within the commuting time categories, Figure 3 plots the relationship between maximum property size among the four property types and commuting time to London. The most affordable LAs in each commuting time category (below two hours) are labelled. These are the places where the maximum property size can be achieved whilst retaining the same commuting time. The labeled LAs are mainly clustered in two directions centered on London; one is in the northwest direction and more loosely clustered, the other is due east and tightly grouped. Furthermore, the top five most affordable LAs for each commuting time group are located in the same two directions plus a northeastern direction. The northwest direction clearly follows three railway routes: the first from London to Birmingham (West Coast Route), the second from London to Leicester (central route) and the last from London to Peterborough (East Coast Route). The east direction follows the railway route from London to Ashford. The northeastern direction follows the railway route from London to Ipswich. Thus, the above three directions appear to offer the best opportunities to homeowners who are looking for more living space.



Figure 3 The relationship between maximum affordable property size and commuting time to London for the typical homeowner

5. Conclusions

This research adopts a novel approach to reflect a typical London homeowner's housing affordability situation in terms of the affordable property size by property type at LA scale. This is combined with commuting time to London allowing for the identification of the three best search directions to gain extra living space. Further research will consider other typical types of buyers (i.e. cash buyers, mortgage buyers and multi-earner households), explore affordability changes over time, and account travel cost.

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Biographies

Bin Chi is a PhD student in Centre for Advanced Spatial Analysis (CASA), University College London. Bin is also a Research Associate at Department of Geography, UCL.

Adam Dennett is an Associate Professor and Director of CASA, University College London. Adam is a Geographer, with interests broadly in the areas of population, quantitative methods, GIS and spatial analysis.

Thomas P. Oléron-Evans is a Lecturer in CASA at University College London. Thomas is a mathematician, whose research interests include optimisation, game theory and agent-based modelling and the application of these tools to interdisciplinary problems.

Robin Morphet is an Honorary Professor in the CASA at UCL. He has a background in Civil Engineering, Town Planning, Transportation and Statistics. Prior to researching gravity models at CASA he pursued a career in local and central government in London.