Household Portfolio Choice and Retirement*

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Abstract

This study examines household portfolio choice through the retirement transition. I show that couples significantly decrease their stock allocations after retirement, whereas singles' allocations remain relatively unchanged. Couples in which the wife is much more risk averse than her husband exhibit the largest reallocations. Husbands' retirement events are followed by decreases in stock allocations, whereas wives' retirement events are followed by increases. These findings are consistent with models of collective household decision making in which spouses have heterogeneous risk preferences, and suggest that dynamics in the distribution of intra-household bargaining power generate time-varying household risk aversion.

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1. Introduction

U.S. households' financial assets represent a large and growing class of investment holdings, totaling $45.3 trillion as of the end of Q4 2011. Directly held stocks valued at $8.1 trillion make up an important fraction both of these holdings, and of total U.S. corporate equities.[1] In addition to its size, the demographics of the household sector make it an important object of study. In particular, the oldest members of the baby boom generation, born from 1946 to 1964, are just entering retirement. While baby boomers currently represent about 30% of the total U.S. population, they own a disproportionate share of household financial wealth, with estimates generally ranging from 60 to 70%.[2] The large demographic shift that will occur with the retirement of this very wealthy group, coupled with related portfolio reallocations, holds potentially important consequences for financial asset returns. It is therefore important to understand the financial decisions households make during the transition into retirement.

One channel through which the baby boom generation's retirement could affect asset markets is an increase in risk aversion of the representative investor. For example, Bakshi and Chen (1994) present evidence that aggregate risk aversion is positively correlated with the U.S. population's average age, with a persistent increase in the average age of market participants predicting an increase in risk premiums.[3] Supporting this notion, Abel (2001) and Poterba (2001) find evidence that the high stock returns of the 1990s were driven by the baby boomers' peak savings years. Further, Goyal (2004) shows that outflows from the stock market increase with the fraction of the population 65 and over. Despite this aggregate evidence supporting the risk aversion channel of Bakshi and Chen, surprisingly little is known about retirement-related decisions at the household-level. Moreover, the majority of studies using household data have found little support for time-varying risk aversion (Dynan (2000), Sahm (2007), Brunnermeier and Nagel (2008)).

[1] All figures come from Table L.213 of the Federal Flow of Funds Accounts release for Q4 2011.

[2] U.S. Census Bureau, http://www.census.gov/population/www/pop-profile/natproj.html

[3] This channel is consistent with theories suggesting that time-varying risk aversion is at the heart of stock market dynamics (Constantinides (1990), Bakshi and Chen (1996), Campbell and Cochrane (1999), Chetty and Szeidl (2007)).

In this paper, I aim to both empirically characterize the portfolio choices of households through the retirement transition, as well as provide evidence of a mechanism via which household risk aversion increases after retirement. My analysis draws on collective models of household decision making in which husbands and wives jointly make household decisions while maximizing individual utility (McElroy and Horney (1981), Manser and Brown (1980), Chiappori (1988, 1992)).[4]

For this study, the intuition from these models is that if individuals within a household exhibit differing levels of risk aversion, then as individuals' relative degrees of control over household resources vary, so should observed household-level risk aversion. Combining this intuition with the stylized fact that, on average, women's risk aversion exceeds that of men (Hudgens and Fatkin (1985), Levin, Snyder, and Chapman (1988), Barsky, Juster, Kimball, and Shapiro (1997)), my conjecture is that an observable shift in the degree of control over household resources towards the wife during retirement should be accompanied by an observable shift in the household portfolio away from stocks.

Using panel data on household-level asset allocations from the Health and Retirement Study (HRS), I test this conjecture by examining the portfolio choices of couples as they transition into retirement. Even in households where both individuals work full-time prior to retirement, the gender wage gap suggests that when both husbands and wives retire, the degree of control over household resources shifts towards wives on average. To accurately identify the impact of time-varying risk aversion on observed asset allocations, I exploit a control group in which the retirement transition should have no effect on risk aversion: singles. Comparing the retirement of couples and singles generates a natural experiment, in that retiring singles face retirement- and aging-related risks similar to those faced by couples, but continue to possess full control over household decisions.

Controlling for time-varying household characteristics such as income, net worth, and out-

[4]Generally, these models imply a household-level utility function which is a weighted-average of each individual's utility, where weights are a function of individual incomes. These models of household decision making have been successful in explaining the consumption choices studied in labor and development economics (Browning, Bourguignon, Chiappori, and Lechene (1994), Lundberg, Pollak, and Wales (1997), Duflo (2003), Ashraf (2009)).

of-pocket healthcare expenditures, I jointly estimate the effect of retirement on singles' and couples' portfolio allocations using a difference-in-differences approach. I find that couples significantly decrease their stock allocations after retirement. In contrast, singles maintain a relatively constant allocation to stocks after retiring. Relative to the behavior of singles, the average reallocation away from stocks among couples is both statistically and economically significant, representing about 8% of total financial assets and 20% of average stock holdings.

I find a similar dichotomy with respect to the stock participation decisions of retiring singles and couples. Specifically, I find that retirement has virtually no effect on singles' average propensity to invest in stocks, whereas retirement is associated with a 4 to 5% decrease in the average couple's stock market participation rate. I interpret these results as providing support for intra-household dynamics as a source of time-varying risk aversion at the household level.

The results of three additional tests provide support for the interpretation that these effects are driven by an increase in couples' household-level risk aversion after retirement. First, using risk-aversion estimates unique to each member of a couple, I show that those couples in which the wife is much more risk averse than her husband also exhibit the largest post-retirement decreases in stock allocations. Second, I show that husbands' and wives' retirement events have opposite-signed effects on the share of stock in couples' portfolios. While the husband's retirement is accompanied by a decrease in stock allocations, the wife's retirement is associated with an increase. Third, I show that even during retirement, couples' stocks allocations exhibit a negative relationship with a time-varying measure of wives' intra-household bargaining power.

I conduct a host of robustness tests to rule out alternative explanations. First, I show that the main results are robust to the definition of risky assets included in the financial portfolio. My baseline specifications consider the allocation to stocks. Following Guiso, Jappelli, and Terlizzese (1995), I augment stocks with private business and investment real estate holdings to show that my results do not merely reflect a tendency by couples to reduce their stock exposures in response to increased private business and investment real estate holdings during retirement. Instead, I find that including private business and investment real estate holdings in the financial portfolio strengthens the economic magnitude of the results.

Next, I show that the results cannot be explained by observable changes in couples' circumstances and background risks surrounding retirement. I examine the effects of consumption risk (Bodie, Merton, and Samuelson (1992), Guiso, Japelli, and Terlizzese (1996)) and health risk (Rosen and Wu (2004), Love and Smith (2010), Yogo (2011)), finding that these retirement-related risks have very little ability to explain couples' post-retirement reallocations. Further, I consider the effects of children, the age of retirement, entrepreneurial status, and cognitive ability on the main results, finding that they cannot be explained along these dimensions.

This paper contributes to the growing literature that studies households' stock allocation and participation decisions. Prior studies have documented the importance of age, education, income, wealth, and marital status on portfolio choice (Campbell (2006), Curcuru, Heaton, Lucas, and Moore (2009)). Further, the importance of household-level background risks such as income risk (Bodie, Merton, and Samuelson (1992), Guiso, Japelli, and Terlizzese (1996), Heaton and Lucas (1997, 2000), Viceira (2001), Cocco, Gomes, and Maenhout (2005), Bonaparte, Korniotis, and Kumar (2013)) and health risk (Rosen and Wu (2004), Love and Smith (2010), Yogo (2011)) have also been highlighted. Other papers have documented the importance of non-background risk determinants such as social interaction (Hong, Kubik, and Stein (2004)), optimism (Puri and Robinson (2007)), and stock return experiences (Malmendier and Nagel (2011)) on household portfolio decisions. None of these papers considers the balance of power in intra-household decision-making. This paper is, to my knowledge, the first to highlight and document the importance of the distribution of intra-household bargaining power in explaining observed portfolio choice decisions.

My findings also suggest that dynamics in the distribution of intra-household bargaining power can generate time-varying risk aversion at the household-level. This evidence contributes to a strand of the literature testing for time-varying risk aversion at the individual- and household-levels (Dynan (2000), Ravina (2005), Sahm (2007), Brunnermeier and Nagel (2008), Guiso, Sapienza, and Zingales (2013)). In addition to providing evidence of an alternative mechanism via which risk aversion varies over time, my evidence suggests that events with long-lasting effects on the intra-household distribution of bargaining power can generate persistent changes in household risk aversion.

2. Data and Summary Statistics

I use data from the Health and Retirement Study (HRS), a nationally representative longitudinal survey following more than 22,000 Americans over the age of 50.[5] The HRS collects data on these individuals' income, assets, pension plans, health care expenditures, and many other dimensions of financial life. In addition, the HRS provides data on these individuals' health outcomes, health care expenditures, life expectancy, and responses to risky gambles, as well as demographic information on children, age, and occupation. This rich set of longitudinal responses makes the HRS an ideal setting for studying households' portfolio choices as individuals transition from their working years into retirement.

With respect to financial assets, the HRS provides comprehensive information on households' holdings in stocks and equity funds, checking, savings, and money market accounts, certificates of deposit, government savings bonds, T-bills, bonds, and bond funds. The study also reports households' holdings in less liquid investments, including private businesses and investment real estate.[6]

An empirical investigation of portfolio decisions requires defining risky and relatively safer asset classes. I adopt the approach of Guiso, Jappelli, and Terlizzese (1996) in defining both narrow and broad risky asset definitions in order to ensure the robustness of my analysis. First, I define the standard financial portfolio to consist of the sum of household holdings in stocks and equity funds, checking, savings, and money market accounts, certificates of deposit, government savings bonds, T-bills, bonds, and bond funds. Then I define the share of risky assets in the

[5]The HRS is sponsored by the National Institute on Aging (grant number NIA U01AG009740) and is conducted by the University of Michigan.

[6]Though the HRS reports the total balance of IRA and Keogh accounts, the allocation of these balances between stocks, bonds, and cash is not reported. I address this potential source of measurement error using data from the Survey of Consumer Finances (SCF).

financial portfolio as that of holdings in stocks and equity funds. A broader definition of the financial portfolio adds the net value of private business holdings to both the value of the portfolio and the value of risky assets. The third definition of the risky asset share further adds the net value of investment real estate holdings.

Table 1 presents summary statistics for the sample of single-member households. Panel A provides statistics based on 2,336 male observations. Panel B provides statistics based on 3,932 female observations. Table 2 presents summary statistics for the sample of couple households, based on 15,234 observations. All values in levels are deflated to year-2000 dollars using CPI data from the Bureau of Labor Statistics. The education variable measures the years of education of the respondent, where 12 years indicates completion of high school, 16 years represents completion of a bachelor's degree, and 17 years represents a top-coded value for having at least some post-graduate education. Net worth is calculated as the sum of home equity, vehicle equity, holdings in private business and real estate, and the value of the standard financial portfolio, less the value of debts other than mortgages and car loans. Observations are required to have non-missing net worth and positive standard financial portfolio value. Further, I focus on the subsample of HRS respondents who participate in the stock market, since changes in risk aversion should directly affect participants' stock allocations, whereas the participation decision may not be driven by risk aversion alone.[7]

From Panel A of Table 1, single males in the sample are, on average, about 72 years old with an undergraduate degree at the median. Panel B shows that single females in the sample are slightly older (mean age about 74 years) and similarly educated. Single males' income is generally higher both during working years and retirement (mean labor income $35,885 vs. $24,973, mean pension income $15,027 vs. $11,414). Similarly, single males have higher net worth and larger financial portfolios. Conditional on holding stocks in the financial portfolio, single males and females do not differ much in their mean portfolio allocations[8].

[7]For example, Vissing-Jorgensen (2002) finds that participation/transactions costs are an important factor in explaining the non-participation of many households. For robustness, I do consider the participation decision, and find similar results on this margin. See Appendix Table A1.

[8]The participation rate in stocks among males (47.1%) is significantly higher than among females (41.6%) in

Table 2 shows that among couples, wives are 3 to 4 years younger than their husbands, on average. Education levels are similar to those of singles, with husbands and wives having an undergraduate degree at the median. Husbands earn significantly more than wives in labor income ($39,377 vs. $25,039 on average), and this relationship holds for pension income in retirement ($16,928 vs. $9,147 at the mean). Relative to singles, couple households have net worth that is comparable to the sum of single males' and females' average net worths ($849,270 on average). However, couples are much more likely to hold stocks in their financial portfolios, with a participation rate of 56.9%, and stock market participants allocating 39.72% of their portfolios to stocks.

3. Main Results

In this section I present my main empirical findings. First, I present a brief summary of the theoretical motivation for the analysis. Next, I outline the econometric strategy for identifying the retirement-induced difference in portfolio rebalancing between singles and couples and present the baseline results of the paper. Then, I examine the dynamics of this portfolio rebalancing difference and graphically show that it is centered on the retirement event. Finally, I address the effects of potential measurement error on the baseline results by calculating and incorporating the effects of Social Security wealth and assets held in IRA and Keogh retirement accounts.

3.1. Theoretical Motivation

My empirical analysis is motivated by collective models of household decision making in which husbands and wives jointly make household decisions while maximizing individual utility functions (McElroy and Horney (1981), Manser and Brown (1980), Chiappori(1988, 1992)). In general, these models imply a household-level utility function which is a weighted average of each individual's utility, where weights are a function of individual incomes. These models of

the sample.

household decision making have been successful in explaining the consumption choices studied in labor and development economics. For example, Browning, Bourguignon, Chiappori, and Lechene (1994) show that relative spending on men's and women's clothing in a household depends on the relative incomes of the two partners in a couple. Lundberg, Pollak, and Wales (1997) study the effects of a United Kingdom policy change altering the payment of child benefits. They find that when the benefit starts being paid to the mother instead of to the father, there is a coincident shift in household spending toward expenditures on women's and children's clothing. Further, Duflo (2003) finds that the anthropometric outcomes (weight for height and height for age) of children living with cash transfer program recipients in South Africa are strongly affected by the gender of the recipient.

To motivate my empirical analysis, I consider a one-period model of a household consisting of two individuals, individual 1 and individual 2, who derive utility from total household wealth $W > 0$. The individuals have respective utility functions given by $U_1(W)$ and $U_2(W)$, with $U_i'(W) > 0$ and $U_i''(W) < 0$ for each $i \in \{1, 2\}$. Household members are assumed to jointly maximize a utility function $U_H(W)$ given by the weighted average of each agent's utility:

$$U_H(W) = \phi U_1(W) + (1 - \phi) U_2(W), \tag{1}$$

where $\phi \in [0, 1]$ captures the degree of influence individual 1 has over household decision-making. Given this household utility specification, the household's effective risk aversion is given by:

$$\gamma_H = \frac{-W U_H''(W)}{U_H'(W)} = \frac{-W[\phi U_1''(W) + (1 - \phi) U_2''(W)]}{\phi U_1'(W) + (1 - \phi) U_2'(W)}. \tag{2}$$

If we assume that agent 1 is less risk averse than agent 2, $\gamma_1 < \gamma_2$, then I show formally in Appendix A that the household's effective risk aversion is bounded by the individuals' levels of risk aversion ($\gamma_1 < \gamma_H < \gamma_2$), and that the household's effective risk aversion is strictly decreasing (increasing) in the degree of influence individual 1 (2) has over household decision-making ($\frac{d\gamma_H}{d\phi} < 0$).

The intuition for this study is that as individuals' degrees of control over household resources vary, so should effective household risk aversion and in turn, observed household portfolio allocations. Combining this intuition with the stylized fact that, on average, women's risk aversion exceeds that of men (Hudgens and Fatkin (1985), Levin, Snyder, and Chapman (1988), Barsky, Juster, Kimball, and Shapiro (1997)), my conjecture is that an observable shift in the degree of control over household resources towards the wife should be accompanied by a corresponding shift in the household portfolio away from stocks.

3.2. Identification Strategy

I am interested in identifying whether, controlling for observable household characteristics, couples exhibit post-retirement portfolio rebalancing that differs from their single counterparts. Econometrically, I estimate difference-in-differences specifications of the following form:

$$w_{risky,i,t} = \alpha_i + \alpha_t + \theta\,(Retired \times Married) + \eta\,(Retired) + \delta\,(Married) + \Gamma X_{i,t} + \varepsilon_{i,t}. \quad (3)$$

I regress the risky asset share of household i at time t on indicator variables for retirement of the household head (the husband in couple households), marital status of the household head, the interaction between these indicators, and a vector of control variables $X_{i,t}$. I also include time and household dummies to respectively capture household and time fixed-effects. The coefficient of interest, θ, captures the difference between couples and singles in post- versus pre-retirement risky asset shares.

To account for the potential bias induced by a gradual transition between couples' and singles' pre-retirement and long-run post-retirement allocations, I estimate a modified form of the difference-in-differences regression outlined in equation (3):

$$\begin{aligned} w_{risky,i,t} = \alpha_i + \alpha_t &+ \lambda\,(Transition) + \nu\,(Transition \times Married) \\ &+ \theta\,(Retired \times Married) + \eta\,(Retired) + \delta\,(Married) \\ &+ \Gamma X_{i,t} + \varepsilon_{i,t}. \end{aligned} \tag{4}$$

I include an indicator $Transition$, equal to 1 during the ±3 years surrounding retirement, and 0 otherwise. I interact this with the indicator for marital status to account for the gradual difference that emerges between singles and couples during this period. The interpretation of the coefficient of interest, θ, then becomes a comparison of the pre-transition vs. post-transition differences among singles and couples.

3.3. Baseline Results

Table 3 presents estimates from running regressions of the form outlined in equation (4). The table is split into three horizontal panels. To ensure the robustness of the results, I consider alternative definitions of the financial portfolio and share of risky assets, following Guiso, Jappelli, and Terlizzese (1995). In the leftmost panel, the financial portfolio is defined as the sum of holdings in stocks, bonds, and cash. The dependent variable w_{risky} is then defined as the share of stocks in the financial portfolio. In the middle panel, I add households' private business holdings to the financial portfolio and w_{risky} is then defined as the share of equity and private business holdings in the financial portfolio. Finally, I add the reported value of investment real estate to the financial portfolio and the share of risky assets in the rightmost panel. Within each horizontal panel, I estimate three specifications of equation (4). The first, corresponding to columns labeled (1), (4), and (7), includes controls for households' labor income, net worth, pension income, and number of children. In specifications (2), (5), and (8) I control for the squared-age of the household head (the husband in couple households), and in specifications

(3), (6), and (9) I include out-of-pocket healthcare expenditures.[9] In all specifications, reported standard errors are clustered by household, correcting for within-household serial correlation and heteroskedasticity.[10]

Table 3 shows that θ, the estimated difference-in-differences, is consistently negative, with statistical significance at the 1% level in all specifications. Additionally, the coefficient on *Retired*, η, is uniformly estimated as being statistically indistinguishable from zero. Together, these two estimates constitute my main result: controlling for time-invariant household fixed-effects, household-invariant time fixed-effects, and an array of observable household characteristics, retirement does not have a significant effect on the share of risky assets in single stockholders' portfolios. On the other hand, couple households' post-retirement behavior differs markedly from singles, as they decrease their risky asset shares after the husband retires. This difference is economically large, representing about 8.5 to 10.5% of the financial portfolio.

Though the stock market participation decision may not be driven by risk aversion alone (Vissing-Jorgensen (2002)), I also consider the differential effect of retirement on the within-household participation decision among singles and couples. For brevity, I report the results in Appendix Table A1. The results in the table provide similar conclusions to those from Table 3. Specifically, retirement has virtually no effect on singles' average propensity to invest in stocks. On the other hand, retired couples exhibit a 4 to 5% decrease in the propensity to participate in the stock market. Further, this difference in behavior is statistically significant at the 1% level in all specifications. Taken together, the evidence supports my main conjecture of household bargaining as the mechanism driving time-varying household risk aversion among couples at retirement.

[9] These control variables are motivated by past studies of household portfolio decisions, most notably Campbell (2006). Since all specifications include household fixed-effects, I do not control for time-invariant measures such as race and education. The inclusion of out-of-pocket healthcare expenditures is motivated by Rosen and Wu (2004), who find that those in poor health allocate less to risky assets. In untabulated results, I also consider specifications in which all control variables are interacted with the *Married* indicator, and find that the results remain qualitatively unchanged.

[10] As a robustness check, I verify that all results hold when using bootstrapped standard errors, as suggested by Bertrand, Duflo, and Mullainathan (2004).

3.4. Dynamics and Graphical Evidence

A natural question is whether retirement is truly the driving force behind the difference in singles' and couples' behavior. To validate the retirement event as a driver of the results, I consider the dynamics of the difference between singles' and couples' stock allocations surrounding retirement. I estimate a dynamic form of the within-household difference-in-difference regression:

$$\begin{aligned} w_{risky,i,t} = \alpha_i + \alpha_t + \sum_{i=1}^{6} \left[\theta_i \left(Period_i \times Married\right) + \eta_i \left(Period_i\right)\right] + \delta \left(Married\right) \\ + \Gamma X_{i,t} + \varepsilon_{i,t}. \end{aligned} \tag{5}$$

The difference between this and equation (3) is the substitution of a set of six period-indicator variables for the retirement indicator. The period-indicators are defined as follows, where τ denotes the time in years relative to retirement (negative (positive) values before (after) retirement):

$$\begin{aligned} &Period_1 = 1 \text{ if } -6 \leq \tau \leq -4, \text{ and 0 otherwise,} \\ &Period_2 = 1 \text{ if } -3 \leq \tau \leq -1, \text{ and 0 otherwise,} \\ &Period_3 = 1 \text{ if } 0 \leq \tau \leq 3, \text{ and 0 otherwise,} \\ &Period_4 = 1 \text{ if } 4 \leq \tau \leq 6, \text{ and 0 otherwise,} \\ &Period_5 = 1 \text{ if } 7 \leq \tau \leq 9, \text{ and 0 otherwise,} \\ &Period_6 = 1 \text{ if } \tau \geq 10, \text{ and 0 otherwise.} \end{aligned} \tag{6}$$

The coefficients of interest, each of the θ_i, capture the difference between couples' and singles' allocations during the i^{th} period. Identifying a pattern in the θ_i can inform whether the retirement event is the driver of the main results[11].

For ease of interpretation, I plot the θ_i's with ± 2 standard error bands in Figure 1. The figure can be interpreted as plotting the first difference between couples' and singles' stock allocations

[11] I repeat the analysis with period lengths of 2 and 4 years, with no difference in qualitative findings.

during each period relative to retirement. I also present the regression estimates in Appendix Table A2. The table is organized in the same manner as Table 3. During the period from 4 to 6 years prior to retirement, we can see that there is a negligible difference between singles and couples. In the two buckets spanning the period from 3 years pre- to 3 years post-retirement, the difference between singles and couples dips into the negative range slightly, with statistical significance just below the 5% level. The difference drops further, to about -9%, in the period from 4 to 6 years after retirement, with statistical significance at the 1% level. This difference remains economically stable and statistically significant as the time since retirement increases to 7 years and beyond.

Since retirement is, by and large, a forecastable event in the life-cycle, one would expect a smooth transition beginning before and ending after the retirement event. Hence, the coefficient pattern in Figure 1 supports the interpretation of retirement as a point of divergence between the behavior of couples and singles with respect to risky asset allocations.

3.5. Addressing Potential Measurement Error

Though its longitudinal nature and focus on the population over the age of 50 make the HRS an ideal setting for studying households' portfolio choices through the retirement transition, the dataset is not without its drawbacks. First, an implicit part of households' financial portfolios is the present value of the stream of Social Security payments they are entitled to in the future. Second, though the HRS reports the total balance of households' IRA and Keogh retirement accounts, the allocation of these balances is not known. The absence of measures accounting for both of these asset types in the definition of the financial portfolio generates the potential for measurement error and associated estimation biases. In this subsection, I investigate how accounting for Social Security and IRA wealth affects the baseline results.

3.5.1 Calculating Social Security Wealth

To calculate Social Security wealth, I use the HRS "Prospective Social Security Wealth Measures of Pre-Retirees" dataset. This public dataset uses restricted administrative records from the Social Security Administration to calculate Social Security wealth for the subsample of 1992, 1998, and 2004 HRS respondents who were not yet claiming Social Security payments. Further, the dataset contains three measures of implicit Social Security wealth based on the age of the respondent when first claiming payments: early retirement claim age of 62, full retirement age of between 65 and 67, and late retirement claim age of 70. Finally, the calculated Social Security wealth measures take into account both spousal and survivor benefits, using actuarial mortality rates for spouses.

For those respondents with Social Security wealth values in multiple waves (for example, in 1992 and 1998, 1998 and 2004, or in all three waves), I calculate, for each assumed claim age, an individual-specific implicit growth rate between the waves. Using this implicit growth rate, I then calculate and fill in implied Social Security wealth values for intermediate observation years. I also use these implicit growth rates to extrapolate Social Security wealth values past the last-observed wave (2000 and on for those where the last observed wealth measure was in 1998, and 2006 and on where the last observed wealth measure was in 2004). For those respondents for whom Social Security wealth is observed in only a single wave, I extrapolate using the average individual-specific implied growth rates of all respondents of the same gender and marital status for whom growth rates could be calculated.

Then, for each period in which an individual with Social Security wealth data has not yet claimed benefits, I calculate the value of their Social Security wealth to be the maximum among the early, full, and late retirement age values. During the first period when an individual claims benefits, I calculate the implied Social Security wealth at the claim age by interpolating the early, full, and late retirement age values from the previous observation, inflating this value using historical Social Security Cost-of-Living Adjustment figures[12], and subtracting the cumulative

[12]This data is publicly available at: http://www.ssa.gov/oact/cola/colaseries.html

value of benefit payments received to date. For each period thereafter, I carry the inflated values from the previous period forward, subtracting the cumulative value of benefit payments between waves. I then deflate all wealth values to year-2000 dollars using CPI data from the Bureau of Labor Statistics. Finally, the Social Security wealth for a couple is calculated as the sum of the calculated wealth for each member of the couple. This process yields Social Security wealth data for 4,077 households, totaling 14,091 observations.[13]

3.5.2 Calculating IRA Equity

To impute the share of risky assets in households' IRA accounts, I follow Rosen and Wu (2004) and use information from the Survey of Consumer Finances (SCF). SCF respondents are asked to separately provide information on stock holdings in retirement and non-retirement accounts. I model the percentage of SCF respondents' IRA wealth held in stocks as a function of demographic factors including linear- and squared-age, years of education, marital and retirement status of the respondent, income, net worth, and equity allocation in non-retirement accounts. To better match the demographics of HRS respondents, I restrict the SCF sample to those households with positive IRA wealth and respondent at least 50 years old. I estimate this model independently for each wave of the SCF between 1992 and 2007. I then project fitted values of the model onto the sample of HRS respondents with positive IRA wealth, using model estimates from the nearest SCF wave.[14]

3.5.3 Incorporating Social Security Wealth and IRA Equity

To incorporate Social Security wealth and IRA equity, I redefine the financial portfolio to include both explicit holdings in stocks, bonds, and cash, as well as implicit non-risky Social Security wealth and imputed risky and non-risky shares of IRA wealth. I then redefine the share of risky assets in the household portfolio, w_{risky}, to be the proportion of risky assets in the comprehensive

[13]This sample is comprised of 9,059 observations on 2,494 couples and 5,032 observations on 1,583 singles.

[14]Specifically, I match 1992, 1998, and 2004 SCF estimates with HRS waves from the same year. I match 1995 SCF estimates with the 1994 and 1996 HRS waves, 2001 SCF estimates with the 2000 and 2002 HRS waves, and 2007 SCF estimates with the 2006 and 2008 HRS waves.

financial portfolio. Table 4 presents the results of estimating the baseline difference-in-differences regression outlined in equation (4) on the sample of respondents with imputed Social Security wealth and/or IRA equity. The table is split into three panels. In the first panel, I consider the effect of incorporating non-risky Social Security wealth in the household financial portfolio. In the second panel, I consider the effect of incorporating risky and non-risky IRA wealth into the financial portfolio. In the third panel, I consider the effect of incorporating both Social Security and IRA wealth into the financial portfolio. The results in the table show that incorporating Social Security wealth into the financial portfolio does not explain the dichotomy between singles' and couples' post-retirement portfolio rebalancing decisions. For all control specifications and risky asset definitions in the table, singles continue to maintain a constant level of risky assets in their financial portfolios, whereas couples significantly decrease their risky asset shares post-retirement. Importantly, the difference-in-differences estimates continue to be economically large when including Social Security and IRA wealth into the analysis, representing about 6% of the total financial portfolio. This suggests that the baseline results are not driven by measurement error.

4. Additional Evidence: Time-Varying Risk Aversion

To establish that the baseline results are driven by an increase in effective risk aversion among couples, I conduct three additional tests in this section. First, using risk aversion estimates unique to each member of a couple, I test whether the post-retirement decrease in stock allocations is strongest for those households where the disparity in individual risk aversion estimates is the largest. Second, using heterogeneity in the individual retirement dates of couple household members, I estimate the persistent effects of husbands' and wives' individual retirement events on household stock allocations. If the baseline results are driven by a net increase in risk aversion when the husband retires, then the retirement events of husbands and wives should generate different effects on the risky share of couples' portfolios. Finally, I adopt a measure of intra-household bargaining power from the theoretical literature in labor economics to test whether dynamics in couples' risky asset allocations during retirement respond to fluctuations in the within-household distribution of bargaining power.

4.1. Within-Couple Difference in Risk Tolerance

To further establish evidence of an increase in the effective risk aversion of couple households after retirement, I exploit responses to income-gamble questions answered separately by husbands and wives within a household. Specifically, respondents are asked a series of questions pertaining to whether they would be willing to accept equal-probability gambles that would either increase or decrease their income.[15] Kimball, Sahm, and Shapiro (2008) develop a method for exploiting individuals' repeated responses over multiple survey waves to eliminate measurement error and allow imputation of reliable risk aversion and risk tolerance estimates for all respondents. Using their risk tolerance imputations, I calculate the difference in risk tolerance within each couple household as a measure of the strength of the potential change in effective household risk tolerance at retirement. If the main results are truly driven by a decrease in couples' effective risk tolerance levels after retirement, then the magnitude of the effect should be largest among those households where husbands and wives have the largest risk tolerance differential.

Table 5 presents the results of examining how the decrease in the average stock allocation among couples varies with the within-household risk tolerance difference. I sort couple households into terciles based on each household's risk tolerance difference, and examine whether couples in which the husband is much more risk tolerant than his wife choose to reallocate away from stocks to a greater extent after the husband's retirement. From the table, it is clear that as the difference in risk tolerance increases among couples, the post-retirement decrease in stock holdings monotonically increases in magnitude. In addition, the magnitude of reallocations between the first and third terciles are highly statistically different, with F-statistics ranging from 3.85 to 4.18 (p-values of 0.049 to 0.041). This is evidence of an increase in the

[15] See Barsky, Juster, Kimball, and Shapiro (1997) for a detailed analysis.

post-retirement effective risk aversion of couple households, consistent with the predictions of the intra-household bargaining mechanism.

4.2. Do Husbands' and Wives' Retirement Effects Differ?

To this point, I have focused on the effect of the husband's retirement in couple households. If a large majority of couples coordinate their retirement dates, focusing on the husband's retirement is nearly equivalent to estimating the effect of the simultaneous retirement of both partners in a couple household. However, if there is variation in the distribution of husbands' and their wives' relative retirement dates, then it is possible to disentangle the individual-specific effects of husbands' and wives' retirements on household-level risk aversion. In particular, a testable implication of the proposed intra-household bargaining mechanism is that husbands' and wives' retirements should have markedly different effects on risky asset shares. While husbands' retirement events would be associated with an increase in average household-level risk aversion and a decrease in risky asset shares, wives' retirement events would be associated with opposite-signed effects on average household risk aversion and risky asset shares.

To assess the degree of heterogeneity in relative retirement dates across couples, Figure 2 presents a kernel density plot of the difference in husbands' and their wives' retirement dates, with positive (negative) values representing those couples where the husband (wife) retires first. From the plot, it is clear that couples generally retire together, but that a significant minority retire at different times, making it possible to identify individual-specific effects on household risk aversion.

I separately estimate the effects of husbands' and wives' retirement events on within-household risky portfolio shares using the respective indicators $Retired_H$ and $Retired_W$, allowing transition periods for both:

$$\begin{aligned} w_{risky,i,t} = & \alpha_i + \alpha_t + \theta_W \left(Retired_W\right) + \theta_H \left(Retired_H\right) \\ & + \nu_W \left(Transition_W\right) + \nu_H \left(Transition_H\right) + \Gamma X_{i,t} + \varepsilon_{i,t}. \end{aligned} \tag{7}$$

Panel A of Table 6 presents the results of estimating equation (7). From the panel it is immediately evident that the negative effect of the husband's retirement continues to be estimated with a high degree of statistical precision in all specifications. On the other hand, the wife's retirement has a positive effect on couple households' relative post-retirement stock allocations, albeit with mild statistical significance. However, these divergent effects are very different statistically, with F-statistics ranging from 7.09 to 8.98 and associated p-values of less than 1% in all specifications.

To push the implications of the bargaining mechanism further, I condition the effects of husbands' and wives' retirement events on the importance of each spouse's labor income within the household before retirement. Panel B of Table 6 presents the results of this analysis. From the panel, we can see that among those couple-households where the wife earned more than her husband before retirement, the persistent effect of her retirement on the household's risky share has a large magnitude of about 3%, and is statistically significant at the 10% level in all specifications. Conversely, when the husband is the dominant earner, the effect of the wife's retirement is small, both economically and statistically. Further, the F-statistics an associated p-values at the bottom of the table show that the effects of the husband's and wife's retirement events are statistically different regardless of the partners' relative earning capacities. This is further evidence favoring the bargaining mechanism as a driver of time-varying household risk aversion.

4.3. Time-Varying Risk Aversion During Retirement

In the next test of household bargaining as a driver of time-varying household risk aversion, I adopt a measure of intra-household bargaining power from the labor economics literature and relate it to fluctuations in households' risky asset allocations during retirement. The standard measure of intra-household bargaining power in the labor literature is each individual's share of total nonwage income in the household.[16] Nonwage income is thought to be invariant to

[16] A large literature in labor economics analyzes and documents the effect of household bargaining on real economic decisions. Manser and Brown (1980) and McElroy and Horney (1981) pioneer the Nash-bargaining

marital status, whereas labor income can vary significantly when spouses split up. Hence, each partner's nonwage income is thought to vary directly with their utility outside of marriage, and therefore their share of nonwage income with their bargaining power inside of marriage (Manser and Brown (1980), McElroy and Horney (1981)).

To reduce potential measurement error, I focus on couples who are both retired, since retirement is a period during which each partner's nonwage pension income represents the majority of their total income. For each couple in which both partners are retired and in which either the husband or wife has positive pension income, I calculate the following measure of intra-household bargaining power:

$$WifePensionShare = \frac{WifePensionIncome}{HusbandPensionIncome + WifePensionIncome}. \tag{8}$$

Using this measure, I estimate within-household regressions of the following form:

$$w_{risky,i,t} = \alpha_i + \alpha_t + \rho WifePensionShare + \Gamma X_{i,t} + \varepsilon_{i,t}. \tag{9}$$

If intra-household bargaining can explain changes in the time series of couples' risky portfolio shares, then the household portfolio's risky share should covary negatively with the wife's share of pension income, and ρ should take a negative value.

Table 7 presents the results of regressing couple households' risky portfolio shares on the wife's share of pension income over time. The table shows that there is strong statistical evidence in favor of intra-household bargaining as a driver of within-household risky asset shares in all specifications, with ρ estimates ranging from -3.3% to -3.9% (t-statistics from 1.595 to 1.630). These estimates lend further support to the proposed mechanism of household bargaining as an important driver of time-varying household risk aversion.

approach to household decision making in couple households, showing that nonwage income shares determine intra-household bargaining power. See, for example, Browning, Bourguignon, Chiappori, and Lechene (1994), Lundberg and Pollak (1996), Lundberg, Pollak, and Wales (1997), Duflo (2003), Mazzocco (2007), and Ashraf (2009) for empirical evidence.

5. Robustness Tests: Alternative Channels

Portfolio choice theory broadly asserts that heterogeneity in asset allocation decisions must be driven by either heterogeneity in preference parameters, heterogeneity in circumstances, or a combination of these factors (Brandt (2009), Curcuru, Heaton, Lucas, and Moore (2009)). To this point, I have presented evidence supporting the preference parameter channel as the driver of the time-variation in couples' risky asset allocation decisions after retirement. In this section, I consider alternative channels that could motivate retiring couples to actively reallocate away from stocks. In particular, I consider the effects of background risks such as health risk and consumption risk as alternative explanations of the baseline results. I also consider the differential effects of having children, the age of retirement, entrepreneurial status, cognitive ability, and the time period of the retirement event.

5.1. Health Risk

A strand of the portfolio choice literature examines the effect of health status on households' asset allocation decisions. Rosen and Wu (2004) find health to be a significant cross-sectional predictor of risky asset holdings, with those households in poor health holding a smaller share of their financial portfolios in risky assets. Berkowitz and Qiu (2006) find that these results can be explained by differences in financial wealth, postulating that negative health shocks affect portfolio choices through erosion of financial wealth.[17] Though I control for both household net worth and healthcare expenditures, it is possible that the effects of health status are responsible for some of the cross-sectional variation in couples' retirement-related asset allocation decisions.

Table 8 presents the results of examining how health status affects couples' portfolio reallocations through the retirement transition. In Panel A of Table 8, I sort couples into three

[17] More recently, a number of papers challenge the validity of cross-sectional and random effects estimates in establishing a causal link between health status and portfolio choice. Controlling for unobserved heterogeneity using household-level fixed effects, these papers find that the within-household effect of moving into the lowest self-reported health category is small and statistically weak (Fan and Zhao (2009), Love and Smith (2010)). Yogo's (2011) results provide a potential explanation of why this may be the case, showing that the endogeneity of health expenditure reduces the amount of background risk with respect to health shocks.

groups based on the self-reported health status of the retiring husband. The first group includes all couple households in which the retiring husband has a health level of excellent or very good, the second those where the husband is in good health, and the third those where the husband self-reports a fair or poor health level at retirement. From the estimation results in the panel, it is apparent that the decrease in couples' risky allocations is not confined to a single health status group, with similar magnitudes across the three groups. Further, formal statistical tests fail to reject the null hypothesis that the difference-in-differences estimates are equal among retirees in the good to excellent and poor to fair health groupings.

In Panel B of Table 8, I examine how health changes through the retirement transition affect portfolio reallocations. I sort couples into three groups based on changes in self-reported health-status of the retiring husband over the period from three years before retirement to three years after retirement. I then classify couple households into three groups: those with deteriorating health status, those with steady health status, and those with improving health status. The regression results in the panel show that there is little variation in the behavior of couples across the three change-in-health groups.[18]

5.2. Income and Consumption Risk

A long literature in portfolio choice is concerned with determining the effect of income risk, the covariance of income growth and stock market returns, on household portfolio allocations. Bodie, Merton, and Samuelson (1992), Kimball (1993), and Duffie and Zariphopoulou (1993) show that agents' optimal risky asset allocations decrease with income risk in static and multiperiod settings. The models of Heaton and Lucas (1997), Viceira (2001), and Cocco, Gomes, and Maenhout (2005) extend these results to a lifecycle setting. Empirically, Guiso, Japelli, and Terlizzese (1996) and Bonaparte, Kumar, and Korniotis (2013) respectively find support for the predictions of these models in Italian and Dutch survey data. While the majority of the literature focuses on risk stemming from labor income during households' working years, the

[18]In untabulated specifications, I also test whether disease diagnosis at, or during, retirement can explain the main results, finding little evidence in support of this hypothesis.

intuition remains valid when considering pension income risk during retirement.

To test the effect of income risk on the baseline results, I utilize information on whether or not members of couple households have a defined benefit (DB) pension plan. Since DB pension plans effectively annuitize a portion of the household's retirement wealth, having a DB plan eliminates some income risk during retirement. Panel A of Table 9 presents the results of sorting couple households on the basis of having a DB pension plan or not. The estimation results in the panel show that the active reallocation away from stocks after retirement is only slightly smaller in magnitude among those couples holding a DB pension, and that this difference is statistically insignificant in all specifications (F-statistics of 0.13 to 0.19).[19]

In the next test of the effect of income risk, I note that holding retirement assets constant, the risk associated with retirement income fluctuations strictly increases with a household's minimum consumption level. Hence, it is possible that those couples in which the retiring husband was the sole labor market participant are at greater risk for income shortfalls during retirement, as they must finance the retirement consumption of two individuals using the savings accumulated by just one. I analyze whether this is the case in Panel B of Table 9 by sorting couple households on the basis of whether the wife of the retiring husband was a homemaker during her working years. The results in the panel lend come credibility to this hypothesis, as couples where the wife was a homemaker are estimated to reallocate about 2.5% more of their financial portfolios away from stocks after retirement than other couples. However, the reallocation among other couples is still economically and statistically significant. Moreover, the difference between these two types of couples is not statistically significant (p-values of 0.140 to 0.157).

The final cross-sectional test I employ in gauging whether retirement income risk drives the baseline results is to split couple households on the basis of their wealth at retirement. Those households with the lowest levels of wealth will be at greater risk of experiencing retirement

[19] Couples are defined to have a DB pension plan if either of the spouses has such pension rights. In untabulated specifications, I further separate such couples into those where the husband, the wife, or both have DB pension rights, and find no difference among the groups.

savings shortfalls, and hence may drive the results. I sort couple households into quartiles on the basis of net worth at retirement and examine the retirement-induced reallocations of couples across classifications. The estimates in Table 10 show that, contrary to the hypothesis that the poorest households drive the results, couples in the lowest wealth quartile exhibit an economically and statistically insignificant reallocation away from stocks of about 0.5 to 0.6%. On the other hand, couples in the second through fourth wealth quartiles act very similarly, with highly significant retirement-related reallocation estimates that are similar in magnitude.

5.3. Additional Considerations

In my final tests of alternative cross-sectional determinants of couples' post-retirement reallocations away from stocks, I consider the effects of children, the age of retirement, entrepreneurial status, cognitive ability, and the time subperiod during which retirement took place. For brevity of exposition, I present and discuss the effects of these characteristics in detail in Appendix B. Here, I briefly note that none of these characteristics is able to explain the cross-sectional heterogeneity of couples' post-retirement stock reallocations.

6. Summary and Conclusion

Drawing on intuition from models of collective decision making in labor and development economics, I provide empirical evidence of a mechanism via which risk aversion can vary at the household-level even when the risk aversion of individuals is time-invariant. My conjecture is that if wives are more risk averse than their husbands on average, then an observable shift in the degree of control over household resources towards the wife should be accompanied by an implicit increase in household risk aversion. Further, this increase in household risk aversion should lead to an observable shift in the household financial portfolio away from stocks.

To test this conjecture, I examine the portfolio choices of households as they transition into retirement. To address potential bias in estimating the impact of time-varying risk aversion on observed asset allocations, I use singles as a natural control group in which the retirement transition should have no effect on risk aversion. Using a differences-in-differences approach controlling for household fixed-effects and time-varying household characteristics, I find that couples significantly decrease their stock allocations after retirement, while singles maintain a relatively constant allocation to stocks. This difference in behavior is economically significant, representing about 8% of total financial assets and 20% of average stock holdings.

I further argue that these effects are driven by an increase in couples' household-level risk aversion by conducting three additional tests. First, using risk-aversion estimates unique to each member of a couple, I show that the decrease in risky allocations is strongest for those couples where the disparity in individual risk aversion estimates is the largest (i.e. couples in which the wife is relatively more risk averse than the husband). Second, using heterogeneity in the individual retirement dates of couple household members, I show that the retirement events of husbands and wives generate persistent opposite-signed effects on the risky share of couples' portfolios. Further, I find that the relative magnitude of these individual-specific effects is increasing in the share represented by the individual's pre-retirement income. Third, I show that even during retirement, couples' risky asset allocations exhibit a negative relationship with a time-varying measure of wives' intra-household bargaining power.

While a growing number of studies explain stock market returns using time-varying aggregate risk aversion, there is relatively little support for time-variation in risk aversion at the micro-level. The findings in this paper suggest that dynamics in the distribution of intra-household bargaining power represent a mechanism for generating time-varying risk aversion at the household-level.

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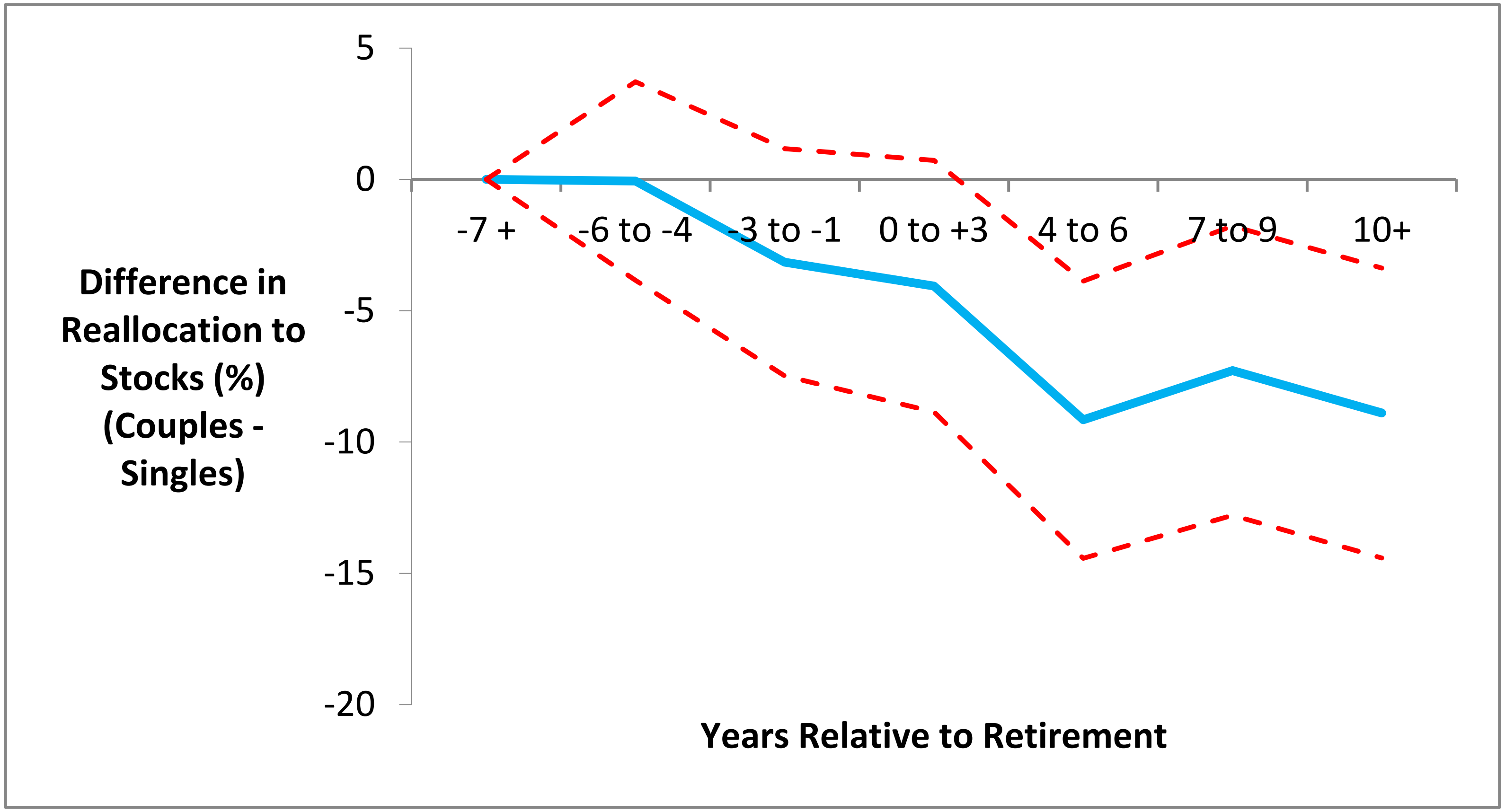
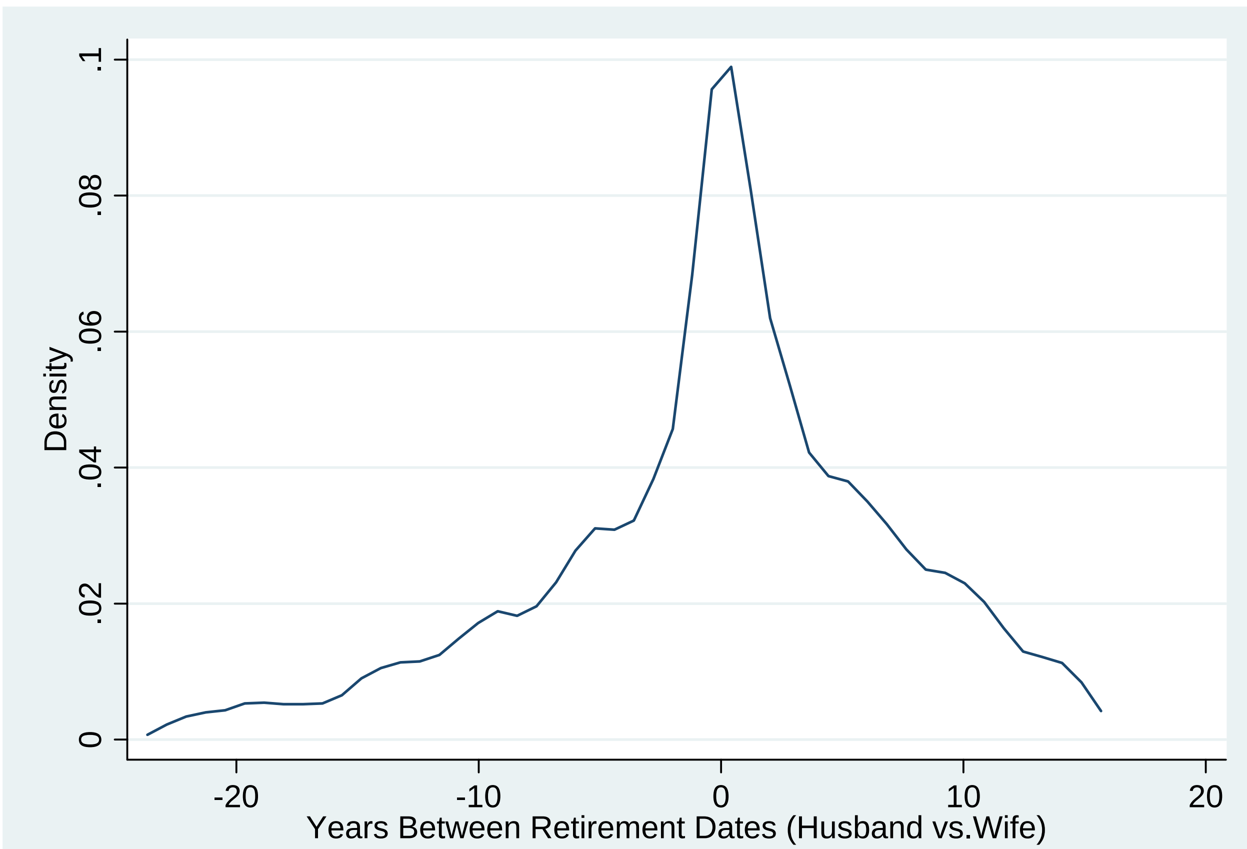
Figure 1: First differences between singles' and couples' risky asset shares surrounding retirement



This figure can be interpreted as plotting the first difference between couples' and singles' reallocations during each period relative to retirement. The plotted points are the θ_i's, surrounded by ± 2 standard error bands, estimated from regression equation (5):

$$w_{risky,i,t} = \alpha_i + \alpha_t + \sum_{i=1}^{6} \left[\theta_i \left(Period_i \times Married\right) + \eta_i \left(Period_i\right)\right] + \delta \left(Married\right) + \Gamma X_{i,t} + \varepsilon_{i,t}.$$

Figure 2: Years between couples' retirement dates



This figure displays a kernel density plot of the difference in husbands' and their wives' retirement dates, with positive(negative) values representing those couples where the husband(wife) retires first. The Epanechnikov kernel with globally optimal bandwidth is used to calculate the density.

Table 1
HRS Summary Statistics for Single Household Heads (1992-2008 waves): (a) Males and (b) Females

	Mean	Median	Standard deviation	5th %ile	95th %ile
		Panel A: Single Male Household Heads			
Characteristics					
Age (years)	72.18	72.00	11.63	55.00	92.00
Education (years)	13.61	14.00	2.83	8.00	17.00
Labor Income ($)	35,885.62	33,000.00	26,230.80	1,760.00	90,000.00
Pension Income ($)	15,027.48	12,000.00	11,291.36	1,380.00	36,000.00
Levels (in dollars)					
Net Worth	622,410.50	310,775.00	1,338,199.00	28,000.00	2,037,000.00
Home Equity	142,640.60	85,000.00	264,526.30	0.00	500,000.00
Vehicle Equity	13,765.10	8,250.00	25,342.02	0.00	40,000.00
Stocks	202,249.30	50,000.00	948,130.60	1,000.00	800,000.00
Bonds	121,798.30	30,000.00	269,807.80	0.00	526,000.00
Cash	46,357.27	15,000.00	122,580.50	0.00	200,000.00
Private Business	37,217.38	0.00	226,368.70	0.00	150,000.00
Real Estate	81,793.36	0.00	477,864.30	0.00	300,000.00
Portfolio allocation (%), holders of stocks					
Stocks	46.59	44.44	31.67	2.57	98.04
Bonds	33.03	27.02	30.39	0.00	87.78
Cash	20.38	10.53	23.69	0.00	73.71
Total observations	2,336				
		Panel B: Single Female Household Heads			
Characteristics					
Age (years)	74.12	75.00	11.26	56.00	91.00
Education (years)	13.57	13.00	2.45	10.00	17.00
Labor Income ($)	24,973.63	20,500.00	20,624.89	1,000.00	65,000.00
Pension Income ($)	11,414.19	8,400.00	9,965.67	828.00	36,000.00
Levels (in dollars)					
Net Worth	409,740.70	229,000.00	1,065,588.00	24,900.00	1,188,200.00
Home Equity	126,949.70	80,000.00	374,960.50	0.00	400,000.00
Vehicle Equity	7,044.84	4,500.00	12,199.22	0.00	20,000.00
Stocks	141,265.20	35,000.00	838,183.50	900.00	500,000.00
Bonds	74,835.92	25,000.00	141,703.40	0.00	327,644.40
Cash	28,484.39	10,000.00	64,424.15	0.00	107,000.00
Private Business	20,344.40	0.00	388,932.50	0.00	5,000.00
Real Estate	26,535.86	0.00	196,626.90	0.00	125,000.00
Portfolio allocation (%), holders of stocks					
Stocks	48.34	46.69	31.73	2.44	97.56
Bonds	32.23	24.62	30.40	0.00	88.48
Cash	19.42	9.50	23.14	0.00	72.58
Total observations	3,932				

Data are from the 1992-2008 waves of the Health and Retirement Study (HRS). This table displays summary statistics for the sample of household heads who are unitary decision-makers at the time of observation. Observations are required to have positive portfolio value (cash + stocks + bonds) and non-missing net worth (portfolio value + home equity + private business + real estate + vehicle equity - other debts). Education is measured in years, with 12 representing high-school graduation, 16 representing completion of an undergraduate degree, and 17 representing at least some post-graduate education.

Table 2
HRS Summary Statistics for Couple Households (1992-2008 waves)

	Mean	Median	Standard deviation	5th %ile	95th %ile
Characteristics					
Age - Husband (years)	68.16	67.00	9.39	54.00	85.00
Age - Wife (years)	64.64	64.00	9.90	50.00	87.00
Education - Husband (years)	13.78	14.00	2.64	9.00	17.00
Education - Wife (years)	13.43	13.00	2.19	10.00	17.00
Labor Income - Husband ($)	39,377.78	35,000.00	28,442.10	2,000.00	90,000.00
Labor Income - Wife ($)	25,039.60	21,000.00	18,749.44	1,500.00	65,000.00
Pension Income - Husband ($)	16,928.14	14,400.00	11,431.03	1,800.00	36,000.00
Pension Income - Wife ($)	9,147.62	8,142.00	6,226.16	804.00	18,000.00
Levels (in dollars)					
Net Worth	849,270.80	458,000.00	2,074,077.00	81,000.00	2,581,000.00
Home Equity	215,352.30	130,000.00	650,282.80	7,000.00	600,000.00
Vehicle Equity	22,266.40	15,000.00	26,641.60	1,500.00	600,000.00
Stocks	188,390.80	50,000.00	859,508.70	1,200.00	700,000.00
Bonds	188,672.30	70,000.00	489,723.70	0.00	730,000.00
Cash	44,294.08	15,000.00	239,287.90	500.00	160,000.00
Private Business	69,905.86	0.00	947,988.10	0.00	250,000.00
Real Estate	83,351.69	0.00	498,980.70	0.00	400,000.00
Portfolio allocation (%), holders of stocks					
Stocks	39.72	35.17	29.16	1.82	92.59
Bonds	43.08	43.11	30.19	0.00	91.40
Cash	17.20	8.72	20.83	0.28	65.44
Total observations	15,234				

Data are from the 1992-2008 waves of the Health and Retirement Study (HRS). This table displays summary statistics for the sample of couple households. Observations are required to have positive portfolio value (cash + stocks + bonds) and non-missing net worth (portfolio value + home equity + private business + real estate + vehicle equity - other debts). Education is measured in years, with 12 representing high-school graduation, 16 representing completion of an undergraduate degree, and 17 representing at least some post-graduate education.

Table 3
Household Asset Allocations and Retirement, Difference-in-Differences specifications

	Stock Allocation (%)			Stock + Private Business Allocation (%)			Stock + Private Business + Investment Real Estate Allocation (%)		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Retired Indicator x Married Indicator	-8.533***	-8.535***	-8.608***	-10.557***	-10.562***	-10.802***	-10.050***	-10.062***	-10.114***
	(2.268)	(2.268)	(2.291)	(2.347)	(2.347)	(2.368)	(2.345)	(2.345)	(2.367)
Retired Indicator	3.292	3.301	3.361	2.745	2.771	3.046	2.973	3.030	3.166
	(2.206)	(2.205)	(2.222)	(2.293)	(2.293)	(2.306)	(2.279)	(2.278)	(2.291)
Transition Indicator x Married Indicator	-3.476*	-3.478*	-3.569*	-5.785***	-5.789***	-6.136***	-4.750**	-4.758**	-4.972**
	(1.996)	(1.996)	(2.009)	(2.090)	(2.090)	(2.092)	(2.100)	(2.101)	(2.108)
Transition Indicator	1.123	1.126	1.204	0.930	0.938	1.236	0.584	0.602	0.817
	(1.857)	(1.857)	(1.867)	(1.951)	(1.951)	(1.945)	(1.972)	(1.972)	(1.974)
Married Indicator	6.636***	6.633***	6.770***	8.276***	8.267***	8.416***	7.995***	7.972***	7.814***
	(2.445)	(2.446)	(2.486)	(2.500)	(2.501)	(2.542)	(2.577)	(2.577)	(2.627)
Family Labor Income	0.472***	0.472***	0.458***	0.603***	0.600***	0.603***	0.532***	0.527***	0.525***
	(0.109)	(0.109)	(0.111)	(0.110)	(0.110)	(0.112)	(0.107)	(0.107)	(0.108)
Family Net Worth	0.052***	0.052***	0.051***	0.095***	0.095***	0.095***	0.100***	0.101***	0.100***
	(0.009)	(0.009)	(0.010)	(0.010)	(0.010)	(0.010)	(0.009)	(0.009)	(0.009)
Family Pension Income	-0.002	-0.002	-0.049	0.127	0.128	0.090	0.079	0.081	0.034
	(0.263)	(0.263)	(0.267)	(0.263)	(0.263)	(0.268)	(0.254)	(0.254)	(0.258)
Number of Children	-0.961*	-0.961*	-0.550	-1.425***	-1.424***	-1.145**	-1.048**	-1.048**	-0.616
	(0.507)	(0.507)	(0.553)	(0.524)	(0.524)	(0.582)	(0.508)	(0.508)	(0.552)
Age-squared/100 of Head		-0.086	-0.126		-0.251	-0.336		-0.561	-0.648*
		(0.405)	(0.410)		(0.403)	(0.408)		(0.389)	(0.394)
Family Healthcare Expenditures			0.043			0.053			-0.008
			(0.192)			(0.191)			(0.180)
Household Fixed-Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	21502	21502	21169	21657	21657	21322	21915	21915	21574
Families	5832	5832	5767	5928	5928	5865	6104	6104	6038

This table presents the results of difference-in-difference specifications regressing risky asset class allocations on an indicator for retirement of the head-of-household (equal to 1 if the head-of-household has been retired for more than 3 years at time of observation, and equal to 0 otherwise), an indicator for the head-of-household being married (equal to 1 for married, and 0 otherwise), as well as the interaction between the retirement and married indicators. Also included in the regression is a transition indicator (equal to 1 for the +/-3 years surrounding retirement of the head-of-household) and its interaction with the married indicator. The head of household is defined to be the husband in couple households. The leftmost panel displays the estimation results of specifications where the dependent variable is the allocation to stocks. The dependent variable in the middle panel is the allocation to stocks and private business holdings. Finally, the dependent variable in the rightmost panel is the allocation to stocks, private business, and real estate holdings. Within each vertical panel, the first specification contains controls for family labor income, net worth, pension income, and number of children. The second specification adds the quadratic age of the head. The third specification adds out-of-pocket healthcare expenditures. Standard errors are heteroskedasticity robust and clustered at the household level. ***Statistically significant at the 1% level, **statistically significant at the 5% level, *statistically significant at the 10% level.

Table 4
Incorporating Social Security Wealth and IRA Equity

	Dependent Variable: Stock Allocation (%)								
	Financial Portfolio: Includes Social Security Wealth			Financial Portfolio: Includes IRA Wealth			Financial Portfolio: Includes Social Security and IRA Wealth		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Retired Indicator x Married Indicator	-3.368***	-3.345***	-3.331***	-7.933***	-7.935***	-8.016***	-6.141***	-6.144***	-6.175***
	(1.232)	(1.232)	(1.234)	(2.130)	(2.130)	(2.156)	(1.717)	(1.715)	(1.717)
Retired Indicator	0.191	0.090	0.055	2.334	2.339	2.412	1.995	1.876	1.917
	(1.222)	(1.220)	(1.223)	(2.075)	(2.075)	(2.096)	(1.759)	(1.756)	(1.761)
Transition Indicator x Married Indicator	-2.450***	-2.437***	-2.492***	-3.237*	-3.238*	-3.347*	-3.826***	-3.820***	-3.919***
	(0.919)	(0.919)	(0.919)	(1.892)	(1.892)	(1.905)	(1.261)	(1.261)	(1.262)
Transition Indicator	0.189	0.158	0.174	0.930	0.931	1.034	0.825	0.792	0.866
	(0.845)	(0.844)	(0.847)	(1.745)	(1.745)	(1.756)	(1.223)	(1.222)	(1.224)
Married Indicator	-0.216	-0.212	-0.182	5.193**	5.191**	5.372**	-1.122	-1.084	-1.097
	(1.584)	(1.584)	(1.577)	(2.290)	(2.291)	(2.341)	(2.085)	(2.086)	(2.072)
Family Labor Income	0.281***	0.287***	0.283***	0.370***	0.369***	0.358***	0.261***	0.271***	0.279***
	(0.075)	(0.075)	(0.075)	(0.103)	(0.103)	(0.105)	(0.077)	(0.077)	(0.077)
Family Net Worth	0.163***	0.163***	0.161***	0.055***	0.055***	0.054***	0.171***	0.170***	0.169***
	(0.009)	(0.009)	(0.009)	(0.009)	(0.009)	(0.009)	(0.010)	(0.010)	(0.010)
Family Pension Income	0.271	0.274	0.246	-0.061	-0.061	-0.109	0.179	0.182	0.169
	(0.233)	(0.233)	(0.234)	(0.250)	(0.250)	(0.255)	(0.229)	(0.230)	(0.231)
Number of Children	-0.289	-0.285	-0.272	-0.822*	-0.822*	-0.512	-0.321	-0.309	-0.293
	(0.251)	(0.251)	(0.263)	(0.491)	(0.491)	(0.539)	(0.510)	(0.511)	(0.550)
Age-squared/100 of Head		0.567*	0.541*		-0.053	-0.119		0.898**	0.871**
		(0.306)	(0.308)		(0.380)	(0.384)		(0.355)	(0.357)
Family Healthcare Expenditures			0.106			0.112			0.106
			(0.159)			(0.185)			(0.229)
Household Fixed-Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	14091	14091	13978	21459	21459	21127	10614	10614	10526
Families	4077	4077	4062	5817	5817	5752	2767	2767	2755

This table presents the results of difference-in-difference specifications regressing risky asset class allocations on an indicator for retirement of the head-of-household (equal to 1 if the head-of-household has been retired for more than 3 years at time of observation, and equal to 0 otherwise), an indicator for the head-of-household being married (equal to 1 for married, and 0 otherwise), as well as the interaction between the retirement and married indicators. Also included in the regression is a transition indicator (equal to 1 for the +/-3 years surrounding retirement of the head-of-household) and its interaction with the married indicator. The head of household is defined to be the husband in couple households. The dependent variable in all specifications is the percentage of stocks in the financial portfolio. In the leftmost panel, the financial portfolio is includes implicit Social Security wealth, which is treated as a bond. In the middel panel, the financial portfolio includes IRA wealth, with allocations to stocks imputed using data from the Survey of Consumer Finances. In the rightmost panel, the financial portfolio includes both Social Security and IRA wealth. Within each vertical panel, the first specification contains controls for family labor income, net worth, pension income, and number of children. The second specification adds the quadratic age of the head. The third specification adds out-of-pocket healthcare expenditures. Standard errors are heteroskedasticity robust and clustered at the household level. ***Statistically significant at the 1% level, **statistically significant at the 5% level, *statistically significant at the 10% level.

Table 5
Within-Couple Difference in Risk Tolerance

		Stock Allocation (%)		
		(1)	(2)	(3)
Difference in Spouses' Risk-Tolerance Levels (Husband - Wife, increasing in tercile)	Husband Retired Indicator Tercile 1	-2.614	-2.611	-2.690
		(1.630)	(1.630)	(1.642)
	Husband Retired Indicator Tercile 2	-3.703**	-3.701**	-3.535**
		(1.521)	(1.521)	(1.539)
	Husband Retired Indicator Tercile 3	-6.080***	-6.075***	-6.082***
		(1.685)	(1.687)	(1.720)
	Transition Indicator	-1.770*	-1.770*	-1.699*
		(0.947)	(0.947)	(0.958)
	Family Labor Income	0.495***	0.495***	0.464***
		(0.105)	(0.105)	(0.107)
	Family Net Worth	0.041***	0.041***	0.039***
		(0.009)	(0.009)	(0.009)
	Family Pension Income	0.007	0.008	-0.069
		(0.264)	(0.264)	(0.267)
	Number of Children	-0.144	-0.144	0.414
		(0.551)	(0.551)	(0.609)
	Age-squared/100 of Head		-0.040	-0.128
			(0.487)	(0.494)
	Family Healthcare Expenditures			-0.104
				(0.237)
	Household Fixed-Effects	Yes	Yes	Yes
	Observations	15112	15112	14801
	Families	4085	4085	4011
	F-statistic (p-value): Tercile 1 = Tercile 3	4.18	4.17	3.85
		(0.041)	(0.041)	(0.049)

This table presents the results of specifications regressing couples' risky asset class allocations on an indicator for retirement of the husband (equal to 1 if the husband has been retired for more than 3 years at time of observation, and equal to 0 otherwise), This indicator is interacted with indicators for terciles of the difference in risk tolerance among spouses. Also included in the regression is a transition indicator (equal to 1 for the +/-3 years surrounding retirement of the husband) and its interaction with the married indicator. The dependent variable is the allocation to stocks in the financial portfolio. Reported below the regression estimates is the F-statistic from a test of equality of regression coefficients between the first and third risk tolerance difference terciles. Also reported in parentheses is the p-value of this test. Standard errors are heteroskedasticity robust and clustered at the household level. ***Statistically significant at the 1% level, **statistically significant at the 5% level, *statistically significant at the 10% level.

Table 6
Do Husbands' and Wives' Retirement Effects Differ?

	Dependent Variable: Stock Allocation (%)					
	Panel A: Unconditional Effects			Panel B: Conditional on Relative Earnings		
	(1)	(2)	(3)	(1)	(2)	(3)
Wife Retired Indicator	1.705	1.709	2.126			
	(1.406)	(1.406)	(1.423)			
Husband Retired Indicator	-3.777***	-3.768***	-4.141***			
	(1.251)	(1.252)	(1.277)			
Wife Retired Indicator Higher-Earning Wife				3.048* (1.761)	3.056* (1.761)	3.157* (1.775)
Husband Retired Indicator Higher-Earning Wife				-3.460** (1.644)	-3.443** (1.644)	-3.604** (1.665)
Wife Retired Indicator Lower-Earning Wife				0.847 (1.529)	0.848 (1.529)	1.406 (1.548)
Husband Retired Indicator Lower-Earning Wife				-3.494*** (1.344)	-3.485*** (1.344)	-3.999*** (1.375)
Wife Transition Indicator	0.138	0.136	0.339	0.039	0.036	0.215
	(1.074)	(1.074)	(1.084)	(1.085)	(1.085)	(1.096)
Husband Transition Indicator	-1.500	-1.499	-1.689*	-1.336	-1.334	-1.541
	(0.923)	(0.923)	(0.938)	(0.930)	(0.930)	(0.945)
Family Labor Income	0.518***	0.517***	0.499***	0.511***	0.510***	0.491***
	(0.106)	(0.106)	(0.108)	(0.106)	(0.106)	(0.108)
Family Net Worth	0.040***	0.040***	0.039***	0.040***	0.040***	0.039***
	(0.008)	(0.008)	(0.009)	(0.008)	(0.008)	(0.009)
Family Pension Income	-0.013	-0.013	-0.077	-0.013	-0.012	-0.076
	(0.263)	(0.263)	(0.267)	(0.263)	(0.263)	(0.267)
Number of Children	-0.302	-0.301	0.248	-0.311	-0.310	0.241
	(0.546)	(0.546)	(0.604)	(0.546)	(0.546)	(0.604)
Age-squared/100 of Head		-0.152	-0.243		-0.166	-0.258
		(0.485)	(0.492)		(0.485)	(0.493)
Family Healthcare Expenditures			0.000			0.001
			(0.225)			(0.225)
Household Fixed-Effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	15234	15234	14901	15234	15234	14901
Families	4114	4114	4034	4114	4114	4034
F-statistic (p-value): Husband Retired = Wife Retired	7.11	7.09	8.98			
	(0.008)	(0.008)	(0.003)			
F-statistic (p-value): Husband Retired = Wife Retired Higher-Earning Wife				5.90 (0.015)	5.89 (0.015)	6.25 (0.012)
F-statistic (p-value): Husband Retired = Wife Retired Lower-Earning Wife				3.65 (0.056)	3.63 (0.057)	5.45 (0.019)

This table presents the results of specifications regressing couples' stock allocations on indicators for the respective retirements of the husband and wife (equal to 1 if the husband (wife) has been retired for more than 3 years at time of observation, and equal to 0 otherwise). Also included in the regression are transition indicators (equal to 1 for the +/-3 years surrounding retirement of the husband (wife)) and its interaction with the married indicator. Reported below the regression estimates is the F-statistic from a test of equality of regression coefficients between the retirement indicators for husbands and wives. Also reported in parentheses is the p-value of this test. Standard errors are heteroskedasticity robust and clustered at the household level. ***Statistically significant at the 1% level, **statistically significant at the 5% level, *statistically significant at the 10% level.

Table 7
Household Stock Allocations and Wives' Pension Income Share

	Stock Allocation (%)		
	(1)	(2)	(3)
Wife's Pension Income Share	-3.954**	-3.948**	-3.303**
	(1.595)	(1.595)	(1.630)
Family Labor Income	0.201	0.203	0.123
	(0.175)	(0.175)	(0.179)
Family Net Worth	0.077***	0.077***	0.077***
	(0.011)	(0.011)	(0.011)
Family Pension Income	-0.319	-0.323	-0.299
	(0.369)	(0.369)	(0.373)
Number of Children	-0.086	-0.085	0.184
	(0.608)	(0.608)	(0.653)
Age-squared/100 of Head		0.201	0.155
		(0.522)	(0.527)
Family Healthcare Expenditures			0.216
			(0.259)
Household Fixed-Effects	Yes	Yes	Yes
Observations	12454	12454	12239
Families	4347	4347	4279

This table presents the results of specifications regressing retired couples' stock allocations on the wife's share of pension income. Standard errors are heteroskedasticity robust and clustered at the household level. ***Statistically significant at the 1% level, **statistically significant at the 5% level, *statistically significant at the 10% level.

Table 8
Household Asset Allocations and Health Status

	Panel A: Health Level at Retirement		
	Stock Allocation (%)		
	(1)	(2)	(3)
Retired Indicator x Married Indicator Health: Very Good - Excellent	-8.714*** (2.321)	-8.716*** (2.321)	-8.707*** (2.344)
Retired Indicator x Married Indicator Health: Good	-7.285*** (2.473)	-7.287*** (2.473)	-7.439*** (2.504)
Retired Indicator x Married Indicator Health: Fair - Poor	-9.618*** (2.915)	-9.621*** (2.914)	-9.821*** (2.954)
Retired Indicator	3.185 (2.199)	3.194 (2.198)	3.251 (2.215)
Transition Indicator x Married Indicator	-3.391* (1.990)	-3.392* (1.990)	-3.480* (2.003)
Transition Indicator	1.052 (1.853)	1.055 (1.853)	1.132 (1.864)
Married Indicator	6.476*** (2.440)	6.473*** (2.440)	6.613*** (2.480)
Family Labor Income	0.472*** (0.109)	0.472*** (0.109)	0.458*** (0.111)
Family Net Worth	0.051*** (0.009)	0.051*** (0.009)	0.051*** (0.010)
Family Pension Income	-0.012 (0.263)	-0.012 (0.263)	-0.058 (0.267)
Number of Children	-0.972* (0.508)	-0.972* (0.508)	-0.562 (0.553)
Age-squared/100 of Head		-0.086 (0.405)	-0.127 (0.410)
Family Healthcare Expenditures			0.042 (0.192)
Household Fixed-Effects	Yes	Yes	Yes
Observations	21502	21502	21169
Families	5832	5832	5767
F-statistic (p-value): High Health = Low Health	0.18 (0.672)	0.18 (0.671)	0.26 (0.608)

This table presents the results of difference-in-differences specifications regressing risky asset class allocations on an indicator for retirement of the head-of-household (equal to 1 if the head-of-household has been retired for more than 3 years at time of observation, and equal to 0 otherwise), an indicator for the head-of-household being married (equal to 1 for married, and 0 otherwise), as well as the interaction between the retirement and married indicators. In Panel A, this interaction term is further interacted with the health level of the head-of-household at retirement: excellent or very good vs. good vs. fair or poor. In Panel B, the interaction term is further interacted with directional change in health through the retirement transition: deteriorating vs. steady vs. improving. Also included in the regression is a transition indicator (equal to 1 for the +/-3 years surrounding retirement of the head-of-household) and its interaction with the married indicator. The head of household is defined to be the husband in couple households. Standard errors are heteroskedasticity robust and clustered at the household level. ***Statistically significant at the 1% level, **statistically significant at the 5% level, *statistically significant at the 10% level.

Table 8, continued
Household Asset Allocations and Health Status

	Panel B: Health Changes through Retirement		
	Stock Allocation (%)		
	(1)	(2)	(3)
Retired Indicator x Married Indicator Deteriorating Health Status	-7.813***	-7.817***	-7.889***
	(2.339)	(2.339)	(2.360)
Retired Indicator x Married Indicator Steady Health Status	-8.708***	-8.710***	-8.852***
	(2.286)	(2.286)	(2.309)
Retired Indicator x Married Indicator Improving Health Status	-8.672***	-8.672***	-8.618***
	(2.302)	(2.302)	(2.326)
Retired Indicator	3.339	3.346	3.375
	(2.206)	(2.205)	(2.223)
Transition Indicator x Married Indicator	-3.473*	-3.475*	-3.564*
	(1.996)	(1.996)	(2.009)
Transition Indicator	1.148	1.150	1.210
	(1.857)	(1.857)	(1.867)
Married Indicator	6.640***	6.638***	6.761***
	(2.446)	(2.446)	(2.486)
Family Labor Income	0.470***	0.469***	0.456***
	(0.109)	(0.109)	(0.111)
Family Net Worth	0.052***	0.052***	0.051***
	(0.009)	(0.009)	(0.010)
Family Pension Income	-0.003	-0.003	-0.050
	(0.263)	(0.263)	(0.267)
Number of Children	-0.961*	-0.960*	-0.547
	(0.507)	(0.507)	(0.552)
Age-squared/100 of Head		-0.074	-0.116
		(0.406)	(0.411)
Family Healthcare Expenditures			0.040
			(0.192)
Household Fixed-Effects	Yes	Yes	Yes
Observations	21502	21502	21169
Families	5832	5832	5767
F-statistic (p-value): High Health = Low Health	1.24	1.23	0.88
	(0.266)	(0.268)	(0.349)

This table presents the results of difference-in-differences specifications regressing risky asset class allocations on an indicator for retirement of the head-of-household (equal to 1 if the head-of-household has been retired for more than 3 years at time of observation, and equal to 0 otherwise), an indicator for the head-of-household being married (equal to 1 for married, and 0 otherwise), as well as the interaction between the retirement and married indicators. In Panel A, this interaction term is further interacted with the health level of the head-of-household at retirement: excellent or very good vs. good vs. fair or poor. In Panel B, the interaction term is further interacted with directional change in health through the retirement transition: deteriorating vs. steady vs. improving. Also included in the regression is a transition indicator (equal to 1 for the +/-3 years surrounding retirement of the head-of-household) and its interaction with the married indicator. The head of household is defined to be the husband in couple households. Standard errors are heteroskedasticity robust and clustered at the household level. ***Statistically significant at the 1% level, **statistically significant at the 5% level, *statistically significant at the 10% level.

Table 9
Household Asset Allocations, Consumption Risk

	Panel A: Defined Benefit Pension Holders		
	Stock Allocation (%)		
	(1)	(2)	(3)
Retired Indicator x Married Indicator DB Pension: Yes	-8.082***	-8.085***	-8.077***
	(2.345)	(2.345)	(2.356)
Retired Indicator x Married Indicator DB Pension: No	-8.577***	-8.579***	-8.662***
	(2.000)	(2.000)	(2.014)
Retired Indicator	3.258*	3.267*	3.320*
	(1.966)	(1.966)	(1.975)
Transition Indicator x Married Indicator	-3.475*	-3.477*	-3.567**
	(1.813)	(1.813)	(1.823)
Transition Indicator	1.109	1.112	1.187
	(1.659)	(1.659)	(1.664)
Married Indicator	6.661***	6.658***	6.802***
	(2.118)	(2.119)	(2.151)
Family Labor Income	0.469***	0.468***	0.453***
	(0.101)	(0.101)	(0.103)
Family Net Worth	0.052***	0.052***	0.051***
	(0.007)	(0.007)	(0.007)
Family Pension Income	-0.003	-0.003	-0.050
	(0.242)	(0.242)	(0.245)
Number of Children	-0.961**	-0.961**	-0.550
	(0.468)	(0.468)	(0.510)
Age-squared/100 of Head		-0.085	-0.125
		(0.414)	(0.419)
Family Healthcare Expenditures			0.043
			(0.174)
Household Fixed-Effects	Yes	Yes	Yes
Observations	21502	21502	21169
Families	5832	5832	5767
F-statistic (p-value): DB Pension = No DB Pension	0.13	0.13	0.19
	(0.714)	(0.715)	(0.665)

This table presents the results of difference-in-differences specifications regressing risky asset class allocations on an indicator for retirement of the head-of-household (equal to 1 if the head-of-household has been retired for more than 3 years at time of observation, and equal to 0 otherwise), an indicator for the head-of-household being married (equal to 1 for married, and 0 otherwise), as well as the interaction between the retirement and married indicators. In Panel A, this interaction term is further interacted with indicators for whether either member of a couple is a defined benefit pension holder or not. In Panel B, the interaction term is further interacted with indicators for whether the spouse in a couple housheold was a homemaker or not. Also included in the regression is a transition indicator (equal to 1 for the +/-3 years surrounding retirement of the head-of-household) and its interaction with the married indicator. The head of household is defined to be the husband in couple households. Standard errors are heteroskedasticity robust and clustered at the household level. ***Statistically significant at the 1% level, **statistically significant at the 5% level, *statistically significant at the 10% level.

Table 9, continued
Household Asset Allocations, Consumption Risk

	Panel B: Wives' Labor Market Participation		
	Stock Allocation (%)		
	(1)	(2)	(3)
Retired Indicator x Married Indicator Wife: Homemaker	-10.846*** (2.539)	-10.850*** (2.539)	-10.842*** (2.557)
Retired Indicator x Married Indicator Wife: Not Homemaker	-8.190*** (2.010)	-8.192*** (2.010)	-8.268*** (2.025)
Retired Indicator	3.342* (1.964)	3.352* (1.964)	3.412* (1.973)
Transition Indicator x Married Indicator	-3.461* (1.813)	-3.462* (1.813)	-3.550* (1.823)
Transition Indicator	1.145 (1.659)	1.148 (1.659)	1.227 (1.664)
Married Indicator	6.433*** (2.122)	6.430*** (2.122)	6.564*** (2.154)
Family Labor Income	0.471*** (0.100)	0.470*** (0.100)	0.457*** (0.102)
Family Net Worth	0.051*** (0.007)	0.052*** (0.007)	0.051*** (0.007)
Family Pension Income	-0.013 (0.242)	-0.012 (0.242)	-0.058 (0.245)
Number of Children	-0.962** (0.468)	-0.962** (0.468)	-0.550 (0.510)
Age-squared/100 of Head		-0.089 (0.414)	-0.129 (0.419)
Family Healthcare Expenditures			0.046 (0.174)
Household Fixed-Effects	Yes	Yes	Yes
Observations Families	21502 5832	21502 5832	21169 5767
F-statistic (p-value): Homemaker = Non-Homemaker	2.17 (0.140)	2.18 (0.140)	2.00 (0.157)

This table presents the results of difference-in-differences specifications regressing risky asset class allocations on an indicator for retirement of the head-of-household (equal to 1 if the head-of-household has been retired for more than 3 years at time of observation, and equal to 0 otherwise), an indicator for the head-of-household being married (equal to 1 for married, and 0 otherwise), as well as the interaction between the retirement and married indicators. In Panel A, this interaction term is further interacted with indicators for whether either member of a couple is a defined benefit pension holder or not. In Panel B, the interaction term is further interacted with indicators for whether the spouse in a couple housheold was a homemaker or not. Also included in the regression is a transition indicator (equal to 1 for the +/-3 years surrounding retirement of the head-of-household) and its interaction with the married indicator. The head of household is defined to be the husband in couple households. Standard errors are heteroskedasticity robust and clustered at the household level. ***Statistically significant at the 1% level, **statistically significant at the 5% level, *statistically significant at the 10% level.

Table 10
Household Asset Allocations and Wealth at Retirement

	Stock Allocation (%)		
	(1)	(2)	(3)
Retired Indicator x Married Indicator Wealth Quartile 1	-0.562 (10.391)	-0.570 (10.392)	-0.622 (10.387)
Retired Indicator x Married Indicator Wealth Quartile 2	-8.320** (3.912)	-8.323** (3.913)	-8.873** (3.958)
Retired Indicator x Married Indicator Wealth Quartile 3	-10.390*** (2.586)	-10.389*** (2.586)	-10.464*** (2.619)
Retired Indicator x Married Indicator Wealth Quartile 4	-8.098*** (2.308)	-8.100*** (2.308)	-8.137*** (2.332)
Retired Indicator	3.223 (2.208)	3.231 (2.206)	3.290 (2.224)
Transition Indicator x Married Indicator	-3.480* (1.996)	-3.481* (1.996)	-3.569* (2.010)
Transition Indicator	1.102 (1.858)	1.104 (1.858)	1.180 (1.868)
Married Indicator	6.795*** (2.448)	6.792*** (2.448)	6.942*** (2.487)
Family Labor Income	0.477*** (0.109)	0.476*** (0.109)	0.463*** (0.111)
Family Net Worth	0.051*** (0.009)	0.051*** (0.009)	0.050*** (0.010)
Family Pension Income	-0.004 (0.263)	-0.003 (0.263)	-0.051 (0.267)
Number of Children	-0.950* (0.508)	-0.950* (0.508)	-0.540 (0.553)
Age-squared/100 of Head		-0.073 (0.405)	-0.114 (0.410)
Family Healthcare Expenditures			0.040 (0.192)
Household Fixed-Effects	Yes	Yes	Yes
Observations	21502	21502	21169
Families	5832	5832	5767
F-statistic (p-value): Wealth Q1 = Wealth Q4	0.55 (0.460)	0.55 (0.460)	0.54 (0.461)

This table presents the results of difference-in-differences specifications regressing stock allocations on an indicator for retirement of the head-of-household (equal to 1 if the head-of-household has been retired for more than 3 years at time of observation, and equal to 0 otherwise), an indicator for the head-of-household being married (equal to 1 for married, and 0 otherwise), as well as the interaction between the retirement and married indicators. This interaction term is further interacted with the wealth level (in quartiles) of the head-of-household at retirement. Also included in the regression is a transition indicator (equal to 1 for the +/-3 years surrounding retirement of the head-of-household) and its interaction with the married indicator. The head of household is defined to be the husband in couple households. Standard errors are heteroskedasticity robust and clustered at the household level. ***Statistically significant at the 1% level, **statistically significant at the 5% level, *statistically significant at the 10% level.

A A Simple Model of Household Risk Aversion

1.1. Model Setup

A household will consist of two individuals, individual 1 and individual 2, who derive utility from total household wealth $W > 0$. The individuals have respective utility functions given by $U_1(W)$ and $U_2(W)$, with $U_i'(W) > 0$ and $U_i''(W) < 0$ for each $i \in \{1, 2\}$. Without loss of generality, I assume that agent 1 is less risk averse than agent 2, $\gamma_1 < \gamma_2$, where $\gamma_i > 1$ for each $i \in \{1, 2\}$. That is,

$$\frac{-WU_1''(W)}{U_1'(W)} < \frac{-WU_2''(W)}{U_2'(W)}, \tag{10}$$

which implies

$$\frac{U_1''(W)}{U_1'(W)} > \frac{U_2''(W)}{U_2'(W)}, \tag{11}$$

or

$$U_1''(W)U_2'(W) > U_1'(W)U_2''(W). \tag{12}$$

Household members are assumed to jointly maximize a utility function $U_H(W)$ given by the weighted average of each agent's utility:

$$U_H(W) = \phi U_1(W) + (1 - \phi)U_2(W), \tag{13}$$

where $\phi \in [0, 1]$ captures the degree of influence individual 1 has over household decision-making.

1.2. Effective Risk Aversion of the Household

The household's effective risk aversion is given by

$$\gamma_H = \frac{-WU_H''(W)}{U_H'(W)} = \frac{-W[\phi U_1''(W) + (1 - \phi)U_2''(W)]}{\phi U_1'(W) + (1 - \phi)U_2'(W)}. \tag{14}$$

Then, it is useful to show that, in general, observed household portfolio weights will be between those that each agent would find optimal for a given level of household wealth.

Proposition. *If $U_i'(W) > 0$ and $U_i''(W) < 0$ for each $i \in \{1, 2\}$, $\gamma_1 < \gamma_2$, and $U_H(W) = \phi U_1(W) + (1-\phi)U_2(W)$, then γ_H is strictly bounded such that $\gamma_1 < \gamma_H < \gamma_2$.*

Proof. I first show that $\gamma_2 > \gamma_H$.

$$\begin{aligned}
\gamma_2 &= \frac{-WU_2''(W)}{U_2'(W)} \\
&= \left(\frac{-W(1-\phi)U_2''(W)}{(1-\phi)U_2'(W)}\right)\left(\frac{1+\frac{\phi U_1'(W)}{(1-\phi)U_2'(W)}}{1+\frac{\phi U_1'(W)}{(1-\phi)U_2'(W)}}\right)\left(\frac{1+\frac{\phi U_1''(W)}{(1-\phi)U_2''(W)}}{1+\frac{\phi U_1''(W)}{(1-\phi)U_2''(W)}}\right) \\
&= \left(\frac{-W[\phi U_1''(W)+(1-\phi)U_2''(W)]}{\phi U_1'(W)+(1-\phi)U_2'(W)}\right)\left(\frac{1+\frac{\phi U_1'(W)}{(1-\phi)U_2'(W)}}{1+\frac{\phi U_1''(W)}{(1-\phi)U_2''(W)}}\right) \\
&= \gamma_H \cdot \frac{1+\frac{\phi U_1'(W)}{(1-\phi)U_2'(W)}}{1+\frac{\phi U_1''(W)}{(1-\phi)U_2''(W)}}
\end{aligned} \tag{15}$$

Then $\gamma_2 > \gamma_H$ if and only if $\frac{1+\frac{\phi U_1'(W)}{(1-\phi)U_2'(W)}}{1+\frac{\phi U_1''(W)}{(1-\phi)U_2''(W)}} > 1$.

$$\begin{aligned}
\frac{1+\frac{\phi U_1'(W)}{(1-\phi)U_2'(W)}}{1+\frac{\phi U_1''(W)}{(1-\phi)U_2''(W)}} &= \left(\frac{1+\frac{\phi U_1'(W)}{(1-\phi)U_2'(W)}}{1+\frac{\phi U_1''(W)}{(1-\phi)U_2''(W)}}\right)\left(\frac{(1-\phi)U_2'(W)U_2''(W)}{(1-\phi)U_2'(W)U_2''(W)}\right) \\
&= \frac{\phi U_1'(W)\cdot\frac{U_2''(W)}{U_2'(W)}}{\phi U_1''(W)+(1-\phi)U_2''(W)} + \frac{(1-\phi)U_2'(W)\cdot\frac{U_2''(W)}{U_2'(W)}}{\phi U_1''(W)+(1-\phi)U_2''(W)}
\end{aligned} \tag{16}$$

Since $\frac{U_1''(W)}{U_1'(W)} > \frac{U_2''(W)}{U_2'(W)}$ and $\frac{U_i''(W)}{U_i'(W)} < 0$ for each $i \in \{1, 2\}$, it follows that

$$\begin{aligned}
\frac{1+\frac{\phi U_1'(W)}{(1-\phi)U_2'(W)}}{1+\frac{\phi U_1''(W)}{(1-\phi)U_2''(W)}} &> \frac{\phi U_1'(W)\cdot\frac{U_1''(W)}{U_1'(W)}}{\phi U_1''(W)+(1-\phi)U_2''(W)} + \frac{(1-\phi)U_2''(W)}{\phi U_1''(W)+(1-\phi)U_2''(W)} \\
&= \frac{\phi U_1''(W)+(1-\phi)U_2''(W)}{\phi U_1''(W)+(1-\phi)U_2''(W)} \\
&= 1
\end{aligned} \tag{17}$$

Hence, $\gamma_2 > \gamma_H$. Next, I show that $\gamma_1 < \gamma_H$.

$$\begin{aligned}
\gamma_1 &= \frac{-WU_1''(W)}{U_1'(W)} \\
&= \left(\frac{-W(1-\phi)U_1''(W)}{(1-\phi)U_1'(W)}\right)\left(\frac{1+\frac{(1-\phi)U_2'(W)}{\phi U_1'(W)}}{1+\frac{(1-\phi)U_2'(W)}{\phi U_1'(W)}}\right)\left(\frac{1+\frac{(1-\phi)U_2''(W)}{\phi U_1''(W)}}{1+\frac{(1-\phi)U_2''(W)}{\phi U_1''(W)}}\right) \\
&= \left(\frac{-W[\phi U_1''(W)+(1-\phi)U_2''(W)]}{\phi U_1'(W)+(1-\phi)U_2'(W)}\right)\left(\frac{1+\frac{(1-\phi)U_2'(W)}{\phi U_1'(W)}}{1+\frac{(1-\phi)U_2''(W)}{\phi U_1''(W)}}\right) \\
&= \gamma_H \cdot \frac{1+\frac{(1-\phi)U_2'(W)}{\phi U_1'(W)}}{1+\frac{(1-\phi)U_2''(W)}{\phi U_1''(W)}}
\end{aligned} \tag{18}$$

Then $\gamma_1 < \gamma_H$ if and only if $\frac{1+\frac{(1-\phi)U_2'(W)}{\phi U_1'(W)}}{1+\frac{(1-\phi)U_2''(W)}{\phi U_1''(W)}} < 1$.

$$\begin{aligned}
\frac{1+\frac{(1-\phi)U_2'(W)}{\phi U_1'(W)}}{1+\frac{(1-\phi)U_2''(W)}{\phi U_1''(W)}} &= \left(\frac{1+\frac{(1-\phi)U_2'(W)}{\phi U_1'(W)}}{1+\frac{(1-\phi)U_2''(W)}{\phi U_1''(W)}}\right)\left(\frac{\phi U_1'(W)U_1''(W)}{\phi U_1'(W)U_1''(W)}\right) \\
&= \frac{\phi U_1'(W)\cdot\frac{U_1''(W)}{U_1'(W)}}{\phi U_1''(W)+(1-\phi)U_2''(W)} + \frac{(1-\phi)U_2'(W)\cdot\frac{U_1''(W)}{U_1'(W)}}{\phi U_1''(W)+(1-\phi)U_2''(W)}
\end{aligned} \tag{19}$$

Since $\frac{U_1''(W)}{U_1'(W)} > \frac{U_2''(W)}{U_2'(W)}$ and $\frac{U_i''(W)}{U_i'(W)} < 0$ for each $i \in \{1,2\}$, it follows that

$$\begin{aligned}
\frac{1+\frac{(1-\phi)U_2'(W)}{\phi U_1'(W)}}{1+\frac{(1-\phi)U_2''(W)}{\phi U_1''(W)}} &< \frac{\phi U_1''(W)}{\phi U_1''(W)+(1-\phi)U_2''(W)} + \frac{(1-\phi)U_2'(W)\cdot\frac{U_2''(W)}{U_2'(W)}}{\phi U_1''(W)+(1-\phi)U_2''(W)} \\
&= \frac{\phi U_1''(W)+(1-\phi)U_2''(W)}{\phi U_1''(W)+(1-\phi)U_2''(W)} \\
&= 1
\end{aligned} \tag{20}$$

Therefore, $\gamma_1 < \gamma_H < \gamma_2$. □

1.3. Changes in Decision-Making Power

Proposition. *If $U_i'(W) > 0$ and $U_i''(W) < 0$ for each $i \in \{1, 2\}$, $\gamma_1 < \gamma_2$, and $U_H(W) = \phi U_1(W) + (1-\phi)U_2(W)$, then $\frac{d\gamma_H}{d\phi} < 0$.*

Proof.

$$\frac{d\gamma_H}{d\phi} = -W \left\{ \frac{U_1''(W) - U_2''(W)}{\phi U_1'(W) + (1-\phi)U_2'(W)} - \frac{\left(U_1'(W) - U_2'(W)\right)\left(\phi U_1''(W) - (1-\phi)U_2''(W)\right)}{\left(\phi U_1'(W) + (1-\phi)U_2'(W)\right)^2} \right\} \tag{21}$$

Then $\frac{d\gamma_H}{d\phi} < 0$ if and only if the following holds:

$$\left(U_1''(W) - U_2''(W)\right)\left(\phi U_1'(W) + (1-\phi)U_2'(W)\right) > \left(U_1'(W) - U_2'(W)\right)\left(\phi U_1''(W) + (1-\phi)U_2''(W)\right) \tag{22}$$

Multiplying and rearranging the left-hand side of this expression leads to the following:

$$\begin{aligned}\left(U_1''(W) - U_2''(W)\right)\left(\phi U_1'(W) + (1-\phi)U_2'(W)\right) = &\left(U_1'(W) - U_2'(W)\right)\left(\phi U_1''(W) + (1-\phi)U_2''(W)\right) \\ &+ U_1''(W)U_2'(W) - U_1'(W)U_2''(W)\end{aligned} \tag{23}$$

Then, since $U_1''(W)U_2'(W) > U_1'(W)U_2''(W)$, we have that $\frac{d\gamma_H}{d\phi} < 0$. $\square$

B Additional Robustness Tests

2.1. Children

Love (2010) shows that children present an important source of background risk in a life cycle model of portfolio choice, leading to significantly different asset allocation decisions among parents vs. non-parents. Though the background risks he models may not apply to retirees with grown children, the presence of children may still affect portfolio choices through such channels as bequest motives. Table A3 presents the results of regressions in which I sort couple households on the number of living children they have. The table shows that heterogeneity with respect to children is indeed related to the magnitude of the main result. Those couples with no children exhibit the largest average post-retirement reallocations away from stocks. However, the results are not driven by this group, as the reallocations among those with 1-2, 3-4, and 5 or more children are all economically and statistically significant.

2.2. Age of Retirement

Table A4 presents the results of regressions where I condition couple households on the age of the husband's retirement. The table shows that while there is some heterogeneity in post-retirement reallocations with respect to retirement age, for the large majority of retirements (occurring between the ages of 55 and 70), the estimates are relatively stable.

2.3. Entrepreneurs

Table A5 presents the results of conditional regressions, where I condition couple households on whether the retiring husband was an entrepreneur or not. The left panel of the table shows that this distinction does have an effect on the results when considering the share of stocks in the financial portfolio. Retiring entrepreneurs reallocate a smaller portion of their financial portfolios away from stocks than non-entrepreneurs. However, the right panel of the table shows that retiring entrepreneurs and non-entrepreneurs behave much more similarly once private business holdings are taken into account. This is consistent with public and private equity being complementary components of the overall risky asset portion in households' financial portfolios (Heaton and Lucas (2000a, 2000b)).

2.4. Cognitive Ability

Table A6 presents the results of regressions where I condition couples on cognitive function of the retiring husband. The HRS provides various measures of respondents' cognitive function. These include self-reported memory, immediate and delayed word recall, ability to name presidents and vice-presidents, and vocabulary measures. As mathematical cognitive abilities can affect portfolio choice decisions (Christelis, Jappelli, and Padula (2010)), I use an HRS measure known as "serial 7's". For five trials, respondents are asked to subtract 7 from the prior number, beginning with 100. Scores range from 0 to 5, based on the number of correct subtractions respondents make. Approximately half of respondents achieve a score of 4 or 5, with the remainder achieving a score of 3 or less. I compare those couples in which the retiring husband achieved a score of 4 or 5 at retirement with those where he achieved a score of 3 or less, roughly splitting the sample into top and bottom halves. The results in Table A6 show that while those couples where the retiring husband's mathematical cognitive abilities are lower move out of risky assets to a greater degree after retirement, the difference between the two groups is economically small.

2.5. Split-sample Analysis: Pre- vs. post-2000

Expectations regarding future investment opportunities may affect the behavior of retiring couples. Further, if investment opportunities are time-varying, the time of retirement may have an effect on the main results, in that those retiring during so-called good times may act differently from those retiring when the market is more volatile. I sort retirement events into those that occurred between 1992 and 2000, and those that occurred between 2001 and 2008. Table A7 presents the results of regressions where I condition couple households on whether the head-of-household retired before or during 2000, or during the period from 2001 to 2008. The table shows that while the main result is stronger during the post-2000 period, the results do not seem to be driven by retirement events during one of the two subperiods.

Table A1
Household Stock Market Participation and Retirement

	Stock Market Participation		
	(1)	(2)	(3)
Retired Indicator x Married Indicator	-0.046***	-0.047***	-0.046***
	(0.014)	(0.014)	(0.014)
Retired Indicator	0.001	0.002	0.002
	(0.012)	(0.012)	(0.012)
Transition Indicator x Married Indicator	-0.020	-0.020	-0.018
	(0.013)	(0.013)	(0.013)
Transition Indicator	0.003	0.003	0.003
	(0.010)	(0.010)	(0.010)
Married Indicator	0.055***	0.055***	0.056***
	(0.015)	(0.015)	(0.015)
Family Labor Income	0.007***	0.007***	0.007***
	(0.001)	(0.001)	(0.001)
Family Net Worth	0.002***	0.002***	0.002***
	(0.000)	(0.000)	(0.000)
Family Pension Income	0.011***	0.011***	0.011***
	(0.002)	(0.002)	(0.002)
Number of Children	0.002	0.002	0.002
	(0.002)	(0.002)	(0.002)
Age-squared/100 of Head		-0.006***	-0.006***
		(0.002)	(0.002)
Family Healthcare Expenditures			-0.002**
			(0.001)
Household Fixed-Effects	Yes	Yes	Yes
Observations	74630	74628	73539
Families	12844	12843	5767

This table presents the results of household fixed-effect panel logit difference-in-differences specifications regressing a stock market participation indicator on an indicator for retirement of the head-of-household (equal to 1 if the head-of-household has been retired for more than 3 years at time of observation, and equal to 0 otherwise), an indicator for the head-of-household being married (equal to 1 for married, and 0 otherwise), as well as the interaction between the retirement and married indicators. Also included in the regression is a transition indicator (equal to 1 for the +/-3 years surrounding retirement of the head-of-household) and its interaction with the married indicator. The head of household is defined to be the husband in couple households. The first specification contains controls for family labor income, net worth, pension income, and number of children. The second specification adds the quadratic age of the head. The third specification adds out-of-pocket healthcare expenditures. Standard errors are heteroskedasticity robust and clustered at the household level. ***Statistically significant at the 1% level, **statistically significant at the 5% level, *statistically significant at the 10% level.

Table A2
Household Asset Allocations and Retirement, Dynamics Around Retirement

		Stock Allocation (%)		
		(1)	(2)	(3)
4-6 years PRE-Retirement	Period Indicator x Married Indicator	-0.028	-0.028	-0.062
		(1.914)	(1.914)	(1.928)
	Period Indicator	-0.776	-0.776	-0.656
		(1.715)	(1.715)	(1.720)
1-3 years PRE-Retirement	Period Indicator x Married Indicator	-3.810	-3.811	-4.065*
		(2.432)	(2.433)	(2.444)
	Period Indicator	2.723	2.725	2.887
		(2.224)	(2.225)	(2.230)
0-3 years POST-Retirement	Period Indicator x Married Indicator	-3.213	-3.214	-3.157
		(2.193)	(2.192)	(2.208)
	Period Indicator	-0.898	-0.893	-0.975
		(2.088)	(2.087)	(2.101)
4-6 years POST-Retirement	Period Indicator x Married Indicator	-9.019***	-9.019***	-9.152***
		(2.667)	(2.667)	(2.693)
	Period Indicator	1.567	1.572	1.679
		(2.642)	(2.640)	(2.659)
7-9 years POST-Retirement	Period Indicator x Married Indicator	-7.459***	-7.459***	-7.281***
		(2.787)	(2.787)	(2.810)
	Period Indicator	0.117	0.125	0.083
		(2.827)	(2.826)	(2.844)
10+ years POST-Retirement	Period Indicator x Married Indicator	-8.782***	-8.784***	-8.895***
		(2.789)	(2.788)	(2.817)
	Period Indicator	0.584	0.597	0.679
		(3.060)	(3.059)	(3.084)
	Married Indicator	6.924**	6.923**	7.070***
		(2.738)	(2.739)	(2.778)
	Family Labor Income	0.405***	0.405***	0.390***
		(0.112)	(0.112)	(0.114)
	Family Net Worth	0.053***	0.053***	0.052***
		(0.009)	(0.009)	(0.010)
	Family Pension Income	0.068	0.068	0.022
		(0.263)	(0.263)	(0.268)
	Number of Children	-0.946*	-0.946*	-0.538
		(0.506)	(0.506)	(0.551)
	Age-squared/100 of Head		-0.028	-0.065
			(0.408)	(0.412)
	Family Healthcare Expenditures			0.038
				(0.193)
	Household Fixed-Effects	Yes	Yes	Yes
	Observations	21502	21502	21169
	Families	5832	5832	5767

This table presents the results of dynamic difference-in-differences specifications regressing stock allocations on period indicators (equal to 1 if the head-of-household falls in the period relative to retirement, and equal to 0 otherwise), an indicator for the head-of-household being married (equal to 1 for married, and 0 otherwise), as well as the interaction between the period and married indicators. The head of household is defined to be the husband in couple households. The first specification contains controls for family labor income, net worth, pension income, and number of children. The second specification adds the quadratic age of the head. The third specification adds out-of-pocket healthcare expenditures. Standard errors are heteroskedasticity robust and clustered at the household level. ***Statistically significant at the 1% level, **statistically significant at the 5% level, *statistically significant at the 10% level.

Table A3
Household Asset Allocations and Retirement
Robustness: Children

	Stock Allocation (%)		
	(1)	(2)	(3)
Retired Indicator x Married Indicator No Children	-12.24***	-12.24***	-12.91***
	(3.677)	(3.677)	(3.790)
Retired Indicator x Married Indicator 1-2 Children	-8.116***	-8.116***	-8.132***
	(2.380)	(2.380)	(2.402)
Retired Indicator x Married Indicator 3-4 Children	-8.051***	-8.051***	-8.170***
	(2.383)	(2.383)	(2.412)
Retired Indicator x Married Indicator 5+ Children	-9.999***	-9.999***	-9.875***
	(2.734)	(2.734)	(2.761)
Retired Indicator	3.304	3.304	3.351
	(2.206)	(2.206)	(2.223)
Transition Indicator x Married Indicator	-3.476*	-3.476*	-3.558*
	(1.996)	(1.996)	(2.010)
Transition Indicator	1.129	1.129	1.201
	(1.858)	(1.858)	(1.868)
Married Indicator	6.682***	6.682***	6.813***
	(2.446)	(2.446)	(2.486)
Family Labor Income	0.473***	0.473***	0.459***
	(0.109)	(0.109)	(0.111)
Family Net Worth	0.0513***	0.0513***	0.0504***
	(0.00945)	(0.00945)	(0.00953)
Family Pension Income	0.00138	0.00138	-0.0452
	(0.263)	(0.263)	(0.268)
Number of Children	-0.885*	-0.885*	-0.461
	(0.535)	(0.535)	(0.580)
Age-squared/100 of Head		-0.0852	-0.125
		(0.405)	(0.410)
Family Healthcare Expenditures			0.0428
			(0.192)
Household Fixed-Effects	Yes	Yes	Yes
Observations	21502	21502	21169
Families	5832	5832	5767

This table presents the results of difference-in-differences specifications regressing risky asset class allocations on an indicator for retirement of the head-of-household (equal to 1 if the head-of-household has been retired for more than 3 years at time of observation, and equal to 0 otherwise), an indicator for the head-of-household being married (equal to 1 for married, and 0 otherwise), as well as the interaction between the retirement and married indicators. This interaction term is further interacted with indicators for whether married couples have no children, 1-2 children, 3-4 children, or 5 or more children. Also included in the regression is a transition indicator (equal to 1 for the +/-3 years surrounding retirement of the head-of-household) and its interaction with the married indicator. The head of household is defined to be the husband in couple households. Standard errors are heteroskedasticity robust and clustered at the household level. ***Statistically significant at the 1% level, **statistically significant at the 5% level, *statistically significant at the 10% level.

Table A4
Household Asset Allocations and Retirement
Robustness: Age of Retirement

	Stock Allocation (%)		
	(1)	(2)	(3)
Retired Indicator x Married Indicator Retirement Age: 50 or lower	-11.65** (5.565)	-11.32** (5.570)	-11.80** (5.759)
Retired Indicator x Married Indicator Retirement Age: 51 to 55	-13.38*** (2.891)	-12.76*** (2.890)	-13.22*** (2.922)
Retired Indicator x Married Indicator Retirement Age: 56 to 60	-9.767*** (2.543)	-9.012*** (2.551)	-9.157*** (2.580)
Retired Indicator x Married Indicator Retirement Age: 61 to 65	-8.473*** (2.356)	-7.702*** (2.365)	-7.499*** (2.384)
Retired Indicator x Married Indicator Retirement Age: 66 to 70	-7.684*** (2.941)	-6.791** (2.938)	-7.152** (2.987)
Retired Indicator x Married Indicator Retirement Age: 71 to 75	-7.622** (3.707)	-6.532* (3.691)	-6.020 (3.766)
Retired Indicator x Married Indicator Retirement Age: 75 or higher	-1.210 (6.537)	-0.106 (6.556)	-0.387 (6.585)
Retired Indicator	8.742*** (2.062)	4.008* (2.188)	4.108* (2.204)
Transition Indicator x Married Indicator	-4.084** (1.988)	-3.656* (1.997)	-3.747* (2.010)
Transition Indicator	4.064** (1.792)	1.761 (1.843)	1.878 (1.853)
Married Indicator	5.714** (2.428)	6.399*** (2.447)	6.488*** (2.483)
Family Labor Income	0.363*** (0.109)	0.466*** (0.109)	0.452*** (0.111)
Family Net Worth	0.0643*** (0.00907)	0.0523*** (0.00941)	0.0514*** (0.00949)
Family Pension Income	0.114 (0.264)	0.0326 (0.264)	-0.00756 (0.269)
Number of Children	-0.718 (0.500)	-0.844* (0.504)	-0.443 (0.549)
Age-squared/100 of Head		-0.662 (0.470)	-0.774 (0.474)
Family Healthcare Expenditures			0.0217 (0.191)
Household Fixed-Effects	Yes	Yes	Yes
Observations	21502	21502	21169
Families	5832	5832	5767

This table presents the results of difference-in-difference specifications regressing risky asset class allocations on an indicator for retirement of the head-of-household (equal to 1 if the head-of-household has been retired for more than 3 years at time of observation, and equal to 0 otherwise), an indicator for the head-of-household being married (equal to 1 for married, and 0 otherwise), as well as the interaction between the retirement and married indicators. This interaction term is further interacted with indicators for the age at which head-of-household in married couples retires. Also included in the regression is a transition indicator (equal to 1 for the +/-3 years surrounding retirement of the head-of-household) and its interaction with the married indicator. The head of household is defined to be the husband in couple households. Standard errors are heteroskedasticity robust and clustered at the household level. ***Statistically significant at the 1% level, **statistically significant at the 5% level, *statistically significant at the 10% level.

Table A5
Household Asset Allocations and Retirement
Robustness: Entrepreneurs

	Stock Allocation (%)			Stock + Private Business Allocation (%)		
	(1)	(2)	(3)	(4)	(5)	(6)
Retired Indicator x Married Indicator Entrepreneurs	-5.999**	-6.010**	-5.944**	-9.785***	-9.803***	-10.09***
	(2.477)	(2.477)	(2.500)	(2.562)	(2.563)	(2.587)
Retired Indicator x Married Indicator Non-Entrepreneurs	-9.894***	-9.894***	-9.831***	-10.79***	-10.79***	-10.83***
	(2.452)	(2.453)	(2.480)	(2.525)	(2.527)	(2.550)
Retired Indicator	4.188*	4.241*	4.040*	4.414*	4.501*	4.553*
	(2.386)	(2.383)	(2.401)	(2.471)	(2.469)	(2.482)
Transition Indicator x Married Indicator	-3.314*	-3.322*	-3.481*	-5.804***	-5.816***	-6.233***
	(2.011)	(2.011)	(2.024)	(2.105)	(2.105)	(2.105)
Transition Indicator	1.418	1.440	1.465	1.866	1.901	2.161
	(1.906)	(1.906)	(1.916)	(1.994)	(1.994)	(1.988)
Married Indicator	6.679**	6.670**	6.573**	8.243***	8.225***	8.085***
	(2.656)	(2.656)	(2.702)	(2.693)	(2.694)	(2.738)
Family Labor Income	0.437***	0.433***	0.423***	0.575***	0.569***	0.575***
	(0.113)	(0.113)	(0.115)	(0.115)	(0.115)	(0.116)
Family Net Worth	0.0312***	0.0313***	0.0292***	0.0867***	0.0869***	0.0865***
	(0.0113)	(0.0113)	(0.0114)	(0.0118)	(0.0118)	(0.0118)
Family Pension Income	-0.0688	-0.0677	-0.125	0.164	0.166	0.118
	(0.309)	(0.309)	(0.315)	(0.311)	(0.311)	(0.316)
Number of Children	-1.142*	-1.138*	-0.727	-1.465**	-1.459**	-1.234*
	(0.630)	(0.630)	(0.686)	(0.649)	(0.649)	(0.718)
Age-squared/100 of Head		-0.389	-0.437		-0.662	-0.774
		(0.473)	(0.479)		(0.470)	(0.474)
Family Healthcare Expenditures			-0.0422			-0.0504
			(0.258)			(0.260)
Household Fixed-Effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	21502	21502	21169	21657	21657	21322
Families	5832	5832	5767	5928	5928	5865

This table presents the results of difference-in-difference specifications regressing risky asset class allocations on an indicator for retirement of the head-of-household (equal to 1 if the head-of-household has been retired for more than 3 years at time of observation, and equal to 0 otherwise), an indicator for the head-of-household being married (equal to 1 for married, and 0 otherwise), as well as the interaction between the retirement and married indicators. This interaction term is further interacted with indicators for whether the head-of-household was an entrepreneur or not prior ro retirement. Also included in the regression is a transition indicator (equal to 1 for the +/-3 years surrounding retirement of the head-of-household) and its interaction with the married indicator. The head of household is defined to be the husband in couple households. Standard errors are heteroskedasticity robust and clustered at the household level. ***Statistically significant at the 1% level, **statistically significant at the 5% level, *statistically significant at the 10% level.

Table A6
Household Asset Allocations and Retirement
Robustness: Cognitive Ability

	Stock Allocation (%)		
	(1)	(2)	(3)
Retired Indicator x Married Indicator Cognitive Ability: Top Half	-8.058*** (2.282)	-8.000*** (2.280)	-8.119*** (2.302)
Retired Indicator x Married Indicator Cognitive Ability: Bottom Half	-9.160*** (2.299)	-9.225*** (2.311)	-9.237*** (2.335)
Retired Indicator	3.320 (2.206)	3.300 (2.204)	3.364 (2.222)
Transition Indicator x Married Indicator	-3.461* (1.996)	-3.455* (1.996)	-3.550* (2.009)
Transition Indicator	1.160 (1.858)	1.156 (1.857)	1.235 (1.868)
Married Indicator	6.551*** (2.446)	6.549*** (2.446)	6.688*** (2.485)
Family Labor Income	0.473*** (0.109)	0.475*** (0.109)	0.461*** (0.111)
Family Net Worth	0.0514*** (0.00945)	0.0514*** (0.00945)	0.0505*** (0.00953)
Family Pension Income	-0.00433 (0.262)	-0.00535 (0.262)	-0.0520 (0.267)
Number of Children	-0.965* (0.508)	-0.966* (0.508)	-0.552 (0.553)
Age-squared/100 of Head		0.213 (0.447)	0.145 (0.452)
Family Healthcare Expenditures			0.0457 (0.191)
Household Fixed-Effects	Yes	Yes	Yes
Observations	21502	21502	21169
Families	5832	5832	5767

This table presents the results of difference-in-difference specifications regressing risky asset class allocations on an indicator for retirement of the head-of-household (equal to 1 if the head-of-household has been retired for more than 3 years at time of observation, and equal to 0 otherwise), an indicator for the head-of-household being married (equal to 1 for married, and 0 otherwise), as well as the interaction between the retirement and married indicators. This interaction term is further interacted with indicators for whether the head-of-household whether the retiring head-of-household scores a 4 or 5 in the HRS "serial 7's" test or scores a 3 or below. The "serial 7's" test asks respondents to subtract 7 from the prior number, beginning with 100, for five trials. Scores range from 0 to 5, based on the number of correct subtractions they made. Approximately half of respondents achieve a score of 4 or 5, with the remainder achieving a score of 3 or less. Also included in the regression is a transition indicator (equal to 1 for the +/-3 years surrounding retirement of the head-of-household) and its interaction with the married indicator. The head of household is defined to be the husband in couple households. Standard errors are heteroskedasticity robust and clustered at the household level. ***Statistically significant at the 1% level, **statistically significant at the 5% level, *statistically significant at the 10% level.

Table A7
Household Asset Allocations and Retirement
Robustness: Split-Sample Analysis

	Stock Allocation (%)		
	(1)	(2)	(3)
Retired Indicator x Married Indicator Time of Retirement: Pre-2000	-8.182*** (2.285)	-8.185*** (2.284)	-8.266*** (2.307)
Retired Indicator x Married Indicator Time of Retirement: Post-2000	-10.80*** (2.932)	-10.79*** (2.943)	-10.78*** (2.972)
Retired Indicator	3.479 (2.212)	3.482 (2.211)	3.534 (2.228)
Transition Indicator x Married Indicator	-3.393* (1.996)	-3.394* (1.996)	-3.488* (2.009)
Transition Indicator	1.226 (1.860)	1.227 (1.860)	1.301 (1.870)
Married Indicator	6.397*** (2.452)	6.397*** (2.452)	6.539*** (2.491)
Family Labor Income	0.469*** (0.109)	0.469*** (0.109)	0.455*** (0.111)
Family Net Worth	0.0518*** (0.00944)	0.0518*** (0.00944)	0.0509*** (0.00953)
Family Pension Income	0.00840 (0.263)	0.00848 (0.263)	-0.0396 (0.267)
Number of Children	-0.951* (0.509)	-0.951* (0.509)	-0.540 (0.554)
Age-squared/100 of Head		-0.0360 (0.408)	-0.0794 (0.413)
Family Healthcare Expenditures			0.0475 (0.192)
Household Fixed-Effects	Yes	Yes	Yes
Observations	21502	21502	21169
Families	5832	5832	5767

This table presents the results of difference-in-difference specifications regressing risky asset class allocations on an indicator for retirement of the head-of-household (equal to 1 if the head-of-household has been retired for more than 3 years at time of observation, and equal to 0 otherwise), an indicator for the head-of-household being married (equal to 1 for married, and 0 otherwise), as well as the interaction between the retirement and married indicators. This interaction term is further interacted with indicators for whether the head-of-household retired in the first half of the sample (before 2000) or the second half of the sample (2000 and onward). Also included in the regression is a transition indicator (equal to 1 for the +/-3 years surrounding retirement of the head-of-household) and its interaction with the married indicator. The head of household is defined to be the husband in couple households. Standard errors are heteroskedasticity robust and clustered at the household level. ***Statistically significant at the 1% level, **statistically significant at the 5% level, *statistically significant at the 10% level.