Were They Prepared for Retirement? Financial Status at Advanced Ages in the HRS and AHEAD Cohorts

by

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Abstract

Many analysts have considered whether households approaching retirement age have accumulated enough assets to be well prepared for retirement. In this paper, we shift from studying household finances at the start of the retirement period, an ex ante measure of retirement preparation, to studying the asset holdings of households in their last years of life. The analysis is based on Health and Retirement Study with special attention to Asset and Health Dynamics Among the Oldest Old (AHEAD) cohort that was first surveyed in 1993. We consider the level of assets that households hold in the last survey wave preceding their death. We study how assets at the end of life depend on three family status pathways ~~to~~ prior to death— (1) original one-person households in 1993, (2) persons in two-person household in 1993 with a deceased spouse in the last year observed, and (3) persons in two-person households in 1993 with the spouse alive when last observed. We find that a substantial fraction of persons die with virtually no financial assets—46.1 percent with less than $10,000—and many of these households also have no housing wealth and rely almost entirely on Social Security benefits for support. In addition this group is disproportionately in poor health. Based on a replacement rate comparison, many of these households may be deemed to have been well-prepared for retirement, in the sense that their income in their final years was not substantially lower than their income in their late 50s or early 60s. Yet with such low asset levels, they would have little capacity to pay for unanticipated needs such as health expenses or other financial shocks or to pay for entertainment, travel, or other activities. This raises a question of whether the replacement ratio is a sufficient statistic for the "adequacy" of retirement preparation.

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Many analysts have considered whether households approaching retirement age have accumulated enough assets to be well prepared for retirement. Various methods have been used to evaluate retirement preparedness, and the range of studies that apply these methods have yielded a diverse set of conclusions. Some studies are based on comparisons between observed saving or consumption and the predictions of the life-cycle model. Others measure the ability of households to replace pre-retirement levels of income or consumption, or compare post-retirement income to poverty thresholds. Many recent studies have been based on the Health and Retirement Study (HRS), with emphasis and the original HRS cohort that was between the ages of 51 and 61 in 1992. Other studies use the Survey of Consumer Finances or the SSA's Employee Beneficiary Survey. A partial list of recent studies of retirement preparedness would include Bernheim (1992), Mitchell and Moore (1998), Engen, Gale and Uccello (1999), Haveman, Holde, Wolfe and Romanov (2005), Scholz, Seshadri and Khitatrakun (2006), Munnell, Webb and Golub-Sass (2007), Love, Smith and McNair (2008), Hurd and Rohwedder (2009), VanDerhei and Copeland (2010).

In this paper, we shift from studying household finances at the start of the retirement period, an ex ante measure of retirement preparation, to studying the asset holdings of households in their last years of life. We focus on non-annuitized assets and income. Virtually all households have a Social Security annuity, and many have a defined benefit pension annuity as well. We examine non-annuitized assets held at the end of life, in addition to income, because they can provide an ex post indicator of whether households were well-prepared for retirement. If there are substantial numbers of very old households with very low asset levels, relative to the number of households with low asset levels at the start of retirement, then many households exhausted their retirement resources. If most households still hold substantial assets at very advanced ages, or in the last few years before their death, the pattern is more difficult to interpret. It is difficult to determine whether such households had what they would have considered "sufficient" resources for retirement, and did not need to reduce their consumption outlays in late life, or if they conserved the (insufficient) resources they had throughout the retirement period.

We study the level of assets that households hold in the last survey wave preceding their death. In parts of the analysis we make use of all of the cohorts that are now part of the Health and Retirement Study. We give special attention, however, to the older Asset and Health Dynamics Among the Oldest Old (AHEAD) cohort. We calculate the level of wealth at death and offer several metrics for determining the proportion of households that may be thought of as having “insufficient assets” for their retirement. In addition to summarizing the level of assets, we also study how assets at the end of life depend on family status pathways to prior to death. We are particularly interested in the strong relationship between of health and assets near the end of life. We also give special attention to the relationship between assets and longevity after the 1993 first wave of the AHEAD cohort. We find a strong relationship between health status and wealth at death.

Our paper is divided into six sections. In the first, we show detailed balance sheets in 2008 for households by five-year age intervals—65 to 69, 70 to 74, 75 to 79, 80 to 84, and 85 and older, respectively. These balance sheets are based on households in all HRS cohorts—HRS, AHEAD, Children of Depression (CODA), War Baby (WB) and Early Baby Boomer (EBB). We find that the change in assets with age, as well as the level of assets, differs greatly between single households and married couples.

We explore this pattern further by considering the evolution of assets of the AHEAD as well as the HRS cohorts, distinguishing two-person households, one-person households, and households that transition from two- to one-person households. We emphasize the distinction between the evolution of assets between survey waves for persons who are alive in adjacent waves, and the evolution of assets with age that can be attributed to "mortality selection effects" and the progressive selection over time of households with greater financial assets and lower mortality risk. We are also careful to distinguish between death and attrition as separate reasons why persons do not remain in the sample through 2008. The selection effects we calculate are due to death and not due to sample attrition.

In the second section, we present greater detail on the evolution of wealth for AHEAD households. We distinguish three family status pathways based on family status in 1993 (the first year observed) and family status when last observed—(1) original one-person households in 1993 who were also single at death, (2) original two-person households in 1993 in which one spouse is deceased in the last year observed, and (3) original two-person households in 1993 in which both spouses remain alive in the last year observed. A fourth group—those who were single in 1993 and who later remarried—is not analyzed because of its small sample size. Within each of these groups we show the evolution of wealth by the last year observed (LYO), which is the last wave prior to death for those who die or 2008, the most recent survey wave available, for those who are still alive in that year. We highlight the strong relationship

between wealth in 1993 and subsequent longevity. We consider several components of wealth—total wealth, financial assets including personal retirement accounts, housing wealth, and annuity wealth including both Social Security benefits and defined benefit pension benefits. We also report information on an indicator variable for whether the household owns a home.

In the third and fourth sections, we present results for the single-person family pathway group. We focus attention on this group because it is the largest of the three pathway groups and because it is the group most likely to have low wealth prior to death. In section three, we present estimates of the relationship between wealth and age, and between wealth and health, with separate estimates of the health and age effects for each LYO. The health measure we use is similar to the index developed in Poterba, Venti, and Wise (2010a, 2010b). Using the regression estimates we predict assets by health and age interval and by LYO. In section four, we show the distribution of assets by asset category within each health quintile and age interval. We also suggest metrics to help to put the results in context.

In the fifth section, we present data for all family pathway groups combined and we compare results across all three family pathways. The last section summarizes and concludes.

1. Balance Sheets and Evolution of Non-Annuity Wealth by Family Status

Table 1-1 summarizes information in the HRS on household balance sheets for three age groups and for five aggregated asset categories—financial assets (balances in taxable financial assets as well as balances in IRA plans, Keogh plans, 401(k) and similar plans), equity in the primary home, other non-annuity assets (the net value of other real estate, equity in second homes and business assets less non-housing debt), the expected present discounted value of Social Security and defined benefit pension benefits, and net worth (total wealth). These balance sheets are based on households in all HRS cohorts—HRS, AHEAD, Children of Depression (CODA), War Baby (WB) and Early Baby Boomer (EBB). The data on 401(k) balances in these tables are incomplete because respondents in the two oldest cohorts, CODA and AHEAD, were not asked for their 401(k) balances. However, these cohorts were unlikely to have substantial accumulations because they left the labor force before or shortly after 401(k) accounts became available in 1982. Members of the CODA cohort were age 68 to 74 when first surveyed in 1998 and members of the AHEAD cohort were age 70 and older when first surveyed in 1993. Appendix Tables 1a through 1e show detailed balance sheets in 2008 for households by five-year age intervals—65 to 69, 70 to 74, 75 to 79, 80 to 84, and 85 and older respectively. Separate panels are shown for all households as well as for one-person and two-person households. Data are shown for both means and medians.

Table 1-1. Balance sheets for households in 2008, by age and marital status

Asset Category	Single-Person Households			Two-Person Households		
	% of House-holds with Asset	Median Holding	Mean Holding	% of House-holds with Asset	Median Holding	Mean Holding
			aged 65 to 69 in 2008			
Financial Assets	84.2	12,500	130,156	92.6	111,600	354,455
Home Equity	65.9	52,000	107,483	91.1	150,000	232,300
Other Non-annuity Assets	18.8	0	96,357	38.8	0	171,441
PV of Social Security and DB Pension Benefits	90.5	268,766	315,165	92.3	571,575	617,767
Net worth	99.1	414,435	649,161	99.6	1,015,317	1,375,963
			aged 75 to 79 in 2008			
Financial Assets	86.4	13,000	128,522	93.9	112,500	331,901
Home Equity	65.7	60,000	123,144	88.9	151,000	228,371
Other Non-annuity Assets	15.2	0	47,447	31.7	0	198,979
PV of Social Security and DB Pension Benefits	99.0	200,303	243,304	99.9	460,509	525,772
Net worth	99.4	336,058	542,416	100.0	858,331	1,285,024
			aged 85 or older in 2008			
Financial Assets	88.6	22,000	152,958	91.8	125,000	332,631
Home Equity	54.1	35,000	101,728	84.8	125,000	210,917
Other Non-annuity Assets	13.3	0	45,294	28.2	0	155,145
PV of Social Security and DB Pension Benefits	99.0	82,855	108,582	99.7	224,317	284,348
Net worth	99.7	214,371	408,562	100.0	674,965	983,042

Several features of the summary data in Table 1-1 warrant comment. First, whether measured by medians or means, the net worth of older households, even those aged 85 and older, seems rather large. The net worth of two-person households is more than twice as large as the net worth of one-person households. Median (mean) total net worth for households aged 65 to 69 is $414,435 ($649,161) for singles and $1,015,317 ($1,375,963) for couples in 2008. Net worth is lower at older ages, in large part because of the decline in expected present value of benefits from Social Security and defined benefit pensions. Wealth from these sources is lower for older households than for younger households because expected payments from these sources are weighted by survival probabilities.

We do not focus on cross-age comparisons in the balance sheets. The pattern of levels across ages depends on at least two competing effects: assets are lower for older households because of "cohort effects" (older generations had

lower lifetime earnings, on average, than younger generations) and assets are higher for older households because of "mortality effects" (on average, within each cohort, poorer households die at younger ages). We give special attention to mortality effects in the subsequent analysis.

The largest components of non-annuity net worth are housing wealth and financial assets (including personal retirement accounts). Of single person households, 66 percent of those aged 65-69 own homes and this rate remains about the same for nearly twenty years; for the group aged 85 and older, the rate drops to 54 percent. About 91 percent of married couples aged 65-69 own homes. Thereafter the rate drops gradually to about 89 percent for ages 75 to 79 and 85 percent for those aged 85 and older.

Table 1-2. Selected percentiles of the distribution for households in 2008, by age and marital status

		Single-Person Households			Two-Person Households		
Asset Category	percen-tile	age 65 to 69	age 75 to 79	age 85 or older	age 65 to 69	age 75 to 79	age 85 or older
Financial Assets	10	0	0	0	300	450	750
	25	300	500	1,300	13,500	11,000	27,000
	50	12,500	13,000	22,000	111,600	112,500	125,000
	75	110,721	110,000	133,500	442,000	355,715	402,000
	90	380,000	408,000	430,000	878,000	839,000	927,200
Home Equity	10	0	0	0	7,000	0	0
	25	0	0	0	63,000	75,000	46,000
	50	52,000	60,000	35,000	150,000	151,000	125,000
	75	150,000	175,000	140,000	290,000	275,000	240,000
	90	300,000	345,000	300,000	450,000	475,000	438,000
Other Non-annuity	10	-7,000	-5,000	0	-7,000	-3,700	0
	25	-1,000	0	0	-100	0	0
	50	0	0	0	0	0	0
	75	0	0	0	80,000	42,000	20,000
	90	80,000	60,000	80,000	450,000	400,000	500,000
PV of Social Security and DB Pension Benefits	10	37,796	97,040	38,288	128,811	257,448	118,705
	25	173,114	141,069	56,932	353,873	344,486	160,940
	50	268,766	200,303	82,855	571,575	460,509	224,317
	75	410,707	276,711	124,659	789,737	620,279	350,825
	90	610,166	410,850	196,096	1,155,331	840,320	478,903
Net worth	10	157,921	123,191	56,266	346,946	388,174	223,847
	25	237,154	193,157	93,411	609,949	566,980	350,801
	50	414,435	336,058	214,371	1,015,317	858,331	674,965
	75	778,662	662,494	470,768	1,660,631	1,443,753	1,177,966
	90	1,291,336	1,155,530	1,051,622	2,582,332	2,279,724	1,821,628

Table 1-2 shows selected percentiles of the distribution of assets. It demonstrates that a large proportion of households have very few, or no, liquid financial assets. This is especially true for single-person households. The 25th percentile of financial assets for singles is less than $1,300 for all age groups. Many single-person households also have no home equity. The 25th percentile is zero for all age groups. In addition, a large fraction of both single- and two-

person households have no other non-annuity assets. The 75th percentile is zero for single-households at all ages and the 50th percentile is zero for two-person households at all ages.

Recall that the balance sheets pertain to the wealth of those who survive to each age. In contrast, Figures 1-1 and 1-2 show the evolution of assets by family status—two person households, one-person households, and households that transition from two- to one-person households during the interval between survey waves—for HRS and AHEAD households respectively. The figures exclude persons in households that transitioned from one-person to two-person because the sample sizes for this group were too small to give reliable results. Wealth includes all assets reported in Table 1-1 except Social Security wealth, defined benefit pension wealth, and 401(k) balances. For the HRS cohort, 401(k) balances are not included because of missing data in some of the early years, as discussed in Venti (2011). Balances in 401(k) accounts were not collected in the AHEAD.

Figure 1-1 shows the wave-to-wave change in median non-annuity wealth in the three family status groups for HRS households. All values are converted to 2008 dollars using the CPI. For example, the median wealth of persons who remained in two-person households between 1992 and 1994 (labeled as "2 to 2") increased from about $184,000 to $213,000. For those who remained in two-person households between 1994 and 1996, median wealth increased from about $223,000 to $231,000. In all intervals, wealth increased for persons in continuing two person households.

It is important to distinguish between the within-interval changes in wealth shown by the line segments in the figure and the effect of differential mortality indicated by the vertical height of the "gaps" between segments. To illustrate this point, note that persons in two-person households present in both the 1996 and 1998 waves had $243,706 in wealth in 1998, but that persons in two-person households present in both the 1998 and 2000 waves had $254,419 in 1998. This difference is circled in the figure. The difference between $243,706 and $254,419 is the "selection" effect—two-person households that dissolved because of death of a spouse, divorce or separation between 1998 and 2000 had lower wealth in 1998 than those who continued as two-person households through the 1998 to 2000 period.

To understand the evolution of wealth with age, as distinct from the selection effect, it is important to focus on the wave-to-wave changes (segment slopes). For two-person households in the HRS who were between the ages of 51 and 61 in 1992, the wave-to-wave changes are positive in all intervals. The increase in wealth for persons in continuing two-person households can be seen by tracking the assets in the first year of each interval. Some component of this increase is due to the progressive selection of households with greater wealth. For one-person households wealth increased in all but two wave-to-wave

intervals. The mortality selection effects are not so apparent for single-person households, in part because a large fraction of one-person households had relatively low wealth, with median levels between $50,000 and $100,000 over the 1992 to 2008 period.

Figure 1-1 also shows that the non-annuity wealth of persons in two-person households that dissolve between waves declines substantially. This is observed in each of the intervals. The assets of persons in two- to one-person households were also much lower at the beginning of an interval than the assets of persons in continuing two-person households. After dissolution, however, the wealth of the surviving single persons was still larger than the wealth of continuing one-person households.

Figure 1-2 shows the evolution of non-annuity wealth for persons in AHEAD households. The data for 1993 are omitted from the figure because, as Rohwedder, Haider, and Hurd (2006) explain, financial assets were under-reported in AHEAD in that year. For the AHEAD households, the mortality selection effects are extremely important (circles in the figure). Persons who continued in two-person households from one interval to the next typically held much greater wealth balances than those who did not. For AHEAD households, the within-interval change in wealth for persons in continuing two-person households was negative in all but the first interval, 1995 to 1998. The wealth of continuing one-person households declined in each period. For AHEAD households the decline in the wealth for persons in two-person households that dissolved during an interval is similar in magnitude to the decline for persons in continuing two-person households. For these households dissolution was primarily the consequence of mortality, whereas for HRS households dissolution was more often the consequence of divorce or separation. As with the HRS cohort, the level of wealth of persons in two-person households that dissolved during an interval was much lower than the level of wealth of persons in continuing two person households. Among persons in households that dissolved in an interval the wealth of the surviving spouse remained much higher than the wealth of continuing one-person households.

In short, the figures show the within interval change in the wealth of households that survive over the interval, but they also make clear that some of the change from interval to interval is due to the progressive selection of households with greater wealth. This effect plays a key role in the subsequent analysis.

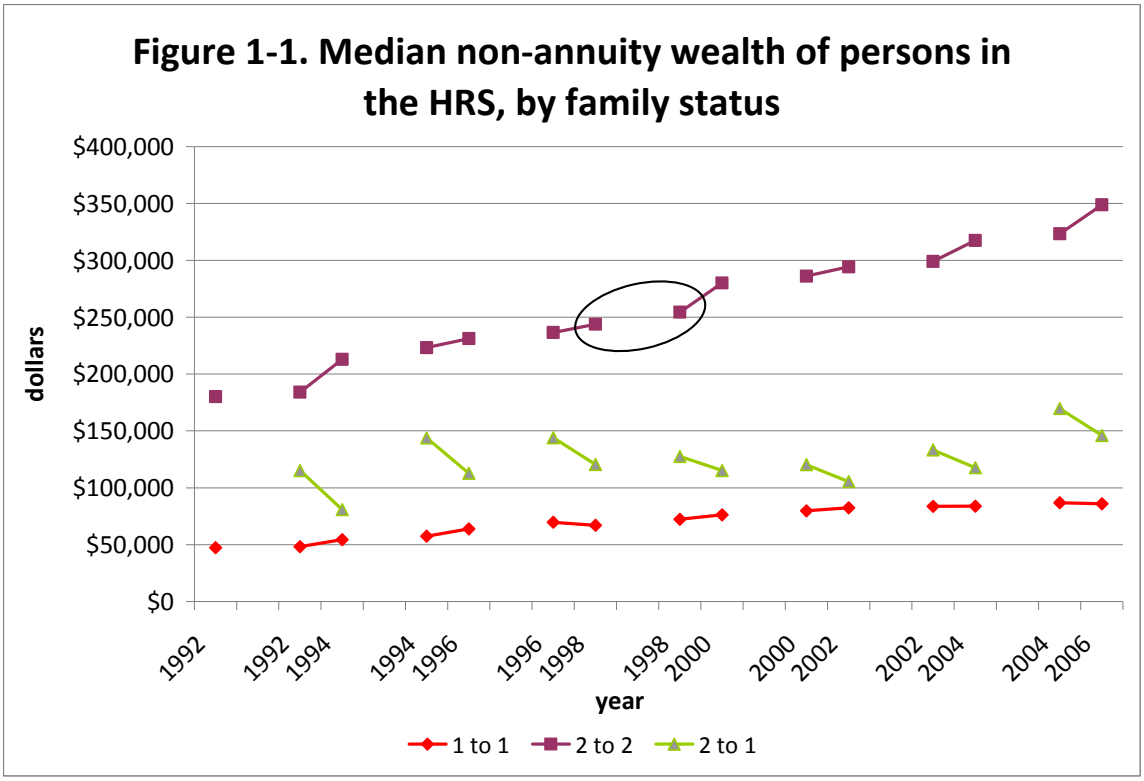


Figure 1-1. Median non-annuity wealth of persons in the HRS, by family status
$400,000
$350,000
$300,000
$250,000
$200,000
$150,000
$100,000
$50,000
$0
dollars
1992
1992
1994
1994
1996
1996
1998
1998
2000
2000
2002
2002
2004
2004
2006
year
1 to 1
2 to 2
2 to 1

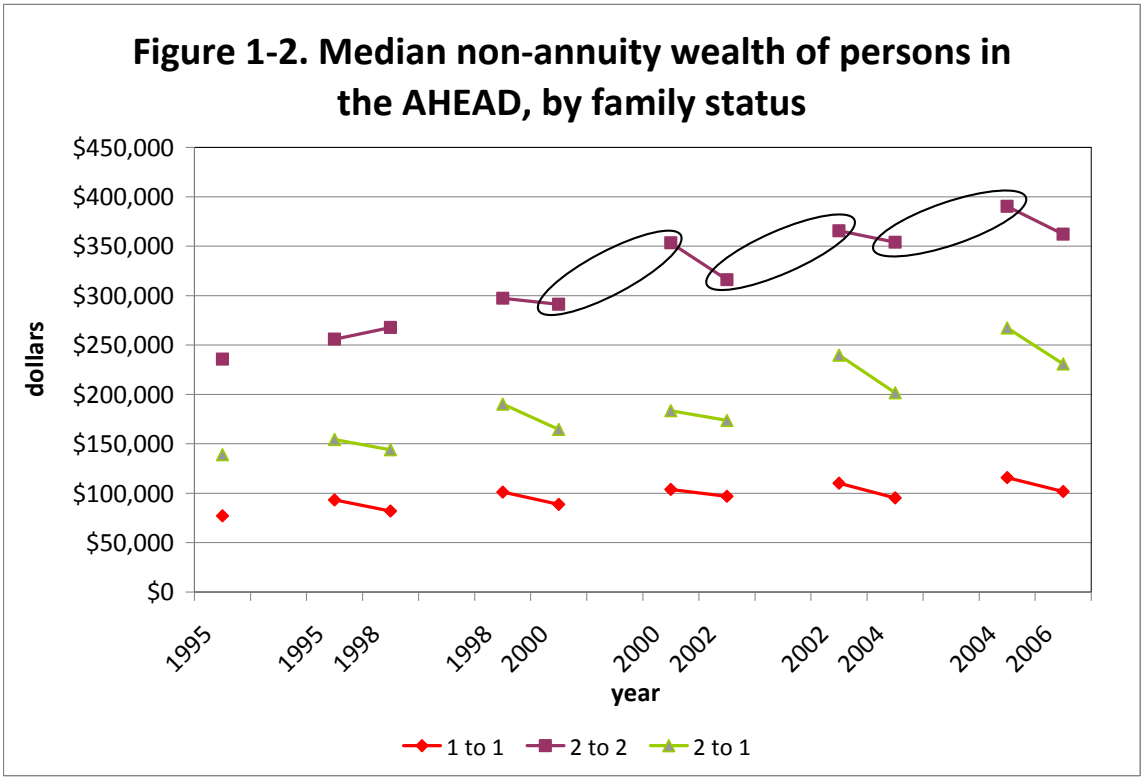


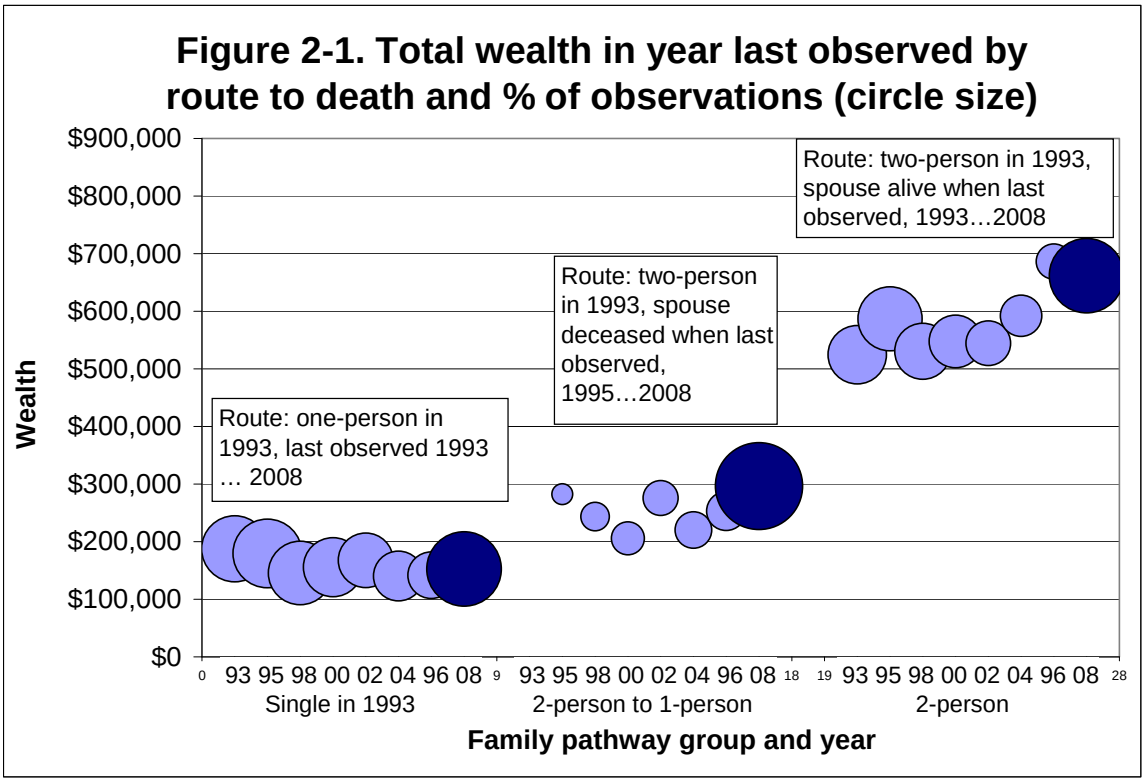
Figure 1-2. Median non-annuity wealth of persons in the AHEAD, by family status
$450,000
$400,000
$350,000
$300,000
$250,000
$200,000
$150,000
$100,000
$50,000
$0
dollars
1995
1995
1998
1998
2000
2000
2002
2002
2004
2004
2006
year
1 to 1
2 to 2
2 to 1

2. The Evolution of Wealth for AHEAD Households

The remainder of the paper focuses on AHEAD households. The goal is to describe the evolution of wealth by family pathway group and by asset category from 1993 to 2008 and to consider the wealth of persons in the last year observed (LYO). All persons last observed in years before 2008 are known to be deceased--persons who leave the sample but are not known to be deceased are excluded from the analysis. Persons whose last year observed is 2008 are not deceased. Most waves are spaced two years apart, with the exception of a three year gap between the 1995 and 1998 waves. Thus for persons who have an LYO before 2008, the last observation may be up to two years before the actual date of death (or three years if the LYO is 1995.)

We begin by dividing the AHEAD respondents into three groups defined by family status when first observed in 1993 and family status in the LYO. These groups, which we call "family pathway groups," are: (1) original one-person households in 1993, (2) persons in two-person household in 1993 with a deceased spouse in the last year observed before death, and (3) persons in two-person households in 1993 with the spouse alive when last observed. For shorthand we sometimes refer to the groups as one-person, two-person to one-person, and two-person respectively. A fourth group of persons, in a one-person household in 1993 and in a two-person household when last observed, is excluded because this group is too small for meaningful analysis. Also, all persons who joined the AHEAD sample after 1993 are excluded. Some persons in one-person households in 1993 may have been in two-person households prior to 1993. Figure 2-1 is a graphical description of the total wealth (including the present values of Social Security and DB pension benefits) and the relative size of each of these groups in each LYO. For each family progression group, the location of each circle indicates the level of median wealth (shown on the vertical axis) and the associated LYO (shown on the horizontal axis). The size of each circle indicates the percent of the total sample in each LYO group accounted for by the particular sub-group.

In each family progression group, the wealth and the percent of persons last observed in 2008 (not deceased) is represented by the dark blue circles. The other circles indicate wealth in the last wave prior to death. One-person households in 1993 died with the least wealth, between $142,000 and $188,000 at the median. Those in two-person households in 1993 with a spouse alive when they died had the greatest wealth in the wave prior to death, between $585,000 and $685,000. Those in two-person households in 1993 whose spouse was deceased when last observed had median wealth in the wave prior to death between $206,000 and $286,000.



A general feature of the data is the strong and consistent relationship between wealth in 1993 and survival, the year a person is last observed in the data. Among persons first observed in 1993, those who will die the earliest begin with the lowest assets in 1993. The relationship holds for all asset categories. Figure 2-2a shows the relationship for three of the four asset categories shown in Table 1-1—annuity wealth, home equity, and financial assets—for each of the family progression groups. The figure shows medians for each asset category in1993. The fourth category in Table 1-1, other non-annuity assets, is not shown because the median is zero in all years for all groups. Because medians are used in the figure, the stacked vertical height of the bars in the figure is not equal to median total wealth. Figure 2-2b shows means for all four categories. In the subsequent discussion we often show medians and not means.

For each of the groups, Social Security and defined benefit pension wealth is by far the largest wealth holding. The relationship between wealth when first observed and subsequent mortality is striking. For example, the rising profiles within each group shows that annuity wealth in 1993 is higher for persons who die prior to the 2000 wave (whose LYO is 1998) than for persons who die prior to 1998 wave (whose LYO is 1995). Similarly persons who die prior to the 2002 wave have higher annuity wealth in 1993 than persons who die prior to the 2000 wave, and so forth. Similar patterns are evident for the home equity and financial assets. The wealth-mortality gradient that has been widely observed by others is strongly evident in these data. Examples of previous studies that have found

strong positive correlation between wealth and longevity include Smith (1999, 2004, 2005), Adams et. al. (2003), Wu (2003), Michaud and van Soest (2008), Case and Deaton (2009), Attanasio (2003), and Hurd and McFadden (2001).

Figure 2-2a. Median annuity wealth, home equity, and financial assets in 1993 by family route and last year observed

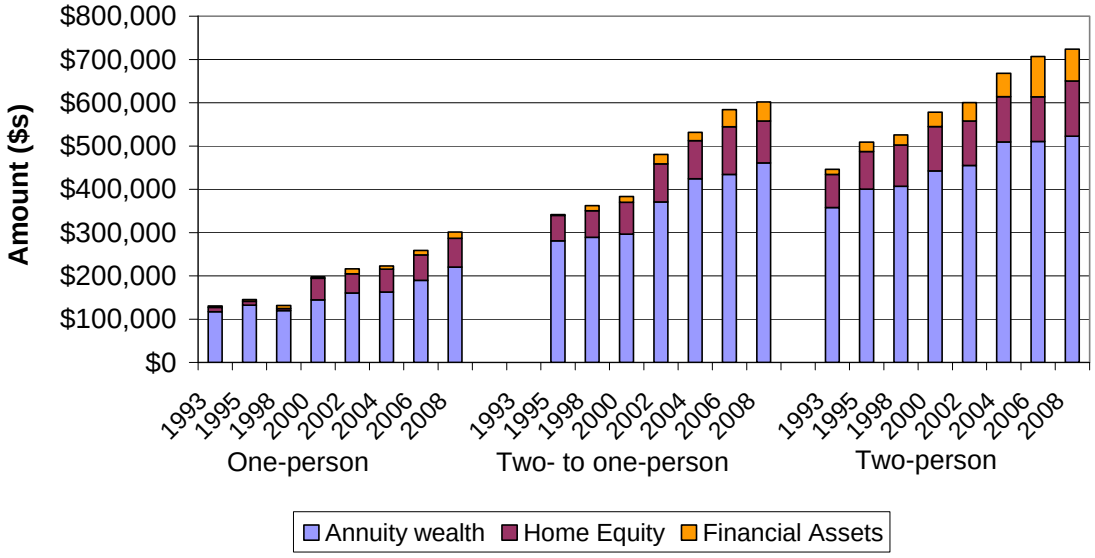
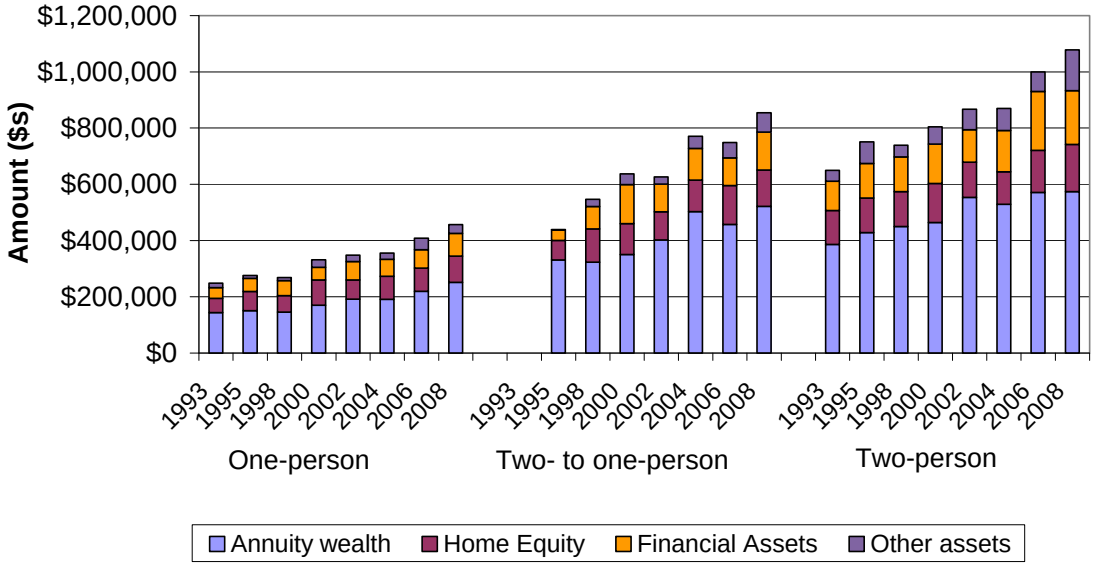


Figure 2-2b. Mean annuity wealth, home equity, financial assets, and other wealth in 1993 by family route and last year observed



We do not address the direction of causality between health and wealth or between wealth and mortality although here and elsewhere in the paper we often implicitly assume that health is given and subsequent outcomes follow. This assumption is consistent with the findings of Smith (1999, 2004, 2005), Adams et al. (2003), Wu (2003), Michaud and van Soest (2008), and Case and Deaton (2009). The general consensus is that that causation from health to wealth is the dominant pathway at least in the U.S. but there is no universal agreement.

The figure above shows that persons "closer" to death in 1993 have lower assets in 1993 than those who will live longer. We can see the same pattern over time by showing how assets evolve over time for groups of persons identified by the last year observed in the sample. Again, an LYO of 2006 or earlier indicates that the person died in the two-year interval following the LYO. An LYO of 2008 indicates that the person is still alive in 2008, the last year of our sample. The next series of figures show the evolution of assets for several wealth sub-categories—total wealth, financial assets (including IRA and Keogh accounts), home equity, Social Security wealth, and defined benefit pension wealth. We also show the percentage of households who own their homes and the evolution of total income. There is one figure for each wealth category, with data for each of three family pathway groups. For each figure the evolution of median wealth is shown by LYO.

Figure 2-3 shows median total wealth for the three family pathway groups. Total wealth in 1993 is lowest for the first family pathway group (one-person households) and highest for the third pathway group (two-person households with a spouse alive when last observed). In each of the groups, total wealth in 1993 is very strongly related to the LYO. Those who live longer have higher wealth. In addition, total wealth typically declines as persons get "closer" to death for each of the groups, largely because of the mechanical decline in annuity wealth. But the decline is much slower for the for persons in two-person families who have a spouse alive when last observed, a group that also has much greater wealth in 1993.

Figure 2-4 shows the evolution of financial assets (including IRA and Keogh accounts) for the three pathway groups. The vertical line between 1993 and 1995 is a reminder that some financial assets were under-reported in 1993, although we present the data because IRA and Keogh assets are not underreported. Again, the financial assets of the first group decline quite systematically after 1995 and the financial assets of the second group typically decline as well, at least after 1998. The decline is in part induced by the minimum distribution requirement for 401(k) and non-Roth IRA accounts. Nonetheless, there is much less decline in the financial assets of the third pathway group.

Figure 2-5 shows the evolution of home equity. For one-person households the data show a very sharp decline in median home equity beginning two or three years before death. Indeed for each LYO, median home equity in the wave prior to death was zero for all but those whose LYO was 1993. For original two-person households with the spouse deceased at the LYO, a sharp decline near the end of life is also apparent, although the median at death is zero only for those whose LYO was 2002 or 2004. For original two-person households with the spouse alive at the LYO, there is a decline in home equity in the year or two before death, but it is more modest than that for the previous two groups. Home equity declines relatively little in prior years for this group. The results are consistent with the findings of Venti and Wise (2002, 2004) who emphasize that home equity tends to be husbanded until a precipitating shock such as entry to a nursing home or death of a spouse.

Figure 2-6 shows the evolution of home ownership rates. The decline in ownership seems more consistent over time than the decline in housing wealth for all family pathway groups. Housing wealth typically declined sharply near the end of life. The decline in ownership between 1993 and the year last observed was greatest for the one-person and the two- to one-person family groups. For the one-person group the decline ranged from -3.4 percent for persons whose LYO was1995 to -39.9 percent for persons whose LYO was 2006. For the two- to one-person group, the decline ranged from -0.1 percent for persons whose LYO was1995 to -31.6 percent for persons whose LYO was 2006. For the two-person group, however the decline was less than three percent through 2000 and then ranged from -6.9 percent for persons whose LYO was 2002 to -11.5 percent for persons whose LYO was 2006.

The evolution of Social Security wealth is shown in Figure 2-7. The pattern of decline for each group is a mechanical feature of the way annuity wealth is calculated: benefits in each future year are weighted by the probability of survival. As an individual ages, the present value of remaining benefits declines because the probability of surviving for any number of years declines. Like each of the other wealth categories, the Social Security wealth data show that wealth in 1993 is very strongly related to year of death. The data also show that one-person households have substantially less Social Security wealth in 1993 than persons in the second pathway whose spouse had died before the YLO, who in turn have less wealth than the third pathway group, persons in two-person households whose spouse is alive when last observed. These data are consistent with the large literature cited earlier showing the strong relationship between measures of SES such as lifetime earnings (the primary determinant of Social Security benefits) and mortality.

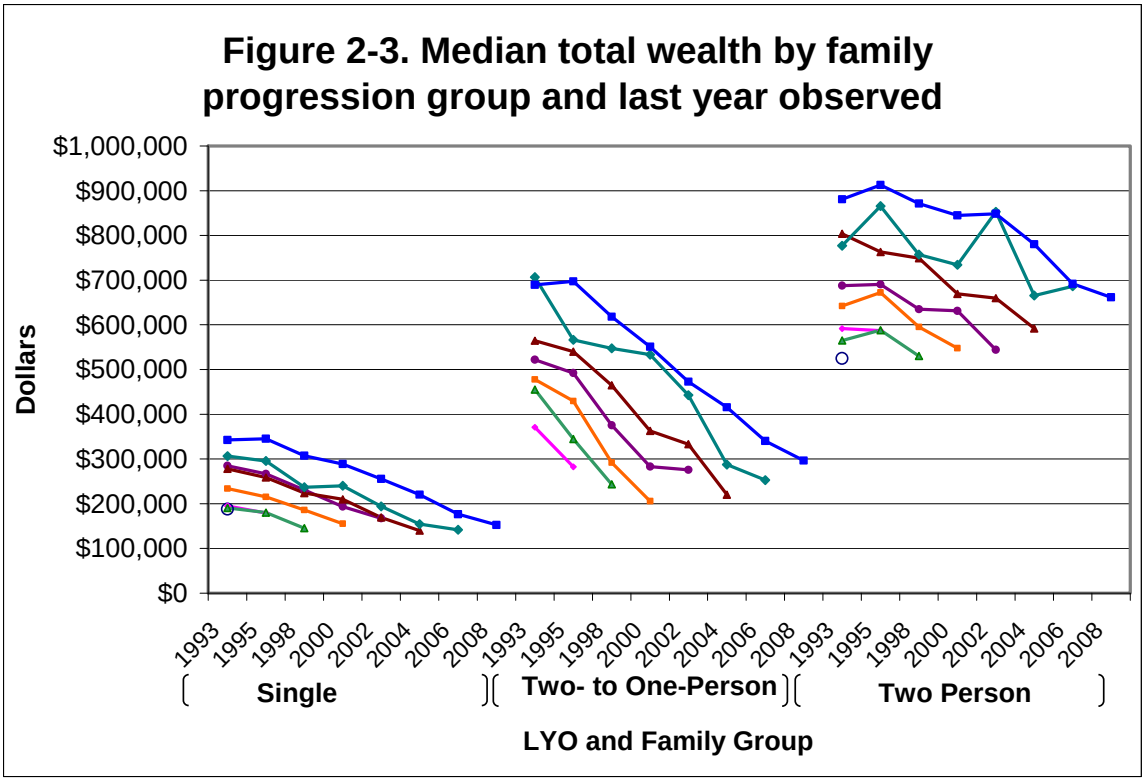


Figure 2-3. Median total wealth by family progression group and last year observed
$1,000,000
$900,000
$800,000
$700,000
$600,000
$500,000
$400,000
$300,000
$200,000
$100,000
$0
Dollars
1993 1995 1998 2000 2002 2004 2006 2008
Single
Two- to One-Person
Two Person
LYO and Family Group

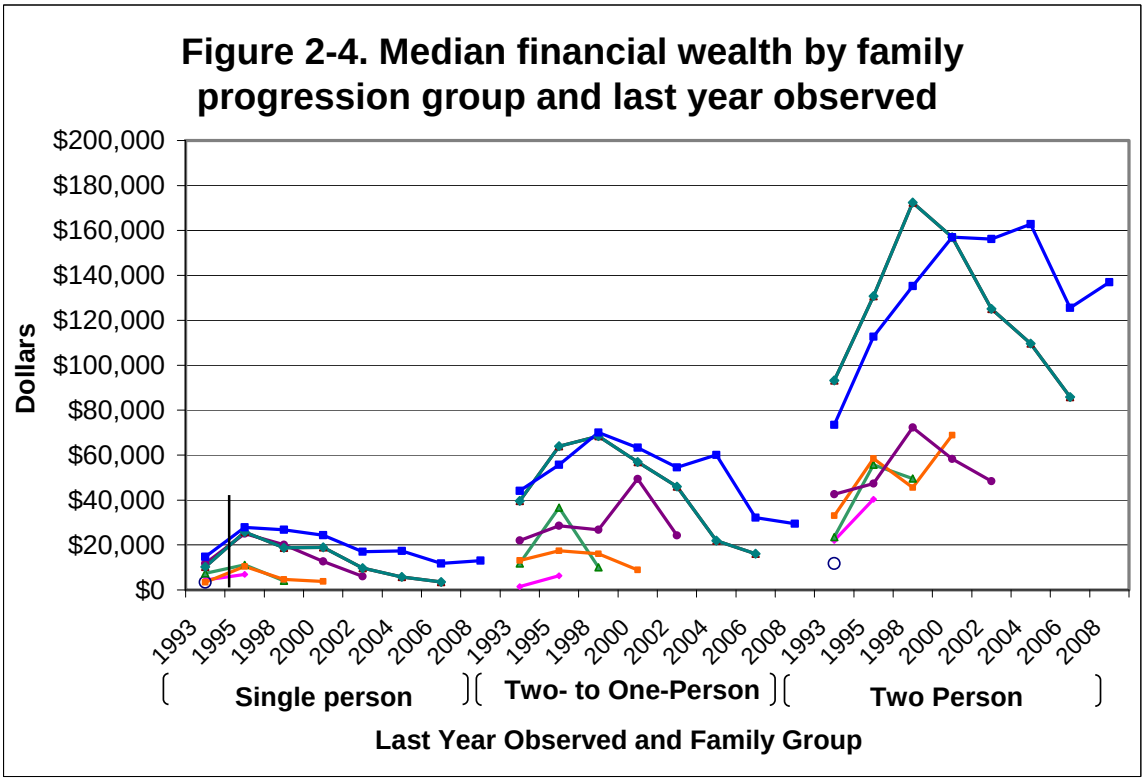


Figure 2-4. Median financial wealth by family progression group and last year observed
$200,000
$180,000
$160,000
$140,000
$120,000
$100,000
$80,000
$60,000
$40,000
$20,000
$0
Dollars
1993 1995 1998 2000 2002 2004 2006 2008
Single person
Two- to One-Person
Two Person
Last Year Observed and Family Group

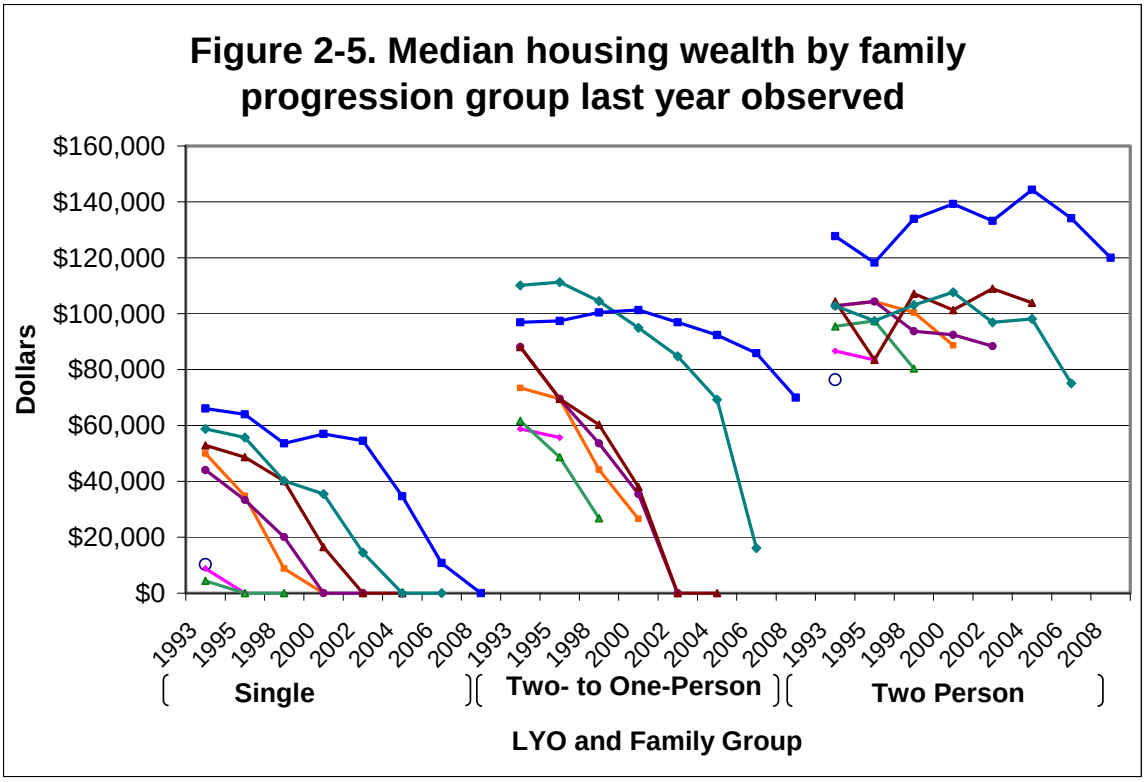


Figure 2-5. Median housing wealth by family progression group last year observed
$160,000
$140,000
$120,000
$100,000
$80,000
$60,000
$40,000
$20,000
$0
Dollars
1993
1995
1998
2000
2002
2004
2006
2008
Single
Two- to One-Person
Two Person
LYO and Family Group

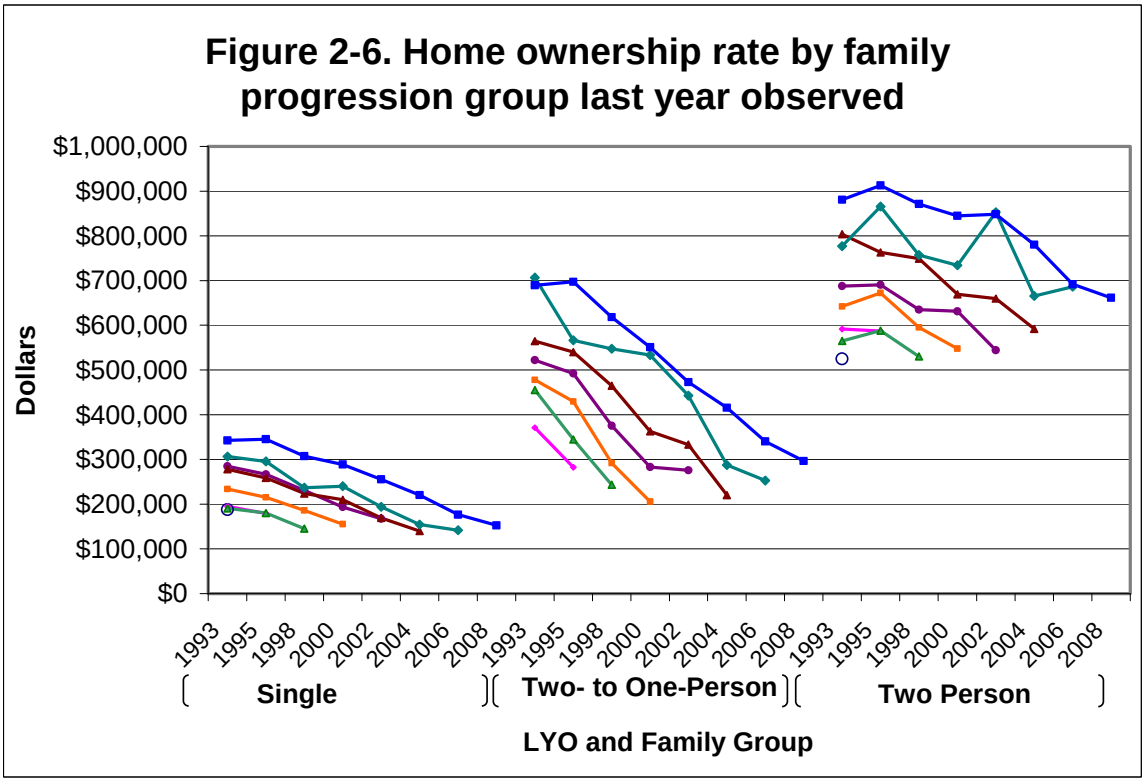


Figure 2-6. Home ownership rate by family progression group last year observed
$1,000,000
$900,000
$800,000
$700,000
$600,000
$500,000
$400,000
$300,000
$200,000
$100,000
$0
Dollars
1993
1995
1998
2000
2002
2004
2006
2008
Single
Two- to One-Person
Two Person
LYO and Family Group

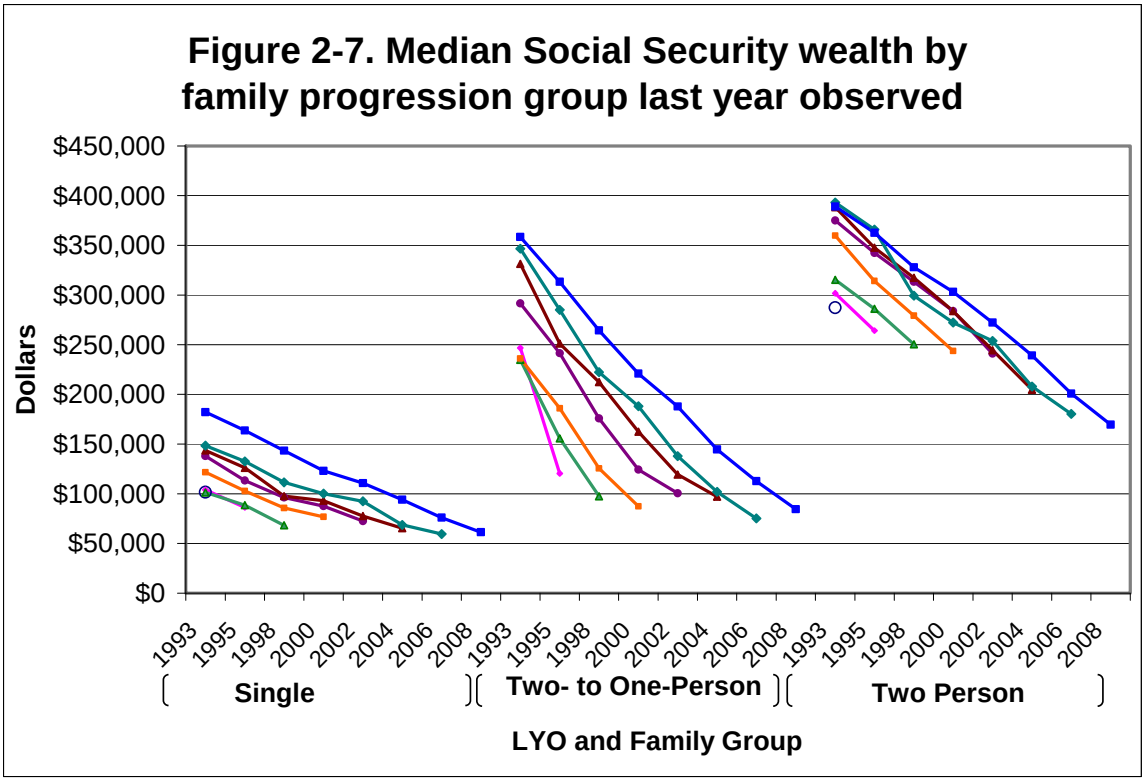


Figure 2-7. Median Social Security wealth by family progression group last year observed
$450,000
$400,000
$350,000
$300,000
$250,000
$200,000
$150,000
$100,000
$50,000
$0
Dollars
1993
1995
1998
2000
2002
2004
2006
2008
Single
Two- to One-Person
Two Person
LYO and Family Group

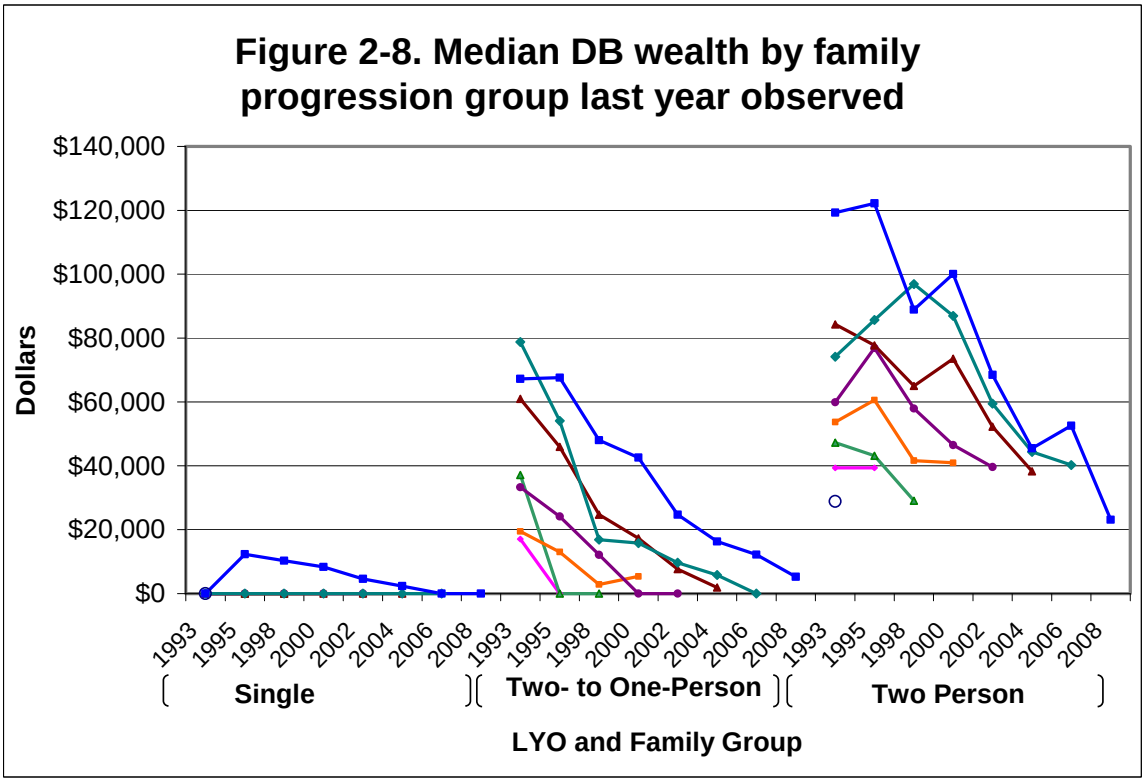


Figure 2-8. Median DB wealth by family progression group last year observed
$140,000
$120,000
$100,000
$80,000
$60,000
$40,000
$20,000
$0
Dollars
1993
1995
1998
2000
2002
2004
2006
2008
Single
Two- to One-Person
Two Person
LYO and Family Group

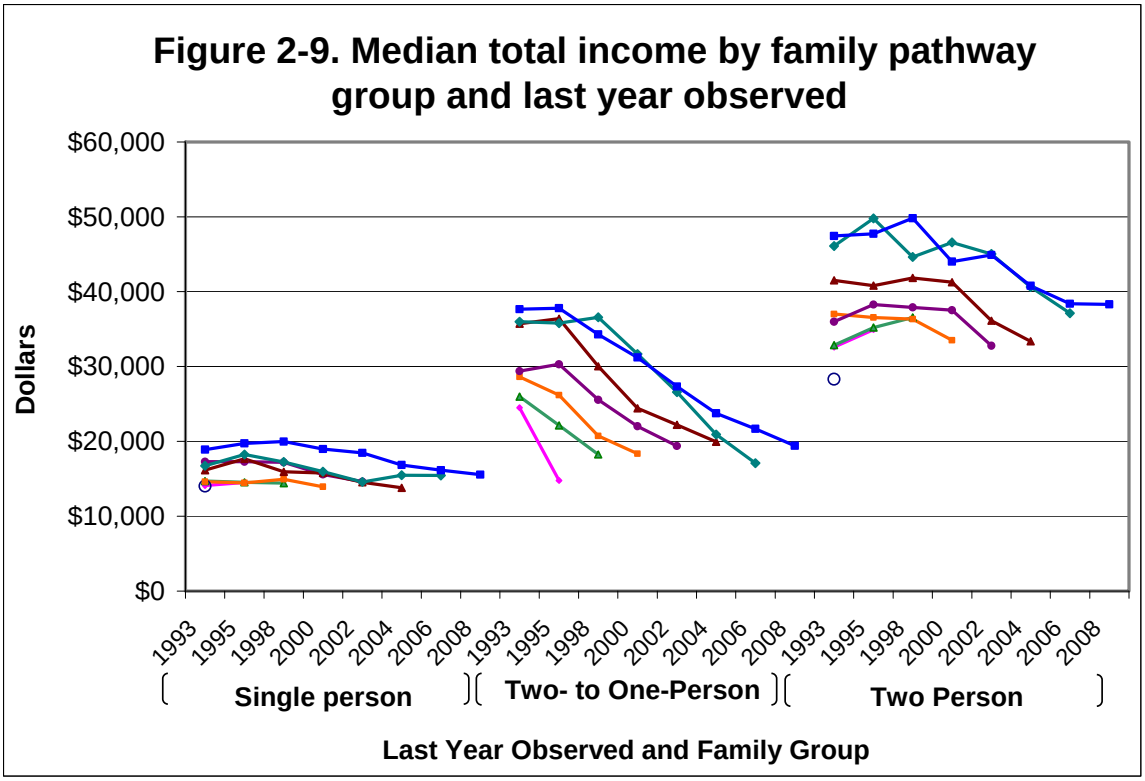


Figure 2-8 shows the evolution of defined benefit pension wealth. Single persons in the first pathway group essentially have no DB pension wealth. The median is zero for all one-person households except for those who survive to 2008. But persons who were in two-person households in 1993 with the spouse deceased by the LYO do have substantial median DB wealth in 1993 and persons in two-person households in 1993 with the spouse alive in the LYO had even more DB wealth. Most of the persons in the second group had zero or close to zero DB wealth at death, but persons in the third group still had noticeable DB wealth at death. Part of the explanation for the very low level of DB wealth among persons in the two-person to one-person group apparently lies with the waiver of survivorship benefits. ERISA (1974) requires employers to offer joint and survivor annuities as the default option and the Retirement Equity Act (1984) requires written consent to waive survivor benefits. Nonetheless, Johnson, Uccello, and Goldwyn (2005) report that in 2000, 28 percent of men and 69 percent of women covered by DB plans had waived survivor benefits. Even if survivor benefits are not waived, the surviving spouse's benefit is often less than 100 percent of the deceased's benefit. The implications of the husband's death for the finances of widows is discussed further in Hurd and Wise (1989), Weir and Willis (2000), and Sevak, Weir, and Willis (2003)

Finally, Figure 2-9 shows the evolution of total household income for persons in each of the three pathway groups. We will discuss the level and path of total income in more detail in the next section, but we include the pathway figure here because it is in the same format as the figures for asset categories.

The figure shows little decline for the one-person group, a modest decline for the two-person group, and a substantial decline for the two to one-person group. The percent decline between 1993 and the year last observed is shown in Table 2-1. As might be expected, the decline is especially large for persons in the two-to one-person family pathway group. For persons last observed in 2008 the decline is -48.5 percent.

Table 2-1. Percent change in total income from 1993 to year last observed by family pathway group and by YLO.

Family pathway group	Year last observed						
	1995	1998	2000	2002	2004	2006	2008
One-person	4.4%	5.7%	0.5%	-2.3%	-10.8%	-14.5%	-17.6%
Two- to one-person	0.4%	-8.9%	-17.1%	-27.4%	-36.9%	-42.4%	-48.5%
Two-person	0.6%	5.0%	-7.2%	-5.3%	-14.0%	-19.1%	-19.2%

3. The Effect of Health and Age: The Single-Person Pathway

In the previous section we emphasized the strong relationship between wealth in 1993 and the time until death. In this section we emphasize the relationship between wealth and health, given the year last observed, and we draw attention to the strong relationship between health and wealth just prior to death.

We begin by using a simple median regression framework to describe how the level of assets in the last year observed depends on age and health. For each person we construct an index of health based on the first principal component of responses to 27 health-related questions contained in AHEAD. These questions asked about functional limitations, the presence of health conditions and other indicators of overall health. The list of questions used to construct the index and a discussion of the properties of the index are reported in Poterba, Venti and Wise (2010b). There are two differences between our approach in the current paper and that in our past work. First, the earlier paper constructed an index for each wave using information from the contemporaneous and all preceding waves. The index used here only uses contemporaneous wave information. Many of the questions are of the form "have you ever experienced" a health condition, so there is little extra information obtained by using prior wave information. Second, the principal component estimates varied little from wave to wave, so in the present analysis we have pooled the waves.

Table 3-1. Median regression estimates of the effect of health and age on wealth in the last year observed for single-person households

Variable	coeffi-cient	std error	t-stat
Last year observed			
1995	-157,361	132,956	-1.18
1998	-147,607	142,618	-1.03
2000	-361,097	163,023	-2.22
2002	-342,259	172,101	-1.99
2004	-301,661	202,467	-1.49
2006	-463,905	232,967	-1.99
2008	39,185	188,511	0.21
Effect of health in each year			
1993	753	324	2.32
1995	1,109	310	3.58
1998	1,730	371	4.67
2000	1,412	355	3.98
2002	1,738	425	4.09
2004	1,390	436	3.19
2006	2,800	508	5.51
2008	1,734	267	6.49
Effect of age in each year			
1993	-10,596	1,096	-9.66
1995	-8,811	1,120	-7.87
1998	-9,236	1,252	-7.38
2000	-6,652	1,528	-4.35
2002	-6,737	1,636	-4.12
2004	-7,275	1,986	-3.66
2006	-5,570	2,377	-2.34
2008	-11,125	1,810	-6.14
Constant	1,046,502	91,989	11.38

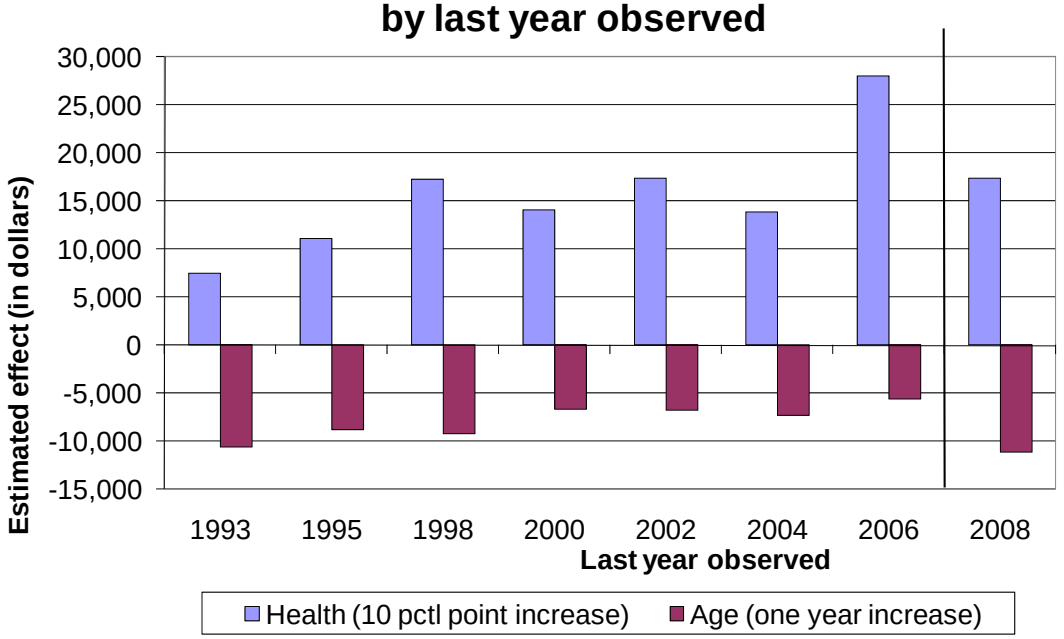
N=3,003 and pseudo R^2=0.0562

In the median regression estimates below, we use percentiles of the index where the first percentile is the poorest health and the 100th percentile corresponds to the best health. The index used pertains to health in the last year observed. We present estimates of theeffect of health and age on wealth in the LYO, with separate estimates of the health and age effects for each LYO.

Table 3-1 shows median regression estimates for the single-person pathway group. The age and health effects are statistically significant for all LYOs. The estimated effect of a 10 percentile increase in health and the effect of

an additional year of age are graphed in Figure 3-1. The effect of health on wealth in the last year observed is substantial. The estimated effect of an increase of 10 percentile points in health ranges from $7,530 in 1993 to $28,004 in 2006. Thus persons who have better health when last observed prior to death have much more wealth. Recall that these estimated effects are conditional on YLO, which is also related to health. For persons last observed in 2008, the estimated health effect is $17,340. The effect of an additional year of age on wealth ranges from -$10,596 in 1993 to -$5,570 in 2006. The age effect is -$11,125 for those who are last observed in 2008. Those who are last observed in 2008 have substantially more wealth than those who die before 2008.

Figure 3-1. Estimated effect of health and age on total wealth for original single-person households, by last year observed



To get an idea of how much wealth in the LYO varies by health and age, we use the estimated effects from the median regression to predict total wealth for selected health percentiles and for selected ages. Table 3-2 shows predicted total wealth for every other LYO between 1993 and 2006. The estimates show the very large effects of health, as well as age, on wealth in the LYO. The pattern is quite similar in each of the LYO panels.

These results suggest that persons who die at older ages and in poorer health are likely to die with less wealth than persons who die young and in good health. We are particularly interested in the proportion of people that die with little wealth. Without trying to define what “little” is, we begin by calculating selected percentiles of total wealth and selected categories of wealth in the last year observed by health quintile and by age interval. Unlike the previous table,

these percentiles are based on actual data rather than predictions from the median regression.

Table 3-2. Predicted wealth by last year observed, health, and age for original single person households.

Health percentile	Age 70	75	80	85	90
	last year observed: 1993				
10	312,294	259,313	206,331	153,349	100,368
30	327,362	274,380	221,399	168,417	115,436
50	342,429	289,448	236,466	183,485	130,503
70	357,497	304,515	251,534	198,552	145,571
90	372,565	319,583	266,602	213,620	160,638
	last year observed: 1998				
10	269,706	223,528	177,350	131,172	84,994
30	304,316	258,138	211,960	165,781	119,603
50	338,926	292,747	246,569	200,391	154,213
70	373,535	327,357	281,179	235,001	188,823
90	408,145	361,967	315,789	269,611	223,433
	last year observed: 2002				
10	250,069	216,387	182,704	149,021	115,339
30	284,837	251,154	217,472	183,789	150,106
50	319,605	285,922	252,239	218,557	184,874
70	354,372	320,690	287,007	253,324	219,642
90	389,140	355,457	321,775	288,092	254,409
	last year observed: 2006				
10	220,711	192,861	165,012	137,163	109,314
30	276,718	248,868	221,019	193,170	165,321
50	332,725	304,876	277,026	249,177	221,328
70	388,732	360,883	333,033	305,184	277,335
90	444,739	416,890	389,041	361,191	333,342

Table 3-3 shows the percentiles combining all LYOs between 1993 and 2006 (the LYOs associated with death) for original single-person households. One cell in the lower left is blank because it contains fewer than 10 observations. The small cell size reflects the fact that the young and healthy are least likely to die. The shaded cells help to identify cell entries with less that $100,000 of wealth. There are 24 such cells. All are for persons older than age 80 and 21 of the 24 are for person 85 and older. Seventeen of the 24 are for persons in the bottom 3 health quintiles and 12 of 24 are for persons in the bottom two quintiles. Only 7 are for persons in the top 2 health quintiles. Thus dying with "little" wealth is clearly concentrated among older persons who are also less healthy.

Table 3-3. Selected percentiles of the distribution of total wealth by age interval and health quintile for original single-person households, based on actual data.

Health quintile	Percen-tile	Age Interval 70-74	75-79	80-84	85-89	90+	All
	10	146,504	113,251	76,147	45,965	30,435	41,245
	25	226,187	140,603	105,001	64,086	43,329	68,885
1st	50	289,289	190,574	169,315	111,297	74,131	141,767
	75	400,516	325,225	263,544	225,118	215,388	271,178
	90	611,455	634,392	412,432	468,717	491,710	489,875
	10	151,751	122,305	83,788	50,762	22,337	42,682
	25	198,163	178,408	126,530	84,101	41,995	84,109
2nd	50	259,629	268,122	194,964	148,420	97,552	169,308
	75	430,948	422,380	295,601	282,716	205,091	295,601
	90	529,604	957,304	441,308	467,657	400,654	484,527
	10	151,813	170,324	83,137	53,708	33,517	59,240
	25	173,241	205,106	115,090	80,575	66,561	103,906
3rd	50	265,021	298,352	232,848	135,976	130,760	194,578
	75	376,713	499,910	512,820	284,931	364,276	394,142
	90	441,416	897,024	847,482	545,362	770,434	763,727
	10	151,281	104,359	82,397	73,714	33,549	62,765
	25	310,036	177,720	121,934	89,622	56,037	113,915
4th	50	393,199	308,350	238,307	196,087	117,708	211,847
	75	501,495	461,537	425,897	334,731	241,294	398,834
	90	659,133	690,508	560,694	615,394	718,681	618,513
	10		113,930	181,567	51,116	30,700	86,427
	25		137,305	228,253	101,239	82,943	137,305
5th	50		419,738	331,494	154,716	178,331	297,729
	75		589,394	643,717	297,729	307,344	592,381
	90		1,728,930	1,035,252	876,750	580,655	1,122,089
	10	151,281	116,460	80,674	50,234	28,603	44,509
	25	198,785	159,336	117,758	75,127	44,509	81,537
All	50	293,117	250,722	189,450	133,062	90,477	166,904
	75	442,282	428,277	320,667	264,543	230,651	311,081
	90	610,956	735,176	532,784	508,185	520,890	580,655

Table 3-4, shows the distribution of annuity wealth in the last year observed before death by health quintile and age interval. Levels less than $50,000 are highlighted. The decline in annuity wealth by age in largely mechanical and is reflected in the concentration of low annuity wealth among persons who are aged 90 or older. But the differences across health quintiles indicate the large differences in percentiles by health status. For example, over all age intervals, the 25th percentiles ranges from $49,795 for persons in the lowest health quintile to $119,704 for persons in the top quintile.

Table 3-4. Selected percentiles of the distribution of annuity wealth by age interval and health quintile for original single-person households, based on actual data.

Health quintile	Percen-tile	Age interval 70-74	75-79	80-84	85-89	90+	All
	10	146,504	84,462	67,373	39,226	19,763	32,939
	25	182,397	119,670	87,452	53,120	33,127	49,795
1st	50	216,478	156,883	122,644	75,127	46,334	84,024
	75	282,159	200,956	172,217	104,866	65,745	140,074
	90	377,282	261,551	222,440	157,881	95,294	210,203
	10	148,035	119,461	68,332	39,576	16,836	32,194
	25	162,059	133,168	95,812	55,257	31,063	49,626
2nd	50	220,464	204,342	139,005	87,861	43,734	90,542
	75	287,001	303,756	181,787	115,311	63,601	152,832
	90	447,557	390,558	243,032	165,576	86,446	232,899
	10	119,705	126,846	53,078	48,710	25,754	35,450
	25	148,999	160,141	81,537	64,803	35,450	62,783
3rd	50	173,241	202,302	120,631	87,226	51,376	103,906
	75	287,228	267,148	183,379	112,799	90,138	175,249
	90	338,406	374,556	255,310	175,742	150,621	261,526
	10	149,020	78,089	54,787	47,065	26,932	42,615
	25	198,785	137,287	102,542	59,469	38,403	62,909
4th	50	264,892	193,126	126,194	83,256	53,681	108,879
	75	388,554	224,004	189,339	113,048	74,544	177,660
	90	422,514	262,745	297,670	149,315	131,100	262,745
	10		94,456	64,562	35,307	25,417	37,543
5th	25		115,549	104,903	58,256	30,690	86,713
	50		182,547	129,124	89,660	52,569	119,704
	75		223,477	192,981	128,086	93,537	197,206
	90		416,116	363,229	192,280	139,621	307,168
	10	137,815	100,415	64,540	39,576	20,482	33,407
	25	171,467	132,378	90,512	55,968	33,348	53,120
All	50	219,310	176,458	126,979	81,725	46,697	92,262
	75	284,306	231,936	178,023	110,868	67,334	154,082
	90	408,161	345,033	243,032	164,827	101,357	228,345

Table 3-5 shows the distribution of non-annuity wealth by health quintile and by age interval. A large fraction of single-person households have essentially no non-annuity wealth, particularly those in the bottom two health quintiles. In these health groups, the 25th percentile is zero or close to zero for all age intervals. Even for the higher health quintiles the 10th percentile is zero averaged over all age intervals.

Table 3-5. Selected percentiles of the distribution of non-annuity wealth by age interval and health quintile for original single-person households, based on actual data.

health quin-tile	per-cen-tile	Age Interval 70-74	75-79	80-84	85-89	90+	All
	10	0	0	0	0	0	0
	25	51	0	184	73	115	56
1st	50	45,844	11,021	20,259	16,692	16,165	16,692
	75	136,583	126,857	101,098	122,901	148,621	126,579
	90	337,745	401,714	206,677	322,781	394,736	310,659
	10	0	0	0	0	0	0
	25	1,391	1,669	605	3,464	0	848
2nd	50	38,180	58,738	42,985	47,293	24,338	44,511
	75	125,188	199,710	138,035	164,180	160,536	155,743
	90	161,530	340,609	243,986	329,213	338,341	326,323
	10	0	0	0	0	0	0
	25	4,405	8,811	5,564	670	6,695	3,027
3rd	50	43,259	110,155	88,401	37,986	53,690	70,272
	75	161,530	186,494	316,551	166,327	276,853	211,569
	90	232,292	572,698	685,591	417,742	584,826	584,826
	10	1,028	727	1,717	506	190	506
	25	2,261	33,506	23,495	10,279	4,405	10,279
4th	50	88,034	113,819	63,310	96,362	70,969	87,631
	75	170,728	225,384	214,759	290,754	151,311	225,384
	90	273,867	528,644	344,849	561,945	682,263	487,412
	10	27,819	734	18,163	0	0	734
	25	120,514	22,792	63,504	18,242	57,579	27,819
5th	50	199,465	177,683	174,076	81,037	151,312	145,613
	75	393,645	308,796	506,481	192,525	235,284	365,620
	90	4,384,988	1,523,115	671,987	365,620	441,034	696,237
All	10	0	0	0	0	0	0
	25	1,391	556	693	974	462	644
	50	58,052	58,560	44,188	37,558	26,163	39,648
	75	160,657	186,494	142,440	154,188	155,789	158,007
	90	325,488	468,666	354,847	365,620	404,116	382,018

Perhaps a better way to judge whether persons have "low" resources at death is to look at resources immediately available for day-to-day expenses. Table 3-6 shows the distribution of total income in the last year observed before death by health quintile and age interval.

Table 3-6. Selected percentiles of the distribution of total income by age interval and health quintile for original single-person households, based on actual data.

health quin-tile	per-cen-tile	Age Interval 70-74	75-79	80-84	85-89	90+	All
	10	8,847	7,730	7,597	6,992	7,177	7,342
	25	11,684	9,648	9,251	9,214	9,422	9,480
1st	50	16,353	12,791	14,071	13,219	13,040	13,341
	75	23,648	19,197	20,441	19,505	19,973	19,935
	90	31,225	36,968	29,344	33,890	33,487	32,541
	10	8,179	9,715	7,979	7,177	6,534	7,597
	25	10,978	11,965	11,084	9,876	9,498	10,332
2nd	50	18,862	18,077	15,877	15,452	13,440	15,012
	75	28,758	30,250	21,808	24,665	20,390	23,931
	90	83,614	51,954	34,577	39,745	36,232	38,631
	10	8,482	10,978	6,510	8,000	8,421	8,179
	25	9,075	13,810	9,898	10,555	10,662	10,662
3rd	50	13,353	21,525	15,802	14,253	14,264	15,802
	75	21,699	29,463	28,376	23,009	24,264	26,651
	90	26,705	49,487	47,586	37,734	44,434	42,780
	10	10,749	7,628	8,838	8,112	7,785	8,124
	25	17,621	10,610	12,353	10,623	10,680	10,783
4th	50	22,432	16,904	17,809	14,840	15,814	16,887
	75	27,272	33,481	29,057	22,623	27,672	26,009
	90	33,994	72,054	35,681	40,342	54,600	47,314
	10	8,936	8,346	11,087	6,911	8,718	8,718
	25	13,320	12,335	13,798	10,015	11,102	12,335
5th	50	20,586	21,146	22,342	18,483	19,472	20,586
	75	47,216	43,383	30,410	30,518	28,329	33,283
	90	341,744	79,189	46,596	33,383	47,215	61,494
All	10	8,413	8,282	7,774	7,177	7,265	7,634
	25	11,219	10,916	10,516	9,560	9,641	10,059
	50	16,952	15,935	15,423	14,097	13,440	14,344
	75	26,009	27,255	23,123	21,849	21,018	22,806
	90	32,692	51,625	34,194	36,390	36,513	37,209

Total income includes benefits from Social Security and defined benefit pension plans, government transfer income, and dividends, interest payments, rent received and other income from assets. Again, the relationship between health and income is quite pronounced. Even controlling for age and heath, total income varies considerably within each cell. The 90th percentile is typically at

least four times as large as the 10th percentile. Of particular interest is the association between health and total income summarized in the last column. The 10th percentile of total income is surprisingly similar across all levels of health—between $7,342 for persons in the lowest health quintile and $8,718 for persons in the top health quintile. However, health has a more depressive effect at higher percentiles. The 90th percentile of total income for persons in the poorest health quintile is only $32,541, but the 90th percentile for persons in the top health quintile is $61,494.

We next consider summary measures of financial resources that focus on the joint distribution of annuity income and liquid financial assets. The top panel of Table 3-7 shows the selected points on the bivariate cumulative distribution of annuity income and liquid financial assets (including IRA accounts) in the LYO (again combining all LYO between 1993 and 2006). For convenience, the diagonals are shown in bold. The upper-left entry in the table shows, for example, that 12.1 of single-person households have less than $10,000 in annuity income and no financial assets in the last year observed. The entry below it shows that 23.9 percent of households have less than $10,000 in annuity income and less than $10,000 in financial assets. More than half of all households (57 percent) have less than $10,000 in financial assets in the last year we observe them. As a point of reference, the 2008 poverty threshold for single persons aged 65 and older is about $10,000. The table also shows that 52.0 percent of single-person households have annuity income less than $20,000 (about twice the poverty level) and financial assets less than $10,000. Although not shown in the table the percent of single-person households with annuity income less that $15,000 (about one and one-half time the poverty level) and financial assets less than $5,000 is 39.6 percent. Over all financial asset levels, 31.9 percent had annuity income less than $10,000 and 82 percent of households had less than $20,000 of annuity income. Of this latter group, 23 percent also has no financial assets.

Home equity is an illiquid asset that households tend to hold through late life. Venti and Wise (2004) and several other studies find that households typically sell their homes only when confronted with a precipitating shock to family structure, like death of a spouse or entry into a nursing home. By the time single-person AHEAD households approach the last year observed, many have divested their housing wealth, as shown in earlier in Figure 2-5.

Table 3-7. Selected characteristics of single-person households, by annuity income and financial assets in the last year observed before death

Percentage distribution

Financial Assets ($000s)	Annuity Income ($000s) < $10	< $20	< $30	< $40	All
Zero	**12.1**	23.0	24.2	24.7	24.9
<$10	23.9	**52.0**	55.7	56.4	57.0
<$25	26.3	58.8	**64.5**	65.7	66.5
<$50	27.9	65.5	72.8	**74.4**	75.4
All	31.9	82.0	94.1	97.7	100.0

Percent of households with zero home equity

Financial Asset Interval ($000s)	Annuity Income Interval ($000s) $0- $10	$10- $20	$20-$30	$30-$40	All
Zero	**76.3**	69.8	74.8	63.6	73.1
$0-$10	62.9	**63.3**	57.8	53.8	61.2
$10-$25	49.8	46.8	**52.2**	53.5	50.0
$25-$50	48.6	47.2	48.3	**47.0**	47.7
All	63.7	57.7	53.9	47.6	57.1

Mean health percentile

Financial Asset Interval ($000s)	Annuity Income Interval ($000s) $0- $10	$10- $20	$20-$30	$30-$40	All
Zero	**24.1**	24.8	22.4	28.3	24.5
$0-$10	23.4	**28.2**	24.3	26.2	25.6
$10-$25	28.5	33.3	**38.3**	35.6	33.5
$25-$50	26.6	25.3	26.8	**43.3**	30.2
All	25.1	28.4	29.5	33.4	28.5

The middle panel of Table 3-7 shows the proportion of single-person households with zero housing wealth (including persons with negative home equity) by annuity income and financial asset intervals that are comparable to the cumulative levels in the first panel. For example, of persons with annuity income less than $10,000 and no financial assets, 76.3 percent have no housing wealth. Of persons with $30,000 to $40,000 in annuity income and $25,000 to $50,000 in

financial assets, 47.0 percent have no housing equity. Overall, 57.1 percent of persons in the single-household family pathway have no housing equity in the last year observed before death. The bottom panel of Table 3-7 shows the mean health percentile of persons in each of the annuity income/financial asset intervals. For example, the mean health percentile of persons with annuity income less than $10,000 and no financial assets is 24.1. For those with annuity income between $30,000 and $40.000 and financial assets between $25,000 and $50,000 the median health percentile is 43.3. Thus again the strong relationship between health and wealth is evident.

In short, we find that a large fraction of original single-person households has no housing wealth and very limited financial assets in the last year observed before death. This suggests that the sole source of wealth for many persons is the value of annuity benefits. Most persons receive Social Security benefits (either directly or as a survivor) and about half receive income from a DB pension (again either directly or as a survivor).

4. Compared to What?

It is not clear how we should judge what constitutes a “low” or “sufficient” level of either assets or income. In Table 3-6 we highlighted the distribution of total income by health quintile and age, showing the level of income for persons at the 10th, 25th, 50th, 75th and 90th percentiles with wealth below given levels. At all ages and for all levels of health, total income at the 10th percentile was between $7,000 and $10,000. In Table 3-7 we showed the percentage of single-person households with annuity income below levels that were chosen to approximate multiples of the poverty threshold in 2008 (about $10,000).

We will now provide some rough benchmarks to give context to these income levels just before death. First, we compare total income in the year last observed with total income in 1993 when these persons were first observed in AHEAD. The top panel of Table 4-1 shows median total income by age interval and health quintile in the last year observed before death (which can be any year from 1993 to 2006). These are the same data that were shown as the 50th percentile in Table 3-6. The lower panel shows the total income of these same households in 1993, the first year they were observed in AHEAD. All dollar amounts have been converted to 2008 dollars. On balance, income was slightly lower in the last year before death. It was one percent higher for the 1st health quintile, and then -6 percent for the 2nd quintile, -2 percent for the 3rd, -7 percent for the 4th and -3 percent for the 5th health quintile. The similarity of incomes in 1993 and the last year observed should not be surprising because a large fraction of income is indexed Social Security benefits. These sample members were single in 1993 and single at the time of death and thus did not transition to survivorship benefits. On the other hand, some income is DB pension benefits which are not fully indexed. These data do not suggest that household income

declined in the years just before death. Household assets, in contrast, do show a decline.

Table 4-1. Comparison of total income in last year observed to total income in 1993, original one-person households

health quintile	Age Interval 70-74	75-79	80-84	85-89	90+	all
	Total income in last year observed					
1	16,353	12,791	14,071	13,219	13,040	13,341
2	18,862	18,077	15,877	15,452	13,440	15,012
3	13,353	21,525	15,802	14,253	14,264	15,802
4	22,432	16,904	17,809	14,840	15,814	16,887
5	20,586	21,146	22,342	18,483	19,472	20,586
all	16,952	15,935	15,423	14,097	13,440	14,344
	Total income in 1993					
1	16,917	12,406	14,221	13,269	12,864	13,269
2	18,890	21,868	17,586	15,119	14,993	15,947
3	15,031	21,513	18,027	13,690	14,285	16,153
4	22,432	20,532	17,445	16,887	17,375	18,132
5	28,159	28,488	25,296	16,564	19,472	21,146
all	17,621	17,340	16,317	14,097	13,906	14,943

Although it is informative to consider the change in income over the (at most) 13 years of AHEAD (from 1993 to 2006 for persons who died before 2008), we would like to compare resources just before death to resources at a younger age, say prior to “retirement age.” Such a comparison is not easy to make. Nonetheless, we begin by comparing total income of single-persons in the last year observed before death to median earnings of these same persons when they were between ages 57 and 62, based on Social Security earnings records. We first index earnings to 2008 using the SSA Average Index of Monthly Earnings (AIME). We then calculate the median of earnings for ages 57 to 62 excluding years in which earnings were not positive. Approximately half of the original single-person households have matched SSA earnings records. The SSA only records earnings up to the SSA earnings limit which ranged from $57,600 in 1993 to $94,200 in 2006. Thus our estimate of pre-retirement earnings may be low for some higher earning workers. More importantly, the Social Security earnings of these original single persons in 1993 may be a very inexact indicator of household resources at the younger age. Many persons may have been married at ages 57 to 62, but were single when first interviewed in 1993. Single women who were previously married may have substantially greater Social Security benefits at older ages than women who never married.

Table 4-2. Comparison of earnings at ages 57 to 62 and total income in last year observed, original one-person households with matched SSA earnings records

health quintile	Age Interval 70-74	75-79	80-84	85-89	90+	All
Median of non-zero pre-retirement eanings for ages 57 to 62, AIME indexed						
1	21,468	31,017	29,594	27,711	28,828	28,828
2	32,321	33,539	37,551	31,978	29,465	32,172
3	31,957	42,526	31,318	28,073	28,896	31,318
4	31,029	41,584	26,969	45,607	27,318	34,202
5	51,203	35,990	24,493	38,227	47,373	35,990
All	31,957	35,029	29,981	30,602	29,078	30,651
Total median income in last year observed						
1	16,353	12,791	14,071	13,219	13,040	13,341
2	18,862	18,077	15,877	15,452	13,440	15,012
3	13,353	21,525	15,802	14,253	14,264	15,802
4	22,432	16,904	17,809	14,840	15,814	16,887
5	20,586	21,146	22,342	18,483	19,472	20,586
All	16,952	15,935	15,423	14,097	13,440	14,344

Table 4-2 shows the comparison. Overall median total income in the last year observed was less than half of median earnings at ages 57 to 62. The percentage difference is greatest for those in the poorest health and smallest for those in the best health. Combining all age intervals, LYO income was only 46.3 percent of "pre-retirement" earnings in the first health quintile and 57.2 percent of "pre-retirement" earnings in the fifth health quintile. If these “pre-retirement” earnings are an underestimate of actual pre-retirement earning, then these “replacement” rates are an overestimate of true replacement rates.

Overall, for the original single-person pathway, we find that a rather large fraction of these single persons have low income judged by poverty thresholds—12.1 percent below the poverty threshold and with no financial assets, 23 percent below twice the poverty line and no financial assets. And the proportion in poverty is much greater for those in poor health than for those in good health. On the other hand, the data show little difference between income just prior to death and income in 1993 when first observed in the AHEAD survey. However, total income in the last year observed is, on average, only about 50 percent of (possibly poorly measured) income in the pre-retirement years. While this difference is hard to evaluate because the two measures are not directly comparable, the implied replacement rate is likely an overestimate of the true replacement rate.

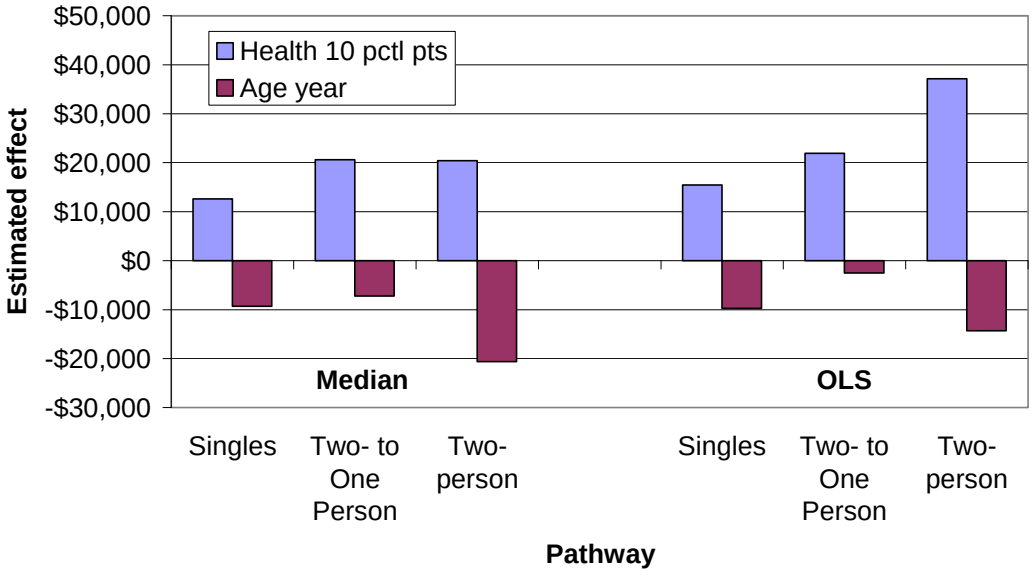
5. The Other Marital Pathway Groups and All Groups Combined

Table 5-1 presents median regression estimates of the effects of age and health on assets in the last year observed. Separate estimates are presented for each of three marital pathway groups. The estimates control for last year observed as a marker for financial market returns that the household experienced since 1993. These estimated age and year effects are the average over all last years observed. Unlike the estimates for single-person households in Table 3-1, these estimated health and age effects are not interacted with LYO but instead show the average effects over all years. The estimates are graphed for all three marital pathway groups in the left side panel of Figure 5-1. The figure shows the effect of a 10 percentile increase in health on total wealth. The estimates range from $10,000 for single-persons to $20,000 for the other two pathways. The estimated age effect varies from a decline of $7,203 per year of age for persons in original two-person households whose spouse is deceased in the last year observed to $20,619 for persons in original two-person households whose spouse is alive in the last year observed.

Table 5-1. Median regression estimates of the effects of health and age on assets in last year observed, by family pathway.

Variable	Original Singles		Original Two-Person Household with Spouse Deceased at Death		Original Two-Person Household with Spouse Alive at Death	
	coeffi-cient	t-stat	coeffi-cient	t-stat	coeffi-cient	t-stat
LYO						
1995	-7,707	-0.67			94,130	2.98
1998	-14,346	-1.19	-44,452	-0.62	106,030	3.15
2000	-13,933	-1.12	-68,460	-1.01	118,320	3.32
2002	18,767	1.42	10,161	0.15	106,023	2.69
2004	4,266	0.30	-48,988	-0.73	204,739	4.87
2006	20,731	1.36	-16,651	-0.25	318,929	6.46
2008	3,788	0.31	-7,164	-0.12	275,335	8.08
health	**1,260**	**9.53**	**2,063**	**5.01**	**2,042**	**6.02**
age	**-9,323**	**-17.14**	**-7,203**	**-3.52**	**-20,619**	**-12.24**
constant	933,078	20.16	808,133	4.58	2,038,368	15.06
N	3,003		1,357		2,286	
R2	0.0545		0.0246		0.036	

Figure 5-1. Estimated median and OLS estimates of the effect of health and age on assets in last year observed, by family pathway



We next consider summary measures of financial resources that focus on the joint distribution of annuity income and liquid financial assets. We first present these results for all family pathways combined. We then compare the results across family pathways. Table 5-2 shows results for all family pathways combined. The table follows the same format as Figure 3-6 for persons in the single household pathway. Among all family pathways, 9.1 percent of persons have annuity income less than $10,000 (approximately the poverty rate for single persons 65 and older) and no liquid financial assets; 40.0 percent have annuity income less than $20,000 and financial assets less than $10,000. Overall, 50.4 percent have no housing wealth. Of those with annuity income less than $10,000 and no liquid financial assets, 67.0 percent have no housing wealth.

The strong relationship between wealth and health is again observed for persons in all family pathways combined. The median health percentile ranges from 24.3 for persons with annuity income less than $10,000 to 42.4 percent for those with annuity income between $30,000 and $40,000 and financial assets between $25,000 and $50,000.

Table 5-2. Selected characteristics of persons in all family pathways, by annuity income and financial assets in the last year observed before death

Percentage distribution

Financial Assets ($000s)	Annuity Income ($000s) < $10	< $20	< $30	< $40	All
Zero	**9.1**	17.0	18.2	18.5	18.8
<$10	19.1	**40.0**	44.5	45.2	46.1
<$25	21.7	47.3	**53.3**	54.6	55.5
<$50	23.7	54.1	62.0	**63.7**	64.9
All	31.0	76.2	92.0	96.2	100.0

Percent of households with zero home equity

Financial Asset Interval ($000s)	Annuity Income Interval ($000s) $0-$10	$10-$20	$20-$30	$30-$40	All
Zero	**67.0**	60.7	64.9	49.7	63.2
$0-$10	51.9	**54.6**	51.5	45.0	51.7
$10-$25	42.2	36.9	**37.3**	37.2	38.5
$25-$50	30.8	39.0	37.9	**25.3**	33.2
All	48.4	46.5	40.3	31.2	50.4

Mean health percentile

Financial Asset Interval ($000s)	Annuity Income Interval ($000s) $0-$10	$10-$20	$20-$30	$30-$40	All
Zero	**24.3**	26.6	23.2	33.9	25.8
$0-$10	26.5	**28.2**	30.1	30.3	28.2
$10-$25	31.3	35.4	**34.7**	36.4	34.3
$25-$50	31.1	32.7	35.0	**42.4**	35.5
All	28.0	30.9	32.2	37.2	31.7

Tables 5-3, 5-4, and 5-5 compare results across family pathways. Table 5-3 compares the bivariate cumulative distribution of annuity income and financial assets. The easiest way to compare across pathways is to consider the diagonals in the tables for each pathway. Entries are the proportion of persons below any annuity income/financial asset level. The table shows that more single-person households have low resources than persons in the two-person to one-person pathway (persons in original two-person households whose spouse pre-deceased them), which in turn have lower resources than persons in the two-

person pathway (persons in original two-person households whose spouse is alive at their death). For example the proportion of persons below $30,000 in annuity income and below $25,000 in financial assets is 64.5 percent for one-person households, 52.2 percent of two- to one-person households and 38.9 percent for two-person households.

Table 5-3. Percentage distribution of persons by annuity income and financial assets in the last year observed before death, by family pathway

Financial Assets ($000s)	Annuity Income ($000s)				
	< $10	< $20	< $30	< $40	All
one-person households					
Zero	**12.1**	23.0	24.2	24.7	24.9
<$10	23.9	**52.0**	55.7	56.4	57.0
<$25	26.3	58.8	**64.5**	65.7	66.5
<$50	27.9	65.5	72.8	**74.4**	75.4
All	31.9	82.0	94.1	97.7	100.0
two person to one-person households					
Zero	**6.2**	14.1	16.0	16.1	16.6
<$10	13.2	**36.4**	43.7	44.3	45.5
<$25	15.0	43.6	**52.2**	53.1	54.7
<$50	15.6	50.0	60.2	**61.5**	63.6
All	18.7	67.5	87.7	93.0	100.0
two-person households					
Zero	**6.2**	10.1	11.0	11.2	11.6
<$10	14.8	**26.3**	30.1	30.8	31.7
<$25	18.1	33.4	**38.9**	40.3	41.3
<$50	21.1	40.5	48.3	**50.3**	51.6
All	34.2	71.7	90.7	95.3	100.0

Table 5-4 shows the proportion of households with zero housing wealth for each of the three pathways. Again, the diagonal values facilitate the comparison. For example, in the $20,000 to $30,000 annuity interval and the $10,000 to $25,000 financial asset interval 52.2 percent of one-person households have no housing wealth but only 27.9 percent of one- to two-person households, and just 20 percent of two-person households. Overall, in the last year before death, 57.1 percent of single-person households have no housing wealth and 49.6 percent of persons in two-to one-person households have no housing wealth. Remarkably,

only 20.4 percent of persons who die with a surviving spouse have no home equity.

Table 5-4. Percentage of persons with zero home equity by annuity income and financial assets in the last year observed before death, by family pathway

Financial Asset Interval ($000s)	Annuity Income Interval ($000s) $0-$10	$10-$20	$20-$30	$30-$40	All
one-person households					
Zero	**76.3**	69.8	74.8	63.6	73.1
$0-$10	62.9	**63.3**	57.8	53.8	61.2
$10-$25	49.8	46.8	**52.2**	53.5	50.0
$25-$50	48.6	47.2	48.3	**47.0**	47.7
All	63.7	57.7	53.9	47.6	**57.1**
two person to one-person households					
Zero	**70.5**	63.5	82.1	74.5	69.6
$0-$10	60.0	**53.0**	60.6	63.0	58.0
$10-$25	65.6	28.6	**27.9**	48.2	39.4
$25-$50	44.0	33.4	49.0	**11.8**	32.7
All	61.7	50.3	50.0	41.7	**49.6**
two-person households					
Zero	**42.0**	24.2	19.3	11.7	31.7
$0-$10	29.4	**25.9**	35.2	23.1	28.3
$10-$25	30.8	22.0	**20.0**	15.3	23.1
$25-$50	17.5	27.4	14.0	**10.5**	16.9
All	27.0	21.2	18.0	13.1	**20.4**

Table 5-5 shows the mean health percentile of persons in each of the three pathways. Unlike the very dissimilar proportions of households below annuity income/ financial asset thresholds across family pathways, and the very different proportions with zero housing wealth within annuity income/financial asset intervals, the levels of health within the cells are very similar across family pathways. That is, given similar annuity income and levels of financial assets, the mean health percentile is about the same for persons in each family status pathway. For example, the overall mean health percentile in the three groups is 28.5, 32.3, and 28.5 respectively in the one-person, two- to one-person, and the two-person pathways. For persons in the zero to $10,000 annuity income and zero housing wealth interval, the mean health percentiles are 24.1, 22.7, and 24.1 respectively.

Table 5-5. Mean health percentile by annuity income and financial assets in the last year observed before death, by family pathway

Financial Asset Interval ($000s)	Annuity Income Interval ($000s) $0-$10	$10-$20	$20-$30	$30-$40	All
one-person households					
Zero	**24.1**	24.8	22.4	28.3	24.5
$0-$10	23.4	**28.2**	24.3	26.2	25.6
$10-$25	28.5	33.3	**38.3**	35.6	33.5
$25-$50	26.6	25.3	26.8	**43.3**	30.2
All	25.1	28.4	29.5	33.4	**28.5**
two person to one-person households					
Zero	**22.7**	28.5	30.6	46.3	29.2
$0-$10	33.7	**23.9**	36.1	28.1	28.9
$10-$25	24.9	42.0	**31.5**	29.3	32.6
$25-$50	41.2	40.7	47.9	**49.1**	45.4
All	29.1	31.0	33.2	35.0	**32.3**
two-person households					
Zero	**24.1**	24.8	22.4	28.3	24.5
$0-$10	23.4	**28.2**	24.3	26.2	25.6
$10-$25	28.5	33.3	**38.3**	35.6	33.5
$25-$50	26.6	25.3	26.8	**43.3**	30.2
All	25.1	28.4	29.5	33.4	**28.5**

Finally, Table 5-6 compares median income in the last year observed with income in 1993. Because of small sample sizes in many cells the table shows data for all health quintiles and for all last years observed combined. For men with matched Social Security records the table also compares median income in 1993 with median earnings for ages 57 to 62. For one-person households and for two-person households total income in the last year observed was, on average, only slightly below income in 1993, for two- to one-person households the decline in income between 1993 and the last year observed was almost 75 percent.

For men with matched Social Security records Table 5-6 shows that for one to one and for two to one person households total income in the last year observed much lower than income when aged 57 to 62—over 68 percent less for one to one households and almost 106 percent less for two to one households. The decline was only 23.2 percent for two to two person households.

Table 5-6. Comparison of median total income in last year observed to median income in 1993 and median earnings when age 57 to 62, all persons, by pathway

Comparison	Pathway		
	One to one	Two to one	Two to two
	For all persons		
Total income in 1993	14,943	31,719	34,656
Total income in last year observed	14,344	18,143	33,449
Percent change	-4.2%	-74.8%	-3.6%
	For men with matched Social Security records		
Median earnings when age 57 to 62	25,604	40,855	41,584
Medial total income in last year observed	15,213	19,844	33,759
Percent change	-68.3%	-105.9%	-23.2%

6. Summary and Conclusions

We began by summarizing the balance sheets of households in the Health and Retirement Study by five-year age intervals from age 65 to 69 through age 85 and older. These balance sheets show that many households have accumulated considerable wealth, ranging in 2008 from a median of $214,371 for older single-person households to a median of $1,015,317 for younger two-person households. Interpretation of these balances is confounded by cohort effects (older generations have lower lifetime earnings than younger generations) and mortality effects (persons in poorer households within a cohort die at younger ages). Thus although these balance sheets present the point-in time wealth of households who survive to a given age they do not reveal the evolution of assets of the same households over time.

To analyze this evolution, we direct attention to the AHEAD households, who were aged 70 and older in 1993 when first observed and age 87 and older in 2008 when last observed. We divide the AHEAD households into three family pathway groups: (1) original one-person households in 1993, (2) persons in two-person household in 1993 with a deceased spouse in the last year observed, and (3) persons in two-person households in 1993 with the spouse alive when last observed. For each of these pathways we describe the evolution of assets from 1993 to the year last observed. We describe the evolution of total wealth and several of its components—financial assets including IRA accounts, housing wealth and housing ownership, Social Security annuity wealth, and DB pension annuity wealth. We find a very strong relationship between health when last observed and the level of assets just before death. Those in poor health have much lower assets than those in good health.

Much of our analysis is restricted to persons who are known to have died. For these persons we are able to calculate wealth in the last year observed before their death. Because waves of the AHEAD are typically spaced two years apart, our last observation for each person is at most two years prior to death. Several general results stand out: 1) Median total wealth was relatively high in the year last observed for each of the three family pathway groups. 2) Wealth in the last year before death is greatest for persons who were in two-person households the longest period of time. For example, the average assets in the last year observed were $141,606 for persons in one-person households in 1993 whose last year observed before death was 2006, $252,849 for persons in two-person households in 1993 whose spouse was deceased when last observed in 2006, and $691,588 for person in two-person households in 1993 whose spouse was alive when last observed in 2006. 3) For total wealth and for each of the asset sub-categories there is a strong correspondence between the level of assets in 1993 and the number of years a person survives after 1993. Persons who lived longer had higher initial assets. 4) For each family pathway group, there is a very strong relationship between health status and wealth in the last year observed. Thus there is a strong association between health and wealth

even among persons who would die within the next two years. 5) Despite the appearance of substantial assets at the median, a substantial fraction of people die with income less than $10,000 and with no financial assets and with zero housing wealth.

A rather large fraction of the original single-person households have low income judged by the income poverty thresholds. We find that 12.1 percent are below the poverty threshold and have no financial assets, and that 23 percent are below twice the income poverty line and have no financial assets. To put the results in context we first compare the total income in the last year observed to total income in 1993, the first year the AHEAD data were collected. Total income in the last year observed was about 4 percent higher, on average, than total income in 1993. We also compare total median income in the last year observed to median earnings (in 2008 dollars) of the same persons when they were between ages 57 and 62. While the difference is hard to evaluate because the two measures are not clearly comparable, overall median income in the last year observed was approximately 50 percent lower than median earnings of the same persons at ages 57 to 62.

There are also important differences across the pathways. Consider for example the proportion of persons with annuity income less than $20,000 (approximately twice the poverty level for single persons over age 65) and financial assets less than $10,000: 52 percent of persons in the single-household pathway fall below these thresholds, but only 36.4 percent of those in the two- to one-person pathway, and only 26.3 percent of those in the two-person pathway. Similarly, consider the proportion of persons with annuity income in the $10,000 to $20,000 interval and financial assets less than $10,000 who have zero housing wealth: of those in the single family pathway 63.3 percent have zero housing wealth, 53.0 percent of those in the two- to one-person pathway, and only 25.9 percent of those in the two-person pathway. A perhaps striking similarity across the pathways is that given income and housing wealth the health status of the persons in the three pathways is very close. The median health percentile of persons with annuity income in the $10,000 to $20,000 interval and financial assets less than $10,000 is 28.2 for persons in the single-household pathway, 23.9 percent for those in the two-to one-person pathway, and 28.2 for persons in the two-person pathway. Finally, the total household income of one to one and two to two households when last observed was only slightly less than income in 1993, while income of two to one households was almost 75 percent lower when last observed than in 1993. And for men with matched Social Security records income when last observed was over 68 percent lower than earning at ages 57 to 62 for one to one households, 106 percent lower for two to one households, but only 23 percent less for two to two households.

The results raise several issues. First, a noticeable fraction of persons die with virtually no financial assets—46.1 percent with less than $10,000. Based on a replacement rate comparison, many of these may be deemed to have been

well-prepared for retirement, in the sense that their income in their final years was not substantially lower than their income in their late 50s or early 60s. Yet with such low asset levels, they would have little capacity to pay for unanticipated needs such as health or other shocks or to pay for entertainment, travel, or other activities. This raises a question of whether the replacement ratio is a sufficient statistic for the “adequacy” of retirement preparation. In addition, this group relies almost entirely on Social Security benefits for support in retirement. These persons balance on only one leg of the oft touted three-legged stool that is said to provide retirement support—Social Security, pension benefits, and personal saving. If the one leg is judged inadequate it raises the question of how to strengthen the other legs which in turn may, for example, increase interest in the spread of 401(k)-like plans to low-wage workers in firms with high turnover.

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Appendix Table 1-1. Balance sheets for households aged 65-69 in 2008

Asset Category	Percent of Households with Asset	Median Holding	Mean Holding	Share of Total Wealth	Values Conditional on Positive Holding	
					Mean	Median
All Households						
Financial Assets	86.7	15000	132,484	12.6	152,805	25,000
Non-Mortgage Debt	36.2	0	-3,679	-0.4	10,225	5,000
Home Equity (primary home)	79.8	100,000	176,188	16.8	222,546	145,000
Home Equity (second home)	15.8	0	26,280	2.5	166,423	50,000
Other Real Estate	14.8	0	69,137	6.6	466,416	125,000
Business Assets	9.7	0	45,966	4.4	473,289	200,000
Personal Retirement Accounts	52.2	5,000	121,137	11.5	231,910	100,000
- IRAs & Keoghs	41.5	0	75,299	7.2	181,577	80,000
- 401(k)s and Similar Plans	26.1	0	45,839	4.4	175,670	50,000
Social Security	88.2	315,163	341,556	32.6	387,195	351,709
Defined Benefit Pension	42.1	0	140,176	13.4	332,834	232,492
Non-Annuity Net Worth	90.8	221,700	567,496	54.1	626,768	269,800
Net Worth	99.4	731,121	1,049,228	100.0	1,056,245	732,866
Single-Person Households						
Financial Assets	82.3	5,000	83,082	12.8	100,941	12,000
Non-Mortgage Debt	34.8	0	-3,042	-0.5	8,734	4,000
Home Equity (primary home)	65.9	52,000	107,483	16.6	165,712	110,000
Home Equity (second home)	9.4	0	7,969	1.2	86,894	20,000
Other Real Estate	8.7	0	73,361	11.3	845,335	150,000
Business Assets	6.1	0	18,069	2.8	297,513	100,000
Personal Retirement Accounts	36.4	0	47,074	7.3	129,148	64,000
- IRAs & Keoghs	27.9	0	32,206	5.0	115,385	52,000
- 401(k)s and Similar Plans	15.6	0	14,869	2.3	95,604	30,000
Social Security	86.6	230,060	225,842	34.8	260,890	256,051
Defined Benefit Pension	38.0	0	89,323	13.8	235,059	190,032
Non-Annuity Net Worth	84.4	100,000	333,996	51.5	398,690	150,000
Net Worth	99.1	414,435	649,161	100.0	655,857	420,494
Married Couples						
Financial Assets	90.3	27,750	172,830	12.6	191,419	39,000
Non-Mortgage Debt	37.2	0	-4,232	-0.3	11,364	5,000
Home Equity (primary home)	91.1	150,000	232,300	16.9	256,111	160,000
Home Equity (second home)	21.1	0	41,235	3.0	195,369	70,000
Other Real Estate	19.8	0	65,688	4.8	331,062	120,000
Business Assets	12.7	0	68,750	5.0	542,028	250,000
Personal Retirement Accounts	65.1	35,000	181,625	13.2	278,881	122,000
- IRAs & Keoghs	52.5	5,841	110,493	8.0	210,295	100,000
- 401(k)s and Similar Plans	34.7	0	71,132	5.2	204,975	59,600
Social Security	89.6	473,933	436,059	31.7	486,901	494,485
Defined Benefit Pension	45.5	0	181,708	13.2	399,557	272,490
Non-Annuity Net Worth	96.0	357,000	758,196	55.1	790,385	385,000
Net Worth	99.6	1,015,317	1,375,963	100.0	1,381,422	1,016,076

Source: Authors' tabulations using Health and Retirement Survey, Wave 9 (2008).

Appendix Table 1-2. Balance sheets for households aged 70-74 in 2008

Asset Category	Percent of Households with Asset	Median Holding	Mean Holding	Share of Total Wealth	Values Conditional on Positive Holding	
					Mean	Median
All Households						
Financial Assets	88.1	17000	146,663	14.8	166,540	28,000
Non-Mortgage Debt	27.8	0	2,991	0.3	-10,776	-3,000
Home Equity (primary	76.9	100,000	156,484	15.8	204,387	150,000
Home Equity (second	13.7	0	26,975	2.7	197,037	92,000
Other Real Estate	14	0	44,987	4.5	321,528	120,000
Business Assets	7.4	0	50,443	5.1	682,759	200,000
Personal Retirement	45.9	0	94,632	9.6	206,233	83,000
- IRAs & Keoghs	40.6	0	77,796	7.9	191,775	88,144
- 401(k)s and Similar	11.8	0	16,836	1.7	142,647	35,000
Social Security	98.1	287,912	320,915	32.4	327,011	292,487
Defined Benefit Pension	49.1	0	152,105	15.4	309,847	189,075
Non-Annuity Net Worth	90.6	202,500	517,194	52.2	572,153	243,200
Net Worth	99.7	660,495	990,214	100.0	993,139	661,260
Single-Person Households						
Financial Assets	84	5,000	86,738	14.4	103,207	11,300
Non-Mortgage Debt	27.9	0	-1,980	-0.3	-7,100	-2,500
Home Equity (primary	63.1	50,000	107,729	17.9	171,368	129,000
Home Equity (second	7.1	0	9,669	1.6	135,861	70,000
Other Real Estate	8.2	0	20,458	3.4	248,626	100,000
Business Assets	4.4	0	36,342	6.0	817,311	200,000
Personal Retirement	34	0	38,520	6.4	113,276	47,000
- IRAs & Keoghs	29.6	0	35,258	5.9	118,981	56,000
- 401(k)s and Similar	6.3	0	3,262	0.5	51,824	14,000
Social Security	97.4	207,740	212,967	35.4	218,590	209,732
Defined Benefit Pension	42	0	91,236	15.2	217,174	132,887
Non-Annuity Net Worth	84.7	95,300	297,478	49.4	352,107	151,200
Net Worth	99.7	389,592	601,680	100.0	603,457	390,909
Married Couples						
Financial Assets	92.3	40,000	209,205	15.0	226,751	50,000
Non-Mortgage Debt	27.6	0	-4,046	-0.3	-14,649	-3,500
Home Equity (primary	91.4	150,000	207,368	14.9	228,178	160,000
Home Equity (second	20.6	0	45,037	3.2	219,136	110,000
Other Real Estate	20	0	70,586	5.1	352,821	130,000
Business Assets	10.5	0	65,159	4.7	623,052	235,000
Personal Retirement	58.3	20,000	153,195	11.0	262,835	117,000
- IRAs & Keoghs	52	9,000	122,193	8.8	235,088	116,000
- 401(k)s and Similar	17.6	0	31,002	2.2	176,645	41,000
Social Security	98.9	427,936	433,578	31.1	438,510	429,213
Defined Benefit Pension	56.5	55,539	215,633	15.4	381,789	254,016
Non-Annuity Net Worth	96.7	355,700	746,505	53.5	773,307	373,000
Net Worth	99.7	1,009,818	1,395,716	100.0	1,399,833	1,012,407

Source: Authors' tabulations using Health and Retirement Survey, Wave 9 (2008).

Appendix Table 1-3. Balance sheets for households aged 75-79 in 2008

Asset Category	Percent of Households with Asset	Median Holding	Mean Holding	Share of Total Wealth	Values Conditional on Positive Holding	
					Mean	Median
All Households						
Financial Assets	88.6	16000	144,536	16.8	163,087	25,000
Non-Mortgage Debt	23.2	0	-2,760	-0.3	-11,883	-4,300
Home Equity (primary	75.7	100,000	168,464	19.5	223,100	150,000
Home Equity (second	11.6	0	21,243	2.5	183,253	75,000
Other Real Estate	10.9	0	63,748	7.4	584,397	190,000
Business Assets	6.9	0	30,479	3.5	444,372	200,000
Personal Retirement	41.2	0	71,579	8.3	173,870	75,000
- IRAs & Keoghs	39.4	0	68,179	7.9	173,252	76,139
- 401(k)s and Similar	4.3	0	3,401	0.4	79,890	30,000
Social Security	98.2	216,900	249,219	28.9	253,707	219,136
Defined Benefit Pension	51.8	11,613	115,742	13.4	223,644	130,383
Non-Annuity Net Worth	91.5	195,000	497,290	57.7	544,699	230,000
Net Worth	99.7	565,440	862,250	100.0	865,427	566,676
Single-Person Households						
Financial Assets	85.6	8,000	96,633	17.8	112,913	15,000
Non-Mortgage Debt	24.9	0	-3,134	-0.6	-12,562	-4,000
Home Equity (primary	65.7	60,000	123,144	22.7	187,707	130,000
Home Equity (second	7.6	0	10,826	2.0	143,125	60,000
Other Real Estate	7.2	0	24,687	4.6	341,794	200,000
Business Assets	3.9	0	15,067	2.8	386,937	200,000
Personal Retirement	28.9	0	31,888	5.9	110,192	50,000
- IRAs & Keoghs	28.3	0	30,716	5.7	108,481	50,000
- 401(k)s and Similar	1.6	0	1,173	0.2	72,316	14,000
Social Security	97.3	166,846	164,939	30.4	169,456	168,794
Defined Benefit Pension	45.2	0	78,365	14.4	173,531	103,213
Non-Annuity Net Worth	87.3	113,000	299,112	55.1	344,599	150,900
Net Worth	99.4	336,058	542,416	100.0	546,110	337,517
Married Couples						
Financial Assets	92.6	50,000	207,856	16.2	224,353	60,000
Non-Mortgage Debt	21	0	-2,266	-0.2	-10,816	-5,000
Home Equity (primary	88.9	151,000	228,371	17.8	257,672	175,000
Home Equity (second	17	0	35,013	2.7	206,890	75,000
Other Real Estate	15.8	0	115,381	9.0	731,182	175,000
Business Assets	10.8	0	50,852	4.0	471,801	200,000
Personal Retirement	57.3	14,000	124,045	9.7	216,355	92,000
- IRAs & Keoghs	53.9	11,000	117,700	9.2	218,192	96,000
- 401(k)s and Similar	7.7	0	6,345	0.5	81,987	30,000
Social Security	99.4	348,675	360,624	28.1	362,742	349,695
Defined Benefit Pension	60.5	61,531	165,148	12.9	273,115	174,047
Non-Annuity Net Worth	97.1	345,000	759,251	59.1	782,508	364,500
Net Worth	100	858,331	1,285,024	100.0	1,285,024	858,331

Source: Authors' tabulations using Health and Retirement Survey, Wave 9 (2008).

Appendix Table 1-4. Balance sheets for households aged 80-84 in 2008

Asset Category	Percent of Households with Asset	Median Holding	Mean Holding	Share of Total Wealth	Values Conditional on Positive Holding	
					Mean	Median
All Households						
Financial Assets	88.8	23000	185,056	24.7	208,370	35,700
Non-Mortgage Debt	17.3	0	-1,179	-0.2	-6,820	-3,000
Home Equity (primary	72.3	90,000	149,537	20.0	207,112	140,000
Home Equity (second	9.2	0	18,553	2.5	201,880	80,000
Other Real Estate	9.6	0	38,186	5.1	396,044	95,000
Business Assets	6.1	0	28,029	3.7	461,058	230,000
Personal Retirement	35.3	0	54,757	7.3	155,294	55,000
- IRAs & Keoghs	35	0	52,459	7.0	149,766	55,000
- 401(k)s and Similar	1.1	0	2,298	0.3	203,348	107,000
Social Security	98.1	146,095	177,651	23.7	181,080	147,263
Defined Benefit Pension	53.7	9,872	97,520	13.0	181,722	98,386
Non-Annuity Net Worth	92.2	180,000	472,940	63.2	512,981	207,000
Net Worth	99.9	418,124	748,110	100.0	748,615	418,221
Single-Person Households						
Financial Assets	86.7	12,000	120,453	24.8	138,870	20,000
Non-Mortgage Debt	16.3	0	-1,037	-0.2	-6,360	-2,000
Home Equity (primary	65.4	70,000	117,856	24.3	180,250	125,000
Home Equity (second	5.5	0	9,937	2.0	179,155	100,000
Other Real Estate	7.2	0	20,634	4.2	286,954	55,000
Business Assets	4.2	0	12,438	2.6	292,913	200,000
Personal Retirement	27.6	0	26,042	5.4	94,199	41,000
- IRAs & Keoghs	27.6	0	26,022	5.4	94,127	41,000
- 401(k)s and Similar	0.2	0	20	0.0	12,500	12,500
Social Security	97.8	119,406	123,086	25.3	125,834	121,259
Defined Benefit Pension	49.7	0	56,229	11.6	113,231	64,384
Non-Annuity Net Worth	90.7	127,000	306,323	63.1	337,868	160,000
Net Worth	100	302,751	485,638	100.0	485,638	302,751
Married Couples						
Financial Assets	92.8	70,500	309,775	24.7	333,758	84,000
Non-Mortgage Debt	19.2	0	-1,451	-0.1	-7,578	-4,900
Home Equity (primary	85.5	136,000	210,697	16.8	246,798	160,000
Home Equity (second	16.2	0	35,185	2.8	216,879	65,000
Other Real Estate	14.4	0	72,070	5.7	501,400	125,000
Business Assets	9.6	0	58,127	4.6	604,378	280,000
Personal Retirement	50	0	110,193	8.8	220,558	73,000
- IRAs & Keoghs	49.3	0	103,496	8.2	210,026	72,000
- 401(k)s and Similar	3	0	6,697	0.5	222,938	110,000
Social Security	98.7	262,814	282,989	22.6	286,814	263,889
Defined Benefit Pension	61.4	51,693	177,233	14.1	288,665	141,651
Non-Annuity Net Worth	95.1	371,500	794,595	63.3	835,385	400,000
Net Worth	99.8	748,356	1,254,817	100.0	1,257,291	748,875

Source: Authors' tabulations using Health and Retirement Survey, Wave 9 (2008).

Appendix Table 1. Balance sheets for households aged 85 or older in 2008

Asset Category	Percent of Households with Asset	Median Holding	Mean Holding	Share of Total Wealth	Values Conditional on Positive Holding	
					Mean	Median
All Households						
Financial Assets	88.7	29000	177,611	33.2	200,293	48,000
Non-Mortgage Debt	9.4	0	-757	-0.1	-8,070	-2,000
Home Equity (primary	60.9	63,000	125,883	23.5	206,935	140,000
Home Equity (second	6.5	0	14,358	2.7	222,543	100,000
Other Real Estate	8.4	0	29,243	5.5	346,127	150,000
Business Assets	5.4	0	26,752	5.0	500,032	350,000
Personal Retirement	20.9	0	15,096	2.8	72,396	33,387
- IRAs & Keoghs	20.7	0	15,031	2.8	72,626	35,000
- 401(k)s and Similar	0.2	0	65	0.0	41,803	2,500
Social Security	98	77,587	99,613	18.6	101,678	78,026
Defined Benefit Pension	49.8	0	47,853	8.9	96,114	45,257
Non-Annuity Net Worth	92.6	153,000	388,186	72.5	419,435	179,000
Net Worth	99.8	291,832	535,652	100.0	536,739	293,342
Single-Person Households						
Financial Assets	88.1	19,000	143,704	35.2	163,115	30,000
Non-Mortgage Debt	9.2	0	-572	-0.1	-6,226	-2,000
Home Equity (primary	54.1	35,000	101,728	24.9	188,223	130,000
Home Equity (second	4.4	0	9,805	2.4	223,061	125,000
Other Real Estate	6.5	0	19,064	4.7	293,103	150,000
Business Assets	4.5	0	16,997	4.2	375,286	275,000
Personal Retirement	15.6	0	9,255	2.3	59,211	25,000
- IRAs & Keoghs	15.6	0	9,255	2.3	59,211	25,000
- 401(k)s and Similar	0	0	0	0.0		
Social Security	98	69,352	73,500	18.0	75,024	70,373
Defined Benefit Pension	47.8	0	35,082	8.6	73,462	35,319
Non-Annuity Net Worth	91	116,500	299,980	73.4	329,835	148,000
Net Worth	99.7	214,371	408,562	100.0	409,628	214,511
Married Couples						
Financial Assets	90.7	98,000	296,971	30.2	327,416	125,000
Non-Mortgage Debt	10.1	0	-1,411	-0.1	-13,961	-2,000
Home Equity (primary	84.8	125,000	210,917	21.5	248,919	150,000
Home Equity (second	13.7	0	30,388	3.1	221,957	100,000
Other Real Estate	15.3	0	65,075	6.6	425,514	155,000
Business Assets	8.2	0	61,094	6.2	741,382	500,000
Personal Retirement	39.2	0	35,660	3.6	90,885	51,000
- IRAs & Keoghs	38.5	0	35,365	3.6	91,783	51,000
- 401(k)s and Similar	0.7	0	295	0.0	41,803	2,500
Social Security	98	170,162	191,539	19.5	195,504	173,503
Defined Benefit Pension	56.9	23,633	92,809	9.4	162,990	87,063
Non-Annuity Net Worth	98.2	362,000	698,693	71.1	711,635	378,200
Net Worth	100	674,965	983,042	100.0	983,042	674,965

Source: Authors' tabulations using Health and Retirement Survey, Wave 9 (2008).