"Household Reactions and Strategic Responses to Retirement Wealth Building and Decumulation in a Low Interest Rate Environment"

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Abstract

Recent economic conditions have vastly changed the retirement landscape as a lengthy period of low interest rates have made building wealth for retirement harder and the risk of depleting wealth during the decumulation phase of retirement greater than at any time in recent history. The retirement environment presents challenges, over (*i*) the period for which interest rate remain low, and (*ii*) once interest rates appreciably increase--as fixed income assets then decrease in value. This paper addresses two related topics: first, how have households responded to the current low interest rate environment and second, are there alternative responses or investments which households might do well to consider? Beginning with the first topic: we employ the HRS to first investigate impacts of the 2008 – 2014 low interest rate impacts on savings, wealth and asset allocation both ahead of and while in retirement. As well as employing a full sample we report on the responses of the subset of households who have been relatively successful at building and preserving wealth over this period. Following this analytic work we consider alternative portfolio and wealth management strategies targeting increases in equities and delayed participation in Social Security in terms of their potential to add value in persistent low return environments.

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The effects of the 2008 financial collapse, or Great Recession, continue to impact the retirement well-being of millions of people. The Federal Reserve has kept its benchmark short-term interest rate at or near zero for several years in an effort to stimulate the economy. Although low interest rates can financially benefit those borrowing money to buy a house or a car or even to fund a new business, such low rates can directly weaken the financial well-being of retirees who are living off their life savings, while also making it more difficult for pension plans to accumulate assets necessary to pay future benefits without taking on additional risk by over-investing in stocks.

Low interest rates translate into lower yields on fixed-income assets, meaning the interest (coupon) payments that seniors rely on in retirement will generally be lower than anticipated. This lack of income could lead to hardship, reduced consumption and an inability to pay bills. A continued low interest rate environment affects the value of both defined-benefit and defined-contribution plans. In addition to lower yields on retirement assets, low interest rates also negatively impact Social Security's broader finances because Social Security Trust Funds earn interest on its US Treasury bond holdings. By law, Social Security has to invest its surpluses in special-issue Treasury bonds that are available only to Social Security. It cannot buy or hold other financial assets such as stocks, mutual funds, or corporate bonds.

Revenue generated from interest payments made to the Trust Funds has been declining since 2009.[1] Although the Federal Reserve's policy of low interest rates is designed to stimulate economic growth, declines in Labor Force Participation over much of the recovery mean that there hasn't been as much growth in terms of jobs, higher wages, and higher incomes on which Social Security payroll taxes would be levied.

When coupled with low interest rates, this lack of payroll tax revenue hastens the depletion of the combined Social Security Trust Funds, which is currently projected for 2034. Continued

low interest rates, slow economic growth and growing population living longer lives in retirement, all contribute to a quicker depletion of the Social Security Trust Funds. This further threatens the financial security of retirees as they are at risk of greater Social Security benefit cuts much sooner as a result of Trust Fund depletion.

One protection for current elder workers, which is relatively low cost for Social Security, focuses on delayed claiming strategies. In fact, we do see some evidence of delayed retirement and workforce reentry among more recent HRS birth cohorts. For seniors who can delay claiming Social Security,[2] there is an opportunity to increase their use of an inflation-protected annuity. Further the marginal cost of this strategy for individuals can be appealing. While private companies that sell annuities in the private sector generally adjust their payouts and make them less generous when life spans increase or when interest rates decrease, Social Security doesn't adjust monthly benefits this way—its age adjustments are fixed by law. Further, the Delayed Retirement Credit (DRC) has increased for those reaching age 65 since the turn of the century, making the returns to this strategy better than they were for most of the programs history.

(Insert Figure 1)

For someone whose full retirement age is 66, each year of delayed claiming returns approximately 8 percent. Delaying claiming until age 70 results in a 32 percent higher monthly benefit – appealing whether or not a low interest rate environment persists.

Further, given the continued trend away from employer-sponsored defined benefit retirement plans, individuals are bearing more longevity risk. Longevity risk is driven by accumulation and allocation risks, as well as by decisions to draw down assets in retirement. A persistent low-interest rate environment makes the challenges of saving for retirement even more difficult, as individuals will have to save more during their working years to make up lost yields.

Using the HRS, we investigate impacts of the 2008 – 2014 low interest rates on savings, wealth and asset allocation both ahead of and while in retirement. Following this work we next consider alternative portfolio and wealth management strategies and their potential to add value in persistent low return environments. First, however, we review the related prior literature.

Background and Related Prior Literature

The financial crisis that began at the end of 2007 resulted in a great and unanticipated loss of wealth for millions of Americans. The U.S. stock market, as measured by the broad S&P 500 index, fell 56.7 percent from a peak on October 10, 2007 to a bottom on March 9, 2009.[3] Housing prices plummeted and unemployment rose quickly to double-digits. General confidence in the financial system was greatly weakened. Survey research suggests financial wealth declined by 15 percent for the median household as a result of the 2008 financial crisis (Shapiro 2010). These economic conditions have vastly changed the retirement landscape for millions of Americans, and have likely influenced retirement behavior.

The global financial crisis and the resulting recession were notable for the speed at which the decline in financial markets, housing, and employment occurred. Also notable was the widespread nature of the economic crisis, affecting a range of ages and income levels. According to data from the Health and Retirement Study (HRS)[4], about 28 percent of HRS households reported that they had been affected "a lot" by the financial crisis, 46 percent responded they had been affected "a little", and only 26 percent reported not having been affected (Hurd and Rohwedder 2010). Research by Wells Fargo (2012) suggests those already in retirement fared better than those that were in the pre-retirement stage, suggesting that many households will face

significant barriers to reaching their pre-recession retirement goals and will likely need to save more or work longer than originally planned.

A sudden and unplanned drop in wealth and income can have significant effects on retirement behavior. Younger or middle-aged workers have more than a decade before retirement, and so they still have time to recover financial losses. A financial shock, that includes steep drops in the value of stock prices, investment portfolios, and housing assets might cause a delay in retirement plans[5] with workers remaining in the workforce longer than planned to rebuild retirement savings (Bosworth and Burtless 2011). Those near or post-retirement are more limited in their ability to attain or maintain a secure retirement. For those near retirement, a financial crisis might change the timing of retirement.[6] For current retirees, sudden declines in wealth from housing assets and financial portfolios might force immediate changes in consumption.

Research using the HRS data for 2008 and 2009 highlights the immediate impact of the financial crisis on retirement behavior (Hurd and Rohwedder, 2010).[7] For those working in 2008, Hurd and Rohwedder compared data between the two survey years and found that in the 2009 HRS Internet survey, 61.7 percent of the 2009 respondents expected to work past age 62, up from 58.2 percent in the 2008 HRS.[8] For those working in 2008, 46.4 percent of 2009 respondents expected to work past age 65, compared to 38.6 percent in the 2008 HRS.[9] More recent survey research notes a higher number of seniors working after the recession than before (Wells Fargo 2012) and the number of people indicating they plan to work past the age of 65, or work from some pay in retirement, has also increased (Wells Fargo 2012; Coronado 2014).

These results suggest that many are planning on working longer and retiring later as a result of the financial crisis. Hurd and Rohwedder conclude that "…the economic crisis has caused households in and near retirement to suffer sizeable losses in assets. These households responded

in several ways: they reduced spending and with that increased saving, they intend to work longer, and anticipate bequeathing less."[10] Data from the Federal Reserve support Hurd and Rohwedder's findings.[11] Since the financial crisis, the personal saving rate has trended upward from around one percent to near six percent (Glick and Lansing 2011). All else equal, a reduction in wealth from a negative financial shock often results in workers near retirement increasing income and saving by remaining in the workforce or reducing planned consumption in retirement.[12]

Further, according to the Social Security Administration (SSA), a man reaching age 65 today can expect to live to age 84, on average, while a woman reaching age 65 can expect to live to almost 87 years old.[13] Someone retiring at age 65 therefore needs enough saved away, along with Social Security benefit income, to financially support themselves for at least 20 years. And that is just based on average longevity. Some people may live longer lives, and, hence, need further additional savings for retirement. Again, according to SSA, one out of every person age 65 today will live to age 90, while one out of every 10 will live past age 95.[14] Retirement periods of 30 years or more require more savings. A continued low-interest rate environment exacerbates not only saving for retirement during the accumulation phase, but also vastly increases the risk of outliving retirement savings during the decumulation phase.

The loss of a job can also affect retirement behavior. As Bosworth and Burtless (2011) note, "At ages past 60 and especially past 65. . . reduced employment levels caused by a weak job market very quickly translate into reduced labor force participation rates." An employment shock, such as a sudden loss of a job and a labor market with high unemployment might hasten the decision on when to retire. The unemployment rate for workers aged 55 to 64 has more than doubled during the recent recession.[15] Also, older workers who lost their jobs during this period were more likely to have longer durations of unemployment than younger workers. According to

data from the U.S. Bureau of Labor Statistics,[16] 49 percent of unemployed workers aged 55 or older had been unemployed for 27 weeks or longer compared with 28 percent of unemployed workers aged 16 to 24 and 41 percent of unemployed workers aged 25 to 54. A Congressional Research Service study found that older workers who are unemployed have a higher incidence of withdrawing from the labor market.[17] When they do so, they replace earnings with other sources of income, such as pensions and Social Security benefits. According to some studies, unemployment among older workers contributes significantly to the probability of retirement (Bosworth and Burtless 2011).

Researchers have long recognized the role Social Security benefits play in a secure retirement.[18] Social Security retirement benefits provide income security for millions of Americans, with 61 percent of all aged beneficiary units[19] relying on Social Security for 50 percent or more of their income, and 33 percent relying on Social Security for 90 percent or more of their income.[20] Yet, because households at the lower end of the income and wealth distribution receive a larger share of their income from Social Security benefits, the financial crisis has affected the guaranteed portion of income for these retirees less (Hurd and Rohwedder 2010).

If people saving for retirement have a target level of saving in mind they must achieve before leaving the workforce and retiring, low interest rates make it more difficult to achieve pre-set targets. To achieve their targets, people need to spend less and save more now, take on additional risk in the pursuit of higher yielding assets, work longer, and/or plan to spend less in retirement. A persistently low interest rate environment only exacerbates retiree preparedness. According to one analysis, the likelihood of exhausting retirement assets increases from 21 percent to 54 percent in an extended period of low interest rates (Prudential 2013). In fact, much of our work with the HRS data is consistent with a large increase in risk of asset exhaustion.

Though the broad equity and housing markets have recovered, interest rates and economic growth remain low and people are at great risk of not having enough financial assets in retirement. While there has been some conflicting evidence on whether retirees are falling short of adequate resources for retirement (Munnell, Rutledge and Webb 2014; Fichtner 2014), the preponderance of evidence suggests that future retirees will be less financially prepared than previous decades.

Effects of Low Interest Rate Environment on Saving, Wealth & Asset Allocation (HRS)

Our work with the HRS offers some additional support for the existing evidence in the literature.[21] HRS data offer self-reported data at two year intervals affording the opportunity to look at the wealth of elderly households and to observe allocations across financial assets as well. These data also offer the opportunity to look at income. In our work we segment these data by five-year grouped cohorts looking at those born between 1931-1935, 1936-1940 and so on through the 1951-55 cohorts as groups. There is a small sample from the 1956-60 cohorts, which we include but which, because of their age and relative short duration within the data, we hesitate to say as much about. We also use these data in panel form controlling for all household contributions to run regressions that explore factors contributing to total asset positon. From there we report Tobit regression results targeting allocations. We include work on bond and very low risk liquid allocations – in keeping with the idea that these assets, generally thought of as safe for elders, are vulnerable in a low, or low and then rising interest rate environment.

Beginning with our cohort analysis, keeping on the topic of bonds, in these data we observe that the value of bonds has increased over time, but from-and-to low average levels.

(Insert Figure 2)

When viewing this figure we find it useful to keep in mind that interest rates were still declining in 2014, increasing the market value of established portfolios. Also of note, one can observe patterns that are consistent with the idea that the lower interest rates since the Great Recession (i.e. past the circles marking the 2008 wave data for each cohort-group path) have muted allocations in this type of investment. There appears to be a general attenuation of growth in accumulations over the last 2-3 waves of HRS data (2010 – 2014).

Bonds historically have played a protective role for senior income – especially absent inflation risks, thus risk sensitivity might come into play as a factor separate to age. We construct a 4-point Arrow Pratt risk aversion scale from survey responses to 4 and 6-point series in the HRS and look at these groups separately to investigate this intuition.

Sixty-three percent of the sample falls within the most risk averse category, because they are the bulk of the sample, results do not change much for them as a segment.

(Insert Figure 3)

However, targeting the 13 percent of the sample that is least risk averse, we find lower reliance on bond portfolios.

(Insert Figure 4)

Within the least risk averse shown in Figure 3, there are some notable exceptions, perhaps especially among the oldest and youngest in our sample. Indeed, bond portfolios have generally done better than expected over this period as rates have been not only generally low but also declining through the period we study, 2014. Inflation has been quite low as well; thus it is possible that the least risk averse wittingly increased their investments in bonds--essentially making bets on appreciation related to declining interest rates. However, we are hesitant to make

too much of this, as a result of small sample sizes. Overall, even among the least risk averse there is again evidence of attenuation in accumulations, in the period since the Great Recession.

Another historically protective asset is the home. HRS data include information on home and mortgage values allowing us to construct measures of home equity and the ratio of loan-to-value (LTV) over time. Beginning with the value of primary residence.

(Insert Figure 5)

As of 2014, estimated values of primary residences had not fully recovered from the peak levels reached in 2008, but notably, the general patterns of declines are relatively uniform. Recent cohorts do not appear to have suffered from outsized depreciation over the period since the Great Recession. Generally, then, even following the financial crisis, homeowners do not appear to have suffered major deprecation of a key retirement asset.[22] Reassuringly, homeowners have continued to pay down their mortgages as well.

(Insert Figure 6)

As one would then expect the ratio of loan to value, LTV, has generally continued to decline – securing home value that might otherwise be at risk.

(Insert Figure 7)

In fact, while generally LTV has been higher for later cohorts at similar ages, since the recession there is suggestive evidence that the youngest HRS cohorts are accelerating mortgage pay-down relative to those that came before them. This is seen in the crossing of cohort-series at the top left of the graph above.

Another real estate related asset, "other property," might arguably be of value to aging households in a low interest rate environment, because such holding can pay a stream of rental incomes, and because they may store and accrue additional value. In fact, we observe a notable

distinction in the holding habits of cohorts, based on risk preferences, for the most risk averse one observes increasing holdings, even following the Great Recession.

(Insert Figure 8)

Whereas among the least risk averse flatter accumulation patterns generally flatten or decline from peak in 2008.

(Insert Figure 9)

The particular pattern (mountain like shape) representing holdings for the 1951-55 cohort is distinct and perhaps has to do with more speculative real estate activity before and after the U.S. housing bubble burst in 2007-08.[23]

Moving from our consideration of assets that pay a stream of income or services (bonds, homes and rental properties) we next look at trends in income. Here the evidence suggests that while younger cohorts have higher incomes for longer, there is no general evidence of income increase following asset mark down in the Great Recession.

(Insert Figure 10)

Interestingly the general patterns for income tapering across cohorts are consistent with the mortgage evolutions illustrated in Figure 5. A look at more liquid assets and short term debts finds that cohorts have behaved very similarly over time, generally holding balances between $10-20,000 and with other than mortgage debt tapering to the $4-6,000 range by age 62-63.

To summarize the data so far, descriptive analysis targeting average balances for traditional retirement investments yields mixed results in terms risk-return and both cash & asset management strategies. We observe patterns that suggest delayed income tapering may be aligned with delayed mortgage payoff and that investments in bonds may be muted in the low interest rate environment since the Great Recession. By comparison, the value of Stocks (equity holdings and mutual fund

holdings) have grown for most cohorts following a negative shock related to the aftermath of the Financial Crisis.

(Insert Figure 11)

As well as considering the average evolution of assets by cohort we can consider the evolution conditional on retirement. Persons self-report retirement in the HRS, and we use these reports to tag households evolution from this point forward. Focusing on the period since retirement we separate households by their place in the total asset distribution in the 2014 Wave and further tag them by centile of wealth.

In the descriptive analysis below we again denote where the 2008 wave is placed for each group to help one see pre- and post- recession / low interest environment evolutions. Looking first at total wealth we see that the bottom 25 percent of households appears to deplete their assets within 16 years following retirement—ahead of the 20-or so years average longevity would require. Median households have roughly $50,000 in net assets and the 75^{th} percentile of the distribution have a bit more than double that amount. The Great Recession imposed a notable shock on assets for all these groups. By contrast the top 10 percent, who generally come from older cohorts and had been retired longer at the time of the Great Recession, have seen strong increases in their total assets since this time.

(Insert Figure 12)

The question that naturally occurs is how much more successful this group has behaved in the aftermath of the Great Recession. While the figure above makes it clear that the top 10 percent started with more assets ahead of the Great Recession, that is not constructive from a behavioral standpoint. To learn more about constructive habits we next consider comparative allocations.

Portfolio & Wealth Management Strategies (HRS)

We observe higher allocations to stock and mutual funds, ahead of the recession, and since. Notably, while other groups have allocated lower proportions of assets to this sector, the top 10 percent has increased their allocations in this area as seen in Figure 13:

(Insert Figure 13)

The same is true for allocations to bonds. Though the scale of allocations overall is quite lower.[24]

(Insert Figure 14)

The negative proportional allocations for lower centiles of the asset distribution represent self-reports of positive asset-class holdings, combined with negative net worth. (It is not the case that the lower centiles of the 2014 wealth distribution actively shorted these asset categories as a group.)

One asset class where groups have behaved more uniformly is with respect to allocations to very short term debt investments. All groups have reduced allocations in the low interest rate environment since the Great Recession, as seen in Figure 15:

(Insert Figure 15)

(One can again observe the negative allocations for lower centiles, generated as an artifact of negative net-worth.)

Moving to home values, conditional on owning a home, the lowest 25 percent of the asset distribution in 2014, appear to have relied on home equity to finance their retirements, to various degrees. Among the bottom 10 percent of the wealth distribution, the drawdown of home equity looks near-complete, as seen in Figure 16:

(Insert Figure 16)

Overall, the pictures above again suggest some degree of allocative response to changes in fixed income returns across cohorts, pre- and post- the Great Recession, bond and shorter duration fixed income asset holdings are low, and appear to have been deemphasized in the low interest rate environment that has persisted since the Great Recession. The charts also suggest that households across most of the 2014 wealth distribution took significant losses from which they have not fully recovered. While the top 10 percent of the 2014 households has seen marked improvements in their wealth since the Great Recession, and average wealth has improved, about 25 percent of retirement households reported negative net asset positions by 2014. Those in the bottom quartile who own homes have extracted equity from them to finance their retirement. Homeowners in the bottom 10 percent of the wealth distribution have extracted almost all available home equity.

To get a better sense of how allocations and wealth have evolved, we turn next to panel regression analysis. Our regressions target wealth levels and portfolio shares.

Data & Regression Analysis and Results

Our regression panel includes 37,496 household level observations. To account for differential household mortality and associated changes in household size we include both household members separately as primary and secondary member. To control for household members experiences at the individual level we build and employ marriage, gender and a marriage-gender interaction term. We run two types of regressions – a more generic panel regression for work with values and, Tobit regressions when focusing on proportions or ratios.

Data and variables of interest. We target two types of dependent variables, the first being measures of total household wealth, and the second being measures of portfolio allocations.

Household wealth is skewed – and especially in the aftermath of the Great Recession, as we observed in the descriptive look at the data we provided above. To better understand how wealth has evolved for different groups we run regressions for the full sample and for sub-samples of the wealth distribution. The second type of regression we run focuses on portfolio share allocations. Here we deal with difference in wealth by employing two binary variables targeting the top and bottom 10 percent of the wealth distribution. We also run Tobit regressions on our loan-to-value (LTV) dependent variable

In all the regressions that follow, the variable of main interest is a low interest rate indicator, which is coded to be equal to 1 for all interviews following December of 2008—the month the Federal reserve dropped the Federal Funds Rate to a target range of 0-25 basis points. Because this key rate drives global interest rates for fixed income products, and because it stayed in the same near-zero target window well past the last 2014 interview dates, this binary variable captures the low interest rate environment rather parsimoniously.

As shown in the second set of figures above, both retirement and the number of years retired appear to play into allocations, so we include these in our regression, tagging retirement at the first interview announcement. For number of years retired we subtract the retirement year and month from the interview date and express the number of years as a decimal. Age and the square of age are calculated using the oldest living spouse, in married households. Education is similar reported from the maximum education status using the HRS 5-point scale. As an additional measure for education we calculate the difference in household educational attainment and add that as a regressor. We find the education-spread of the household acts to attenuate the return to the education variable. We also control for risk tolerance employing a scaled Arrow Pratt measure

derived from the RAND HRS data set. (We featured this variable in some of the figures earlier in this paper.)

Other controls include household level controls for the proportion of household that is white, and the proportion that is Hispanic—allowing this variable to move in steps when households contain two members (zero, fifty and, one-hundred percent). Finally, as mentioned when we introduced our panel design we include separate and interacted controls for female and married, and based on our work in the figures above, controls for being in the top or bottom ten percent of the wealth distribution.

Regression results. Beginning with full sample and for sub-samples of the wealth distribution. We employ a basic panel regression and find that after controlling for the factors described above that the sample has an average positive wealth accumulation over the low interest rate environment of 2009 – 2014. However, previous figures suggested that this positive impact is driven by the experience of the top 10 percent of our sample. To get a better sense of how the rest of the sample fares, analysis with just the remaining 90 percent of the sample (Bottom 90 percent) shows decumulations over the period, after controlling for socioeconomic factors. Further triage of the sample into less well-off components of the distribution evidence meaningful declines in wealth over this period as well.

To test the robustness of these results we re-ran our full series of regressions across the wealth distribution dropping a seemingly insignificant regressor, the Hispanic variable. Results did not change in direction, or statistical significance. Magnitudes associated with our low interest rate variable changed by 588 or fewer dollars.

We also tested robustness by introducing a new control variable, a household labor force indicator variable which was allowed to vary from 0 to up-to 2 full-time workers, in half-steps, in

order to account for part time work (e.g. {0.0, 0.5, 1.0, 1.5, 2.0}). Similar to the work dropping our control for historically Spanish household membership, the introduction of labor force controls did not change our results regarding the low interest rate environment very much.

In terms of economic magnitudes, including consideration of labor activity changed our results by 610 or fewer dollars over all subsamples from the bottom 90 percent and lower. All results remained strongly statistically significant. Work with the labor force indicator suggests generally remedial labor force responses over the bottom 90 percent of the wealth distribution.

Specifically, over the bottom 90 percent of the population, an increase of one full time job equivalent was associated with roughly $39,500 in lower 2014 wealth. This countervailing response suggests postponement of retirement and reentry in the face of lower wealth—the remediation of losses. Further, among the bottom 25 percent of the 2014 wealth distribution – the proportion with highest probability of bankruptcy, a full time job equivalent is associated with roughly $13,500 greater wealth.[25] We suspect that the flip in sign here has to do with a general paucity of assets for retirees in this group, in 2014, not a difference in the basic tendency to view re-entry as remedial.

We move next to our results with allocations and the role of a home in financing retirement. Because we are measuring proportions and because transactional constraints make it difficult for most households to short most asset types we employ a Tobit regression with a lower bound of zero. The lower bound censors a meaningful number of households who report no allocations in particular investment categories. The Tobit accounts for the idea that censored observations might have otherwise preferred short positions – that their true preferences find limited representation in the data.

Beginning with bond allocations, the bulk of HRS households report holding no bond allocations. In all 126,935 observations are censored at 0, leaving 9,622 uncensored observations. Nonetheless, employing the panel Tobit estimator, we find very strong t-statistics and reasonable measures of R-squared that suggest our regressions are accounting for 10-13 percent of the variation in bond allocations in these data over the period of study.

Turning to the variable of interest, we observe estimated declines of roughly three percentage points for bond allocations over the low interest rate period. This is consistent with earlier pattern in figures 1 and 13. It represents a large attenuation effect given the low proportions of bonds reported in Figure 13 (where reported allocations ranged from 0 to 1.6 percent, recall). As robustness checks we drop the constant, and uniquely drop controls referring to risk and marriage which have seemingly low correlation with allocations in either the battery containing or excluding a constant. Our coefficient of interest is stable about the 3 percentage point estimate in each of these specifications.

Turning to stock and mutual fund allocations, our baseline Tobit censors 94,337 observations leaving 42,220 uncensored observations in the panel. The low interest rate period is associated with marked declines in equity and mutual fund allocations of 12-13 percentage points. This finding holds up under several variations of specification. We interpret this finding as a result of asset drawdown, generically, but acknowledge that we are unable to say more about composition within mutual funds. Mutual fund holdings include equities and fixed income assets, HRS data do not afford a good look at how allocations within these funds have evolved.

Turning next to Certificates of Deposits, Savings Bonds and, T-bills we have 105,250 censored observations and 31,307 uncensored observations in our panel. We find very notable

declines of 11 to 15 percentage points in allocations to these low risk, liquid, and distinctly low yield investments in the low interest rate period. This represents the largest variation across any asset class we investigate. As might be expected for this type of investment, risk preferences are more statistically related to allocations – seen through the relatively high t-statistics for our risk measure in these regressions.

Our final regression panels consider loan-to-value (LTV) dynamics. Here we find the low interest rate environment is generally associated with a 7 percentage point increase in LTV. Though some of this assuredly is a result of declines in home value, not increases mortgage debt, figures 4, 5 and 6, suggest that paydown has generally been diligently pursued among households. Indeed, experiences differ all too viscerally for the bottom 10 percent of the 2014 wealth distribution of retirees. Among the lowest ten-percent of out 2014 wealth distribution we find a much larger 34 percentage point increase in LTV. By contrast among the top ten, LTV actually declines by 7 percentage points. These effects, while large are smaller than the general spread in experiences shown in Figure 15. Our regression results suggest that the residual difference in mortgage paydown is accounted for by other factors such as age, education, etc. Nonetheless a 41 percentage point difference in LTV evolution across these groups should give pause as to the financial security and overall stability of less well-off retirees.

Conclusion

The retirement landscape has evolved over the last few decades. A movement away from defined-benefit plans to defined-contribution plans, by both private and public sector employers, has shifted much of the burden and risk of paying for retirement onto the individual. The erosion of wealth for many resulting from the Great Recession of 2007-2009 and the low interest rate

environment that followed has furthered the challenges many face in saving for a financially secure retirement.

Our descriptive analysis targeting average balances for traditional retirement investments yields mixed results in terms risk-return and both cash & asset management strategies. Patterns that suggest delayed income tapering may be aligned with delayed mortgage payoff and investments in bonds may be muted in the low interest rate environment since the Great Recession. By comparison, the value of Stocks (equity holdings and mutual fund holdings) have grown for most cohorts following a negative shock related to the aftermath of the Financial Crisis. If we consider alternative portfolio and wealth management strategies, equities may prove to be a resilient form of wealth, insomuch as low interest rates and low wage growth – two features of the post 2008 economic landscape, persist and continue to contribute to strong profits for firms. Equities that pay dividends have been of interest to investors over the period since the 2008, and this is consistent with increased demand for equities across the life-cycle. However, dividend income is uncertain when compared to fixed income reruns from bonds.

Results from our regressions are consistent with the observations in our descriptive data on these points. One challenge for all our results however is the lack of delineation of mutual fund holdings in the HRS data. At older ages, many households invested in mutual funds are likely to hold a much greater proportion of their assets in bonds, when compared to stocks, which is not represented in the HRS data.

Households across most of the 2014 wealth distribution took significant losses from which they have not fully recovered. While the top 10 percent of 2014 households has seen marked improvements in their wealth since the Great Recession, and average wealth has improved, about 25 percent of retirement households reported negative net asset positions by 2014. Those in the

bottom quartile who own homes have extracted equity from their homes to finance their retirement. Homeowners in the bottom 10 percent of the wealth distribution have extracted almost all available home equity.

Financial security in retirement is still obtainable. However, the likely reality is people will need to save more on their own and work longer, either retiring later or working for some paid income during retirement. A persistently low interest rate environment only exacerbates retiree preparedness. One final point we wish to emphasize regarding alternative portfolio and wealth management strategies, which is consistent with longer labor force participation and more thoughtful use of social insurance programs, across at least the bulk of the wealth distribution, is that individuals should claim Social Security retirement benefits later in order to maximize the inflation-protected annuity value that Social Security provides.

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Endnotes

[1] https://www.ssa.gov/OACT/STATS/table4a3.html

[2] https://www.ssa.gov/pubs/EN-05-10147.pdf

[3] Data available from Yahoo! Finance. S&P 500 index value at market close on October 10, 2007 was 1562.47. Index value at close on March 9, 2009 was 676.53. The National Bureau of Economic Research, the arbiter of the start and end dates of a recession, determined that the recession that began in December 2007 ended in June 2009, roughly coinciding with the peak and trough dates of the S&P 500 index.

[4] The HRS is a longitudinal survey of health, retirement, and aging that has been conducted every two years since 1992 and interviews more than 22,000 Americans over the age of 50. For more information on the HRS, see http://hrsonline.isr.umich.edu.

[5] In this context, "retirement plans" refers to peoples' goals, strategies and behaviors, not to defined contribution or defined benefit retirement plans.

[6] The timing of retirement can be affected by more than age, including accumulated savings, the availability of an employer-provided pension, the willingness or ability to continue working part-time in retirement, personal health, access to health coverage, and general economic conditions.

[7] The authors used data from the 2006 and 2008 core surveys, as well as data from two additional supplemental surveys, the Consumption and Activities Mail Survey (CAMS) and the HRS Internet Study. Although the time between the 2008 HRS interview and a subsequent 2009 HRS Internet survey was insufficient to observe actual behavior, the data nonetheless can be used to shed light on retirement expectations (Hurd and Rohwedder).

[8] What is described here are the expectations of working past either age 62 or age 65. Hurd, Reti, and Rohwedder (2005) have found that these retirement expectations are predictive of actual retirement.

[9] Hurd, Michael D. and Susann Rohwedder (2010). 'The Effects of the Economic Crisis on the Older Population.' MRRC Working Paper No. 2010-231. Ann Arbor, MI: Michigan Retirement Research Center. Tables 10 and 11, page 20.

[10] Hurd, Michael D. and Susann Rohwedder (2010). 'The Effects of the Economic Crisis on the Older Population.' MRRC Working Paper No. 2010-231. Ann Arbor, MI: Michigan Retirement Research Center. Page 11.

[11] Glick, Reuven and Kevin J. Lansing (2011). 'Consumers and the Economy, Part I: Household Credit and Personal Saving.' Federal Reserve Bank of San Francisco. Economic Letter. January 10, 2011. http://www.frbsf.org/economic-research/publications/economic-letter/2011/january/consumers-economy-household-credit-personal-saving/

[12] For a theoretical model of this behavior, see: Chai, Jingjing, Raimond Maurer, Olivia S. Mitchell, and Ralph Rogalla (2011). 'Lifecycle Impacts of the Financial and Economic Crisis on Household Optimal Consumption, Portfolio Choice, and Labor Supply.' PRC Working Paper No. WP2011-05. Philadelphia, PA: Pension Research Council, The Wharton School of the University of Pennsylvania.

[13] Social Security Administration. Online: https://www.ssa.gov/planners/lifeexpectancy.html. Accessed February 26, 2017.

[14] Social Security Administration. Online: https://www.ssa.gov/planners/lifeexpectancy.html. Accessed February 26, 2017.

[15] U.S Bureau of Labor Statistics, Issues in Labor Statistics, Summary 10-04, March 2010, https://www.bls.gov/opub/ils/summary_10_04/older_workers.htm.

[16] U.S. Bureau of Labor Statistics, Issues in Labor Statistics, Summary 10-04, March 2010, www.bls.gov/opub/ils//summary_10_04/older_workers.htm.

[17] CRS Report for Congress, *Unemployment and Older Workers*, August 29, 2007.

[18] For a summary of research work on this area, see: Burkhauser, Richard, Alan Gustman, John Laitner, Olivia S. Mitchell, and Amanda Sonnega (2009). 'Social Security Research at the Michigan Retirement Research Center. Social Security Bulletin. Volume 69, Number 4.

[19] An aged unit is either a married couple living together or a nonmarried person, which also includes persons who are separated or married but not living together. A married couple's age is defined as the age of the husband—unless he is under age 55 and the wife is 55 or older, in which case it is the age of the wife. The example in the paper refers to aged units that are 65 years of age or older. In this case, the age of the married couple is the age of the husband if he is 65 or older; if the husband is younger than 55 and the wife is aged 65 or older, the age of the married couple is the age of the wife. See www.ssa.gov/policy/docs/characteristics/income_aged/2008/index.html.

[20] United States Social Security Administration. Fast Facts & Figures. August 2016. "Relative Importance of Social Security, 2014." Accessed online February 26, 2017. https://www.ssa.gov/policy/docs/chartbooks/fast_facts/2016/fast_facts16.html#page5.

[21] RAND version P include HRS data through the 2014 wave, all figures adjusted to 2015 dollars.

- Health and Retirement Study, public use dataset. Produced and distributed by the University of Michigan with funding from the National Institute on Aging (grant number NIA U01AG009740). Ann Arbor, MI,
- RAND HRS Data, Version P. Produced by the RAND Center for the Study of Aging, with funding from the National Institute on Aging and the Social Security Administration. Santa Monica, CA (August 2016).

[22] This is consistent with Federal Reserve G.20, Financial Accounts of the U.S. data, which show that as of Q3 2016 household owners equity in real estate was 96.8 percent of the pre-recession peak, from Q1, 2006. Two years earlier, in Q3 2014 the recovery in these data was 77.9 percent—much less complete.

[23] This cohort's wealth may evolve in ways that ere interesting to other researchers in the future.

[24] Because bonds can be held in mutual funds, we r3eason that the HRS data represent an underreporting of bonds, and over reporting of equities, as a proportion of overall portfolios.

[25] Actual estimates (t-stats) of the correlation between a full-time equivalent job and total assets for: (1) the overall sample, (2) bottom 90^{th} and (3) bottom 25^{th} percentile of the 2014 wealth distribution were: $270,081 (2.67), -$39,476 (-7.78), and $13,621 (2.55) respectively.

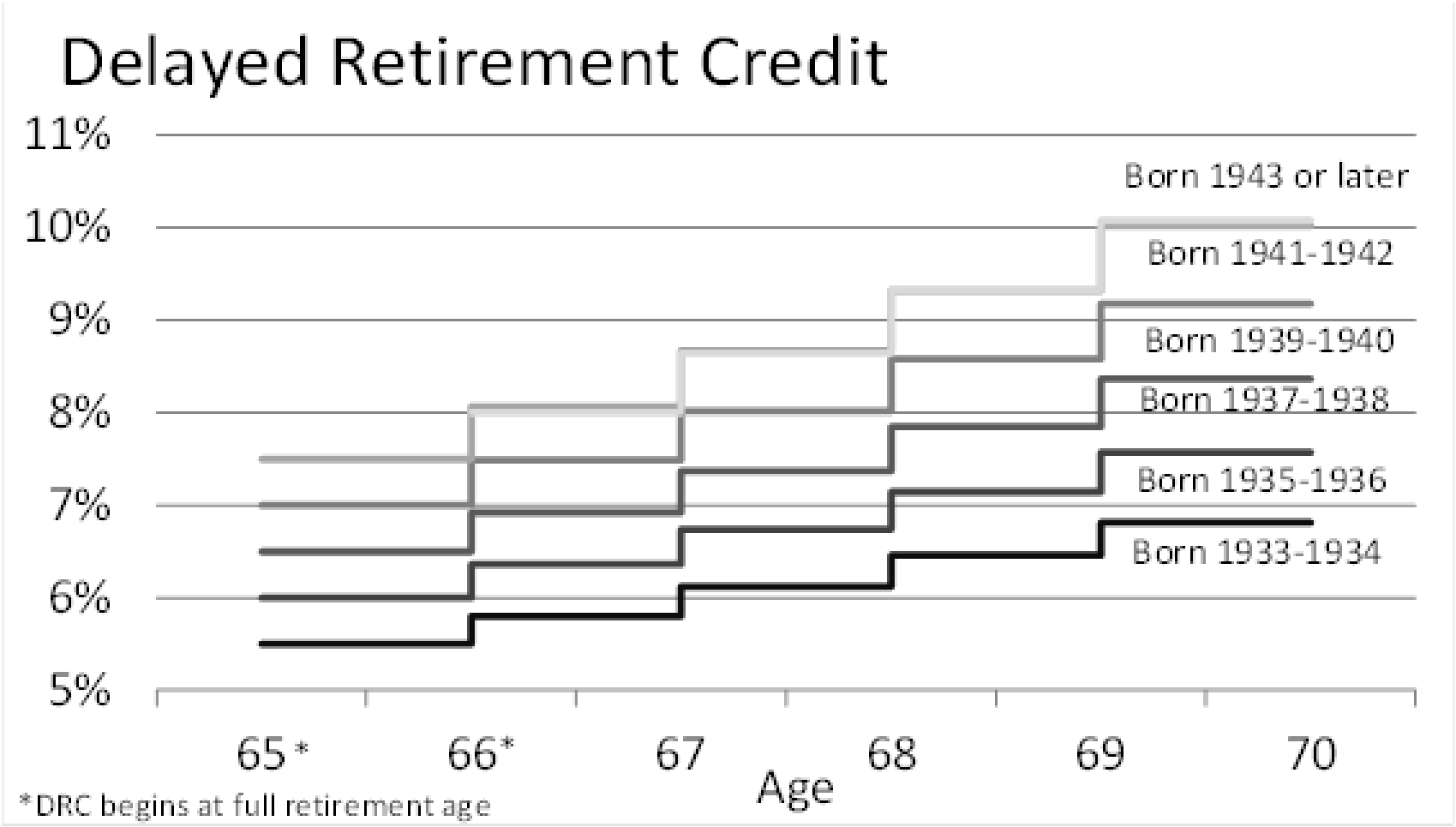

Figure 1: DRC by birth cohort

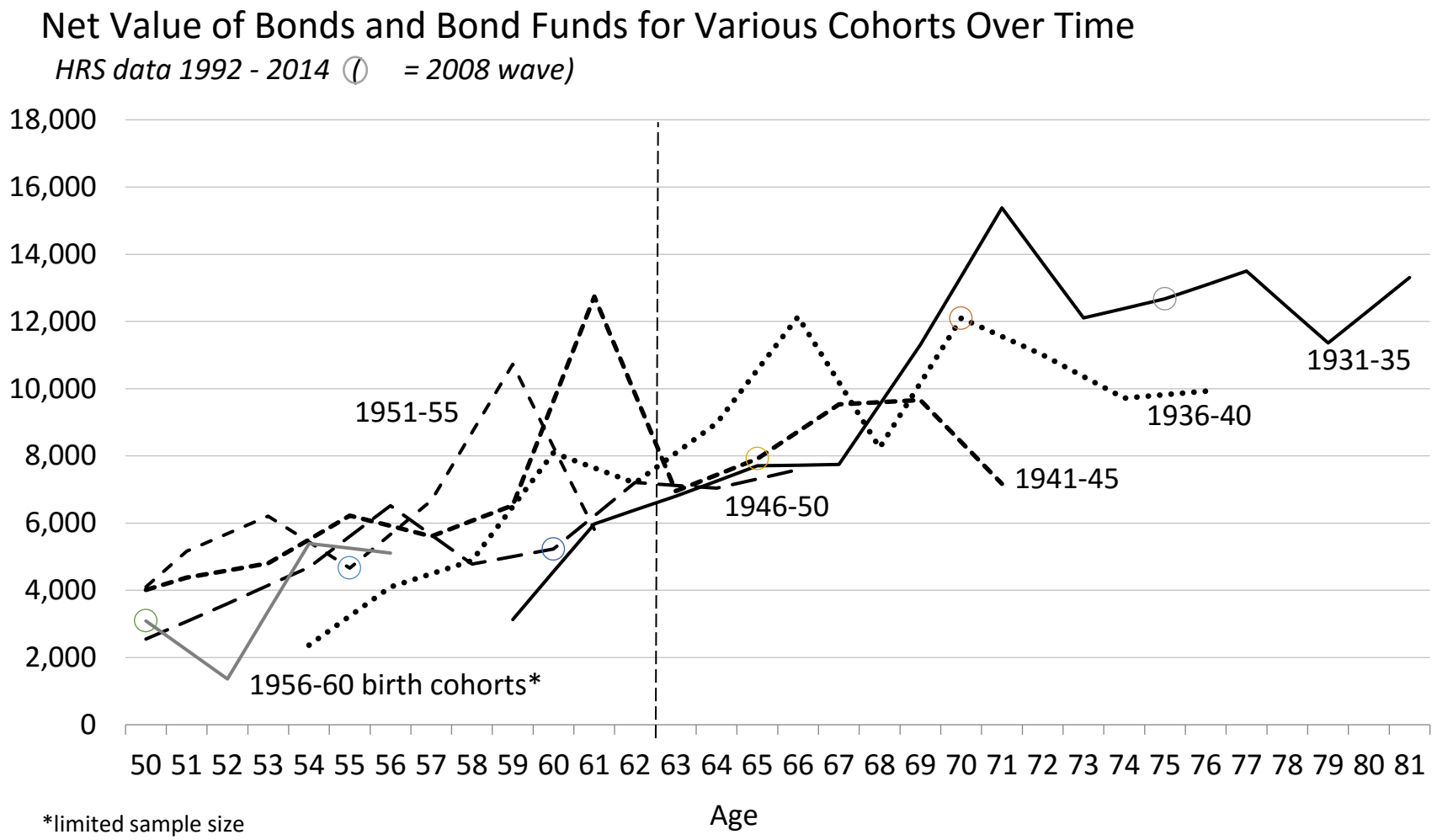

Figure 2: Net value of bonds reported by cohort-segments

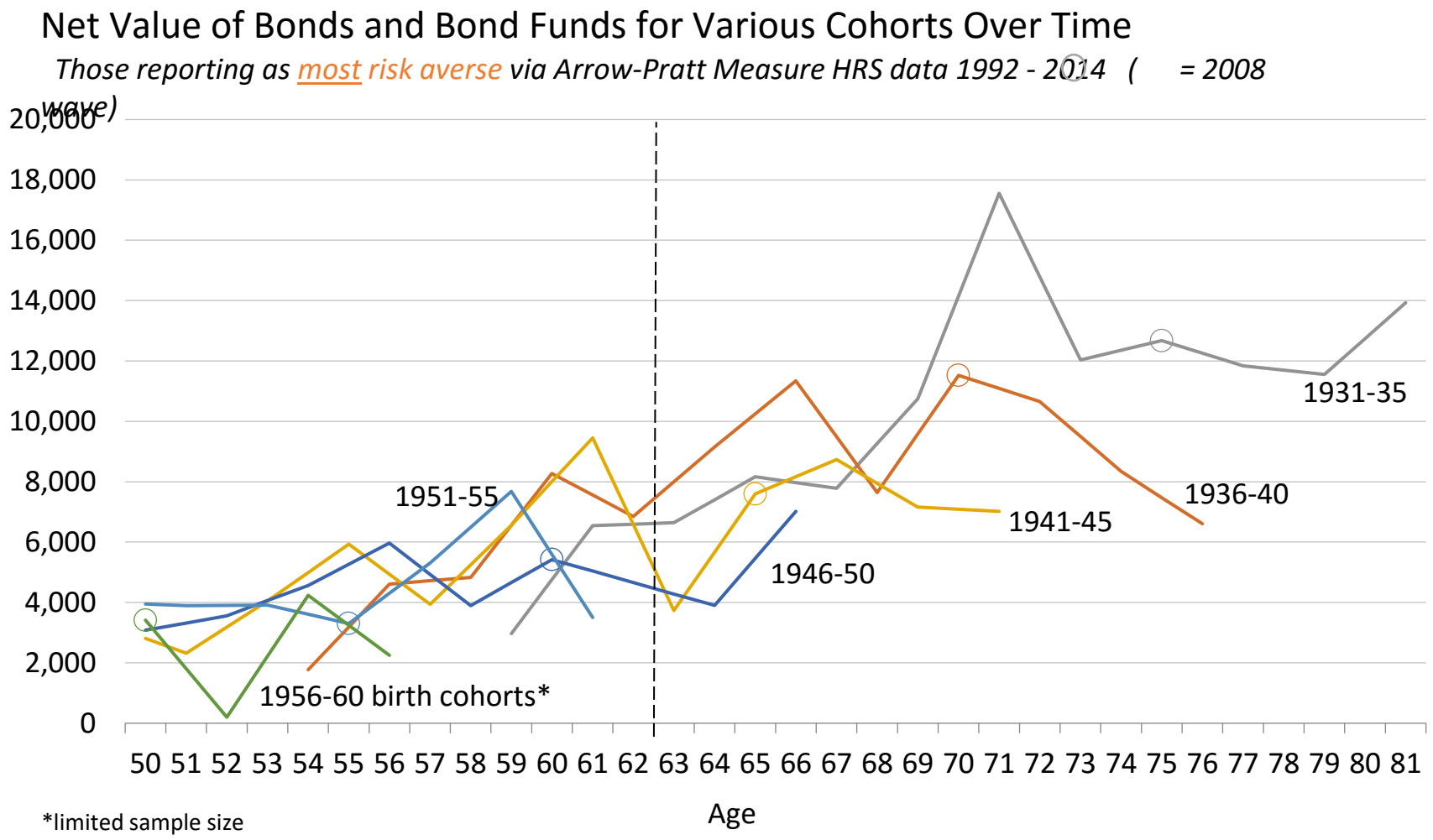

Figure 3: Evolution of bond holdings by cohort, among the most risk averse

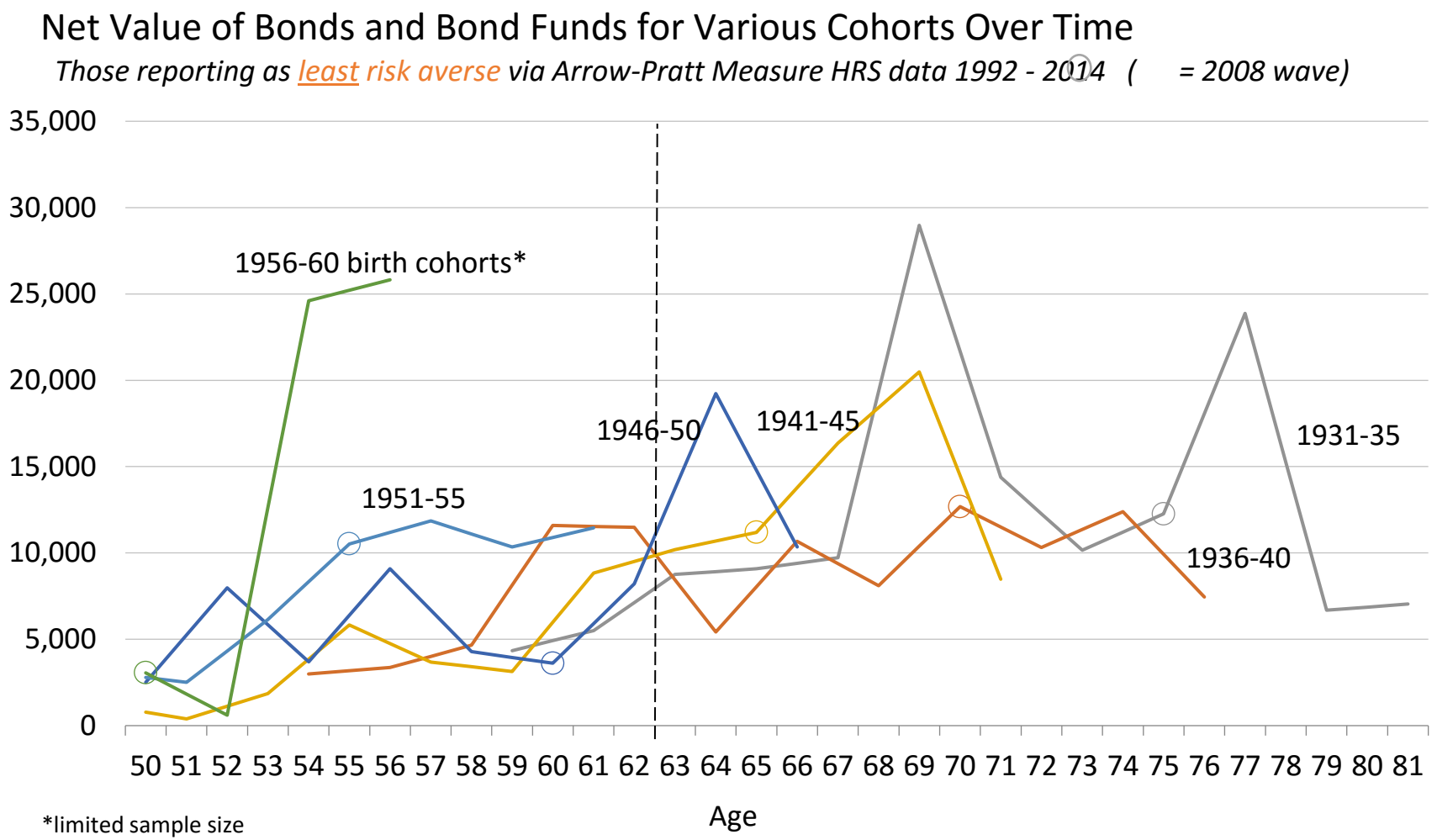

Figure 4: Evolution of bond holdings by cohort, among the least risk averse

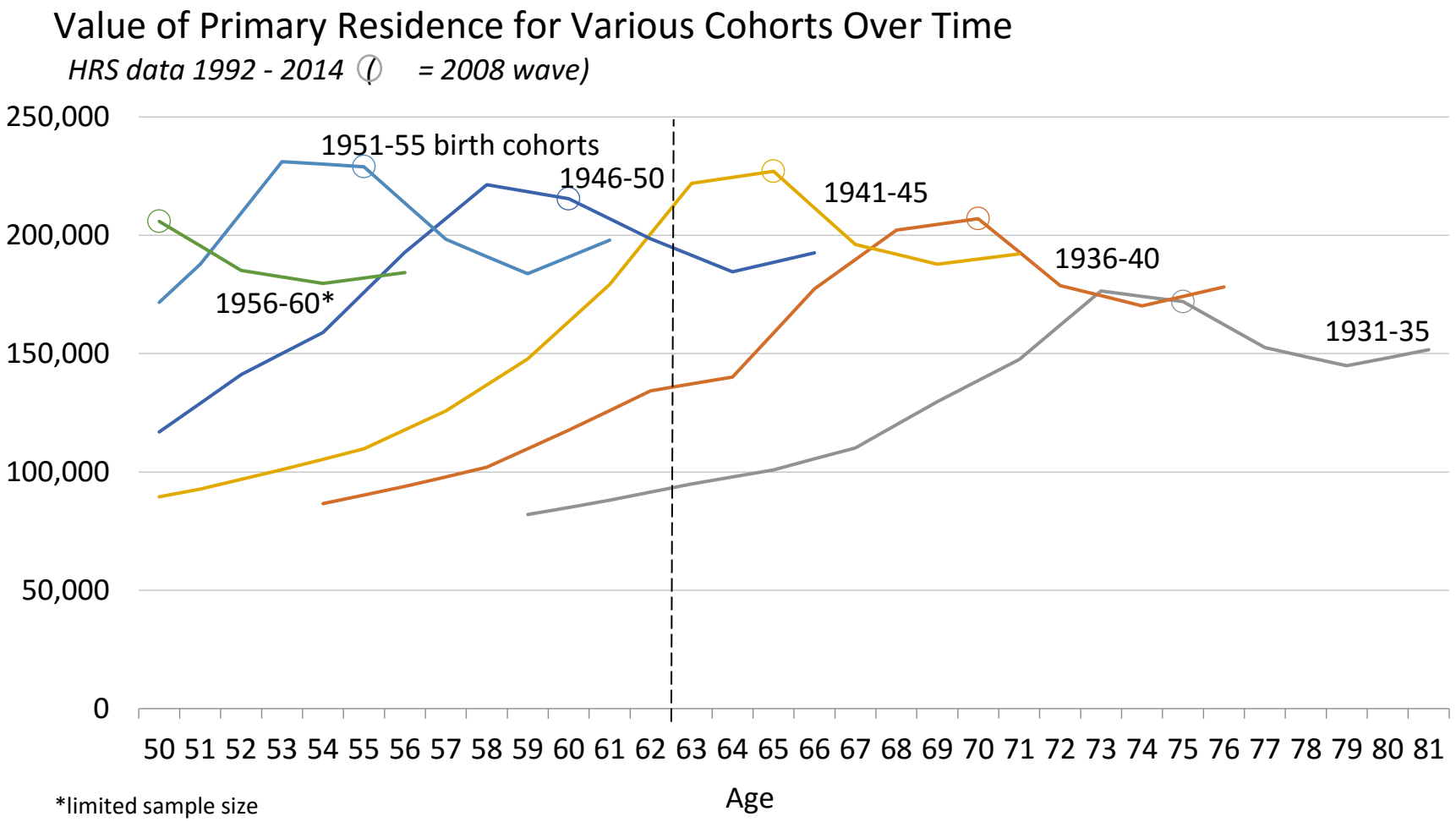

Figure 5: Value of primary resident for various residents over time

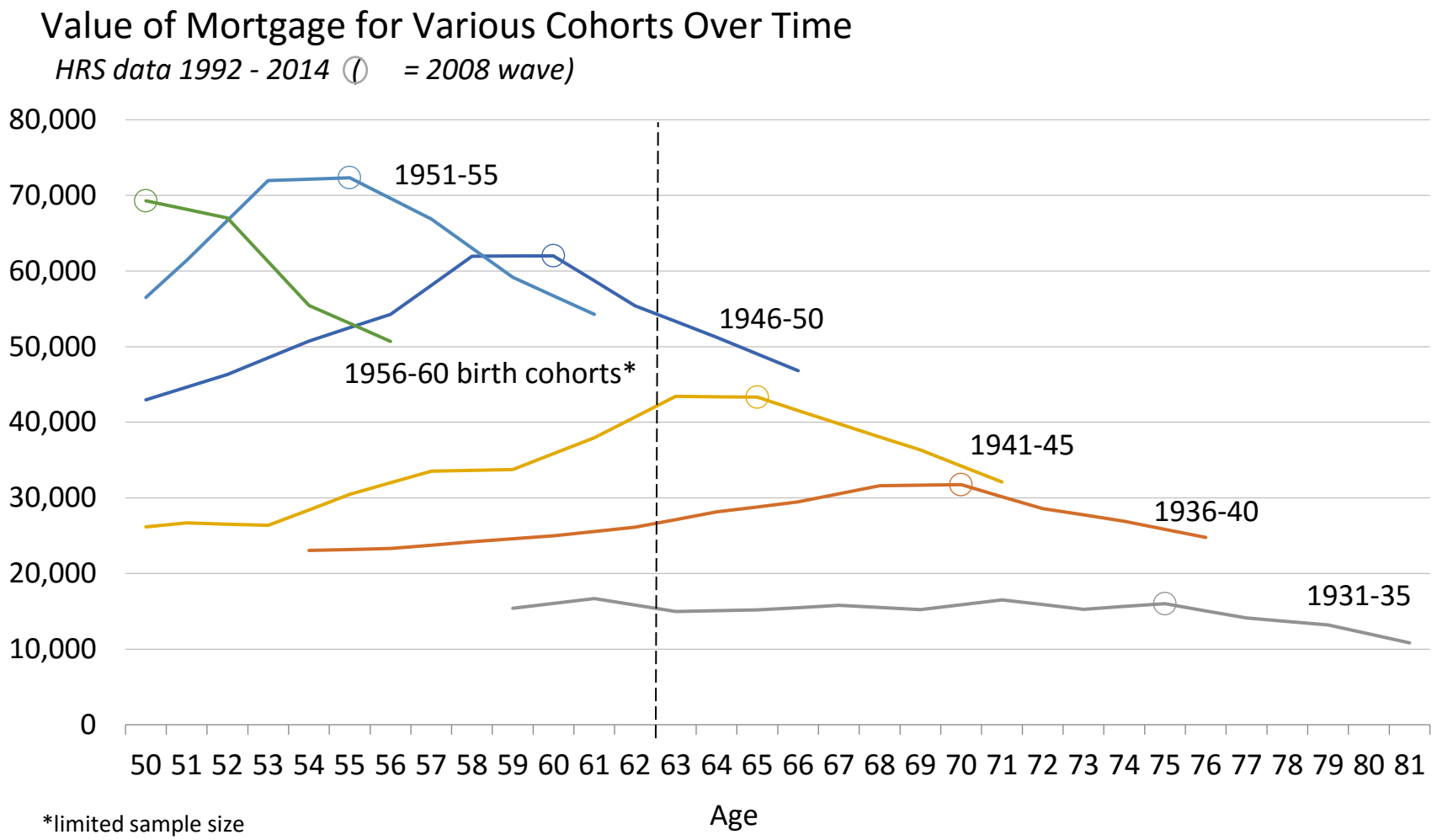

Figure 6: Value of mortgage remaining by cohort

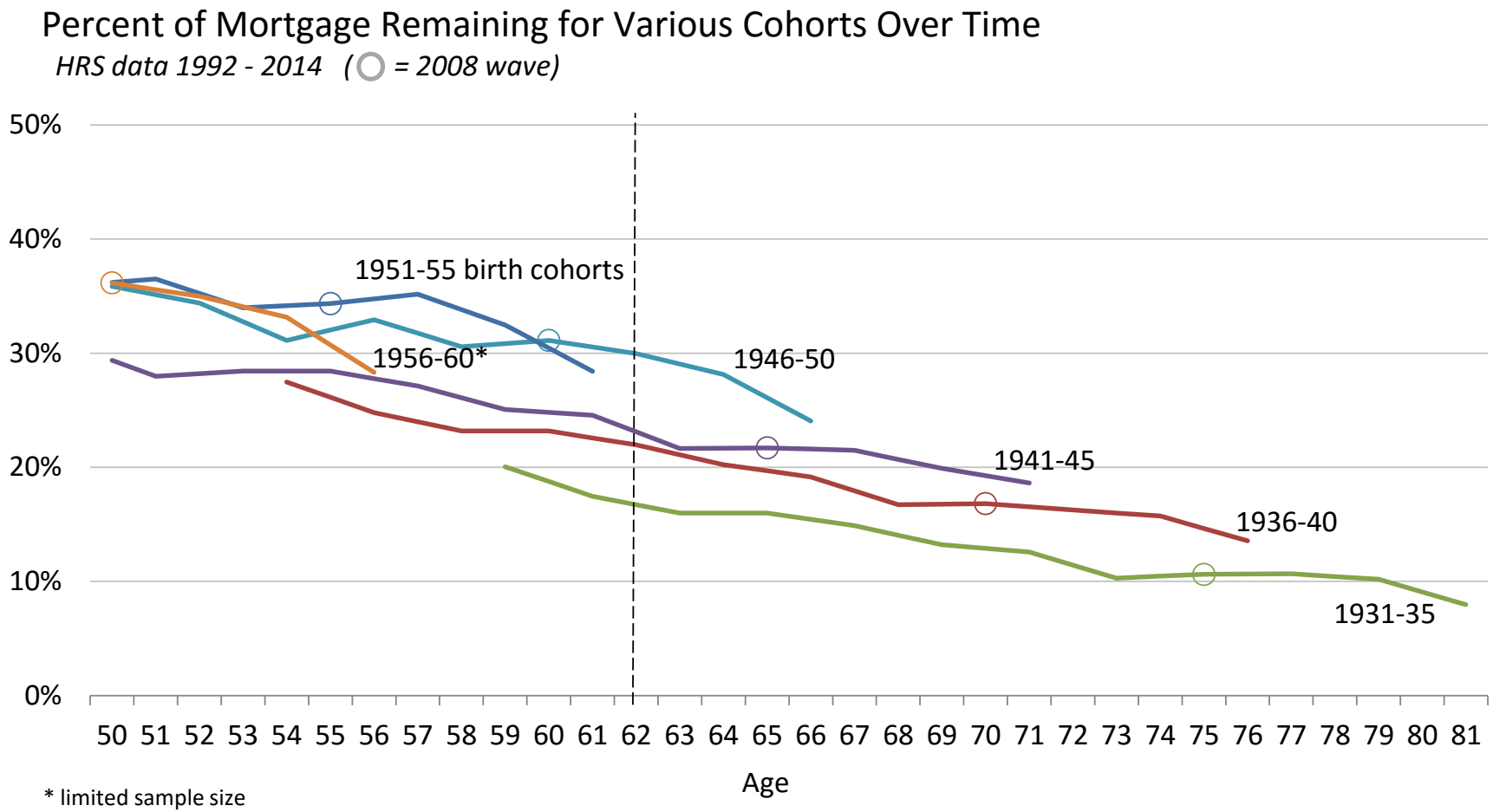

Figure 7: LTV evolution by cohort over time

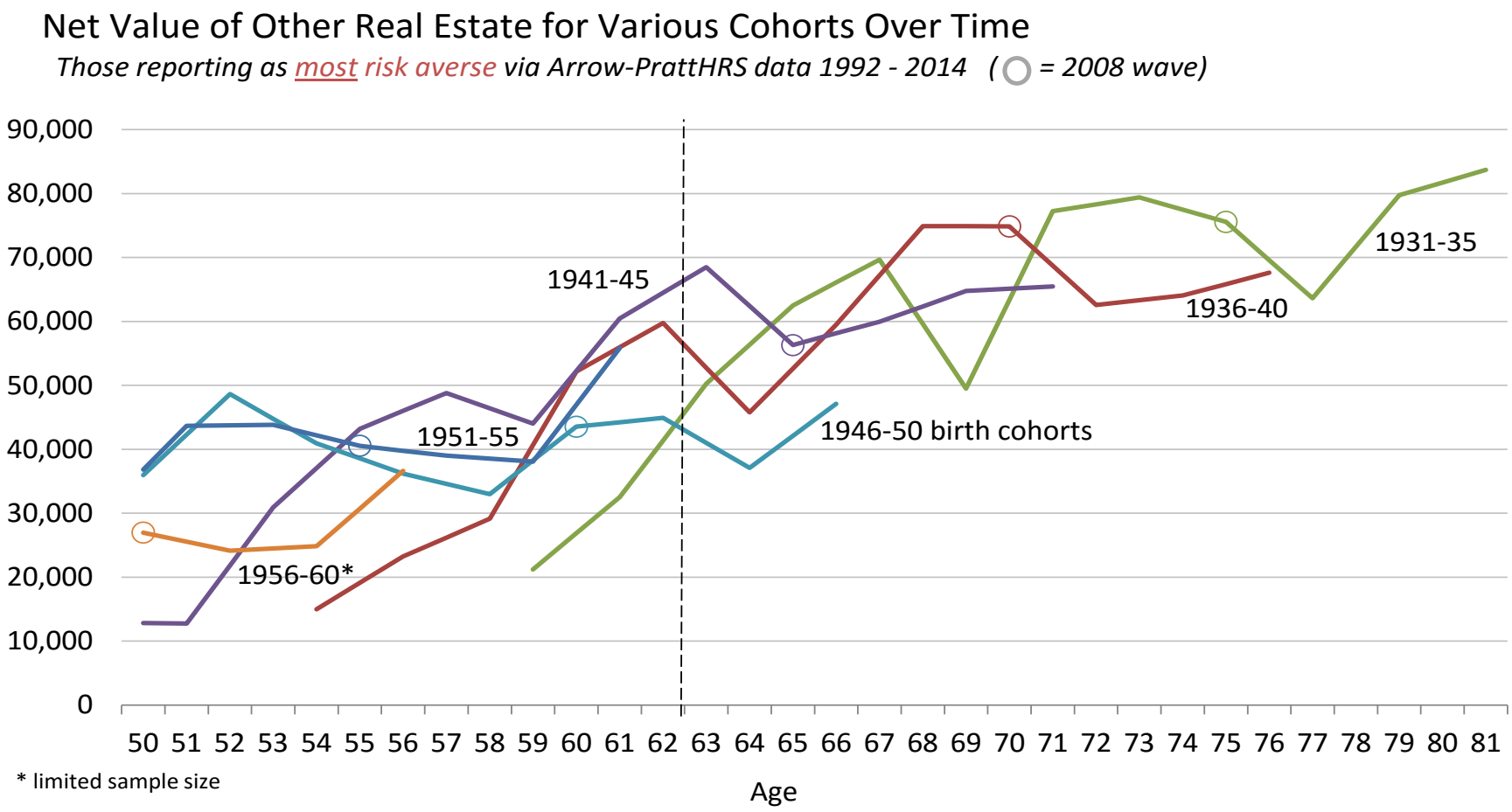

Figure 8: Net value of other real estate by cohort over time, most risk averse

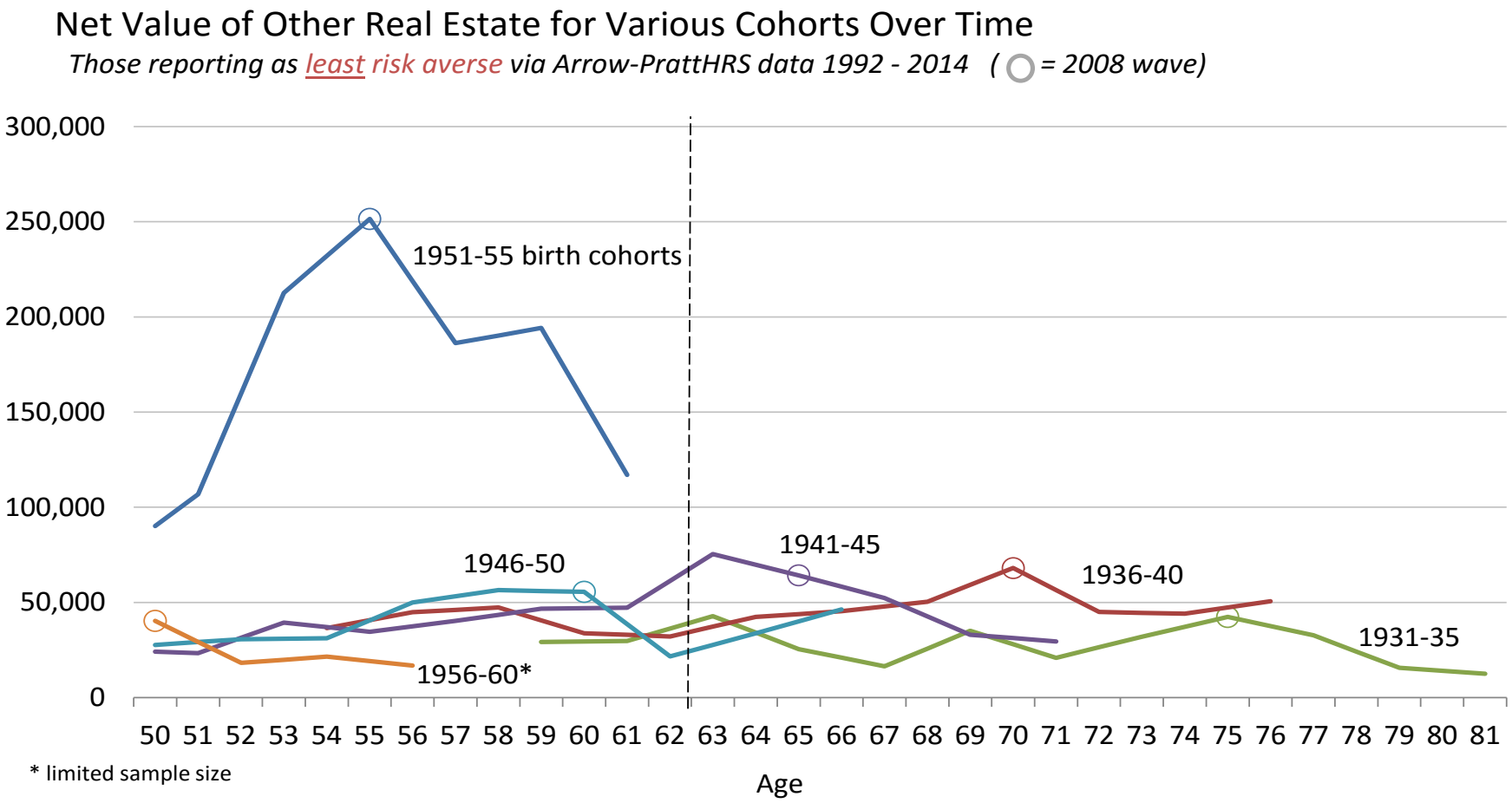

Figure 9: Net value of other real estate by cohort over time, least risk averse

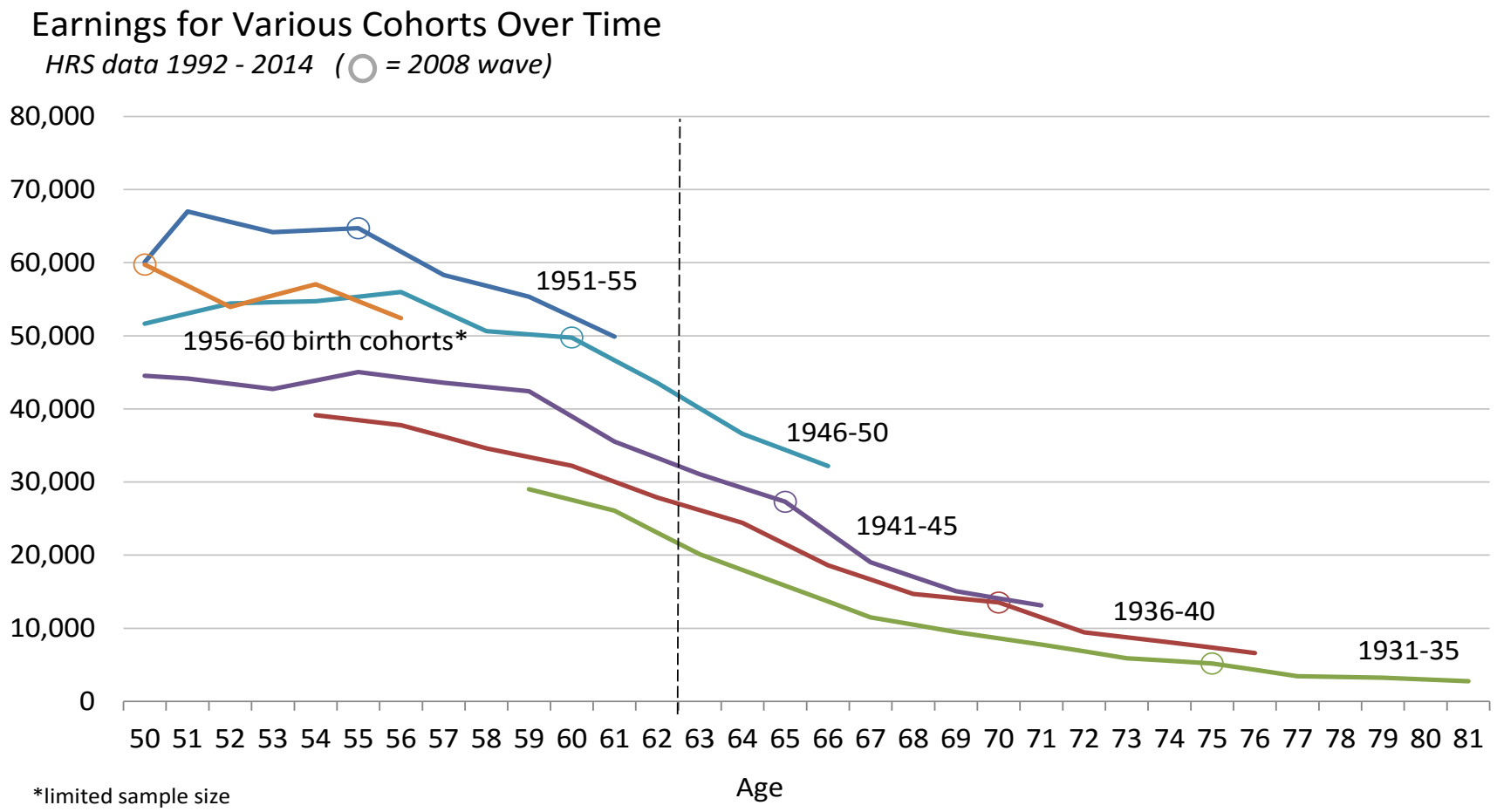

Figure 10: Earnings for various cohorts over time

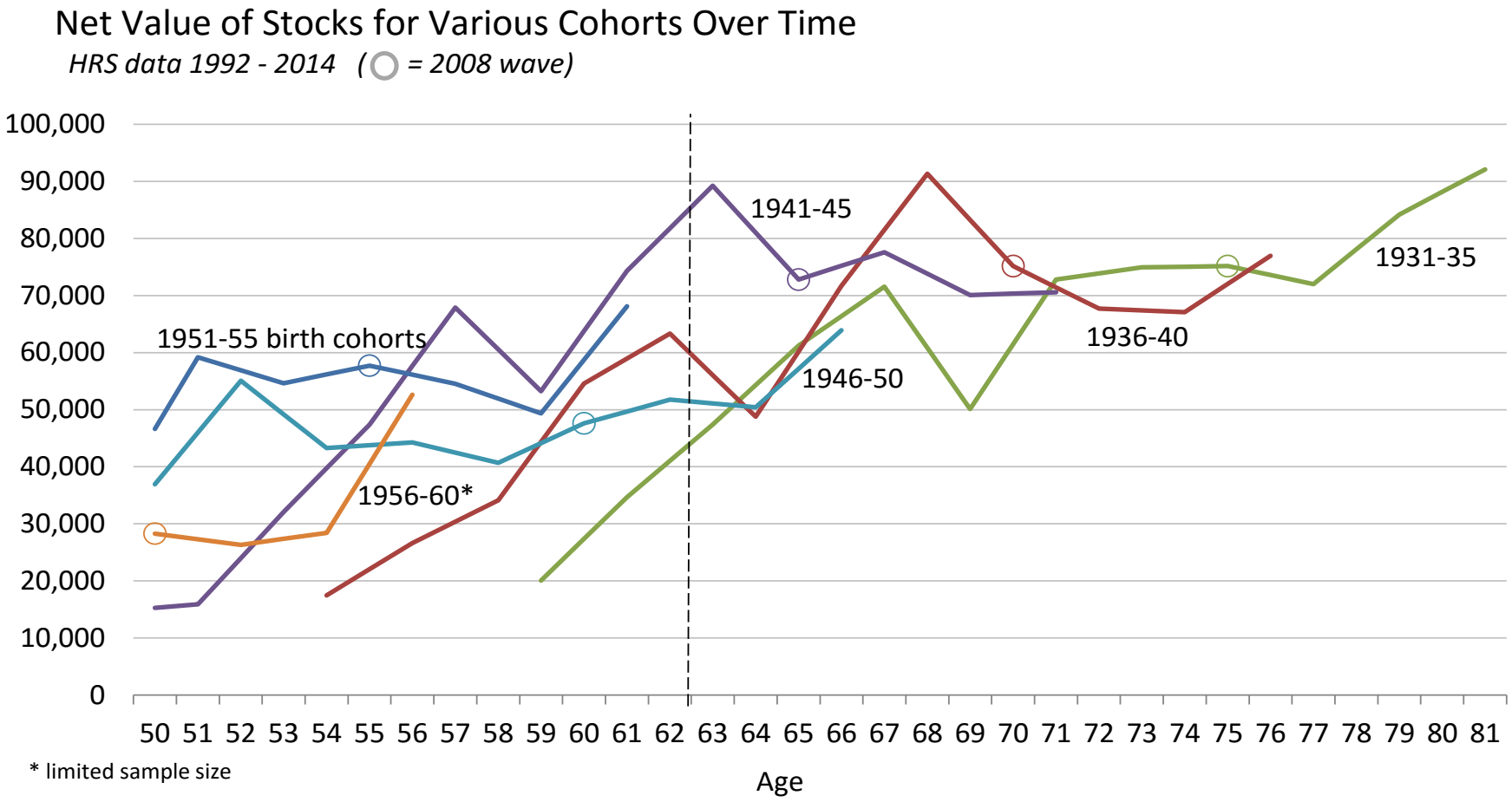

Figure 11: Net value of stock and mutual fund portfolios by cohort over time

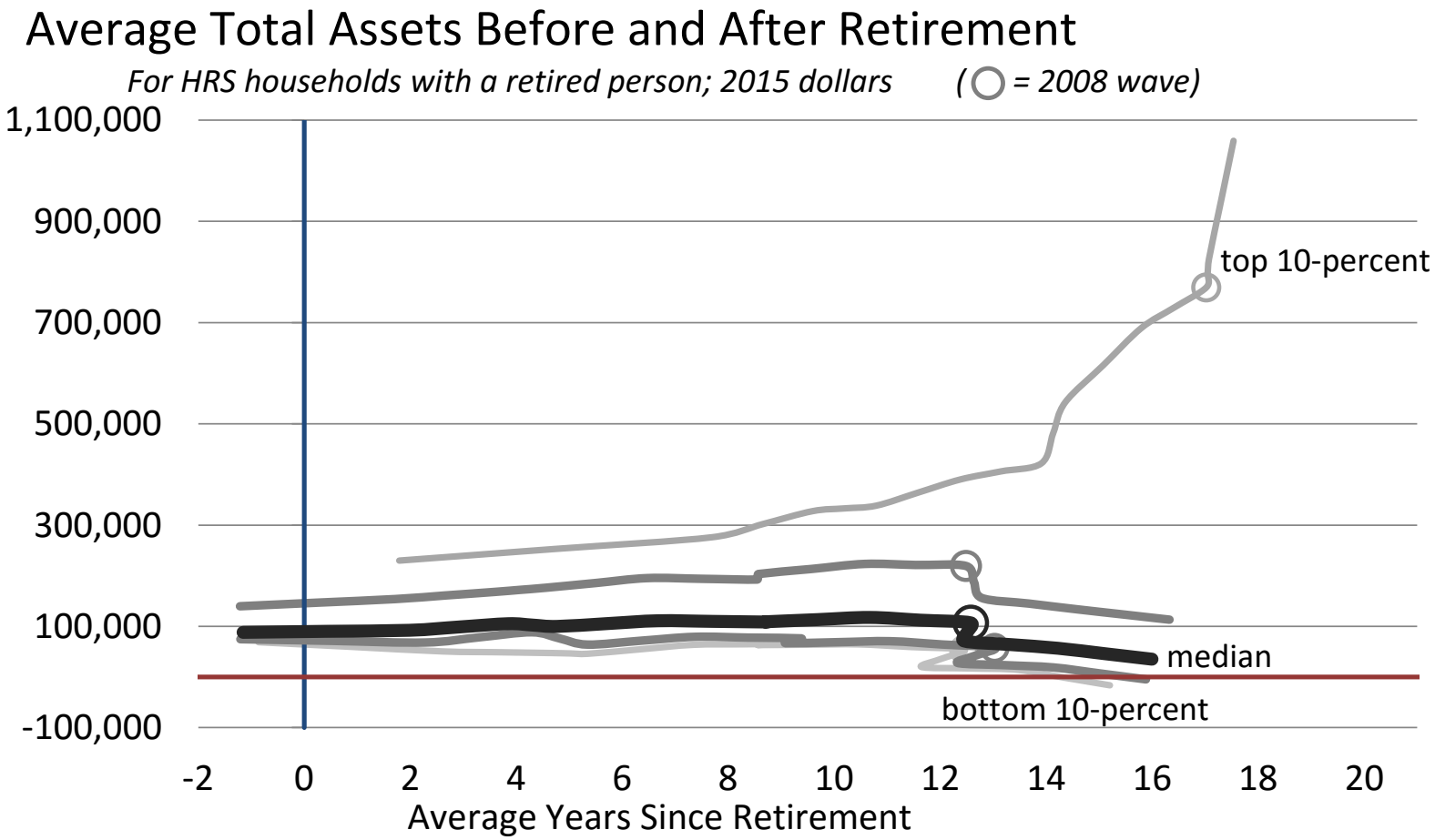

Figure 12: Total assets before and after retirement by 2014 wealth distribution

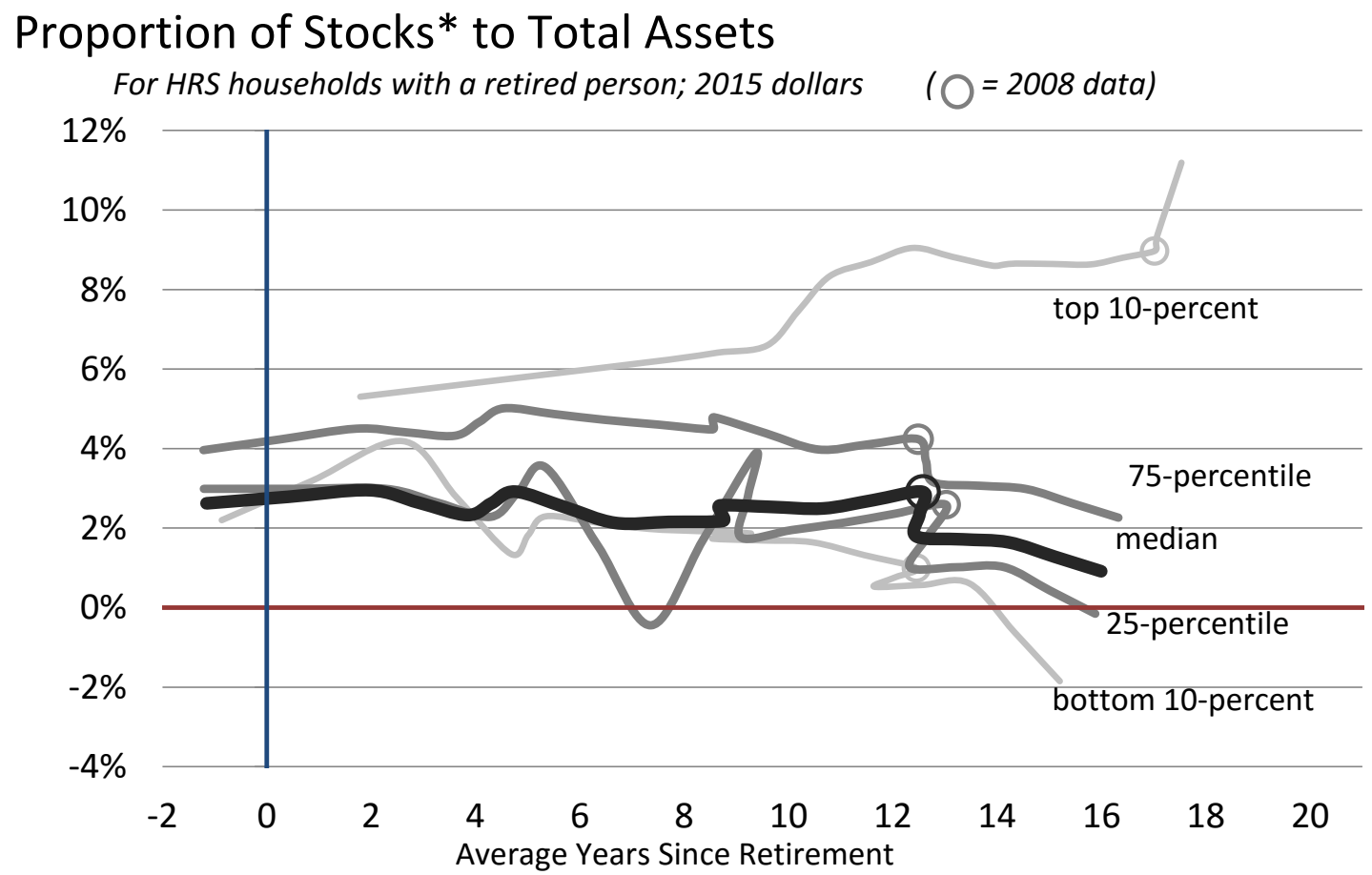

Figure 13: Ratio of stock and mutual funds to total assets, by 2014 wealth distribution

Figure 14: Ratio of bonds to total assets by 2014 wealth distribution

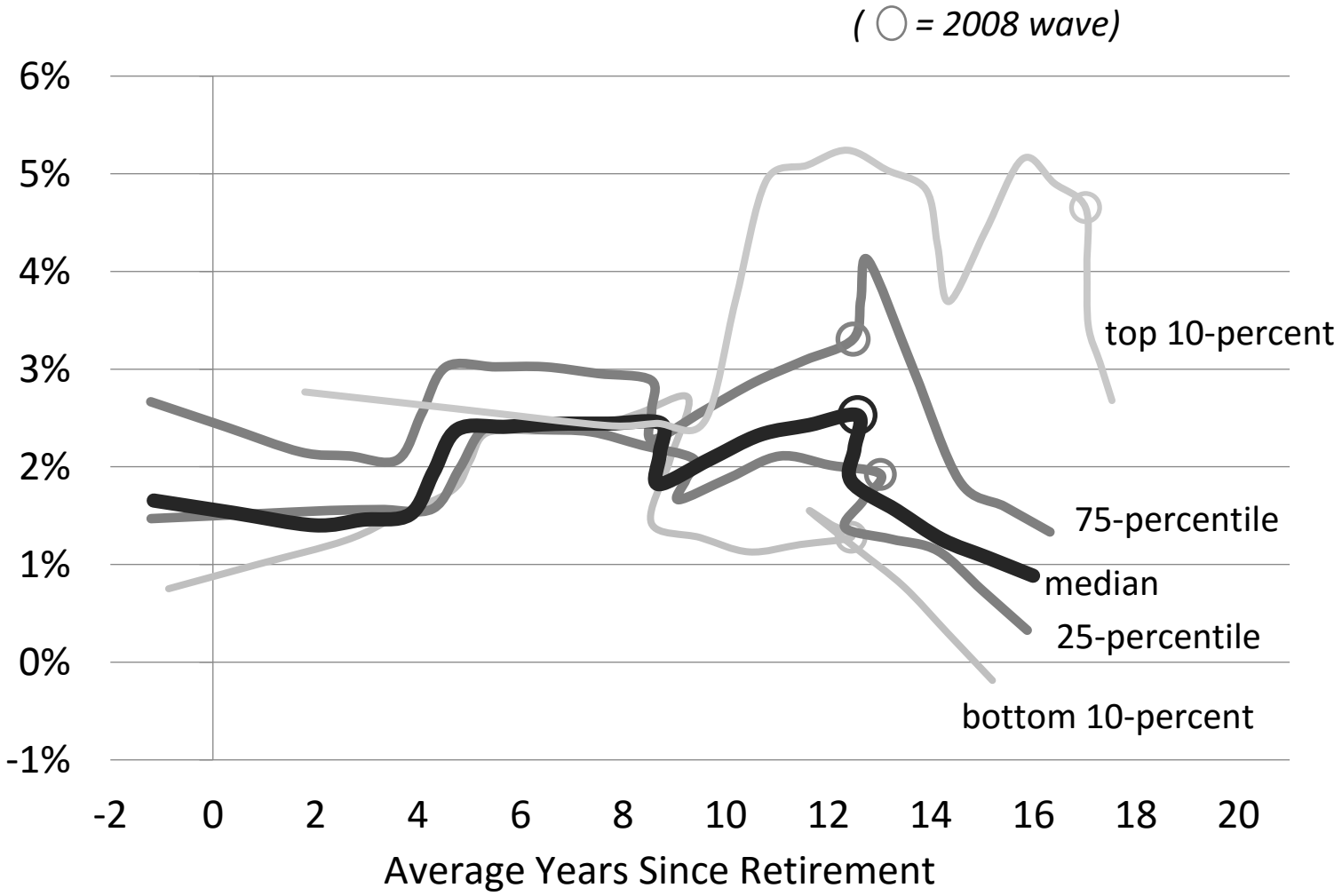

Figure 15: Ratio of {CDs savings bonds and T-bills}: total assets by 2014 wealth distribution

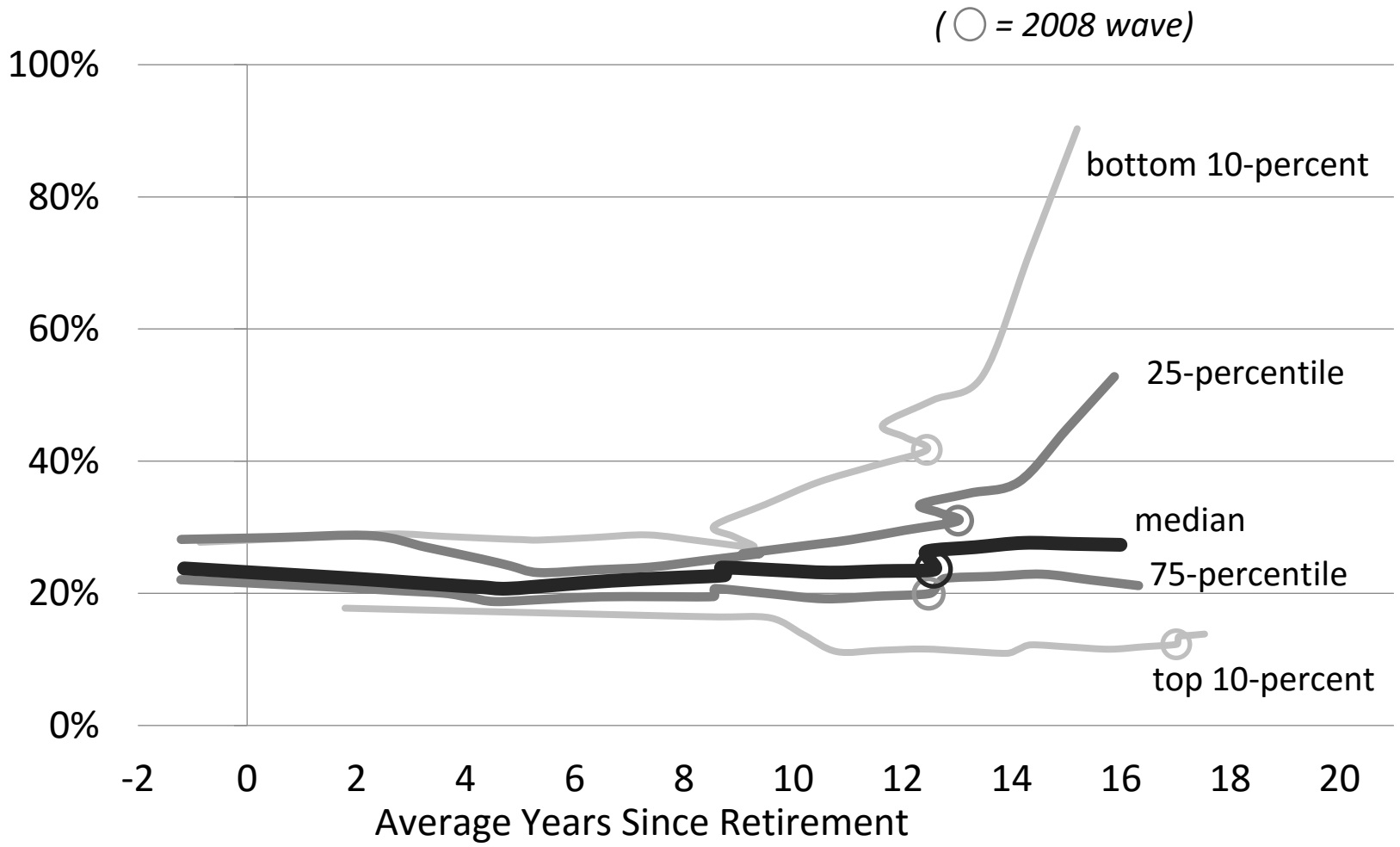

Figure 16: Loan-to-Value For HRS households with a retired person; 2015 dollars, LTV by 2014 wealth distribution, over time

Table 1: Total Assets ($2015)

Total Assets ($2015)	**Full Sample**		*-- wealth dist of the: HRS 2014 Bottom 90*		*Bottom 75*		*Bottom 50*		*Bottom 25*		*Bottom 10*	
	Coef.	**t**	Coef.	**t**	Coef.	**t**	Coef.	**t**	Coef.	**t**	Coef.	**t**
low interest rate {0,1}	120,998.10	**17.01**	-42,732.90	**-12.95**	-54,519.26	**-17.91**	-42,570.42	**-18.72**	-32,729.63	**-9.21**	-34,964.95	**-8.34**
retired {0,1}	57,133.40	**7.22**	23,779.25	**5.93**	7,183.90	**1.94**	6,334.49	**2.30**	20,506.38	**4.75**	15,624.66	**3.10**
years retired	1,113.56	**3.40**	717.76	**4.34**	102.81	**0.68**	-183.92	**-1.65**	-595.68	**-3.32**	69.79	**0.32**
home owner {0,1}	226,927.80	**29.43**	158,994.70	**40.51**	120,550.20	**35.98**	81,426.33	**37.72**	80,476.55	**25.26**	86,295.64	**21.81**
household age	32,161.99	**7.32**	22,855.04	**10.57**	11,158.14	**5.66**	2,492.08	**1.72**	617.79	**0.29**	-5,101.55	**-2.03**
" squared	-198.92	**-6.14**	-131.38	**-8.26**	-52.54	**-3.62**	-4.43	**-0.41**	5.83	**0.36**	42.89	**2.27**
education hh max {1, …, 5}	157,851.80	**68.42**	69,604.75	**57.94**	41,119.59	**37.32**	23,005.35	**28.15**	19,999.96	**15.79**	19,233.24	**12.83**
edu spread {max-min}	-103,266.70	**-34.98**	-45,309.60	**-30.31**	-25,878.23	**-18.65**	-14,187.89	**-13.31**	-15,086.90	**-8.59**	-15,823.61	**-7.47**
risk {1,…,4} least to most risk averse	-7,346.70	**-3.00**	-1,992.74	**-1.60**	-1,061.62	**-0.93**	-469.92	**-0.55**	2,768.39	**2.16**	1,811.59	**1.21**
white {0,0.5,1}	126,055.30	**17.49**	70,235.91	**19.88**	42,365.91	**13.80**	10,625.51	**5.04**	4,425.12	**1.39**	-985.41	**-0.27**
hispanic {0,0.5,1}	-18,279.24	**-1.78**	-25,667.87	**-5.27**	-21,210.74	**-5.04**	-12,809.24	**-4.49**	-3,840.11	**-0.91**	13,189.93	**2.82**
female {0,1}	-39,066.98	**-3.48**	-20,659.77	**-3.55**	-5,392.63	**-1.05**	-5,593.30	**-1.61**	-798.49	**-0.16**	2,098.63	**0.34**
married {0,1}	86,071.60	**7.89**	50,503.20	**8.73**	34,334.21	**6.59**	17,665.93	**4.76**	13,984.17	**2.50**	20,310.02	**2.92**
married & female {0,1}	79,466.67	**6.20**	21,775.73	**3.28**	15,041.20	**2.52**	9,833.83	**2.31**	14,329.80	**2.20**	1,572.27	**0.20**
lowest 10 pct of wealth distribution {0,1}	50,850.22	**3.99**	-65,188.02	**-12.62**	-40,328.12	**-9.46**	-8,800.63	**-3.52**	-2,736.86	**-0.92**	-	-
highest 10 pct of wealth distribution {0,1}	354,033.20	**62.73**	-	-	-	-	-	-	-	-	-	-
constant	-1,890,418.00	**-12.89**	-1,101,067.00	**-15.20**	-587,718.70	**-8.91**	-179,224.60	**-3.71**	-119,748.40	**-1.68**	90,126.58	**1.09**
Obs	140,339		84,509		66,809		38,562		16,382		7,125	
R-squared	9.89%		12.65%		8.90%		9.65%		8.51%		13.63%	
Adj R-Square	9.88%		12.63%		8.88%		9.62%		8.43%		13.46%	

Table 2: Bond holdings as a proportion of total assets

Bond Holdings as a propotion of total assets	Coef.	**t**	Coef.	**t**	Coef.	**t**	Coef.	**t**
low interest rate {0,1}	-2.58%	**-7.77**	-2.89%	**-8.64**	-3.22%	**-11.21**	-3.28%	**-11.4**
retired {0,1}	1.61%	**4.23**	3.25%	**9.00**	1.82%	**4.90**	1.98%	**5.33**
years retired	0.06%	**4.27**	0.05%	**3.60**	0.07%	**5.32**	0.07%	**5**
home owner {0,1}	6.22%	**12.89**	6.29%	**13.13**	5.25%	**12.71**	6.13%	**15.18**
household age	0.46%	**2.14**	-2.44%	**-62.90**	0.00%	**-0.03**	0.09%	**0.61**
" squared	0.00%	**-1.22**	0.02%	**51.79**	0.00%	**1.80**	0.00%	**1.02**
education hh max {1, ..., 5}	6.85%	**49.42**	6.71%	**48.88**	7.57%	**58.33**	7.67%	**59.09**
edu spread {max-min}	-3.27%	**-22.88**	-3.30%	**-23.08**	-3.66%	**-27.05**	-3.40%	**-25.63**
risk {1,...,4} least to most risk averse	-0.16%	**-1.4**	-0.24%	**-2.08**	-	-	-	-
white {0,0.5,1}	10.48%	**21.38**	10.13%	**20.91**	11.48%	**25.14**	11.87%	**26.06**
hispanic {0,0.5,1}	-10.92%	**-12.19**	-11.16%	**-12.46**	-11.09%	**-13.55**	-11.01%	**-13.46**
female {0,1}	-2.34%	**-3.95**	-2.68%	**-4.56**	-3.36%	**-6.33**	-0.52%	**-2.22**
married {0,1}	0.63%	**1.17**	0.40%	**0.75**	0.58%	**1.18**	-	-
married & female {0,1}	3.02%	**4.64**	3.33%	**5.15**	4.08%	**6.86**	-	-
lowest 10 pct of wealth distribution {0,1}	-10.15%	**-7.99**	-10.57%	**-8.32**	-11.82%	**-10.04**	-12.05%	**-10.26**
highest 10 pct of wealth distribution {0,1}	7.08%	**27.59**	7.06%	**27.55**	7.47%	**29.72**	7.54%	**29.97**
constant	-98.80%	**-13.48**	-	-	-91.77%	**-17.03**	-95.86%	**-17.85**
sigma	0.23	0.00	0.23	0.00	0.25	0.00	0.25	
observations	136,557		136,557		184,072		184,072	
Pseudo R-squared	0.18		0.18		0.18		0.18	

Table 3: Equity and mutual fund holings as a proportion of total assets

Equity and Mutual Fund holdings as a proportion of total assets	Coef.	**t**	Coef.	**t**	Coef.	**t**	Coef.	**t**
low interest rate {0,1}	-11.75%	**-20.71**	-12.08%	**-21.29**	-12.89%	**-30.68**	-12.91%	**-30.75**
retired {0,1}	2.83%	**4.59**	4.65%	**7.90**	2.49%	**4.77**	4.60%	**9.42**
years retired	-0.09%	**-3.54**	-0.10%	**-4.04**	-0.06%	**-2.71**	-0.06%	**-3.11**
home owner {0,1}	16.73%	**22.71**	16.84%	**22.88**	13.65%	**23.98**	13.97%	**24.59**
household age	-1.05%	**-3.00**	-4.47%	**-81.71**	-1.76%	**-7.97**	-4.35%	**-109.27**
" squared	0.01%	**4.20**	0.04%	**62.97**	0.02%	**10.52**	0.03%	**88.25**
education hh max {1, …, 5}	16.88%	**82.25**	16.72%	**81.89**	16.63%	**98.33**	16.47%	**97.90**
edu spread {max-min}	-7.70%	**-33.46**	-7.73%	**-33.58**	-7.53%	**-39.54**	-7.52%	**-39.54**
risk {1,…,4} least to most risk averse	-0.26%	**-1.34**	-0.35%	**-1.83**	-	-	-	-
white {0,0.5,1}	29.25%	**41.41**	28.94%	**41.10**	29.79%	**51.62**	29.50%	**51.28**
hispanic {0,0.5,1}	-33.37%	**-27.60**	-33.68%	**-27.87**	-31.02%	**-31.76**	-31.34%	**-32.10**
female {0,1}	-5.63%	**-5.79**	-6.07%	**-6.26**	-3.83%	**-4.97**	-4.47%	**-5.83**
married {0,1}	4.43%	**4.91**	4.08%	**4.54**	4.83%	**6.67**	4.61%	**6.38**
married & female {0,1}	6.25%	**5.81**	6.66%	**6.22**	4.65%	**5.39**	5.25%	**6.10**
lowest 10 pct of wealth distribution {0,1}	-25.27%	**-16.32**	-25.74%	**-16.62**	-27.03%	**-21.45**	-27.60%	**-21.91**
highest 10 pct of wealth distribution {0,1}	7.85%	**18.49**	7.84%	**18.46**	7.31%	**20.24**	7.09%	**19.65**
constant	-116.03%	**-9.88**	-	-	-90.19%	**-11.82**	-	-
sigma	0.58	0.00	0.23	0.00	0.57	0.00	0.55	0.00
observations	136,557		136,557		184,072.00		184,072	
Pseudo R-squared	0.18		0.18		0.13		0.18	

Table 4: CD's savings bonds and T-bills as a proportion of total assets

CD's Savings Bonds and T-bills as a propotion of total assets	Coef.	**t**	Coef.	**t**	Coef.	**t**	Coef.	**t**
low interest rate {0,1}	-14.94%	**-28.08**	-15.33%	**-28.80**	-11.47%	**-22.79**	-15.32%	**-28.78**
retired {0,1}	-0.19%	**-0.34**	1.55%	**2.82**	2.66%	**5.03**	1.54%	**2.80**
years retired	0.06%	**2.40**	0.05%	**1.96**	0.29%	**13.85**	0.05%	**1.97**
home owner {0,1}	12.57%	**19.07**	12.65%	**19.24**	12.44%	**-22.19**	12.70%	**19.32**
household age	-0.30%	**-0.92**	-3.42%	**-69.84**	-	**-**	-3.39%	**-73.86**
" squared	0.01%	**3.05**	0.03%	**58.21**	-	**-**	0.03%	**59.51**
education {hh max}	5.10%	**29.21**	4.97%	**28.61**	4.96%	**28.43**	4.97%	**28.61**
edu spread {max-min}	-1.95%	**-9.36**	-1.97%	**-9.46**	-1.82%	**-8.72**	-1.98%	**-9.47**
risk {1,…,4} least to most risk averse	1.63%	**9.10**	1.54%	**8.62**	1.79%	**9.98**	1.54%	8.63
white {0,0.5,1}	16.62%	**27.47**	16.39%	**27.17**	17.35%	**28.70**	16.37%	**27.14**
hispanic {0,0.5,1}	-21.34%	**-21.89**	-21.59%	**-22.16**	-21.64%	**-22.19**	-21.59%	**-22.16**
female {0,1}	2.76%	**3.08**	2.37%	**2.65**	3.04%	**3.40**	1.08%	**2.79**
married {0,1}	5.68%	**6.74**	5.36%	**6.37**	5.53%	**6.55**	4.26%	**8.78**
married & female {0,1}	-1.95%	**-1.97**	-1.58%	**-1.60**	-2.20%	**-2.22**	-	**-**
lowest 10 pct of the wealth distribution {0,1}	-22.48%	**-16.03**	-22.85%	**-16.30**	-23.47%	**-16.74**	-22.81%	**-16.27**
highest 10 pct of the wealth distribution {0,1}	1.28%	**3.28**	1.25%	**3.20**	1.50%	**3.84**	1.25%	**3.19**
constant	-106.06%	**-9.75**	-	-	-98.97%	**-69.25**	-	**-**
sigma	0.50	0.00	0.50	0.00	0.50	0.00	0.50	0.00
observations	136,557				136,557		136,557	
Pseudo R-squared	0.0519		.		0.0479		.	

Table 5: Primary residence: loan-to-value

Primary Residence: Loan-to-Value	Coef.	**t**	Coef.	**t**	Coef.	**t**	Coef.	**t**	Coef.	**t**
low interest rate {0,1}	7.19%	**16.70**	7.19%	**16.70**	7.14%	**16.68**	7.14%	**16.70**	7.20%	**16.75**
retired {0,1}	-7.58%	**-16.65**	-7.58%	**-16.65**	-7.61%	**-16.78**	-7.62%	**-17.49**	-7.65%	**-17.49**
years retired	-0.36%	**-17.36**	-0.36%	**-17.36**	-0.36%	**-17.66**	-0.36%	**-17.72**	-0.36%	**-17.38**
home owner {0,1}	0.00%									
household age	-0.15%	**-0.52**	-0.15%	**-0.52**	-0.02%	**-0.07**				
" squared	-0.01%	**-5.09**	-0.01%	**-5.09**	-0.01%	**-5.57**	-0.01%	**-57.38**	-0.01%	**-57.36**
education {hh max}	5.75%	**40.44**	5.75%	**40.44**	5.77%	**41.83**	5.77%	**41.83**	5.76%	**40.45**
edu spread {max-min}	-0.51%	**-2.97**	-0.51%	**-2.97**	-0.48%	**-2.80**	-0.48%	**-2.80**	-0.51%	**-2.96**
risk {1,…,4} least to most risk averse	-1.25%	**-8.55**	-1.25%	**-8.55**	-1.24%	**-8.52**	-1.24%	**-8.52**	-1.25%	**-8.55**
white {0,0.5,1}	-10.63%	**-23.82**	-10.63%	**-23.82**	-10.58%	**-23.82**	-10.58%	**-23.82**	-10.63%	**-23.82**
hispanic {0,0.5,1}	0.01%	**0.02**	0.01%	**0.02**					0.02%	**0.02**
female {0,1}	3.76%	**4.64**	3.76%	**4.64**	3.76%	**4.64**	3.76%	**4.64**	3.76%	**4.64**
married {0,1}	11.30%	**15.01**	11.30%	**15.01**	11.29%	**15.01**	11.29%	**15.01**	11.29%	**15.00**
married & female {0,1}	-5.20%	**-5.90**	-5.20%	**-5.90**	-5.30%	**-6.01**	-5.30%	**-6.01**	-5.19%	**-5.89**
lowest 10 pct of the wealth distribution {0,1}	33.82%	**35.80**	33.82%	**35.80**	33.69%	**35.73**	33.69%	**35.73**	33.83%	**35.81**
highest 10 pct of the wealth distribution {0,1}	-6.73%	**-20.23**	-6.73%	**-20.23**	-6.70%	**-20.23**	-6.70%	**-20.23**	-6.74%	**-20.24**
constant	49.14%	**5.25**	49.14%	**5.25**	44.64%	**4.82**	44.02%	**34.83**	44.30%	**34.53**
sigma	0.47	0.00	0.47	0.00	0.47	0.00	0.47	0.00	0.47	0.00
Observations	116,126		116,126		116,933		116,933		116,126	
Adj R-Square	0.1031		0.1031		0.1029		0.1029		0.1031	