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## Housing Tenure Transitions of Older Households: How close do they want to live to their kids?

by

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### Abstract

This study examines the role of the current proximity to children and recent moves of children within a proximate distance in housing tenure transitions of older households. This study is the first to investigate the interplay between health status of older households, moves of their children, and a household's decision to make housing tenure transitions. In doing so, we rely on longitudinal household data from the Panel Study of Income Dynamics (PSID) with residential location information at the census tract level. The results demonstrate that the proximity to children matters in housing tenure transitions of older households, but that its impacts are not monotonic with respect to the degree of geographic distances. The results also demonstrate that if a child enters their parents' home, it lowers the probability that older households exit homeownership. On the other hand, homeownership exits are actually more frequent when a child moves closer to the parent, but not in the same residence. Finally, we find no evidence that children's moves mitigate the likelihood that their older parents with health deterioration become a renter.

## **Introduction**

While Figure 1 presents evidence on the strong preference of older Americans for homeownership, it also indicates lower homeownership rates among the oldest populations. If this trend of elderly housing tenure transitions continues along with the aging of the baby boom generation, it may have potential impacts on housing markets (Myers and Ryu, 2008). It is also important for policy makers to understand the impact of various programs to promote elderly homeownership or public expenditures on dependent living arrangements for the elderly. The drivers of the housing tenure choices of the elderly will become more important as the baby boom generations move to retire. To date, there has been little research on the reasons why the elderly make transitions from homeownership.

Previous research has suggested that the determinants of elderly housing tenure transitions typically fall into two categories (Jones, 1997). One strand of research is based on the life-cycle hypothesis (Yaari, 1965), which predicts that households will desire to consume a portion if not all of their housing wealth during retirement years so become a renter or downsize (Jones, 1997). The other set of studies (Hurd, 1990; Sheiner and Weil, 1993; Walker, 2004; Davidoff, 2008) suggest that households will not consume out of housing wealth in the same way as they consume out of other wealth. While the research in the first category tends to rely on financial circumstances of older households in analyzing elderly housing behavior, a second set of explanations focus on various demographic factors (Venti and Wise, 1990). These factors that may change a household's preference for housing tenure include deteriorating health, familial events, and marital status changes. A recent paper by Painter and Lee (2009) found that while age itself is not related directly to housing tenure choice for older households having lower

health status and being a single head of household is the important predictor of housing tenure transitions

Much less well-known is the role of children to housing tenure transitions of older households. Several studies (McGarry, 1999; Kopczuk and Lupton, 2006) have reported evidence that the financial well-being of their children could affect a household's desired level of bequests. However, the evidence is mixed. While the level of children's wealth may be positively associated with the transition from homeownership because older households are likely to reduce bequests, it may reduce the probability of such transition if parents prefer giving their wealth as an *inter-vivo* transfer. Other research on elderly migration (Litwak, 1985; Siegel, 1985; Meyer and Speare, 1985; Silverstein, 1995; Choi, 1996) finds that older households may leave their home when they want to be closer to their children or other family members primarily due to health care needs. This finding implies that the presence of one's children within the proximate distance could simply increase the probability that an older homeowner remains in the current home. For example, Painter and Lee (2009) find that older households are more likely to remain in their home if their children live in the same state as their parents. Others examine how the geographic proximity to children can influence older households' tastes for being a homeowner or for accumulating their bequeathable housing wealth. As indicated by the literature on intergenerational co-residence (Choi, 2003; Crimmins and Ingegneri, 1990; Himes, Hogan, and Eggebeen, 1996; Schmertmann et al., 2000), elderly parents and their adult children share non-financial resources. If children who stay or move closer to their parents help with both health needs and home maintenance, therefore, they may reduce probabilities that older households leave homeownership. In addition, if elderly parents have more connections to their children because of geographic proximity between them, they may hold on to their home as a

source of bequeathable wealth because of higher desired levels of bequests. However, none of the above studies have investigated the interplay between non-coresident proximity to children, intergenerational co-residence, and elderly health.

This study makes three important contributions. First, this study examines to what extent of the degree of the current proximity to children at different geographic scales (i.e. home, census tract, county, and state) could influence elderly housing tenure transitions. This analysis is able to carefully analyze the broad set of factors that may influence housing transitions by using enriched longitudinal household data from the Panel Study of Income Dynamics (PSID). These data contain geo-codes that enable the research to determine the census tract of both older households and their children. In addition, we are able to append census tract data to better describe the housing markets in which these household reside.

Second, this study can examine the role of recent mobility of one's children on housing tenure transitions of their elderly parents. As suggested by Speare and McNally (1992), in most cases that the distance becomes shorter between elderly parents and their children, children decide to move closer to parents because older households are less mobile. Finally, we test the hypothesis that a child's recent moves may mitigate the likelihood that a parent with poor health status becomes a renter if children could provide immediate health care. The counter-hypothesis is that these moves may signal unreported health events of their elderly parents so increase the likelihood that the elderly leave homeownership and become institutionalized, as suggested by Sabia (2008).

Results of this analysis are consistent with the main findings in Painter and Lee (2009). In addition, we find that the proximity to children decreases housing tenure transitions of older homeowners, but that the impact of proximity does not monotonically increase with respect to

geographic distances. Parents, whose children are out of state, are more likely to transition from homeownership, but there are no differences between children living in the same census tract or in another county in the state. Recent moves of children also play a role in their parent housing decisions. While children's entrance into home lowers the probability that older households leave homeownership, other moving closer to their parents, but not into the same residence actually increases the probability that an older household will leave homeownership. Recent health deterioration of elderly appears to have no association with children's moves, nor did it impact the transition from homeownership.

## **Background and Theory**

### *Determinants of Elderly Housing Transitions*

The most common model that has been tested to explain household consumption patterns as they age is the life-cycle model. In a standard life-cycle model (e.g. Artle and Varaiya, 1978; Jones 1997), it is assumed that at each age, the household without bequest motives will eventually consume all wealth, and will therefore have to sell their residence at some point. However, others argue that decisions to reduce housing wealth may be very different from decisions to reduce other financial wealth. For example, Hurd (1990) suggests housing wealth may be spent last due to issues of transactions costs, precautionary saving motives, and desired bequests. Also, as Levin (1998) has noted, because Medicaid rules for nursing home care coverage exempt a principal residence, households are likely to spend other financial wealth before selling their principal residence.

In addition, preferences for housing consumption may be a function of many items not traditionally included in life-cycle models of consumption. As a household's health status changes and as a household's family circumstances change, they may have reduced demand for

housing. Given this reduced demand, they may sell their house and either buy a smaller one or choose to rent. For example, an older household member may desire to live closer to their children if a spouse has just died, or if health status has fallen. For many, the transaction costs of selling a house may be an important impediment to consuming housing wealth. While some of the financial impediments to consuming housing wealth have reduced in the past decades, the psychological desires to live near their children would not be affected by changes in financial markets.

### *The Role of Children's Financial Status*

Another factor that can affect a household's desire to consume out of housing wealth is the desired level of bequests. The mechanism by which desired bequests may influence housing tenure and the adjustment of housing wealth is likely to be indeterminate. Previous literature suggests that bequest motivations are likely tied to a household's relationship with their children and their children's wealth (McGarry, 1999). Two major findings are known about the relationship between a parent's desired level of bequests and their children's financial status. First, research (McGarry, 1999; Kopczuk and Lupton, 2006) suggests that if children have more wealth, parents are likely to reduce bequests, although many of these results are insignificant. The implication for this research is that a household may be less likely to hold on to their home as a source of bequeathable wealth if their children have more wealth, and more likely to consume their own wealth. On the other hand, if children have less wealth, McGarry's (1999) results demonstrate that parents are more likely to give their wealth as an *inter-vivo* transfer. Because these effects are in opposite direction, theory does not yield a prediction as to how the financial status of children is likely to affect a household's tenure decision over the life cycle.

The most recent evidence in Painter and Lee (2009) is consistent with the hypothesis that older households are more likely to become renters if their children have higher levels of wealth.

However, the impact of a child's income and wealth is small.

### *The Role of the Geographic Proximity to Children*

Presumably, geographic proximity of one's children can play a role in housing decision because it could influence older households' tastes for being a homeowner and for accumulating their bequeathable wealth. Older households may desire to remain in their home if they are closer to their children (Meyer and Cromley, 1989; Silverstein, 1995; Choi, 1996), because they desire to be near them or because of the help with home maintenance or other needs that parents may have. Further, other studies (Venti and Wise, 1990; Feinstein and McFadden, 1989) provide evidence that older households are less likely to make a transition from homeownership if their adult children reside with them. This research also suggests that older households may be more likely to spend down their wealth rather than save it as a bequest if they have fewer connections to their children. One such connection could be geographic proximity. However, the literature is largely silent on what might be the geographic gradient of the effect of proximity. Aquilino and Supple (1991) and Silverstein (1995) indicate that co-residence is a qualitatively distinct outcome from living or moving closer to one's parents, but the research does not estimate different effects of so living in the same neighborhood, the same county, or same state.

Painter and Lee (2009) tested the hypotheses that living closer to one's children would influence the housing tenure choices of their parents, and found clear evidence that older parents are more likely to remain in their home if their children lived in the same state. Unfortunately, that study was unable to provide evidence on a smaller geographic scale than the state. The

current research attempts to improve the previous research by measuring geography of older households and their children more precisely. Using the geocode-enriched data from the PSID, we measure annual changes in their location of family members at the census tract level. Hence, we could now analyze to what extent the degree of the current geographic distance (i.e. same house, census tract, city, county, or state) between children and their older parents could influence housing tenure transitions of older households. By doing so, we could distinguish effects of non-coresidence proximity from effects of co-residence. With this data, we also attempt to test the hypothesis that older households whose children have recently moved within a more proximate distance are less likely to make a transition from homeownership.

#### *The Role of Health and Its Interplay with Children*

Past research reports mixed effects of health status on the housing behavior of older households. According to Megbolugbe et al. (1997), older households in poor health status are more likely to liquidate their housing wealth. Sabia (2008) consistently reports evidence that physical limitations of older households precipitate their moving from current dwellings. With respect to housing tenure choice, however, others (Merrill, 1984; Ellwood and Kane, 1989; Kotlikoff and Morris, 1989; Venti and Wise, 1989) find that while poor health is important in explaining institutionalization such as moving into nursing homes or other dependent living arrangements, it has little effect on tenure transition from homeownership as far as older households remain independent.

There exists a fair amount of research on the role of health status on the co-residence of children. Silverstein (1995) reports that deteriorating health of older households increases non-coresident proximity between them and their children. If older households are physically

fragile, Speare and McNally (1992) has suggested that health status was the key driver in the decision by children to move closer to their parents. Others (Dobrof, 1976; Litwak 1985; Boersch-Supan et al., 1988) find that such proximity could reduce elderly institutionalization because children could provide health care needs for their parents with deteriorating health. In contrast, Sabia (2008) finds that children's recent moves into the homes of their parent are likely to increase the probability of making a tenure transition from homeownership. A possible explanation is that adult children are likely to move back to take care of their elderly parents so these moves may indicate unreported health problems of older households. Other studies on intergenerational co-residence (Spitze et al., 1992, Worobey and Angel, 1990; Silverstein, 1995) find that health declines accompanied by being unmarried, recently divorced or widowed increases the probability of older households to share a residence with their children.

To our knowledge, no existing studies have disentangled this complex relationship between non-coresidence proximity, coresidence, and elderly health. Using geocoded panel data from the PSID as explained above, this study is the first to provide empirical evidence of how this interplay and its changes contribute to housing tenure transitions of older households. One testable hypothesis is that the presence or recent moves of children within a proximate distance could help older households with physical impairment remain in their current home and as a homeowner. We also observe if recent co-residence arrangements with adult children has any different effects from the recent achievement of non-coresident proximity to children who are independent households.

## **Data and Methodology**

### *Data*

This study relies on the Panel Study of Income Dynamics (PSID) as collected by the Survey Research Center at the University of Michigan. The PSID is a longitudinal data set beginning in 1968 with approximately 4,800 families and provides detailed demographic, economic, and housing information for each family. Although the PSID does not focus on older households, a sizeable portion of them are older households including very old ones. While the PSID is a representative sample of U.S. individuals and their household units, it oversamples low-income and non-white families. To account for this, we apply the PSID family weights for all our estimates. In addition, financial wealth information has been surveyed only after 1984 and this survey has been conducted every five years for the period 1984-1999, and then every other year after 1999. Thus, our analysis excludes the financial wealth data before 1984, and after 1984, includes the financial wealth as imputed by using a smoothing method between survey years.

The longitudinal nature of the PSID offers many benefits for testing our hypotheses on the association between geographic proximity to children, health, and housing transitions of older households. As described in Painter and Lee (2009), we assign unique family ID for each family so are able to observe various changes in its demographic and economic characteristics over its sample period. These changes, such as a divorce, the death of a spouse, and retirement, could be a trigger event for the transition to homeownership so important in understanding the timing of such transition. While older households enter the sample after age 50, we also want to control for some of their previous characteristics such as their tenure history and their marital status at age 50 (Hayward, 2003). The PSID enables us to observe this information and include it as various categorical variables<sup>1</sup>.

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<sup>1</sup> In some cases, this information is missing, and categorical variables are included to denote the missing information

The PSID is also ideal for testing our hypotheses on influences of the financial status of children and the geographic proximity to children on housing tenure transitions of older households. First, by using the Family Identification Mapping System (FIMS) of the PSID, we could merge data of elderly parents with their adult children, so control for children's financial well-being such as permanent income and wealth of parental households. Second, we used enriched data from the PSID that included geocodes that are not publicly provided. With these files, we could identify residential locations of older households and their children at various geographic levels (census tract, county, and state levels) and capture the locational changes of the children and parents for each year. Table 1 presents the complete list of variables used for our analysis.

We use the household as the unit of analysis and a sample is limited to spells of households whose head or wife is 50 or more years old between 1968 and 2007. Households are included in the sample if they are homeowners at least once during observation periods. Then, these households are followed until they make a tenure transition from homeownership or are completely dropped from the PSID sample. The analysis sample consists of 4,018 households that meet all of these criteria.

### *Methodology*

This study uses survival analysis to test effects of geographic proximity to children and effects of its interplay with health deterioration of older households. The analysis examines the time it takes for failure events (i.e. transition from homeownership of older households) to occur and focuses on the relationship between this failure and demographic and socioeconomic factors

of households. We use the `stcox` command in STATA 10 (STATA, 2007) to conduct the survival analysis with the Cox (1972) proportional hazard model.

When estimating the basic model, we define  $t$  as a random variable which represents a given household's homeownership tenure duration and a failure as transitioning from homeownership to being a renter. An owner spell may consist of multiple residence spell because an older household may move but remain as an owner before transitioning to become a renter. To further analyze these households' housing behavior, we also attempt to define a failure as downsizing in other specifications. In our basic model, an owner spell could start at any time if households become a homeowner after age 50 between 1968 and 2007. This spell is observed unless it is completed by making a transition from homeownership during the sample period. Left censoring occurs if households were owners before age 50 and right censoring occurs if households remain as a homeowner in 2007 or at the end of their sample period.

A number of assumptions are necessary for the design of the sample. When a head of household dies, we do not assume it is a tenure transition to avoid potential bias from right censoring. Instead, the surviving spouse becomes the new head, and we continue to observe this family as the original family unit and account for the timing of the death of the original head. If no information is available even for the surviving spouse, its owner spell is right censored. When a married couple divorces, we follow the head of the original family unit if further observations of his or hers exist after the divorce. In this case, observations of the spouse from the original family unit would show up as a new family unit. If no further observations of the head exist after the divorce, however, we switch the head status to the spouse of the original family unit and include controls for the timing of divorce.

In measuring geographic proximity to children, Painter and Lee (2009) used a single categorical variable indicating the presence of any child over 18 within the same state as the residence of older households in the current year. This variable may include a child who lives with them or a child who is still not financially independent so may give financial burdens to older households rather than helping them remain in the current home as suggested in our hypotheses. This study uses an age cutoff of 25 years old in order to separate children who live with older households from those who are independent households but live closer to their parents. With respect to the recent mobility of children, a child may move closer to older households but also move further away from them. Since the latter case could have a reverse impact on elderly housing tenure transitions, we do not consider it as a recent move even though this child is still present within a proximate distance to older households. For example, if a child who used to live in the same census tract as the residence of older households move to the different census tract within the same county, the dummy variable indicating recent moves of children to the same county is 0. Instead, the variable associated with current geographic proximity at the county level becomes 1.

## **Results**

### *Descriptive Statistics*

As indicated in Table 2, over twenty five percent of the sample changes tenure status at least once after age 50. Almost fifteen percent of the sample makes a single transition from owning to renting, and another three and half percent start off owning, but then experience multiple housing tenure transitions. Those that are renting at age 50 or when they enter the sample and then later become owners at least once make up eight percent of the sample. The

remainder of the sample comprises those that always own (53 percent) or always rent (21 percent).

Table 3 present the basic summary statistics of the variables that we will use for the analysis. This table briefly sketches the socioeconomic and demographic profiles of the older households that never transition from homeownership after age 50 (column 1) and those that do (column 2). Families who make a transition are older, on average, compared to those who do not. The mean values of single males and females are much higher in column 2, suggesting that current marital status matters. Similarly, the proportion of those households that experience the loss of a spouse and divorce among families appear who exit homeownership is higher, so those variables appear to be related to the decision to tenure transition. Finally, the statistics demonstrate that past marital transitions and tenure status influence tenure changes after age 50.

There are also important differences across the financial circumstances of the households. Mean values of all income and wealth measures are higher in the sub-sample of the households who never make a transition than those who leave homeownership. While values of regional and state dummies do not systematically across the two sub-samples, the proportion of households who live in the large metropolitan areas is higher for those who become renters.

With respect to health, household who make a transition are more likely to be disabled or experienced disability within the past two years. This is consistent with previous studies (Megbolugbe et al, 1997; Sabia, 2008) suggesting that health limitations could increase probabilities of older households to make a transition from homeownership. The data also demonstrates that the income and financial wealth of the children of older households who do not make a transition are higher than the income and financial wealth of the children of those who leave homeownership. This difference may suggest that parents of children who are not

financially doing well are more likely to stay in their own home and accumulate wealth as means of establishing higher levels of bequests for their children who may need it (also see Megbolugbe et al. (1995; 1997)).

Also evidenced in Table 3 are systematic differences in current geographic proximity between elderly households and their children. Households that co-reside with their adult children are less likely to make a transition to homeownership. Non-coresident geographic proximity also reduces the probability of leaving homeownership at census tract and county levels. Table 4 supports this evidence with additional detail. It indicates that older households are less likely to leave homeownership in the year when they live with an adult child. It also suggests that older homeowners are more likely to remain as a homeowner when they have at least one child over 25 years old in the same county or state. Having at least one child under 25 years old within a proximate distance (including co-residence) is also negatively associated with the propensity of making a transition from homeownership. However, older households are more likely to become a renter if they have an adult child who lives in the same census tract as their residence. This puzzling result may be due to preferences of older households and their children for the geographic distance between them.

Table 3 also compares the recent mobility of children between older households who make a transition and those who never transition. If a child moved to the same census tract or county as the residence of older households in the past two years but no child moved further away, they are more likely to become a renter. In particular, as supported by Table 5, recent moves of adult children to the same census tract may substantially increase the likelihood that older households make a tenure transition from homeownership. While recent moves of adult children to the same state decreases the probability of leaving homeownership, a state can be a

large geographic area which may not be as related to a child's mobility when compared to other closer geographic areas. In contrast to the above evidence, older households are not more likely to become a renter even if an adult child has moved in with them within the past two year. Rather, Table 5 displays that a child's entrance to the older households' home slightly decreases the probability of housing tenure transitions of older homeowners. These results could be connected to Silverstein's hypothesis (1995) that co-residence may be a qualitative distinct outcome from non-coresident proximity. As expected, older households are much more likely to become a renter if any of their adult children moved further away within the past years. Finally, recent moves of children under 25 years old within a proximate distance are positively associated with the propensity that older households remain a homeowner. As suggested by previous literature (Meyer and Cromley, 1989; Silverstein, 1995; Choi, 1996), one of the biggest reasons why older households leave their current home is their desire to be closer to their children. Results shown in Table 6 are consistent to this literature by showing that more than 8% of the tenure transition from homeownership occurs when they move closer to their children.

Table 7 displays the association between elderly health deterioration and children's recent moves. If the household head has been disabled within the past two years or is disabled in the current year, their adult children are more likely to move in with them or move to the census tract of their residence than children of older households who have been healthy. This is consistent to previous research (Silverstein, 1995) reporting the positive relationship between elderly parents' deteriorating health and proximity to their children. Nevertheless, the data provides evidence that the likelihood that older homeowners with poor health status make a transition from being a homeowner to being a renter increases even if an adult child moved in with them or closer to their residence in the past 2 years (Table 3). In other words, recent

moves of children within a proximate distance do not mitigate the likelihood that a parent with poor health status becomes a renter.

### *Duration model results*

In presenting results of the Cox proportional hazard models predicting the likelihood that a household over the age of 50 will make a transition from homeownership (for results of full models, see Appendix 1), Table 8 compares with results from Painter and Lee (2009). When we change the age-cut off to 25 years old (Table 8: Column 2), the association between having a child in the same state as the residence of older households and the probability of older households to exit homeownership is very similar. Consistent to results of the previous analysis, the current disability increases the probability that older households become a renter. The results also show the positive relationship between the income level of a household's children and probability of older households to exit homeownership. This suggests that if one's children are financially better off, then households are less likely to maintain their housing wealth due to their reduced bequest motives. The next model (Table 8: Column 3) adds the current geographic distance to children at different geographic levels as a predictor of housing tenure transitions of older households. With respect to intergenerational co-residence, living with an adult child reduces the probability that older households make a transition from homeownership. This is consistent to Venti and Wise (1990) and Feinstein and McFadden (1989) finding that older homeowners may postpone their housing tenure transitions while their adult children are present at home. Coefficients of non-coresident proximity at all geographic levels are negative but not significant.

Then, we test for the importance of recent moves of children to housing tenure transitions of older households (Table 9: Column 2). If an adult child has moved in with them but no one has left them within the past two years, it significantly increases the probability that older households become a renter. Similarly, if a child has moved to the same census tract or county of the residence of older households, they are more likely to leave homeownership. This is consistent to Sabia's proposition (2008) that recent moves of children within a proximate distance may indicate unreported health problems of older households so increase risks of their exit from homeownership. When adding variables related to recent moves of children, the presence of a child in the same census tract and state as the residence of older households becomes to have a significant, negative relationship with their housing tenure transitions. This could be explained by one of our hypotheses that children within a proximate distance could not only decrease mobility of a parent but also help a parent stay home by providing health care needs or helps for home maintenances. Nevertheless, we do not find that non-coresident proximity at the county level has a significant, negative relationship with elderly housing tenure transitions, and it may suggest that the geographic proximity to children matter for housing transitions of older households but its impacts are not monotonic.

Next, we add interaction terms between elderly health deterioration and children's recent moves to examine how their interaction contributes to housing tenure transitions of older households (Table 9: Column 3). Results show that neither co-residence nor non-coresident proximity at all geographic levels significantly changes patterns of housing tenure transitions of older households with health problems. If older households have been disabled within the past two years and any of their adult children has moved in with them or move closer them, then such mobility does not appear to mitigate the force that deteriorating health of older households

increases the probability to become a renter. This is not consistent with the existing research (Dobrof, 1976; Litwak, 1985; Boersch-Supan et al., 1988) suggesting that the presence of adult children could help their elderly parents with health deterioration stay home by providing immediate health care services and reducing their institutionalization. Nevertheless, one should note that the PSID does not provide rich information on elderly health, so we used physical disability as a proxy of health deterioration. In fact, only less than 20% of sample households are found to report their recent health limitations according to the PSID.

#### *Other Robustness Checks*

We have previously not controlled for the wealth of the children or the parents because the data are only available post 1983. It can be argued that wealth may be even more important than income for older household in influencing their housing decisions. For example, if the primary role that children play is to provide maintenance, then wealth parents could hire such services, and not need their children to be proximate. To that end, we estimated a set of models (Table 10) to discover if including wealth will influence the interaction between the geographic proximity of children and their parents. The first two columns compare results in the full sample and the sample post 1983. In this second time period, there is a slight increase in the likelihood of a tenure transition when children have recently moved into the home or the same census tract, but these differences are not significant. When both the wealth of the parents and of the children is included, there are no significant differences in the importance of geographic proximity. Therefore, we conclude that wealth differences across the sample are driving results on geographic proximity.

The previous analyses focus on adult children, who are 25 years or older, because they more

likely to be financially independent. Because some children under 25 years old could have already formed their own household or achieved their financial independence, we estimated the models with an age-cutoff of 18 years old for adult children. For the current non-coresident proximity and recent moves of non-coresident children, we find that almost all results are identical as those from the previous analyses across different specifications. It is expected that these children who have formed their own households are already independent so behave in a similar way toward their elderly parents regardless of their age. For the current co-residence and recent entrance of children to the same home, we find that their effects become slightly smaller in magnitude than initial results. Nevertheless, signs and the degree of significance are consistent for most explanatory variables, so it confirms the robustness of our assumption on the age-cutoff of 25 years old.

## **Conclusions**

As the baby boom generation starts to retire, understanding determinants of elderly housing tenure choices will grow in importance. This analysis has provided insights into the role of geographic proximity to children in elderly decisions on leaving homeownership. Clearly, transitions from homeownership decline if older households currently have an adult child who co-resides with them or who lives in the same census tract as their residence. With respect to recent moves of children, the probability that older households leave homeownership declines as children move in with them while other non-coresident moves within a proximate distance increase such probability. We find no evidence that a child's moves could mitigate the likelihood that their parents who experience health deterioration become a renter.

While this study is an important step in understanding what roles of children play in elderly decisions on housing tenure choices, future research could improve on such understanding with a

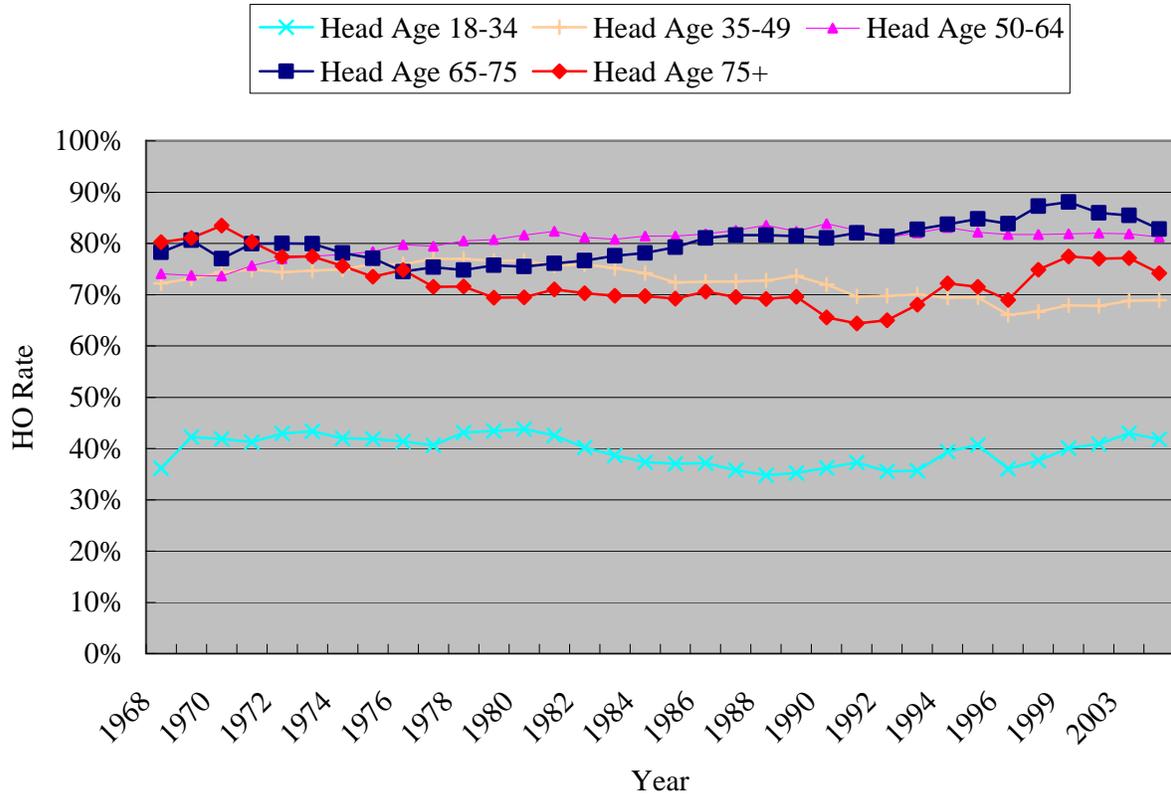
number of possible ways. First, our analysis relies on the PSID which does not provide detailed health information and contains the relatively small number of reported health limitations, only measured by physical disability. Since more precise estimation of elderly health could improve explanatory power of analyses, data such as the Health and Retirement Survey (HRS) could provide different results. For example, it might be that a child's moves to be near or live with their parents would be more salient with certain health limitations. Next, the present study does not consider the relationship between the broader social support network of older households and their housing tenure transitions. As Silverstein (1995) suggests, however, proximity to close friends or extended relatives may also matter for migration decisions of older homeowners, and in turn, their probability of the transition from homeownership. It will be also useful to include several demographic characteristics of children (e.g. marital status) that could potentially affect migration and homeownership decisions of older households. In addition, future research is needed to control for housing market volatility, which may be very important in predicting the timing of home sales (Banks et al., 2007), in a more precise way.

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Figure 1. Homeownership Rate (1968-2005)



Source: PSID (Panel Study of Income Dynamics Family Data 1968-2005), Weighted

**Table 1. Variables and Definitions**

<b>Variable</b>	<b>Variable Description</b>
<i>Current Demographic Characteristic</i>	
age50	1 = maximum age among the household head/wife 50-64; 0 = otherwise
age65	1 = maximum age among the household head/wife 65-74; 0 = otherwise
age75	1 = maximum age among the household head/wife 75-84; 0 = otherwise
age85	1 = maximum age among the household head/wife $\geq 85$ ; 0 = otherwise
lesscollege	1 = household head is not a college graduate or more; 0 = otherwise
white	1 = household head is White; 0 = otherwise
black	1 = household head is Black; 0 = otherwise
latino	1 = household head is Latino; 0 = otherwise
other	1 = household head is other than White, Black, and Latino; 0 = otherwise
married	1 = household head is married; 0 = otherwise
singlemale	1 = household head is single male; 0 = otherwise
singlefemale	1 = household head is single female; 0 = otherwise
spousedead	1 = household head becomes widowed; 0 = otherwise
lagspousedead	1 = household head became widowed within the past 2 years; 0 = otherwise
leadspousedead	1 = household head 1-2 years before the interview; 0 = otherwise
divorce	1 = household head divorces at the time of the interview; 0 = otherwise
lagdivorce	1 = household head divorced within the past 2 years; 0 = otherwise
retired	1 = household head is retired at the time of the interview; 0 = otherwise
lagretired	1 = household head was retired within the past 2 years; 0 = otherwise
<i>Income and Wealth</i>	
lfamy	Natural log of 5-year moving average of family income
lhousingwealth	Natural log of housing wealth
lfinancialwealth	Natural log of financial wealth
<i>Location</i>	
pacific	1 = Pacific (ME, VT, NH, MA, CT, RI); 0 = otherwise
mountain	1 = Mountain (MT, ID, WY, NV, UT, CO, AZ, NM); 0 = otherwise
westsouthcentral	1 = West South Central (TX, OK, AR, LA); 0 = otherwise
eastsouthcentral	1 = East South Central (WV, KY, TN, MS, AL); 0 = otherwise
southatlantic	1 = South Atlantic (DE, MD, VA, NC, SC, GA, FL, DC); 0 = otherwise
westnorthcentral	1 = West North Central (ND, SD, NE, KS, MN, IA, MO); 0 = otherwise
eastnorthcentral	1 = East North Central (MI, WI, IL, IN, OH); 0 = otherwise
middieatlantic	1 = Middle Atlantic (NY, NJ, PA); 0 = otherwise
newengland	1 = New England (ME, VT, NH, MA, CT, RI); 0 = otherwise
<i>Residence</i>	
lgmetro	1 = Largest city in MSA's population $\geq 500,000$ ; 0 = otherwise
otmetro	1 = Largest city in MSA's population 50,000–499,999; 0 = otherwise
smallcity	1 = Largest city in county's population 10,000–49,999; 0 = otherwise
rural	1 = Largest city in county's population $< 10,000$ or no city in county
<i>Past Demographic Characteristic</i>	
onlymarriage50	1 = household head was married and had never divorced or widowed at the

	age of 50; 0 = otherwise
divorced50	1 = household head had divorced at the age of 50; 0 = otherwise
widowed50	1 = household head had widowed at the age of 50; 0 = otherwise
nevermarried50	1 = household head had never married at the age of 50; 0 = otherwise
owner50	1 = household head owned home at the age of 50; 0 = otherwise
alwaysrenter50	1 = household head rented home at the age of 50, and had always rented; 0 = otherwise
rentonceowner50	1 = household head rented home at the age of 50, but had once owned before; 0 = otherwise
unknown50	1 = tenure data of household at the age of 50 does not exist; 0 = otherwise
<i>Health</i>	
disability	1 = household head is disabled at the time of the interview; 0 = otherwise
lagdisability	1 = household head was disabled within the past 2 years; 0 = otherwise
<i>Children's Financial Status</i>	
lchildfamy	Natural log of average of 5-year moving average of family income of all children who do not live with the household and who have their own family
lchildfwealth	Natural log of average of financial wealth all children who do not live with the household and who have their own family
<i>Current Proximity to Children</i>	
child25+home	1 = household has at least one child over 25 who lives in the same house; 0 = otherwise
child25+tract	1 = household has at least one child over 25 who lives in the same census tract (but not the same house) as the tract of its residence; 0 = otherwise
child25+cnty	1 = household has at least one child over 25 who lives in the same county (but not the same tract) as the county of its residence; 0 = otherwise
child25+state	1 = household has at least one child over 25 who lives in the same state (but not the same county) as the state of its residence; 0 = otherwise
<i>Recent Mobility of Children</i>	
child25+mvhome	1 = household now has at least one child over 25 who live in the same house because he or she moved to there within the past 2 years; 0 = otherwise
child25+mvtract	1 = household now has at least one child over 25 who live in the same census tract (but not the same house) because he or she moved to there within the past 2 years; 0 = otherwise
child25+mvcnty	1 = household now has at least one child over 25 who live in the same county (but not the same census tract) because he or she moved to there within the past 2 years; 0 = otherwise
child25+mvstate	1 = household now has at least one child over 25 who live in the same state (but not the same county) because he or she moved to there within the past 2 years; 0 = otherwise
<i>Interaction of Children &amp; Health</i>	
childmhome&dis	1 = household who was disabled within the past 2 years has any child who has moved to the same house within the past 2 years; 0 = otherwise
childmtract&dis	1 = household who was disabled within the past 2 years has any child who has moved to the same census tract as the tract of its residence within the

	past 2 years; 0 = otherwise
childmnty&dis	1 = household who was disabled within the past 2 years has any child who has moved to the same county as the county of its residence within the past 2 years; 0 = otherwise
childmstate&dis	1 = household who was disabled within the past 2 years has any child who has moved to the same state as the state of its residence within the past 2 years; 0 = otherwise

**Table 2. Tenure Transitions after Age 50**

Tenure Transitions	Number of Families	Percentage
Always Own	2,688	52.74%
Always Rent	1,079	21.17%
Own to Rent (Single Change)	756	14.83%
Rent to Own (Single Change)	251	4.92%
Own to Multiple Changes	171	3.35%
Rent to Multiple Changes	152	2.98%
Total	5,097	100.00%

Note 1. For the simplification, in this table, “Rent” category includes all non-own tenure statuses, including “rent”, “neither rent nor own”, and “living with their children or relatives”. These detailed categories are presented in Table 8, later in the paper.

2. The data for our model excludes families in the “Always Rent” category since our interests lie in the survival times and hazard ratio of leaving homeownership. For these reasons, households in the “Rent to Own” category, who became homeowners after their 50 and stay as homeowners, are treated same as those in the “Always Own” category. These households altogether are 2,939.

3. “Multiple Changes” refers to those who have changed their tenure both rent to own and own to rent. Because these households may experience multiple transitions from homeownership, actual number of failures (1,124) in our analysis is bigger than the number of households who have exited ownership ( $756 + 171 + 152 = 1,079$ ).

4. For the tenure changes, we only consider the actual transitions from homeownership. Thus, cases that both the household head and wife are dead or that the entire household become non-response because of other reasons may still fall in the “Always Own” category. In this sense, then number of families in the “Always Own” category may be somewhat overestimated.

**Table 3. Summary Statistics of Variables**

Variable	Sub-Sample of Families who Never Transition from Ownership		Sub-Sample of Families who Transition from Ownership		Whole Sample	
	(1)		(2)		(3)	
	Mean	Std. Dev	Mean	Std. Dev	Mean	Std. Dev
<i>Current Demographic Characteristic</i>						
age50	0.648	0.478	0.524	0.499	0.609	0.488
age65	0.225	0.418	0.279	0.448	0.242	0.428
age75	0.090	0.286	0.137	0.343	0.105	0.306
age85	0.037	0.188	0.061	0.240	0.045	0.206
lesscollege	0.807	0.395	0.861	0.346	0.824	0.381
white	0.738	0.440	0.700	0.458	0.726	0.446
black	0.223	0.416	0.274	0.446	0.239	0.427
latino	0.021	0.144	0.012	0.108	0.018	0.134
other	0.017	0.130	0.014	0.118	0.016	0.126
married	0.707	0.455	0.537	0.499	0.655	0.475
singlemale	0.062	0.241	0.093	0.290	0.071	0.258
singlefemale	0.231	0.421	0.370	0.483	0.274	0.446
spousedead	0.015	0.120	0.021	0.143	0.017	0.128
lagspousedead	0.028	0.166	0.040	0.196	0.032	0.176
divorce	0.003	0.053	0.006	0.080	0.004	0.063
lagdivorce	0.008	0.087	0.015	0.122	0.010	0.099
retired	0.692	0.462	0.717	0.451	0.700	0.475
lagretired	0.156	0.363	0.113	0.316	0.143	0.350
<i>Income and Wealth</i>						
lfamy	10.767	0.821	10.283	1.305	10.616	1.022
lhousingwealth	11.046	1.989	9.442	3.902	10.542	2.838
lfinancialwealth	9.873	3.396	8.430	4.178	9.474	3.686
<i>Residence</i>						
lgmetro	0.203	0.402	0.235	0.424	0.213	0.409
otmetro	0.366	0.482	0.306	0.461	0.347	0.476
smallcity	0.239	0.426	0.241	0.428	0.239	0.427
rural	0.192	0.394	0.218	0.413	0.200	0.400
<i>Past Demographic Characteristic</i>						
onlymarriage50	0.681	0.466	0.609	0.488	0.658	0.474
divorced50	0.293	0.455	0.348	0.476	0.311	0.463
widowed50	0.020	0.141	0.025	0.157	0.022	0.146
nevermarried50	0.025	0.158	0.044	0.204	0.031	0.174
owner50	0.675	0.468	0.483	0.500	0.615	0.487
alwaysrenter50	0.035	0.184	0.069	0.254	0.046	0.209
rentonceowner50	0.024	0.152	0.037	0.188	0.028	0.164
unknown50	0.265	0.441	0.409	0.492	0.310	0.463
<i>Health</i>						
disability	0.272	0.445	0.370	0.483	0.303	0.460

lagdisability	0.147	0.354	0.181	0.385	0.158	0.365
<i>Children's Financial Status</i>						
lchildfamy	6.747	5.270	6.569	5.242	6.691	5.262
lchildfwealth	3.591	4.605	3.021	4.352	3.412	4.535
<i>Current Proximity to Children</i>						
child25+home	0.132	0.339	0.127	0.333	0.131	0.337
child25+tract	0.166	0.373	0.145	0.352	0.160	0.366
child25+cnty	0.160	0.367	0.139	0.346	0.154	0.361
child25+state	0.094	0.292	0.094	0.292	0.094	0.292
<i>Recent Mobility of Children</i>						
child25+mvhome	0.050	0.218	0.050	0.218	0.050	0.218
child25+mvtract	0.067	0.250	0.069	0.253	0.068	0.251
child25+mvcnty	0.033	0.179	0.034	0.182	0.033	0.180
child25+mvstate	0.019	0.136	0.015	0.120	0.018	0.132
<i>Interaction of Children &amp; Health</i>						
childmhome&dis	0.008	0.091	0.011	0.103	0.009	0.095
childmtract&dis	0.011	0.106	0.014	0.119	0.012	0.110
childmcnty&dis	0.004	0.063	0.006	0.077	0.005	0.068
childmstate&dis	0.002	0.048	0.003	0.057	0.003	0.051
Number of Families	2,939		1,079		4,018	

**Table 4. Current Proximity to Children and Housing Tenure Transitions**

Sample household has at least one child over 25 ...	When household makes a transition from homeownership		When household does not make a transition from homeownership	
Living with them	130	10.71%	5,868	13.27%
Living in the same census tract but not with them	268	22.08%	7,058	15.96%
Living in the same county but not the same census tract	177	14.58%	6,987	15.80%
Living in the same state but not the same county	102	8.40%	4,253	9.62%
Only a child under 25 is present within a proximate distance	188	15.49%	9,270	20.96%
No presence of children within a proximate distance or no location information	349	28.75%	10,781	24.38%
Total	1,214	100%	44,217	100%

Note 1. Sample is based on household\*years.

**Table 5. Recent Mobility of Children and Housing Tenure Transitions**

Sample household has any child over 25 who moved to the same ____ in the past two years	When household makes a transition from homeownership		When household does not make a transition from homeownership	
House	57	4.70%	2,267	5.13%
Census Tract	139	11.45%	2,934	6.64%
County	43	3.54%	1,504	3.40%
State	20	1.65%	800	1.81%
A child over 25 moved away	157	12.93%	2,991	6.76%
Only a child under 25 moved closer	87	7.17%	4,851	10.97%
Only a child under 25 moved away	9	0.74%	304	0.69%
No mobility of children or no location information	702	57.83%	28,566	64.60%
Total	1,214	100%	44,217	100%

Note 1. Sample is based on household\*years.

**Table 6. Elderly Mobility and Housing Tenure Transitions**

Sample household moved to the same _____ as the residence of a child over 25	When household makes a transition from homeownership		When household does not make a transition from homeownership	
House	5	0.41%	55	0.12%
Census Tract	63	5.19%	140	0.32%
County	18	1.48%	84	0.19%
State	7	0.58%	45	0.10%
Moved to the residence of a child under 25	6	0.49%	1,920	4.34%
Mobility unrelated to children	429	35.34%	3,709	8.39%
No move or no location information	686	56.51%	38,264	86.54%
Total	1,214	100%	44,217	100%

Note 1. Sample is based on household\*years.

**Table 7. Recent Mobility of Children and Elderly Health Deterioration**

Had any child over 25 moved to the same ....	When household head has been disabled within the past 2 years		When household head has not been disabled within the past 2 years	
House	433	5.71%	1,970	4.88%
Census Tract	589	7.77%	2,663	6.60%
County	224	2.95%	1,382	3.42%
State	124	1.64%	721	1.79%
A child over 25 moved away	659	8.69%	2,688	6.66%
Only a child under 25 moved closer	404	5.33%	4,609	11.42%
Only a child under 25 moved away	42	0.55%	336	0.83%
No mobility of children or no location information	5,107	67.36%	26,007	64.41%
Total	7,582	100.00%	40,376	100.00%

Note 1. Sample is based on household\*years.

**Table 8. Cox Proportional Hazard Model of Transition from Homeownership I**

	Table 7, Column 1 from Painter and Lee (2009)			Age Cut-off of 25 Years Old			Separation of Co-residence from Non-co-resident Proximity at Different Geographic Levels		
	(1)			(2)			(3)		
	(a) Coef.	(b) Hazard Ratio	(c) Robust S.E of H.R	(d) Coef.	(e) Hazard Ratio	(f) Robust S.E of H.R	(g) Coef.	(h) Hazard Ratio	(i) Robust S.E of H.R
<i>Health</i>									
disability	0.415	1.514	0.129**	0.419	1.520	0.130**	0.420	1.522	0.131**
lagdisability	0.110	1.116	0.102	0.111	1.117	0.102	0.112	1.119	0.103
<i>Children's Financial Status</i>									
lchildfamy	0.038	1.039	0.015**	0.032	1.032	0.011**	0.024	1.025	0.012**
<i>Current Proximity to Children</i>									
samestate18+	-0.263	0.769	0.118*						
samestate25+				-0.247	0.781	0.083**			
child25+home							-0.513	0.599	0.091**
child25+tract							-0.075	0.928	0.135
child25+cnty							-0.122	0.885	0.128
child25+state							-0.263	0.769	0.125
<i>Controls</i>									
Current/Past Demographic Characteristics		Yes			Yes			Yes	
Income and Wealth Residence		Yes			Yes			Yes	
<i>Dummies</i>									
year dummies		Yes			Yes			Yes	
state dummies		Yes			Yes			Yes	
<i>Number of Families</i>		3,783			3,783			3,783	
<i>Number of Obs.</i>		44,335			44,335			44,335	
<i>Log Pseudo-Likelihood</i>		-6,170.32			-6,168.82			-6,163.94	
<i>Wald <math>\chi^2</math></i>		1,339.50			1,349.83			1,375.28	
<i>Model d.f.</i>		109			109			112	

\*Note 1: The variable "samestate18+" indicates the presence of any child over 18 within the same state as the residence of older households in the current year and it includes a child who lives with them.

**Table 9. Cox Proportional Hazard Model of Transition from Homeownership II**

	Table 8, Column 3			+ Recent Mobility of Children			+ Interaction of Children & Health		
	(1)			(2)			(3)		
	(a) Coef.	(b) Hazard Ratio	(c) Robust S.E of H.R	(d) Coef.	(e) Hazard Ratio	(f) Robust S.E of H.R	(g) Coef.	(h) Hazard Ratio	(i) Robust S.E of H.R
<i>Health</i>									
disability	0.420	1.522	0.131**	0.420	1.522	0.131**	0.425	1.530	0.132**
lagdisability	0.112	1.119	0.103	0.114	1.121	0.103	0.126	1.135	0.114
<i>Children's Financial Status</i>									
lchildfamy	0.024	1.025	0.012**	0.024	1.024	0.012**	0.024	1.025	0.012**
<i>Current Proximity to Children</i>									
child25+home	-0.513	0.599	0.091**	-0.682	0.506	0.090**	-0.684	0.504	0.090**
child25+tract	-0.075	0.928	0.135	-0.315	0.730	0.114**	-0.321	0.726	0.113**
child25+cnty	-0.122	0.885	0.128	-0.253	0.777	0.123	-0.260	0.771	0.122
child25+state	-0.263	0.769	0.125	-0.306	0.737	0.124*	-0.311	0.733	0.124*
<i>Recent Mobility of Children</i>									
child25+mvhome				0.415	1.514	0.297**	0.325	1.384	0.298
child25+mvtract				0.584	1.793	0.243**	0.615	1.850	0.268**
child25+mvcnty				0.472	1.602	0.334**	0.554	1.740	0.386**
child25+mvstate				0.141	1.152	0.333	0.130	1.139	0.366
<i>Interaction of Children &amp; Health</i>									
child25+house&mv							0.316	1.371	0.482
child25+tract&mv							-0.135	0.874	0.231
child25+county&mv							-0.399	0.671	0.326
child25+state&mv							0.057	1.058	0.664
<i>Controls</i>									
Current/Past									
Demographic		Yes			Yes			Yes	
Characteristics									
Income and Wealth		Yes			Yes			Yes	
Residence		Yes			Yes			Yes	
<i>Dummies</i>									
year dummies		Yes			Yes			Yes	
state dummies		Yes			Yes			Yes	
<i>Number of Families</i>		3,783			3,783			3,783	
<i>Number of Obs.</i>		44,335			44,335			44,335	
<i>Log Pseudo-Likelihood</i>		-6,163.94			-6,150.50			-6,149.41	
<i>Wald <math>\chi^2</math></i>		1,375.28			1,473.23			1,473.57	
<i>Model d.f.</i>		112			116			120	

**Table 10. Cox Proportional Hazard Model of Transition from Homeownership III**

	Table 9, Column 2			Same specification as Column (1) After 1984			+ Financial Wealth + Children's Financial Wealth		
	(1)			(2)			(3)		
	(a) Coef.	(b) Hazard Ratio	(c) Robust S.E of H.R	(d) Coef.	(e) Hazard Ratio	(f) Robust S.E of H.R	(g) Coef.	(h) Hazard Ratio	(i) Robust S.E of H.R
<i>Health</i>									
disability	0.420	1.522	0.131**	0.379	1.461	0.161**	0.388	1.474	0.161**
lagdisability	0.114	1.121	0.103	0.074	1.077	0.127	0.072	1.075	0.126
<i>Children's Financial Status</i>									
lchildfamy	0.024	1.024	0.012**	0.029	1.029	0.016*	0.005	1.005	0.024
lchildfinancialwealth							0.029	1.029	0.024
<i>Current Proximity to Children</i>									
child25+home	-0.682	0.506	0.090**	-0.753	0.471	0.114**	-0.796	0.451	0.108**
child25+tract	-0.315	0.730	0.114**	-0.393	0.675	0.140*	-0.418	0.659	0.134**
child25+cnty	-0.253	0.777	0.123	-0.251	0.778	0.152	-0.269	0.764	0.148
child25+state	-0.306	0.737	0.124*	-0.384	0.681	0.143*	-0.406	0.666	0.140*
<i>Recent Mobility of Children</i>									
child25+mvhome	0.415	1.514	0.297**	0.669	1.952	0.460**	0.609	1.838	0.433**
child25+mvtract	0.584	1.793	0.243**	0.734	2.084	0.367**	0.715	2.045	0.359**
child25+mvcnty	0.472	1.602	0.334**	0.414	1.512	0.447	0.434	1.543	0.452
child25+mvstate	0.141	1.152	0.333	-0.188	0.829	0.365	-0.161	0.851	0.376
<i>Controls</i>									
Current/Past Demographic Characteristics		Yes			Yes			Yes	
Income and Wealth		Yes			Yes			Yes	
Residence		Yes			Yes			Yes	
<i>Dummies</i>									
year dummies		Yes			Yes			Yes	
state dummies		Yes			Yes			Yes	
Number of Families		3,783			3,217			3,217	
Number of Obs.		44,335			24,905			24,905	
Log Pseudo-Likelihood		-6,163.94			-3,069.44			-3,059.30	
Wald $\chi^2$		1,375.28			824.93			891.97	
Model d.f.		112			96			98	