

Urban Pioneers:
Why Do Higher Income Households Choose Lower Income Neighborhoods?

Ingrid Gould Ellen, Keren Horn and Katherine O'Regan

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1. Introduction

Standard economic theories of household sorting across neighborhoods and jurisdictions predict that sorting should lead to communities that are fairly homogeneous with respect to income (Tiebout, 1956; Schelling, 1969). Whether driven by like preferences for local public services, a comparable ability to pay for housing at a given location, or a desire to live among homogenous neighbors, we expect households to choose neighborhoods occupied by households of similar incomes.¹ If anything, existing theories suggest that households have an incentive to live near higher income households.² The puzzle we explore here is why some households choose to ‘pioneer,’ or move into neighborhoods where their neighbors earn less than they do.

Neighborhood change research suggests that such pioneering decisions are key drivers of economic change, yet we know little about the motivations for such moves. (There has been far more work studying the residential choices that contribute to the downward filtering of housing and neighborhoods.) Using a simple residential-choice framework, we derive expectations on why optimizing households might choose to pioneer, given their perceived or actual choices. We then use three empirical strategies to assess whether our theoretical expectations are borne out in practice, by examining both revealed and stated preferences. First, we explore whether the probability a household makes a pioneering move varies with predicted household and metropolitan area characteristics. Second, we examine whether pioneers’ preferences for unit and neighborhood characteristics differ from non-pioneers through a residential choice model. Finally we explore responses to a collection of descriptive questions in the American Housing

¹ For a nice synopsis on how the different theories drive this common conclusion see Krupka 2008.

² Specifically, they have an incentive to maximize the quality of public services available for a given housing price, when housing size and costs vary within a jurisdiction or neighborhood.

Survey that shed additional light on the reasons why this set of households decided to make their (pioneering) residential choices.

We rely on the internal version of the American Housing Survey (AHS), which samples a nationally representative group of housing units and the households who live in them. These internal files identify the census tract in which each housing unit is located, allowing us to link each unit to the characteristics of its neighborhood, as captured by the 1990 and 2000 Decennial Census, along with the attributes of its metropolitan area. Exploiting our housing unit-level data, we define pioneering moves as those in which a household moves into a relatively low income neighborhood, and replaces a household whose income is below its own. We examine who makes these moves and where they occur during two time periods: a relatively weak market period, 1991-1995; and a period of rapidly rising house prices, 2001-2005.

In brief, we find evidence that both preferences and constraints are driving pioneering residential choices. In terms of who pioneers, we see that households who place less value on current or future neighborhood services (such as renters and childless households) are more likely to pioneer. Households that face greater constraints on their choices, such as first-time homeowners and minority households, are also more likely to pioneer. In terms of metropolitan-level factors, we find that pioneering is more likely in metropolitan areas with lower crime rates, where pioneering moves are less risky. Pioneering is higher in metropolitan areas with more rapid housing price appreciation for first time homeowners and renters, those whose housing choices may be more constrained by the increased costs of housing. Pioneering is also higher for minorities in more segregated MSAs, where their housing options may be even more constrained.

Through our residential choice models, we find that pioneers do place different weights on observable neighborhood characteristics, particularly older housing stocks. Although it does not appear that they choose more centrally-located neighborhoods, pioneers report lower commute times than non-pioneers. Finally, the stated motivations and preferences of these households are consistent with pioneers placing more weight on unit quality and housing costs and less weight on neighborhood amenities.

2. Framing and Theory

Past research exploring neighborhood change or gentrification has found that increases in neighborhood income are associated with in-movements of college-educated, childless, white households (Ellen and O'Regan, 2010; McKinnish, Walsh, White, 2009; Freeman, 2005; Freeman and Braconi, 2004). Bostic and Martin (2003) find that the entry of black homeowners may play an important role in driving neighborhood change too, at least in the 1970s. This body of literature, however, is focused on describing the households who typically move into neighborhoods that later improve, and how such households differ from those who move into low income neighborhoods that do not improve. We are interested instead in examining why some households who could choose to live in higher-income neighborhoods opt instead to move into a neighborhood with relatively lower-income neighbors, regardless of whether the neighborhood subsequently changes. This choice appears on its face counter to self-interest. Some of these moves may be motivated by expectations of neighborhood improvement, but others may not, even if they may ultimately contribute to subsequent changes.

Theory

To motivate our empirical exploration of pioneering residential choices we lay out a simple theoretical model. Building on Quigley (1985),³ a consumer chooses a unit j from a set of units K . This choice includes housing characteristics (H_j), a set of neighborhood characteristics (N_j), which include both a bundle of public services and social/economic characteristics of neighbors, a level of accessibility (A_j), which describes accessibility of the neighborhood to work and other economic activities of the household, and a price, (R_j), which includes either monthly rent or a purchase price. We can then specify the utility of household i of income Y as follows,

$$U_{ij}[H_j, N_j, A_j, Y_i - R_j] = V(ij) + \varepsilon_{ij} \quad (1)$$

where V consists of the systematic component of the household's utility and ε is the stochastic component.

We simplify the neighborhood choice problem by considering two types of neighborhoods: low quality (N_l) and high quality (N_h). We assume that in low-quality neighborhoods, homes tend to be lower-priced. We start by assuming that all households can live in both of these communities, and that pioneering households are maximizing their utility when they choose to live in N_l rather than N_h .

$$p_i(N_l) = \text{prob}[U_{il}(N_l, H_l, A_l, Y_i - R_l) > U_{ih}(N_h, H_h, A_h, Y_i - R_h)] \quad (2)$$

Following this, those households who choose to move into low-quality neighborhoods should be households who place relatively less weight on the quality of neighborhood services

³We focus only on mover households, or households who have already made the decision that the benefits they will receive from moving outweigh the costs associated with moving.

and conditions and relatively more weight on other components of the bundled housing decision, such as the other consumption that can be enjoyed as a result of rent savings in low quality neighborhoods, the size and quality of housing units (as the price of housing services will be cheaper in low quality neighborhoods), and/or access or convenience to work or other activities (assuming low quality neighborhoods are located more centrally). The actual locational decisions made by households are shaped by preferences as well as the opportunities available to them.

Of course, households face a choice set with more than two options and neighborhoods vary along multiple dimensions. However, households do not have an infinite array of neighborhood options. For example, there may not be a bundle of housing and neighborhood characteristics that provide low cost housing, in an otherwise high quality neighborhood in terms of other amenities, which is also high on accessibility. Simplifying H_j , N_j and A_j into a vector of housing characteristics, X_j that includes location-specific features such as access and neighborhood characteristics, we can then express the utility that household i receives when living in housing unit j as follows:

$$U_{ij} = \alpha (Y_i - R_j) + \beta_i X_j + \varepsilon_{ij} \quad (3)$$

The likelihood of household i selecting unit j can then be expressed as:

$$P(U_{ij} = \max(U_{i1} \dots U_{ij} \dots U_{ik})) = \frac{e^{\alpha (Y_i - R_j) + \beta_i X_j}}{\sum_{n=1}^k \alpha (Y_i - R_n) + \beta_i X_n} \quad (4)$$

Simply put, households are maximizing their utility over a set of housing options that provide at range of utilities ($U_{i1} \dots U_{ik}$). This model surfaces two important implications. First, the utilities associated with these housing options should vary across households—specifically,

with the household characteristics that are relevant for residential choices. Thus β is presumed to vary across household types. Second, the housing options, and the magnitude of tradeoffs they represent, will also vary across housing markets and may also vary across households, assuming a segmented market in which different types of households face different options within a given metropolitan area. Of course, another possibility is that pioneering households may be impeded from optimizing due to search costs, imperfect information, or other constraints.

Drawing on this framework, as well as the existing literature, we generate a series of hypotheses below about pioneering residential choices. We start by offering a series of predictions about why certain households might optimally choose to pioneer, given expectations about their residential preferences. We then consider how differences in perceived or real choice sets, driven either by constraints in the marketplace or differences in information or housing search patterns, might explain pioneering behavior.

Predictions

- (a) Different residential preferences.

The theory above suggests that households making pioneering decisions likely place relatively lower weight on neighborhood quality relative to other goods than non-pioneers. This may be because pioneering households consume fewer of the public services accessed through neighborhoods, most notably schools. This insight leads to our first hypothesis.

Hypothesis 1: Childless households are more likely to make pioneering moves.

We expect owners and renters to place different weights on neighborhood services and quality. All else equal, both groups would prefer living in neighborhoods with richer services and better quality of life, but each tenure choice is associated with a different set of risks. In addition to their preferences as consumers of such services, owners are investing in an asset whose expected future value is determined by preferences of a broader set of households (Ellen, 2000). In addition, homeowners face much larger transaction costs when moving as compared to renters. Both greater moving costs and greater concern with future asset prices suggest that households are less likely to make pioneering moves when purchasing a home. Some empirical evidence bears this out; higher levels of neighborhood externality risks (such as crime, litter, noise) have been shown to decrease the likelihood of an owner (vs. a renter) moving into a unit (Hilber, 2005).

Renters face a different set of risks. As most renters enter into short term contracts, they are subject to the annual fluctuations of market rent (Sinai and Soules, 2005). We may therefore expect to see a greater number of renters making pioneering residential choices as they are more likely to search out opportunities where rents are relatively lower, without having to make a longer term investment in the housing in such neighborhood.

Hypothesis 2: Renters are more likely to make pioneering moves than homeowners.

Given their higher moving costs and the expected value of housing as an asset, homeowners should have a longer time horizon over which they assess housing and neighborhoods and place less value on current neighborhood quality relative to its future value. We would therefore expect more pioneering among homeowners into neighborhoods that are expected to improve – or ripe for improvement. Such neighborhoods may already have

demonstrated a trajectory of improvement (but still be low income). Alternatively, following Downs (1981), Berry (1985) and most recently Brueckner and Rosenthal (2009), particular low income neighborhoods might have characteristics that make them prime for redevelopment, namely a more central location and an older housing stock.

Hypothesis 3: Homeowners are more likely to make pioneering moves into low income neighborhoods expected to improve.

The choice to pioneer may also be driven by a desire to avoid long commutes and to be close to urban cultural amenities. Thus, we may see more pioneering moves in more centrally located neighborhoods. There is considerable evidence that neighborhoods which have locational advantages are more likely to experience gentrification (London and Palen, 1984; Brueckner, Thisse and Zenou, 1999).

Hypothesis 4: Households are more likely to make pioneering moves into neighborhoods that are more centrally located.

(b) Limited information and/or constrained choices.

In making residential choices, some households face greater constraints, which shape their feasible alternatives. For example, while most repeat homeowners fund the downpayment of their new home from the sale of their previous home, new homeowners cannot.⁴ There is empirical evidence that first-time homeowners face liquidity constraints, as evidenced by changes in savings and consumption rates both prior to and immediately after home ownership (Jones 1995; Boehm 1993). Given such constraints, they may place greater weight on the cost

⁴ More than half of the repeat owners in our sample finance their downpayment through the sale of their previous home.

savings (or non-housing consumption) associated with purchasing in a lower income neighborhood.

Hypothesis 5: Among homeowners, first-time homeowners are more likely to pioneer than repeat homeowners.

Until the recent housing market crash, housing prices rose steadily and fairly dramatically over a ten-year period, especially in coastal areas. As housing prices rose and outstripped income gains, many households found themselves able to afford a smaller set of housing units in their metropolitan areas, which were disproportionately located in lower income neighborhoods. This suggests that pioneering moves might be more likely in ‘hot housing markets,’ or those experiencing the greatest price pressure. Such pressure would affect new homeowners and renters in particular, as repeat homeowners (at least those moving within the same housing market) may well have gained from the price appreciation in the sale of their previous home.

Hypothesis 6: Households living in metropolitan areas with high or increasing housing prices are more likely to pioneer, particularly first time homeowners and renters.

In addition to constraints on capital, some households may face constrained neighborhood options. Most notably, higher income minority households may only know about or feel they can access a more limited set of neighborhoods (in particular, other largely minority neighborhoods). This may be particularly true in highly segregated metropolitan areas. Farley (1996) found that minority households employ different methods when searching for a housing unit, relying more on local newspaper listings and informal networks, and Newburger (1995) finds that black households tend to use fewer information sources and to inspect fewer houses

before purchase. These different methods may limit the number of housing units and neighborhoods considered by minority borrowers and lead them to make pioneering moves.

Discrimination and racial segregation may also fundamentally shapes options for households. Housing audit studies (Turner, Ross, Galster 2002; Turner, 1992; Yinger, 1998) have found evidence of discrimination in the housing market, showing that brokers are more likely to steer minority households into neighborhoods of predominantly minority composition. As argued by William Julius Wilson (1987), greater segregation constrains black household choices, limiting the ability of higher income black households to make non pioneering choices.⁵

Hypothesis 7: Minority households are more likely to make pioneering moves, particularly in segregated metropolitan areas.

The tradeoff on neighborhood attributes associated with a pioneering move may also vary across areas. Households may be unwilling to make pioneering moves in areas where the tradeoffs are too large in terms of critical neighborhood attributes, such as safety.⁶ Indeed, the high and increasing urban crime rates of the 1970s (and 80s) are posited as a contributor to middle class suburbanization. The urban landscape has changed greatly over the past fifteen years, particularly with respect to crime. As crime levels have decreased steadily through the 1990s, and remained low through the 2000s, the number of metropolitan neighborhoods perceived to be safe, especially in central cities, has increased (Ellen and O'Regan, 2010).⁷

⁵Bostic and Martin (2003) make a similar argument, suggesting that decreased barriers in housing markets in the 1980s permitted black homeowners to move beyond gentrifying neighborhoods in the inner city.

⁶ While numerous characteristics of the broader area matter, safety may be particularly salient in housing decisions.

⁷ Because households traverse space outside of their neighborhoods, we believe that crime rates above the neighborhood level will matter.

Hypothesis 8: Households living in metropolitan areas with lower crime rates are more likely to pioneer.

3. Data

We rely on two sources of data for this work: housing unit/household level data from the national American Housing Survey (AHS) and census tract data from the decennial census. We link these two data sets using the confidential internal version of the AHS, which identifies the census tract of each housing unit. (The publicly available version of the national AHS only identifies the metropolitan area in which a housing unit is located.)

The AHS surveys a nationally representative sample of approximately 55,000 housing units every two years. The AHS is appropriate for our analysis as it provides both detailed data on the housing unit as well as the occupants living in the unit at the time of the survey. The AHS also asks these occupants a series of questions about their choice of housing unit and neighborhood. We focus only on units that experience turnover. As we rely on neighborhood data from the decennial census, we limit our analysis to moves into housing units between 1991 and 1995, which we link to census tract data from the 1990 decennial census and moves between 2001 and 2005, which we link to census tract data from the 2000 decennial census.⁸

We draw our decennial census data from the Neighborhood Change Database. Constructed by Geolytics, in partnership with the Urban Institute, the Neighborhood Change Database provides both 1990 and 2000 census tract data for census tracts as they were defined in

⁸ We do not include the 1997 or 1999 cross sections as we do not feel that the 1990 census can accurately describe these neighborhoods.

the 2000 Census. This dataset allows us to link neighborhood characteristics to all housing units in the AHS through the 2000 census tract.

Gaining access to the internal version of the AHS brings with it limits on disclosure. The census is required to protect the confidentiality of respondent data. In reviewing data for release, census officials pay particular attention to small cells (which can jeopardize confidentiality) and ‘implicit samples,’ which are created through small modifications in reported samples. The sample values in descriptive tables have not yet been cleared for release. While we cannot report specific values, we can report relative comparisons, and whether differences are statistically significant, which we do both in the text and tables. Regression coefficients, which pose much less threat to confidentiality, are included.

4. Who ‘pioneers’?

We identify ‘pioneering’ residential decisions as those decisions that some households make to buy or rent homes in neighborhoods that have mean incomes below their own. The households making these pioneering residential decisions appear to have the resources to choose alternative options, and yet they choose a location where their own income is above-average. To operationalize ‘above average income,’ we use the income of the most recent occupant of a housing unit as a proxy for income in the ‘micro’ neighborhood. In other words, a pioneering household is one who replaces an occupant with an income level at least five percent below its own, adjusting for inflation. We could have operationalized ‘above average income’ by comparing an in-mover’s income to that of the neighborhood. However, information on census tract income is only available once each decade, and moreover, census tracts are fairly large

versions of neighborhoods. They contain subareas with varying income levels. We have chosen not to base our definition on differences in human capital, as we are specifically interested in households who have the financial means to live in higher income neighborhoods at the time that they make their residential choice.⁹

We remove from our sample households with very low incomes (below 40 percent of area median income) as their choice set is likely very constrained and their incomes are not sufficiently high to contribute to neighborhood transformation. Indeed, such income levels generally qualify households for food stamps and federal housing programs. In addition, we require that the neighborhood have a median income below that of the MSA, as we do not want to count very high income households who move into high income neighborhoods as pioneers, even if their incomes exceed the households who they replace.

Table 1 provides a description of the households that we define as pioneers, in comparison to the other households in our sample who move into new housing units but do not make pioneering moves.¹⁰ We see that while pioneers are predominantly white, minorities comprise a significantly larger share of our pioneering sample than our non-pioneering mover sample. We also see that pioneers are more likely to be renters, and among homeowners, new owners. Pioneers have higher incomes than non-pioneer movers, are younger, and are less likely to have children. If they do have children, those children are more likely to attend private school, but these differences are quite small.

⁹ Our measure of income is at one point in time, and will be subject to error. Specifically, we may misclassify a move as pioneering for households' with a temporary positive shock. This would bias against our finding systematic differences between pioneers and non pioneers.

¹⁰ Numbers currently suppressed. Pioneers make up between 25 and 30 percent of movers in any given cross section.

While the comparison of means shown in Table 1 are generally consistent with our theoretical predictions, we want to identify the independent effects of household characteristics on the likelihood of making a pioneering move, controlling for other household characteristics. To do so, we estimate the following regression,

$$Y_{it} = \beta HH_{it} + \lambda_t + \eta MSA + \varepsilon_{it} \quad (5)$$

where Y_{it} represents the decision to make a pioneering move, by household i in time t . HH_{it} includes the same household characteristics described in Table 1. We also include a series of year dummies, λ_t , and MSA characteristics, such as crime, housing appreciation, and segregation, as well as interactions. We also estimate this model with MSA fixed effects. The time t identifies the cross section in which the household's decision is observed. We pool six cross sections of household in-movers (1991, 1993, and 1995 in the early 1990s, and 2001, 2003, and 2005 in the early 2000s). A housing unit will be included in our sample if it experiences turnover in the two years before one of these survey years.¹¹

Table 2 shows the results of our regressions, estimated for all households (columns 1-2) and then separately for homeowners (columns 3-4) and renters (columns 5-6). We see that renters and childless households are more likely to make pioneering moves, consistent with our theory that households that place less weight on the current or expected future strength of neighborhood services are more likely to pioneer. In addition, consistent with our theory that households will be more likely to pioneer when they face a more constrained set of choices, first time homeowners and minorities are more likely to pioneer.

¹¹ About one third of the housing units in our sample appear once, another third appear twice and the remainder of the housing units appear three or more times, with very few units appearing more than four times.

Moving to metropolitan characteristics, consistent with our expectations, pioneering is generally less likely in metropolitan areas with higher crime. Consistent with differential constraints, we find that more rapid house price appreciation is associated with more pioneering among first-time homeowners (and not among repeat homeowners, who can finance the larger required downpayment through the sale of previous home). For renters, again as expected, the effect is strictly positive; renters are more likely to pioneer in housing markets undergoing greater increases in housing costs.

In terms of housing segregation, our results differ across models with and without MSA fixed effects, negative in the former and positive in the later. This difference appears to be driven by the effect of segregation on white pioneers. The interaction between minority and segregation is positive and significant in models for all households and renters, but drops to insignificant in models for homeowners.¹²As predicted, minority pioneering is more likely in metropolitan areas that are more segregated.

We have also estimated these models separately for the 1990s and 2000s, with very little difference in the overall patterns. However, a slightly greater proportion of household moves are pioneering in the later time period, when house price appreciation was higher.

In short, we find evidence that both different preferences and constraints could be driving pioneering residential choices. We find that households who place less weight on local public services (households without children) or future appreciation (renters) are more likely to pioneer. We also see that households with a more constrained set of choices (such as minorities and first-time homebuyers) are more likely to make pioneering moves. These effects are particularly

¹² We have estimated models with black/white segregation, interacted with black households, and the coefficient on the interacted term is larger, and is significant for homeowners and renters, separately.

pronounced in metropolitan areas that have experienced rapid house price appreciation and that are highly segregated by race.

This provides us with evidence that pioneering varies by observable characteristics (of households and housing markets) in the ways predicted by differences in preferences and constraints (which are less observable). The remainder of the empirical work attempts to garner evidence on these preference and constraints directly. We turn next to estimating preference parameters to determine whether pioneers do in fact place differential weight on particular neighborhood characteristics.

5. Do pioneers prefer different neighborhoods than non-pioneers?

Our theoretical predictions above suggest that pioneers are likely to have different neighborhood preferences than other households, and in particular, may favor neighborhoods with an older housing stock and greater accessibility. In this next section we test our hypotheses by estimating a residential choice model, expressed in model (4). As established by McFadden (1978) when we assume that the error terms are independent and identically distributed across the households choices (following an extreme value distribution) and households select the neighborhood that maximizes their utility, the conditional logit estimation can be used to identify the weights that different households place on neighborhood characteristics.

To construct our sample, we begin with the same set of households (all households that move in a given cross section with incomes above 40 percent of AMI) and construct a choice set for each of these households. We draw this choice set from the stock of vacant or recently occupied units in a given cross section. We restrict the choice set to units within the same

metropolitan area and the same tenure class. A household's choice set then includes the unit they chose plus a sample of ten randomly selected units that meet these restrictions. We separately estimate neighborhood choice models for owners and renters.

Vector X_j then includes a set of unit characteristics, neighborhood characteristics as well as a measure of accessibility. Specifically we include the cost of each housing unit, along with the number of bedrooms and age of the unit. We include a series of neighborhood characteristics, specifically the share of the census tract's population that is black, the share of the population that has attended college, the share of units that are owner occupied, the share of units built before 1940, and the distance to the central business district.¹³

The structure of this model does not permit us to estimate the coefficients on household characteristics directly, as these do not vary within a household's choice set. However, interactions between household characteristics and unit/neighborhood characteristics can be identified. The coefficients on these interaction terms test whether households with different characteristics have different preferences. We control for three different household characteristics which we believe are of primary importance, household income, race and presence of children. We also include three metropolitan characteristics that shape residential opportunities, specifically metropolitan level house price appreciation, crime rates and levels of racial segregation. We fully interact these household and metropolitan characteristics with the unit and neighborhood characteristics. We report in Table 3 the interaction coefficients of primary interest, those which identify the preference parameters of pioneering households

¹³ We identify the central business district as the census tract with the highest concentration of jobs, relying on the Longitudinal Employer-Household Dynamics OnTheMap dataset (<http://lehd.did.census.gov/led/onthemap/>). We then compute the Euclidean distance between the centroid of each tract to the central business district.

relative to non-pioneers, controlling for the heterogeneity in preferences driven by different household types.¹⁴

We report the marginal effects evaluated at the means of each unit and neighborhood characteristic. We can interpret the coefficient on, say, the interaction of pioneer with the share of units built before 1940, as the increased likelihood that a pioneer will choose a neighborhood (relative to a non-pioneer) if there is a one percentage point increase in the share of housing units built before 1940. Results from Table 3 provide little evidence that pioneers weight unit characteristics differently from non-pioneers, at least among homeowners. They may instead value non-housing consumption more highly, and choose to live in similar homes in less expensive neighborhoods that afford them more disposable income to spend on other goods. The results do suggest, however, that pioneers are making different choices about neighborhood characteristics.

Focusing on homeowner results first, pioneers are more likely than other households to select neighborhoods that have a higher share of residents who are black. This holds for both white and minority pioneers, and in models that control for neighborhood income. While the proportion of residents who are black is negatively correlated with the likelihood that a neighborhood is selected by households at large (non-interacted coefficient not shown), pioneers – of all race/ethnicities, appear to be less averse to neighborhoods with more black residents. Pioneers also tend to choose neighborhoods with a smaller share of college-educated households and a smaller share of homeowners, even after controlling for neighborhood income. Consistent with our theoretical predictions, pioneers are selecting neighborhoods with a larger share of old housing, suggesting these neighborhoods could be ripe for redevelopment. Our measure of

¹⁴ Full results available from authors upon request.

accessibility does not appear to be significant, however, though our measure of accessibility (distance to the central business district) may not be a meaningful metric to households.

These results are consistent with different selection along the limited neighborhood characteristics that we are able to capture with these data. We next try to tease apart the various reasons why households make pioneering residential choices, exploiting additional data in the AHS on housing decisions.

6. Evidence from stated preferences

The AHS includes several questions that ask households why they made their residential choices. We use responses to these questions to run a series of simple regressions, testing for differences between pioneers and non-pioneers in the reasons they state for their choice, after controlling for differences in household characteristics.

Specifically, we start with the following descriptive regression:

$$Y_{it} = P_{it} + HH_{it} + \varepsilon_{it} \tag{6}$$

where Y_{it} represents a collection of dichotomous dependent variables, indicating the primary reason a household chose the particular neighborhood. Our key independent variable, P_{it} , identifies whether the household made a pioneering residential move. Additionally we control for a number of household characteristics, HH_{it} , including race, income, the presence of children and tenure status.

Results are presented in Table 4. We find that pioneers are significantly less likely to have chosen the neighborhood for its convenience to work or convenience to leisure, but they are

more likely to have selected a neighborhood for its convenience to family and friends. This result is somewhat surprising. Theory predicts that pioneers will opt for neighborhoods that are more convenient for them, there is no theoretical reason why accessibility to family and friends should be more important to pioneers than accessibility to work and leisure.

Additionally pioneers are less likely to report selecting a neighborhood because of school quality, less likely to report selecting a neighborhood for aesthetic reasons and more likely to have chosen the neighborhood because of the specific unit. Pioneers, in other words, pay less attention to neighborhood amenities and more attention to housing unit characteristics. These differences are consistent with our predictions, suggesting variation in the ways pioneers vs. non-pioneers weight aspects of the ‘residential bundle.’

Table 5 provides additional evidence. Here we again run model (6), but our dependent variables are now a) whether the household said the primary reason they selected their unit was financial considerations and b) whether the primary reason they selected the unit was its size. We find that pioneers are more likely to have chosen a unit for financial reasons but no more likely to have chosen their unit because of its size.

We use responses to additional AHS questions to further test three of the key predictions of our theory: (1) pioneers are making these decisions to save money; (2) they are making these decisions because these neighborhoods are more accessible; and (3) they are making them because they face limited information or a constrained choice set.

(1) Savings?

The evidence above suggests that pioneers may be making their choices to save money. To gain more insight into this possibility, we examine responses to a series of questions that ask

households to compare their current housing units to their previous housing units along three key dimensions: housing cost, unit quality and neighborhood quality. If pioneering households are motivated by cost savings, and therefore more willing to sacrifice housing or neighborhood quality than non-pioneers, there should be evidence of these tradeoffs ex-post.¹⁵ Controlling for income, tenure, race and the presence of children, we find that indeed, pioneers are significantly more likely than non-pioneers to have experienced a reduction in housing costs after their recent move (Appendix A-1). These savings seem to come from reductions in the quality of both housing units and neighborhoods, as pioneers are also more likely than non-pioneers to move into a unit of lower quality than their previous unit and into a neighborhood of lower quality than their previous neighborhood.¹⁶

(2) Accessibility

Theory suggests that one of the reasons that households should make pioneering residential decisions is to increase accessibility to employment. Neither our examination of household motivations for neighborhood selection, nor our residential choice models, supports this hypothesis. One explanation for these weak results may be our imperfect measures and data. First, our measure of distance to the central business district may not capture accessibility well, as jobs are now typically distributed throughout a metropolitan area, rather than being concentrated in a single, central business district (Redfean, 2007). Thus, households may be choosing neighborhoods that have increased job accessibility, but are no closer to the central business district. Second, even if households may not state that they have chosen a neighborhood for increased job accessibility, convenience may still have been a factor in their

¹⁵ This is not a perfect measure. If a pioneer's previous housing decision was also a pioneering move, the current move may be motivated by cost savings and yet, ex post, housing costs may well not decline.

¹⁶ We also see that pioneers are more likely to report that they stayed in the same neighborhood, though this difference is quite small.

choice. To test this possibility, we look directly at the time head of households report it takes them to commute to work.¹⁷

In estimates of a simple regression model of commute times, controlling for income, tenure, minority status and presence of children, we find pioneering households report shorter commute times than non-pioneering households (Appendix A-2). This suggests that increased accessibility could indeed be an important factor of the residential choices of pioneers.

(3) Imperfect Information/Constraints

Finally, imperfect information may also influence the likelihood a household will pioneer. To discern whether pioneering moves may be related to differences in information, we explore a number of questions in the AHS that ask households how they first heard about their unit, how many units they looked at before choosing their home and the reasons they stopped searching. We again estimate a series of simple descriptive regressions, which test for an association between pioneering status and housing search, controlling for race, income and tenure status.

We do find some differences in search methods. Pioneers are less likely than non-pioneers to have heard about their units through formal sources, and more likely to have learned about them through friends (Appendix A-3). As for why they stopped looking and chose that unit, satisfaction with the unit itself does not differentiate pioneers. Finally, in terms of search effort as captured in the pure volume of units considered, pioneers report visiting fewer units than non-pioneers prior to selecting their current housing units. Collectively, these responses do not suggest that pioneers are investing effort to identify ‘hidden gems’ in neighborhoods that

¹⁷ We also model this using the average commute time for the two primary household members and find similar results.

might otherwise not appear desirable, or are expected to become desirable in the future. Rather, they suggest that time and financial constraints might drive pioneering choices. Pioneers may not be optimizing on a different set of preferences, but rather making do given constraints.

To test whether pioneering moves are more likely to be later perceived as ‘mistakes,’ we examined unit exit rates post move and found no sizable difference between pioneers and non-pioneers over the four years. If pioneers are selecting residences with which they are unhappy ex-post, they do not adjust this choice any more quickly than non-pioneers.

7. Conclusion

Overall we find much evidence to support our hypotheses as to why households make pioneering residential choices and the household, neighborhood and metropolitan characteristics that may increase the likelihood that pioneering moves will occur. We find that households who place less value on current or future neighborhood services (such as renters and childless households) are more likely to pioneer. In addition, households who may face greater constraints on their choices, such as first-time homeowners and minority households, are also more likely to pioneer.

As for metropolitan-level factors, we find that pioneering is more likely in metropolitan areas with lower crime rates, perhaps because pioneering moves appear less risky in such areas. Pioneering is also higher in metropolitan areas with more rapid housing price appreciation for first time homeowners and renters, whose housing choices may be more constrained by the increased costs of housing. Pioneering is actually less likely among repeat homeowners in ‘hot markets,’ whose gains in the appreciation of the previous home may increase non pioneering

options in their next move. Pioneering moves are also more likely for minorities living in more segregated housing markets, markets in which minority residential choices may be particularly constrained.

Results from our residential choice model do suggest that pioneers are placing different weights on observable neighborhood characteristics compared to non-pioneers, including a greater likelihood of selecting neighborhoods with older housing stock. While there is no evidence they select more centrally located neighborhoods, the average commutes they experience *ex post* are shorter than for otherwise similar recent movers.

Survey responses suggest the motivations behind these residential choices are consistent with pioneers placing less weight on neighborhood amenities and more on unit quality and costs. *Ex post* comparison of current residence to previous confirm that pioneers differentially save on housing costs through their moves.

In sum, our analyses suggest a simple answer to the question of why households pioneer. Put simply, they do so because it makes economic sense. The reasons why these choices make sense vary across household and housing market characteristics. An important caveat is that pioneering might be optimal because the alternative options are quite limited --limited by such factors as housing market conditions (i.e., increasing costs of housing, or greater racial segregation), or by liquidity constraints (such as new homeowners).

As a final note, we should underscore that these results are preliminary, and we have several extensions underway. Most importantly, we have not directly tested whether pioneers are differentially attracted to neighborhoods that are already improving (in our residential choice

model). We plan to run our pioneering and residential choice models separately for new homeowners, and to test the sensitivity of our results to our definition of pioneering moves.

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Table 1

Sample Characteristics	Pioneers vs. Non-pioneers
Median Income	+***
Median HH Income/Tract Income	+***
Race	
White	-***
Minority	+***
Education	
No High School	+***
High School	+***
Some College	NS
4 Years of College or More	-***
Age	
18-40	+***
40-60	-***
60+	NS
Household Composition	
Kids	-***
Share Attend Private School	+*
Share Attend Public School	-*
Married	-***
Tenure	
Owner HH	-***
Share new owners	+***
Renter HH	+***

Table 2

Probability Household Makes Pioneering Move						
	Pooled		Owners		Renters	
	(1)	(2)	(3)	(4)	(5)	(6)
Owner	-0.158***	-0.164***				
	0.007	0.007				
Income	0.152***	0.162***	0.113***	0.113***	0.208***	0.225***
	0.008	0.013	0.010	0.013	0.014	0.021
Income Squared	-0.016***	-0.017***	-0.012***	-0.012***	-0.021***	-0.023***
	0.001	0.002	0.001	0.002	0.002	0.003
Black	0.066***	0.070***	0.077***	0.084***	0.063***	0.066***
	0.013	0.013	0.023	0.027	0.016	0.016
Hispanic	0.050***	0.054***	0.041**	0.041	0.054***	0.061***
	0.012	0.013	0.020	0.025	0.015	0.014
College or More	-0.075***	-0.072***	-0.079***	-0.077***	-0.073***	-0.068***
	0.005	0.006	0.008	0.008	0.007	0.006
Under 40	0.011*	0.009	0.015*	0.016*	0.009	0.005
	0.006	0.006	0.008	0.009	0.008	0.008
Over 60	0.022**	0.021*	0.017	0.014	0.025*	0.025
	0.010	0.012	0.013	0.014	0.014	0.017
Kids	-0.018***	-0.018***	-0.019**	-0.019**	-0.016**	-0.014*
	0.006	0.006	0.008	0.008	0.008	0.008
Married	-0.012**	-0.012**	-0.011	-0.010	-0.013*	-0.013**
	0.006	0.005	0.008	0.008	0.007	0.006
New Homeowner	0.055***	0.056***	0.034***	0.036***		
	0.008	0.010	0.009	0.010		
MSA Crime	-0.572***	-0.816*	-0.754***	-0.179	-0.439**	-1.132**
	0.162	0.417	0.234	0.622	0.214	0.450
MSA House Price Appreciation	0.120**	0.070	-0.159*	-0.177*	0.192***	0.123*
	0.049	0.063	0.083	0.102	0.061	0.074
B/W Dissimilarity	-0.077***	0.330**	-0.114***	0.412*	-0.059**	0.258
	0.020	0.155	0.029	0.225	0.028	0.170
Interaction Min/Dissimilarity	0.056***	0.072***	0.034	0.047	0.069***	0.085***
	0.018	0.018	0.028	0.038	0.022	0.020
Interaction NewOwn/HP Ap	0.191**	0.180*	0.533***	0.477***		
	0.094	0.106	0.110	0.118		
MSA FE		X		X		X

Table 3

Neighborhood Choice Estimation				
	Owners		Renters	
	(1)	(2)	(3)	(4)
Interactions Pioneer/Unit or Nbhd				
<i>Unit Chars</i>				
Price/Bedroom	<i>NS</i>	<i>NS</i>	<i>NS</i>	--***
Bedrooms	<i>NS</i>	<i>NS</i>	--**	--**
Built Pre 1940	<i>NS</i>	<i>NS</i>	<i>NS</i>	<i>NS</i>
Built Post 1980	<i>NS</i>	<i>NS</i>	--***	--***
<i>Nbhd Chars</i>				
% Black	+*	+*	<i>NS</i>	<i>NS</i>
% College Deg	--***	--***	--***	--***
% Own	--***	--***	--***	--***
% Units Built Pre40	+***	+***	+***	+***
Distance to CBD	<i>NS</i>	<i>NS</i>	<i>NS</i>	<i>NS</i>
Nbhd Controls	X	X	X	X
Nbhd and Household Controls		X		X

Table 5

Primary Reasons for Choosing Unit		
	(1)	(2)
	Size	Financial
Pioneer	-0.002	0.040***
	0.004	0.006
Income	0.016***	-0.060***
	0.003	0.004
Owner	-0.034***	0.005
	0.004	0.006
Minority	0.017***	-0.013**
	0.004	0.006
Kids Present	0.052***	-0.010*
	0.004	0.005
Year Dummies	X	X

Appendix A-1

Comparison of Current Housing to Previous			
	(1)	(2)	(3)
	Pay More for Current Housing	Current Unit Quality Higher	Current Neighborhood Quality Higher
Pioneer	***	***	***
Income	***	**	
Owner Occupied	***	***	***
Min	***	***	***
Kids	***	***	***
YR FE	X	X	X

Appendix A-2

Commuter Times	
Pioneer	-0.883***
	0.260
Income	1.807***
	0.259
Owner	2.627***
	0.268
Minority	1.939***
	0.263
Kids Present	1.015***
	0.245
Year Dummies	X

Appendix A-3

	How first heard about unit?				Reasons stopped looking			How many units visited prior to choosing this one
	Advertisement (1)	Broker (2)	Friend (3)	Happy (4)	Move Quickly (5)	Busy (6)		
Pioneer	-0.016**	-0.032***	0.024***	-0.006	0.006	-0.005	-0.662***	
	0.008	0.006	0.009	0.008	0.005	0.003	0.204	
Income	0.006	0.029***	-0.030***	-0.016***	-0.005**	-0.001	1.024***	
	0.005	0.006	0.005	0.005	0.002	0.001	0.195	
Owner	-0.151***	0.315***	-0.157***	-0.074***	-0.057***	-0.033***	6.507***	
	0.007	0.008	0.008	0.008	0.004	0.003	0.238	
White	0.061***	0.009	-0.025***	0.025***	-0.003	-0.006*	1.018***	
	0.007	0.006	0.008	0.008	0.004	0.003	0.191	