

Information barriers and housing tenure choice: Do local ties matter?

Bessy Liao and Jae Hong Kim*

September 18.2023

Abstract

This paper explores the extent to which ties to migration destination affect housing tenure decisions for movers in the US, in particular, long distance (LD) movers.¹ Using American Community Survey from 2012 to 2019, we show that LD movers are less likely to own their next home compared to short distance (SD) movers by 5.1 percentage points. We explore how various channels of local ties affect LD movers' housing tenure choices. We find that, among LD movers, the lack of geographic proximity reduces the likelihood to own their next home, while social connectedness can mitigate this effect substantially. This result is robust across different empirical specifications. Our analysis also shows that these local ties bear very different significance for SD movers' housing tenure choices compared to LD movers.

Keywords: Homeownership, Migration, Tenure choice, Migration Distance, Information

1 Introduction

Decades of research have been devoted to uncovering the complexity of housing tenure choice, in which a large amount of transaction costs are involved. In particular, a great deal of scholarly attention has been paid to the forward-looking nature of the investment decisions and the importance

*Liao: liaob2@uci.edu. University of California, Irvine. Department of Economics. 3151 Social Science Plaza A. Irvine, CA 92697-5100. Kim: jaehk6@uci.edu. University of California, Irvine. Department of Urban Planning and Public Policy. 206E Social Ecology I. Irvine, CA 92697-5100. Bessy Liao is the corresponding author. We thank Jan K. Brueckner, seminar participants at 2018 North American Regional Science Conference, and UC Irvine for their helpful comments and suggestions.

¹those who have moved more than 50 miles.

of uncertainties that can make households hesitant to purchase their own home. Previous studies, however, have tended to focus on future employment or income uncertainties and their impacts on housing tenure choice. Relatively little is known about other sources of uncertainties involved in the process of home purchase decision-making, including the role of ties to the destination. The lack of ties or connections to the destination could act as an important source of uncertainties, leading to households having limited information about the destination, resulting in LD movers in having less confidence in becoming owners, and therefore causing a significant difference in ownership rate among LD movers.

This study attempts to examine whether, and to what extent, local ties matter in shaping housing tenure choice among recent movers² in the United States. The goal is two-fold: 1) to draw attention to various kinds uncertainties and barriers to home purchase, especially to the ones that stem from the lack of local ties, that have been largely neglected in the literature; and 2) to present a way to investigate the channels through which the housing tenure decision is affected by local ties. If we can understand the roles that local ties play in housing tenure choice, urban planners and other policy makers as well as the real estate industry could potentially make qualitative information about the destination more accessible for movers with weak local ties and help them avoid unnecessary transaction or moving costs.

More specifically, we look into the following channels through which the movers can establish local ties: geographic proximity, social connectedness, and occupational ties. We divide movers into long distance (LD) movers, defined as those who have moved more than 50 miles³, and short distance (SD) mover because we think LD movers' and SD movers' tenure choices are differentially affected by channels of local ties. By definition, LD movers have weak ties through the geographic proximity channel since they moved from further away. However, such deterrent effects could be mitigated when households have other forms of local ties. For movers who are already embedded in a location and have spent time there, their ties to the destination is no longer hindered by the geographic proximity channel or social connectedness channel. In their case, occupational ties to the local housing market could play a bigger role in their housing tenure choices.

With the prevalence of online services that real estate corporations provide, it has become easier

²Household who have moved to their new home within a year.

³similar definition to Ha et al (2021), these movers are unlikely to be households who have made their initial long-distance move and later re-adjusted their residence in the new destination.

than ever for households who are looking for a new home to obtain information about future homes in even distant parts of the country. Nevertheless, a crude look at homeowner rates since the beginning of online real estate services ⁴ suggests that the share of owners among recent movers did not increase with the rise of online real estate services.

If the geographic proximity plays a significant role in reducing the probability of home purchase, one would expect to see a negative relationship between migration distance and home purchase rates. This can be seen in Figure 1, which illustrates the relationship between migration distance and homeownership rates among recent movers, without controlling for local ties, households or destination characteristics.⁵ This pattern suggests that a lack of local ties, in particular through the channel of geographic proximity, may play a significant role in explaining the ownership gap among movers. Table 1 shows the share of owners by migration distance groups.⁶ We can see that SD movers (< 50 mi) have the highest share of owners among all distance groups whereas those who have moved over 2000 miles have the lowest share of owners.

Table 1: Share of owners across distance groups

| Migration Distance | < 50 mi | 50-500 mi | 500-1k mi | 1k-1.5k mi | 1.5k-2k mi | > 2k mi |
|--------------------|-------------|-----------|-----------|------------|------------|----------|
| Share of | 0.300 | 0.244 | 0.267 | 0.299 | 0.221 | 0.187 |
| Owners | (0.458) | (0.429) | (0.442) | (0.458) | (0.415) | (0.390) |
| | N = 171,771 | N =16,108 | N = 5,955 | N = 3,432 | N =2,342 | N =3,336 |

To explore the role of local ties among movers more systematically and thus provide deeper insights into the complexity of housing tenure decision-making, we conduct empirical analysis, using data from the one percent Public Use Microdata Sample of the 2012-2019 American Community Survey, with several proxies for capturing the aforementioned channels of local ties. It is our hypothesis that channels such as geographic proximity and social connectedness reflect the strength of one’s local ties, and hence how much information one has about the destination,⁷ consequently

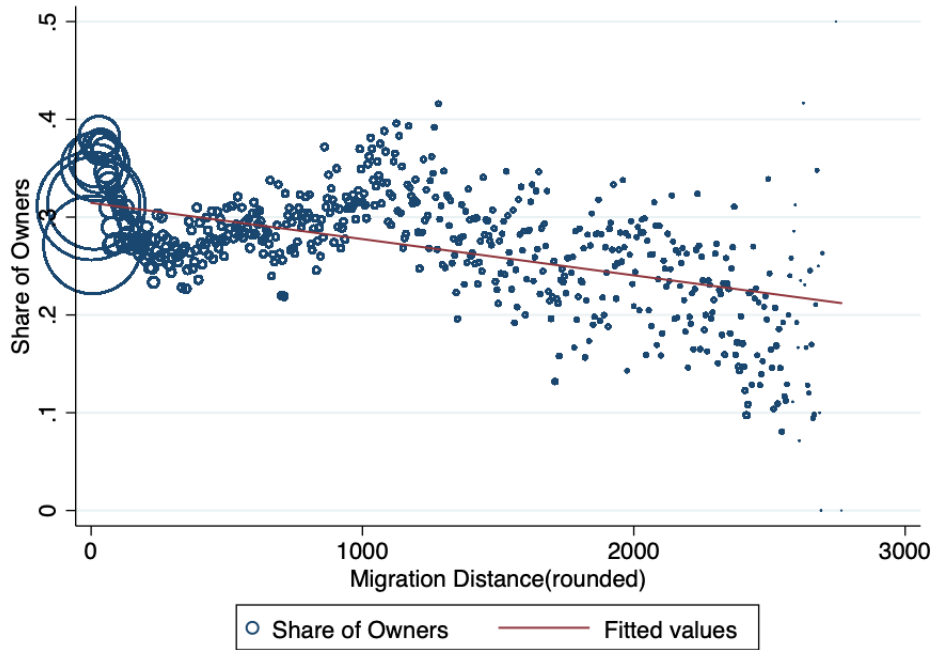
⁴As measurement for the time at which these services first became available, we use the date at which online real estate corporations applied for relevant patent application for the first time. For examples Redfin Corporation’s (sought or received) their patent for “Online marketplace for real estate transactions” in 2005 (Eraker et al., 2015), NetLeaseX IP Holdings LLC’s with “Online real estate transaction system” in 2005 (Zimmerman and Donenfeld, 2006)

⁵The size of the circle represents the size of the migrating population. This pattern does not appear to be monotonic, but it follows a general downward trend.

⁶Numbers in parentheses are the standard deviation, and N indicates sample size for each distance group.

⁷For example, distance and share of migration flow are used to measure information flow in Alsan and Wana-maker(2017)

Figure 1: Migration distance and Ownership



making a significant difference in tenure choice among recent movers. Our empirical analysis provides support for this hypothesis by showing that LD households with stronger local ties are considerably more likely to own their home compared to those who have weaker ties. The findings also suggest that these channels of local ties affect LD and SD movers differently.

2 Related Literature

According to the 2019 Survey of Consumer Finance, 64.9 percent of households in the U.S. owned their home, whereas only 59 percent of households had savings and only 53 percent had any stock holdings (Bhutta et al., 2020). In other words, for most households in the U.S., home is their largest investment (Davidoff 2006), and hence the importance of housing tenure choice can be hardly understated.

There is a large body of literature on housing tenure choice. Existing studies tend to focus on characteristics of the households⁸ as the main determinant for households tenure choices. Many of

⁸Such characteristics are mostly demographic characteristics, see e.g., Kain and Quigley (1972), Eilbott and Binkowski (1985); Gyourko and Linneman (1996); Coulson (1999); Gyourko et al.(1999); Painter et al. (2001); Hilber

these studies, however, do not pay explicit attention to the uncertainties that the households might consider.

Henderson and Ioannides (1983) provides one of the early theoretical economic models for the demand of housing and tenure choice with uncertainty, suggesting the over-investment of households in housing. Building on this framework, Fu (1991) introduces uncertainty in the form of housing price variation into the housing tenure choice model. Brueckner (1997) further analyzes how multiple risky assets, including housing, affect housing consumption.

As noted by Henderson and Ioannides (1983), one important source of uncertainty avoidance behavior is our limited ability to predict future trajectories of the economy, particularly inflation and housing market cycles. Turner and Seo (2007) examines the extent to which house-price uncertainty affects households' transition from renting to owning, and their findings suggest that this form of uncertainty can act as a significant barrier to the transition. Fu (1995) analyzes how the decision-making of illiquid households are affected by uncertain future prices. Rosen, Rosen and Holtz-Eakin (1984) and Turner (2003) also report empirical evidence that the volatility and uncertainty in house prices negatively affect homeownership in the US.

Another important source of risk aversion is uncertain future income or employment status of individuals. Diaz-Serrano (2005) shows that risk aversion triggered by labor income uncertainty can lower homeownership rates. Haurin and Gill (1987), Haurin (1991) and Robst et al. (1999) also investigate the extent to which income uncertainty affects housing tenure choice. These studies suggest that income uncertainty in general reduces the probability that a household purchases residential housing. Sinai and Souleles (2005, 2013) consider risks in both renting and home purchase. They suggest that ownership may function as a hedge against uncertainty in rental costs in the future (i.e the probability of home purchase increases with net rent risk). Not surprisingly, the literature on the uncertainty-homeownership relationship suggests that an increase in risk and uncertainty reduces housing consumption in two ways. First, higher levels of uncertainty leads to a lower probability of being an owner in the housing tenure choice (Hilber, 2005). Second, higher levels of uncertainty leads to a reduction in the quantity of housing consumption for owners.

Although these studies clearly highlight the importance of various sources of uncertainty ranging and Liu (2008); Coulson and Dalton (2010). Additionally, downpayment constraints and borrowing constraints are discussed in Brueckner (1986) and Linneman and Wachter (1989) respectively.

from rental price volatility to future labor income, the role that local ties play in housing tenure choice has not been examined.⁹ The uncertainty this paper focuses on is caused by the information gap between LD movers with strong local ties and weak local ties, since the strength of ties can affect the information about the destination available to the movers, and hence their housing tenure decisions.

The most relevant research to this paper would be that of Ha et al (2021), titled “Do long distance moves discourage homeownership? Evidence from England”. Using data from the Survey of English Housing, they show that LD movers’ probability of homeownership is 5.5 percentage points lower than that of SD movers. What remains unknown is whether distance matters among LD movers (i.e. those who moved more than 50 miles) grouped all together and then compared with SD movers in Ha et al (2021). It is also important to understand how social or professional ties would allow them to overcome the lack of geographic proximity that can make their home purchase more challenging. According to Kurlat and Strobel (2015), the workings of the housing market can be shaped by the information asymmetry between sellers and buyers on knowledge of neighborhood characteristics does matter, since the incumbent sellers have gained stronger local ties through embeddedness than buyers who could be new to the area. Other studies also indicate the importance of information gaps between local and out-of-town buyers. Chinco and Mayer (2016), for instance, show that out-of-town home buyers’ behavior patterns are similar to those of misinformed speculators. Agarwal et al (2018) report that foreign investors pay a premium in making real estate transactions, which may reflect the information disadvantage. More generally, Portes and Ray (2005), Coval and Moskowitz (2001) and Baik et al (2010) treat distance as a valid measure of information asymmetry between informed and uninformed investors.

3 Empirical Analysis

3.1 Data

The main dataset we used is from the American Community Survey (ACS) Public Use Microdata Sample (PUMS) obtained from IPUMS USA (Ruggles et al., 2021). We combined eight years

⁹Although there is a body of work that highlights the role that general knowledge about the housing market and housing transaction play for housing tenure choice. This thread of literature includes work by Henretta (1984), Dietz and Haurin (2003), and Haurin and Morrow-Jones (2006), just to name a few.

(2012-2019) of the microdata from this comprehensive, cross-sectional data source that provides rich information for approximately 1 percent of the households in the United States each year, including their migration, housing tenure, housing payment, income, and other sociodemographic characteristics. The ACS PUMS allowed us to identify who moved (as opposed to living in the same housing unit) with detailed household characteristics needed for a more complete set of control variables.

Although the location information available in the data source is only as precise as Public Use Microdata Areas (PUMA), it is possible to use GIS to compute the migration distance of each household. Given our main focus is on households who moved more than 50 miles, the geographic unit precision is of a lesser concern. The ACS PUMS is advantageous in that its sample size (i.e., 1 percent sample of the U.S. population each year) offers data for a larger number of households who moved over a range of distances than any other (publicly available) alternative data sources can. Additionally, the data source provides information about each household's origin and destination, enabling us to control for possible effects of origins and destinations.

Table 2 summarizes all the variables used in this study, including our measurements of local ties explained in detail below. Summary statistics of these variables are shown in Table 3.

3.2 Measurement of Local Ties

As mentioned in the introduction, not all movers have the same degree of ties to their destinations, and this variation might significantly influence housing tenure choice. It is important to stress that the local ties can be made in various ways. Our measurements of local ties attempt to capture these multiple possibilities. Specifically, in this study, we employ the following three categories of measurements: geographic proximity, social connectedness, and occupational ties, as detailed below.

3.2.1 Geographic Proximity

First and foremost, we use the log transformation of migration distance to capture each mover's geographic proximity to her/his destination. The distance used is the geographical distance between the center of the migrant's origin PUMA and the center of the destination PUMA, computed using ArcGIS. Although not perfect (since instead of the coordinate of the household, we only have

Table 2: Definition of variables

| | Definition |
|-------------------------------------|--|
| Ownership | Dummy variable indicating whether the household owns its home |
| Log Migration Distance | Log of distance between the origin PUMA and the destination PUMA |
| Birth-State Indicator | Dummy variable indicating whether the household head lives in the state he/she was born in |
| County Flow Share | The 7-year average share of households who migrated from the same origin county to the same destination county as a percentage of the population of the destination county |
| Real Estate Occupation | Dummy variable indicating whether the household's head works in real estate industry |
| Household Income (thousand \$) | Household income in thousand dollars |
| Age | Age of household head |
| Male | Dummy variable indicating whether the household head is male |
| Education | Number of years of education the household head received |
| Employment Status | Dummy variable indicating whether the household head is employed |
| Race | Categorical variable of the race of the household head |
| Ethnicity | Dummy variable indicating whether the household head is Hispanic |
| Marital Status | Dummy variable indicating whether the household head is married |
| Metro Status | Dummy variable indicating whether the household lives in a metro area |
| Metro Status Change | Dummy variable indicating whether the metro status changed |
| Moved Within State | Dummy variable indicating whether migrated within the same state. |
| PUMA-level Ownership | PUMA average ownership rate |
| PUMA-level HH Income (thousand \$) | PUMA average household income in thousand dollars |
| PUMA-level Home Value (thousand \$) | PUMA average home value in thousand dollars |
| PUMA-level Housing Cost Ratio | PUMA average ratio between home value and household income |
| PUMA-level Units in Structure | PUMA average number of dwelling units in the home |
| PUMA-level Number of Rooms | PUMA average number of rooms in the home |

information about the PUMA(s) that the household moved from and to), this measure provides a useful way to discern movers with varying degrees of geographic proximity to their destination places. As noted above, the imprecision in distance is relatively negligible, especially when it comes to long-distance migration. Given that a long distance can act as an impediment to the development of local ties, we hypothesize that the longer the migration distance, the weaker the local ties.

3.2.2 Social Connectedness

Some people may overcome difficulties in developing local ties over a long distance through other mechanisms, while others can't. Social connectedness is an important enabler of such possibilities. We use the following two metrics to capture the social ties the movers have with their destinations.

Birth-State Indicator

This metric is a dummy variable that indicates whether the household head moved to the state he/she was born in. Among long distance movers, 31.7 percent moved to/within the state they were born in. If the individual was born in the state, he/she may have some family or social connections with the locality, and these families and social connections can grant the individual stronger social ties than someone who was not born in the state that they moved into. It would have been desirable if we could have had a smaller geographic unit of birthplace than the state, but it is the lowest geographic division of birthplace available in the data.

County Flow Share

Another channel through which we measure social connectedness is through earlier migrants between the same origin and destination. We capture this channel of social connectedness by measuring the 7-year average share of households who migrated from the same origin county to the same destination county, relative to the population of the destination county. For example, for a household who lived in county A and moved to county B in 2017, we calculate the average number of people moving from A to B between 2010 and 2016 as a percentage of the population of county A. This metric enables us to discern origin-destination pairs with varying migration flows, and we assume the higher the county flow share, the tighter the two communities are connected, and hence

the stronger the social ties.

$$\text{County Flow Share}_{AB,2017} = \frac{\frac{1}{7} \sum_{i=2010}^{2016} \text{Size of Movers}_{AB,i}}{\text{Pop}_A}$$

3.2.3 Occupational Ties

Local ties can also be developed through one’s occupation. We use whether a mover has a real estate job as a measurement of occupational ties. In other words, we create a dummy variable indicating “Real Estate Job” holders – i.e., 1 if the occupation code in the ACS PUMS indicates the individual’s occupation as either “Property, Real Estate, and Community Associated Managers”, “Real Estate Broker and Sales Agents” or “Appraisers and Assessors of Real Estate” or if the individual works in the industry of “Real Estate”, 0 otherwise. Among long-distance movers, only 0.85 percent of the individuals are identified as a real estate job holder. Given the occupational ties, these movers might have better access to the information about their destinations (or the local housing market) and show distinct tenure choice pattern.

Table 3: Descriptive Statistics

| | SD Movers | LD Movers | 50-500 mi | 500-1k mi | 1k-1.5k mi | 1.5k-2k mi | > 2k mi |
|------------------------|-----------------------------------|-----------------------------------|----------------------------------|---------------------------------|---------------------------------|----------------------------------|---------------------------------|
| Ownership | 0.300 (0.458) N = 171,771 | 0.249 (0.432) N = 31,175 | 0.244 (0.429) N = 16108 | 0.267 (0.442) N = 5955 | 0.299 (0.458) N = 3432 | 0.221 (0.415) N = 2342 | 0.187 (0.390) N = 3336 |
| Migration Distance | 10.69 (9.560) N = 171,771 | 710.8 (690.0) N = 31,175 | 198.0 (124.7) N = 16108 | 749.5 (151.4) N = 5955 | 1,206 (151.5) N = 3432 | 1,748 (134.1) N = 2342 | 2,316 (163.8) N = 3336 |
| Birth-State Indicator | 0.472 (0.499) N = 171,771 | 0.262 (0.440) N = 31,175 | 0.373 (0.483) N = 16108 | 0.150 (0.357) N = 5955 | 0.132 (0.339) N = 3432 | 0.126 (0.332) N = 2342 | 0.123 (0.328) N = 3336 |
| County Flow Share | 0.0346 (0.121) N = 171,771 | 0.0208 (0.0550) N = 31,175 | 0.0343 (0.0723) N = 16108 | 0.00562 (0.0104) N = 5955 | 0.00613 (0.0106) N = 3432 | 0.00430 (0.00793) N = 2342 | 0.00576 (0.0117) N = 3336 |
| Real Estate Occupation | 0.0107 (0.103) N = 171,771 | 0.00953 (0.0972) N = 31,175 | 0.00986 (0.0988) N = 16108 | 0.00896 (0.0942) N = 5955 | 0.0111 (0.105) N = 3432 | 0.00761 (0.0869) N = 2342 | 0.00819 (0.0902) N = 3336 |

3.3 Households and PUMA characteristics

Apart from the traditional control variables for demographics and household characteristics,¹⁰ we also include destination control variables in our empirical analysis, such as destination state fixed effects, PUMA-level household income, PUMA-level home ownership rates, and PUMA-level housing characteristics.¹¹ We also control for survey year fixed effects.

3.4 Empirical Strategy

Our empirical analysis attempt to answer: (1) what are the channels through which long distance movers could strengthen local ties? and (2) do the same channels of local ties affect short distance movers' housing tenure choice?

3.4.1 The effect of local ties on homeownership

Since our outcome variable of interest, housing tenure choice, is binary, we use a logit model to estimate the following equation:

$$\Pr(\text{own} = 1) = \Lambda(\beta_0 + \mathbf{X}'_{LT}\beta_1 + \mathbf{Z}'_{HH}\beta_2 + \mathbf{Z}'_{dest}\beta_3 + \beta_4 Z_t)$$

where $\Lambda(\cdot)$ is the logistic cumulative distribution function, \mathbf{X}_{LT} is a vector of local ties variables as defined in section 3.2. \mathbf{Z}_{HH} is a vector of household characteristics control variables including age, gender, race, ethnicity, education level, marital status, household income, employment status, metro status, and their origin state. It is referred to as “Household Controls” in the outcome tables. We are only considering individual characteristics of the head of household since we assume that moving and housing tenure choice are household-level decisions, and that the characteristics of the head are more relevant in making these decisions. \mathbf{Z}_{dest} is a vector of destination characteristics control variables, including destination state, percentage of homeowners in destination PUMA, average household income in destination PUMA, destination PUMA average housing-cost-to-income ratio, average number of rooms per home in destination PUMA, and average home(s) per building in destination PUMA. It is referred to as “Destination Controls” in the result tables. Lastly, Z_t

¹⁰summarized as “Household Controls” in regression tables

¹¹summarized as “Destination Controls” in regression tables.

controls for survey year.

In order to understand the channels through which local ties affect long distance migrants' housing tenure decision, we estimated the logistic regression model with various specifications and presented the results in Tables 4 and 5. This analysis uses all long distance migrant households as sample. In terms of the local ties specification, Table 4 uses level variables, whereas Table 5 includes interaction terms between log migration distance and the other local ties variables.¹²

For each table, we test five model specifications by including our measurements of local ties incrementally. They are the following: model (1) uses the baseline specification with log migration distance as a measurement of local ties; models (2-4) add the birth state indicator, county flow share, and the indicator variable for real estate job holders, respectively; model (5) includes all the four variables of local ties. All models control for household characteristics Z_{dest} , destination characteristics Z_{dest} , and year fixed effects Z_t , as indicated at the bottom of the tables.

3.4.2 Do the same channels of local ties affect short distance movers' housing tenure choice?

While our focus is on the contributions of local ties to long-distance movers' housing tenure choice, the measurements of local ties can also affect short distance movers. In order to understand whether short distance movers' housing tenure decisions are affected similarly or differently from the aforementioned channels of local ties, we have estimated our model with both long-distance migrants and short-distance migrants. In this analysis, we have created a dummy variable "LD indicator" that equals to 1 if the household moved more than 50 miles, and we have included the interaction term between the dummy variable and each measurement of local ties. In terms of model specification, this analysis is similar to our earlier analysis (Table 4) except for the inclusion of all of the interaction terms, enabling us to assess whether the same channels of local ties that affect long distance movers' housing tenure choices, affect short distance movers' tenure choices in the same manner.

¹²For sensitivity analysis, we classify movers into several groups based on their moving distance to look more closely at the effect of distance at different distance levels. The sensitivity analysis results are shown in Table A.3 in appendix A.2. Additionally, we look at households who moved from eastern (western) coastal counties to western (eastern) coastal counties, since even though coast-to-coast migration is always long in distance (at least 2000 miles), distance alone may not accurately reflect the information flow between the origin and destination, given that much of this migration is between large coastal cities which sometimes have strong ties with one another (Badger and Bui, 2018). The results are shown in Table A.4 in appendix A.2.

4 Results

We report the empirical results in two parts, corresponding to the two sections in empirical strategy.¹³

4.1 Empirical evidence on the effect of local ties on LD movers' housing tenure choice

The impact of local ties on homeownership.

Table 4 shows the logistic regression results with the metrics of local ties and control variables. Among others, our results strongly suggest that a longer migration distance (logged) reduces the chances of home purchase by about 1.41%-1.76%. As shown in Table 4, the strong negative effect of migration distance is found fairly consistent, while its magnitude turns out to be relatively smaller when the county flow share is included in the model.

Two of the three other metrics also show statistically significant effects. More specifically, the birth-state indicator exhibits a significant positive coefficient, suggesting that migrating into or within one's birth-state increases the chances of home purchase by 5.61%-5.67%. The marginal effect of county flow share is also positive, indicating it increases the chances of purchasing homes by 23.7%-24.3%. However, the metric of occupational ties (i.e., Real estate job holders) is not found to have a statistically significant impact among LD movers.

Interaction effects (How other measurements of local ties moderate or amplify the effect of migration distance)

In addition to the marginal effects of the variables presented in Table 4, Table 5 explores whether other local ties variables mitigate the effect of migration distance on LD movers' housing tenure choice. The coefficient of the interaction term between log migration distance and the birth-state indicator suggests that migrants who were born in their destination states tend to have a significantly reduced impact of migration distance (i.e., $-0.0184+0.0163$ and $-0.0146+0.0142$ in the second and fifth columns, respectively) compared to those who were not born in destination states. This result may imply strong birth state effects which allow LD movers to overcome the lack of geographic

¹³The result tables in this section focuses on the coefficients of local ties variables. For coefficients on the control variable, please see appendix A

proximity through an alternative channel of local ties. As discussed earlier, the birth-state indicator may indicate the presence of family or social connections with the destination place, enabling the LD movers to access more information or have more confidence in making home purchase than someone who has to make a long distance move without such ties.

The county flow share variable, however, does not show the same moderating effect. Rather, the interaction term between log migration distance and this metric shows a negative sign, whereas the variable itself has a significant, positive impact on home purchase. This finding suggests that the positive impact of more migrant flows between the origin and destination tend to decrease as migration distance increases. In other words, the longer the migration distance, the smaller the marginal effect of county flow share is on home purchase. Again, the estimation results for occupational ties do not show any evidence of statistical significance, indicating that real estate job holders do not have a significantly higher or lower rate of home purchase when moving over a long distance.

Table 4: LD Movers With Level Variables

| | (1) | (2) | (3) | (4) | (5) |
|------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|
| | dy/dx | dy/dx | dy/dx | dy/dx | dy/dx |
| Local Ties | Pr(Ownership) | Pr(Ownership) | Pr(Ownership) | Pr(Ownership) | Pr(Ownership) |
| Log Migration Distance | -0.0175*** (0.00180) | -0.0176*** (0.00197) | -0.0140*** (0.00190) | -0.0175*** (0.00180) | -0.0141*** (0.00205) |
| Birth State Effect | | 0.0561*** (0.00633) | | | 0.0567*** (0.00630) |
| County Flow Share | | | 0.237*** (0.0424) | | 0.243*** (0.0422) |
| Real Estate Occupation | | | | -0.00468 (0.0192) | -0.00494 (0.0193) |
| Observations | 31,175 | 31,175 | 31,175 | 31,175 | 31,175 |
| Household Controls | Yes | Yes | Yes | Yes | Yes |
| Destination Controls | Yes | Yes | Yes | Yes | Yes |
| Survey Year | Yes | Yes | Yes | Yes | Yes |

Standard errors in parentheses
 *** p<0.01, ** p<0.05, * p<0.1

Table 5: LD Movers With Interaction Variables

| | (1) dy/dx Pr(Ownership) | (2) dy/dx Pr(Ownership) | (3) dy/dx Pr(Ownership) | (4) dy/dx Pr(Ownership) | (5) dy/dx Pr(Ownership) |
|---|-------------------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|
| Local Ties | | | | | |
| Log Migration Distance | -0.0175*** (0.00180) | -0.0184*** (0.00214) | -0.0131*** (0.00193) | -0.0177*** (0.00181) | -0.0146*** (0.00224) |
| Birth-State Indicator | | -0.0472 (0.0401) | | | -0.0334 (0.0400) |
| Log Migration Distance * Birth-State Indicator | | 0.0163*** (0.00625) | | | 0.0142** (0.00625) |
| County Flow Share | | | 1.053*** (0.307) | | 0.974*** (0.311) |
| Log Migration Distance * County Flow Share | | | -0.188*** (0.0690) | | -0.171** (0.0698) |
| Real Estate Occupation | | | | -0.106 (0.0970) | -0.115 (0.0949) |
| Log Migration Distance * Real Estate Occupation | | | | 0.0170 (0.0161) | 0.0187 (0.0158) |
| Observations | 31,175 | 31,175 | 31,175 | 31,175 | 31,175 |
| Household Controls | Yes | Yes | Yes | Yes | Yes |
| Destination Controls | Yes | Yes | Yes | Yes | Yes |
| Survey Year | Yes | Yes | Yes | Yes | Yes |

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Overall, we find that migration distance has a negative impact on the probability of homeownership, whereas moving to the birth state or a high level of county flow share appears to have a positive impact. The effects of both of these are clear and consistent across different specifications, suggesting that social connectedness as well as geographic proximity does matter. The impact of holding a real estate job, however, is not statistically significant for any specifications. Additionally, the interaction terms in Table 5 shows that the effect of birth state supplements the effect of geographic proximity on ownership, whereas the effect of county flow share complements the effect of geographic proximity on ownership.

4.2 Empirical evidence on the effects of local ties on short-distance vs. long-distance movers

Table 6: SD movers vs. LD Movers

| | (1) dy/dx Pr(Ownership) | (2) dy/dx Pr(Ownership) | (3) dy/dx Pr(Ownership) | (4) dy/dx Pr(Ownership) | (5) dy/dx Pr(Ownership) |
|--|-------------------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|
| Local Ties | | | | | |
| Log Migration Distance | -0.000200 (0.00108) | 0.000235 (0.00108) | -0.00276** (0.00113) | -0.000208 (0.00108) | -0.00231** (0.00113) |
| Long Distance Indicator * Log Migration Distance | -0.0297*** (0.00257) | -0.0248*** (0.00265) | -0.0196*** (0.00270) | -0.0296*** (0.00257) | -0.0149*** (0.00278) |
| Birth-State Indicator | | 0.0265*** (0.00203) | | | 0.0264*** (0.00203) |
| Long Distance Indicator * Birth-State Indicator | | 0.0388*** (0.00650) | | | 0.0377*** (0.00651) |
| County Flow Share | | | 0.0636*** (0.00706) | | 0.0627*** (0.00705) |
| Long Distance Indicator * County Flow Share | | | 0.417*** (0.0561) | | 0.406*** (0.0557) |
| Real Estate Occupation | | | | 0.0249*** (0.00876) | 0.0234*** (0.00876) |
| Long Distance Indicator * Real Estate Occupation | | | | 0.00516 (0.0269) | 0.00116 (0.0272) |
| Observations | 202,946 | 202,946 | 202,946 | 202,946 | 202,946 |
| Household Controls | Yes | Yes | Yes | Yes | Yes |
| Destination Controls | Yes | Yes | Yes | Yes | Yes |
| Survey Year | Yes | Yes | Yes | Yes | Yes |

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 6 presents how channels of local ties affect housing tenure choice for short-distance movers in comparison with their effects on long-distance movers. As explained earlier, this is accomplished by creating a dummy variable “LD Indicator” to reflect whether a mover is a long-distance mover and using the interaction term between the indicator and the metrics of local ties to assess if these ties have differential effects for long-distance movers and short-distance movers. The estimated coefficients for the level variables “Log Migration Distance”, “Birth-State Indicator”, “County Flow Share”, “Real Estate Occupation” capture the effects of local ties on SD mover’s housing tenure choice, and the effects for LD movers are the sum of the coefficient for the level variable and that for the interaction term.

As shown in the table, the sign of the coefficient “Log Migration Distance” is not consistent across model specifications and is often not statistically significant. The results indicate that, unlike for LD movers, the effects of migration distance on the housing tenure choice of short-distance movers who moved less than 50 miles. One way to think about this finding is that, within a short distance, quality and quantity of local ties is no longer reflected via geographic proximity, since the households are already embedded in the destination location.

The two metrics of social connections show dissimilar impacts. For SD movers the coefficients for the Birth-State indicator are positive, but no longer statistically significant. The county flow share variable, however, has positive and statistically significant effects. Compared to LD movers, the effects of these two variables are weaker. That is to say, social connectedness increases the likelihood of home purchase for LD households more than for SD households, all other things being equal.

Last but not least, the coefficient for real estate occupation holders is positive and statistically significant for SD movers, whereas it is insignificant when only LD movers are in the sample (as presented in Table 4). In other words, the occupational ties captured via this variable make a difference among locally embedded short-distance movers. As noted above, however, this channel of local ties does not appear to act a substitute for geographic proximity for LD movers.

In summary, the channels through which local ties affect housing tenure choice are very different for LD movers than those for SD movers. Migration distance plays a smaller role for SD movers, while social connectedness still has positive effect on SD movers, although smaller in magnitude compared to the effect for LD movers. Having a real estate job seems to increase the probability

of home purchase for SD movers, but this does not significantly affect housing tenure choice of LD movers.

Regarding household characteristics, we find that higher values of household income, age, and education levels have positive effects on the likelihood of home purchase.¹⁴ Households with married heads are more likely to own.¹⁵ All of these results are consistent with the literature. As for destination PUMA-level characteristics, PUMA-level ownership has a very strong positive effect on home purchase, which may be due to the fact that PUMAs vary in their offerings of housing mix (e.g., single-family housing vs. multi-family units). PUMA-level average household income does not have a statistically significant impact, while a higher average home-value-to-income-ratio lowers the probability that the household owns a home as anticipated.

5 Conclusion and Discussion

While homeownership has long been promoted in the United States and many other countries, buying a house has remained as one of the most complicated decisions faced by households for generations. This is particularly true nowadays. The experience of the 2008 subprime mortgage crisis and resultant foreclosures has made it reasonable, if not necessary, to be cautious about purchasing a home. On the other hand, the rapid housing price recovery (and further escalation) in recent years has made it difficult for prospective home buyers to make the investment decision in a prudent manner.

In the literature, much attention has been paid to the nature of this important, complicated decision making, but our understanding is still incomplete. This study attempts to expand the literature by showing the additional challenges long-distance movers have and examining the role of local ties in shaping their decision-making process. More specifically, we explore the mechanisms by which the presence or absence of local ties can affect housing tenure choice using indicators of geographic proximity, social connectedness and occupational ties.

Our empirical analysis results show the following. First, for LD movers, having stronger levels of local ties raises the propensity to purchase their home than those with weaker local ties. Second,

¹⁴Regression coefficients using level local ties variable for household characteristics and PUMA-level characteristics are reported on Table A.1 and Table A.2 in appendix A.

¹⁵In the long distance sample, all household heads are employed and are living in metropolitan areas.

channels of local ties are of different impact on LD movers versus SD movers on their housing tenure choices. Migration distance and house value growth are more important factors for LD movers whereas having a real estate occupation is a more important factor for SD movers.

These findings are consistent across different specifications of the logit regression model using various measurements for local ties. Given the long-lived nature of home purchase (and large transaction costs involved), the lack of local ties can pose a significant challenge to migrants and result in a lower level of confidence (or a higher level of uncertainty), which makes renting a more desirable (or safer) option for them when they move into a new region.

Admittedly, the present study is not without limitations, with the most obvious one being that cross-sectional data limits our ability to establish causality. Additionally, this study does not address the motivation of migration, giving no consideration to what motivated a migrant to move (over a short or long distance) and paying no attention to what motivated them to move over a short vs. long distance. In other words, long-distance movers may be different from short-distance movers in aspects we could not observe. A more complete understanding could be obtained when the housing tenure and ‘move or not’ decisions are jointly modeled and analyzed in future research. Longitudinal data sets would also enable researchers to unravel the complexity of migrants’ housing tenure choice. Nevertheless, this work offers a meaningful step towards gaining deeper insights into the complexity of housing tenure choice among migrants.

A Additional Regression Tables

A.1 The effect of household and PUMA characteristics

Table A.1 and Table A.2 show the regression coefficients on different household characteristics and PUMA characteristics from the regression presented in Table 4. Each column corresponds to the model specification of column with the same number in Table 4.

Table A.1: HH characteristics

| HH characteristics | (1) dy/dx Pr(ownership) | (2) dy/dx Pr(ownership) | (3) dy/dx Pr(ownership) | (4) dy/dx Pr(ownership) | (5) dy/dx Pr(ownership) |
|------------------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|
| Age | 0.00466*** (0.000153) | 0.00477*** (0.000153) | 0.00465*** (0.000153) | 0.00466*** (0.000153) | 0.00476*** (0.000153) |
| Male | -0.00400 (0.00402) | -0.00251 (0.00402) | -0.00424 (0.00402) | -0.00402 (0.00402) | -0.00278 (0.00402) |
| Race: Black | -0.0817*** (0.00810) | -0.0806*** (0.00811) | -0.0826*** (0.00809) | -0.0818*** (0.00810) | -0.0815*** (0.00809) |
| Race: Native American | -0.0550 (0.0344) | -0.0565* (0.0341) | -0.0547 (0.0339) | -0.0550 (0.0344) | -0.0563* (0.0336) |
| Race: AAPI | -0.0341*** (0.00691) | -0.0261*** (0.00697) | -0.0340*** (0.00690) | -0.0341*** (0.00691) | -0.0261*** (0.00696) |
| Race: Others | -0.00987 (0.00828) | -0.00791 (0.00828) | -0.00988 (0.00829) | -0.00988 (0.00828) | -0.00789 (0.00829) |
| Education Attainment (Years) | 0.00495*** (0.000842) | 0.00520*** (0.000845) | 0.00496*** (0.000841) | 0.00495*** (0.000842) | 0.00520*** (0.000845) |
| Binary Marital Status | 0.0798*** (0.00413) | 0.0820*** (0.00414) | 0.0801*** (0.00413) | 0.0798*** (0.00413) | 0.0823*** (0.00414) |
| HH income (thousand \$) | 0.000677*** (2.54e-05) | 0.000675*** (2.54e-05) | 0.000672*** (2.54e-05) | 0.000677*** (2.54e-05) | 0.000670*** (2.54e-05) |
| Observations | 31,175 | 31,175 | 31,175 | 31,175 | 31,175 |
| Local Ties | Yes | Yes | Yes | Yes | Yes |
| Destination Controls | Yes | Yes | Yes | Yes | Yes |
| Survey Year | Yes | Yes | Yes | Yes | Yes |

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table A. 2: PUMA-level characteristics

| | (1) | (2) | (3) | (4) | (5) |
|---|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|
| | dy/dx | dy/dx | dy/dx | dy/dx | dy/dx |
| PUMA-level characteristics | Pr(ownership) | Pr(ownership) | Pr(ownership) | Pr(ownership) | Pr(ownership) |
| Puma-level avg. share of owners | 0.568*** (0.0438) | 0.563*** (0.0438) | 0.544*** (0.0440) | 0.568*** (0.0438) | 0.539*** (0.0440) |
| Puma-level avg. share of the employed | -0.749 (4.261) | -0.778 (4.267) | -0.875 (4.214) | -0.762 (4.261) | -0.908 (4.221) |
| Puma-level avg HH income in (thousand \$) | -0.00130*** (0.000236) | -0.00125*** (0.000235) | -0.00126*** (0.000235) | -0.00129*** (0.000236) | -0.00122*** (0.000235) |
| Puma-level avg house value (thousand \$) | -4.70e-05 (3.78e-05) | -5.25e-05 (3.77e-05) | -4.81e-05 (3.76e-05) | -4.70e-05 (3.78e-05) | -5.38e-05 (3.76e-05) |
| Puma-level avg own rent ratio | 0.0666*** (0.0101) | 0.0650*** (0.0101) | 0.0674*** (0.0101) | 0.0666*** (0.0101) | 0.0658*** (0.0101) |
| Puma-level avg housing value to income ratio | 0.00221 (0.00439) | 0.00295 (0.00438) | 0.00256 (0.00437) | 0.00222 (0.00439) | 0.00334 (0.00437) |
| Puma-level share of single family homes | 0.0375 (0.0674) | 0.0360 (0.0674) | 0.0492 (0.0670) | 0.0375 (0.0674) | 0.0478 (0.0670) |
| Puma-level avg unit in structure | 0.0202* (0.0118) | 0.0207* (0.0118) | 0.0207* (0.0117) | 0.0202* (0.0118) | 0.0211* (0.0117) |
| Puma-level avg room in housing | 0.00842 (0.00702) | 0.00843 (0.00702) | 0.00982 (0.00701) | 0.00841 (0.00702) | 0.00985 (0.00701) |
| Observations | 31,175 | 31,175 | 31,175 | 31,175 | 31,175 |
| Local Ties | Yes | Yes | Yes | Yes | Yes |
| Household Controls | Yes | Yes | Yes | Yes | Yes |
| Survey Year | Yes | Yes | Yes | Yes | Yes |

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

A.2 Sensitivity Analysis

A.2.1 Distance Bins

Table A.3 breaks migration distance down into bins to look more closely at the effects of distance. We examine whether the effect of distance varies as distance increases. Here, we use migration distance without taking log to compare the marginal impact of distance on home purchase rates at different distance levels. We divide movers into four different intervals, as shown in Table A.3. The estimation results confirm the strong negative association between migration distance and home purchase rates across specifications. The results also show a declining magnitude of the coefficient, suggesting the marginal impact of distance is smaller for longer distance LD movers than for shorter distance migrants. Other measurements of local ties (except for the indicator for real estate occupation holders) are still salient in these specifications.

Table A.3: Long Distance Movers With Distance Intervals

| | (1) | (2) | (3) | (4) | (5) |
|---------------------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|
| Access to Local Information | Ownership | Ownership | Ownership | Ownership | Ownership |
| Migration Distance (50-200 miles) | -0.00110*** (0.000261) | -0.00110*** (0.000263) | -9.66e-05 (0.000471) | -0.00111*** (0.000261) | -7.28e-05 (0.000473) |
| Migration Distance (200-1000 miles) | -0.000739*** (5.31e-05) | -0.000626*** (5.35e-05) | -0.000341*** (9.34e-05) | -0.000738*** (5.31e-05) | -0.000263*** (9.40e-05) |
| Migration Distance (1000-2000 miles) | -0.000383*** (2.68e-05) | -0.000323*** (2.72e-05) | -0.000212*** (4.49e-05) | -0.000383*** (2.68e-05) | -0.000165*** (4.54e-05) |
| Migration Distance (above 2000 miles) | -0.000267*** (2.42e-05) | -0.000233*** (2.44e-05) | -0.000135*** (3.48e-05) | -0.000267*** (2.42e-05) | -0.000107*** (3.51e-05) |
| Birth-State Indicator | | 0.352*** (0.0223) | | | 0.335*** (0.0411) |
| County Flow Share | | | 2.206*** (0.360) | | 2.206*** (0.359) |
| Real Estate Occupation | | | | 0.109 (0.0987) | -0.0476 (0.166) |
| Observations | 31,175 | 31,175 | 31,175 | 31,175 | 31,175 |
| Household Controls | Yes | Yes | Yes | Yes | Yes |
| Destination Controls | Yes | Yes | Yes | Yes | Yes |
| Survey Year | Yes | Yes | Yes | Yes | Yes |

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

A.2.2 Coast-to-coast migrants

Additionally, as noted in section 3.4.1, we analyze households who moved from western (eastern) coastal counties to eastern (western) coastal counties due to strong ties between some large coastal cities (Badger and Bui, 2018). In Table A.4 we estimate the same empirical model as in Table 4, but using only coast-to-coast migrants. The results are largely consistent with our results from the full LD sample, but the coefficients on migration distance are no longer statistically significant, whereas the coefficients on the birth-state indicator are statistically significant across specifications. This finding seems to suggest that when it comes to migration over a very long distance (i.e., coast-to-coast migration), social ties play a more important role as a source of local ties compared to geographic proximity.

Table A.4: Coast-to-Coast Movers With Level Variables

| | (1) | (2) | (3) | (4) | (5) |
|------------------------|-------------------|-----------------------|-------------------|---------------------|-----------------------|
| | dy/dx | dy/dx | dy/dx | dy/dx | dy/dx |
| Local Ties | Pr(Ownership) | Pr(Ownership) | Pr(Ownership) | Pr(Ownership) | Pr(Ownership) |
| Log Migration Distance | 0.0327 (0.208) | 0.0144 (0.204) | 0.0338 (0.208) | 0.0307 (0.208) | 0.0152 (0.204) |
| Birth-State Indicator | | 0.0761*** (0.0190) | | | 0.0761*** (0.0191) |
| County Flow Share | | | -0.330 (0.643) | | -0.367 (0.640) |
| Real Estate Occupation | | | | -0.0275 (0.0694) | -0.0236 (0.0666) |
| Observations | 1,323 | 1,323 | 1,323 | 1,323 | 1,323 |
| Household Controls | Yes | Yes | Yes | Yes | Yes |
| Destination Controls | Yes | Yes | Yes | Yes | Yes |
| Survey Year | Yes | Yes | Yes | Yes | Yes |

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

References

- [1] Agarwal, S., Sing, T. F., and Wang, L. (2018). Information asymmetries and learning in commercial real estate markets. Available at SSRN 3022705.
- [2] Alsan, M. and Wanamaker, M., 2018. Tuskegee and the health of black men. *The quarterly journal of economics*, 133(1), 407-455.
- [3] Antoniou, C., Harris, R.D. and Zhang, R., 2015. Ambiguity aversion and stock market participation: An empirical analysis. *Journal of Banking Finance*, 58, 57-70.
- [4] Badger, E., and Bui, Q. 2018, September 19. How Connected Is Your Community to Everywhere Else in America? Retrieved from <https://www.nytimes.com/interactive/2018/09/19/upshot/facebook-county-friendships.html>
- [5] Baik, B., J.-K. Kang, and J.-M. Kim. 2010. Local institutional investors, information asymmetries, and equity returns. *Journal of Financial Economics* 97(1), 81–106.
- [6] Bricker, J., Dettling, L.J., Henriques, A., Hsu, J.W., Jacobs, L., Moore, K.B., Pack, S., Sabelhaus, J., Thompson, J. and Windle, R.A., 2017. Changes in US family finances from 2013 to 2016: Evidence from the Survey of Consumer Finances. *Fed. Res. Bull.*, 103, p.1.
- [7] Brueckner, J.K., 1986. The downpayment constraint and housing tenure choice: A simplified exposition. *Regional Science and Urban Economics*, 16(4), 519-525.
- [8] Brueckner, J.K., 1997. Consumption and investment motives and the portfolio choices of homeowners. *J. Real Estate Finance Econ.* 15, 159–180.
- [9] Chincio, A., and Mayer, C. 2016. Misinformed speculators and mispricing in the housing market. *The Review of Financial Studies*, 29(2), 486-522.
- [10] Coulson, N.E., Dalton, M., 2010. Temporal and ethnic decompositions of homeownership rates: synthetic cohorts across five censuses. *J. Housing Econ.* 19, 155–166.
- [11] Coval, J. D. and T. J. Moskowitz, 2001. The geography of investment: Informed trading and asset prices. *Journal of Political Economy* 109(4), 811–841.

- [12] Cukierman, A., 1980. The effects of uncertainty on investment under risk neutrality with endogenous information. *Journal of Political Economy*, 88(3), 462-475.
- [13] Davidoff, T., 2006. Labor income, housing prices, and homeownership. *Journal of urban Economics*, 59(2), 209-235.
- [14] Dusansky, R., Koç, Ç., 2007. The capital gains effect in the demand for housing. *Journal of Urban Economics*, 61(2), 287-298.
- [15] Diaz-Serrano, L., 2005. On the negative relationship between labor income uncertainty and homeownership: Risk-aversion vs. credit constraints. *Journal of Housing Economics*, 14(2), 109-126.
- [16] Dietz, R.D., Haurin, D.R., 2003. The social and private micro-level consequences of homeownership. *J. Urban Econ.* 54, 401–450.
- [17] Eilbott, P., Binkowski, E., 1985. The determinants of SMSA homeownership rates. *J. Urban Econ.* 17, 293–304.
- [18] Eraker, D., Dougherty, A.M., Smith, E.M. and Eraker, S., REDFIN CORP, 2015. Online marketplace for real estate transactions. U.S. Patent 9,105,061.
- [19] Fu, Y., 1991. A model of housing tenure choice: comment. *Am. Econ. Rev.* 81, 381–383.
- [20] Fu, Y., 1995. Uncertainty, liquidity, and housing choices. *Regional Science and Urban Economics*, 25(2), 223-236.
- [21] Gyourko, J., Linneman, P., 1996. Analysis of the changing influences on traditional households' ownership patterns. *J. Urban Econ.* 39, 318–341.
- [22] Gyourko, J., Linneman, P., Wachter, S., 1999. Analyzing the relationships among race, wealth, and home ownership in America. *J. Housing Econ.* 8, 63–89.
- [23] Ha, S., Hilber, C. A., Schöni, O. 2021. Do long-distance moves discourage homeownership? Evidence from England. *Journal of Housing Economics*, 101766.
- [24] Haurin, D.R., 1991. Income variability, homeownership, and housing demand. *Journal of Housing Economics*, 1(1), 60-74.

- [25] Haurin, D.R., Gill, H.L., 1987. Effects of income variability on the demand for owner-occupied housing. *Journal of Urban Economics*, 22(2), 136-150.
- [26] Haurin, D.R., Gill, H.L., 2002. The impact of transaction costs and the expected length of stay on homeownership. *Journal of Urban Economics*, 51(3), 563-584.
- [27] Haurin, D.R., Morrow-Jones, H.A., 2006. The impact of real estate market knowledge on tenure choice: a comparison of black and white households. *Housing Policy Debate* 17, 625–653.
- [28] Henderson, J.V. and Ioannides, Y.M., 1983. A model of housing tenure choice. *The American Economic Review*, 73(1), 98-113.
- [29] Henretta, J.C., 1984. Parental Status and Child's Home Ownership. *Am. Soc. Review* 49 (1), 131–140.
- [30] Hilber, C.A.L., Liu, Y., 2008. Explaining the black-white homeownership gap: the role of own wealth, parental externalities and locational preferences. *J. Housing Econ.* 17, 152–174.
- [31] Ioannides, Y.M. and Kan, K., 1996. Structural estimation of residential mobility and housing tenure choice. *Journal of Regional Science*, 36(3), 335-363.
- [32] Kain, J.F., Quigley, J.M., 1972. Housing market discrimination, home-ownership, and savings behavior. *Am. Econ Rev.* 62, 263–277.
- [33] Klibanoff, P., Marinacci, M. and Mukerji, S., 2005. A smooth model of decision making under ambiguity. *Econometrica*, 73(6), 1849-1892.
- [34] Kurlat, P., Stroebel, J., 2015. Testing for information asymmetries in real estate markets. *Rev Financial Stud* 28 (8), 2429–2461.
- [35] Lautz, J., Dunn, M., Snowden, B., Riggs, A and Horowitz, B., 2018 “Home Buyer and Seller Generational Trends Report 2018. National Association of REALTORS Research Department.
- [36] Linneman, P., Wachter, S., 1989. The impacts of borrowing constraints on homeownership. *J. AmeReal Estate Urban Econ. Assoc.* 17, 389–402.
- [37] Painter, G., Gabriel, S., Myers, D., 2001. Race, immigrant status, and housing tenure choice. *J. Urban Econ.* 49, 150–167.

- [38] Portes, R. and H. Rey, 2005. The determinants of cross-border equity flows. *Journal of International Economics* 65(2), 269–296.
- [39] Robst, J., Deitz, R. and McGoldrick, K., 1999. Income variability, uncertainty and housing tenure choice. *Regional Science and Urban Economics*, 29(2), 219-229.
- [40] Rosen, H.S., Rosen, K.T. and Holtz-Eakin, D., 1983. Housing tenure, uncertainty, and taxation.
- [41] Ruggles, S., Flood, S., Goeken, R., Grover, R., Meyer, E., Pacas, J. and Sobek, M., 2019 IPUMS USA: Version 9.0 [dataset]. Minneapolis, MN: IPUMS, 2019. <https://doi.org/10.18128/D010.V9.0>
- [42] Özyıldırım, S., Önder, Z. and Yavas, A., 2005. Mobility and optimal tenure choice. *Journal of Housing Economics*, 14(4), 336-354.
- [43] Sinai, T.M., Souleles, N.S., 2005. Owner occupied housing as a hedge against rent risk. *Quarterly J. Econ.* 120, 763–789.
- [44] Sinai, T.M., Souleles, N.S., 2013. Can owning a home hedge the risk of moving? *Am. Econ. J. Econ Policy* 5, 282–312.
- [45] Turner, T.M., 2003. Does investment risk affect the housing decisions of families?. *Economic Inquiry*, 41(4), 675-691.
- [46] Turner, T.M. and Seo, D., 2007. Investment risk and the transition into homeownership. *Journal of Regional Science*, 47(2), 229-253.
- [47] Zimmerman, R. and Donenfeld, J., NetLeaseX IP Holdings LLC, 2006. Online real estate transaction system. U.S. Patent Application 11/061,921.