

Keeping up with the Joneses: How Households Fared in the Era of High Income Inequality and the Housing Price Bubble, 1999–2007

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Abstract

Sociologists conceptualize lifestyles as structured hierarchically where people seek to emulate those higher up. Growing income inequality in the United States means those at the top bid up the price of valued goods like housing and those in lower groups have struggled to maintain their relative positions. We explore this process in the context of the U.S. housing market from 1999 to 2007 by analyzing over 4,000 residential moves from the Panel Study of Income Dynamics. Houses are the ultimate status symbol. Their size, quality, and location signal to others that one has (or has not) arrived. We show that in areas where income inequality was higher, all movers went deeper into debt and increased their monthly housing costs to live in more desirable neighborhoods. But because people at the top of the income distribution had so much more money, they were able to take on less debt to keep their position in the status queue. Everyone below them who made a move to buy a house took on more debt, particularly in areas with higher income inequality. This evidence suggests that growing inequality implies that those at the top buy the best homes while others struggle to keep pace amid rising housing costs.

Keywords

housing, income inequality, lifestyle, stratification

Introduction

Sociologists have explored the relationship between inequality and lifestyle by focusing on consumption (Bourdieu 1984; Schor 1998; Sobel 1981). The basic argument has been that the consumption of goods reflects social status. Since 1980 in the United States, increasing income inequality has made it more difficult for most households to maintain a lifestyle at whatever level of income they have. Growing income inequality at the top has placed pressures on those below to work to keep up despite stagnant incomes for most households. Households have had to struggle to stay where they are in the status hierarchy, and many have fallen behind (Frank 2007b; Leicht and Fitzgerald 2006; Schor 1998).

One of the most acute manifestations of this intensified lifestyle pressure can be seen in the rising costs of housing. House prices nearly doubled from 1995 to 2007 (Shiller 2008). The U.S. Census Bureau estimated that by 2004, over 40 percent of households could not afford a home priced in the bottom quartile of the local market where they resided

(Savage 2009). Schwartz and Wilson (2008) found that in 2006, 47 percent of renters and 36 percent of mortgaged homeowners had monthly housing costs that exceeded the conventional 30 percent of income cutoff for housing affordability. Most households tried to preserve their style of life by increasing their housing expenditures and going deeper into debt (Cynamon and Fazzari 2009; Langley 2008; Porter 2012; Ragan 2010). To do so, they had to learn to be more accepting of taking financial risks (Akerlof and Shiller 2010; Fligstein and Goldstein 2015).

In this paper, we elaborate a sociological lifestyle theory of consumption and apply it to explain how U.S. households

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adjusted their housing consumption in the face of rising income inequality and rising housing costs. As the richest people expand their housing consumption and bid up prices for properties in the most desirable neighborhoods, those with income right below feel compelled to keep up by buying less expensive houses but at a higher price (Frank 2007a). This competition cascades through the housing market, forcing people lower down to take on greater housing expenditures or forego buying a house altogether. Rising income inequality compounds this as those at the top have the power to bid up prices even more, which pushes those below them to stretch themselves further to maintain their position in the housing status queue.

The housing market boom from the mid-1990s until the onset of the Great Recession in 2007 offers us an opportunity to observe this process in action. We use the Panel Study of Income Dynamics (PSID) to explore how households responded to these pressures on their lifestyle in the context of residential moves. By linking PSID respondents to geographic locations, we can examine how varying levels of metropolitan income inequality affected the consumption behavior of households at different places in the income distribution. Empirically, we examine the extent to which households at different levels of the income distribution upgrade their housing when they move and their willingness to stretch themselves financially to do so.

Recent work by sociologists and economists has explored the relationship between inequality and housing consumption using cross-sectional data from the Consumer Expenditure Survey (CEX) (Bertrand and Morse 2013; Charles and Lundy 2013). We build on these studies in several ways. The CEX contains great detail on how much households spend on a given consumption category, but it does not tell us anything about the nature of the goods they are purchasing. The PSID allows us to analyze the amount people are spending and borrowing for housing as well as the quality of the housing they are consuming (size of the house and neighborhood desirability). The longitudinal structure of the PSID allows us to observe individuals across time and space as they move within commuting zones. This allows us to draw inferences from the behavior of the same households over time rather than from cross-sectional differences.

Our analysis tests two overarching implications of the effects of inequality on the lifestyle competition model of housing consumption. First, we expect that in areas with greater inequality, households across the income distribution will be more prone to upgrade their housing when they move, as measured by changes in the size of dwellings people inhabit and the desirability of the neighborhoods they move to. Second, conditional on the quality of the housing they consume, households in areas with greater inequality will be more willing to stretch themselves financially to attain that housing and thereby maintain their position in the lifestyle hierarchy. That is, rather than retreating to smaller homes or less expensive neighborhoods, movers in higher inequality

areas will be more prone to increase their indebtedness and housing expenditures as a share of income.

Overall, the results provide evidence consistent with the idea that income inequality fuels pressures for households to maintain a lifestyle (in this case in housing). We find that the existing level of income inequality in a commuting zone (a geographic area surrounding a work site that encompasses the localities where people live and reasonably can be expected to travel back and forth daily to work; Tolbert and Sizer 1996) has an effect on households' choice of larger homes and their taking on more debt and paying higher monthly expenditures for housing. We also find evidence for an expenditure cascade (Frank 2007b). People with higher household incomes in high inequality areas are able to more easily move to better neighborhoods, buy larger houses, take on less debt, and pay less of their income on housing. From our perspective, this shows a direct benefit for the most well off, who end up being able to take advantage of high income inequality and their high income to pay less for the best housing. Households below the top 10 percent of the income distribution who live in areas with high income inequality found themselves facing higher housing costs to keep up with the "Joneses." Those in the bottom part of the income distribution who lived in high inequality areas ended up paying a higher percentage of their income in rents when they moved.

Our paper has the following structure. We elaborate how status and consumption are structured across levels of income. Then we discuss how increasing income inequality puts extra pressure on most households to go deeper into debt to maintain their current lifestyle. We apply this framework to the case of housing consumption in the United States during the 2000s. We discuss the centrality of housing in Americans' conception of what constitutes a middle-class lifestyle and how housing plays a key role in the construction of one's social status. Next, we consider how rising income inequality has helped push up the prices of houses during the housing bubble. We propose some hypotheses about what this implies for housing choices made at varying levels of the income distribution and provide analyses that support these hypotheses. Finally, we conclude by considering how while the striving for a better lifestyle continues, keeping up in the face of growing inequality is hardest for those in the bottom 50 percent of the income distribution.

Inequality, Lifestyle, and Consumption

It is useful to elaborate the concept of lifestyle. Weber (1946) defined social status as a form of community where groups are formed around a specific, positive or negative form of social honor. Status honor is normally expressed by members of a group through the symbolic expression of a style of life. Elias (1994) took up Weber's idea of social status and offered a dynamic view of how status evolves through interactions between groups. Elias argued that a status order was constantly

in flux as a result of individual and collective strategies to emulate those above you in the status hierarchy.

Elias (1994) elucidates this perspective using the case of early modern European society. The social status of the nobility was a consequence of their claim on social honor due to their privileged birth. In the sixteenth and seventeenth centuries, they became “civilized” by learning manners, new styles of dress and consumption, and how to make polite and erudite conversation. As capitalism took hold, new social groups began to emerge. These groups did not have noble birth, but some of them, notably the richest merchants, had money. They worked to enter high society by adopting the mannerisms of the nobility, while the nobility sought to maintain their distinctions by elaborating ever more elaborate and esoteric ways to behave and consume. Elias argues that this new rich merchant class had its imitators in social strata just below them. Those with fewer resources worked to create what we would now call middle-class lifestyles. Below them, those who were less educated and had fewer resources created working-class culture but still aspired to have more.

Bourdieu’s (1984) *Distinction* built on Elias’s (1994) analysis by opening up new ground in the empirical study of lifestyle. Lifestyle is conceived of as a set of dispositions that actors have but are manifested in the kinds of choices people make about how to consume. Bourdieu’s theory emphasized that people learn about whom they are and what they should expect in life from their class background. He argues that adults construct their lifestyles around two features of their resources: cultural capital and economic capital. They construct their consumption on the basis of their perception of who they are and who they are trying to emulate (or oppose). He uses survey data to provide evidence for these groupings.

Schor (1998) pursues the theme of consumption and lifestyle in *The Overspent American*. She follows Elias and Bourdieu in positing that people strive to create a lifestyle that emulates those who are right above them in some status queue. These goods help define peoples’ identities and signal to others their social status. She uses survey data to show how the process of keeping up with others is an arms race where upping the spending ante forces other to follow. This is consistent with Elias’s view of how high status people are constantly working to improve their positions and others work hard to emulate them, albeit with less income. She views the formation of consumer society as at least partially the result of corporations taking advantage of people’s tendencies to consume more and more to display their social status. Schor also argues that people will go deeper into debt to continue to try and keep up.

Frank (1989, 2007a, 2007b), an economist, has further elaborated a different sociological way to understand the relationship between inequality and consumption. He agrees with sociologists that status and ranking are important for consumption decisions and that consumption is done in

relation to what other people have. When people are given a choice between owning a house that is 4,000 square feet when their neighborhood has houses averaging 6,000 square feet versus owning a house that is 3,000 square feet but their neighborhood averages 2,000 square feet, they choose the latter (Frank 2007b). Frank (2007a) makes the case that the cost of positional goods (a term coined by Hirsch 1976) can be driven up over time in the face of constant or declining supply, particularly in a context of rising income inequality. He argues that the increasing concentration of income at the top has set off a cascading arms race among everyone else that increases the price they must pay to maintain a constant position vis-à-vis others.

From this literature, we can identify two conceptually distinct mechanisms by which inequality might affect housing consumption, expenditures, and debt. First, lifestyle-based competition heightens consumption by shifting what we seek to consume. As members of aspirational reference groups expand their consumption and secure more desirable goods, those below them will ratchet their own consumption in turn. One example that illustrates this argument is the attempt to emulate the consumption of the rich, such as the phenomenon of large “McMansions” marketed to middle-class homebuyers during the 1990s and 2000s (Dwyer 2009; Schor 1998). Higher income inequality exacerbates this process because it allows those at the top to push for even more outrageous things. Increasingly lavish consumption at the top may also indirectly fuel higher absolute consumption throughout the distribution by inflating the cultural standards of what is considered normal for those below (Levine, Frank, and Dijk 2010). Homes that had formerly seemed luxurious begin to appear more modest by comparison. Lastly, rising inequality can intensify individuals’ desire to secure the best relative positions. For example, growing inequality may prompt more parents to seek access to the very best schools by triggering anxiety about class reproduction in an increasingly winner-take-all society (Frank 2007b; Rivera and Lamont 2012).

The second mechanism is that prices for valued goods can be bid up when income inequality increases. A greater concentration of income near the top of the distribution will tend to inflate prices for the most desirable positions, but this will also spill over and elevate prices below in a cascading fashion (Frank 2007b). Price cascades are particularly applicable in the case of residential real estate, where increasing prices at the top of the local market will tend to reverberate throughout the market (Matlack and Vigdor 2008). This means that where there is greater income inequality, there is not only greater dispersion in housing prices, but median housing prices are also higher (Levine et al. 2010). The implication is that to maintain a given social status and lifestyle, people will have no choice but to pay more. Of course, the implications of increased housing prices will differ for renters and incumbent homeowners, an issue that we elaborate further in the following.

Taken together, these two mechanisms suggest that inequality heightens housing consumption by intensifying actors' desire to enhance their housing situation and increasing the effective amount one must pay to attain or maintain a certain level.

Housing and Inequality

We observe these mechanisms by exploring households' consumption behavior in the context of the early 2000s housing boom in the United States. The housing boom provides an ideal site to examine how inequality drives competition for lifestyles. From the perspective of lifestyle, houses are the ultimate positional good. They are expensive and vary in size, quality of building materials, and locational amenities. Housing is the major source of wealth for most American families and thus a marker of one's position in the stratification structure (Keister 2000). Residential location determines access to important resources, including transit, safe neighborhoods, and public schools. So, for example, evidence shows parents are willing to pay 2.5 percent more for a house for a 5 percent increase in test scores (Black 1999). This is particularly true for the best schools that score in the highest test score brackets (Clapp, Nanda, and Ross 2008).

Homes and especially homeownership are at the core of a middle-class identity (Dupuis and Thorns 2002). Pew Research Center, on the eve of the recent financial crisis of 2008, issued a report on the state of middle-class America. They reported that middle-class Americans "regard their home as their most important asset and the anchor of their lifestyle" (Pew Research Center 2008:33). The fact that housing is at the core of middle-class aspirations and a site where actors seek limited spaces in desirable neighborhoods makes it an ideal site to study how changing income inequality has put pressure on household lifestyles.

Income inequality has been rising nationally since the early 1970s (Picketty and Saez [2003] 2015). Inequality has also risen within most metropolitan areas, but to varying degrees. Within-metropolitan inequality has risen most in coastal areas with high housing costs (Peters 2013). The fact that housing markets are locally structured and largely independent of one another allows us to leverage contextual differences to observe how households' consumption decisions vary across metropolitan areas, which are characterized by varying levels of income inequality.

The 2000s housing boom coincided with an enormous expansion of mortgage credit availability across the income distribution. Easy credit supplied the fuel by which households could continue to compete over lifestyle even as median incomes stagnated, inequality increased, and prices rose. This allowed Americans to maintain their lifestyles and positions in the status hierarchy (Erturk et al. 2007; Hacker 2006; Hyman 2011; Leicht and Fitzgerald 2006; McCloud and Dwyer 2011; Rajan 2010). A loose credit environment is analytically advantageous insofar as it allows us to observe

households' competition for lifestyle in a context where affordability constraints were significantly relaxed.

Hypotheses

The lifestyle competition argument implies that inequality will heighten the imperative to upgrade one's housing to maintain a relative lifestyle while simultaneously making such consumption more costly. It is useful to elaborate these arguments by considering how these pressures might structure the behaviors of households in various positions under varying conditions of inequality. The outcomes we focus on for households who move are the changes in the size of their homes, the status of the neighborhoods they move to, their housing expenditures as a percentage of total income, and their housing debt as a percentage of total income. The first two correspond to trying to increase valued goods to attain a certain lifestyle, namely, moving to a bigger house or a nicer neighborhood. The latter two measure how willing people are to adjust their financial situations by going deeper into debt or increasing housing expenditures to maintain or expand their lifestyle in the consumption of housing.¹

In the face of rising inequality, it follows that the lifestyles of households at any level of the distribution proved more difficult to maintain, particularly relative to those who were situated just above you. We predict this had two effects on households. First, we expect that all households will seek to acquire bigger houses and move to better areas even as inequality and house prices increased (Charles and Lundy 2013; Frank 2007b). The reason is somewhat ironic. As inequality increases, those at the very top will be able to afford larger and larger homes in the best neighborhoods. Those below them, to maintain their position in a status hierarchy, will aspire to bigger and better homes. This will be going on even as those farther down the income distribution will be less and less able to afford what those above them have.

Second, the easiest way to close the gap between what you were earning and what you needed to expand the size of your home and improve the quality of your neighborhood is to borrow more money and make higher house payments. We predict that all households, even renters, will tend to increase their housing expenditure to income ratio when they move and that this will be especially pronounced in higher inequality areas. Aggregate trends and results from several related studies offer suggestive evidence that lifestyle emulation has caused all households to want more space. In terms of housing size, the U.S. Census Bureau

¹Of course some of these outcomes are only applicable to certain types of moves. If people decide to buy a house for the first time, then almost by definition they will be increasing their housing debt; if they move from owning a house to a rental, they will certainly have less debt. Rent-to-rent movers will not accrue additional housing debt.

(2011) shows that house size averaged 1,645 feet in 1975, 2,080 in 1990, 2,223 in 2000, and 2,392 in 2010 (see also Dwyer 2009).² This trend is consistent with a positional arms race where those who are richer want bigger houses and those below them respond by demanding the same. We know that spending on housing as a share of income increased for both owners and renters during this period. Results from two recent household-level studies using the Consumer Expenditure Survey find that median levels of consumption tend to be higher in cities with higher inequality, controlling for the attributes of households in those cities (Bertrand and Morse 2013; Charles and Lundy 2013). This is consistent with the idea that consumption “trickles down” by ratcheting up standards or bidding up prices.

Hypothesis 1: All households who move will try to expand their house size regardless of income and income inequality.

Hypothesis 2: In areas with higher income inequality, the richest households will want larger homes. This will cause everyone who lives in areas with higher income inequality to want to buy larger homes to keep up.

We measure the presumed “desirability” of a neighborhood (for both owners and renters) using the median housing purchase price in the zip code where the household resides. Although individuals have heterogeneous neighborhood preferences, more expensive neighborhoods are generally assumed to be more attractive to all households regardless of income. But in areas with high levels of income inequality, we expect that higher income people will bid up the price of the most desirable housing, and they will be the most likely to be able to upgrade their neighborhoods. We also predict that in such areas, those who move from renting to owning will have to buy homes in less desirable areas. That is, the attainment of homeownership will come at the cost of greater decline in neighborhood desirability

Hypothesis 3: In areas where income inequality is higher, households with higher incomes will be more likely to upgrade to more desirable neighborhoods.

Hypothesis 4: Households who move from not owning to owning a house will have to buy houses in less nice neighborhoods.

In areas with high levels of income inequality, we expect that house prices will be higher due to the expenditure cascade discussed earlier. This will mean that to buy housing, households will have to go deeper into debt and support

higher house payments. We know that the precipitous growth in indebtedness during this period was driven almost exclusively by mortgage debt growth (Dyner and Kohn 2007; Goldstein 2014). Debt to income grew across the income distribution, but it grew the most among the upper-middle-class households, who are presumably most susceptible to competitive status pressures from those at the top (Goldstein 2014). Fligstein and Goldstein (2015) show that these changes have been accompanied by a shift in cultural attitudes whereby taking risk and borrowing money to maintain one’s lifestyle have become more normative. This is particularly true for the top 20 percent of the income distribution where the effects of increasing top-end income inequality are felt most directly. Instead of settling for less, households became comfortable with buying as much house as they could and accepting the higher levels of expenditure, debt, and risk that this entailed. We present hypotheses for how moves affect housing expenditures and mortgage debt—but the latter prediction only applies to homeowners.

Hypothesis 5: Households in more unequal places will spend more of their monthly incomes on housing.

Hypothesis 6: Households in more unequal places will accumulate more debt to buy a house. Higher income households will have accumulated less debt than lower income households.

Research Design, Data, and Methods

Our research design is tailored to address several particularities of housing consumption. Our argument can be taken to imply that households are always cognizant of their status and that status concerns are always factoring into their behavior. But in reality, moving reflects not just status but a whole host of unrelated factors. So, for example, people do not move every year to adjust their perceived position in a housing hierarchy. This is for a number of reasons. Moving is time consuming and expensive. People who already own homes may have the view that they already have arrived and will thus be disinterested in moving. Indeed, inequality might increase this inertia as the value of their homes goes up and they have little reason to move to prove their social status. Finally, people move and buy and sell houses not just for status but also for changes in their life circumstances like taking new jobs or retiring.

Our research design solves some of these problems by simplifying our analysis and making it more tractable. We take the move as our unit of analysis, which means that we only study households who move during the two-year period between interviews. This strategy follows from the fact that we are less interested in the factors that prompt households to move or stay *per se*. Rather, we want to understand when households do move, how do they change their housing consumption (size and neighborhood desirability), housing expenditures, and housing debt under varying levels of local

²There is a huge literature in marketing and consumption that shows that over time, there has been a ratcheting up of expectations for a wide variety of goods. See Schor (1998) and Zukin and Maguire (2004) for reviews.

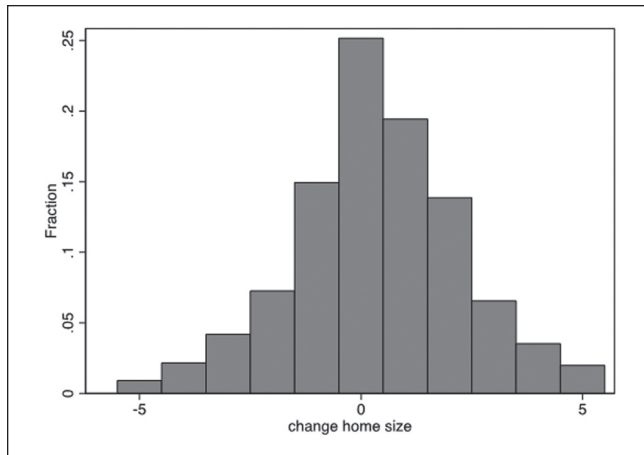


Figure 1. Change in number of rooms for movers.

income inequality. However, our results could be potentially biased by selecting only movers. We will return to this issue in the conclusion.

We use the Panel Study of Income Dynamics (PSID), a nationally representative longitudinal survey of U.S. households. Although limited in what they measure—for example, we are unable to directly measure the motivations for the move—these data represent the best currently available to test these hypotheses.³ With longitudinal data we are able to observe the households both before and after they move. We take advantage of the PSID Consumption Expenditure Data Files that began in 1999 and include measures of monthly expenditures for housing.⁴ We begin our analysis in 1999 because of these files and end with the 2007 wave to capture the full extent of the housing bubble (i.e., the high peak of house prices in 2005 and their slight decrease between 2005 and 2007) but little of the Great Recession that followed it. During this time, in-person surveys with households were conducted every other year, so we have five waves of survey data up to four moves per household. Restricted-access geo-located data were obtained from the Institute for Social Research at the University of Michigan, with which we matched households to the local housing markets in which they reside at the zip code level.

Our outcomes of interest are the changes in the sizes of the houses, desirability of the neighborhoods people move to, and amount of money they expend and debt they have. We use the self-reported change in number of rooms in the new house or apartment as a measure of changes in house size. Figure 1 presents the distribution of room changes across the moves. One can see that the tendency when people

move is to increase their house size. But a substantial number of households are downsizing as well.

To measure whether households are moving to more desirable neighborhoods, we use the percentage difference in the median zip code housing price between the origin and destination. This measure is obtained from Zillow (Zillow Real Estate Research 2014). Area housing prices are based on annual, inflation-adjusted estimates of the median price for all owner-occupied homes in a given zip code. Zillow's database offers the only publicly available source of annual, zip code-level housing prices across a large swath of the United States. Other commonly used housing price data sets such as the Federal Housing Finance Authority OFHEO index and the S&P Case-Shiller index only produce estimates at the metropolitan statistical area (MSA) level and in the latter case, only cover 20 MSAs.⁵ The main drawback of the Zillow database is its poor coverage in rural areas with small and/or illiquid housing markets. Specifically, data are available for zip codes in 885 counties across the full period from 1999 to 2007. Those PSID respondents who reside outside these counties are effectively excluded from the parts of our analysis that uses zip code prices. Using data from the American Community Survey, we calculated that the Zillow-covered areas contain 77 percent of all U.S. households in 2007 but 87 percent of households who reside in areas within an MSA (defined as a labor market area with a total population in excess of 50,000). The covered areas furthermore contain over 90 percent of all households within the 175 largest metropolitan areas (MSAs with population greater than ~250,000 in 2007).⁶

We define the “household expenditure to income ratio” as the ratio of current housing expenditures to self-reported total family income (before taxes).⁷ Housing expenditures

⁵Zillow's median price estimates are constructed from an underlying proprietary database of property value imputations. Zillow's published indices for geographic areas differ from repeat-sales indices such as Case-Shiller insofar as Zillow's is designed to account for changes in the composition of housing stock in a given area, whereas Case-Shiller holds the mix of housing stock constant. In practice, however, the Zillow and Case-Shiller indices closely track one another during the period from 1999 to 2009 (Bruce 2014).

⁶To explore the possible bias introduced by this, we examined a set of several population-weighted mean characteristics of Zillow-covered counties to all counties in MSAs in 2005. We found that the covered areas closely match the characteristics of the overall metropolitan population across median age of the head of household, percent minority, income per capita, unemployment rate, and new residential building permits per existing housing units. Results available on request.

⁷The income measure actually reports income from the previous year, meaning there is a slight mismatch because expenditures and housing debt are measured in the current year. It is possible that income changes from the previous year affect current expenditures or housing debt, but we are not able to assess this. The income measure is before taxes, as post-tax income data are not available, although they could be approximated with TAXSIM.

³The PSID does include a categorical “why move” question, but the possible categories are too broad for our purposes.

⁴These files and documentation are available at <http://simba.isr.umich.edu/Zips/zipSupp.aspx#CONEX>.

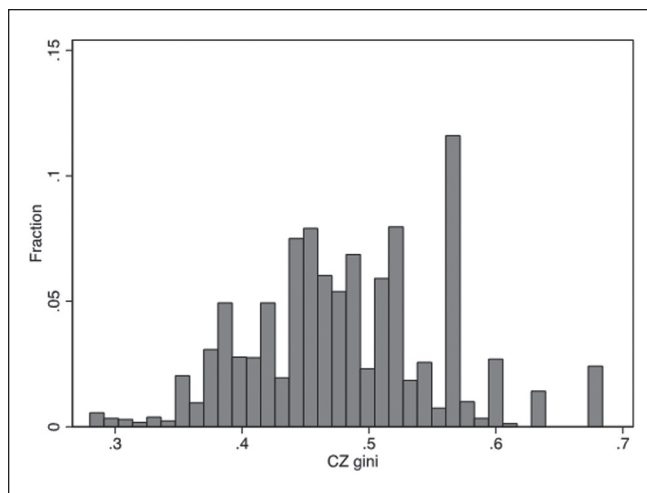


Figure 2. Distribution of Gini coefficients across commuting zones.

include monthly mortgage payments, rent, insurance, property tax, and utilities. The PSID's housing and total expenditure figures closely match those in the Consumer Expenditure Survey (Li et al. 2010). We analyze the change in the housing expenditure to income ratio as the difference between this ratio in the wave before the move and this ratio in the wave after the move. For example, if a move occurred between when respondents were interviewed in 2005 and 2007, we analyze the difference between the housing expenditure to income ratio in 2007 and the same ratio in 2005. Similarly, we analyze the change in the ratio of total housing debt (all mortgages, including home equity loans) to income as the difference between the ratio before the move and the ratio after the move.

Inequality is a population-level variable, but there is no clear theoretical prior for which level is the right level (city, state, zip code, commuting zone). We argue that the commuting zone (CZ) is a good measure because it spans the local labor market and (unlike counties) covers how far people will be willing to travel for their jobs. This nicely captures how when people move, they balance off their need to be within a commutable distance to their jobs but also to have access to the best housing they can afford. CZs are aggregations of counties designed to capture local labor markets (Autor and Dorn 2013; Tolbert and Sizer 1996). They are similar to metro areas and MSAs but cover the entire United States, including rural areas, so all PSID respondents reside in a CZ. CZ inequality is based on IRS micro-data that are not top-coded but are calculated using only the incomes of families with children from 1996 to 2000 (Chetty et al. 2014). Because the inequality measure is only inequality among families with children, it may understate the true level of inequality, but this measure still probably captures very well the overall ranking of inequality between CZs. We use the Gini coefficient of the CZ as our measure. Figure 2

shows the substantial variation in our sample of the Gini coefficient across different CZs.

Based on the homeownership status of households before and after the moves, we code households in each wave who move to one of four categories: owner to owner, nonowner to owner, owner to nonowner, nonowner to nonowner.⁸ This allows us to see how the varying types of changes in housing status impact our dependent variables. We expect that people who buy their first homes will increase their indebtedness and housing expenditures while people who sell their homes and move to rent might decrease both.

We control for a number of additional variables in our models: household size (1, 2, 3, 4, or 5+ members) and as reported for the household head: age, age-squared, race, sex, and marital status. Each of these variables is coded based on the values from the wave after the move, but results were similar using the values from the wave before the move. We also include the logged household income in the previous period to assess the main effect of income on our dependent variables. At the CZ level, the models also control for logged mean income. All dollar values are adjusted with the CPI-U-RS series to 2007 dollars (the last year of our analysis).

We estimate ordinary least squares (OLS) regression models with year fixed effects. Our analysis is limited to moves *within* commuting zones as these moves are the most related to status pressures. Within-CZ moves account for 80.5 percent of all moves reported during the analysis period. Practically, focusing only on within-CZ moves means there is no change in CZ inequality before or after the move—rather, we observe the effects of those moves within different contexts of inequality. All models account for sampling weights, and standard errors are clustered by CZ.⁹ We examine households where the head of household was between ages 25 and 65, and we remove from the analysis the households reporting values above the 99th percentile or below the 1st percentile of each outcome variable to avoid unduly influential observations. We present the models both with and without the interactions between household income and CZ inequality to observe how the effects may vary across the income distribution. To more easily interpret the coefficients in the interacted models, we mean-center CZ inequality, CZ log mean income, and log household income in these models. As a robustness check, we also examined all the models with an interaction terms between the CZ Gini and a nonlinear income measure (i.e., indicator variables for each income quintiles). These produced substantively identical results.

⁸We sometimes refer to nonowners as *renters*. Based on the expenditure data, we know that a very small portion of nonowners also do not report rent payments. Removing these cases does not alter our findings.

⁹Households may appear more than once in the analysis by moving multiple times. Clustering by household did not change the statistical significance or nonsignificance of the key results.

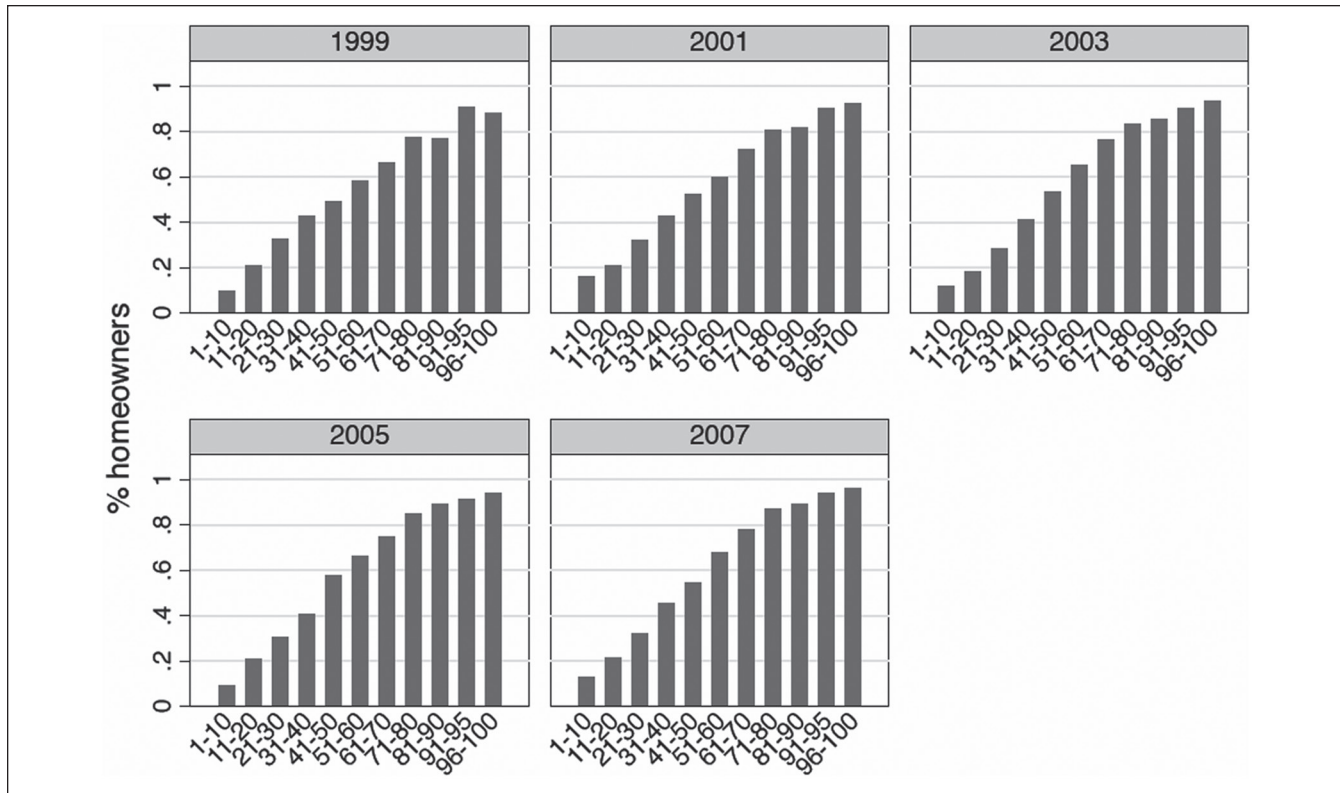


Figure 3. Fraction of households who are homeowners, by income groups.

Results

We first briefly illustrate some of the trends in the full population (based on the PSID sample) during the analysis period to provide context for our study of moves. Figure 3 shows that homeownership is highly related to income. The top 20 percent of the income distribution have ownership rates above 90 percent while the bottom 20 percent have ownership rates less than 20 percent. During the housing bubble, homeownership rates increased across the income distribution. But rates increased the most for those above the 50th percentile of the income distribution. This is evidence that as house prices took off, the bottom half of the income distribution still found it relatively more difficult to purchase a house despite the well-documented widening availability of mortgage credit during the 2000s. Figure 4 shows how mean debt for homeowners changed across the years. Low-income households are deeper in debt (relative to their income) when they own housing than high-income households in all of the panels. But over time, indebtedness increases for nearly all income groups in the data who own homes. This is some preliminary evidence in support of Hypothesis 5: Households at all income levels displayed growing willingness to take on debt as inequality and house prices were rapidly increasing. Furthermore, those lower down in the income distribution increase their indebtedness at a higher rate.

Next, we turn to our analysis of the households that moved. Table 1 presents descriptive statistics for the PSID. There were 4,354 moves within commuting zones during the period we analyze. The percentage of moves in each two-year period increased from 21 percent in 1999–2001 to 29 percent in 2005–2007. Table 1 shows that 47 percent of the moves were for households going from one rental to another. Only 17 percent of the moves reflected households moving from renting a home to buying one. Twenty-seven percent of the moves were for owners who then moved on to own a new house, while 8 percent were owners but had become renters. On average, households added .32 rooms to their homes when they moved, and they moved to a neighborhood with 4.0 percent higher median house prices than where they previously lived. When they moved, their average house expenditure to income increased about 6 percent, and their housing debt to income increased 30 percent.

Table 2 presents the results of a model that tries to test for the effects of our various variables on changes in home size. Hypothesis 1 argues that all movers will increase their home size regardless of income level. In both models, the effect of household income is small and statistically insignificant. This implies that there are no differences in the attempt to move to a bigger house at all levels of household income, thereby providing support for the hypothesis. Hypothesis 2

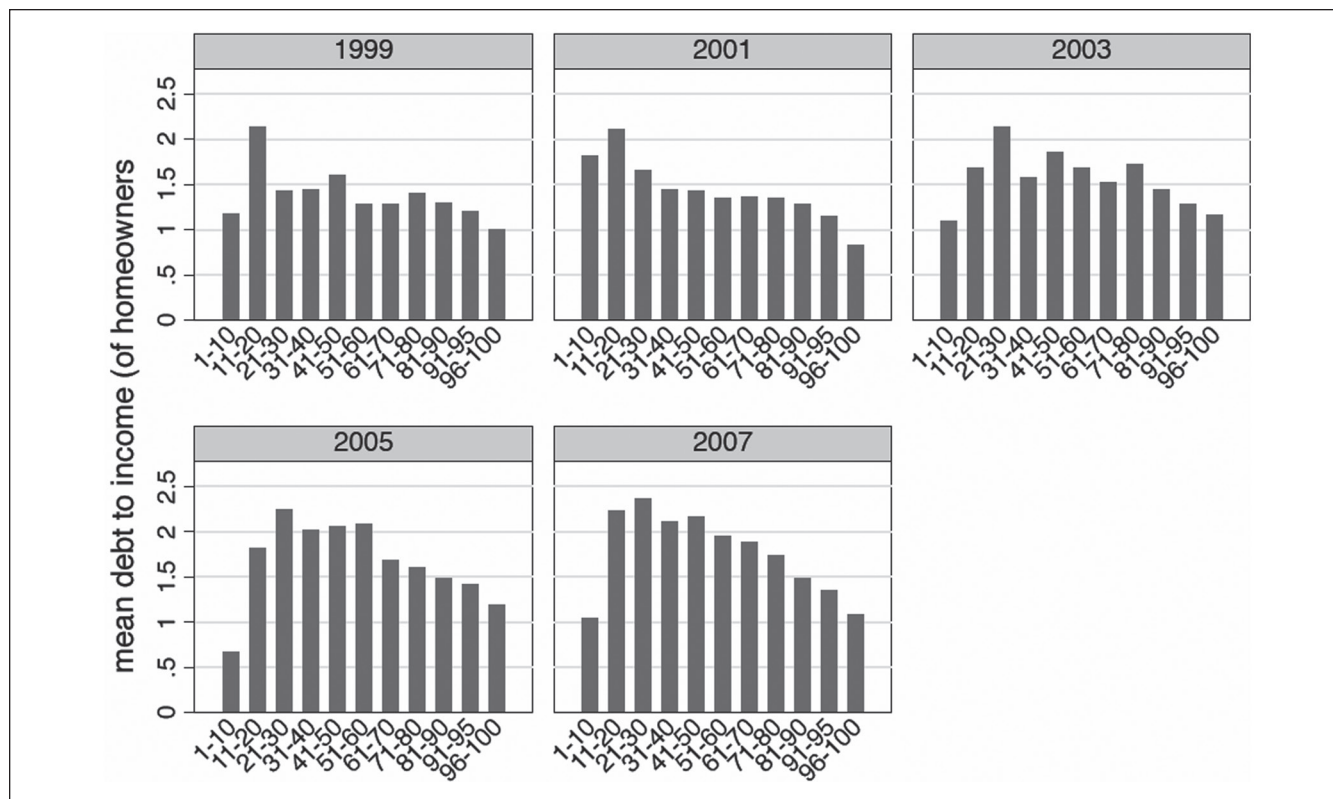


Figure 4. Mean debt to income for homeowners, by income group.

Table I. Descriptive Statistics.

	Mean	SD	Minimum	Maximum	Count
Change home size (number of rooms)	.32	1.92	-5	5	3,952
Change in median zip code price (percent)	.040	.24	-.50	1.11	2,778
Change in housing expenditure to income ratio	.058	.28	-1.17	1.46	4,182
Change in housing debt to income ratio	.30	1.02	-2.96	4.18	4,009
Commuting zone Gini	.47	.077	.28	.68	4,353
Commuting zone income (logged)	10.6	.16	9.78	10.9	4,353
Household income (logged)	10.7	.91	6.83	12.8	4,353
Owner → owner	.27		0	1	4,353
Nonowner → owner	.17		0	1	4,353
Owner → nonowner	.084		0	1	4,353
Nonowner → nonowner	.47		0	1	4,353
Education of household head (years)	13.0	2.58	0	17	4,353
Nonwhite	.28		0	1	4,353
Married	.44		0	1	4,353
Female	.69		0	1	4,353
Age	41.1	10.1	26	65	4,353
Family size	2.38	1.37	1	5	4,353
Year 2001	.19		0	1	4,353
Year 2003	.26		0	1	4,353
Year 2005	.26		0	1	4,353
Year 2007	.29		0	1	4,353

Note: Household and commuting zone logged incomes are reported before being mean centered. Descriptives are reported for respondents who appear in at least one multivariate model.

Source: PSID 1999–2007; Equality of Opportunity Project (Chetty et al. 2014).

Table 2. Model of Determinants of Change in Home Size.

	(1)	(2)
	Change Home Size	Change Home Size
CZ Gini (mean centered)	.89* (.45)	.98* (.44)
CZ Gini (mean centered) × HH income (mean centered)		-.72 (.48)
CZ median income (mean centered)	.14 (.22)	.13 (.21)
CZ median income (mean centered) × HH income (mean centered)		.24 (.23)
HH income (mean centered)	-.019 (.062)	-.028 (.061)
Owner → Owner	Reference	Reference
Nonowner → owner	.91*** (.12)	.91*** (.12)
Owner → nonowner	-1.70*** (.17)	-1.69*** (.17)
Nonowner → nonowner	-.25** (.096)	-.24* (.094)
Education of HH head	.0082 (.015)	.0089 (.015)
Nonwhite	-.070 (.072)	-.081 (.073)
Married	.16 (.12)	.17 (.12)
Female	.088 (.10)	.084 (.10)
Age	.0082 (.031)	.0088 (.031)
Age squared/100	-.027 (.036)	-.028 (.036)
Family size	.12*** (.032)	.12*** (.032)
Year 2001	Reference	Reference
Year 2003	-.043 (.15)	-.039 (.15)
Year 2005	-.018 (.12)	-.017 (.12)
Year 2007	.084 (.11)	.088 (.11)
Constant	.048 (.68)	.027 (.68)
Observations	3,952	3,952

Note: Standard errors in parentheses. CZ = commuting zone; HH = household.
* $p < .05$. ** $p < .01$. *** $p < .001$.

suggests that increasing income inequality will drive all households to try and obtain a larger home. In both models, CZ inequality is positively associated with income, but there is nonsignificant interaction between inequality and household income. This result shows that households in highly unequal areas seek to get more rooms to keep their position in the lifestyle queue, and this seems to be true across the income distribution. The model shows support for both Hypotheses 1 and 2.

Table 2 shows several other interesting effects. First, we observe that those who go from renting to buying a house increase their house size by .91 rooms. Those who are moving to buy a home are clearly moving up. We also observe that those who move from owning a home to not owning a home are clearly downsizing. They reduce their space by 1.7 rooms. Renters are finding it more difficult to find affordable housing. When they move, they are reducing their space by .25 rooms. Not surprisingly, households with more family members move to larger places. They increase their number of rooms .12 per person in the household.

Taken together, our results support the idea that more income inequality is associated with households getting more rooms when they move, and this is true across the income levels of households. We see evidence that movers who buy houses want to improve their situation by buying more space. Those who sell their homes are downsizing. We cannot tell if this is because of income constraints or other preferences (e.g., not wanting to maintain a large home). This is an issue to explore in further research. Finally, renters who move go to smaller places, suggesting they are moving to get cheaper housing.

Table 3 presents results from models predicting the quality of the neighborhood into which people are moving (because the Zillow zip code home price data did not cover all areas in the United States, the sample for this analysis is substantially smaller than analysis of changes in home size above). Hypothesis 3 proposed that in high inequality areas, the wealthiest households were the most likely to buy into better neighborhoods. The first column of Table 3 shows that there is no statistically significant effect of the CZ-level Gini coefficient or household income on where people were buying. But, when we interacted the CZ Gini coefficient with household income, there was an effect consistent with Hypothesis 3. That is, in areas where inequality was highest, those with the highest incomes were significantly able to buy into zip codes with higher housing costs. This effect confirms that inequality not only gives higher income households more money but also affords them an opportunity to buy into better neighborhoods.

Hypothesis 4 is also tested in Table 3. We see a statistically significant effect such that those who moved from not owning a house to owning a house had to buy houses in less expensive neighborhoods than where they previously lived. Taken together, these results imply that new home buyers found themselves in competition with those who already owned homes and needed to move to less desirable neighborhoods when they bought a home. This gave them a step into the American dream but not in the most desirable homes. Those who had higher incomes and lived in areas with high inequality were able to leverage into the best housing, consistent with our view of how inequality and lifestyle consumption worked in housing markets.

Table 3. Model of Determinants in Change in Zip Code Home Prices.

	(1)	(2)
	Percentage Change Zip Code Prices	Percentage Change Zip Code Prices
CZ Gini (mean centered)	-.036 (.064)	-.066 (.077)
CZ Gini (mean centered) × HH income (mean centered)		.17+ (.10)
CZ median income (mean centered)	.065* (.032)	.068* (.033)
CZ median income (mean centered) × HH income (mean centered)		-.014 (.041)
HH income (mean centered)	.0072 (.0094)	.0087 (.0089)
Owner → owner	Reference	Reference
Nonowner → owner	-.047** (.017)	-.048** (.017)
Owner → nonowner	.015 (.019)	.013 (.019)
Nonowner → nonowner	-.0055 (.011)	-.0073 (.011)
Education of HH head	-.0019 (.0021)	-.0020 (.0020)
Nonwhite	.019 (.013)	.020 (.013)
Married	.0044 (.020)	.0023 (.021)
Female	.0025 (.017)	.0045 (.017)
Age	-.000080 (.0043)	-.000045 (.0043)
Age squared/100	-.0012 (.0050)	-.0012 (.0049)
Family size	-.0019 (.0052)	-.0011 (.0052)
Year 2001	Reference	Reference
Year 2003	-.034 (.021)	-.034 (.021)
Year 2005	-.019 (.018)	-.018 (.018)
Year 2007	-.021 (.018)	-.021 (.018)
Constant	.11 (.096)	.11 (.094)
Observations	2,778	2,778

Note: Standard errors in parentheses. CZ = commuting zone; HH = household.
+p < .10. *p < .05. **p < .01.

Hypothesis 5 proposed that we should see movers take on larger increases in monthly housing expenditures in more unequal CZs. Consistent with that hypothesis, the first column of Table 4 shows that the CZ Gini coefficient has a statistically significant positive effect on the housing expenditure to income ratio. We also see that higher income

Table 4. Model of Determinants of Change in Housing Expenditures to Income.

	(1)	(2)
	Change in Housing Expenditures to Income	Change in Housing Expenditures to Income
CZ Gini (mean centered)	.32*** (.074)	.33*** (.086)
CZ Gini (mean centered) × HH income (mean centered)		-.11 (.12)
CZ median income (mean centered)	.064 (.040)	.062 (.041)
CZ median income (mean centered) × HH income (mean centered)		.018 (.055)
HH income (mean centered)	-.12*** (.015)	-.12*** (.014)
Owner → owner	Reference	Reference
Nonowner → owner	.027+ (.015)	.028+ (.015)
Owner → nonowner	-.086*** (.022)	-.085*** (.022)
Nonowner → nonowner	-.099*** (.019)	-.098*** (.020)
Education of HH head	.0066** (.0022)	.0067** (.0022)
Nonwhite	-.045*** (.013)	-.047*** (.014)
Married	.046** (.016)	.046** (.016)
Female	.014 (.016)	.013 (.016)
Age	.0067 (.0049)	.0067 (.0048)
Age squared/100	-.0069 (.0056)	-.0070 (.0056)
Family size	.013** (.0047)	.013** (.0046)
Year 2001	Reference	Reference
Year 2003	.020 (.015)	.021 (.015)
Year 2005	.10*** (.020)	.10*** (.020)
Year 2007	.058** (.018)	.058** (.018)
Constant	-.22* (.10)	-.22* (.10)
Observations	4,182	4,182

Note: Standard errors in parentheses. CZ = commuting zone; HH = household.
+p < .10. *p < .05. **p < .01. ***p < .001.

households have a smaller change in their housing expenditures to income ratio than lower income households. This suggests that lower income households are feeling compelled to stretch their finances to a greater extent when they do move. Of course, many moves coincide with or are driven by changes in household income (both upward and

downward). Our results can be taken to imply that in higher inequality areas, local movers with increasing incomes exhibit greater upward adjustment in their consumption, and those with decreased incomes exhibit less downward adjustment in their consumption. In the second column of the table, we interact the CZ Gini coefficient with household income, but there is not a statistically significant effect in the interaction, implying that these effects are felt across the income distribution.

There are several other interesting effects in the model. Those who move from not owning a home to owning a home increase their housing expenditures, as one would expect. We also observe that those who sell a home decrease their expenses substantially. This result taken with the result for changing home size implies that those who sell their homes are not only downsizing space but also their costs substantially. Again, we do not have evidence about why they do this. Renters who move also decrease their housing expenditures substantially. Given that when renters move, they are decreasing their space and their expenses, this implies that renters, who are disproportionately in the lower income groups, are being pushed down the housing status queue. The lowest household income groups are paying more as a fraction of their income than the highest for housing, and when they move, they are both getting less space and decreasing their housing expenditures. This suggests that the bottom part of the income distribution is seeing its housing get less comfortable in exchange for less cost.

There are also some interesting demographic differences in who is willing to take on more housing expenditures net of income and ownership status. More educated heads of household take on higher housing expenditures, controlling for household income. This might be that they think they have better job prospects and will be able to afford higher expenses in the future. Married couples and larger families also take on higher housing expenses. Intriguingly, nonwhites are spending less on housing expenses net of their ability to pay. This might reflect their view that employment is less stable no matter where they stand in the income and education hierarchies.

Our last hypothesis examines the determinants of assuming more housing debt. Table 5 presents these results. We note that only households who own homes can be included in this analysis. Hypothesis 6 proposes that high levels of income inequality will push households to assuming a higher level of debt to income. The first column of the table shows a large marginally significant effect of the CZ Gini on household indebtedness, thus strongly supporting Hypothesis 6. Interestingly, there is no effect of household income, nor is there an effect in living in higher income CZ. The interaction of the Gini with household income is not significant (recall the sample is much smaller than in the aforementioned models) but is large in magnitude, providing some evidence that the effect of inequality on one's debt to income ratio was larger for higher income households.

Table 5. Model of Determinants of Change in Indebtedness to Income.

	Change in Housing Debt to Income	Change in Housing Debt to Income
CZ Gini (mean centered)	1.51+ (.86)	.87 (1.16)
CZ Gini (mean centered) × HH income (mean centered)		1.02 (.86)
CZ median income (mean centered)	.16 (.29)	.59 (.47)
CZ median income (mean centered) × HH income (mean centered)		-.73 (.51)
HH income (mean centered)	-.14 (.092)	-.13 (.096)
Education of HH head	.0086 (.028)	.0097 (.027)
Nonwhite	-.066 (.15)	-.032 (.15)
Married	.39* (.20)	.37+ (.20)
Female	-.28 (.23)	-.29 (.23)
Age	.082** (.031)	.082** (.031)
Age squared/100	-.092** (.035)	-.092** (.035)
Family size	.091* (.040)	.10** (.039)
Year 2001	Reference	Reference
Year 2003	-.23+ (.13)	-.23+ (.13)
Year 2005	-.12 (.12)	-.13 (.12)
Year 2007	-.025 (.11)	-.043 (.11)
Constant	-1.47+ (.77)	-1.50+ (.76)
Observations	901	901

Note: Standard errors in parentheses. CZ = commuting zone; HH = household.

+ $p < .10$. * $p < .05$. ** $p < .01$.

There are several interesting demographic variable effects. Being married and having a larger household produce higher levels of indebtedness. We expect that people in such households expect to grow or need larger houses for their families and thus are willing to take on more debt.

Discussion and Conclusions

Our results support our hypotheses about how income inequality affected household choices for housing. Increasing income

inequality forced households to spend more money for housing and increased their level of indebtedness when they moved. Those with higher incomes who lived in more unequal areas were able to move into nicer neighborhoods as prices were bid up. This is consistent with our main argument about how increasing income inequality allowed the highest income households to move to the best neighborhoods while pushing everyone in unequal areas to spend more money to maintain their lifestyles. We show that all households without regard to income or income inequality tried to increase the size of housing when they moved. This reflected everyone's aspiration to keep up with those above them in the income distribution. But not everyone was able to keep up with higher house prices in places with increased income inequality. We see evidence that renters who move get less space and spend less money. While those in the higher part of the income distribution were able to compensate for increasing inequality by going deeper into debt to buy a house, those who were lower down had to settle for less space in cheaper housing whether they bought or rented. Our results are consistent with the idea that rising inequality has intensified positional competition in the housing market.

These results are subject to a number of limitations that suggest further research. In this study, we focus on movers mostly because we were interested in how people who moved coped with income inequality in locales. But stayers also represent an important group for understanding lifestyle pressures and their consequences for stratification. Given that homeownership is so closely linked to income, our results miss what might have been going on in the housing market for those below the 50th percentile of the income distribution. The decision not to move in a high inequality area might reflect a kind of downward mobility where people stay because they can't afford to keep up with rising prices for housing. Thus, while those who do move appear to be willing to spend what it takes to keep up with their peers, those who don't move might be falling behind.

Furthermore, we only focus on moves within commuting zones. Although this covers about 80 percent of household moves, people can be moving out of a commuting zone for reasons highly related to increasing income inequality. Households might decide to leave an area because housing just got too expensive. They might pursue better housing that was cheaper in lower priced communities. Households might also be moving to take new jobs. Such jobs might allow them to compete in the housing market where they are going more effectively. To get a more complete picture about how housing and lifestyle are linked, it is necessary to consider moves across commuting zones.

Our results suggest several additional lines of research. First, the role of children and schools in maintaining lifestyles bears further scrutiny. Existing research shows that schools are an important factor for parents when choosing neighborhoods (Lareau and Goyette 2014), and this has been a key driver of residential income segregation in recent decades (Owens 2016). It would be interesting to try and

explore the extent to which the moves analyzed here were made by parents seeking to enter better school districts and the extent to which this might help explain changes in housing expenditures and debt.

Second, we know that housing outcomes are also stratified by race and ethnicity. African American and Hispanic groups have lower rates of homeownership and during the house price run up were only able to buy late in the process (Fligstein and Ahidiana 2015). This means that increasing income inequality might have affected the choices of these groups differently. Being more likely to be renters, they may have had to move to less desirable housing as the house price bubble grew. Similarly, they may have been more likely to move out of highly unequal places with rising housing prices. It is important to explore how lifestyles were affected differently by groups concentrated in different parts of the income and housing distribution.

Finally, our evidence is consistent with the idea that people do work to maintain their lifestyles. But we do not directly observe their doing so, and therefore we cannot adequately assess their motives. We have shown the demographic correlates of what affects moves to larger, more expensive housing such as education, marriage, and family size. But when we observe households changing from owning to renting or moving from one rental to another, we are not able to assess what is pushing them to do so. Some moves might be explained by life changes such as children moving out or retirement. Others might be the result of being unable to afford one's current house and thereby having to downsize or seek out a cheaper apartment to rent. For those who move from a house they already own to a new house or who go from renting to owning, we are also not able to understand how this reflects their thinking about lifestyle. Our results suggest that the sociological lifestyle theory of consumption is consistent with households wanting to consume the best housing they can even in places with unequal incomes. But, it would be important to explore how these types of decisions are made in more detail.

Sociologists have been slow to unpack the linkages between income inequality, indebtedness, housing, and place for the social position of households. Our results show how place and housing play a big role in the social status of households. Housing, place, and debt are not usually considered as stratification variables, but we have shown how they play an important role in household's social status and lifestyles. We have shown how households located at different parts of the income distribution in areas with differing levels of income inequality strive to move to new housing that can meet their needs. Most households who own a home have had to spend more, go deeper into debt, and in the case of new home buyers accept less desirable houses. Those who are renters have faced more difficult prospects as housing prices have risen and inequality has increased. They have had to live with smaller space to reduce their costs. These results support a promising new agenda for stratification

research that links together increasing income inequality and the consumption of housing, the most important status good.

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Author Biographies

Neil Fligstein is the Class of 1939 Chancellor's Professor in the Department of Sociology at the University of California. He has made research contributions to the fields of economic sociology, organizational theory, political sociology, and social stratification. He is the author of seven books, including *The Transformation of Corporate Control* (Harvard University Press, 1993), *The Architecture of Markets* (Princeton University Press 2001), *Euroclash* (Oxford University Press, 2008), and *A Theory of Fields* (with Doug McAdam, Oxford University Press, 2012). He is currently working on a book about the financial crisis.

Orestes "Pat" Hastings is an assistant professor in the Department of Sociology at Colorado State University. He uses surveys, experiments, and administrative data to do research in stratification and inequality, economic sociology, social psychology, social demography, religion and spirituality, and quantitative methods. His current projects examine how income inequality shapes people's perceptions, attitudes, and behaviors.

Adam Goldstein is assistant professor of sociology and public affairs at Princeton University. He is an economic sociologist with interests in organizations, stratification, and finance. His current research examines how institutional changes associated with "financialization" have reshaped various socioeconomic domains and how organizations, communities, and households respond to these changes. He is also working on a project that focuses on how changes in systems of social provision demand that households bear more direct responsibility for managing risks across domains such as retirement planning, educational investments, and medical insurance.