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ARE HOMEOWNERSHIP PATTERNS STABLE ENOUGH TO TAP HOME EQUITY?

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Abstract

As retirees live longer, spend more on medical care, and get less income replaced by Social Security, many may need to tap their home equity to be comfortable in retirement. The most direct way to access home equity is downsizing, but few choose this option because they generally prefer to stay in their house. The alternative is withdrawing equity through a reverse mortgage or a property tax deferral, but few households use these options either. A potential reason that homeowners are reluctant to borrow against their house is that, if they do decide to move, they have to pay back the loan with interest, which could leave them with inadequate resources at a vulnerable time in their life. This paper assesses how likely households are to move as they age to see if borrowing against one's home is a viable financial strategy. The analysis uses the *Health and Retirement Study* (HRS) to analyze three cohorts: the HRS cohort (ages 50-54 in 1992), the AHEAD cohort (ages 70-74 in 1993), and a synthetic cohort covering the whole lifespan from age 50 to death. The analysis identifies typical housing trajectories in retirement and explores how often, and for whom, tapping home equity would be a viable strategy.

The paper found that:

- Seventy percent of households have very stable homeownership patterns, even over several decades. They either stay in the home they own in their 50s (53 percent) or purchase a new home around retirement and stay for the rest of their life (17 percent).
- The 30 percent of households that do move consist of two distinct subgroups. Frequent movers (14 percent) appear to face labor market challenges. Late movers (16 percent) look like a slightly more affluent version of the households that never move, but then face a health shock that forces them out of the home that they owned into a rental unit or a long-term services and supports facility.
- Overall, the findings largely support the narrative from prior research that most people want to age in place and move only in response to a shock.

The policy implications of the findings are:

- Most homeowners experience enough residential stability to tap home equity through reverse mortgages or property tax deferrals.

- Retirees might be more likely to tap their home equity if they felt that they had adequate public or private insurance protection against the risk of needing long-term services and supports.

Introduction

As retirees live longer, spend more on medical care, and get less income replaced by Social Security, many may need to tap their home equity to be comfortable in retirement. They could access their equity most directly by selling the house where they raised their children and purchasing a smaller, less expensive house for their retirement. Such a shift would not only produce a bundle of cash but would also reduce the expenses associated with homeownership. The problem is that most retirees are attached to their homes and want to age in place. For retirees who want to stay put, the only alternative is to borrow against their home. This borrowing could be done through a reverse mortgage or a state property tax deferral program – two mechanisms that allow people to increase their income (or reduce their expenses) while they are alive and pay back the loan with interest when they die or move. Despite the need for additional money in retirement, few households take out a reverse mortgage and homeowners seem resistant to deferring their property taxes.

The question is why do homeowners – who need the money, have the equity, and want to stay put – avoid borrowing against their home. Part of the reason may be that they are put off by the complexity of the product or want to avoid liens on an asset that they plan to leave as a bequest. But a more fundamental concern may be the fear that, despite their desire to age in place, they may want to move and be forced to pay back outstanding loans with interest, leaving them with inadequate resources at a vulnerable time in their life. The goal of this paper is to assess how likely people are to move as they age to see if borrowing against one's home is a viable financial strategy.

The discussion proceeds as follows. The first section describes what we know about the products available for tapping home equity, the preferences of households, and moving patterns. The second section describes the data from the *Health and Retirement Study* used for the analysis, the methodology for creating a “synthetic cohort” of 50-54 year olds that can be observed until death, and a relatively new technique – sequence analysis – that can be applied to cohorts of households to uncover and group together common housing trajectories. The third section reports the results of applying sequence analysis to the HRS cohort who were 50-54 in 1992 and the AHEAD cohort who were 70-74 in 1993, as well as the synthetic cohort. Once groups with stable and unstable patterns have been identified, the fourth section reports on the characteristics of the homeowners who fit each pattern. The final section

concludes that most homeowners either stay in the home they own in their 50s or in a new home they purchase around retirement and therefore experience enough residential stability to tap home equity through products and programs like reverse mortgages and property tax deferrals.

Background

Retirement needs are expanding – people are living longer and face high and rising health care costs – while the retirement system is contracting – Social Security replacement rates are declining, at any given claiming age, and employer plans have shifted from defined benefit plans to 401(k)s where balances are modest and workers bear investment and mortality risk.¹ According to the National Retirement Risk Index, half of today’s working households are at risk of being unable to maintain their standard of living in retirement.² And this calculation assumes that retirees tap their home equity. Without using equity, the share of current households at risk increases. Tapping home equity could provide millions of retirees with a way to make ends meet or to continue to maintain their standard of living. For many households, particularly those with less wealth, their home equity is larger than their financial assets (see Figure 1).

As noted above, the simplest way to tap home equity is to downsize, but households often enter retirement with excess housing.³ Empty nests not only have unused space but are often located in neighborhoods best suited for a different stage of life. Nevertheless, a survey of workers approaching retirement finds that only 3 percent plan to downsize.⁴ And while 30 percent of homeowners approaching retirement move, most move to a more expensive house.⁵ Staying in a house that has excess space is costly: taxes, insurance, upkeep, and utilities account for nearly 30 percent of retired homeowner expenditures.⁶ Moving to a less expensive house would allow retirees to tap their home equity and live more comfortably.

Older people, however, tend to be very attached to their homes. They value living in a familiar place that they can navigate competently; they treasure memories of family gatherings and holidays and view it as a place to carry on traditions; and they like their neighborhood.⁷

¹ Ellis, Munnell, and Eschtruth (2014).

² Munnell, Hou, and Sanzenbacher (2018).

³ Feinstein and McFadden (1989) find that over a third of households 65 and over have “excess housing,” defined as dwellings with at least three more rooms than the number of inhabitants.

⁴ Munnell, Soto, and Aubry (2007).

⁵ Calvo, Haverstick, and Zhivan (2009).

⁶ Butrica, Goldwyn, and Johnson (2005).

⁷ O’Bryant (1982).

Since most people prefer to age in familiar surroundings, they modify their homes and habits to meet their evolving needs. Downsizing simply does not seem like an attractive option.

Indeed, longitudinal studies on home equity and late-life housing transitions have not documented widespread equity withdrawals.⁸ In fact, most moves – especially while married and in good health – are likely to increase housing consumption or keep it constant.⁹

Downsizing appears to occur mainly in response to financial or care-related needs driven by declining health and/or the death of a spouse.¹⁰ Cross-sectional studies also show a pattern of increasing home equity until people reach their 80s, at which point – driven by individuals who experience health and family status shocks – average home equity declines.¹¹

Given the value that people place on remaining in their current home, borrowing against home equity could be an attractive way to access their savings. Conventional mortgages and home equity lines of credit are not especially useful for tapping home equity, since the amount borrowed has to be repaid with regular monthly payments. Another way older people could tap home equity is by borrowing either through a reverse mortgage or a property tax deferral program.

A reverse mortgage is a product that allows homeowners to borrow using the equity in their homes as collateral. While homeowners must demonstrate an ability to pay property taxes and insurance, the loan must be repaid only when they move or die. Essentially all reverse mortgages are government-insured Home Equity Conversion Mortgages (HECMs), available to homeowners ages 62 and older. HECM loans are typically set up as a line of credit.¹² The government guarantee assures borrowers that they will get the contracted funds and assures lenders that they will be repaid even if the balance exceeds the proceeds from the sale of the house. A HECM loan on a \$300,000 houses costs about \$13,500 up front and 4.5 percent on

⁸ Venti and Wise (1989, 2000, 2004) and Smeeding et al (2006). Venti and Wise do find that households that are “house rich” but “cash poor” are more likely to reduce housing equity (and vice versa) compared to those with more balance between home equity and cash.

⁹ Clark et al. (2003).

¹⁰ Venti and Wise (1989, 2000, 2004); Calvo, Haverstick, and Zhivan (2009); and Costa-Font, Gil, and Macarilla (2010).

¹¹ Heiss, Hurd, and Borsch-Supan (2003) and Fisher et al. (2007). In addition, recent work by Lockwood (2018) suggests “incidental bequests,” or bequests that are made if wealth held for precautionary reasons is not used, might explain some of the reluctance to use home equity for income in retirement.

¹² Sass (2017).

amounts borrowed in September 2019, with the rate adjusted annually.¹³ The high up-front costs make the product costly for short-term borrowers.¹⁴ In addition, reverse mortgages are complex products that few understand.¹⁵

An alternative, and seemingly less complex and cheaper, way to borrow against home equity would be through property tax deferral programs. In many states, qualified – generally low-income – senior homeowners can defer their property taxes for as long as they stay in their home. By reducing taxes upfront, such programs free up money that can be used for other purposes, providing a stream of income for life that is very similar to having an annuity. The deferred amounts are repaid with interest when the person dies or sells the home, so the programs have no long-run cost for states or localities. Despite the advantages, eligibility is limited and take-up is low. A proposed redesign to the tax deferral program in Massachusetts would: 1) open up the program by removing income limits; 2) simplify sign-up; and 3) have the state – rather than the localities – handle program finances.¹⁶ But even this new proposal has run into resistance from potential participants who do not want to have a lien on their property lest they want to leave their home as a bequest or need to move.

The question of interest here is how likely people are to move as they age to see if borrowing against one's home is a viable financial strategy. Most studies look at transitions over a 10-year window for relatively young homeowners. For example, using a variety of datasets and cohorts of homeowners ages 50-63 at the start of the observation period, researchers have documented a 10-year rate of movement of between 27 and 32 percent.¹⁷ However, even the

¹³ A reverse mortgage's up-front costs include the lender's origination fee, a mortgage insurance premium, and other service fees such as appraisal and legal fees. In this example, the up-front costs include the maximum allowable origination fee of \$5,000 (2 percent of the first \$200,000 of the home value and 1 percent for the remaining), the insurance premium of \$6,000 (2 percent of home value for all borrowers since late 2017), and other closing costs of around \$2,500 (using the calculator from the National Reverse Mortgage Lenders Association (NRMLA)). The interest rate in this example is adjustable rate, like most reverse mortgage loans taken out by homeowners. It is the sum of three components: a base rate of 2 percent (the 1-year LIBOR rate in September 2019); a 2-percent lender's margin (suggested by the calculator from NRMLA); and a 0.5-percent insurance premium. For historical statistics such as adjustable rates and fixed rates on all HECM originations, see the monthly publications by the U.S. Department of Housing and Urban Development.

¹⁴ See Haurin and Moulton (2017) for a detailed comparison of equity withdrawal through borrowing in the United States and other industrialized nations. Mudrazija and Butrica (2017) compare the evolution of housing wealth in the United States and Europe.

¹⁵ Davidoff, Gerhard, and Post (2016) and Davidoff (2015).

¹⁶ Munnell et al. (2017).

¹⁷ Using the *Retirement History Survey*, Venti and Wise (1989) find that around 27 percent of homeowners ages 58-63 moved over 10 years. Calvo et al. (2009) find a similar 10-year rate of movement (30 percent) among 51-62 year olds using the HRS cohort. Using a different dataset (the PSID) Banks et al. (2007) find a similar rate of movement (32 percent) among homeowners ages 50+ over a 10-year period, with most movers changing homes only once.

oldest participants in these studies are only in their early 70s; they have not entered the period when widowhood is more likely and people increasingly need long-term services and supports. Studies that have looked at moves after the age of 75 tend to focus on the reasons for the moves. Generally, these moves reflect the increasing importance of care needs and the desire to be close to family, with a greater proportion of late-life movers going to care facilities or co-residing with family.¹⁸

This project assesses the likelihood of late-life moves by examining the residential patterns of older homeowners. It contributes to the existing literature in several ways. First, the project describes housing trajectories over an entire retirement by constructing a “synthetic” cohort that spans a 40-year period. Second, the project uses sequence analysis to visualize and group together households with similar residential patterns, considering the order, timing, and nature of transitions.¹⁹ Finally, it identifies groups of people who are likely to have late-life housing trajectories that are suitable or unsuitable for equity withdrawal. In short, the exercise sheds light on the extent to which older homeowners have the predictable and stable housing patterns that are suited to borrowing against home equity.

Data and Methodology

This section describes three inputs into the analysis: 1) the data; 2) the creation of the synthetic cohort; and 3) how sequence analysis is used to identify common housing trajectories.

Data

This project uses data from the 1992-2016 waves of the *Health and Retirement Study* (HRS). The focus is on the housing trajectories of two cohorts: homeowners ages 50-54 in 1992 (HRS cohort) and homeowners ages 70-74 in 1993 (AHEAD cohort). The sample of homeowners is restricted to those who remain in the study, have no missing observations, and have consistent reporting of their home ownership status. With these restrictions, the HRS sample consists of 1,142 households and the AHEAD sample consists of 931 households (see

¹⁸ See Heiss, Hurd, and Borsch-Supan (2003); Coe and Wu (2012); and Byles et al. (2018). Factors associated with an increased likelihood of moving in old age include becoming a widow, being single, having poor health or health shocks, having disabilities, and living in a car-dependent location (see Byles et al., 2018).

¹⁹ In terms of sequence analysis, two studies have used this technique to look at housing trajectories, but they focused on the period prior to retirement (see Clark et al., 2003 and Stovel and Bolan, 2004).

Table 1). The restricted samples for the HRS and AHEAD cohort continue to look like homeowners in the original surveys (see Table 2).

The analysis tracks the households over time, using the following rules. For single-person households, follow the individual. If a single person marries, follow the household. In the case of couples who divorce, continue the analysis with the financial respondent and drop the non-respondent spouse from the sample. In the event that a spouse dies or enters a long-term services and support (LTSS) facility, the analysis continues with the spouse who remains in the community. The focus here is not usage of care facilities, but whether homeowners stay in their home long enough to make borrowing against the home an economically viable strategy.

While the HRS has 24 years of longitudinal data, that period is insufficient to observe a full cohort from ages 50-54 until death. To describe the typical housing trajectories of people in their 50s until death requires the creation of a synthetic cohort.

Creation of a Synthetic Cohort

The synthetic cohort is created by “splicing” together the HRS and AHEAD cohorts to create a complete picture of late-life housing trajectories until death (see Table 3). The synthetic cohort starts by following the housing trajectories of the 1,142 homeowners in the HRS cohort as the core sample, who are ages 50-54 in 1992 until 2016 when they are ages 74-78. Of this core sample, the 823 surviving households in 2016 are paired with similar households from the donor pool of the AHEAD cohort who are ages 74-78 in 1998.²⁰ By following the AHEAD cohort until 2016, when surviving households turn ages 92-96, the synthetic cohort can cover housing transitions from retirement age to death.²¹

The pairing proceeds in an iterative fashion. The first pass attempts to match households on six variables: 1) household type (married couple, widower, widow, or a single male or female); 2) housing arrangement (owner, renter, or in LTSS facility); 3) age (allowing for a maximum of one-year difference); 4) education (high school or less and some college or more); 5) health (ADL limitations or no ADL limitations); and 6) income tercile. It was possible to

²⁰ To get a large enough sample for the donor pool, this project includes households from other cohorts within the age range. And, because some of the core cohort no longer own a home, this donor pool is not restricted to homeowners.

²¹ After the pairing process, 8 percent of households in the synthetic cohort are still alive at ages 92-96. Since those households are at an advanced age, their housing trajectories are unlikely to have many more changes before death; therefore, this project does not perform additional pairing on this group.

match 88 percent of households with all six variables.²² For those where no exact match was found, the next pass dropped the lowest priority variable (income tercile) and attempted to match using the remaining five variables. That pass matched another 6 percent of households. The process was repeated three more times for another 4 percent of matching, with the final 2 percent of households matching only on household type and housing arrangement.

To test the success of the matching process, households in the HRS cohort are tracked from ages 50-54 and then matched to the donor pool at ages 66-70 in 2008 instead of 74-78 in 2016 (see Table 4). This process makes it possible to compare their actual housing patterns after 2008 with patterns using a synthetic cohort. The results show that, in the following waves (2010-2016) after matching, the synthetic cohort had a very similar proportion of households in various housing states as the actual data (see Table 5). Moreover, the matching methodology is significantly better than matching randomly.

Sequence Analysis

This project uses sequence analysis to describe and group together common residential patterns among homeowners *who move* in each of the cohorts described earlier.²³ Unlike methods that use a respondent's housing situation at one point in time as the unit of analysis, sequence analysis uses the homeowner's entire housing trajectory. Relying on a series of observations as the unit of analysis makes it possible to group together those with similar housing status at similar times and in a similar order. Visualizing trajectories allows the detection of patterns that might not be obvious using statistics. For example, it is easy to identify homeowners who never move, but simply counting the number of moves does not reveal whether these moves occur at regular intervals or at the beginning or end of an observation period.

The first step in sequence analysis is to encode information on housing status over time. Housing status includes information on the type of housing arrangement (owner-occupied, rental or LTSS facility) and on the stability of the housing arrangement (the number of homes since the first observation). To determine the type of residence, respondents are classified as homeowners if they report living in an owner-occupied single-family house, duplex, apartment, or

²² A household in the donor pool may be matched multiple times to different HRS households.

²³ For more on the theory of social sequence analysis, see Abbott (1990).

condominium. They are classified as renters if they report renting a single-family house, duplex, apartment, or condominium. Those who live in a skilled nursing home or an assisted living home are classified as living in a LTSS facility. To keep track of transitions, the project uses the HRS Cross-Wave Region/Division and Mobility File.²⁴ Respondents are marked as living in a new home if they move a distance greater than zero or if the distance is zero and the respondent reports moving to a new home within the past two years.²⁵ Respondents are also coded as moving if they self-reported a move and reported a change in housing tenure. As a final check, respondents are coded as moving only if they report that they no longer live at the same residence as in the last observation. The last possible housing transition is death.²⁶

The example below illustrates how hypothetical housing trajectories for three respondents over ten years would be coded for sequence analysis. Respondent A moves once to a new owner-occupied home and remains (H₂) until death (D); Respondent B moves once, into a new owner-occupied home (H₂) until death (D); and Respondent C moves to become a renter and then moves to a LTSS facility before death.

Table. *Hypothetical Housing Trajectory of Three Respondents*

Year	1992	1994	1996	1998	2000	2002
Respondent A	H ₁	H ₂	H ₂	H ₂	H ₂	D
Respondent B	H ₁	H ₂	H ₂	D	D	D
Respondent C	H ₁	Rent	Rent	LTSS	LTSS	D

Source: Authors' example.

Once housing status over time has been coded for each participant in the sample, sequence analysis is used to group together the resulting housing trajectories. In the example, sequence analysis will group individuals A and B together, because they both move to a new owner-occupied home and stay there until death. Their experience differs distinctly from the housing trajectory of Respondent C, who stays briefly in their first residential home before renting and moving to a LTSS facility.

²⁴ Previous studies found errors in self-reported moves (Venti and Wise 2001). The Cross-Wave Region/Division and Mobility File uses the HRS's Survey Research Operations field control system to improve accuracy and consistency of geographic information.

²⁵ Prior to 1998, any move within a ZIP code was coded as zero miles. All moves under a mile were coded as a distance of zero for all waves.

²⁶ Including death as an event maintains an equal sequence length and highlights the length of time each homeowner spends in each state. However, it also introduces a problem with sorting that is addressed later in this paper.

In technical terms, sequence analysis computes the degree of difference between sequences by: 1) tracking the number of modifications needed to transform one sequence to another;²⁷ and 2) assigning a cost to each modification. Ideally, the costs should reflect the burden of switching from one state to another, with a higher cost reflecting a higher burden. The literature suggests two approaches to assigning costs: either a transition substitution matrix or assigning all transitions the cost of one. The transition substitution matrix, which uses the data to assign low costs to transitions that happen frequently and high costs to transitions that happen infrequently, works well to the extent that transitions reveal the relationship between two states. However, two reasons prevent using that approach in this project: 1) by design, many transitions between housing states are impossible (for example, moving from a household's first home to a household's third home and vice versa); and 2) given the high probability of homeowners staying put, the transitional substitution matrix returns a matrix with little variance of costs among different transitions. For simplicity, this project follows the second approach and assigns all housing and LTSS transitions a cost of one.²⁸ Since this project follows households until death, it assigns all transitions into death a cost of zero to reflect the fact that 1) dying is an event out of the control of the household; and 2) it is unavoidable and irreversible.

The distance between any two sequences is the sum of the modifications multiplied by their cost. Hierarchical cluster analysis is used to sort similar sequences (based on degree of difference) into a specified number of groups. The number of groups is based on the Caliniskin and Harabasz index, which identifies the number that maximizes the similarity of sequences within groups and the dissimilarity of sequences between groups.²⁹ As noted above, in the following exercise sequence analysis is applied only to the households that move.

²⁷ Two types of modifications exist. The first is a substitution, whereby the state of one trajectory state is substituted with a different state to match a different trajectory (e.g. changing the housing states for Respondent C from Rent and LTSS to H2 so they match Respondent A). The second type of modification is insertion or deletion. An insertion is when a state is inserted into a sequence and every other state is pushed back one wave. A deletion is when a state is removed and every following state is pulled forward. Typically, insertions and deletions happen simultaneously, where one state is inserted and another is deleted to preserve the number of observations.

²⁸ For a recent sequence analysis paper that assigns a cost of one, see Calvo, Madero-Cabib, and Staudinger (2018).

²⁹ The goal is to select the number of groupings that ensure sequences belong together in a conceptually meaningful way. For instance, if the Calinski-Harabasz Index indicates ten groupings, we may choose four if the housing trajectory does not differ greatly within some of the proposed groups.

Results of the Sequence Analysis

The sequence analysis is applied to the movers in three cohorts: the original HRS cohort (50-54 in 1992), the AHEAD cohort (70-74 in 1993), and the synthetic cohort described above.

The HRS follows people ages 50-54 in 1992 until they reach 74-78 in 2016, covering the period when children leave the home and people retire. The sequence analysis of the HRS cohort produces two groups of movers (see Figure 2). Including the group of households that never moves results in a total of three groups. The first group – “never movers” (63 percent of households) – remain in their original home throughout the period or until they die. Group 2 – “stable movers” (19 percent) – move in their late 50s or early 60s and stay in their new home for the remainder of the survey or until death. Group 3 – “frequent movers” (18 percent) – move out of their original home in their early 50s and continue to shift residences throughout the period. The conclusion that emerges from looking at people up to ages 74-78 is that 82 percent would be well situated to borrow against their home – 63 percent who stay in their first home throughout and 19 percent who stay in their second home for the remainder of the period. But the HRS cohort is still relatively young by the end of the observation period, so it is important to look at the housing patterns of older households in the AHEAD cohort.

The AHEAD cohort – which follows homeowners ages 70-74 in 1993 until they are 93-97 in 2016 – is of particular interest because of the increasing likelihood of experiencing the death of a spouse or needing an LTSS facility. Analysis of the AHEAD cohort identifies four groups (see Figure 3). The first three groups are similar to those found among the HRS cohort. Group 1 – “never movers” (75 percent) – remain in the same house they owned when first observed in their early 70s. Group 2 – “stable movers” (7 percent) – move in their early 70s and then stay in their new home until death. Group 3 (11 percent) are “frequent movers.” The final group, accounting for 8 percent of the sample, consists of homeowners who enter into LTSS in their 80s and 90s. Again, the story seems to be that most people stay put, but it would be helpful to look at people over their entire life and that is what the synthetic cohort provides.

The results for the synthetic cohort, which follows people from their early 50s until the end of their lives, are shown in Figure 4. The analysis uncovers the same four groups as the AHEAD cohort. Group 1 (53 percent) are those that never move from their original home when they are in their early 50s. Group 2 (17 percent) moves around retirement into a new owner-occupied home and then generally stays in that new home until death. Group 3 (14 percent) are

frequent movers. And the final group (16 percent) stays in their original home until their 80s and then moves into either a rental or an LTSS facility.

One obvious question is whether these results for the synthetic cohort are consistent with the information from the HRS and the AHEAD. A way to check is to focus on one of the groups, say, the “never movers.” The analysis of the HRS cohort shows that 63 percent of households never move between their early 50s and early 70s. Of these never movers, about 40 percent are still alive in their early 70s. The AHEAD cohort shows that 75 percent of these survivors also do not move over their remaining lifespan – from their early 70s until death. Thus, taking the results from the HRS and AHEAD together suggests that “never movers” over the whole lifespan should account for roughly 53 percent of the original group ($(.63 - .40 = .23) + (.40 * .75 = .30)$). This total precisely matches the percentage in the synthetic cohort result. Thus, it seems reasonable to conclude that 70 percent of the age 50-54 homeowners will either stay in their original home or make one purchase around retirement.

Characteristics of Movers

To gain a better understanding of who moves in retirement, the next step in the analysis is to compare the demographics of those in the various groups. The focus here is the synthetic cohort (see Table 6). (The demographics for the HRS and AHEAD cohorts are in Appendix Tables A1 and A2, respectively.) As noted above, the default appears to be the desire to settle in for the duration. Households accomplish this goal in two ways. In the first case, households decide to stay in the home they own in their 50s. Households taking this approach look very much like the average in terms of race, income, and wealth. In the second case, households purchase a new home around the time of retirement and stay there through old age. The data suggest households that follow this second path are the most privileged of the four groups. They are more educated than the average older household; they are more likely to live in an urban area before they move; and they have higher income, substantially more financial wealth, and more housing wealth. Regardless of the approach taken, both groups – “never movers” and “stable movers” – end up with substantially more housing wealth the last time they are observed than the movers.

As discussed, the movers consist of two distinct groups – “frequent movers” and “late movers.” The frequent movers, along some dimensions, look somewhat like the stable movers in

that they are better educated and have higher income than the average. Along other dimensions, however, they differ noticeably. Most importantly, a much smaller share of the frequent movers are two-earner couples, they have more children, they experience more unemployment, and they have less financial wealth. The result of the frequent moves appears to be less combined housing and financial wealth than any other group at the end of the observation period.

The other group that moves – the late movers – looks exactly like the never movers along many dimensions. The households have the same racial makeup, a very similar education profile, the same urban/rural split, the same percent dual-earners, and similar incomes at the first observation. They are better off, however, than the never movers in terms of starting financial and housing wealth, and they stay in their original home. The problem is that they are more likely to experience an ADL impairment and be forced to move in their 80s. As they sell their home, their housing wealth drops and their financial wealth increases. The challenge is that it is very difficult to tell early on which households will need to move in their old age.

Conclusion

This study examines whether older homeowners – many of whom need the money, have the equity, and want to stay put – might avoid using reverse mortgages because they expect to move. To assess the stability and predictability of the residential patterns of older homeowners, the project analyzes the timing and nature of housing transitions for three cohorts: 1) a cohort of 50-54 year olds until they turn 74-78; 2) a cohort of 70-74 year olds until they turn 93-97; and 3) a synthetic cohort with stylized housing patterns of 50-54 year olds until death. To group together and visualize common housing trajectories, the project uses sequence analysis.

The sequence groups generated by this study paint a clear picture: most households (70 percent) do not change residences, even over several decades. This stability shows up in two ways. Households either stay in the home they own in their 50s (53 percent), or they purchase a new home around retirement, where they remain for the duration of the survey (17 percent). The minority of households that do move fall into two groups. Frequent movers (14 percent) appear to face labor market challenges; a much smaller share are two-earner couples; the head experiences more unemployment; and the household enters the survey with less financial wealth. Late movers (16 percent) look like a slightly more affluent version of the never movers, but then face a health shock that forces them out of the home they owned in their 50s into a rental unit or

an LTSS facility. This finding largely supports the narrative contained in the literature: that most people want to age in place and move only in response to a shock.

The overall conclusion is that most homeowners experience enough residential stability to tap home equity through products and programs like reverse mortgages and property tax deferrals.

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Table 1. *Sample Restrictions for Households in the HRS and AHEAD Cohorts*

Restriction	HRS	AHEAD
Total in cohort	6,456	5,788
Ages 50-54 in 1992	2,934	-
Ages 70-74 in 1993	-	2,099
Homeowners at first observation	2,354	1,652
Not dropped by HRS	2,022	1,564
Has all observations	1,205	985
Has consistent reporting of housing tenure	1,142	931

Source: Authors' calculations using University of Michigan, *Health and Retirement Study* (1992-2016).

Table 2. *Comparison of Sample to All Households in HRS and AHEAD Cohorts*

At first observation	HRS			AHEAD		
	All	Home-owners	Sequence sample	All	Home-owners	Sequence sample
<i>Race</i>						
White	77 %	83%	84%	79%	83 %	83 %
Black	18	14	13	20	17	17
Other	5	3	3	1	1	1
<i>Education</i>						
< High school	24	19	18	32	30	29
High school	35	37	36	30	30	39
Some college	21	22	23	16	14	17
College	20	23	24	22	25	15
Coupled	70	79	79	58	64	62
<i>Average wealth</i>						
Financial	\$8,900	\$17,900	\$17,900	\$15,200	\$25,400	\$25,400
Housing	62,600	95,700	94,900	98,300	127,100	122,000
<i>Health conditions</i>						
	0.9	0.8	0.8	1.4	1.3	1.4

Note: Wealth is in 2018 dollars.

Source: Authors' calculations using University of Michigan, *Health and Retirement Study* (1992-2016).

Table 3. *Synthetic Cohort Methodology*

Survey year	1992	1994	1996	1998	2000	2002	2004	2006	2008	2010	2012	2014	2016
Core sample	50-54	52-56	54-58	56-60	58-62	60-64	62-66	64-68	66-70	68-72	70-74	72-76	74-78
Donor pool				74-78	76-80	78-82	80-84	82-86	84-88	86-90	88-92	90-94	92-96

Source: Authors' illustration.

Table 4. *Synthetic Cohort for Testing Purpose*

Survey year	1992	1994	1996	1998	2000	2002	2004	2006	2008	2010	2012	2014	2016
Core sample	50-54	52-56	54-58	56-60	58-62	60-64	62-66	64-68	66-70	68-72	70-74	72-76	74-78
Donor pool				66-70	68-72	70-74	72-76	74-78					

Source: Authors' illustration.

Table 5. *Comparison of Actual Data with Matching Result by Different Methods*

Status	Actual cohort	Synthetic cohort	
		Splicing	Random match
<i>Housing status in 2010 (Ages 68-72)</i>			
Owning a home	91.6%	91.7%	83.1%
Renting	2.8	1.9	3.3
Nursing home	1.1	1.6	2.3
Dead	4.5	4.8	11.6
<i>Housing status in 2016 (Ages 74-78)</i>			
Owning a home	77.8%	79.9%	63.8%
Renting	3.9	3.9	3.7
Nursing home	1.7	1.1	1.7
Dead	16.6	15.1	30.8

Note: Statistics are for the households who are still alive at the matching wave in 2008.

Sources: Authors' calculations using University of Michigan, *Health and Retirement Study* (1992-2016).

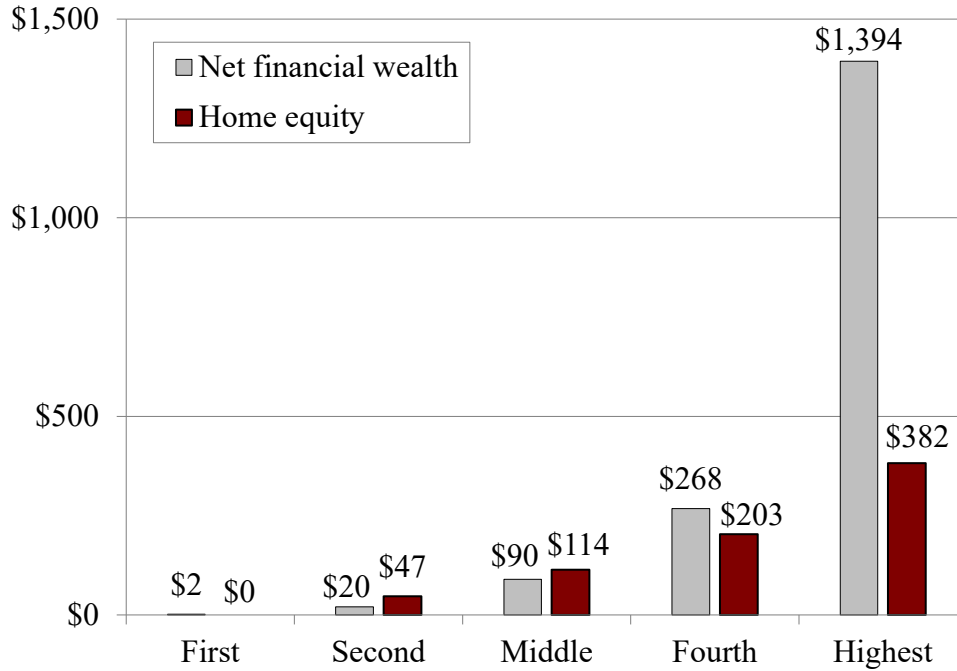
Table 6. *Characteristics of Sequence Groups for Home-owning Households Ages 50-54 in 1992 (Synthetic)*

Characteristics	Sequence group				All
	Never movers	Stable movers	Frequent movers	Late movers	
Share of total sample	53 %	17%	14%	16%	100%
Coupled	80 %	78%	76%	78%	79%
<i>Race</i>					
White	81	87	90	83	84
Black	16	10	6	16	14
Other	3	3	4	1	3
<i>Education</i>					
Less than high school	22	10	13	15	18
High school	36	32	35	39	37
Some college	22	25	24	23	22
College	20	34	27	22	23
Two-earner couple	65	69	59	69	66
<i>With any ADL impairment</i>					
First observation	5	6	5	2	5
Last observation	38	37	41	54	41
<i>Housing - last observation</i>					
Homeowner	100	83	52	30	47
Renter/other	0	5	31	23	21
LTSS	0	12	17	47	19
<i>Metro area</i>					
Urban	52	62	54	50	54
Suburban	24	25	21	26	24
Rural	24	13	25	24	22
Share of observations unemployed	13	13	21	11	14
Number of children	31	3.0	3.6	3.1	3.1
<i>Household income</i>					
First observation	\$75,000	\$95,000	\$83,000	\$80,000	\$81,000
Last observation	\$33,000	\$34,000	\$30,000	\$27,000	\$31,000
<i>Financial wealth</i>					
First observation	\$13,000	\$27,000	\$15,000	\$27,000	\$18,000
Last observation	\$11,000	\$31,000	\$9,000	\$47,000	\$20,000
<i>Housing wealth</i>					
First observation	\$89,000	\$105,000	\$78,000	\$108,000	\$95,000
Last observation	\$119,000	\$112,000	\$31,000	\$0	\$94,000

Notes: Characteristics are for the head of household except for ADL limitations (for the last survivor). Due to data availability, the first ADL observation is in 1994. Wages and wealth are in 2018 dollars

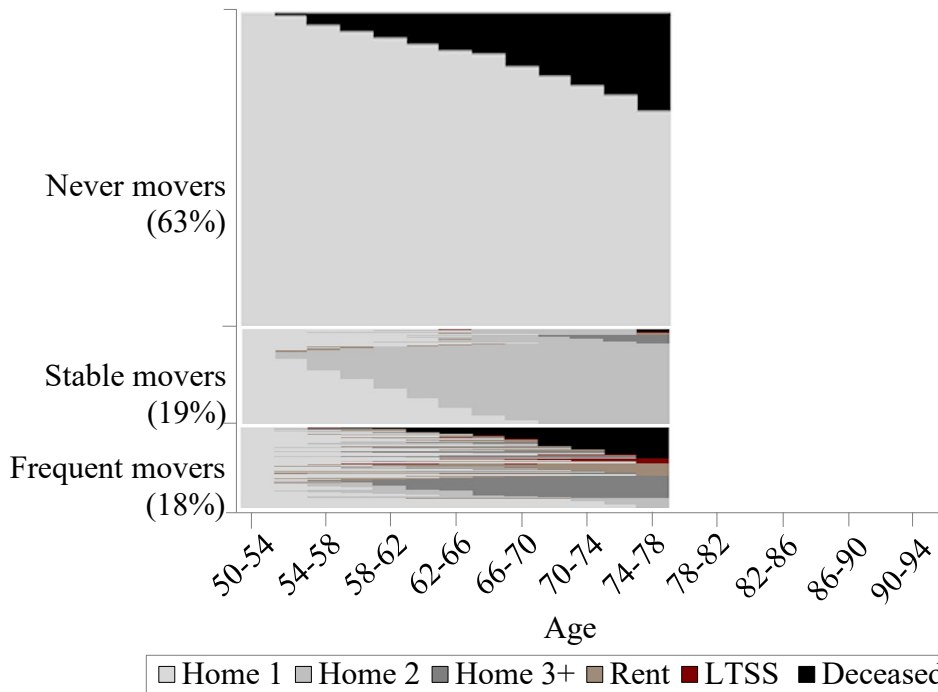
Source: Authors' calculations using University of Michigan, *Health and Retirement Study* (1992-2016).

Figure 1. Median Net Financial Wealth and Home Equity of Households Ages 65-69 in 2016, by Net Worth Quintile, Thousands of 2018 Dollars



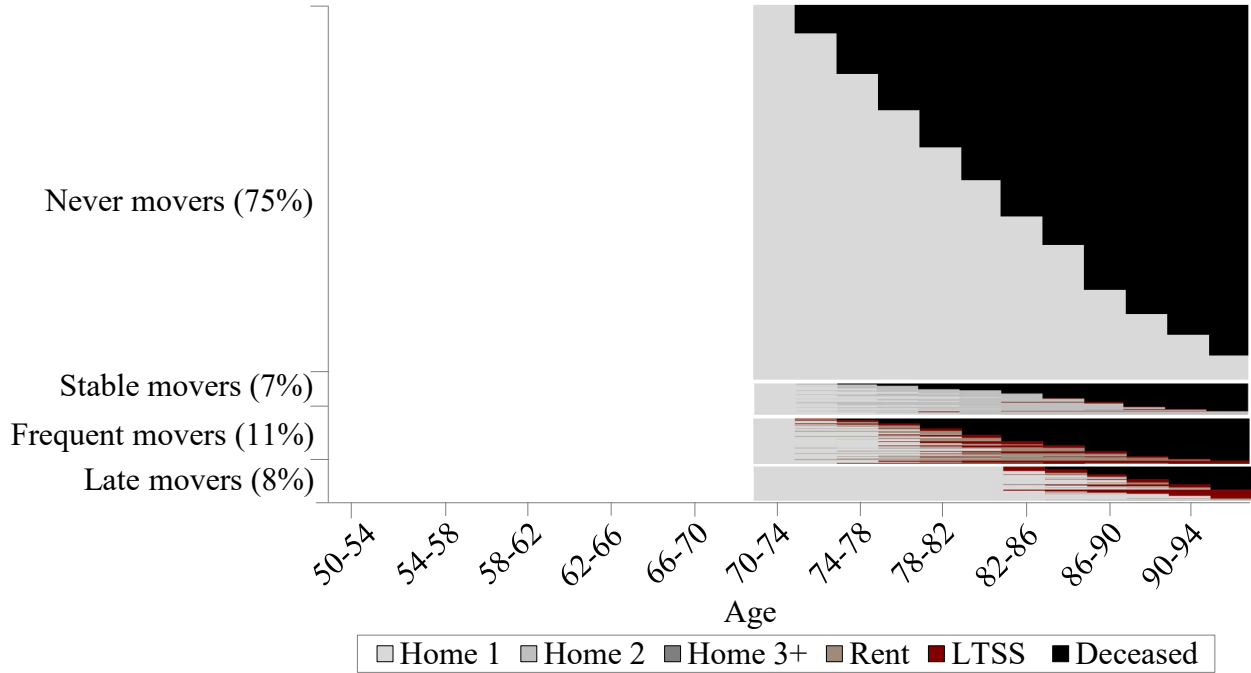
Source: Authors' calculations from U.S. Board of Governors of Federal Reserve System, *Survey of Consumer Finances* (2016).

Figure 2. Sequence Groups of Home-owning Households Ages 50-54 in 1992 (HRS Cohort)



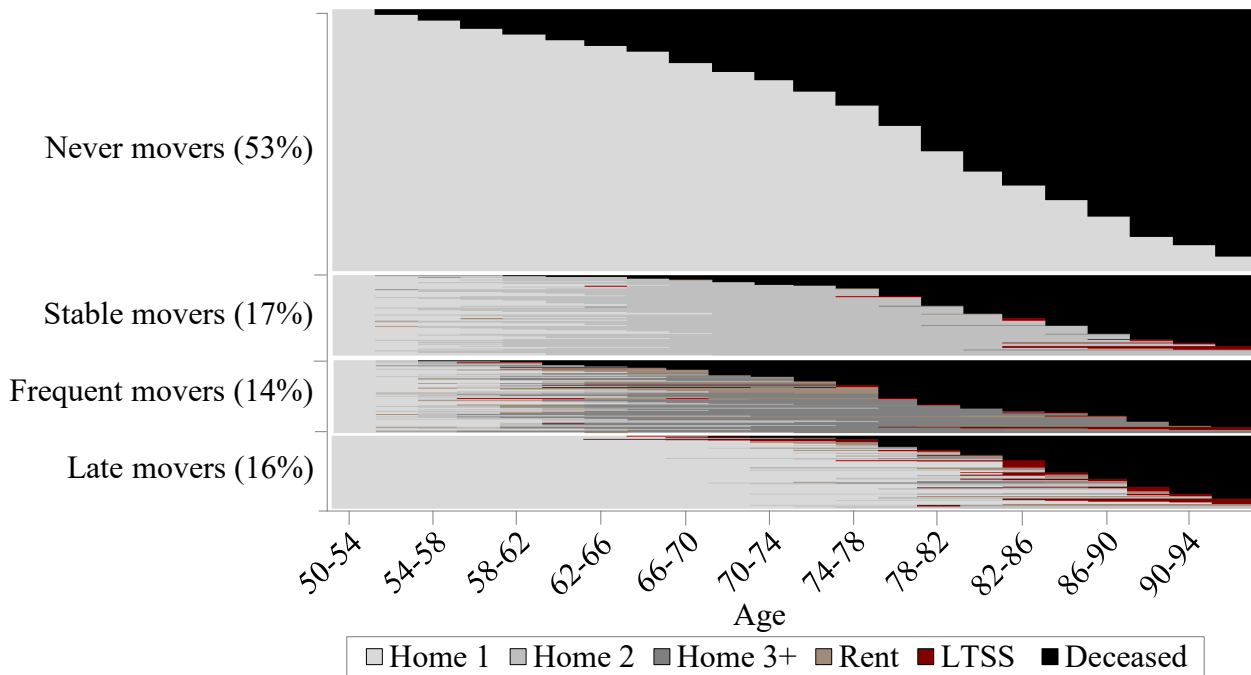
Source: Authors' calculations using University of Michigan, *Health and Retirement Study* (1992-2016).

Figure 3. *Sequence Groups of Home-owning Households Ages 70-74 in 1993 (AHEAD Cohort)*



Source: Authors' calculations using University of Michigan, *Health and Retirement Study* (1993-2016).

Figure 4. *Sequence Groups for Home-owning Households in the Synthetic Cohort*



Source: Authors' calculations using University of Michigan, *Health and Retirement Study* (1992-2016).

Appendix. Characteristic Tables for HRS and AHEAD Cohorts

Table A1. *Characteristics of Sequence Groups for Home-owning Households Ages 50-54 in 1992 (HRS)*

Characteristics	Sequence group			Average
	Never movers	Stable movers	Frequent movers	
Share of total sample	63 %	19 %	18 %	100 %
Coupled	79	78	78	79
<i>Race</i>				
White	81	88	89	84
Black	16	9	8	13
Other	2	3	3	3
<i>Education</i>				
Less than high school	21	9	15	18
High school	37	31	36	36
Some college	22	25	23	23
College	20	34	26	24
Two-earner couple	65	70	63	66
<i>With any ADL impairment</i>				
First observation	4	5	5	5
Last observation	33	11	44	32
<i>Housing - last observation</i>				
Homeowner	100	95	60	92
Renter/other	0	3	28	6
LTSS	0	2	12	3
<i>Metro area</i>				
Urban	52	63	50	54
Suburban	24	25	23	24
Rural	24	13	26	22
Share of observations unemployed	12	13	20	14
Number of children	3.0	2.9	3.7	3.1
<i>Household income</i>				
First observation	\$75,000	\$96,000	\$83,000	\$81,000
Last observation	\$40,000	\$49,000	\$40,000	\$42,000
<i>Financial wealth</i>				
First observation	\$14,000	\$30,000	\$16,000	\$18,000
Last observation	\$15,000	\$33,000	\$10,000	\$18,000
<i>Housing wealth</i>				
First observation	\$95,000	\$107,000	\$79,000	\$95,000
Last observation	\$131,000	\$167,000	\$58,000	\$126,000

Notes: Characteristics are for the head of household except for ADL limitations (for the last survivor). Due to data limitations, the first observation of ADL limitations is in 1994. Wages and wealth are in 2018 dollars
Source: Authors' calculations using University of Michigan, *Health and Retirement Study* (1992-2016).

Table A2. *Characteristics of Sequence Groups for Home-owning Households Ages 70-74 in 1993 (AHEAD)*

Characteristics	Sequence group				All
	Never movers	Stable movers	Frequent movers	Late movers	
Share of total sample	75%	7%	11%	8%	100%
Coupled	62	70	54	61	62
<i>Race</i>					
White	86	94	94	97	88
Black	13	5	5	3	11
Other	1	2	1	1	1
<i>Education</i>					
Less than high school	33	17	26	18	30
High school	34	36	51	45	36
Some college	18	24	14	21	18
College	16	23	9	15	16
<i>With one or more ADL impairment</i>					
First observation	13	6	13	4	12
Last observation	45	48	63	58	48
<i>Housing - last observation</i>					
Homeowner	100	88	6	13	52
Renter/other	0	2	44	18	21
LTSS	0	11	49	69	19
<i>Metro area</i>					
Urban	56	59	59	58	56
Suburban	23	24	24	23	23
Rural	22	17	17	20	21
Number of children	3.0	2.7	3.2	2.6	3.0
<i>Household income</i>					
First observation	\$37,000	\$46,000	\$33,000	\$40,000	\$38,000
Last observation	\$27,000	\$32,000	\$21,000	\$24,000	\$26,000
<i>Financial wealth</i>					
First observation	\$24,000	\$52,000	\$19,000	\$54,000	\$25,000
Last observation	\$24,000	\$277,000	\$111,000	\$189,000	\$26,000
<i>Housing wealth</i>					
First observation	\$119,000	\$195,000	\$119,000	\$134,000	\$122,000
Last observation	\$123,000	\$120,000	\$0	\$0	\$98,000

Notes: Characteristics are for the head of household except for ADL limitations (for the last survivor). Wages and wealth are in 2018 dollars

Source: Authors' calculations using University of Michigan, *Health and Retirement Study* (1993-2016).

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