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Do long-distance moves discourage homeownership? Evidence from England

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Do long-distance moves discourage homeownership? Evidence from England

Abstract

We hypothesize that as the distance of a residential move increases, the amount and quality of information collected on the destination housing market fall. This in turn increases the chances of making an ill-informed housing purchase decision, thus reducing the likelihood of such a purchase. Using data from the Survey of English Housing from 1993 to 2008, we document that, consistent with our prior, households moving over long distances – defined as 50 miles or more – have, on average, a 5.5 percentage point lower probability of owning their next home compared to shorter-distance movers. We also provide evidence consistent with the views that long-distance movers (i) are aware that they possess less and/or lower quality information and (ii) are more likely, especially if they are renters, to move again quickly after presumably having accrued better information on the property and local area.

JEL classification: J61, R21, R23

Key words: Residential mobility, distance of residential relocation, information cost, ownership risk, homeownership, tenure choice.

1 Introduction

The decisions 'whether to own or rent a home', 'where to buy', and 'what property to buy' are all risky. In this paper, we hypothesize that as households move farther away from their original residence, search in the destination housing market becomes more difficult and more costly.[1] This difficulty of search largely arises from the heterogeneity of housing and neighborhood in terms of their characteristics and their location. As moving distance increases, the amount and quality of information collected on the destination housing market and individual housing units decrease, and, therefore, purchase decisions become riskier.

A prospective buyer of a property arguably faces risks in multiple dimensions. Risks can be property or neighborhood specific. They can also be idiosyncratic (leading to mismatch) or general/systemic. And there are interactions in these dimensions. For example, some risks are idiosyncratic in nature and related to the property (i.e., I hate the house that I just bought), idiosyncratic and neighborhood specific (i.e., I can't get to my work place as easily as anticipated), systemic and property specific (i.e., a leaking roof) or general and neighborhood specific (i.e., crime is higher than expected or rising after moving in).[2]

Owner-occupiers are more exposed to these risks than renters because ill-informed purchases cannot be easily reversed. Renters may also choose the 'wrong' neighborhood in remote destination markets, but this has less grave consequences as, in contrast to owner-occupiers, renters do not have to bear the capital loss associated with the sale of a home plus they face much lower housing transaction costs and can therefore move more easily.[3] Moreover, if say a neighborhood turns bad, this should, at least in the longer-run, also be reflected in lower subsequent rents or smaller rent increases, compensating the renter for the bad event occurring. This line of reasoning is supported by Simonsohn and Loewenstein (2006) who find that renters move repeatedly to adjust their housing expenditure.[4]

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[1] The emergence of the Internet may have substantially reduced such costs, but still a site (and neighborhood) inspection in person is essential for properties, unlike mass produced goods sold online, and hence costs of travels for viewing are inevitable. Moreover, reliable information on individual properties, sites and neighborhoods and future developments in those neighborhoods typically require more than just a single visit; they require in-depth knowledge of the local area and the site that can only be accumulated over time.

[2] Empirically, disentangling the contribution of each risk dimension in the households' decision-making process is a challenging task and is not the aim of this paper. This is for two main reasons. First, all these types of risks are positively correlated with the moving distance. Second, the different types of risks might correlate with each other independently of the moving distance (Amior and Halket, 2014).

[3] In most countries, including the UK, owner-occupiers face very high transaction costs. Transaction costs include real estate transfer taxes (in the UK, for example, the Stamp Duty Land Tax ranges from 0 to 12% of the house value, depending on the transaction price), estate agent and legal costs (such as deed registration fees), search costs (including the costs of conducting a property survey), physical moving costs and psychological costs. Transaction costs vary enormously by country. According to the European Mortgage Federation (2006) the total transaction costs (more narrowly defined, so e.g. excluding search costs or psychological costs and not fully taking account of estate agent fees and some legal costs) range anywhere between 2 and 17%, depending on the country considered. In Southern European countries such as Greece, Italy and Spain and in Belgium the transaction costs are particularly high, taking all costs into account far exceeding 10% of the purchase price. Haurin and Gill (2002) estimated the transaction costs of selling a home in the US to be in the order of 3% of the house value plus 4% of household earnings.

[4] However, this is not to say that renters do not face a risk of upward rents in the short-run. In the very short run,

A reasonable strategy for a mover to a *remote destination market* would therefore seem to be to rent a property first and delay a home purchase until more (reliable) knowledge can be accumulated about the new neighborhood and property stock. As a consequence, we would expect that, all else held constant, households that move farther away from their original residence are less likely to own their next property than households that move nearby. This is the main hypothesis that we put to the data.

Our empirical analysis employs data from the Survey of English Housing (SEH). The SEH is a rich dataset that provides essential information such as the housing tenure status of households (the dependent variable), the distance moved (used to compute our key explanatory variable) and various demographic and socio-economic characteristics of households and household heads (the control variables). Controlling for demographic and socio-economic characteristics of mover households helps mitigate concerns of spurious correlation and omitted-variable bias. A crucial additional advantage of the SEH is that it provides information on the pre-move conditions of households. In particular, the tenure status at the previous accommodation helps control for unobservable preferences and the ability to own of households.

Our empirical analysis reveals three novel insights. Firstly, we provide evidence in favor of our main hypothesis that the probability to own is adversely affected by a lower quantity and quality of information as proxied by the long-distance move dummy variable, all else equal. Our analysis reveals that the negative effect is not only highly significant in a statistical sense but also reasonably meaningful in an economic sense. Based on our most rigorous specification, the average marginal effect of a long-distance move (longer than 50 miles) as opposed to a shorter-distance one is to decrease the probability for a household to own their next home by 5.5 percentage points.

Secondly, we demonstrate that long-distance movers have less negative subjective assessments of specific problems – crime, vandalism, litter and graffiti in the neighborhood – than short-distance movers, conditional on the objective neighborhood quality and the resulting equilibrium house prices. We verify by contradiction that this is consistent with the view that long-distance movers are aware of the fact that they possess less reliable information on the destination housing market.

Thirdly, we test the hypothesis that the adverse effect of a lower quantity and quality of information, as proxied by the long-distance move indicator, on the probability to own is of a temporary rather than permanent nature. We find that the length of stay at the destination market is adversely affected by long-distance moves and this negative effect is stronger for private renters, consistent with the view that the optimal strategy for longer distance movers is to rent first and accumulate information on the destination housing market prior to making a momentous investment decision.

Our paper is structured as follows. In Section 2, we discuss the findings of previous related

even renters are arguably fairly immobile and cannot easily escape rents increases.

studies, clarify the contribution of our paper to the literature and derive empirically testable hypotheses. Section 3 describes the data, outlines our empirical strategy and presents our findings. The last section concludes.

2 Background and testable hypotheses

2.1 Related research

Our paper ties into a large literature on the determinants of the housing tenure (own-rent) decision. Most of the literature to date has focused on household specific characteristics – in our analysis controls – as determinants of the individual tenure choice.[5]

The focus of our paper is on the lower quantity and quality of information available to long-distance movers on a destination housing market. Less reliable information on the neighborhood and property stock implies greater risk.

The seminal theoretical paper on the role of housing related risk for housing tenure decisions is Henderson and Ioannides (1983). Their housing investment-consumption model provides the basis for analyzing housing demand and tenure choice. The key element of their model is an investment constraint that requires that owner-occupiers must own at least as much housing as they consume, implying that typically homeowners have to 'overinvest' in housing. Fu (1991) further developed the framework and concluded that an increase in the investment risk (i.e., the variation in house prices) should reduce the optimal housing investment. Consequently, an increase in this risk should enlarge the distortion associated with owner-occupied housing. The greater distortion then leads to two effects: a reduction in housing consumption conditional on homeownership and a reduction in the attractiveness of homeownership relative to renting, implying a reduced probability that households own their home (Hilber, 2005).[6]

On the empirical side, various studies have investigated the role of investment risk for own-rent decisions. Rosen *et al.* (1984), Turner (2003), and Turner and Seo (2007) find that the volatility of house prices adversely affects the likelihood to own. In a similar vein, and consistent with our findings, Hilber (2005) provides evidence that greater neighborhood

[5] Factors such as basic demographic variables (e.g., Eilbott and Binkowski, 1985; Gyourko and Linneman, 1996), borrowing constraints (Linneman and Wachter, 1989), race (e.g., Kain and Quigley, 1972; Coulson, 1999; Gyourko *et al.*, 1999; Painter *et al.*, 2001; Hilber and Liu, 2008; Coulson and Dalton, 2010), expected length of stay (e.g., Haurin and Gill, 2002) and taxes (e.g., Rosen, 1979; Hilber and Turner, 2014) are major determinants of the individual housing tenure choice.

[6] While Henderson and Ioannides (1983) and Fu (1991) omit risky assets other than housing, Brueckner (1997) provides a formal analysis of the 'overinvestment' issue of owner-occupied housing in a framework with several risky assets including owner-occupied housing. Using a combination of the housing investment-consumption model of Henderson and Ioannides (1983) and the standard mean-variance portfolio framework (Fama and Miller, 1980), Brueckner (1997) demonstrates that when the investment constraint induced by owner-occupied housing is binding, homeowners cannot adequately diversify their portfolio. Consequently, since the portfolio distortion is greater in places with higher housing risk (holding the level of housing consumption constant) and since a larger distortion leads to a decrease in the attractiveness of homeownership relative to renting, it follows that housing units in risky neighborhoods should be less likely to be owner-occupied (Hilber, 2005). The same conclusion can also be derived from a model that analyzes the tenure choice of households in a dynamic framework and under uncertainty of income and housing costs (Ortalo-Magné and Rady, 2002).

externality risks (which are correlated with price volatility) significantly reduce the likelihood that households own their home and that this effect may be causal.[7]

A few studies focus on the trade-off between the uncertainty of renting and house price uncertainty. Sinai and Souleles (2005) argue that with renting, the long-term cost of obtaining housing is unknown. Their empirical findings suggest that the rent hedging benefit associated with owner-occupied housing in the US significantly increases the homeownership rate. In a follow-up study, Sinai and Souleles (2013) point out that existing homeowners may also be protected from price fluctuations if they move within the same market or even between two markets, to the extent that the covariance in house prices between the two markets is high. This hedging argument should apply less though for neighborhood specific uncertainty since renters are compensated for shocks to neighborhoods with corresponding adjustments in rents (Hilber, 2005) and it should not apply to idiosyncratic risk components that are arguably more relevant in our empirical analysis.

Kurlat and Stroebel (2015) argue that neighborhood characteristics are a main source of information asymmetry, as sellers usually possess better information quality about the neighborhood than buyers do.[8] Interestingly, the authors document an interaction between investment risk and neighborhood characteristics: Houses whose value is more strongly affected by neighborhood characteristics experience larger subsequent prices drops in neighborhoods with more informed sellers.

A different strand of the literature focuses on the role of general knowledge on housing transactions and how such knowledge affects housing tenure decisions, e.g. through an inter-generational transfer of knowledge (Henretta, 1984; Boehm and Schlottman, 1999; Mulder and Smits, 1999; Dietz and Haurin, 2003; Haurin and Morrow-Jones, 2006). What this literature reveals, is that information likely plays a role for housing tenure decisions.

In a related study but focusing on the labor market, Yezer and Thurston (1976) and DaVanzo (1983) argue that the longer the distance of a move, the more costly it is to obtain information on employment opportunities in the new labor market.[9]

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[7] A related literature focuses on the role of income uncertainty and the correlation between incomes and house values. Haurin and Gill (1987), Haurin (1991) and Robst *et al.* (1999) demonstrate, using US data, that income uncertainty adversely affects homeownership attainment. Diaz-Serrano (2005) reports a similar finding in a European context, where institutional settings and property market characteristics are quite different from the US. Davidoff (2006) shows that individuals whose labor incomes co-vary strongly with housing values purchase relative inexpensive homes or rent.

[8] There is no consensus in the literature whether local sellers have access to superior informational quality or whether (distant) buyers have a lower one. In our paper, we interpret moving distance as a proxy for the lower quality of information available to buyers. This interpretation is supported by the recent literature on foreign real estate investors and, in particular, by the findings of Ihlanfeldt and Mayock (2012), who argue that non-local buyers pay higher prices than local ones due to a lower bargaining power arising from less information availability. Also, we assume that informational frictions lead to a mean bias in the assessment of a property/neighborhood rather than to an increase of its variance.

[9] Related to this strand of the literature, Simonsohn and Loewenstein (2006) show that, when renters move from an expensive to a comparatively less expensive city, they tend to rent more expensive apartments. After having improved their knowledge on the local housing market, however, they revise their decision and move again to

This finding by Yezer and Thurston (1976) for the labor market arguably also applies to the housing market and, to the extent this is the case, our hypothesis is that the longer the distance a household moves, the lower is the likelihood of homeownership through its negative effect on the amount and quality of the collected information on local housing markets.

A recent literature that investigates the consequences of housing market information asymmetries among real estate investors, provides further evidence supporting this proposition. Chinco and Mayer (2016) document that out-of-town buyers behave as misinformed speculators, purchasing properties generating lower capital gains. Agarwal *et al.* (2019) find that commercial foreign investors pay a price premium relative to local investors, which reflects their lower quality of information.

Finally, the most closely related study to ours is Clark and Huang (2004) who look at the relationship between the distance moved and the homeownership status using the British Household Panel Survey. They suggest that homeowners do not show a particularly strong tendency to return to renting even after they make long-distance moves. However, their conclusion is based solely on descriptive statistics. This paper is the first study to test our main hypothesis formally in a rigorous way through an econometric approach.

2.2 Testable hypotheses

In the destination housing markets, movers face uncertainty about the quality of the neighborhood and the appropriate price level for housing of a given quality. This uncertainty is expected to encourage movers to opt to rent since renting implies less risk exposure as a consequence of lower subsequent relocation costs. The degree of risk exposure can be expected to increase with the distance moved as the collection of information on the new housing market becomes increasingly difficult. Hence, our main hypothesis can be formulated as:

> **Hypothesis 1**: Long-distance movers are more likely than short-distance movers to choose private renting over owner-occupation.

It is important to note that Hypothesis 1 is not only consistent with an 'information decay-mechanism', but also, at least theoretically, with an alternative possibility, which is that long-distance movers systematically *overestimate* neighborhood problems relative to short-distance movers, conditional on the objective neighborhood quality. If this were true *and long-distance movers were not aware of this bias*, it would imply that long-distance movers have a lower willingness-to-pay for a property in the neighborhood than short-distance movers, independent of the housing tenure. The implication would be that, in the owner-occupied housing market, short-distance movers would tend to outbid, at the margin, long-distance movers, all else equal. This is because of the assumed willingness-to-pay differential and because *purchasing* a property typically involves a price negotiation between the seller and potential buyers, frequently resulting in 'bidding wars'.[10] In contrast, in the rental market there are usually no

adjust their housing expenditure within the same city. The authors show that this behavior results from psychological 'context effects' about pre-move rent levels, rather than information asymmetries.

[10] Price negotiations and bidding wars are an important feature of the British owner-occupied housing market.

rent negotiations and there are no bidding wars.[11] The implication is that, conditional on long-distance movers overestimating neighborhood problems, they can be expected to have a lower probability than short-distance movers to be owner-occupiers in their new place of residence.

An arguably more likely possibility is that long-distance movers systematically *underestimate* neighborhood problems relative to short-distance movers, again conditional on the objective neighborhood quality. This may be because long-distance movers simply are not aware of many local issues as they have difficulty collecting reliable information on the problems – especially less apparent ones such as property crime or occasional vandalism – in more distant housing markets. Following the same logic as above, this implies a higher willingness to pay and, as a result, a higher probability to own. However, this logic only applies if long-distance movers are ignorant of the fact that they possess less reliable information. If long-distance movers instead are *fully aware* that they have unreliable information (increasing ownership risk), this makes them more hesitant to buy. Conditional on Hypothesis 1 holding, we can thus relate the awareness on the quantity and quality of information on neighborhood problems to moving distance with the following hypothesis:

> **Hypothesis 2**: Long-distance movers are aware of the fact that they possess less reliable information on the destination housing market.

We verify Hypothesis 2 by contradiction as follows. In a first step, we show that long-distance movers have less negative *subjective* assessments of specific neighborhood problems, and consequently should have a higher willingness-to-pay for the corresponding neighborhood amenities and properties, than short-distance movers, conditional on the objective neighborhood quality and the resulting equilibrium house prices.[12] Given this finding, long-distance movers should have a higher probability to own, all else equal. We can only reconcile this apparent contradiction with Hypothesis 1 if long-distance movers *are aware that they possess less and a lower quality of information* about the neighborhood and property stock, when making housing tenure decisions. It is the awareness of the fact that the information on the local area and properties is unreliable that makes potential purchases riskier.[13] This increased risk discourages long-distance movers to own in the first place despite actually underestimating the problems in the area.

After settling down in the new accommodation, the level of the mover's knowledge of the local

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[11] Conditional on the tenants being able to afford the advertised price, landlords will have a preference for occupiers with higher incomes, stable economic status and lifestyle. However, because in our regressions we control for income, economic status, age, and main reason of moving among other factors, the estimates of our parameter of interest should not be affected by these variables.

[12] In our empirical analysis, we can rule out that the fact that long-distance movers assess neighborhood problems less negatively than short-distance movers is driven by long-distance movers sorting into better neighborhoods. We do so by carefully controlling for variables that capture the objective quality of the neighborhood (including property values, property type, and demographic and socio-economic characteristics).

[13] Distant movers are likely also aware of their informational bias when answering the survey questions of the SEH. However, survey responses are not only of little consequence to the individual survey respondents, but arguably there are zero differential incentives between short- and long-distance movers to behave strategically nor does the answer to the survey questions have any direct financial bearing on the respondent. This is in stark contrast to making an actual housing bid.

area is expected to gradually increase over time. We would therefore expect a corrective move to a more permanent accommodation nearby, as soon as the mover household has been able to accumulate sufficient information and thus reduce the ownership risk in the local market. The tendency to adjust housing quality and micro-location within the same housing market sooner rather than later should be stronger for longer-distance movers as they are less likely to be satisfied with their first accommodation in the new market due to the informational shortage. We can formulate our third hypothesis as follows:

> **Hypothesis 3**: Long-distance movers are more likely than short-distance movers to relocate again shortly after the initial move.

Our overall aim in the empirical analysis that follows is to demonstrate that facing greater uncertainty regarding the quality and conditions of new housing and neighborhoods, a long-distance mover's rational behavior is to first move into temporary private rental accommodation and then, after having accumulated sufficient information on the local area, to settle into a more permanent, likely owner-occupied place.

3 Empirical analysis

3.1 Data

The SEH is provided by the UK Office of National Statistics. The survey ran for fifteen years from 1993/94 until 2007/08 and covered close to 30,000 English households annually, with each wave of the survey drawing a new sample of households.[14] The SEH provides the essential information for our analysis, including the household's housing tenure status (owner-occupier, private renter or public renter), the distance moved, scores of self-assessed[15] problems in the household's neighborhood, housing-related characteristics, and demographic and socio-economic characteristics of households and their heads.

An important feature of the survey is that, although it is cross-sectional in nature, it provides inter-temporal information on the households, allowing us to track the circumstances of a household over two time periods including, how the distance between the past and contemporaneous residential location affects the contemporaneous housing tenure choice. Of the inter-temporal information, the previous tenure status is particularly helpful in that it allows us to control for household preferences and a household's ability to own – both are not usually observed directly in survey data. Our regression sample consists of data from all 15 survey years. The resulting large sample size allows us to carry out additional tests for various sub-samples. The unit of observation is the household but the survey also provides personal

[14] The SEH ended in 2007/8 and was merged with the English House Condition Survey to form a single housing survey for the UK called the English Housing Survey. To ensure the continuity and consistency of the variables, we only use the SEH for our analysis. Note that, because the SEH is a pooled cross section of households, it does not allow us to track a given household over time and, in particular, does not allow us to investigate sequences of moves.

[15] Using self-assessments is not an issue for our analysis, as households effectively rely on these assessments to evaluate the quality of information at their disposal and to make tenure choices. Note that the definition of 'neighborhood' is left up to the interpretation of the survey respondent, such that its geographic extent also depends on the household idiosyncratic perceptions of the neighborhood.

information on the household heads.[16]

The SEH provides detailed information on a household's current housing tenure status at the time of the survey. Three main groups can be distinguished: homeowners, private renters, and public renters.[17] The focus of our empirical analysis is on the choice between owner-occupation and *private* renting. The inclusion of *public* renting in our analysis, as a tenure choice, would be problematic because in England public rental accommodation is allocated in a complex administrative process, based on formal criteria (income level and number of children). Unlike the own vs. private rent decision, it is not the outcome of households' cost-benefit considerations under uncertainty.[18] We therefore exclude from our analysis households that are public renters at the time the survey is conducted.

The main explanatory variable in our various estimating equations is the distance between the previous (original) and the current (destination) accommodation, as self-assessed by the moving households. Importantly, only households that have moved within the last 3 years report the moving distance at the time the survey is conducted. In the case of multiple moves within these three years, only the most recent distance is reported. The variable is reported in the SEH as a categorical variable with 7 groupings, ranging from 'under 1 mile' to '50 miles or more'. We exclude households that migrated from Northern Ireland or abroad.[19] Using these groupings, we define a 'long-distance move' dummy variable as being equal to 1 for moving distances greater than 50 miles, and 0 otherwise. This variable, which is our main variable of interest, captures the non-linear relationship between informational shortage arising from moving distance and other outcome variables.[20] To facilitate the interpretation of our empirical results and to allow us to estimate specifications with interaction terms between distance moved and other characteristics of households, we also convert the original variable into a continuous distance index by taking the mid-value of each range.[21]

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[16] The SEH defines a 'household head' or 'household reference person' as a person in whose name the accommodation of the household is owned or rented.

[17] The group of 'homeowners' includes households that 'own outright', 'own with a mortgage', and 'partly own/partly rent'. The group of 'public renters' includes households that 'rent from local council or housing association'. The group of private renters includes households that 'rent from private landlords, property companies, employers, organizations or relatives and friends'.

[18] Of the many characteristics of *private* renting, our analysis focuses on its ability to offer easy and quick access to and exit from accommodation without much financial commitment/investment risk. Whereas private renters in England typically have short expected durations in their accommodations and little financial commitment, *public* renters normally have very long expected stays and potentially a lot to lose from exiting. This is because public rental housing in England is strongly subsidized, characterized by 'undersupply' and, hence, long waiting lists. Unlike the own-rent decision of higher income households, which is arguably driven by cost-benefit considerations under uncertainty, low income households with many children will almost certainly opt for subsidized public rental housing *if given the option* (often after many years waiting in a queue).

[19] Households that moved from Northern Ireland or abroad are excluded from the regression sample as they are likely to choose private renting mainly because they are unfamiliar with the institutional settings of the English property and mortgage markets, rather than because they do not have knowledge of the local areas where they have settled down (the theoretical mechanism we explore in our analysis).

[20] The choice of the 50 miles-threshold is motivated by the results presented in Column (1) of the Appendix Table A1, where one can see that only moving distances greater than 50 miles impact tenure decisions in a statistically significant way.

[21] For example, 0.5 miles for the category of 'under 1 mile', 1.5 miles for '1 mile but not 2 miles', 3.5 miles for

The control variables can be grouped into demographic and individual-specific characteristics of household heads, household characteristics, housing characteristics, and survey year and region dummies.[22] We exclude two groups of household heads from our analysis.[23] Firstly, we drop the 601 students in the sample. Students usually leave their family for college or university, so for a relatively short period of time, they live independently from their parents, and they become heads of their own households. Students in the UK typically move over long distances rather than locally and they almost always rent their accommodation. Their housing tenure is determined mainly by the short expected length of stay. Out of concern of reversed-causation, we also exclude 1,337 households that report that the main reason for moving is their intention to become homeowners.[24]

The total number of households available for the entire duration of the survey is 429,878. Our sample size is significantly smaller since the information on the distance moved is only available for those households that moved within 3 years of the time of the survey being conducted, meaning they were relatively recent movers. This reduces the sample size to 67,648. We further drop public renters, foreign migrants, students and those households that moved 'for homeownership', reducing our sample to 44,489 households. Finally, households are dropped if they have missing values in any of the variables, leaving us with a sample size of 37,755 observations. The summary statistics for this sample are reported in Table 1. Starting from this number of observations, the exact sample size used to test Hypotheses 1 to 3 varies somewhat due to the exclusion of some observations and depending on the specification estimated. In particular, Hypotheses 1 is tested for 'recent movers' only, leaving us with a regression sample size of 13,185.

3.2 Empirical strategy

Testing Hypothesis 1

Our main research aim is to test whether, holding other things constant, a long-distance move affects the mover's decision whether to own or rent privately. We specify the regression model such that the probability of homeownership is expressed as a function of a long-distance move dummy 'long-distance move' – which is equal to 1 for moving distances greater than 50 miles, and 0 otherwise – along with other controls. We estimate a logit model that can be expressed

'2 miles but not 5 miles', etc. For the category of 'over 50 miles', we assigned '75 miles' arbitrarily. However, choosing other arbitrary values such as 50 or 100 miles leaves our results virtually unchanged.

[22] The SEH provides geographic information on the household location at the time of the survey, attributing each household to a government office region. Government office regions partition England into nine areas: The North East, North West, Yorkshire & the Humber, East Midlands, West Midlands, Eastern, London, South East, and South West. These areas represent the highest sub-national tier division in England and correspond to NUTS 1 regions.

[23] The inclusion or exclusion of either of the two groups or both groups does not alter our findings. The estimated adverse impact and significance levels of the distance moved on the probability to own – our main finding – are virtually unaffected.

[24] The distribution of reasons for moving varies significantly between short and long-distance movers. Neighborhood-related reasons: 13% short-distance, 12% long-distance; Housing-related reasons: 33% short-distance, 5% long-distance; Had to move: 14% short-distance, 4% long-distance; Personal/family-related: 33% short-distance, 29% long-distance; Job-related: 6% short-distance, 50% long-distance.

as:

$$\Pr(\text{own}_{ijt} = 1) = \Lambda(\beta_0 + \beta_1 \text{long-distance move}_{ijt} + \text{controls}_{ijt} + \tau_t + \tau_{\text{Region}}) \quad (1)$$

where *i*, *j*, and *t* denote the household/head, location/property[25], and survey year respectively. The variables τ_t and τ_{Region} represent survey year and government office regions fixed effects, respectively, and Λ indicates the logistic cumulative distribution function.

The dependent variable in equation (1) is a dummy that takes the value of 1 if a household is an owner-occupier or 0 if it rents from a private landlord. The model is estimated by maximum likelihood logit. Our main Hypothesis 1 implies that the estimated coefficient of the distance moved (β_1) should take a negative sign.

As the SEH does not provide any direct information on neighborhood quality, our strategy is to indirectly control for neighborhood quality – to the extent feasible – by including variables in our empirical specification that are likely to be strongly related to neighborhood quality such as real household income and house value council tax bands. By doing so, we partial out tenure determinants that might potentially correlate with moving distance.

Real household income is well-known to be strongly positively associated with neighborhood quality due to the fact that the higher the income, the more likely the household is to live in a good neighborhood. Local house values also have a close relationship with neighborhood quality through the process of house price capitalization (see Hilber, 2017, for a synthesis of the recent literature). In our empirical specifications, we use the local house value council tax band as a proxy for local house values. Council tax bands do not precisely measure the capitalized value of the current neighborhood quality; rather they represent the 'sustained' neighborhood quality as assessed by local Council officials.[26] House value council tax bands can be considered to be a noisy but exogenous assessment of the neighborhood quality. Importantly, they do *not* represent a subjective assessment by the survey respondent. The type and physical size of housing units – as measured e.g. by the number of bedrooms – is likely also related to the quality of the neighborhood. Large (and expensive) detached houses are found more often in high-quality neighborhoods.

Additionally, government office region fixed effects purge out persistent housing market differences and difference in the restrictiveness of the planning regime (see Hilber and Vermeulen 2016 for a discussion of these differences) that might affect the outcome variables of our analysis. For example, the decision to own might vary sharply between London – a heavily urbanized area and the biggest center of employment in the UK – and the South West

[25] Location refers to the site and neighborhood. Location-specific variables include: the house value council tax band and the region fixed effects. Property-specific variables include the number of bedrooms and the accommodation type.

[26] House value council tax bands are determined by the local Council – the local jurisdictions in England – based on the characteristics of the property, the site, and the location. Survey respondents have no influence over the house value Council tax band. The tax bands do not represent current house values but historic values that broadly reflect the capitalized value of the quality of the neighborhood (at least within a city). Council tax bands change rarely and survey year fixed effects should capture any year specific (space-invariant) unobserved effects.

– which comprises mainly touristic and seaside countryside areas.

In equation (1), we also control for the main reason that triggers a household to move. This helps us to address endogeneity concerns arising from a correlation between long-distance moves due to housing motives and tenure decisions. For example, we control for the fact that some households had to leave their previous accommodation due to financial distress, which might lead them to move over longer distances in search of affordable housing to rent.

Finally, we include dummy variables for the tenure status of household *i* in the *previous* accommodation. Specifically, we include two dummy variables, one for public renters and one for private renters (owner-occupiers are the omitted category). The past tenure status is likely correlated with both the current tenure status and the distance moved. Previous homeowners tend to become homeowners again and are arguably more reluctant to move short distances as substantial moving costs cannot be justified for short-distance moves.

We are interested in the relationship between long-distance vs. short-distance moves and the housing tenure status *at the time of the move*. Thus, in order to test Hypothesis 1, we confine the regression sample to households that, at the time of the survey interview, had lived in their current accommodation for less than 12 months (henceforth, 'recent movers'). We expect that the negative link between long-distance moves and homeownership will be diluted over time, as long-distance movers, who are more likely to be renters, are expected to move again at a faster rate than short-distance movers.

Testing Hypothesis 2

To verify Hypothesis 2, conditional on Hypothesis 1 holding, we need to demonstrate that there is a negative relationship between the subjective assessment of neighborhood problems and moving distance, holding the objective neighborhood quality constant (see Section 2.2 for the rationale).

The SEH provides information on how household heads think about the severity of local problems. We investigate the cases of crime, vandalism, litter and graffiti. These different dependent variables take one of the following three values: a specific local problem, for example, crime is 'not a problem at all' (value = 1), 'problematic but not serious' (value = 2), or 'serious' (value = 3). Estimating an ordered logit model is appropriate here, as only an *order* among the options of the dependent variables is known. We estimate the following equation:

$$\text{Perception of neighborhood problem}_{ijt} = \alpha_0 + \alpha_1 \text{long-distance move}_{ijt} + \text{controls}_{ijt} + \tau_t + \tau_{\text{Region}} + \varepsilon_{ijt} \quad (2)$$

whereas *i*, *j*, and *t* again denote the household/head, location/property, and survey year respectively and ε_{ijt} is a stochastic error term. The variable 'Perception of neighborhood problem' is the latent variable of the model according to which household heads assess the severity of local problems on a discrete scale from 1 to 3.

Importantly, the vector of controls includes again the numerous objective measures of

neighborhood quality discussed above. Holding objective neighborhood quality constant allows us to interpret the coefficient α_1 as capturing how the *subjective* assessment of neighborhood quality varies between short- vs. long-distance movers. Additionally, the controls allow us to alleviate the concern that unobserved objective neighborhood quality is correlated with the long-distance dummy but omitted from the regression, thus biasing the coefficient α_1.

In contrast to equation (1) the vector of controls in equation (2) includes the current tenure status rather than the previous one. We partial out the current tenure status because one possibility is that long-distance movers prefer to rent or have to rent due to credit constraints. They may then spend less time investigating the severity of neighborhood problems, as they can escape them by relocating again more easily. This may explain why long-distance movers have a lower perception of neighborhood problems, thereby leading to $\alpha_1 < 0$.

Ideally, in equation (2) we would use the self-assessment of neighborhood problems *at the point in time of the housing tenure decision*. However, this information is not available in the SEH. As a second best alternative, we use the contemporaneous self-assessment of neighborhood problems and control for a household's length of stay in the current accommodation at the time of the survey. This allows us to partial out the fact that households start accumulating information on the neighborhood as soon as they move in, likely improving their comprehension of the nature and complexity of local issues.

Testing Hypothesis 3

Hypothesis 3 states that long-distance movers are more likely than shorter-distance ones to relocate again (i.e., make an adjustment move) shortly after the initial move. The SEH does not allow us to track sequences of moves made by a given household. However, it does provide information on the length of stay in the current accommodation. It does so in the form of a categorical variable taking one of the following three values: 'less than 12 months', '1 year but not 2 years' and '2 years but not 3 years'. The reason for why the length of stay (the dependent variable in the length of stay estimates) does not go beyond 3 years is because the information on the distance moved-variable (the key explanatory variable) is only available for those who have lived in the current accommodation for less than 3 years.[27]

If Hypothesis 3 holds true, long-distance movers should have a lower likelihood of having a lengthier stay than shorter-distance movers. We can test this hypothesis by estimating the following multinomial logit model where we take length of stay of 'less than 1 year' as baseline comparison:

[27] If our aim were to analyze the length of stay of the entire population of movers, this sample selection might lead us to estimate a biased coefficient for the relationship between moving distance and length of stay. The focus of our analysis, however, is on those movers with relatively short durations in their properties. That is, our aim is to provide evidence that long-distance movers rent initially, and then move again quickly, presumably after having generated additional and better quality information on the neighborhood and local property stock, permitting a better match of personal preferences with the property and neighborhood and reducing the risk of an ill-informed investment if they decide to buy.

$$\ln\left(\frac{\Pr(\text{Length of stay}_{ijt}='1 \text{ year but not } 2 \text{ years}')}{\Pr(\text{Length of stay}_{ijt}='\text{Less than } 1 \text{ year}')}\right)$$

$$= \gamma_0 + \gamma_1 \text{long-distance move}_{ijt} + \text{controls}_{ijt} + \tau_t + \tau_{\text{Region}} \quad (3a)$$

and

$$\ln\left(\frac{\Pr(\text{Length of stay}_{ijt}='2 \text{ years but not } 3 \text{ years}')}{\Pr(\text{Length of stay}_{ijt}='\text{Less than } 1 \text{ year}')}\right)$$

$$= \eta_0 + \eta_1 \text{long-distance move}_{ijt} + \text{controls}_{ijt} + \tau_t + \tau_{\text{Region}}, \quad (3b)$$

where *i*, *j*, and *t* again denote the household head, location, and survey year respectively.

The coefficients γ_1 and η_1 measure the effect of moving distance on the probability of staying '1 year but not 2 years' and '2 years but not 3 years' relative to the probability of staying 'less than 1 year', respectively. Hypothesis 3 suggests that the estimated coefficient γ_1 and η_1 on the distance moved variable should have a negative sign.

The set of control variables in equations (3a) and (3b) is identical to the one used in equation (2). The dummy variables capturing the *current* housing tenure status are particularly important, as private renters are more likely to move again soon and, also, to have moved longer distances than homeowners.

3.3 Empirical results

Testing Hypothesis 1

Table 2 documents the key findings of logit estimates for our main hypothesis, Hypothesis 1, which states that the longer the distance moved, the lower is the probability that a household becomes an owner-occupier.[28] The explanatory variables that are thought to be correlated with both the long-distance move and the homeownership dummies are grouped into three categories and controlled for gradually, from left to right. In all specifications, the long-distance dummy is negatively related to the probability to own, consistent with Hypothesis 1, and in all cases the estimated effect is statistically significant at the 1% level. The coefficients for the long-distance move dummy variable vary substantially depending on the types of control variables included in the empirical model. Reassuringly, when personal, household and housing characteristics are controlled for in Columns (2) and (3), the negative relationship between long-distance move and the probability to own becomes substantially stronger (-0.77 and -0.97 compared to -0.44 in Column (1)).

However, when we add controls for 'the main reasons for moving', the coefficient drops again to -0.41. The explanation for this drop is the fact that the reasons for moving are correlated with the distance moved. Those who want to move for job-related reasons (often for better job opportunities in large labor markets such as London) typically need to move long distances whilst those who move for housing- or neighborhood-related reasons often move short

[28] The full set of results is reported in the unpublished Web-Appendix Table W1.

distances.[29] At the same time, the reasons for moving are also correlated with the homeownership status. Housing- and neighborhood-related movers tend to owner-occupy their new homes, whereas job-related movers tend to rent, *regardless of whether the move is over a short or long distance*. One explanation for this is that, in contrast to housing- and neighborhood-related movers, the prime focus of job-related movers is on their new jobs rather than on finding a permanent place to live in. In fact, this is another piece of evidence that the information available on the local housing market has an influence on movers' housing tenure decisions. Overall, the reasons for moving are correlated with both, the long-distance dummy and the tenure decision, and controlling for the reasons substantially reduces the strength of the negative correlation between them. However, the correlation is still negative and statistically significant at the 1% level, consistent with Hypothesis 1.

Another, potentially important, factor determining the housing tenure status is the degree to which a household is financially constrained (e.g., Linneman and Wachter, 1989; Fuster and Zafar, 2016). In a hypothetical setting where all households are severely financially constrained, nobody would own and the distance moved would be unrelated to homeownership. Therefore, the more financially constrained households are, the more biased towards zero the relationship between the distance moved and homeownership can be expected to be.

We test this prediction in Table 3 by investigating the heterogeneous relationship between moving distance – as measured by the linear distance index described in Section 3.1 – and tenure decisions. More precisely, we interact the distance moved with proxies for the two main determinants of a household's access to mortgage loans: household wealth (downpayment constraints) and household income (liquidity constraints).

The SEH, like most other household datasets, does not include a direct measure of household wealth. However, the dataset does include information on the *previous housing tenure status*; and therefore, by implication, on whether households have collateral (i.e., a home), the proceeds (capital gains) of which they can use to purchase a home in a subsequent move. Moreover, previous homeowners are also better placed to obtain a new mortgage. Therefore, previous homeowners' contemporaneous tenure decisions can be expected to be less likely affected by financial constraints than those by previous renters and, hence, the effect of the distance moved on the contemporaneous probability to own can be expected to be less biased towards zero. Indeed, the interaction effects between different types of previous housing tenure (homeowner, private renter and public renter), reported in Column (1) of Table 3, reveal that the distance moved only affects the contemporaneous tenure choice at the destination location of previous homeowners but not of previous private renters or social renters.[30] Another implication from this finding is that informational constraints also matter for those who are wealthy enough to afford homeownership (possibly even outright). Even if households want to and are able to own, uncertainty about the value of a potential investment and the potential for

[29] See also Hilber and Lyytikäinen (2017) for more evidence on this in the context of the UK Stamp Duty Land Tax and for further implications.

[30] Table 3 reports only the coefficients and standard errors for the key interaction effects. For the full set of results, we refer the interested reader to the unpublished Web-Appendix Table W2.

neighborhood mismatch induced by lack of reliable information on the neighborhood likely discourages homeownership. Overall, these results provide further indication that lack of housing and neighborhood information are very important for housing tenure decisions.

In Column (2) of Table 3 we examine whether the relationship of interest varies among different income groups. Our hypothesis is that the higher the income of the household head (total household income is not available), the less likely households are financially constrained and, therefore, the more negative should be the estimated effect of the distance moved on the probability to own. There are four levels of household income in our data: '£0 to £9,999'; '£10,000 to £19,999'; '£20,000 to £49,999', and; '£50,000 and over'. Using the interaction terms between the different income groups on the one hand and the distance moved on the other hand, we thus estimate for each income group separately the effect of the distance moved on the probability to own. The empirical results are again consistent with our hypothesis; the lowest income group indeed has the smallest coefficient (with a positive sign) and it is not statistically different from zero, while the top income group has the largest and the most statistically significant negative coefficient. The result provides further indication that households can express their preference over residential tenure types according to the distance moved only when they are not severely financially constrained.

Two important points are worth emphasizing. First, the above heterogeneity estimates are not biased by the household 'life cycle' and the corresponding probability to own and/or to move over long distances. This is because in all our specifications we control for age and age squared of the household head, thereby capturing the potential nonlinearity between the age of the household head and tenure decisions. Second, the interaction coefficients of the two highest income classes are very similar in magnitude and are not statistically different from each other. This similarity is consistent with the binary decisions of financial institutions to grant mortgage loans based on strict income thresholds (conditional on house values), thus adding further support to our claim that our heterogeneity results for household income describe the degree to which households are financially constrained.

As discussed above, the main reasons for moving are likely correlated with the intensity of the search in the destination housing market. Households that want to move for housing and neighborhood related reasons can be expected to search more intensely than those that move for job-related reasons, regardless of the distances they plan to move. Therefore, the relationship between the probability to own and the distance moved is expected to be weaker and less significant for housing- and neighborhood-related moves. We test and confirm this hypothesis using the interaction terms between the distance moved and the reasons for moving and report results in Column (3) of Table 3. The coefficients for 'distance × neighborhood related moves' and 'distance × housing related moves' are positive but not statistically different from zero, while the coefficients on the remaining interaction effects/reasons ('distance × had to move'[31]; 'distance × personal/family reasons'; 'distance × job-related reasons') are all

[31] The SEH lists four reasons for forced moves: 'left tied accommodation', 'can no longer afford the mortgage', 'can no longer afford the rent', and 'accommodation is no longer available'. We would expect that households

negative and significant. Of these, the estimate for the job-related moves is the most negative, implying that the job-related movers' probability to own is more strongly adversely affected by the distance moved than that of any other group of movers.

Table 4 reports quantitative effects of the impact of the long-distance move dummy and the linear distance index on the likelihood to own based on the various regression results reported in Tables 2 and 3, respectively. The first row reveals that, according to the core specification in Table 2, Column (4), the average marginal effect of a long-distance move (as opposed to a short-distance move) on the probability of becoming a homeowner in the new place of residence is -5.5% percentage points. This suggests that the impact of the long-distance move dummy on homeownership is quantitatively reasonably meaningful.

The remaining rows in Table 4 report quantitative interpretations of the various estimated interaction effects. Panel A reveals that a one standard deviation increase in the distance moved reduces the probability of a previous homeowner to own again by 6.1% points, a quantitatively quite meaningful effect. Similarly, Panel B reveals that a one standard deviation increase in the distance moved reduces the probability to own of a household with earnings of '£50,000 or more' by 8.6% points. Finally, Panel C suggests that a one standard deviation increase in the distance moved reduces the probability to own of a job related mover by 8.4% points.

Testing Hypothesis 2

Recall from Sections 2.2 and 3.2 (*Testing Hypothesis 2*) that, conditional on Hypothesis 1 holding, we can verify Hypothesis 2 (stating that long-distance movers are aware that they possess less reliable information on the destination housing market) by demonstrating that there is a negative relationship between the subjective assessment of neighborhood problems and the long-distance move dummy, holding the objective neighborhood quality constant.

We provide evidence of this negative relationship in Table 5, which reports ordered logit regression results of the effect of our key variable 'long-distance move' and the full set of covariates on the awareness of various neighborhood problems.[32] The dependent variable in Column (1) of Table 5 is a measure that captures how serious household heads think crime is in their local area. The estimated coefficient of the long-distance dummy is negative and highly statistically significant at the 1% level. In Columns (2) to (4), we report regression results for alternative dependent variables: seriousness of vandalism, graffiti and litter. Again, the coefficient on the distance moved variable is negative in all cases, although not significant in the case of graffiti. All these findings are only consistent with those in Table 2 if Hypothesis 2 holds.

who were forced to move for these reasons cannot afford lengthy and/or costly housing and neighborhood searches, making the lower quality of information arising from longer moving distances potentially more relevant.

[32] Detailed estimation results for all controls are shown in the unpublished Web-Appendix Table W3.

Testing Hypothesis 3

Hypothesis 3 states that long-distance movers are more likely than short-distance ones to relocate again shortly after the initial move. As discussed in Section 3.2 (*Testing Hypothesis 3*), because we do not observe repeated moves, our empirical strategy is to investigate the probability of a length of stay in the current location. Consistent with Hypothesis 3, Figure 1 reveals that the length of stay distribution of long-distance movers is shifted towards shorter stays compared to the distribution of short-distance movers.

In Table 6 we quantify the effect of our key explanatory variable 'long-distance move' on the length of stay of a household in their current accommodation using a multinomial logit model. Panels A and B in Table 6 show the estimated coefficients for the relationship between the long-distance move dummy and the probability of a length of stay 'over 1 year but less than 2 years' and 'over 2 years but less than 3 years' relative to the probability of a length of stay of 'less than 12 months', respectively.

Column (1) in Table 6 reports results for a specification that only includes the long-distance move dummy plus time and region dummies.[33] The coefficient on the long-distance move dummy variable is indeed negative and statistically different from zero with 99% confidence in both panels, and the magnitude of the negative relationship becomes stronger in the case of longer stays (Panel B), implying that long-distance movers move again at a faster rate than their short-distance counterparts. This result is persistent and the coefficient of the variable of interest remains relatively stable in both Panels A and B when additional controls are added (Columns (2) and (3) of Table 6). The estimates reported in Columns (1) and (2) are always within about 1.5 standard deviations from the coefficient reported in Column (3) suggesting that our results are robust to adding household and housing characteristics.

Lastly, we would expect that the negative effect of the distance moved on the probability of longer stays is stronger among existing private renters. This is because those who do not yet live in permanent accommodation but plan to move to more permanent accommodation will likely be private renters in the first place. Therefore, the estimated effect of the distance moved index on the length of stay should be more negative for private renters. Column (4) of Table 6 provides evidence consistent with this hypothesis. Though the effect is smaller for homeowners, it is worth noting that even homeowners tend to stay for a shorter period, as illustrated in Panel B, the longer the distance they had moved previously.

3.4 Robustness checks

We conduct several robustness checks to verify the sensitivity of our findings for Hypotheses 1 to 3 and report the results in Appendix Tables A1-A3.

Robustness checks for Hypothesis 1 – We first investigate in more detail the potential nonlinearities in the relationship between moving distance and the probability of owning. To

[33] Table 6 only reports the key results. However, the full set of results including coefficients and standard errors for the control variables is documented in the unpublished Web-Appendix Table W4.

do so, we create dummy variables for each of the seven SEH-moving distance categories, and include these dummy variables separately in our empirical model with 'under 1 mile' being the base category. We report the estimated coefficients for these dummy variables in Column (1) of Appendix Table A1. Interestingly, the negative relationship between moving distance and probability of owning appears to be entirely driven by very long-distance moves above 50 miles, suggesting that there is a distance threshold from which movers have – and become aware of – lower informational quality. This threshold seems reasonable, as distances below 50 miles can still be traveled within the same day (round trip), therefore potentially allowing households to gather enough information on the neighborhood and the property they want to buy.

Next, the estimates presented in Table 2 might be biased because of reverse causation running from housing tenure decisions to the reasons for moving. To limit the extent to which housing tenure-related motives might lead households to move, we restrict our analysis to moves exclusively related to family or job reasons. Column (2) of Appendix Table A1 imposes the sample restriction and then replicates the estimation results for the specification with the full set of controls, reported in Column (4) of Table 2. The obtained coefficient for the impact of the long-distance move dummy on the probability to own is negative, strongly significant, and not statistically different from the one reported in Column (4) of Table 2.

Another observation is that households that move long distances due to job reasons might already bear considerable job-related risks. As such, they may not want to bear additional housing related risks by purchasing a property. Such job-related risk would thus act as an omitted variable, biasing our results. In Column (3) of Appendix Table A1 we thus drop job-related moves. The impact of the long-distance move dummy on the probability to own remains negative and strongly significant. Despite being lower in magnitude, the coefficient is not strongly statistically different from the one reported in Column (4) of Table 2.

Finally, wealthier households might be comparably more reluctant to bear housing related risks as they tend to buy more expensive properties. If this proposition were true, our heterogeneity results in Table 3 for the interaction of the moving distance index with household head income (a crude proxy for household wealth) might be explained by the larger financial amount that wealthier households invest rather than by the fact that they are not financially constrained. To test this hypothesis, in Column (4) of Appendix Table A1, we replicate the results from Column (2) of Table 3, but now we additionally control for the interaction of house value tax band dummies (a proxy for house prices in the area) with the moving distance index. The two coefficients for the two highest income classes remain negative and highly significant.

Robustness checks for Hypothesis 2 – To partial out the fact that households start accumulating information on the neighborhood as soon as they move in, in Table 5 we control for length of stay dummies. In Table A2, we implement an even stricter approach by limiting our regression sample only to mover households that, at the time of the survey interview, had lived in their current accommodation for less than one year. Our rationale for choosing a one-year window is that while households start accumulating information on the destination neighborhood as soon as they move in, it would seem reasonable to assume that it takes some time – a year or

more rather than just weeks or a few months – to fully comprehend the nature and complexity of the neighborhood, likely development plans, and accumulated social capital etc. Table A2 reveals that the impact of the long-distance dummy remains negative across all neighborhood issues as in Table 5, although less statistically significant. We attribute this decrease in statistical significance to the much smaller sample used for the robustness check, which amounts to only about 40% of the baseline one used in Table 5.

Robustness checks for Hypothesis 3 – Our estimation strategy employed in Table 6 does not take into account the potential effect of the *expected* length of stay of movers in the new location. If long-distance movers are inherently more mobile, meaning they have shorter expected lengths of stay, this would make homeownership less attractive for this cohort due to the multiple costs associated with purchasing a new property (transactions cost, search time, etc.). That is, the unobserved expected length of stay is a potentially important omitted variable that may be correlated with our key explanatory variable 'distance moved'. To address this concern, in Appendix Table A3 we replicate Column (3) of Table 6 (the specification with the full set of controls) but we only keep households that are unlikely to have short expected stays. First, in Column (1) we exclude single households without children as this cohort likely has short expected durations in their properties. In Column (2) we drop better educated households as this group is more likely to be 'footloose', that is, better educated households may move longer distances and may be more likely to have a short expected length of stay. Finally, in Column (3) we drop households that move to be closer to their jobs, as such moves may be temporary in nature. Reassuringly, the magnitude and significance of our key explanatory variable – long-distance move – remains virtually unchanged, suggesting the expected length of stay may not be biasing our results.

4 Conclusion

In this paper, we explore the link between the distance households move and their subsequent likelihood to own, holding other factors constant. We posit that an increase in the distance moved reduces the amount and/or quality of information households have on the destination housing market. This in turn can be expected to increase the housing related risks in the destination market, making owning a less desirable choice. We show empirically that long-distance moves are indeed negatively associated with the probability to own, controlling for numerous plausible confounders and addressing endogeneity concerns related to omitted variable bias and reverse causation.

We also provide evidence consistent with the view that the adverse effect of the long-distance move dummy variable on homeownership is not permanent. Households that moved a longer distance, especially private renters, are more likely to have a shorter subsequent stay in their home compared to households that moved a shorter distance. This implies that those long-distance movers who were discouraged to buy in the destination market, as a consequence of the distance-induced risks, start accumulating information on the local property market and specific sites as soon as they move to the new area. This, in turn, lowers their housing related

risks over time and encourages them to consider making a more permanent 'corrective' move locally with the intent to buy a home.

Overall, our empirical findings suggest that information gathered on local housing markets has an important positive effect on the probability of a household to own: The difficulty of collecting information on the destination housing market, which increases with long moving distances, discourages homeownership. More generally, this finding may at least partially explain why immigrants (who move very long distances and have the least reliable information on the destination housing market) tend to have far lower homeownership propensities, even when controlling (in non-linear ways) for numerous other factors such as income or age that drive housing tenure decisions. Also, our empirical findings support the view that a well-functioning private rental housing market for temporary accommodation serves (at least) two important purposes: It prevents ill-informed housing purchases that can only be reversed with a significant financial loss and, since long-distance movers typically move for job-related reasons, it facilitates not only better neighborhood matching but also better matching in the labor market.

Despite the importance of our findings, we caution that the nature and magnitude of the frictions arising when buyers acquire information on distant housing markets remain open to questions. Disentangling individual frictions – which might amplify different types of risks related to purchasing a property – thus represents an interesting avenue for future research.

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TABLES

Table 1
Summary statistics of all movers, 1993-2007

Variable	Mean	Std. Dev.	Min	Max
Homeowner	0.715	0.451	0	1
Long-distance move dummy (1 if move > 50 miles, 0 otherwise)	0.135	0.342	0	1
Distance moved [a)]	16.0	24.9	0.5	75
Length of stay				
Under 12 months	0.403	0.490	0	1
1 year but not 2 years	0.317	0.465	0	1
2 years but not 3 years	0.281	0.449	0	1
Age of HH head	38.8	13.2	16	95
Sex of HH head	1.259	0.438	1	2
Economic status of HH head				
Full-time employed (omitted category)	0.774	0.418	0	1
Part-time employed	0.062	0.242	0	1
Unemployed	0.029	0.168	0	1
Retired	0.075	0.263	0	1
Inactive	0.060	0.237	0	1
Household composition				
Single (omitted category)	0.226	0.419	0	1
Couple	0.653	0.476	0	1
Lone parent	0.081	0.273	0	1
Multi-family HH	0.040	0.195	0	1
No. of children	0.647	0.972	0	7
No. of adults	1.842	0.685	1	9
Real HH income				
£0-£9,999 (omitted category)	0.208	0.406	0	1
£10,000-£19,999	0.289	0.453	0	1
£20,000-£49,000	0.422	0.494	0	1
£50,000 or more	0.081	0.273	0	1
No. of bedrooms	2.702	0.989	1	10
Accommodation type				
Detached/bungalow (omitted category)	0.235	0.424	0	1
Semi-detached	0.284	0.451	0	1
Terraced	0.291	0.454	0	1
Purpose-built flat	0.104	0.305	0	1
Converted flat	0.086	0.281	0	1

Notes: The baseline sample contains 37'755 observations covering the North East, North West, Yorkshire & the Humber, East Midlands, West Midlands, Eastern London, South East, and South West areas. See Section 3.1 for an explanation about how the sample is constructed. Note that the size of the regression samples varies depending on the hypotheses tested due to missing values and/or implemented sample restrictions. See Section 3 for a detailed discussion. [a)] Computed as the mid-value of each moving distance class (see Section 3.1 for further details). [b)] The SEH categorizes 4 different main reasons as forced moves: 'left tied accommodation', 'can no longer afford the mortgage', 'can no longer afford the rent', 'accommodation is no longer available'.

Table 1—*Continued*
Summary statistics of all movers, 1993-2007

Variable	Mean	Std. Dev.	Min	Max
House value - council tax band				
£0-£40k (omitted category)	0.181	0.385	0	1
£40k-£52k	0.196	0.397	0	1
£52k-£68k	0.219	0.414	0	1
£68k -£88k	0.195	0.396	0	1
£88k-£120k	0.107	0.309	0	1
£120k-£160k	0.054	0.226	0	1
£160k-£320k	0.040	0.195	0	1
£320k or more	0.008	0.090	0	1
Main reasons for moving				
Neighborhood-related (omitted category)	0.133	0.339	0	1
Housing-related	0.295	0.456	0	1
Had to move [b)]	0.125	0.331	0	1
Personal/family-related	0.328	0.469	0	1
Job-related	0.120	0.325	0	1
Assessment of neighborhood problems (higher number implies greater problem)				
Crime	1.553	0.662	1	3
Vandalism	1.408	0.611	1	3
Graffiti	1.238	0.497	1	3
Litter	1.446	0.657	1	3
Previous tenure				
Homeowner (omitted category)	0.593	0.491	0	1
Public renter	0.063	0.243	0	1
Private renter	0.344	0.475	0	1

Notes: The baseline sample contains 37'755 observations covering the North East, North West, Yorkshire & the Humber, East Midlands, West Midlands, Eastern London, South East, and South West areas. See Section 3.1 for an explanation about how the sample is constructed. Note that the size of the regression samples varies depending on the hypotheses tested due to missing values and/or implemented sample restrictions. See Section 3 for a detailed discussion. [a)] Computed as the mid-value of each moving distance class (see Section 3.1 for further details). [b)] The SEH categorizes 4 different main reasons as forced moves: 'left tied accommodation', 'can no longer afford the mortgage', 'can no longer afford the rent', 'accommodation is no longer available'.

Table 2
Logit regressions for homeownership decision of recent movers
(Dependent variable: Homeownership status)

	(1)	(2)	(3)	(4)
Long-distance move dummy	-0.43601***	-0.77185***	-0.96711***	-0.40751***
(1 if move > 50miles)	(0.04963)	(0.06022)	(0.06810)	(0.08141)
Personal/household characteristics [a)]		Yes	Yes	Yes
Previous tenure, housing characteristics [b)]			Yes	Yes
Main reasons for moving				Yes
Government office regions	Yes	Yes	Yes	Yes
Survey year dummies	Yes	Yes	Yes	Yes
Pseudo R-squared	0.0144	0.213	0.357	0.377
No. of obs.	13185	13185	13185	13185

Notes: ***, **, * significance level at 1, 5, and 10% respectively. The regression sample is restricted to 'recent movers', defined as having a length of stay in the current accommodation of less than 12 months. [a)] Personal/ household characteristics include age and age squared, sex, economic status, household composition, no. of children and adults, and real income. Age, sex, economic status and real income are of household heads. [b)] Tenure and housing characteristics include no. of bedrooms, accommodation type, the house value council tax band, and previous housing tenure. The full regression results are reported in the unpublished Web-Appendix Table W1.

Table 3
Logit regressions with interaction terms for tenure decision of recent movers
(Dependent variable: Homeownership status)

	(1)	(2)	(3)
Interaction term:			
Distance moved [a)] × *Previous tenure*			
Distance × previous HO	-0.00957***		
	(0.00141)		
Distance × prev. public renter	-0.00377		
	(0.00341)		
Distance × prev. private renter	0.00014		
	(0.00164)		
Interaction term:			
Distance moved [a)] × *HH head income*			
Distance × £0-9,999		0.00045	
		(0.00201)	
Distance × £10,000-19,999		-0.00289	
		(0.00191)	
Distance × £20,000-49,999		-0.00996***	
		(0.00168)	
Distance × £50,000 or more		-0.0129***	
		(0.00328)	
Interaction term:			
Distance moved [a)] × *Reasons for moving*			
Distance × housing related			0.00123
			(0.00306)
Distance × neighborhood related			0.00192
			(0.00371)
Distance × had to move			-0.01080***
			(0.00386)
Dist. × personal/family reasons			-0.00368**
			(0.00187)
Distance × job-related reasons			-0.01147***
			(0.00223)
Personal/household characteristics [b)]	Yes	Yes	Yes
Previous tenure, housing characteristics [c)]	Yes	Yes	Yes
Main reasons for moving	Yes	Yes	Yes
Government office regions	Yes	Yes	Yes
Survey year dummies	Yes	Yes	Yes
Pseudo R-squared	0.3785	0.3785	0.3782
No. of obs.	13185	13185	13185

Notes: ***, **, * significance level at 1, 5, and 10% respectively. The regression sample is restricted to 'recent movers', defined as having a length of stay in the current accommodation of less than 12 months. [a)] Computed as the mid-value of each moving distance class (see Section 3.1 for further details). [b)] Personal/household characteristics include age and age squared, sex, economic status, household composition, no. of children and adults, and real income. Age, sex, economic status and real income are of household heads. [c)] Tenure and housing characteristics include no. of bedrooms, accommodation type, the house value council tax band, and previous tenure. The full regression results are reported in the unpublished Web-Appendix Table W2.

Table 4
Predicted probability of homeownership by distance moved for recent movers (%)

	Specification	Marginal effect of long-distance move dummy	Change in % points [a)]
Total sample	Table 2 (4)	-0.40751***	-5.50%***
	Specification	Marginal effect of distance moved-index	Change in % points [b)]
Panel A: By previous tenure			
Previous homeowner	Table 3 (1)	-0.00957***	-6.07%***
Previous public renter	Table 3 (1)	-0.00377	-2.10%
Previous private renter	Table 3 (1)	0.00014	+0.08%
Panel B: By household head income			
£0-£9,999	Table 3 (2)	0.00045	+0.25%
£10,000-£19,999	Table 3 (2)	-0.00289	-1.71%
£20,000-£49,999	Table 3 (2)	-0.00996***	-6.10%***
£50,000 or more	Table 3 (2)	-0.0129***	-8.58%***
Panel C: By reason for moving			
Housing-related	Table 3 (3)	0.00123	+0.65%
Neighborhood-related	Table 3 (3)	0.00192	+0.54%
Had to leave	Table 3 (3)	-0.01080***	-3.79%***
Personal/family-related	Table 3 (3)	-0.00368**	-2.18%**
Job-related	Table 3 (3)	-0.01147***	-8.43%***

Notes: [a)] For the total sample, the change in probability of homeownership is given by the average marginal effect of the long-distance move dummy. [b)] For Panels A, B, and C the change in the probability of homeownership is computed for an increase in the distance moved by 1 standard deviation, measured at the means of the independent variables.

Table 5
Ordered logit regression on neighborhood problem perception
(Dependent variable: Seriousness of crime, vandalism, graffiti, and litter in the area)

	(1) Crime	(2) Vandalism	(3) Graffiti	(4) Litter
Long-distance move dummy (1 if move > 50miles)	-0.11267*** (0.04357)	-0.10407** (0.04500)	-0.00422 (0.05767)	-0.10896** (0.04470)
Personal/household characteristics [a)]	Yes	Yes	Yes	Yes
Tenure, housing characteristics [b)]	Yes	Yes	Yes	Yes
Main reasons for moving	Yes	Yes	Yes	Yes
Government office regions	Yes	Yes	Yes	Yes
Survey year dummies	Yes	Yes	Yes	Yes
Length of stay dummies	Yes	Yes	Yes	Yes
Pseudo R-squared	0.0379	0.0323	0.0410	0.0481
No. of obs.	26549	28904	25796	29019

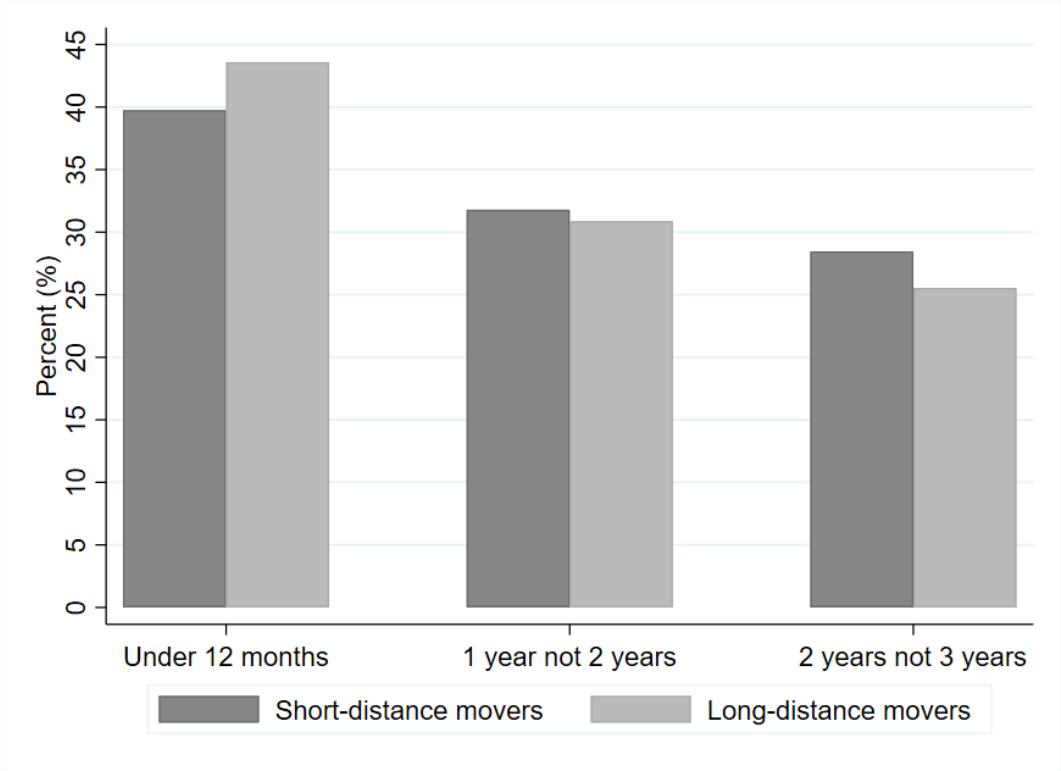
Notes: ***, **, * significance level at 1, 5, and 10% respectively. [a)] Personal/household characteristics include age and age squared, sex, economic status, household composition, no. of children and adults, and real income. Age, sex, economic status and real income are of household heads. [b)] Tenure and housing characteristics include no. of bedrooms, accommodation type, the house value council tax band, and current tenure. The full regression results are reported in the unpublished Web-Appendix Table W3.

Table 6
Multinomial Logit regressions for length of stay
(Dependent variable: Length of stay)

	(1)	(2)	(3)	(4)
Panel A: Length of stay over 1 year but less than 2 years				
Long-distance move dummy	-0.1291***	-0.1650***	-0.1117***	
(1 if move > 50miles)	(0.0358)	(0.0363)	(0.0423)	
Interaction terms:				
Distance [a] × Homeowner				-0.0009
				(0.0007)
Distance [a] × Private renter				-0.0036***
				(0.0009)
Panel B: Length of stay over 2 years but less than 3 years				
Long-distance move dummy	-0.2105***	-0.2876***	-0.2421***	
(1 if move > 50miles)	(0.0378)	(0.0387)	(0.0453)	
Interaction terms:				
Distance [a] × Homeowner				-0.0028***
				(0.0007)
Distance [a] × Private renter				-0.0058***
				(0.0012)
Personal/household characteristics [b]		Yes	Yes	Yes
Tenure, housing characteristics [c]			Yes	Yes
Main reasons for moving			Yes	Yes
Government office regions	Yes	Yes	Yes	Yes
Survey year dummies	Yes	Yes	Yes	Yes
Pseudo R-squared	0.00262	0.0192	0.0337	0.0338
No. of obs.	37755	37755	37755	37755

Notes: ***, **, * significance level at 1, 5, and 10% respectively. The regression sample is restricted to movers for which the length of stay in the current accommodation is less than 3 years. The base category is a length of stay less than 12 months. We present the coefficients of the multinomial logit regressions. [a] Computed as the mid-value of each moving distance class (see Section 3.1 for further details). [b] Personal/ household characteristics include age and age squared, sex, economic status, household composition, no. of children and adults, and real income. Age, sex, economic status and real income are of household heads. [c] Tenure and housing characteristics include no. of bedrooms, accommodation type, the house value council tax band, and current tenure. The full regression results are reported in the unpublished Web-Appendix Table A4.

FIGURES
Figure 1
Length of stay distribution of short- vs. long-distance movers



Note: Short (long) distance movers represent households having moved within 50 miles (more than 50 miles) from their previous place of residence.

APPENDIX

Appendix Table A1
Robustness checks for Hypothesis 1
(Dependent variable: Homeownership status)

	(1) Nonlinear moving dist.	(2) Only family or job related moves	(3) Excluding job related moves	(4) Distance × HH income
Distance moved: 1 mile not 2 miles	-0.04757			
	(0.08058)			
Distance moved: 2 miles not 5 miles	-0.02623			
	(0.07294)			
Distance moved: 5 miles not 10 miles	0.04475			
	(0.08621)			
Distance moved: 10 miles not 20 miles	-0.11267			
	(0.09767)			
Distance moved: 20 miles not 50 miles	0.02612			
	(0.11377)			
Distance moved: 50 miles or more	-0.42450***			
	(0.09664)			
Long-distance move dummy (1 if move > 50 miles)		-0.40106***	-0.22566**	
		(0.08542)	(0.10613)	
Distance [a)] × household head income £0-9,999				0.00144
				(0.00273)
Distance [a)] × household head income £10,000-19,999				-0.00166
				(0.00279)
Distance [a)] × household head income £20,000-49,999				-0.00892***
				(0.00282)
Distance [a)] × household head income £50,000 or more				-0.01292***
				(0.00431)
Personal/household characteristics [b)]	Yes	Yes	Yes	Yes
Previous tenure, housing characteristics [c)]	Yes	Yes	Yes	Yes
Main reasons for moving	Yes	Yes	Yes	Yes
Government office regions	Yes	Yes	Yes	Yes
Survey year dummies	Yes	Yes	Yes	Yes
Distance × house value tax band	No	No	No	Yes
Pseudo R-squared	0.378	0.281	0.383	0.379
No. of obs.	13185	5459	11424	13185

Notes: ***, **, * significance level at 1, 5, and 10% respectively. The regression sample is restricted to 'recent movers', defined as having a length of stay in the current accommodation of less than 12 months. The base category in Column (1) is given by moves below 1 mile. [a)] Computed as the mid-value of each moving distance class (see Section 3.1 for further details). [b)] Personal/household characteristics include age and age squared, sex, economic status, household composition, no. of children and adults, and real income. Age, sex, economic status and real income are of household heads. [c)] Tenure and housing characteristics include no. of bedrooms, accommodation type, the house value council tax band, and type of previous tenure. Due to space reasons, we do not report the estimated coefficients for the term 'Distance× House value' in Column (4). These coefficients are close to zero and statistically insignificant for all house-value council tax bands.

Appendix Table A2
Robustness checks for Hypothesis 2 (recent movers only)
(Dependent variable: Seriousness of crime, vandalism, graffiti, and litter in the area)

	(1) Crime	(2) Vandalism	(3) Graffiti	(4) Litter
Long-distance move dummy (1 if move > 50 miles)	-0.1179*	-0.1765**	-0.1019	-0.0690
	(0.0699)	(0.0732)	(0.0927)	(0.0692)
Personal/household characteristics [a)]	Yes	Yes	Yes	Yes
Tenure, housing characteristics [b)]	Yes	Yes	Yes	Yes
Main reasons for moving	Yes	Yes	Yes	Yes
Government office regions	Yes	Yes	Yes	Yes
Survey year dummies	Yes	Yes	Yes	Yes
Pseudo R-squared	0.0388	0.0328	0.0438	0.0480
No. of obs.	10543	11594	10360	11689

Notes: ***, **, * significance level at 1, 5, and 10% respectively. The regression sample is restricted to 'recent movers', defined as having a length of stay in the current accommodation of less than 12 months. [a)] Personal/household characteristics include age and age squared, sex, economic status, household composition, no. of children and adults, and real income. Age, sex, economic status and real income are of household heads. [b)] Tenure and housing characteristics include no. of bedrooms, accommodation type, the house value council tax band, and current tenure.

Appendix Table A3
Robustness checks for Hypothesis 3 (using Multinomial Logit)
(Dependent variable: Length of stay)

	(1) Excluding singles without children	(2) Excluding highly educated	(3) Excluding moves due to job proximity
Panel A: Length of stay over 1 year but less than 2 years			
Long-distance move dummy (1 if move > 50 miles)	-0.0817* (0.0492)	-0.1151*** (0.0429)	-0.1143*** (0.0426)
Panel B: Length of stay over 2 years but less than 3 years			
Long-distance move dummy (1 if move > 50 miles)	-0.2046*** (0.0524)	-0.2443*** (0.0459)	-0.2347*** (0.0454)
Personal/household characteristics [a]	Yes	Yes	Yes
Tenure, housing characteristics [b)]	Yes	Yes	Yes
Main reasons for moving	Yes	Yes	Yes
Government office regions	Yes	Yes	Yes
Survey year dummies	Yes	Yes	Yes
Pseudo R-squared	0.0320	0.0338	0.0336
No. of obs.	29205	36906	37619

Notes: ***, **, * significance level at 1, 5, and 10% respectively. The regression sample is restricted to movers for which the length of stay in the current accommodation is less than 3 years. The base category is a length of stay less than 12 months. We present the coefficients of the logit regressions. [a)] Personal/ household characteristics include age and age squared, sex, economic status, household composition, no. of children and adults, and real income. Age, sex, economic status and real income are of household heads. [b)] Tenure and housing characteristics include no. of bedrooms, accommodation type, the house value council tax band, and current tenure.

UNPUBLISHED WEB-APPENDIX

Web-Appendix Table W1
Logit regressions for homeownership decision
(Dependent variable: Homeownership status)

	(1)	(2)	(3)	(4)
Long-distance move dummy	-0.43601***	-0.77185***	-0.96711***	-0.40751***
(1 if move > 50 miles)	(0.04963)	(0.06022)	(0.06810)	(0.08141)
Age		0.12273***	0.01276	0.01033
		(0.01164)	(0.01268)	(0.01287)
Age squared		-0.00082***	0.00006	0.00008
		(0.00014)	(0.00015)	(0.00015)
Sex (Female excluded)		0.36261***	0.32986***	0.29847***
		(0.05990)	(0.06885)	(0.06929)
Economic status of HH (Full-time employed excluded)				
Part-time employed		-0.27356***	-0.38646***	-0.44689***
		(0.09069)	(0.10089)	(0.10230)
Unemployed		-1.11375***	-0.84142***	-1.02673***
		(0.12952)	(0.13435)	(0.13814)
Retired		0.93781***	0.70822***	0.52175***
		(0.17755)	(0.17922)	(0.18449)
Inactive		-1.19834***	-1.05113***	-1.13458***
		(0.09956)	(0.10496)	(0.10662)
Household composition (Single excluded)				
Couple		0.82989***	0.73006***	0.68719***
		(0.08395)	(0.09482)	(0.09657)
Lone parent		0.01396	-0.37313***	-0.36358***
		(0.09688)	(0.10587)	(0.10718)
Multi-family HH		-0.52867***	-0.67041***	-0.70543***
		(0.13927)	(0.15997)	(0.16199)
Number of children		0.16274***	-0.13878***	-0.14403***
		(0.02575)	(0.02950)	(0.03033)
Number of adults		-0.13705***	-0.35252***	-0.36514***
		(0.04845)	(0.05263)	(0.05406)
Household real income (£0-£9,999 excluded)				
£10,000-£19,999		0.85770***	0.66857***	0.70466***
		(0.07056)	(0.07888)	(0.07998)
£20,000-£49,999		1.45496***	0.92623***	0.98586***
		(0.07563)	(0.08773)	(0.08957)
£50,000 or more		1.72737***	0.80902***	0.82718***
		(0.10955)	(0.13518)	(0.13663)
Previous tenure status (Previous homeowner excluded)				
Previous public renter			-1.18591***	-1.28681***
			(0.09221)	(0.09347)
Previous private renter			-1.81468***	-2.02162***
			(0.05437)	(0.06062)
Number of bedrooms			0.37756***	0.37153***
			(0.03870)	(0.03952)

Web-Appendix Table W1—*Continued*

	(1)	(2)	(3)	(4)
Accommodation type (Detached/bungalow excluded)				
Semi-detached			0.01474	-0.00048
			(0.08205)	(0.08451)
Terraced			-0.17399**	-0.20413**
			(0.08694)	(0.08963)
Purpose-built flat			-0.92244***	-0.90470***
			(0.11300)	(0.11519)
Converted flat			-1.39669***	-1.40135***
			(0.12062)	(0.12350)
House value - council tax band (Up to £40k excluded)				
£40k-£52k			0.26386***	0.25366***
			(0.07753)	(0.07841)
£52k-£68k			0.45642***	0.45266***
			(0.08302)	(0.08400)
£68k -£88k			0.55670***	0.55635***
			(0.09503)	(0.09736)
£88k-£120k			0.34026***	0.41603***
			(0.11490)	(0.11719)
£120k-£160k			0.58265***	0.61164***
			(0.14872)	(0.15173)
£160k-£320k			0.30743*	0.37500**
			(0.17787)	(0.18350)
£320k or more			0.16619	0.29933
			(0.35956)	(0.35774)
Main reasons for moving (Neighborhood-related excluded)				
Housing-related				-0.08512
				(0.07707)
Had to leave				0.63872***
				(0.09509)
Personal/family-related				-0.30307***
				(0.08103)
Job-related				-1.13069***
				(0.10258)
Constant	0.86195***	-3.68331***	-0.14459	0.29542
	(0.12701)	(0.29478)	(0.35693)	(0.36843)
Government office regions	Yes	Yes	Yes	Yes
Survey year dummies	Yes	Yes	Yes	Yes
Pseudo R-squared	0.0144	0.213	0.357	0.377
No. of obs.	13185	13185	13185	13185

Notes: ***, **, * significance level at 1, 5, and 10% respectively. Age, sex and economic status are of household heads.

Web-Appendix Table W2
Logit regressions with interaction terms for tenure decision
(Dependent variable: Homeownership status)

	(1)	(2)	(3)
Interaction term:			
Distance moved × Previous tenure			
Distance × prev. HO	-0.00957***		
	(0.00141)		
Distance × prev. public renter	-0.00377		
	(0.00341)		
Distance × prev. private renter	0.00014		
	(0.00164)		
Interaction term:			
Distance moved × HH income			
Distance × £0-9,999		0.00045	
		(0.00201)	
Distance × £10,000-19,999		-0.00289	
		(0.00191)	
Distance × £20,000-49,999		-0.00996***	
		(0.00168)	
Distance × £50,000 or more		-0.0129***	
		(0.00328)	
Interaction term:			
Distance moved × Reasons for moving			
Distance × housing			0.00123
			(0.00306)
Distance × neighborhood			0.00192
			(0.00371)
Distance × had to move			-0.01080***
			(0.00386)
Distance × personal/family reasons			-0.00368**
			(0.00187)
Distance × job-related reasons			-0.01147***
			(0.00223)
Age	0.009	0.010	0.008
	(0.013)	(0.013)	(0.013)
Age squared	0.000089	0.000074	0.000094
	(0.000153)	(0.000154)	(0.000155)
Sex (Female excluded)	0.295***	0.297***	0.295***
	(0.069)	(0.069)	(0.069)
Economic status of HH (Full-time employed excluded)			
Part-time employed	-0.440***	-0.440***	-0.455***
	(0.103)	(0.103)	(0.102)
Unemployed	-1.018***	-1.044***	-1.052***
	(0.139)	(0.139)	(0.138)
Retired	0.544***	0.489***	0.477**
	(0.184)	(0.183)	(0.185)
Inactive	-1.117***	-1.144***	-1.145***
	(0.107)	(0.107)	(0.107)
Household composition (Single excluded)			
Couple	0.697***	0.676***	0.671***
	(0.097)	(0.097)	(0.097)
Lone parent	-0.378***	-0.348***	-0.370***
	(0.108)	(0.107)	(0.107)
Multi-family HH	-0.683***	-0.717***	-0.736***
	(0.162)	(0.162)	(0.162)
Number of children	-0.148***	-0.145***	-0.143***
	(0.030)	(0.030)	(0.030)
Number of adults	-0.369***	-0.359***	-0.360***
	(0.054)	(0.054)	(0.054)

Web-Appendix Table W2—*Continued*

	(1)	(2)	(3)
Household real income (£0-£9,999 excluded)			
£10,000-£19,999	0.700***	0.741***	0.708***
	(0.080)	(0.089)	(0.080)
£20,000-£49,999	0.994***	1.154***	1.000***
	(0.090)	(0.098)	(0.090)
£50,000 or more	0.844***	1.101***	0.851***
	(0.136)	(0.165)	(0.137)
Previous tenure status (Previous HO excluded)			
Previous public renter	-1.411***	-1.294***	-1.283***
	(0.109)	(0.093)	(0.093)
Previous private renter	-2.216***	-2.032***	-2.031***
	(0.073)	(0.061)	(0.061)
Number of bedrooms	0.371***	0.368***	0.371***
	(0.039)	(0.039)	(0.040)
Accommodation type (Detached/bungalow excluded)			
Semi-detached	-0.007	-0.005	0.010
	(0.084)	(0.085)	(0.085)
Terraced	-0.206**	-0.211**	-0.202**
	(0.089)	(0.090)	(0.090)
Purpose-built flat	-0.903***	-0.905***	-0.902***
	(0.115)	(0.115)	(0.115)
Converted flat	-1.398***	-1.409***	-1.406***
	(0.124)	(0.124)	(0.124)
House value - council tax band (Up to £40k excluded)			
£40k-£52k	0.250***	0.248***	0.257***
	(0.079)	(0.078)	(0.079)
£52k-£68k	0.451***	0.441***	0.454***
	(0.084)	(0.084)	(0.084)
£68k -£88k	0.554***	0.554***	0.557***
	(0.097)	(0.097)	(0.098)
£88k-£120k	0.414***	0.415***	0.423***
	(0.117)	(0.117)	(0.117)
£120k-£160k	0.622***	0.610***	0.612***
	(0.151)	(0.152)	(0.152)
£160k-£320k	0.383**	0.373**	0.380**
	(0.182)	(0.184)	(0.184)
£320k or more	0.322	0.265	0.271
	(0.359)	(0.355)	(0.353)
Main reasons for moving (Neighborhood-related excluded)			
Housing-related	-0.105	-0.092	-0.036
	(0.078)	(0.078)	(0.087)
Had to leave	0.677***	0.640***	0.786***
	(0.096)	(0.096)	(0.107)
Personal/family-related	-0.306***	-0.306***	-0.223**
	(0.081)	(0.081)	(0.095)
Job-related	-1.141***	-1.030***	-0.718***
	(0.103)	(0.106)	(0.150)
Constant	0.447	0.278	0.284
	(0.368)	(0.369)	(0.370)
Government office regions	Yes	Yes	Yes
Survey year dummies	Yes	Yes	Yes
Pseudo R-squared	0.3785	0.3785	0.3782
No. of obs.	13185	13185	13185

Notes: ***, **, * significance level at 1, 5, and 10% respectively. Age, sex and economic status are of household heads.

Web-Appendix Table W3
Ordered logit regression on neighborhood problem awareness
(Dependent variable: Seriousness of crime, vandalism, graffiti, litter in the area)

	(1) Crime	(2) Vandalism	(3) Graffiti	(4) Litter
Long-distance move dummy	-0.11267***	-0.10407**	-0.00422	-0.10896**
(1 if move > 50 miles)	(0.04357)	(0.04500)	(0.05767)	(0.04470)
Length of stay (Under 12 months excluded)				
1 year but not 2 years	0.31175***	0.29269***	0.16359***	0.20286***
	(0.02994)	(0.03042)	(0.03826)	(0.03029)
2 years but not 3 years	0.42773***	0.42445***	0.27672***	0.32496***
	(0.03112)	(0.03203)	(0.04022)	(0.03156)
Age	0.01517**	0.00755	0.00412	0.02326***
	(0.00678)	(0.00661)	(0.00892)	(0.00660)
Age squared	-0.00026***	-0.00011	-0.00015	-0.00026***
	(0.00008)	(0.00008)	(0.00011)	(0.00008)
Sex (Female excluded)	-0.00692	0.01532	-0.04321	0.03992
	(0.03410)	(0.03368)	(0.04124)	(0.03262)
Economic status of HH (Full-time employed excluded)				
Part-time employed	0.09952*	0.11681**	0.00709	0.09766*
	(0.05664)	(0.05639)	(0.07025)	(0.05547)
Unemployed	0.22382**	0.05099	0.02073	0.15904*
	(0.09228)	(0.08728)	(0.10691)	(0.08563)
Retired	0.01901	-0.01616	-0.00268	0.19133**
	(0.08792)	(0.08742)	(0.12546)	(0.09034)
Inactive	0.32105***	0.25069***	0.06168	0.21125***
	(0.06642)	(0.06382)	(0.08027)	(0.06376)
Household composition (Single excluded)				
Couple	0.01598	0.10361**	0.11833*	0.09868**
	(0.04955)	(0.04962)	(0.06325)	(0.04881)
Lone parent	0.09073	0.02157	0.10061	0.04386
	(0.06083)	(0.06048)	(0.07630)	(0.05990)
Multi-family HH	-0.02150	0.02739	0.10166	0.28765***
	(0.08542)	(0.08475)	(0.10729)	(0.08116)
Number of children	0.01771	0.00087	0.00573	-0.01977
	(0.01591)	(0.01609)	(0.02005)	(0.01622)
Number of adults	0.09474***	0.05234*	-0.01871	0.00758
	(0.02956)	(0.02917)	(0.03810)	(0.02848)
Household real income (£0-£9,999 excluded)				
£10,000-£19,999	0.01271	-0.01877	-0.09434*	0.02604
	(0.04445)	(0.04358)	(0.05523)	(0.04273)
£20,000-£49,999	-0.10072**	-0.20427***	-0.12727**	-0.06446
	(0.04863)	(0.04816)	(0.06035)	(0.04747)
£50,000 or more	-0.05844	-0.34773***	-0.05354	-0.20709***
	(0.06671)	(0.06961)	(0.08297)	(0.06891)
Homeowner (Private renter excluded)	0.01721	0.06332*	0.19957***	0.11080***
	(0.03464)	(0.03417)	(0.04324)	(0.03333)
Number of bedrooms	0.09451***	0.11540***	0.13730***	0.17402***
	(0.01941)	(0.01995)	(0.02494)	(0.01997)

Web-Appendix Table W3—*Continued*

	(1) Crime	(2) Vandalism	(3) Graffiti	(4) Litter
Accommodation type (Detached/bungalow excluded)				
Semi-detached	-0.00190	0.02002	0.00027	0.10142**
	(0.03923)	(0.04211)	(0.05508)	(0.04304)
Terraced	0.24783***	0.32998***	0.34535***	0.58215***
	(0.04290)	(0.04483)	(0.05781)	(0.04523)
Purpose-built flat	0.25332***	0.35915***	0.36721***	0.46600***
	(0.06067)	(0.06251)	(0.07939)	(0.06260)
Converted flat	0.59192***	0.54923***	0.47942***	0.87859***
	(0.06694)	(0.06723)	(0.08415)	(0.06658)
House values – council tax band (Up to £40k excluded)				
£40k-£52k	-0.32596***	-0.37675***	-0.39251***	-0.43939***
	(0.04303)	(0.04223)	(0.05135)	(0.04061)
£52k-£68k	-0.42253***	-0.54217***	-0.53726***	-0.68732***
	(0.04524)	(0.04522)	(0.05599)	(0.04469)
£68k -£88k	-0.45644***	-0.62995***	-0.64833***	-0.80971***
	(0.05105)	(0.05133)	(0.06431)	(0.05084)
£88k-£120k	-0.53062***	-0.78681***	-0.77186***	-0.92440***
	(0.06108)	(0.06387)	(0.07964)	(0.06374)
£120k-£160k	-0.41540***	-0.76856***	-0.83680***	-1.07071***
	(0.07466)	(0.07831)	(0.09870)	(0.08038)
£160k-£320k	-0.52450***	-0.88923***	-0.94618***	-1.19397***
	(0.08568)	(0.09238)	(0.11483)	(0.09461)
£320k or more	-0.01012	-0.76891***	-1.25705***	-1.11639***
	(0.14220)	(0.16662)	(0.20708)	(0.16828)
Main reasons for moving (Neighborhood-related excluded)				
Housing-related	0.27466***	0.31997***	0.33592***	0.33365***
	(0.04151)	(0.04498)	(0.05703)	(0.04459)
Had to leave	0.29873***	0.35775***	0.29686***	0.40309***
	(0.04968)	(0.05192)	(0.06519)	(0.05109)
Personal/family-related	0.31614***	0.36567***	0.26595***	0.37224***
	(0.04165)	(0.04476)	(0.05692)	(0.04404)
Job-related	0.23447***	0.34882***	0.23282***	0.37729***
	(0.05513)	(0.05852)	(0.07425)	(0.05807)
Cut point 1	0.22151	1.47010***	1.77476***	1.97887***
	(0.18480)	(0.18037)	(0.23239)	(0.17975)
Cut point 2	2.40257***	3.53279***	3.84755***	3.76252***
	(0.18549)	(0.18199)	(0.23530)	(0.18104)
Government office regions	Yes	Yes	Yes	Yes
Survey year dummies	Yes	Yes	Yes	Yes
Pseudo R-squared	0.0379	0.0323	0.0410	0.0481
No. of obs.	26549	28904	25796	29019

Notes: ***, **, * significance level at 1, 5, and 10% respectively. Age, sex and economic status are of household heads.

Web-Appendix Table W4– Panel A
Multinomial Logit regressions for length of stay
(Dependent variable: Length of stay)

	(1)	(2)	(3)	(4)
Panel A: Stay length over 1 year but less than 2 years				
Distance moved	-0.1291***	-0.1650***	-0.1117***	
	(0.0358)	(0.0363)	(0.0423)	
Interaction terms:				
Distance moved × Tenure type				
Distance × Homeowner				-0.0009
				(0.0007)
Distance × Private renter				-0.0036***
				(0.0009)
Age		0.0563***	0.0433***	0.0433***
		(0.0062)	(0.0063)	(0.0063)
Age squared		-0.0005***	-0.0004***	-0.0004***
		(0.0001)	(0.0001)	(0.0001)
Sex (Female excluded)		0.0701**	0.0397	0.0405
		(0.0346)	(0.0349)	(0.0349)
Economic status of HH (Full-time employed excluded)				
Part-time employed		-0.0819	-0.0444	-0.0489
		(0.0562)	(0.0569)	(0.0569)
Unemployed		-0.2367***	-0.0937	-0.0984
		(0.0801)	(0.0813)	(0.0814)
Retired		0.0767	-0.0081	-0.0088
		(0.0871)	(0.0875)	(0.0877)
Inactive		-0.1834***	-0.0337	-0.0372
		(0.0615)	(0.0629)	(0.0630)
Household composition (Single excluded)				
Couple		0.1792***	0.1055**	0.1045**
		(0.0489)	(0.0499)	(0.0499)
Lone parent		0.0407	0.0697	0.0645
		(0.0595)	(0.0609)	(0.0609)
Multi-family HH		-0.0999	-0.0153	-0.0204
		(0.0832)	(0.0843)	(0.0844)
Number of children		0.0768***	0.0653***	0.0652***
		(0.0149)	(0.0160)	(0.0160)
Number of adults		-0.0196	-0.0009	-0.0012
		(0.0283)	(0.0295)	(0.0295)
Household real income (£0-£9,999 excluded)				
£10,000-£19,999		0.1452***	0.0292	0.0325
		(0.0421)	(0.0432)	(0.0432)
£20,000-£49,999		0.1974***	0.0115	0.0170
		(0.0451)	(0.0479)	(0.0479)
£50,000 or more		0.2376***	0.0466	0.0528
		(0.0622)	(0.0687)	(0.0688)
Homeowner (Private renter excluded)			0.6175***	0.5705***
			(0.0327)	(0.0376)
Number of bedrooms			-0.0127	-0.0132
			(0.0195)	(0.0195)

Web-Appendix Table W4– Panel A—*Continued*

	(1)	(2)	(3)	(4)
Accommodation type (Detached/bungalow excluded)				
Semi-detached			-0.0200	-0.0166
			(0.0406)	(0.0406)
Terraced			-0.0288	-0.0270
			(0.0443)	(0.0443)
Purpose-built flat			-0.0623	-0.0599
			(0.0613)	(0.0613)
Converted flat			-0.0870	-0.0885
			(0.0659)	(0.0659)
House value - council tax band (Up to £40k excluded)				
£40k-£52k			0.0088	0.0115
			(0.0425)	(0.0426)
£52k-£68k			-0.0115	-0.0080
			(0.0456)	(0.0456)
£68k -£88k			0.0308	0.0347
			(0.0516)	(0.0516)
£88k-£120k			-0.0170	-0.0127
			(0.0621)	(0.0621)
£120k-£160k			-0.0163	-0.0125
			(0.0769)	(0.0769)
£160k-£320k			-0.1087	-0.1033
			(0.0877)	(0.0878)
£320k or more			-0.0423	-0.0405
			(0.1548)	(0.1548)
Main reasons for moving (Neighborhood-related excluded)				
Housing-related			-0.0449	-0.0491
			(0.0420)	(0.0422)
Had to leave			-0.0111	-0.0159
			(0.0502)	(0.0503)
Personal/family-related			-0.0269	-0.0275
			(0.0419)	(0.0419)
Job-related			0.0254	0.0509
			(0.0547)	(0.0556)
Government office regions	Yes	Yes	Yes	Yes
Survey year dummies	Yes	Yes	Yes	Yes
Constant	-0.1859**	-1.9016***	-1.8314***	-1.7925***
	(0.0850)	(0.1616)	(0.1820)	0.1825
Pseudo R-squared	0.00262	0.0192	0.0337	0.0338
No. of obs.	37755	37755	37755	37755

Notes: ***, **, * significance level at 1, 5, and 10% respectively. Age, sex and economic status are of household heads.

Web-Appendix Table W4– Panel B
Multinomial Logit regressions for length of stay
(Dependent variable: Length of stay)

	(1)	(2)	(3)	(4)
Panel B: Stay length over 2 years but less than 3 years				
Distance moved	-0.2105***	-0.2876***	-0.2421***	
	(0.0378)	(0.0387)	(0.0453)	
Interaction terms:				
Distance moved × Tenure type				
Distance × Homeowner				-0.0028***
				(0.0007)
Distance × Private renter				-0.0058***
				(0.0012)
Age		0.0945***	0.0764***	0.0764***
		(0.0065)	(0.0069)	(0.0069)
Age squared		-0.0007***	-0.0006***	-0.0006***
		(0.0001)	(0.0001)	(0.0001)
Sex (Female excluded)		0.0359	-0.0195	-0.0181
		(0.0369)	(0.0378)	(0.0378)
Economic status of HH (Full-time employed excluded)				
Part-time employed		-0.0924	-0.0263	-0.0309
		(0.0588)	(0.0605)	(0.0605)
Unemployed		-0.1825**	0.0888	0.0841
		(0.0852)	(0.0876)	(0.0878)
Retired		0.0922	-0.0152	-0.0142
		(0.0866)	(0.0886)	(0.0888)
Inactive		-0.2354***	0.0413	0.0381
		(0.0653)	(0.0675)	(0.0675)
Household composition (Single excluded)				
Couple		0.1732***	0.0524	0.0525
		(0.0516)	(0.0536)	(0.0536)
Lone parent		0.0078	0.0464	0.0398
		(0.0626)	(0.0648)	(0.0648)
Multi-family HH		-0.2604***	-0.0963	-0.1009
		(0.0941)	(0.0966)	(0.0965)
Number of children		0.1494***	0.1380***	0.1370***
		(0.0151)	(0.0164)	(0.0164)
Number of adults		-0.0500*	-0.0248	-0.0259
		(0.0294)	(0.0311)	(0.0310)
Household real income (£0-£9,999 excluded)				
£10,000-£19,999		0.1757***	-0.0144	-0.0109
		(0.0444)	(0.0461)	(0.0461)
£20,000-£49,999		0.3437***	0.0602	0.0671
		(0.0474)	(0.0510)	(0.0511)
£50,000 or more		0.3798***	0.1394*	0.1480**
		(0.0644)	(0.0716)	(0.0716)
Homeowner (Private renter excluded)			1.0949***	1.0428***
			(0.0372)	(0.0428)
Number of bedrooms			-0.0020	-0.0024
			(0.0204)	(0.0204)

Web-Appendix Table W4– Panel B—*Continued*

	(1)	(2)	(3)	(4)
Accommodation type (Detached/bungalow excluded)				
Semi-detached			-0.0448	-0.0416
			(0.0415)	(0.0415)
Terraced			-0.0664	-0.0647
			(0.0460)	(0.0460)
Purpose-built flat			-0.1341**	-0.1319**
			(0.0652)	(0.0652)
Converted flat			-0.1982***	-0.2008***
			(0.0727)	(0.0727)
House value - council tax band (Up to £40k excluded)				
£40k-£52k			0.0538	0.0573
			(0.0462)	(0.0462)
£52k-£68k			-0.0009	0.0042
			(0.0492)	(0.0492)
£68k -£88k			0.0419	0.0482
			(0.0551)	(0.0551)
£88k-£120k			-0.0604	-0.0536
			(0.0664)	(0.0664)
£120k-£160k			-0.1971**	-0.1906**
			(0.0820)	(0.0820)
£160k-£320k			-0.2856***	-0.2764***
			(0.0936)	(0.0936)
£320k or more			-0.2952*	-0.2911*
			(0.1645)	(0.1645)
Main reasons for moving (Neighborhood-related excluded)				
Housing-related			-0.0335	-0.0423
			(0.0437)	(0.0440)
Had to leave			0.0397	0.0321
			(0.0536)	(0.0536)
Personal/family-related			0.0461	0.0450
			(0.0441)	(0.0441)
Job-related			0.1596***	0.1879***
			(0.0580)	(0.0592)
Government office regions	Yes	Yes	Yes	Yes
Survey year dummies	Yes	Yes	Yes	Yes
Constant	-0.0289	-2.8057***	-2.9639***	-2.9100***
	(0.0849)	(0.1712)	(0.1945)	0.1951
Pseudo R-squared	0.00262	0.0192	0.0337	0.0338
No. of obs.	37755	37755	37755	37755

Notes: ***, **, * significance level at 1, 5, and 10% respectively. Age, sex and economic status are of household heads.