University of Michigan Retirement Research Center

Working Paper

WP 2004-070

Elderly Households and Housing Wealth: Do They Use It or Lose It?

Lina Walker

M R R C

Project #: UM03-D1

"Elderly Households and Housing Wealth: Do They Use It or Lose It?"

Lina Walker
Unversity of Michigan

January 2004

Michigan Retirement Research Center
University of Michigan
P.O. Box 1248
Ann Arbor, MI 48104

Acknowledgements

This work was supported by a grant from the Social Security Administration through the Michigan Retirement Research Center (Grant # 10-P-98358-5). The opinions and conclusions are solely those of the authors and should not be considered as representing the opinions or policy of the Social Security Administration or any agency of the Federal Government.

Elderly Households and Housing Wealth: Do They Use It or Lose It?

Lina Walker

Abstract

Over 80 percent of households in their 50s are homeowners and housing wealth accounts for over half of total household wealth for most of these homeowners. The evidence in the literature on whether the elderly are consuming their housing wealth has been mixed. Because home sales are infrequent and a high proportion of the elderly continue to own in old age, it appears that the elderly are not consuming housing wealth. There are, however, indications that housing wealth may be a form of self-insurance and that housing wealth is consumed, albeit at very old ages. To date, however, the evidence to support that hypothesis has been weak. This paper examines whether predictors of housing sales are consistent with the insurance story by looking at the extent to which indicators of changes in economic status and access to alternate insurance explain housing sales. The paper also examines the extent to which changes in health status predict housing sales. The results of the probit appear to indicate that, by and large, housing sales in old age for single households is mostly driven by worsening health. Widowhood has a large effect on increasing the probability of selling the house and the effect is larger if the husband is the surviving spouse. There are indications that poor married homeowners are consuming housing wealth and also indications that married households are responding to Medicaid tax incentives. This evidence seems to suggest that, at least among married households, housing decisions are financially motivated; however, the evidence does not by itself validate the insurance story.

Authors' Acknowledgements

I am grateful to the Michigan Retirement Research Center, the Health and Retirement Study, and the Social Security Administration for financial support. The paper has benefited from feedback from Charlie Brown, John Laitner, Purvi Sevak, Lucie Schimdt, Martin Farnham, Kerwin Charles and Dan Silverman. All remaining errors are my own.

1 Introduction

In 1998, households aged 50 and older held over $24.8 trillion in net worth, or 2.9 times the U.S. GDP for that year (Kopczuk and Lupton, 2001). Most of that wealth was in the form of housing equity. At the household level, over 80 percent of households in their 50s are homeowners. Among homeowners, housing wealth accounts for over 50 percent of household wealth and it dominates other asset holdings for the majority of these households. Given the significance of housing wealth in the portfolio of the elderly, understanding how the elderly regard housing wealth and what they intend to do with that wealth as they age has been a topic of considerable interest among economists.

Most of the research to date find that homeowners do not appear to be tapping into their housing wealth to support non-housing consumption in retirement: home ownership continues to be high in old age and home equity does not appear to fall with age[1]. That is, the elderly do not appear to be either selling or downsizing to access their housing wealth[2]. Given the dominance of housing wealth in the homeowner's portfolio, this suggests that, at the aggregate level, substantial wealth will be left to future generations and, at the micro level, the elderly are foregoing sizeable non-housing consumption by not drawing down their housing wealth[3].

For instance, Venti and Wise (2001) find that married and single households that stay intact, on average, continue to own a home even as they age. Even though equity is reduced among the older AHEAD households that move and buy a new home, the reduction in housing equity is small compared to initial home equity. Although,

[1]Merrill (1984), Venti and Wise (1989, 1990, 2001), and Feinstein and McFadden (1989).

[2]The exceptions are: Sheiner and Weil (1992) and Skinner(1994). These papers are discussed below.

[3]Although Venti and Wise (1991) estimate that a reverse mortgage will increase income by only 4 percent for a low-income couple aged 55-60 and by 10 percent for those 65-70, it is because the yields used to calculate estimated annuity payments are low. In fact, the authors find that if a lump-sum payment were taken instead of annuity payments in a reverse mortgage, the lump-sum payment will be almost twice as large as median liquid wealth.

they find observe that homeowners with low income and high equity tend to decrease housing equity when they move, they also observe that homeowners with high income and low equity tend to increase equity when they move. These empirical observations have suggest to the authors that the house is "simply a place to live" and the elderly do not regard housing wealth as fungible wealth.

If this assessment accurately reflects how the elderly regard housing wealth, then it has important implications from both an economic and a public policy perspective. For instance, if the elderly "disregard" housing wealth when making consumption decisions in retirement, then the appropriate accounting of wealth for the elderly in models of savings and consumption should exclude housing wealth. Moreover, if housing wealth is incidental and the elderly die as homeowners, then a significant portion of wealth at death (at least among homeowners) is unintended bequest. This, in turn, has implications for intergenerational transmission of wealth and the efficacy of estate taxation.

Previous research, including the more recent work by Venti and Wise (2001), have found that the death of a spouse or entry into a nursing home increases the probability of a sale. Using the Current Population Survey (CPS) from 1983 to 1988 and data from the 1983-1987 Panel Study of Income Dynamics (PSID), Sheiner and Weil (1992) also find that in the year before death for both men and women home ownership falls sharply. The relationship between changes in household structure (such as widowhood, death, and nursing home entry) and housing sales has led some researchers to attribute an "insurance" motive to housing wealth because these events are generally associated with changes to the household's economic status, such as large out-of-pocket medical expenses or a fall in equivalency-adjusted household income[4].

[4]The predominant insurer for the elderly, Medicare, does not cover nursing home expenses in excess of 100 days and stays that are between 21 to 100 days require a copayment of $105 a day. As a consequence, long stays in a nursing home can amount to substantial out-of-pocket medical expenses. In addition, out-of-pocket expenses for end-of-life medical care can be equally catastrophic. According to the Wall Street Journal (1993), one in every seven dollars spent on health care is spent during the last six months of life. Using the 1987 National Medical Care Expenditure Survey, Cohen, Carlson, et al. (1995) estimate that total health care expenditures during the last six months of life for those who died in 1987 amounted to $44.9 billion in 1992 dollars, and for those aged 65 or

With the exception of Skinner (1994), the evidence for the insurance story, however, has mostly been indirect. Using the PSID, Skinner (1994) finds that movers experience a larger decline in income over time than non-movers and the difference in income between movers and non-movers is partly, but not entirely, explained by changes in family composition. He finds that if the elderly do downsize, 69 cents of each dollar of housing equity is spent. The evidence suggests that the elderly are consuming housing wealth. The results of the paper, however, hinges on self-reports of housing value. Because homeowners tend to overstate the value of their home, total wealth prior to a sale will be exaggerated by the extent of the over-valuation and, consequently, changes in total wealth after a sale and estimates of the extent to which housing wealth is consumed will also be exaggerated[5].

Given the weak evidence, the goal of this paper is to examine, more directly, the validity of the insurance story. If homeowners self-insure against adverse economic events in old age by saving in the house, they will draw on that wealth when the bad event occurs. Therefore, the probability of selling the house should increase when there is a negative change to economic status in old age. In addition, if housing wealth is a form of self-insurance, then having alternative forms of insurance, such as private or social insurance, should reduce the household's risk of uninsured medical expenses and reduce the need to draw on housing wealth. Therefore, housing sales should be negatively correlated with having alternative forms of insurance[6].

Understanding whether housing wealth is held as insurance against adverse economic outcomes in old age or whether the elderly think of the house as simply "a place to live" will, at the very least, provide direction on how to account for housing wealth

over who died in 1987, Medicare accounted for only 48 percent of health expenditures during their last six months of life (52 percent for non-institutionalized decedents and 39 percent for those in institutions).

[5]Using the HRS and AHEAD data, Venti and Wise (2001) find that respondents overestimate home values by 15 to 20 percent. While Kiel and Zabel (1999) find that self-reported home values exceed sale prices by -2 to 16 percent. As such, their evidence should be taken with caution.

[6]I focus on households that go from owning to not-owning since the literature documents that the largest decline in home equity is associated with a discontinuance of home-ownership.

in models of savings and consumption. Certainly, the literature to date vacillates between including all, part, or none of housing wealth in computations of household net worth because of the uncertainty about the role of housing wealth in consumption decisions[7].

I use data from the Assets and Health Dynamics Among the Oldest Old (AHEAD). The AHEAD is particularly promising for this research question because it is a survey of households 70 years and older, which is at the point in the life-cycle when individuals are at risk of long stays in a nursing home and dying and, consequently, at risk of large out-of-pocket medical expenses. Furthermore, because the AHEAD data contain detailed information on income and wealth, the physical and mental health of each respondent, information about family members, health status and health care utilization, and health insurance status, it provides a rich set of controls. Moreover, the AHEAD also follow individuals until they die. Information about the economic status, health care utilization, and living arrangements of the deceased respondents permits one to observe the economic and social environment of the respondent (including home-ownership status) just prior to death, but before the estate of the decedent is disposed, and allows one to account for potentially large medical expenses that occur just prior to death.

Using three waves of the AHEAD data (1995, 1998, and 2000), I start by examining, graphically, home-ownership rates over time for households that experienced a transition in household structure, such as a death or a nursing home stay since these are the high-cost events for which one might self-insure. I identify households where a spouse died between the sample period (newly widowed households) and households that died during the sample period (for married households, this means both spouses died during the sample period). In addition, I identify households where at least one spouse had been admitted to a nursing home for over 100 days. As mentioned earlier,

[7]For instance, Moore and Mitchell (2000) include housing wealth in assets that can be used to finance retirement, whereas Bernheim (1992) excludes housing wealth altogether. Engen and Gale (1999) include zero, 50 percent, and 100 percent of housing equity; Gustman and Steinmeier (1999) uses zero and 100 percent of housing equity.

nursing home stays beyond 100 days are not insured by Medicare, therefore, I use this characteristic to identify households exposed to uninsured nursing home expenses.

As with previous research, I find that a spouse dying and long stays in a nursing home have large effects on reducing home-ownership rates. In addition, I observe that the effects of both transitions are similar in magnitude when measured over the five-year period (each transition reduces home-ownership by just under 20 percent). As with Sheiner and Weil (1992), I find that in the period just prior to death, home-ownership was observed to decline quite dramatically when a single household terminated, accounting for about a four percentage point reduction in home-ownership. There was a noticeable downward trend in home-ownership rates among very old households even when there was no change to household structure. This downward trend among intact households might reflect home sales due to declines in health or it could be that homeowners are slowly and systematically consuming their wealth as they get older, and they are drawing down housing wealth after consuming their non-housing assets.

I next estimate a reduced-form probit of the probability of selling the house between 1995 and 2000 to explain the patterns observed in the graphical analysis. In particular, I am interested in whether indicators of changes in economic status when a household undergoes a change in structure can predict housing sales. In addition, if the insurance story has validity, then indicators of alternative forms of insurance (life insurance, long-term care insurance, Medicaid, and children) should also explain housing sales. Finally, I also examine the extent to which changes in health status explain housing decisions in old age. I estimate probits for married households and single households separately because the incentives to sell the house differ quite substantially by marital status – primarily because of Medicaid[8].

[8]Medicaid requires the nursing home recipient to deplete all assets before she can qualify for assistance. An exception is made, however, if the recipient is married. Then the community spouse can keep the primary residence, an automobile, and some amount of the assets. This creates an incentive among married households that anticipate Medicaid assistance to hold onto the house and also to hold most of their assets in housing equity. For instance, it is not uncommon to hear of households paying off their mortgage when they anticipate a nursing home stay and Medicaid

The results of the probit appear to indicate that, by and large, housing sales in old age for single households is mostly driven by worsening health. There are indications that poorer married homeowners are responding to financial incentives in their housing decisions. For instance, married homeowners are less likely to sell if the household is Medicaid-eligible and if they have high (lagged) out-of-pocket medical expenses; and married households in the bottom half of the wealth quartile are more likely to sell than households in the highest wealth quartile. However, having alternative forms of insurance has no predictive power and declines in household income and high medical expenses do not explain housing sales. Taken together, the evidence appears to invalidate the insurance story.

The next section describes the data. The graphical analysis is presented in section 4 and in section 5, I present the probit analysis. In the final section, I discuss the results.

2 Data

Data

The AHEAD survey is a national panel data set of the non-institutionalized elderly population who were born in 1923 or earlier, and their spouses. At the time of the baseline interview in 1993, respondents were 70 years of age or older. When appropriately weighted, the sample is representative of the elderly U.S. population. The first wave of interviews was conducted in 1993 and 8222 respondents from 6,047 households were interviewed. The second wave of the survey was conducted two years later, in 1995. Subsequent waves followed in 1998 and 2000. The AHEAD follows respondent from the time of the initial interview until death. End of life information of the deceased respondent is obtained by interviewing proxy respondents in an exit interview. The proxies are generally the spouse, if the decedent was married, or a

assistance.

child, if the decedent was single at the time of death.

Household Wealth and 1993 Data

The AHEAD data contain detailed wealth information of each household. Cases of missing wealth data were imputed by the Health and Retirement Study (HRS) by a method of hot-decking and using information from a series of unfolding brackets[9]. Table 1 presents aggregated household wealth for the AHEAD cohort over the four waves. A cursory glance at Total Net Worth shows a distinct difference in the level of wealth reported in 1993 versus those reported in 1995 and subsequent waves. Even though the survey instrument for wealth did not change between the waves, wealth reported in 1993 is considerably lower than in subsequent waves. A comparison of the components of wealth show unrealistically high jumps in values between 1993 and 1995, particularly for stocks and bonds, while the levels and changes reported between 1995, 1998, and 2000 are considerably more stable and appear more reasonable. Within-household comparison of responses for each wave shows a substantial number of households reporting that they owned no stocks or bonds in 1993, whereas the same households reported owning them in subsequent waves. The extent of the difference between 1993 and subsequent waves raises concerns that the 1993 data is systematically different from subsequent years. Consequently, I exclude the 1993 data in my analysis and only examine transitions between 1995 and 2000.

Housing Variables

Homeownership status in reported in each wave of the AHEAD data. In the 1995, 1998, and 2000 waves of the AHEAD data, the survey distinguished between a primary residence and a secondary residence. Home ownership, housing values, and loans taken against the house were asked separately for each residence. In 1993, however, the survey did not distinguish between a primary and a secondary residence. Households were simply asked to report the value of their home and land, and loans taken against the house. The difference between the 1993 housing data and housing

[9]More detailed discussion of the imputation method is reported in Juster and Suzman (2995).

data from subsequent years provides additional justification for excluding the 1993 data.

Since this paper is concerned with whether homeowners are tapping into their housing wealth by selling or trading down their home, the focus is only on the primary residence[10]. I use whether the household reported owning a primary residence in each wave for the graphical analysis. For the probit analysis, I construct a dummy to indicate a sale (Sell) if the household went from being a homeowner in 1995 to a non-owner in 2000.

3 The Graphical Analysis

As a first step, I examine the broad patterns in the data by observing home-ownership rates over the three waves (1995 to 2000) by the type of household transition. To identify the effect of the transition, I compare the change over the 5-year period of the transition household to a control group of households. I sort households into the following groups:

1) New Widows: Households that were married in 1995 (the baseline year) but had a spouse die during the sample period and where neither spouse had a nursing home stay that exceeded 100 days;

2) Long Stays in Nursing Home: Married households that remained intact through the sample period and where at least one spouse had at least one nursing home stay that lasted more than 100 days, or a single household that survived through the sample period with at least one nursing home stay over 100 days (from here on, I refer to this group as long-stayers);

3) Household Die: Married households where both spouses died during the sample period and neither had a long nursing home stay, or a single household that died during the sample period with no long nursing home stay;

[10] About 3 percent of households own a second home.

4) Intact Households (Control Group): Married and single households that survived through the sample period and experienced no death and no long nursing home stays.

Single households include households that were widowed, divorced, separated, or never married in 1995. For households that died, home-ownership information is obtained just prior to death. The sample includes only those households for whom I have data in each of the three waves, unless the household died in 1998, in which case, I have only two waves of data for those households. This selection criteria resulted in 984 intact married households, 1,976 intact single households, 483 newly widowed households, 747 single households that died, and 100 married households that died. Of the intact single households, 81 percent (1,603) were widows in 1995. I refer to this group as the existing widowed households.

In the first set of figures, I plot the home-ownership rates of married and single households without regard to transitions in household structure. Households are sorted into these groups based on their marital status at baseline. The age for married households is the age of the younger spouse in 1995[11]. Figure 1 gives the percent of home-owners by two-year age cohorts for married households and Figure 2 gives the corresponding graph for single households.

It appears from Figures 1 that there are cohort differences in home-ownership rates among married households. In general, the younger cohorts tend to have lower rates of ownership than the older cohorts: married households in their 60s have lower rates of home-ownership than households in their 70s who, in turn, appear to have lower home-ownership rates that households in their 80s. We see that home-ownership rates for married households in their 60s and early 70s were high (they hovered around 90 percent) and remained relatively stable over time. This observation is consistent with earlier studies that focused on the younger old. Among the very old (that is, households in their late 70s and older) Figure 1 shows a clear decline in home-

[11]The survival of the household is the survival of the longest living member of the household. I presume the younger spouse to be the longer lived spouse and take that age for married households.

ownership for each cohort group.

The evidence from Figure 1 is consistent with the results of Venti and Wise (2001) using the HRS and the AHEAD, and with that of Sheiner and Weil (1992) using the PSID. For households aged 76-77 in 1995, home-ownership fell by 11 percentage points over the five year period, from 87.6 percent to 75.5 percent. In annualized terms, this reflects a decline of 2.2 percentage points per year. The decline among very old households is more dramatic: among households aged 80-81 at baseline, home-ownership was at 90 percent in 1995 and fell by 22.8 percentage points over the sample period – a decline of 4.6 percent a year. The timing of the decline for married households coincides with the period in their life-cycle when the elderly are at risk of long stays in a nursing home and when mortality is high.

The trend among single households is a little different. Home-ownership rates are generally declining for each age group and there appears to be little cohort differences for single households in the 70 to 80 age groups. At age 70, 68.3 percent of households were homeowners and by age 85, only 50.4 percent of single households were homeowners. This is a decline of 17.9 percentage points over a 15 year period, or a 1.2 percentage point decline each year. Given that home-ownership rates are about 90 percent for married households in their early retirement years, and they are about 50 percent for single households in their eighties (most of which are widowed households), this represents about a 40 percentage point drop in the home-ownership rates for married households over a 20-year period.

From Figures 1 and 2, we see that the annualized decline among married households is almost twice the decline among single households. This difference may be due to widowhood effect. To observe the effect of a spouse dying on home-ownership rates, Figure 3 plots home-ownership rates by household groups: new widows, intact married households, and intact existing widows. These are all households that did not have a long stay in a nursing home and that survived through 2000.

The most striking point of Figure 3 is the sharp decline in home-ownership rates among the new widows, and the decline is larger for the older group than for the younger group. The decline in home-ownership was 9.7 percentage points for the under 75 group, 15.4 percentage points for the 75-79 group, and 26.1 percentage points for the oldest group. This pattern together with the pattern of decline among intact existing widows displays life-cycle characteristics. One, however, must be cautious in making inferences from this figure because the graph cannot control for other changes occurring in the household that are correlated with age and which might affect home-ownership decisions, such as health changes.

Another point of note in Figure 3 is that new widows have lower levels of home-ownership at baseline than intact married households despite being married at baseline. This could reflect the health-wealth relationship. Households that became widowed are less healthy and, consequently, less wealthy. Since home-ownership is correlated with wealth, the less wealthy are less likely to be home-owners. It could well be, however, that the lower baseline level for new widows is because less wealthy households are more likely to sell their house earlier in the life-cycle than their wealthier counterpart (because the need to access housing wealth or because of poor health). Since only three waves of data are available and one cannot observe home-ownership in years prior to 1995, it is not possible to ascertain if home-ownership rates were lower overall or if the decline started earlier for the newly-widowed households.

If one assumes that the rate of decline is similar between the two groups in the absence of a household transition, then the effect of a spouse dying is the difference in the change in home-ownership rates over the 5-year period between intact married and newly-widowed households. For households in the under 80 group, this is a 7 percentage point difference, whereas for households in the 80 and above group, a spouse dying leads to a drop of almost 19 percentage points. Figure 3 also shows the home-ownership rates for households that were widowed at baseline as an alternate comparison group. Home-ownership rates decline smoothly for the group of existing widows and this contrasts sharply with the steep decline for the newly-widowed group.

I next examine the effect of a long stay in a nursing home on home-ownership rates by comparing long-stayers to non long-stayers among married and single households. For single households, a long stay in a nursing home may necessitate a permanent move to a nursing home, regardless of whether housing equity was used (or intended) to pay for out-of-pocket expenses. In addition, a long-stay in a nursing home may not necessarily imply large out-of-pocket expenses because private long-term care insurance or Medicaid may cover medical expenses not paid by Medicare. At this stage, I cannot distinguish the causal effect of out-of-pocket nursing home expenses, instead I simply examine the change in home-ownership as a result of long nursing home stays.

Figure 4 plots rates for married and single households with and without a long stay in a nursing home. The slopes for married households almost parallel the slopes for single households. Over the five year period, home-ownership among households with no long nursing home stays decline by 3 percentage points and 6 percentage points for married and single households, respectively. For households with at least one long stay in a nursing home, rates declined by 21 percent and 23 percent for married and single households, respectively. Taking differences, the effect of a long stay in a nursing home is approximately an 18 percentage point fall in home-ownership for both married and single households.

The similarity between married and single households is surprising. If one spouse in a married household moves to a nursing home permanently, the non-institutionalized spouse can continue to live in the house, whereas when a widower enters a nursing home with no expectations of returning to the community, she is far more likely to sell the house. As such, one would expect nursing home effects to be larger for single households than for married households. It is also interesting to note that baseline home-ownership is similar between married long stayers and married households with no long stays but they differ quite dramatically for single households.

The difference in home-ownership rates at baseline for single households at first glance

seems somewhat counter-intuitive. One might expect the long-stayers to be less healthy and, thus, less wealthy and have lower home-ownership than households with no long stays. The difference could be because households that anticipate nursing home expenses are more likely to save for these expenses, and as such, they hold onto the house longer. Or it could be that factors that reduce a person's probability of owning a home also reduces the likelihood of a nursing home stay also. For instance, if children are available as a resource to the widow, then the widow may sell the house and move in with her child. At the same time, living with a child will also reduce the widow's probability of requiring institutional long term care.

The final picture (Figure 5) presents the effect of household termination on ownership rates. The figure shows the effect for married as well as single households. Home-ownership rates are shown relative to the time of death, where T0 represents information obtained from the exit interview. The period T-1 is one wave prior to the exit interview and T-2 is two waves prior. Death occurs between T-1 and T0. For households that died in 1998, I have data for T0 and T-1. For households that died in 2000, I have data for T0, T-1, and T-2. 322 single households and 100 married households died in 2000 and 423 single households died in 1998. Because of the small sample size for married households, I do not separate them into cohort groups[12].

The profile for married households include the effect of a spouse dying – simply because for a married household to terminate, both spouses must die during the sample period. Not surprisingly, the change in home-ownership is higher for married households than for single households. The rate declined by 18.7 percentage points over the 5 years while it declined by about 10 percentage points for single households (in both age groups). For single households, most of the decline occurred in the period just prior to death: almost all the decline for the 80 and younger group occurred in the final period and for the above 80 cohort, about 80 percent of the decline occurred

[12]Among single households, although the levels at baseline was different, the change in home-ownership for households that were 80 and younger was similar to the change for households that were over 80.

in the period immediately preceding death. The decline for the single households that died in Figure 5 is compared to the decline for intact single households with no long stays in Figure 4. Over the 5-year period, the decline was 10 percentage and 5.5 percentage points, respectively. This is a difference of 4.5 percentage points and almost all of that decline occurs in the period just prior to death[13].

Based on the graphical evidence, we see that a spouse dying and a long stay in a nursing home have large effects on reducing home-ownership rates and the effects are similar in magnitude when measured over the sample period (each reduces home-ownership by just under 20 percent). Furthermore, in the period just prior to death, home-ownership was observed to decline quite dramatically when a single household terminated, accounting for between about a four percentage point reduction in the percent of homeowners. Finally, there was a noticeable downward trend in home-ownership rates even among households that did not experience transitions in household structure. The decline was more substantial for single households (averaging around 6 percentage points) than married households (averaging around 3 percentage points) over the 5-year period. Since single households were, on average, 6 years older than married households, the decline in home-ownership could be attributable to a decline in health.

[13]Do tax incentives explain the timing of a sale? Housing assets benefit from a step-up in basis at the time of death and thus the estate of the decedent can avoid capital gains from the growth in house price by not selling the house before death. However, most households qualify for the capital gains exemption from a home sale during their lifetime because their gains generally fall below the allowable threshold. The capital gains tax, at least, does not explain the timing of the sale.

4 The Probit Analysis

In this section, I try to explain the pattern of housing sales that was observed in the graphical analysis. I examine whether changes in economic status associated with changes in household structure can explain housing sale. In addition, I look at whether having alternate forms of insurance (which reduces the household's risk of uninsured medical expenses) reduces the probability of selling the house. For the probit analysis, I keep only those households that were homeowners in 1995. This reduces the sample to 3,103 households, of which 1,377 (44 percent) were married homeowners and 1,726 were single homeowners. After dropping observations for which there were missing variables of interest, the sample was reduced to 1,1145 married households and 1,553 single households. I exclude farms in the probit analysis because farms tend to be treated differently from other types of primary residence. Table 2 provides some descriptive statistics of the sample.

Married Households

I start with married households. As noted earlier, a spouse dying might result in a fall in equivalency-adjusted household income. If the insurance story explains housing sale, then new-widowed households that experience a fall in equivalency-adjusted household income between 1995 and 2000 are more likely to sell than new widows that did not experience a fall in income. In addition, having life insurance should reduce the exposure to uninsured medical expenses, therefore, if the deceased spouse has life insurance, it should also lower the probability of a sale.

If a married household has a long stay in a nursing home, it does not necessitate a sale because the other spouse who might continue to live in the house[14]. Moreover, because Medicaid nursing home rules exempts housing assets from being applied to cover the cost of Medicaid nursing home services, if one spouse qualifies for Medicaid nursing home assistance, the community-living spouse is less likely to sell the house.

[14]Of the 94 married homeowners that reported at least one spouse had a long stay, 10 households reported both spouses had a long stay in a nursing home between 1995 and 2000.

Most households, however, will not qualify for Medicaid assistance and if the homeowner is responsible for nursing home expenses, then the community spouse might sell the house to access housing equity if her available financial assets (liquid assets) are insufficient to cover nursing home expenses. Therefore, it is predicted that the higher the ratio of total out-of-pocket expenses relative to financial assets, the greater the probability of selling the house. I use lagged out-of-pocket expenses (expenses reported between 1993 and 1995) relative to the household's financial assets in 1995 to predict housing sales between 1995 and 2000[15].

As noted before, if housing wealth is insurance against high out-of-pocket medical expenses, then having alternative forms of insurance will reduce the household's exposure to uninsured out-of-pocket expenses. Therefore, substitutes to self-insurance, such as having private long-term care (LTC) insurance and Medicaid, should reduce the probability of selling the house. In addition, if families function as annuity markets (Kotlikoff and Spivak, 1981) then family risk-sharing can also reduce the risk of large out-of-pocket medical expenses. Therefore, having resident children or children living close by should reduce the risk of high medical expenses and reduce the probability of a home sale.

Finally, given the observed decline among intact households in the graphical analysis, I examine whether the level of household wealth relative to non-housing wealth explains home sales even when there are no changes to household structure. The idea is that if homeowners are slowly, but systematically, drawing down wealth, but consume other wealth first, then households with a higher share of housing wealth are more likely to sell than other homeowners. Because it is the consumption value of housing wealth that matters, I convert wealth (housing and non-housing) into an annuity value and use that to predict housing sale. As the household draws down non-housing wealth, the ratio of housing wealth to other wealth increases, which means that the consumption equivalent of housing wealth relative to other wealth increases (I refer

[15]I do not use out-of-pocket medical expenses incurred between 1995 and 2000 because it is difficult to identify when the expenses were incurred relative to the time of sale.

to this ratio as the consumption ratio). The higher the (log) consumption ratio, the greater the likelihood the household will sell the house.

I estimate for the following reduced-form probit equation for married households:

$$\begin{aligned} Pr(Sell_i) &= \beta_1 SpDie_i + \beta_2 Life_i + \beta_3 FallY_i \\ &+ \beta_4 (SpDie * Life)_i + \beta_5 (SpDie * FallY)_i \\ &+ \beta_6 LongStay_i + \beta_7 HighMed2Fin_i + \beta_8 LTC_i + \beta_9 SSI300_i \\ &+ \beta_{10} (HighMedExp * SSI300)_i + \beta_{11} (HighMedExp * LTC)_i \\ &+ \beta_{12} NoKids_i + \beta_{13} AdtResKid_i + \beta_{14} KidClos_i \\ &+ \beta_{15} logCR_i + \beta_{16} Z_i + \epsilon_i \end{aligned} \quad (1)$$

The variable $Sell_i$ is a dummy for whether the household sold a house between 1995 and 2000, $SSI300$ is a dummy indicating a Medicaid-eligible household, $HighMedExp$ is a dummy for high lagged medical expenses, $HighMed2Fin = 1$ means high lagged medical expenses relative to financial assets, $AdtResKid = 1$ if there is an adult resident child, $KidClos = 1$ if there is a child living within 10 miles, $LogCR_i$ is the log of the consumption ratio, and Z_i is a vector of control variables that includes health, housing characteristics, and some basic demographics. The variables and their construction are explained in greater detail in the appendix. The values for the husband and the wife are entered separately in the probit; therefore, *Spdie* is a vector representing $WifeDie$ and $HusbDie$ and the associated coefficient, β_1, is a vector of coefficients corresponding to $WifeDie$ and $HusbDie$. Similar notation is used for $Life$ and $(SpDie * Life)$.

Since sales can be attributable to declines in health, I include a control for baseline health by constructing a dummy for whether the husband and the wife had difficulty with any activity of daily living (ADLs) in 1995. I also include dummies for worsening health between 1995 and 2000 if they reported an increase in the number of ADLs they had difficulty performing and a new diagnosis for cancer (NewCancer), respiratory disease (NewLung), heart attack (NewHeart), and stroke (NewStroke). Controls for

basic demographic characteristics include race, education, age of the younger spouse at baseline, baseline wealth, living arrangements, housing attributes, whether there is another name on the deed of the house, whether either spouse was working for pay, and whether there was a will. All demographic variables are measured at baseline.

If a fall in income or high medical expenses trigger housing sales, then we should observe $\beta_5 > 0$ and $\beta_7 > 0$[16]. If housing wealth is insurance, then it is predicted that having alternative forms of insurance should lower the probability of a sale: $\beta_4 < 0, \beta_8 < 0, \beta_{10} < 0, \beta_{11} < 0, \beta_{13} < 0,$ and $\beta_{14} < 0$. If households are slowly consuming their wealth, then $\beta_{15} > 0$. Finally, since housing wealth is exempt from Medicaid tax, it is expected that households that qualify for Medicaid and that have high medical expenses are less likely to sell, that is $\beta_{10} < 0$. The sign on β_9, however, is uncertain since the variable $SSI300$ indicates the household's income meets the Medicaid income limit for most states (in which case, $\beta_9 < 0$) but it also indicates the household has low income, which might indicate financial need and increase the probability of a sale ($\beta_9 > 0$).

Single Households

The analysis for single households is similar to that of married households with a few exceptions. It was observed in the graphical analysis that death of a household has a significant effect on reducing home-ownership. Therefore, in the analysis for single households, I include a categorical variable indicating if the household died during the sample period. In addition, because single households must essentially deplete all assets before qualifying for Medicaid (and do not benefit from the "disregard" of housing wealth) [17], instead of a dummy variable indicating Medicaid eligibility, I include a poverty dummy. If housing wealth is fungible, then being in poverty should increase the probability of selling the house.

[16]Since household income is generally comprised of annuity income for most households, in the absence of other types of shocks, household income in retirement tends to be generally stable and predictable. Consequently, it is expected that the coefficient β_3 will have little predictive power.

[17]Unless there is a disabled child living at home.

For single households, I estimate:

$$\begin{aligned} Pr(Sell_i) &= \beta_1 LongStay_i + \beta_2 HHDie_i + \beta_3 Life_i + \beta_4 LTC_i \\ &+ \beta_5 NoKids_i + \beta_6 AdtResKid_i + \beta_7 KidClos_i \\ &+ \beta_8 HighMed2Fin_i + \beta_9 Poverty_i \\ &+ \beta_{10}(Poverty * HighMed2Fin)_i + \beta_{11} logCR_i \\ &+ \beta_{12} Z_i + \epsilon_i \end{aligned} \tag{2}$$

Because single households tend to be older and, consequently, less healthy, and because single households do not have a spouse who can substitute for formal care when health declines, I include additional controls for baseline health for single households. I includes a dummy variable for whether the homeowner reported being in fair or poor health, whether she reported feeling lonely or depressed in the last month, whether she had fallen down, whether she is able to drive, and if the interviewed was conducted by a proxy.

As with married households, it is predicted that the probability of a sale varies negatively with the availability of alternative insurance: $\beta_3 < 0, \beta_4 < 0, \beta_6 < 0, \beta_7 < 0$; and it varies positively with indicators of financial need: $\beta_8 > 0, \beta_9 > 0, \beta_{10} > 0,$ and $\beta_{11} < 0$.

Results

The probit results for married homeowners are presented in Table 3. Table 4 presents the results for single homeowners[18]. Each table reports the results from three specifications of the probit estimate. Within each set of estimates, the first column gives the marginal effect, the second column presents the coefficient, and the third column gives the standard errors. The first specification gives estimates for just the household transition, without any controls. The second specification includes the log of the consumption ratio and a parsimonious set of control variables: baseline wealth

[18]The results are presented without controls for cohort. Even though the graphical analysis showed some cohort differences between households in the 70s age-group and households in the 80s age-group, adding a dummy for over80 had little discernable effect for both married and single households.

and basic demographic and housing characteristics. The third specification estimates equation (1) for married households and equation (2) for single households.

I begin with Table 3. For married households, the coefficient on a spouse dying and on long stays in a nursing home are as expected based on the findings of previous research and on the graphical analysis. The marginal effect is substantially larger when the wife dies or enters a nursing home than when a husband dies or enters a nursing home. For instance, when a husband dies, the probability of a sale increases by about 15 percentage points, but when a wife dies, the probability of a sale doubles, increasing by almost 30 percentage points. The marginal effect for long stays is just as striking: when a husband has a long nursing home stay, the probability of a sale increases by 11 percent but when the wife has a long stay, the probability of a sale increases by 20 percent. This relationship persists through all three specifications: the marginal effect when a wife dies or enters a nursing home is twice that of when a husband dies or enters a nursing home. This evidence suggests that either husbands incur lower expenses than wives when they get sick or die (so the household has a lesser need to tap into housing wealth)[19] or woman are more able to live without their spouse in the home than men.

In the second specification, the coefficient on the spouse dying and long stays continue to be large and positive. The coefficient on the log of the consumption ratio is significant but negative – suggesting that the higher the share of housing wealth, the lower the probability of a sale. The negative relationship is unexpected but plausible since the incentive to hold wealth in housing to avoid the Medicaid tax could conceivably be large. Homeowners in the lower two quartiles of wealth are more likely to sell the house than homeowners in the highest wealth quartile. The fact that housing sales are correlated with wealth might indicate that housing sales are motivated by a desire to access housing wealth, but it might also be that wealthier households have resources that enable them to continue living in the house despite

[19]Which is plausible since women are generally the primary caretaker in the family.

poor health or that they are generally in better health.

The third specification estimates equation (1). As expected, being Medicaid eligible and having high lagged medical expenses significantly reduces the probability of a sale by about 5 percentage points. As in the second specification, the coefficient on $logCR$ is negative and significant and it may be picking up the Medicaid effect. The signs on the coefficients of the interaction terms with a spouse dying are as expected although they are not statistically significant. A fall in household-equivalent income when a spouse dies increases the probability of a sale and if the deceased spouse had life insurance, it reduces the probability of a sale. The signs on the coefficients of variables representing alternative insurance are also as expected: having life insurance, long term care insurance, and children lower the probability of selling the house. But with the exception of children living close by, the coefficients are not significant. The coefficient on a spouse dying or a long stay in a nursing home are still large and significant.

The evidence suggests that although households appear to be responding to Medicaid incentives in their portfolio allocation; and although it appears that households with lower wealth are more likely to sell than wealthier households, most home sales appear to be driven by factors other than the financial need. For instance, if a husband reported being diagnosed with cancer between 1995 and 2000, it increases the probability of a sale. A fall in household income as a result of a spouse's death and large out-of-pocket medical expenses (relative to financial assets) do not predict housing sales. Long stays in a nursing home are significant predictors but it is still unclear if it is directly a result of changes in household composition or whether it is due to high out-of-pocket medical expenses.

The evidence for single households appear to tell a similar story: financial indicators do not appear to be driving housing sales. In the graphical analysis, household dying was observed to be a trigger for a home sale and this shows up in the naive specification. This potentially might indicate that high end-of-life expenses explain

housing sales, however, the effect goes away when some basic controls are included in the second specification. In addition, a long stay in a nursing home continues to be a very strong predictor of home sales. It increases the probability of selling the house by 30 percentage points in the naive specification and by 20 percentage points in the full specification. The fact that the coefficient on indicators of alternative insurance ($Life$ and LTC) are of the wrong sign and insignificant adds strength to the notion that the $LongStay$ variable is picking up the effort of a permanent move to a nursing home and not high out-of-pocket medical expenses. This is further strengthened by the significance of the health variables: reporting poor health at baseline, having a fall, increasing difficulties with ADLs, and reporting a stroke between 1995 and 2000 significantly increases the probability of a sale. In fact, the marginal effects are quite substantial for worsening ADLs and NewStroke.

Surprisingly, being in poverty reduces the probability of selling the house, but being in poverty and having high lagged medical expenses relative to financial assets increases the probability of selling the house. The coefficient on lagged medical expenses relative to financial assets, however, is negative but insignificant. It is unclear what explains this relationship. Poor households with high medical expenses are also unhealthy households, and the variable could be picking up the effect of poor health.

Not having a child or having a child close by significantly reduces the probability of selling the house. The signs on these coefficients are consistent with a story where children are considered a resource to the widow and housing decision are based on the fit of the house: the single household with no children is less likely to sell then the household with a child live far away because she has no alternative living arrangement (that is, she cannot move in with a child) and having a child close by reduces the probability of selling because it enables her to continue living in the house. But this evidence alone does not validate the insurance story.

The results of the probit appear to indicate that, by and large, housing sales in old age for single households is mostly driven by worsening health. There are indications that

poorer married homeowners are responding to financial incentives in their housing decisions: for instance, they are less likely to sell if the household is Medicaid-eligible and if they have high (lagged) out-of-pocket medical expenses, and married households in the bottom half of the wealth quartile are more likely to sell than households in the highest wealth quartile, but this evidence, in itself, cannot be used to validate the insurance story.

5 Conclusion

The evidence in the literature on whether the elderly are consuming their housing wealth has been mixed. Because home sales are infrequent and a high proportion of the elderly continue to own in old age, it appears that the elderly are not consuming housing wealth. It has be observed, however, that changes in household structure such as widowhood or nursing home are strong predictors of a home sale. This gives reason to believe that housing may be held as insurance against negative shocks to the household's economic status in old age. To date, however, the evidence to support that hypothesis has been weak. This paper looks for more direct evidence for the insurance story by examining whether predictors of housing sales are consistent with the insurance story by looking at the extent to which indicators of changes in economic status and indicators of having alternate insurance (which mitigates the exposure to uninsured medical expenses) explain housing sales.

As with previous researchers, I find a strong relationship between housing sales and changes in household structure. A closer look at what might explain the sale during these transitions suggest that for the most part, housing sales are not driven by a desire to access housing wealth. A fall in household-equivalent income does not affect the probability of a sale among married households, and having high lagged out-of-pocket medical expenses relative to financial assets also do not predict housing sale.

There are indications that poor married homeowners are consuming housing wealth and also indications that married households are responding to Medicaid tax incentives. This evidence seems to suggest that, at least among married households, housing decisions are financially motivated; however, the evidence does not by itself validate the insurance story.

6 Appendix

Variable Construction

The log of the consumption ratio (CR) is computed as follows:

$$LogCR_i = log\left(\frac{AH_i}{Y_i + ANH_i}\right) \tag{3}$$

where AH_i is the annuity value of housing wealth in 1995, Y_i is household income in 1995, and ANH_i is the annuity value of non-housing wealth in 1995. The annuity value of housing wealth is calculated as follows:

$$AH_i = \frac{HW_i}{\sum_{i=a_i}^{T} p_i \left(\frac{1}{1+r}\right)^{i-a_r}} \tag{4}$$

where HW_i is housing wealth at baseline and a_i is age of the single household or age of the younger spouse in a married household in 1995. p_i is the race-gender conditional probability of surviving to the following year[20] and it is assumed that no one survives past age 106, that is $T = 106$. I assume a constant interest rate, r, of 3%. The annuity value of non-housing wealth is similarly computed.

To construct the dummy for the fall in household equivalent income, I adopt the equivalency scale used by the Social Security Administration: that is, household consumption for 2 persons is 1.5 times that of an individual. Therefore, for households that are newly widowed, I multiply household income in 1995 by two-thirds. The equivalence-adjusted household income falls (FallY) if real income in 2000 (or in 1998 if the household terminated in 2000) is less than income in 1995. [21]. The CPI-deflator is used to compute real values.

Most state Medicaid programs have a medically-needy provision that allows individuals whose income is no more than 300% of SSI to qualify for Medicaid nursing

[20]Survival probabilities obtained from the CDC.

[21]Income equivalence scales vary substantially. According to Fernandez-Villaverde and Krueger (2002), the OECD adjustment for 2 adults is 1.7, Social Security uses 1.5, The Department of Health and Human Services uses 1.34, whereas the Lazear and Michael's (1980) adjustment is 1.07. The estimate is substantially unchanged using the alternative equivalence scale of 1.3.

home assistance. Therefore, I construct a dummy variable indicating the household is Medicaid-eligible if household income in 1995 is no more than 300% of SSI-benefits for that year.

I use lagged out-of-pocket medical expenses (out-of-pocket expenses reported between 1993 and 1995) to construct a dummy for high medical expenses. For married households, $HighMedExp = 1$, if reported expenses was in the top seventy-fifth percentile among married households. So households reporting expenses in excess of $4,900 were coded has having high medical expenses. I coded $HighMed2Fin = 1$ (high out-of-pocket expenses relative to financial assets) if out-of-pocket medical expenses between 1993 and 1995 were at least 20% of financial assets reported in 1995. Financial assets include stocks, bonds, money in checking accounts, certificate of deposits, and IRAs.

References

Bernheim, B. Douglas. Is the Baby Boom Generation Preparing Adequately for Retirement. Technical Report. Merrill Lynch. Princeton, N.J. (1993).

Cohen, S.B., Carlson, B.L., and Potter, D.E.B. “Health Care Expenditures in the Last Six Months of Life.” *Health Policy Review* (American Statistical Association Section on Health Policy) Vol. 1 (2) (1995): 1–13.

Engelhardt, Gary V. "House Prices and Home Owner Saving Behavior." *NBER Working Paper No. 5183* (1995).

Engen, Eric, William Gale, and Cori Uccello. "The Adequancy of Household Savings." *Brookings Papers on Economic Activity No. 2* (1999).

Fernandez-Villaverde, Jesus, and Dirk Krueger. "Consumption over the Life-Cycle: Some Facts from Consumer Expenditure Survey Data." *PIER Working Paper No. 02-044* (2002).

Feinstein, Jonathan. "Elderly Health, Housing, and Mobility." *NBER Working Paper No. 4572* (1993).

Feinstein, Jonathan, and Daniel McFadden. "The Dynamics of Housing Demand by the Elderly: Wealth, Cash Flow, and Demographic Effects." *NBER Working Paper No. 2471* (1987).

Feinstein, Jonathan, and Chih-Chin Ho. "Elderly Asset Management and Health: An Empirical Analysis." *NBER Working Paper No. 7814* (2000).

Gustman, Alan and Thomas Steinmeier. "Effects of Pensions on Savings: Analysis with Data from the Health and Retirement Study." Carnegie-Rochester Conference Series on Public Policy. Vol. 50. June, 1999: 271-324.

Juster, F. T. and Suzman, R., "An Overview of the Health and Retirement Study." *Journal of Human Resources*, Vol. 30. (1995): S7-56.

Kiel, Katherine and Jeffrey Zabel. "The Accuracy of Owner-Provided House Values: The 1978-91 American Housing Survey." *Real Estate Economics* Vol. 27, No. 2 (1999): 263-298.

Kopczuk, Wojciech, and Joe Lupton. "To Leave or Not to Leave: An Empirical Investigation of the Distribution of Bequest Motives." *Working Paper* (2001).

Kotlikoff, Laurence J., and Avia Spivak. "The Family as an Incomplete Annuities Market." *The Journal of Political Economy* Vol. 89, No. 2 (1981): 372-91.

Lazear, E. and Michael, R.T. "Family Size and the Distribution of Real Per Capita Income." *American Economic Review* Vol. 70 (1980): 91-107.

Levin, Laurence. "Are Assets Fungible? Testing the Behavioral Theory of Life-Cycle Savings." *Journal of Economic Behavior and Organization* Vol. 36 (1998): 59-83.

McGarry, Kathleen. "Testing Parental Altruism: Implications of a Dynamic Model." *NBER Working Paper No. 7593* (2000).

Merrill, Sally R. "Home Equity and the Elderly." in H. Aaron and G. Burtless (ed.) *Retirement and Economic Behavior*. Brookings Institute (1984).

Moore, James, and Olivia Mitchell. "Projected Retirement Wealth and Wavings Adequacy in the Health and Retirement Study." *NBER Working Paper No. 6240* (1997).

Poterba, James, Steven Venti, and David Wise. "Targeted Retirement Saving and the Net Worth of Elderly Americans." *American Economic Review Papers and Proceedings* Vol. 84 (1994): 180-85.

Sevak, Purvi, David R. Weir, and Robert J. Willis. "The Economic Consequences of a Husband's Death: Evidence from the Hrs and Ahead." *Michigan Retirement Research Center Working Paper No. 2002-022* (2003).

Sheiner, Louise, and David N. Weil. "The Housing Wealth of the Aged." *NBER Working Paper No. 4115* (1992).

Skinner, Jonathan. "Housing Wealth and Aggregate Saving." *Regional Science and Urban Economics* Vol. 19 (1989): 305-24.

———, ed. *Is Housing Wealth a Sideshow?* Edited by David Wise, *Papers in the Economics of Aging*. Chicago: Chicago University Press, 1996.

Sloan, Frank A. and May W. Shayne. "Long-term Care, Medicaid, and Impoverishment of the Elderly." *The Milbank Quarterly* Vol. 71, No. 4 (1993): 575-599.

Venti, Steven F., and David A. Wise. "Aging, Moving, and Housing Wealth." in D. Wise (ed.) *The Economics of Aging*, University of Chicago Press (1989).

———. "But They Don't Want to Reduce Housing Equity", in D. Wise (ed.) *Issues in the Economics of Aging*, University of Chicago Press (1990).

———. "Aging and the Income Value of Housing Wealth." *Journal of Public Economics* 44 (1991): 371-97.

———. "Aging and Housing Equity: Another Look." Paper presented at the Economics of Aging, May 17-20, 2001.

Wall Street Journal (1993).

Yaari, Menahem E. "Uncertain Lifetime, Life Insurance, and the Theory of the Consumer." *The Review of Economic Studies* Vol. 32, No. 2 (1965): 137-50.

Table 1: Components of Wealth for the AHEAD Households

	W1(93) (n=6047)	W2(95) (n=5214)	HRS 98 (n=4527)	HRS 00 (n=3869)	95/93	98/95	00/98	00/93
IRAs	44,620,813	56,634,468	58,316,836	53,969,105	1.27	1.03	0.93	1.21
Business	36,348,552	75,634,284	64,874,401	55,658,900	2.08	0.86	0.86	1.53
Stocks	140,066,661	384,970,476	336,405,571	399,664,932	2.75	0.87	1.19	2.85
Bonds	30,845,747	48,604,908	50,731,354	33,392,607	1.58	1.04	0.66	1.08
CDs	52,342,832	90,853,950	89,815,045	80,135,996	1.74	0.99	0.89	1.53
Savings	100,924,430	123,504,018	101,051,333	86,926,086	1.22	0.82	0.86	0.86
Transportation	39,365,970	31,304,856	28,866,954	28,378,925	0.80	0.92	0.98	0.72
Trusts	14,930,043	194,200,644	2,627,000	336,270,617	13.01	0.01	128.01	22.52
Debts	5,200,420	4,046,064	5,067,448	2,626,710	0.78	1.25	0.52	0.51
Net Real Estate Value	505,662,234	488,317,170	471,828,714	467,172,526	0.97	0.97	0.99	0.92
Other	14,500,706	22,373,274	28,074,525	20,177,584	1.54	1.25	0.72	1.39
Cap Gains		17,896,367						
Net Worth (summed here)	974,407,568	1,530,248,351	1,227,524,285	1,564,373,988	1.57	0.80	1.27	1.61
Total w/o Trusts	959,477,525	1,336,047,707	1,224,897,285	1,228,103,371	1.39	0.92	1.00	1.28

* W1 trusts explicity excludes those already mentioned in other assets; W2 does it parenthetically
HRS98 excludes them explicitly.

Table 2: Descriptive Statistics - AHEAD Sample of Homeowners for Probit Analysis

Married Homeowners	Mean	Std D.
Sell	0.114	0.318
WifeDie	0.109	0.311
HusbDie	0.248	0.432
FallY	0.545	0.498
Life_wife	0.548	0.498
Life_husb	0.741	0.438
Either Spouse have LTC Insur	0.159	0.366
Longstay_wife	0.040	0.196
Longstay_husb	0.051	0.219
HighMedExp	0.254	0.436
SSI300	0.145	0.352
1995 Housing Equity	$95,633	$89,758
1995 Networth	$364,019	$528,690
Out-of-pocket Med Exp (93-95)	$4,703	$8,570
1995 anyADL_husb	0.090	0.286
worseADL_husb	0.173	0.378
newcancer_husb	0.223	0.416
newlung_husb	0.066	0.249
newheart_husb	0.269	0.444
newstroke_husb	0.028	0.165
1995 anyADL_wife	0.093	0.291
worseADL_wife	0.131	0.338
newcancer_wife	0.162	0.369
newlung_wife	0.057	0.232
newheart_wife	0.172	0.378
newstroke_wife	0.015	0.121
No Children	0.070	0.255
Child live <10Miles	0.122	0.328
Other Name on Deed	0.443	0.497
Work_husb	0.112	0.316
Work_wife	0.086	0.281
Will_husb	0.787	0.409
Will_wife	0.782	0.413
Black	0.081	0.273
High School Grad	0.813	0.390
1995 Age of Younger Spouse	73.311	5.770
No Mortgage	0.845	0.362
Retirement Home	0.040	0.196
Own Home >10Yrs	0.895	0.306
n=1145		

Single Homeowners	Mean	Std D.
Sell	0.182	0.386
LongStay	0.071	0.257
Household Die	0.227	0.419
LTC Insurance	0.106	0.307
Life	0.557	0.497
1995 Housing Equity	$89,779	$157,058
1995 Networth	$355,226	$2,162,843
Out-of-pocket Med Exp (93-95)	$3,061	$8,102
1995 anyADL	0.094	0.292
Poor Health	0.321	0.467
Lonely	0.267	0.442
Depressed	0.178	0.383
Fall	0.321	0.467
Proxy	0.064	0.246
Drive	0.657	0.475
worseADL	0.187	0.390
newcancer	0.185	0.389
newlung	0.048	0.213
newheart	0.225	0.418
newstroke	0.033	0.178
No Children	0.148	0.355
1995 Child live <10Miles	0.227	0.419
Other Name on Deed	0.513	0.500
Black	0.144	0.351
High School Grad	0.598	0.490
1995 Age	79.370	5.554
Female	0.029	0.168
No Mortgage	0.880	0.326
Retirement Home	0.032	0.175
Own Home >10Yrs	0.923	0.266
n=1553		

Notes: Using the AHEAD data. Marital status is based on status in 1995.

Single homeowners include seperated, divorced, widowed, and never married

Changes reflect the change between 1995 and 2000

Unless otherwise noted, all values are baseline values

Table 3: Probit Estimate of the Probability of Selling the House between 1995 and 2000
Among Married Homeowners

	(1)			(2)			(3)		
	dF/dx	Coef.	Std.	dF/dx	Coef.	Std.	dF/dx	Coef.	Std.
Wife Die	0.296	1.175 ***	0.157	0.257	1.105 ***	0.168	0.230	1.076 ***	0.281
Husband Die	0.146	0.757 ***	0.127	0.116	0.673 ***	0.131	0.111	0.698 **	0.284
HH Income Fall							0.008	0.071	0.160
Husb have Life Insurance							-0.031	-0.239	0.164
Wife have Life Insurance							-0.003	-0.025	0.129
Wifedie& Fall Income							0.014	0.112	0.321
Husbdie&Fall Income							0.015	0.118	0.255
Wife Die&Wife Have Life Insurance							-0.001	-0.004	0.297
Husb Die&Husb Have Life Insurance							-0.016	-0.145	0.267
Wife have Longstay in Nursing Home	0.198	0.843 ***	0.239	0.156	0.746 ***	0.252	0.156	0.786 ***	0.268
Husb have Longstay in Nursing Home	0.107	0.536 ***	0.207	0.080	0.453 **	0.207	0.077	0.474 **	0.220
High Med Expense rel. to Financial Assets							0.008	0.066	0.152
Have Long Term Care insurance							-0.007	-0.064	0.177
HH Income <=300% of SSI							0.026	0.196	0.207
High Med Expense&Income<=300% of SSI							-0.054	-0.826 **	0.377
High Med Expense & Have LTC Insur							-0.020	-0.196	0.381
Have No Children							-0.034	-0.375	0.249
Have Adult Resident Child							-0.030	-0.300	0.202
Have Child live <10Miles							-0.027	-0.227 *	0.131
Have Child Live >10 Miles							omitted		
Log 1995 Housing to Non-Housing Wealth				-0.013	-0.099 *	0.056	-0.012	-0.100 *	0.055
1995 NETWRTH_quartile1				0.078	0.489 ***	0.184	0.073	0.503 ***	0.179
1995 NETWRTH_quartile2				0.068	0.440 **	0.174	0.069	0.484 ***	0.169
1995 NETWRTH_quartile3				0.004	0.032	0.177	0.006	0.053	0.176
1995 NETWRTH_quartile4							omitted		
Husb have Difficulty with >= 1 ADL in 1995							0.007	0.056	0.197
Husb have Difficulty with More ADLs							0.004	0.032	0.153
Husb have New Cancer							0.031	0.234	0.130
Husb have New Respiratory Disease							0.023	0.171	0.181
Husb have New Heart Attack							-0.016	-0.143	0.132
Husb have New Stroke							0.048	0.322	0.315
Wife have Difficulty with >= 1 ADL in 1995							0.000	0.004	0.218
Wife have Difficulty with More ADLs							-0.009	-0.080	0.167
Wife have New Cancer							0.019	0.147	0.140
Wife have New Respiratory Disease							0.000	0.001	0.231
Wife have New Heart Attack							-0.003	-0.025	0.140
Wife have New Stroke							0.027	0.195	0.426
Other Name on Deed							0.030	0.222	0.193
Husb Currently Work for Pay							0.009	0.076	0.175
Wife Currently Work for Pay							-0.043	-0.489 *	0.281
Husband have Will							-0.003	-0.021	0.209
Wife have Will							-0.002	-0.018	0.213
Black				-0.041	-0.414 *	0.213	-0.039	-0.458 *	0.238
High School Grad				0.017	0.138	0.162	0.012	0.106	0.173
1995 Age of Younger Spouse				0.005	0.039 ***	0.011	0.005	0.039 ***	0.012
No Mortgage				0.004	0.027	0.176	0.006	0.048	0.179
Retirement Home				0.012	0.084	0.296	0.007	0.058	0.314
Own Home >10Yrs				-0.045	-0.290 *	0.161	-0.050	-0.344 **	0.165
Constant		-1.766	0.083		-4.901	0.859		-4.584	0.919
R-square		0.149			0.191		0.231		
n		1145			1145		1145		

Notes: Changes reflect changes between 1995 and 2000

All others values are measured at baseline

Black = if either spouse is black, High School Grad = if either spouse is at least a high school graduate

Quartile1 is the lowest quartile and the omitted wealth quartile is the highest quartile.

Estimates are weighted, robust standard errors are reported.

***, **, * represents significance at the 1%, 5% and 10% level, respectively

Table 4: Probit Estimate of the Probability of Selling the House between 1995 and 2000
Among Single Homeowners

Variable Names	(1) dF/dx	(1) Coef.	(1) Std.	(2) dF/dx	(2) Coef.	(2) Std.	(3) dF/dx	(3) Coef.	(3) Std.
Have Longstay in Nursing Home	0.300	0.897 ***	0.138	0.268	0.821 ***	0.142	0.191	0.637 ***	0.161
Household Died in Sample	0.061	0.225 **	0.095	0.039	0.150	0.101	0.015	0.060	0.109
Have Life Insurance							-0.016	-0.068	0.086
Have Long Term Care insurance							0.007	0.030	0.135
Have No Children							-0.081	-0.397 ***	0.134
Have Adult Resident Child							-0.035	-0.155	0.113
Have Child live <10Miles							-0.084	-0.355 ***	0.093
Have Child Live >10 Miles							omitted		
High Med Expense rel. to Financial Assets							-0.008	-0.034	0.119
In Poverty							-0.089	-0.457 **	0.214
In Poverty&High Med Exp rel. to Fin Assets							0.146	0.506 *	0.266
Log 1995 Housing to Non-Housing Wealth				0.005	0.019	0.042	0.000	-0.001	0.046
1995 NETWRTH_quartile1				0.051	0.192	0.126	0.024	0.100	0.143
1995 NETWRTH_quartile2				0.032	0.124	0.124	0.020	0.082	0.129
1995 NETWRTH_quartile3				-0.032	-0.132	0.122	-0.033	-0.143	0.125
1995 NETWRTH_quartile4							omitted		
Have Difficulty with >= 1 ADL in 1995							-0.029	-0.131	0.171
Poor Health							0.062	0.251 **	0.099
Lonely							0.012	0.050	0.110
Depressed							-0.023	-0.098	0.128
Fall							0.046	0.187 **	0.091
Proxy							-0.031	-0.141	0.208
Drive							-0.008	-0.035	0.108
Have Difficulty with More ADLs							0.101	0.380 ***	0.111
Have New Cancer							-0.016	-0.070	0.108
Have New Respiratory Disease							0.008	0.035	0.191
Have New Heart Attack							0.036	0.148	0.102
Have New Stroke							0.242	0.766 ***	0.219
Other Name on Deed							0.088	0.342 ***	0.096
Currently Work for Pay							0.025	0.102	0.178
Have Will							0.000	0.000	0.103
Black				-0.013	-0.053	0.122	-0.014	-0.059	0.132
High School Grad				0.009	0.037	0.092	0.000	0.000	0.096
1995 Age of Younger Spouse				0.006	0.025 ***	0.008	0.004	0.018 **	0.008
Female				0.118	0.400 *	0.222	0.114	0.405 *	0.232
No Mortgage				-0.045	-0.167	0.124	-0.051	-0.199	0.137
Retirement Home				0.036	0.135	0.233	0.001	0.004	0.230
Own Home >10Yrs				-0.056	-0.207	0.163	-0.061	-0.236	0.163
Constant		-1.054	0.048		-2.734	0.639		-2.100	0.722
R-square	0.042			0.060			0.121		
n	1553			1553			1553		

Notes: Changes reflect changes between 1995 and 2000

All others values are measured at baseline

Quartile1 is the lowest quartile and the omitted wealth quartile is the highest quartile.

Estimates are weighted, robust standard errors are reported.

*** , **, * represents significance at the 1%, 5% and 10% level, respectively

Figure 1: Percent Own Among Married Households
Full Sample

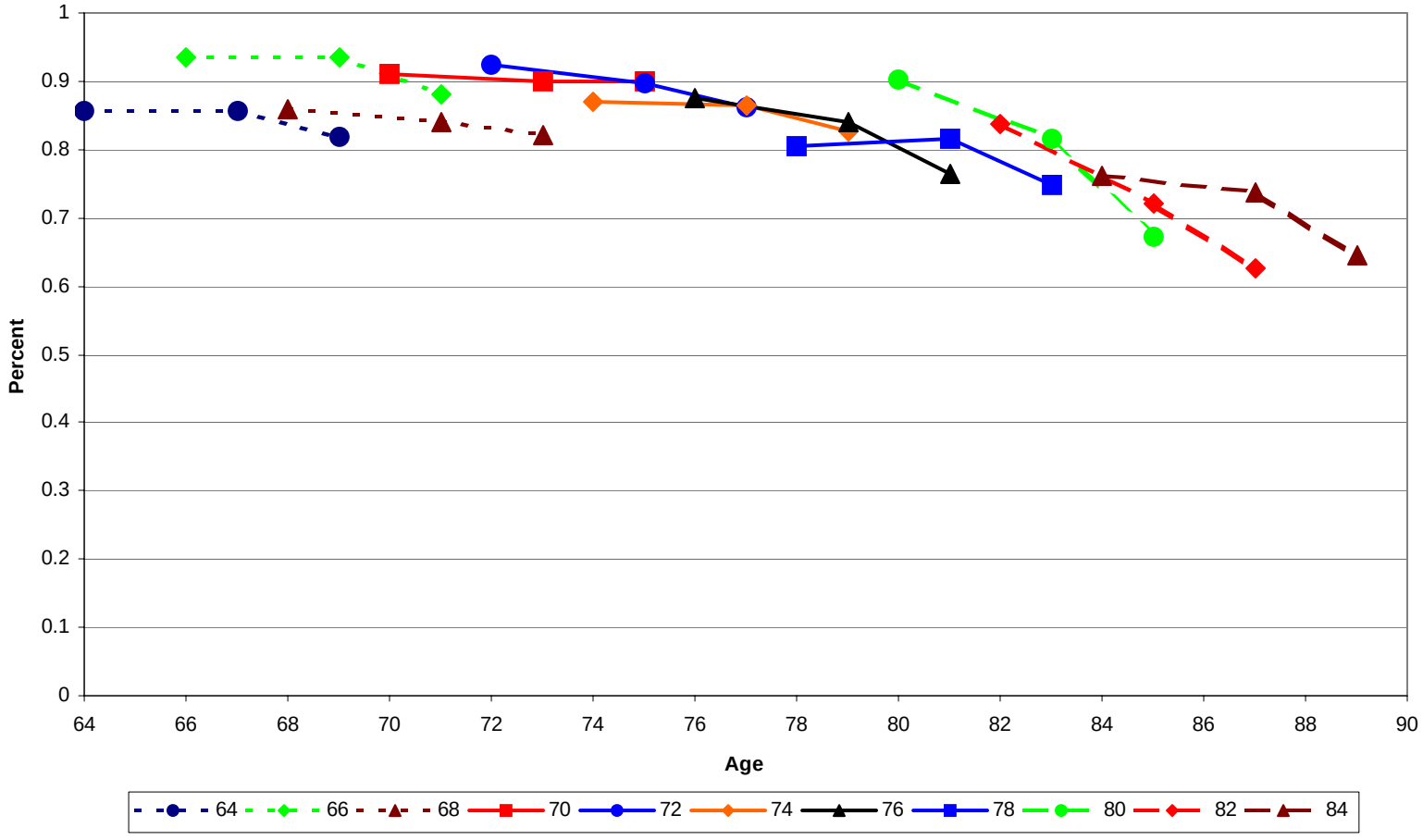

Figure 2:Percent Own Among Single Households
Full Sample

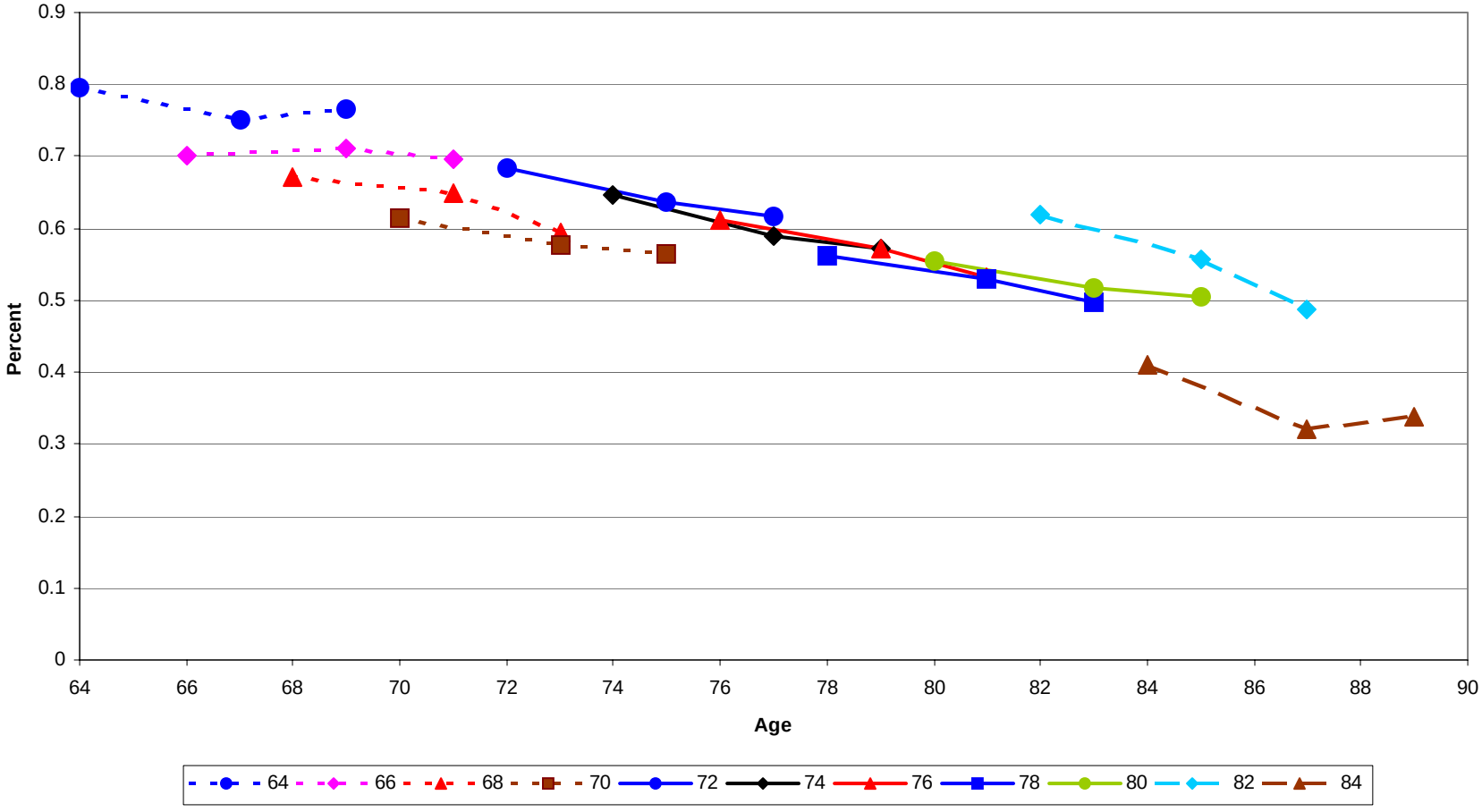

Figure 3: Percent Own Among Intact Married, New widows, and Existing Widows that Survived Through The Sample Period with No Long Nursing Home Stays

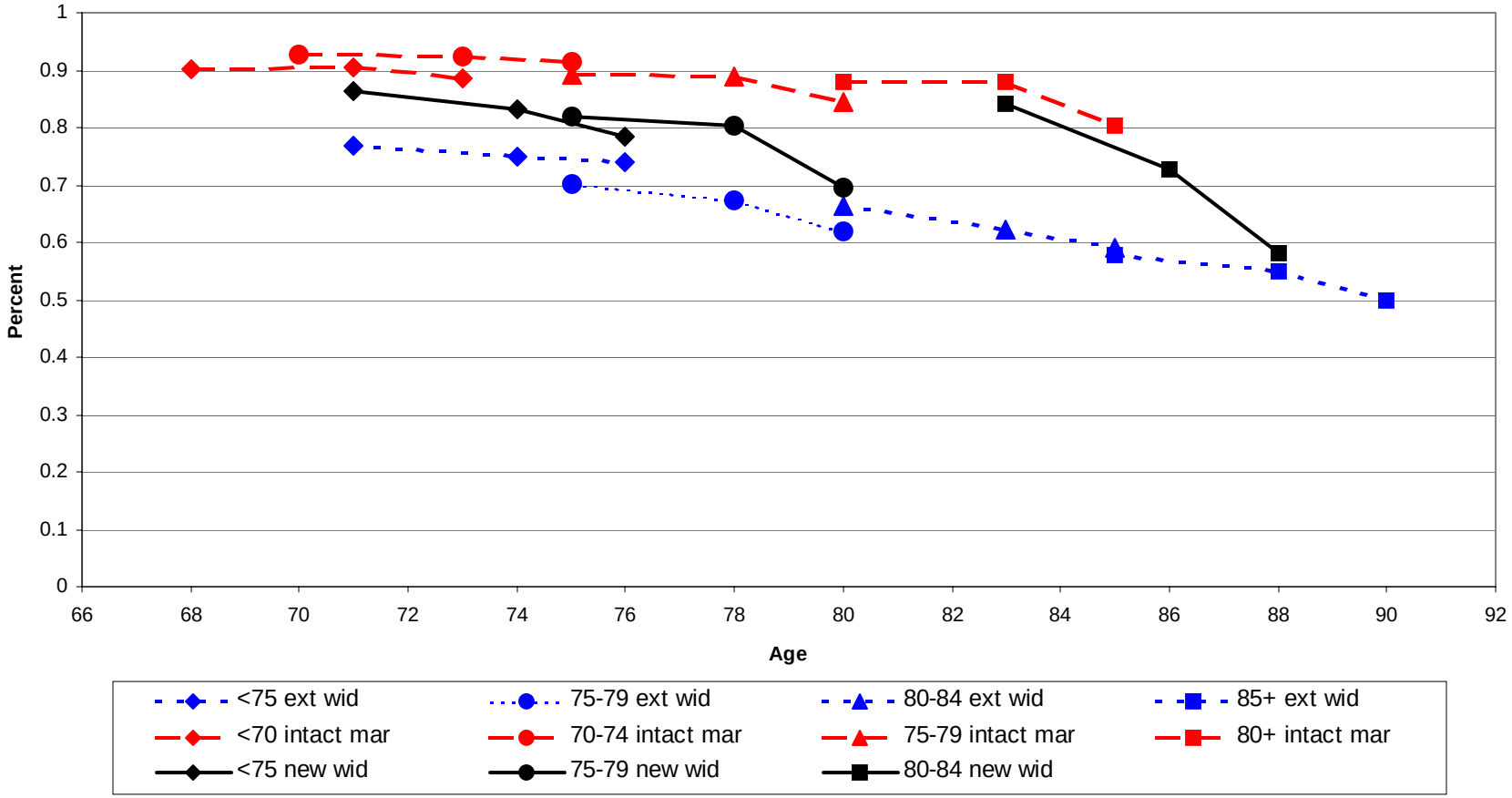

Figure 4: Percent Own Among Intact Single and Intact Married Households by Long Stay (LS) in Nursing Home Status

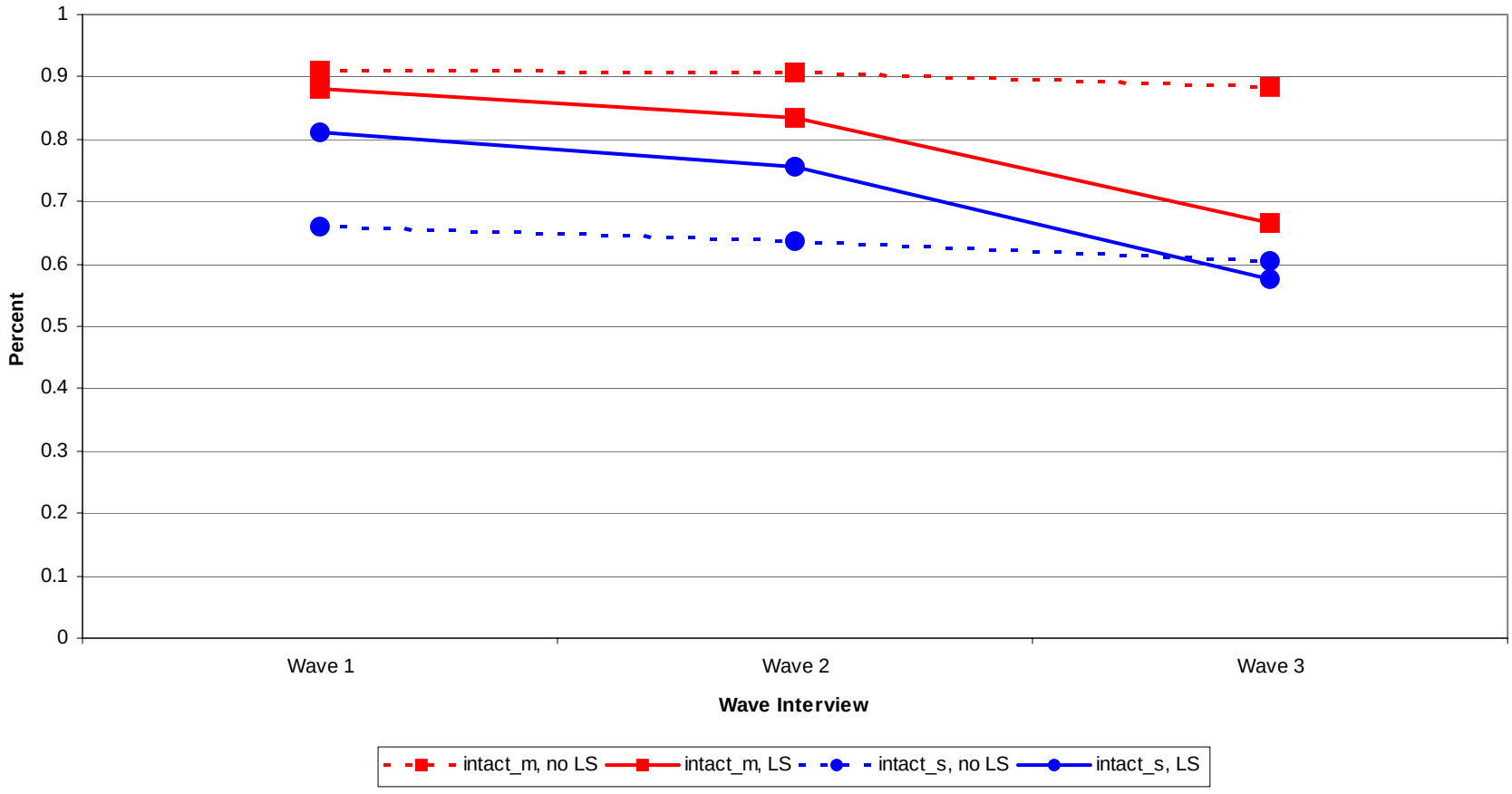

Figure 5: Percent Own Among Single and Married Households Relative to Time of Death (T0)