Essays on Household Portfolio Choice

by

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Duke University

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Dissertation submitted in partial fulfillment of the requirements for the degree of
Doctor of Philosophy in the Department of Business Administration
in the Graduate School of Duke University
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Abstract

This dissertation consists of two essays on household portfolio choice. The first essay is entitled 'Household Portfolio Choice and Retirement'. In this first essay, I empirically examine the portfolio decisions of households as they transition into retirement. I document a novel stylized fact: holding household characteristics constant, singles maintain a relatively constant share of risky assets in their financial portfolios as they transition into retirement. On the other hand, couples decrease their share of risky assets significantly. I analyze this difference in behavior, and show that it is not driven by retirement-related background risks for couples relative to singles. Instead, I show that the heterogeneity within couples can be explained by the within-couple difference in spouses' individual risk aversion levels, and that the results are consistent with a net increase in couples' effective household-level risk aversion after retirement. Further, exploiting heterogeneity in couples' relative retirement dates, I show that husbands' and wives' respective retirement events are associated with very different (opposite-signed) persistent effects on the risky share of couples' portfolios. Moreover, I show that the relative magnitude of these persistent effects is consistent with the importance of each spouse's labor income within the household before retirement. Overall, the evidence is consistent with the outcome of a household bargaining game in which wives demand a smaller share of risky assets than their husbands, with each spouse losing some bargaining power after retiring.

In the second essay, entitled 'Household Bargaining and Asset Allocation', we

empirically examine the effect of intra-household bargaining on household portfolio choice over the life cycle. We find that fluctuations in the distribution of intra-household bargaining power are associated with significant asset allocation shifts between risky and comparatively safer asset classes in households' portfolios. Our results are robust to alternative risky asset definitions, including investments in stocks, real estate, and holdings in private business, as well as to alternative control specifications. We find that the implied effect of intra-household bargaining is economically large in magnitude, with changes in bargaining power driving within-household variation in risky asset shares comparable to changes in labor income and wealth over the life cycle.

I dedicate this dissertation to my mother, Noria Farmand, whose sacrifice, resilience, and relentless effort have always been my inspiration.

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List of Abbreviations and Symbols

Symbols

f	A subscript denoting female.
m	A subscript denoting male.
c_k	Consumption of $k \in \{m, f\}$.
I_k	Income of $k \in \{m, f\}$.
$\widetilde{R}$	Gross return on the risky asset.
R_b	Gross return on the riskless asset.
ω	Portfolio weight on the risky asset.
γ_k	Coefficient of relative risk aversion.
θ_k	Parameter capturing the relative importance of c_m to c_f for individual $k \in \{m, f\}$.

Abbreviations

HRS	Health and Retirement Study
PSID	Panel Study of Income Dynamics
SCF	Survey of Consumer Finances

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Finally, I dedicate this dissertation to my mother, Noria Farmand, whose sacrifice, resilience, and relentless effort have always been my inspiration. None of this would have been possible without her.

1

Introduction

This dissertation consists of two essays on household portfolio choice. The first essay is entitled 'Household Portfolio Choice and Retirement'. In this first essay, I empirically examine the portfolio decisions of households as they transition into retirement. I document a novel stylized fact: holding household characteristics constant, singles maintain a relatively constant share of risky assets in their financial portfolios as they transition into retirement. On the other hand, couples decrease their share of risky assets significantly. I analyze this difference in behavior, and show that it is not driven by retirement-related background risks for couples relative to singles. Instead, I show that the heterogeneity within couples can be explained by the within-couple difference in spouses' individual risk aversion levels, and that the results are consistent with a net increase in couples' effective household-level risk aversion after retirement. Further, exploiting heterogeneity in couples' relative retirement dates, I show that husbands' and wives' respective retirement events are associated with very different (opposite-signed) persistent effects on the risky share of couples' portfolios. Moreover, I show that the relative magnitude of these persistent effects is consistent with the importance of each spouse's labor income within the household

before retirement. Overall, the evidence is consistent with the outcome of a household bargaining game in which wives demand a smaller share of risky assets than their husbands, with each spouse losing some bargaining power after retiring.

In the second essay, entitled 'Household Bargaining and Asset Allocation', which is co-authored work with Howard Kung, we empirically examine the effect of intra-household bargaining on household portfolio choice over the life cycle. We find that fluctuations in the distribution of intra-household bargaining power are associated with significant asset allocation shifts between risky and comparatively safer asset classes in households' portfolios. Our results are robust to alternative risky asset definitions, including investments in stocks, real estate, and holdings in private business, as well as to alternative control specifications. We find that the implied effect of intra-household bargaining is economically large in magnitude, with changes in bargaining power driving within-household variation in risky asset shares comparable to changes in labor income and wealth over the life cycle.

2

Household Portfolio Choice and Retirement

2.1 Introduction

Household financial assets represent a large and growing class of U.S. investment holdings. Despite sustaining large losses during the recent financial crisis, household financial assets have returned to pre-downturn levels, amounting to $45.3 trillion as of the end of Q4 2011. Directly held corporate equities valued at $8.1 trillion represent an important fraction both of these holdings, and of total corporate U.S. equity issues.[1][2] In addition to its size, the demographics of the household sector make it an interesting 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[3], they own a disproportionate share of household financial wealth, with estimates generally ranging from 60% to 70%. Given these magnitudes, the study of the retirement

[1] Of the $22.2 trillion in world stock market capitalization held by U.S. residents, the stock holdings of households is large and comparable to the combined holdings of U.S. mutual funds, and private, federal, state, and local pension funds ($8.1 trillion total).

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

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

process in general, and the financial decisions households make during this process, are of great interest to academics, practitioners, and policy makers alike.

In this paper, I empirically examine the portfolio decisions of households as they transition into retirement. Recent statistics indicate that about one-third of baby boomers live on their own, through divorce, separation, widowhood, or having never been married.[4] Given the large body of work in labor and development economics documenting and analyzing differences in single- and couple-household decisions,[5] I focus my examination on how singles and couples differ in characterizing households' portfolio allocation decisions through the transition into retirement.

I document a novel stylized fact: that single- and couple-households differ markedly in their portfolio decisions surrounding retirement. Singles appear to smooth the share of risky assets in their financial portfolios through the retirement transition, consistent with predictions of traditional life cycle models in which agents are rational and forward-looking. On the other hand, couples decrease their risky asset share post-retirement. I isolate and analyze this effect using a difference-in-differences approach, estimating the average difference between singles' and couples' pre- vs. post-retirement allocations to risky assets in the financial portfolio. Controlling for a host of observable household characteristics and the confounding effect of transitioning into retirement, I show that the difference-in-differences has an economically large and statistically significant magnitude between 8% and 11%. I also analyze the dynamics of the difference in singles' and couples' portfolio decisions, showing that this difference is indistinguishable from zero until four years prior to the retirement event, and that the difference gradually emerges over the three years leading up to, and the three years after, the retirement event.

[4] National Center for Family and Marriage Research, http://ncfmr.bgsu.edu/pdf/datapoints/file78931.pdf

[5] See, for example, Browning, Bourguignon, Chiappori, and Lechene (1994), Lundberg and Pollak (1996), Lundberg, Pollak, and Wales (1997), Mazzocco (2007), and Ashraf (2009), among others.

I analyze the difference in singles' and couples' portfolio decisions surrounding retirement to gain an understanding of its drivers. Portfolio choice theory suggests that allocations between relatively risky and safe asset classes can be ascribed to two main drivers: expectations and background risks, and risk aversion. Hence, I analyze whether the main result is due to a non-symmetric change in retirement-related expectations and background risks, a non-symmetric change in effective household risk aversion, or a combination of both.

I find that the results generally cannot be explained by a non-symmetric change in expectations and background risks. I examine the effect of health risk, income and expenditure risk, and longevity risk, showing that there is very little heterogeneity in the results with respect to couples' exposure to these risks in the cross-section. On the other hand, I find evidence in favor of a non-symmetric change in effective household preferences surrounding retirement. Specifically, I show that the main result varies monotonically with groupings of the difference in partners' risk tolerance levels. As the difference in partners' risk tolerance increases, so does the magnitude of the main result. A large literature documenting generally lower risk tolerance among females suggests a natural dimension on which a non-symmetric change in singles' and couples' preferences during retirement could occur; namely, an increase in the effective risk aversion of couple households post-retirement.

I further analyze this hypothesized channel to isolate its microfoundations. Garleanu and Panageas (2010) show that in an economy populated by agents with two differing levels of risk aversion, the relative risk aversion of the representative agent is countercyclical with respect to innovations to aggregate consumption. Hence, negative innovations to aggregate consumption, as may be the case in retirement, are accompanied by an increase in the relative risk aversion of the representative agent, or the effective risk aversion of the couple household. Lundberg, Startz, and Still-

man (2003) study the retirement-consumption puzzle[6] using the Nash-bargaining approach of Manser and Brown (1980) and McElroy and Horney (1981). Showing that the puzzle is driven by couple households, their results are consistent with a downward shift in husbands' marital bargaining power after retiring, leading to a relative deterioration of his influence on household decisions. I label these two mechanisms as the aggregate consumption and household bargaining channels, respectively, and empirically test support for each in the data.

The two channels differ on one key dimension: the effect of the wife's retirement. If the aggregate consumption channel dominates, then lower household consumption due to the wife's retirement predicts an increase in effective household risk aversion, and a relative decrease in the allocation to risky assets. On the other hand, if the household bargaining channel dominates, then husbands' and wives' retirements will have markedly different effects on risky asset shares. Exploiting the significant spread in the distribution of husbands and their wives' relative retirement dates in the data, I show that husbands' and wives' retirement events have very different (opposite-signed) persistent effects on household portfolio choice. Moreover, I find that the relative magnitude of these persistent effects is consistent with the importance of each spouse's labor income within the household. Hence, I find evidence favoring the household bargaining channel as the dominant driver of the main results.

This paper relates to the long standing literature on portfolio choice. Seminal work in this arena includes the contributions of Markowitz (1952), Merton (1969, 1971), Samuelson (1969), and Fama (1970). More recently, an extensive and growing literature is concerned with background risks affecting optimal portfolio choice. Papers in this literature include those of Grossman and Laroque (1991), Bodie, Merton, and Samuelson (1992), Kimball (1993), Duffie and Zariphopoulou (1993), Heaton and

[6] The retirement-consumption puzzle is the stylized fact that households experience an abrupt drop in consumption during retirement. See, for example, Hamermesh (1984), Mariger (1987), and Bernheim, Skinner, and Weinberg (2001).

Lucas (1997, 2000), Koo (1998), Brown, Mitchell, Poterba, and Warshawsky (1999), Cocco (2005), Brown, Mitchell, and Poterba (2001), Viceira (2001), Davidoff, Brown, and Diamond (2005), Hu (2005), Yao and Zhang (2005), Hari, De Waegenaere, Melenberg, and Nijman (2008), Cocco and Gomes (2011), and Yogo (2011), among others.[7] A common thread among these papers is that they are concerned with determining optimal portfolio choice and how this relates to aggregate stylized facts. This paper uses data at the micro-level of the household to document a novel stylized fact, using intuition from the above-mentioned papers to empirically study its economic drivers.

In that sense, this paper is most closely related to a strand of the portfolio choice literature taking advantage of recent advances in the availability of data at the household level. Rosen and Wu (2004), Berkowitz and Qiu (2006), Fan and Zhao (2009), Coile and Milligan (2009), and Love and Smith (2010) study the effect of health as a background risk on household portfolio choice. Guiso, Japelli, and Terlizzese (1996) study the effect of labor income risk on portfolio choice. Puri and Robinson (2007) show that their measure of optimism, the difference between an individual's self-reported and statistical survival probabilities, is correlated with risk-taking in stocks. Addoum and Kung (2011) study the effect of intra-household bargaining on household portfolio choice over the life cycle. This paper adds to this strand of the literature, but with the important difference that it is among the very first (along with Addoum and Kung (2011)) to break with the tradition of treating couple households as single agents.

Finally, this paper is related to the vast literature on collective household decision-making in the labor and development fields of economics. Much of this literature builds on the seminal work of Manser and Brown (1980) and McElroy and Horney (1981), who apply Nash-bargaining to static joint decision-making in households.

[7] See Brandt (2010) for a comprehensive overview of the portfolio choice literature.

Papers in this literature rejecting the pooling hypothesis[8] include those of Browning, Bourguignon, Chiappori, and Lechene (1994), Lundberg and Pollak (1996), Lundberg, Pollak, and Wales (1997), Mazzocco (2007), and Ashraf (2009), among others. In addition to providing additional evidence in this literature, this paper serves to bridge the gap between the literature on collective household decision-making and household portfolio choice.

The remainder of the paper proceeds as follows: Section 2 describes the data used in the study. Section 3 presents the main results. Section 4 analyzes and isolates the drivers of the main results. Section 5 examines the robustness of the results, particularly with respect to selection bias. Section 6 concludes the paper.

2.2 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.[9] 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 tool 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

[8] The pooling hypothesis asserts that the observed decisions of couple households are invariant to members' relative degrees of control over household resources.

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

bond funds. The study also reports households' holdings in less liquid investments, including private businesses and investment real estate.

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

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[10].

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.

2.3 Main Results

2.3.1 Identification Strategy

I am interested in identifying whether, controlling for observable household characteristics, couple households exhibit post-retirement portfolio rebalancing that differs from their single household counterparts. Econometrically, this entails estimating

[10] The participation rate in stocks among males (47.1%) is higher than among females (41.6%) in the sample.

within-household difference-in-difference regressions of the following form:

$$w_{risky,i,t} = \alpha_i + \alpha_t + \theta\left(Retired \times Married\right) + \eta\left(Retired\right) + \delta\left(Married\right) + \Gamma X_{i,t} + \varepsilon_{i,t}. \tag{2.1}$$

That is, 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-invariant fixed-effects.

The coefficient of interest, θ, captures the difference between couples and singles in post- versus pre-retirement risky asset shares. That is, it is the estimated difference between couples and singles in their respective post- and pre-retirement risky asset share differences.

2.3.2 Basic Result

Table 2.3 presents results of running regressions of the form outlined in equation (2.1). The table is split into three horizontal panels. To ensure the robustness of my results, I define the financial portfolio and share of risky assets in three ways. 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. In each horizontal panel, I estimate three specifications of equation (2.1). 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. In all specifications, reported standard errors are clustered by household, correcting for serial correlation and heteroskedasticity[11].

Table 2.3 shows that in all specifications, θ, the estimated difference-in-differences, is negative with statistical significance of at least 5%. Additionally, the coefficient on *Retired*, η, is uniformly estimated to not statistically differ 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 appear to decrease their share of risky assets by about 3.5-4.5% after the husband retires. The remainder of the paper will be dedicated to exploring the dynamics and robustness of this difference, as well as to postulating and evaluating candidate explanations.

2.3.3 Dynamics

A natural question to ask in response to the results documented in the previous subsection 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' allocation behavior surrounding retirement. I estimate a dynamic form of the within-household difference-in-difference regression:

$$w_{risky,i,t} = \alpha_i + \alpha_t + \sum_{i=1}^{6} \left[\theta_i \left(Period_i \times Married\right) + \eta_i \left(Period_i\right)\right] + \delta \left(Married\right) + \Gamma X_{i,t} + \varepsilon_{i,t}. \tag{2.2}$$

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

The difference between this and equation (2.1) 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):

$$\begin{aligned}
Period_1 &= 1 \text{ if } -6 \leqslant \tau \leqslant -4, \text{ and 0 otherwise,} \\
Period_2 &= 1 \text{ if } -3 \leqslant \tau \leqslant -1, \text{ and 0 otherwise,} \\
Period_3 &= 1 \text{ if } 0 \leqslant \tau \leqslant 3, \text{ and 0 otherwise,} \\
Period_4 &= 1 \text{ if } 4 \leqslant \tau \leqslant 6, \text{ and 0 otherwise,} \\
Period_5 &= 1 \text{ if } 7 \leqslant \tau \leqslant 9, \text{ and 0 otherwise,} \\
Period_6 &= 1 \text{ if } \tau \geqslant 10, \text{ and 0 otherwise.}
\end{aligned} \tag{2.3}$$

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[12].

Table 2.4 presents results of running regressions of the form outlined in equation (2.2). The table is organized in the same manner as Table 2.3. For ease of interpretation, I plot the θ_i's, surrounded by ± 2 standard error bands, in Figure 2.1. The figure can be interpreted as plotting the first difference between couples' and singles' allocations during each period relative to retirement. 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, though with statistical significance shy of 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 eco-

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

nomically 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 lifecycle, one would expect a smooth transition beginning before, and ending after, the retirement event. Hence, the coefficient pattern in Figure 2.1 supports the interpretation of retirement as a point of divergence between the behavior of couples and singles with respect to risky asset allocations. Given the gradual transition between pre-retirement and long-run post-retirement differences, Figure 2.1 also raises the issue of bias using the generic difference-in-difference estimator in equation (2.1). Specifically, the slight negative difference identified in the period from 1 to 3 years pre-retirement biases the pre-retirement average difference between singles and couples downward. Conversely, the slight negative difference in the period from 0 to 3 years post-retirement biases the post-retirement average difference between singles and couples upward. Together, these biases contribute to an underestimate of the true long-run difference between couples' and singles' pre- vs. post-retirement risky allocation differences. I account for this bias in the next subsection.

2.3.4 Accounting for Transition into Retirement

To account for the 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 within-household difference-in-difference regression outlined in equation (2.1):

$$\begin{aligned} w_{risky,i,t} = \alpha_i + \alpha_t + \lambda\left(Transition\right) + \nu\left(Transition \times Married\right) \\ + \theta\left(Retired \times Married\right) + \eta\left(Retired\right) + \delta\left(Married\right) \\ + \Gamma X_{i,t} + \varepsilon_{i,t}. \end{aligned} \tag{2.4}$$

That is, I include an indicator $Transition$, equal to 1 during the period from 3 years pre- to 3 years post-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, or what I deem the unbiased difference-in-differences.

Table 2.5 shows that in all specifications the unbiased difference-in-differences estimate is statistically significant at the 1% level. Magnitudes in the range of 8.5-11% are also economically large, highlighting the large dichotomy between couples and singles in post-retirement portfolio rebalancing. The rest of the paper will use variations of the regression shown in equation (2.4) to determine what drives this puzzling dichotomy.

2.3.5 Couple- and Single-specific Analysis

In this subsection, I guard against the possibility that the main results presented thus far are driven by the implicit assumption of identical effects of control variables among couples and singles. To show that this is not what drives the results, I separately estimate persistent changes in portfolio decisions associated with retirement for singles and couples. This explicitly allows for distinct control variable effects that may explain the finding that couples decrease their share of risky assets post-retirement, whereas singles do not.

Table 2.6 presents the results of running the transition-adjusted regression outlined in equation (2.4) on the subsample of couples only. The regression results in the table show that, across risky asset definitions and control specifications, couples decrease their share of risky assets post-retirement. Table 2.7 presents the results of the same regressions run on the subsample of singles only. Consistent with the difference-in-difference results seen to this point, the table shows that retirement of singles is associated with a non-result with respect to the allocation to risky assets.

The results for the subsample of singles in Table 2.7 are, of course, subject to the

same criticism outlined above; namely, that single males and females share identical effects of control variables. Hence, I separately estimate the effect of retirement on asset allocation decision for single males and single females in Table 2.8 and Table 2.9, respectively. The tables show that retirement is associated with a non-result for both single males and single females.

2.3.6 Accounting for Social Security Wealth

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. The aim of this subsection is to investigate how accounting for Social Security wealth affects the results documented so far. If there are different rates of Social Security wealth decumulation between singles and couples, accounting for this wealth may explain the documented dichotomy between singles' and couples' post-retirement portfolio rebalancing decisions.

Calculating Social Security Wealth

To calculate Social Security wealth, I make use of 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 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[13], and subtracting the cumulative 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.[14]

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

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

Incorporating Social Security Wealth

Table 2.10 presents the results of estimating the transition-adjusted difference-in-difference regression outlined in equation (2.4). However, I redefine w_{risky} to represent the proportion of risky assets in the total financial portfolio, where the total financial portfolio is comprised of both explicit holdings in stocks, bonds, and cash, as well as implicit wealth in the form of Social Security. 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.

2.4 Understanding the Difference

Portfolio choice theory generally ascribes agents' allocations between relatively risky and safe asset classes to two causal channels: expectations and background risks, and preferences. Hence, these dimensions form a natural basis for analyzing the dichotomy between couples'and singles' post-retirement allocation changes. Given the difference-in-differences that emerges around the retirement event, theory predicts that couple and single households must experience non-symmetric changes in expectations and background risks during retirement, non-symmetric changes in household preferences, or a combination of both. In the subsections that follow, I consider each of these factors in turn as potential explanations.

2.4.1 Changes in Expectations and Background Risks

The portfolio choice literature identifies a number of risks influencing agents' portfolio choices. The most pertinent among retired households are health risk, income and expenditure risk, and longevity risk. In the following subsections I analyze in turn

the effect of each of these risks on the main results, with the aim of determining whether, and the extent to which, these risks drive the difference in couples' and singles' post-retirement allocation behavior.

Health Risk

A recent and growing strand of the portfolio choice literature examines the effect of health status on households' 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 between households with poor health status and otherwise, postulating that negative health shocks affect portfolio choices through erosion of financial wealth. 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), Coile and Milligan (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.

In general, the evidence in the literature on health and portfolio choice points to health status as a cross-sectional predictor of variation in portfolio behavior. Hence, in determining whether health status is a driver of my main results, I focus on conditioning the results of estimating equation (2.4) on cross-sectional health status

at retirement. That is, I estimate regressions of the following form:

$$\begin{aligned} w_{risky,i,t} = \alpha_i + \alpha_t + \sum_{i=1}^{n} \left[\theta_i \left(Condition_i \times Retired \times Married\right)\right] + \eta \left(Retired\right) \\ + \delta \left(Married\right) + \lambda \left(Transition\right) + \nu \left(Transition \times Married\right) \\ + \Gamma X_{i,t} + \varepsilon_{i,t}, \end{aligned} \tag{2.5}$$

where $\{Condition_i\}_{i=1...n}$ is a set of n mutually exclusive conditioning indicators encompassing all households in the estimation sample.

Table 2.11 presents results of running regressions of the form outlined in equation (2.5), where I condition the unbiased difference-in-difference estimate on retiring husbands' health status as reported in the first observation after retirement. Specifically, I split couple households into those where the retiring husband has a self-reported health status of poor (the lowest of five possible levels) vs. those households where this is not the case. From the table, it is evident that results are not driven by those households where the husband is in poor health at retirement, as the unbiased difference-in-difference estimate among poor-health households is neither extremely large in magnitude, nor is it statistically significant.

In Table 2.12 I increase the number of health-level groups to three. 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. Again, in all specifications the results do not seem to be driven by either a high or low level of health at retirement.

Though it is apparent that health, in levels, does not drive my results, it still may be the case that health changes are cross-sectionally related. That is, those retirees whose health is deteriorating at retirement may act differently than those with steady or improving health. I test the relation between directional changes

in health and my results in Table 2.13. I split couple households on the basis of whether the retiring husband's health is deteriorating, steady, or improving during the transition into retirement.[15] From the table, it is clear that the direction of health changes at retirement do not drive the observed difference in couples' and singles' post-retirement portfolio decisions.

To further confirm that the results are not driven by changes in health at retirement, I use information in the HRS concerned with disease diagnoses. The HRS collects data on the diagnosis of the following diseases and conditions: high blood pressure, diabetes, cancer, lung disease, heart disease, stroke, psychological diseases, and arthritis. Using this information, I split couples on the basis of which of these conditions the retiring husband is diagnosed with during the transition into retirement, if any. Table 2.14 presents the results of this analysis, from which it is apparent that disease diagnosis does not seem to drive the results. In all specifications, the unbiased difference-in-difference estimate among those retirees with no diagnosis at retirement remains highly significant and large in magnitude. However, of particular note is the large magnitude of the estimate for those retirees diagnosed with a lung disease. The life expectancies of those diagnosed with lung diseases such as lung cancer and emphysema are very short,[16] and hence the larger estimated magnitudes may signal the effect of large effective wealth changes due to life expectancy shocks. I postpone further discussion of this type of risk to section 2.4.1.

Table 2.15 similarly analyzes the incremental effect of disease diagnosis on portfolio allocation. For each of the conditions outlined above, I create indicator variables that take the value 1 for all observations after which the husband is diagnosed with

[15] The reported results use the change in health as measured using the last observation before, and the first observation after, retirement. I verify that shifting measurement points for the change to the last two observations before, or the first two observations after, retirement do not change the results qualitatively.

[16] http://lungcancer.about.com/od/whatislungcancer/f/stage4lifeexpectancy.htm

the condition, and 0 otherwise. The table then reports the results of regressions in which these condition indicators are included, in order to determine whether the difference-in-difference results are simply due to the diagnosis of various diseases during retirement. From the output in Table 2.15, it is apparent that this is not the case, with large significant values for the unbiased difference-in-difference estimate.

Income and Expenditure Risk

A related literature is concerned with determining the extent to which labor income risk affects households' portfolio allocations. Bodie, Merton, and Samuelson (1992), Kimball (1993) and Duffie and Zariphopoulou (1993) show that agents' demand for risky assets decreases with respect to 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. Further, Guiso, Japelli, and Terlizzese (1996) find empirical support in a cross-section of Italian households. While the majority of the literature focuses on risk stemming from labor income during households' working years, the results remain valid when considering income risk during retirement. Yogo (2011) shows that annuitization of retirement income predicts large welfare gains, and that frictions preventing private annuitization lead to large precautionary health expenditures.

Given this evidence, I analyze the effect of cross-sectional income risk during retirement. That is, I estimate regressions of the form outlined in equation (2.5), conditioning on factors related to retirement income risk in the cross-section of retired couples.

The first conditioning characteristic is whether either member of a couple household has a defined benefit (DB) pension plan or not, as DB plans essentially annuitize a share of the household's retirement wealth, eliminating at least some portion of income risk during retirement. Table 2.16 presents the results of splitting couple

households into those with a DB pension vs. those without. The table shows that the difference between couples and singles is smaller among those couple households holding a DB pension than among those couple without a DB pension. However, the difference in results between couples with and without DB pensions is quite small economically and insignificant statistically.

Table 2.17 examines whether the distribution of DB pension rights within couple households makes any difference in the above results. I split households with DB pensions into three groups based on whether the husband alone, the wife alone, or both members have a DB pension. The table shows that there is not a large difference in results between households where only the husband has a DB pension vs. those where only the wife has DB pension rights. Households where both partners have a DB pension do not seem to behave much differently in those specifications where the risky share includes only stocks, though this estimate lacks statistical significance in all specifications due to the small number of households with dual DB pension rights in the estimation sample.

Holding retirement assets constant, the risk associated with retirement income is strictly increasing in the minimum consumption level, as there is a greater likelihood of income shortfalls. Hence, it stands to reason that those couple households in which the retiring husband was the sole labor market participant are at greater risk for 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 Table 2.18, where I split couple households on the basis of whether the wife of the retiring husband was a homemaker during her working years. The results in the table show that while those households where the wife was a homemaker do have a difference-in-difference estimate that is larger in magnitude, such households do not drive the results among all couples.

The final cross-sectional test I employ in gauging whether retirement income

risk affects my 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 savings shortfalls, and hence may drive the results. I split couple households into quartiles on the basis of wealth at retirement and report the results in Table 2.19. The output in the table shows that those couples in the lowest wealth quartile have an insignificant difference-in-difference estimate, making post-retirement allocations that are very much like those of singles. Couples in the second through fourth wealth quartiles act very similarly, with highly significant estimates that are similar in magnitude.

Longevity Risk

Longevity risk, or the risk of retirees outliving their savings, is the topic of a vast and rich literature studying the welfare benefits to retirees of purchasing annuities. A common thread among these papers is to explain why, despite large theoretical benefits to annuitization, individuals do not annuitize much, if any, of their retirement savings. Yaari's (1965) seminal work, for example, shows that a rational retiree would annuitize all assets, in the absence of a bequest motive. Davidoff, Brown, and Diamond (2005) additionally show that partial annuitization is optimal in the presence of a bequest motive and/or incomplete markets. Other contributions drawing similar conclusions include those of Brown, Mitchell, Poterba, and Warshawsky (1999), Brown, Mitchell, and Poterba (2001), and Blake, Cairns, and Dowd (2003). More recently, Hari, De Waegenaere, Melenberg, and Nijman (2008) and Cocco and Gomes (2011) show that unprecedented increases in life expectancy over the past few decades are likely to lead to large reductions in real wealth among retirees, and in turn, lower average retirement consumption levels. Of course, the uncertainty generated by longevity risk is even more important among couple households, as the wealth in the retirement portfolio has to fund consumption for the maximum of the

partners' remaining life spans. Thus, longevity risk represents an important dimension on which couples and singles differ, and a potential driver of the difference in couples' and singles' post-retirement portfolio decisions.

While the HRS does not explicitly ask respondents about their life expectancy, or equivalently, their age of death directly, it does ask for their self-assessed probability of living another 10 years. Puri and Robinson (2007) show that their measure of optimism, the difference between an individual's self-reported and statistical survival probabilities, is correlated with a wide range of economic outcomes, including risk-taking in stocks.

I adopt the measure of Puri and Robinson (2007) and consider whether large changes in optimism during retirement are responsible for the results in Table 2.20. To do this, I calculate the year-to-year change in optimism for husbands and wives in couple households. For each of these individuals I generate two indicator variables respectively set equal to 1 for all periods after they experience a change in optimism below the 10th percentile or exceeding the 90th percentile of all changes. To isolate the incremental effect of such extreme changes in optimism, I include these indicator variables as additional regressors and investigate whether the unbiased difference-in-difference results are driven out. From the table it is evident that this is not the case, and that the difference in couples' and singles' post-retirement portfolio decisions cannot be explained by longevity risk.

2.4.2 Changes in Preferences

The results of the previous subsection provide very little evidence in support of non-symmetric risks among retired couples and singles driving the main results. By elimination, theory points to a non-symmetric change in preferences during retirement necessarily being the driver. In the subsections that follow, I provide empirical evidence that this is the case. However, before doing so, I take a slight detour in

reviewing evidence of an important stylized fact.

Women More Risk Averse Than Men: Evidence

A vast literature studies the relation between gender and risk aversion, generally establishing the stylized fact that women are more risk averse than men. In this subsection, I briefly survey this literature.

Early studies of the role of gender in decision making under risk are based in the psychology literature and center around experiments conducted in laboratories. Hudgens and Fatkin (1985) conduct experiments using military personnel, assessing whether gender affects individuals' ability to estimate probabilities and the amount of risk they are willing to take. They find no significant gender differences in the ability to estimate probabilities, but that men take greater risks than women in computer-simulated tasks. Levin, Snyder, and Chapman (1988) study the gambling behavior of a group of student subjects, also finding that males respond more favorably to gambles than females. Sexton and Bowman-Upton (1990) study male and female entrepreneurs, assessing their similarities and differences on a series of psychometric measures. Though the men and women they study are more similar than they are different, one key difference they find is in risk-taking, with female entrepreneurs being more risk averse. Powell and Ansic (1997) use computerized laboratory experiments to show that females are less risk averse than males in financial decision environments, irrespective of a range of situational factors.

A related literature in economics uses survey data in documenting observational evidence of gender-based differences in risk-taking. Bajtelsmit and Bernasek (1996) and Bajtelsmit and VanDerhei (1997) document that women invest their pension assets more conservatively than men, using a proprietary dataset of self-directed defined contribution (DC) plan participants. Sunden and Surette (1998) document this using DC plan holdings from the 1992 and 1995 waves of the Survey of Consumer

Finances (SCF). Jianakopolos and Bernasek (1998) use data from the 1989 wave of the SCF to show that single women hold less of their financial wealth in risky assets than their male counterparts (40% vs. 46%). Barsky, Juster, Kimball, and Shapiro (1997) use answers to gambles on lifetime income to infer risk aversion estimates for respondents, finding that men are statistically more risk tolerant than women, and that this correlates with risky portfolio shares.

Differences in Risk Tolerance

A significant difference in males' and females' average risk tolerance levels is suggestive of a natural dimension on which a non-symmetric change in singles' and couples' preferences during retirement could drive the main results; namely, an increase in the effective risk aversion of couple households post-retirement. Multiple mechanisms through which this effect could propagate have been suggested in the economic literature.

Garleanu and Panageas (2010) show that in an economy populated by agents with two differing levels of risk aversion, the relative risk aversion of the representative agent is countercyclical with respect to innovations to aggregate consumption. Hence, negative innovations to aggregate consumption, as may be the case in retirement, are accompanied by an increase in the relative risk aversion of the representative agent, or the effective risk aversion of the couple household.

Lundberg, Startz, and Stillman (2003) study the retirement-consumption puzzle[17] using the Nash-bargaining approach of Manser and Brown (1980) and McElroy and Horney (1981). Showing that the puzzle is driven by couple households, their results are consistent with a downward shift in husbands' marital bargaining power after retiring, leading to a relative deterioration in his influence on household de-

[17] The retirement-consumption puzzle is the stylized fact that households experience an abrupt drop in consumption during retirement. See, for example, Hamermesh (1984), Mariger (1987), and Bernheim, Skinner, and Weinberg (2001).

cisions. Again, in the context of portfolio choice, such a shift in bargaining power would predict a higher effective risk aversion and lower risky asset demand for couple households, relative to singles, post-retirement.

I analyze whether there is evidence of an increase in the effective risk aversion of couple households. I do this by utilizing the income-gamble questions asked of both husbands and wives. Specifically, respondents are asked a series of questions pertaining to whether they would be willing to take equal-probability gambles that would either increase or decrease their income.[18] Kimball, Sahm, and Shapiro (2008) develop a method for exploiting the longitudinal nature of the HRS to impute risk aversion and risk tolerance estimates for all respondents.[19] Using their publicly available risk tolerance imputations, I calculate the within-household difference in risk tolerance as a measure of the strength of the potential change in effective household risk tolerance at retirement. If the change in household preferences driving the main results is due to a change in couple households' effective risk tolerance levels, then the magnitude of the effect among couples should be strictly increasing in the within-household risk tolerance difference.

Table 2.21 presents the results of examining how the result among couples varies with the within-household risk tolerance difference. I sort couple households into terciles based on the household's risk tolerance difference, and focusing on couples, run regressions of the following form:

$$w_{risky,i,t} = \alpha_i + \alpha_t + \sum_{i=1}^{3} \left[\theta_i \left(RiskTolDifference_i \times Retired\right)\right] + \nu \left(Transition\right) + \Gamma X_{i,t} + \varepsilon_{i,t}. \tag{2.6}$$

From Table 2.21 it is clear that, especially for the share of stocks, as the difference

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

[19] Imputed estimates are publicly available at Matthew Shapiro's website: http://www-personal.umich.edu/~shapiro/data/risk_preference/.

in risk tolerance increases among couple households, the post-retirement decrease in risky asset holdings monotonically increases in magnitude. In addition, the magnitudes between the first and third terciles are highly statistically different for the share of stocks. This is evidence of an increase in the post-retirement effective risk aversion of couple households driving a non-symmetric change in singles' and couples' preferences. However, while this does provide evidence of the main results being driven by a non-symmetric change in singles' and couples' preferences at retirement, it does not differentiate between the mechanisms detailed above. I label these as the aggregate consumption channel and the household bargaining channel, respectively, and empirically test support for each in the data.

Aggregate Consumption vs. Household Bargaining Channel

To this point, I have examined only the effect of the husband's retirement. A large majority of couples coordinate their retirement dates, making focusing on the husband's retirement nearly equivalent to estimating the effect of the simultaneous retirement of both partners in a couple household.[20] However, within the HRS sample, there is a significant spread in the distribution of husbands and their wives' relative retirement dates. Figure 2.2 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.

The economic literature, described in the previous subsection, provides intuition for two channels able to deliver an increase in couple households' effective risk aversion consistent with the data. However, these two channels differ on one key dimension: the effect of the wife's retirement. If the aggregate consumption channel

[20] See, for example, Casanova (2010).

dominates, then lower household consumption due to the wife's retirement predicts an increase in effective household risk aversion, and a relative decrease in the allocation to risky assets. That is, the effect of husbands' and wives' retirements on within-household risky asset shares is of the same sign. On the other hand, if the household bargaining channel dominates, then husbands' and wives' retirements will have markedly different effects on risky asset shares. The spread in couple household members' relative retirement dates allows me to disentangle the individual effect of husbands and their wives' respective retirements, and hence to isolate the dominant channel in explaining the main results.

To examine the separate effect of husbands' and wives' respective retirements, I estimate a modified version of the couples-only regression given in equation (2.6):

$$\begin{aligned} w_{risky,i,t} =& \alpha_i + \alpha_t + \theta_W \left(Retired_W\right) + \theta_H \left(Retired_H\right) \\ &+ \nu_W \left(Transition_W\right) + \nu_H \left(Transition_H\right) + \Gamma X_{i,t} + \varepsilon_{i,t}. \end{aligned} \tag{2.7}$$

That is, I separately estimate the effect of husbands' and wives' retirement events using the respective indicators $Retired_W$ and $Retired_H$, allowing transition periods for both.

Table 2.22 presents the results of regression equation (2.7), separately estimating the effects of husbands' and wives' retirement events on within-household risky portfolio shares. From the table 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 risky shares, albeit with mild statistical significance. However, these divergent effects are very different statistically, favoring the bargaining channel as the dominant force in explaining the main results.

To find further support for the bargaining channel, I condition the effects of

husbands' and wives' retirement events on the importance of each spouse's labor income within the household before retirement. That is, I condition the results of Table 2.22 on whether the wife was the higher or lower earner relative to her husband prior to their retirement events. Table 2.23 presents the results of this analysis. From the table, we can see that among those couple-households where the wife earned more than her husband, the persistent effect of her retirement on the household's risky share has a large magnitude and is statistically significant. Conversely, when the husband is the dominant earner, the effect of the wife's retirement is small, both economically and statistically. This is further evidence favoring the bargaining channel.

Bargaining Channel: Further Evidence

The analysis in the previous subsection points to the bargaining channel as the first-order driver of the main result, the difference in couples' and singles' post-retirement allocation to risky assets. A large literature in labor economics analyzes and documents the effect of household bargaining on real economic decisions.[21] In this subsection I provide further evidence of household bargaining as an important driver of within-household fluctuations in the risky asset share of the financial portfolio.

The chief measure of intra-household bargaining power in the literature is each individual's share of total nonwage income in the household. Nonwage income is thought to be invariant to marital status, whereas labor income can vary significantly when spouses split up. Hence, each partner's nonwage income is theorized to vary directly with their non-cooperative Nash equilibrium utility outside of marriage, and hence their share of nonwage income with their bargaining power inside of marriage

[21] Manser and Brown (1980) and McElroy and Horney (1981) pioneer the Nash-bargaining approach to household decision making in couple households. See, for example, Browning, Bourguignon, Chiappori, and Lechene (1994), Lundberg and Pollak (1996), Lundberg, Pollak, and Wales (1997), Mazzocco (2007), and Ashraf (2009) for empirical evidence.

(McElroy and Horney (1981)).

The natural analog of nonwage income during retirement is pension income, as each partner's pension income rights remain with them in the event of dissolution of the marriage. For each couple household in which either the husband or wife has positive pension income, I calculate the following measure of intra-household bargaining power:

$$WifePensionShare = \frac{WifePensionIncome}{HusbandPensionIncome + WifePensionIncome}. \quad (2.8)$$

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

$$w_{risky,i,t} = \alpha_i + \alpha_t + \rho WifePensionShare + \Gamma X_{i,t} + \varepsilon_{i,t}. \quad (2.9)$$

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 2.24 presents the results of regressing couple households' risky portfolio shares on the wife's share of pension income over time. The table shows that, in all stock specifications and most specifications overall, there is strong statistical evidence in favor of intra-household bargaining as a driver of within-household risky asset shares.

2.5 Robustness

2.5.1 Controlling for Selection

The main results in this paper are empirically derived from a sample subject to selection. Specifically, I focus my analysis on those households which are self-selected stock participants. In order to assess whether the results are generalizable, I correct for possible bias induced by this self-selection.

I use the method of Wooldridge (1995) to correct for selection in a panel data environment. For each time period t, I estimate the following standard Tobit equation, left-censored at 0 and right-censored at 100:

$$w_{risky,i,t} = \alpha_t + \Phi_t X_{i,t}^{full} + \Psi_t Z_{i,t} + v_{i,t}. \tag{2.10}$$

Then, defining $\hat{v}_{i,t} = w_{risky,i,t} - \hat{\Phi}_t X_{i,t}^{full}$ where $w_{risky,i,t}$ is positive, I estimate equation (2.1) modified to control for $\hat{v}$:

$$\begin{aligned} w_{risky,i,t} = \alpha_i + \alpha_t + \theta\,(Retired \times Married) + \eta\,(Retired) + \delta\,(Married) \\ + \Gamma X_{i,t} + \rho \hat{v}_{i,t} + \varepsilon_{i,t}. \end{aligned} \tag{2.11}$$

X^{full} in equation (2.10) represents the full set of control variables, including squared-age of the household head and total out-of-pocket healthcare expenditures. Z represents the set of explanatory variables that satisfy the customary exclusion restriction.

As discussed earlier, 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. Hence, I define Z in equation (2.10) as the measure of Rosen and Wu (2004), an indicator for whether the household head is in poor health or not. Fan and Zhao (2009), Coile and Milligan (2009), and Love and Smith (2010) find that this measure has insignificant explanatory power in within-household regressions, and hence it satisfies the exclusion restriction of being insignificant in equation (2.11).[22]

Table 2.25 presents the results of estimating equations (2.10) and (2.11). Testing for evidence of selection bias involves using the t-statistic for $\hat{\rho}$ using standard errors that are clustered by household, correcting for serial correlation and heteroskedasticity. The high significance levels of the selection coefficient in the table provide evidence of selection bias. However, examining the coefficient of interest, it is apparent that correcting for this bias does not affect the main results in an economically

[22] I test and confirm that this is true in the sample used in this paper.

or statistically meaningful way. Hence, the results appear to be generalizable to the entire HRS sample population.

2.5.2 Specification

I control for household net worth, labor income, and pension income (in levels) in all specifications. In this subsection, I confirm that the main results are robust to instead controlling for a non-linear relationship between households' risky asset shares and measures of net worth and income. In order to avoid losing many observations for those households with no labor or pension income, I control for the natural log of total household income from all sources. I also control for the natural log of household net worth.

Table 2.26 presents the results of estimating equations of the form given in equation (2.1), controlling for the natural logs of total household income and net worth. The regression results in the table show that allowing a non-linear relation between risky asset shares and measures of income and net worth does not affect the results materially.

2.5.3 Partial Retirement

In addition to recording whether respondents are retired or working, the HRS provides information on partial retirement, in which retirees continue to work part-time. In my empirical tests, I do not distinguish between those who are fully and partially retired. In this subsection, I show that the main results are robust to separately estimating the effect of full and partial retirement.

Table 2.27 presents the results of splitting the *Retired* indicator into two variables which respectively indicate whether the household head is fully or partially retired. I then interact each of these variables with the *Married* indicator in order to assess whether the difference in couples' and singles' post-retirement behavior

emerges among partial retirees, full retirees, or both groups. The results in the table show that a small difference-in-differences emerges among couples and singles who are partially retired. However, the main driver of the result is clearly among the couples and singles who are fully retired.

2.5.4 Cross-sectional Factors

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 Love models may not apply to retirees with grown children, the presence of children may still affect portfolio choices through such channels as bequest motives. In this subsection, I show that the main results are robust to conditioning on the cross-sectional heterogeneity of retiring couples related to the number of living children they have.

Table 2.28 presents the results of conditional regressions of the form given in equation (2.5), where I condition 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 difference-in-difference result. Those couples with no children exhibit the largest departure from the average post-retirement behavior of singles. However, the results are not driven by this group, as the difference-in-differences among those with 1-2, 3-4, and 5 or more children are all economically large and statistically significant.

Age of Retirement

Table 2.29 presents the results of conditional regressions, where I condition couple households on the age of the husband's retirement. The table shows that while there is some heterogeneity in the difference-in-difference result with respect to retirement

age, for the large majority of retirements (occurring between the ages of 55 and 70), the results are statistically equal.

Entrepreneurs

Table 2.30 presents the results of conditional regressions, where I condition couple households on whether the retiring husband was an entrepreneur or not. The leftmost 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. That is, retiring entrepreneurs experience a smaller persistent shift away from stocks upon retiring. However, the middle 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 risky assets in households' financial portfolios.

Divorcees vs. Non-Divorcees

Table 2.31 presents the results of conditional regressions, where I condition couple households on whether the marriage is the first for both members of the couple (non-divorcees), contrasting these couples with those where at least one member has been previously married (divorcees). The results in the table show that, in general, those couples who are on their first marriage (non-divorcees) move out of risky assets after retirement to a slightly great degree than couples comprised of members who have been married before. For stocks, this difference is statistically weak. The difference becomes significant at the 10% level when considering private business and investment real estate holdings.

Cognitive Ability

Table 2.32 presents the results of conditional regressions, where I condition couple households 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, vocabulary measures. As mathematical cognitive abilities can have an effect on portfolio choice (see, for example, 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 they made. Approximately half of respondents achieve a score of 4 or 5, with the remainder achieving a score of 3 or less. Hence, 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. The results in Table 2.32 show that while those couples where the retiring husband's mathematical cognitive abilities were lower move out of risky assets to a greater degree after retirement, the difference between the two groups is small economically and statistically.

Timing of Social Security Benefit Claims

Both within the subsample of respondents for whom I calculate Social Security wealth and the broader estimation sample, there is considerable heterogeneity in the age at which retirees claim benefits. Approximately one-third of respondents claim benefits early, approximately another one-third claim during the full retirement age window of 65 to 67, and the remainder claim benefits after age 67. Those who delay claiming Social Security benefits when they have already retired may finance consumption via liquidation of their risky assets. On the other hand, they may liquidate safer assets such as bonds first. In Table 2.33, I empirically investigate whether the age at which retiring husbands first claim Social Security benefits has an effect on the main results. That is, I condition couples on whether the retiring husband claimed benefits before age 65, between age 65 and 67, or after age 67. From the results in Table 2.33, we can see that those couples where the retiring husband claims benefits during

the full retirement age window of 65 to 67 move out of risky assets to a somewhat lesser degree than other couples. However, this difference shrinks in magnitude once holdings in private business and investment real estate are taken into account.

Geographic Region

Table 2.34 presents the results of conditional regressions, where I condition couple households on the census region in which they live at the time of retirement. The four census regions are as follows: Northeast, Midwest, South, and West. The table shows that across portfolio definitions and control specifications, there is no statistically discernible difference in the main result on the basis of geography.

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

Expectations regarding the investment opportunity set may have an effect on the behavior of retiring couples. In that sense, 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. The data sample, running from 1992 through 2008, can be conveniently split into two periods that are very different with respect to market experiences and expectations. The first half of the sample, from 1992 through 2000, was a relatively rosy period in the stock markets, with very little volatility in stock prices. On the other hand, the second half of the sample, from 2001 through 2008, was a period during which market participants experienced ups and downs in both returns and expectations. Hence, I split the sample in order to investigate whether this had any effect on the main result.

Table 2.35 presents the results of conditional 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

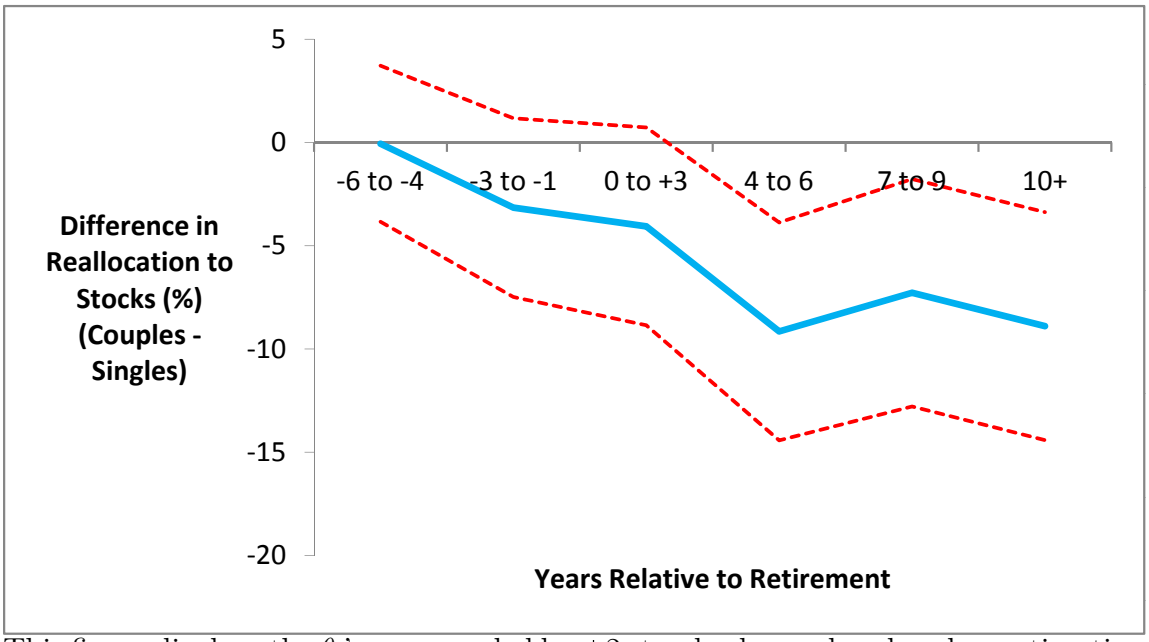
during the post-2000 period, the results do not seem to be driven by differences in experienced returns or expectations across the two periods.

2.6 Conclusion

I have empirically examined the behavior of households as they transition into retirement, focusing on how singles and couples differ in their portfolio allocation decisions during this transition. I documented that single- and couple-households differ markedly in their portfolio decisions surrounding retirement. Single households appear to smooth the share of risky assets in their financial portfolios through the retirement transition, while married couples decrease their risky asset shares. Using a difference-in-differences approach, I showed that singles and couples differ by an economically large and statistically significant magnitude of 8% to 11% of the financial portfolio. This difference is indistinguishable from zero until four years prior to the retirement event, with the difference gradually emerging over the three years leading up to, and the three years after, the retirement event.

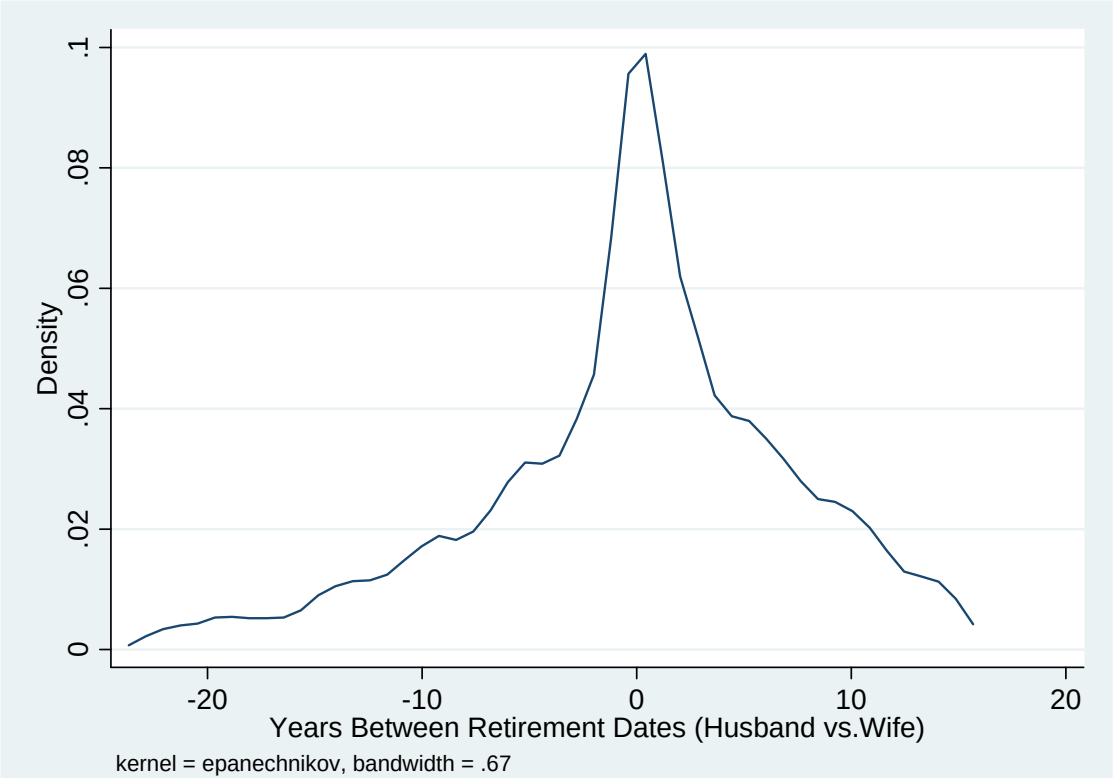
I showed that the main results are consistent with a non-symmetric change in household preferences around retirement, and not simply driven by an increase in retirement-related risks for couple households relative to singles. An increase in the effective risk aversion of couple households post-retirement is consistent with the evidence. The increase in effective risk aversion cannot be explained by a drop in expenditures after retiring, but is consistent with the outcome of a household bargaining game in which wives demand a smaller share of risky assets than their husbands, who lose some of their bargaining power after retiring.

FIGURE 2.1: First differences between singles' and couples' risky asset shares surrounding retirement



This figure displays the θ_i's, surrounded by ± 2 standard error bands, when estimating equation (2.2). The figure can be interpreted as plotting the first difference between couples' and singles' allocations during each period relative to retirement.

FIGURE 2.2: 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 2.1: HRS summary statistics for Single Households (1992-2008 waves): (a) Males and (b) Females

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.

	Mean	Median	Standard deviation	5th %ile	95th %ile
Panel a: Unitary 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	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	2,336				
Panel b: Unitary 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	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	3,932				

Table 2.2: HRS summary statistics for Couple Households (1992-2008 waves)

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.

	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
Children	3.09	3.00	1.79	1.00	6.00
Labor Income - Husband ($)	39,378	35,000	28,442	2,000	90,000
Labor Income - Wife ($)	25,040	21,000	18,749	1,500	65,000
Pension Income - Husband ($)	24,055	18,000	37,596	5,865	56,400
Pension Income - Wife ($)	11,884	7,200	13,554	2,556	30,000
Levels (in dollars)					
Net Worth	849,271	458,000	2,074,077	81,000	2,581,000
Home Equity	215,352	130,000	650,283	7,000	600,000
Vehicle Equity	22,266	15,000	26,642	1,500	60,000
Stocks	188,391	50,000	859,509	1,200	700,000
Bonds	188,672	70,000	489,724	0	730,000
Cash	44,294	15,000	239,288	500	160,000
Private Business	69,906	0	947,988	0	250,000
Real Estate	83,352	0	498,981	0	400,000
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				

Table 2.3: Household Asset Allocations and Retirement, Difference-in-Difference specifications

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 is retired 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. 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 equity. The dependent variable in the middle panel is the allocation to equity and private business holdings. Finally, the dependent variable in the rightmost panel is the allocation to equity, 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.

	Risky Allocation - Equity (%)			Risky Allocation - Equity + Private Business (%)			Risky Allocation - Equity + Private Business + Real Estate (%)		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Retired Indicator x Married Indicator	-3.754**	-3.756**	-3.569**	-4.490***	-4.495***	-4.499***	-4.488***	-4.498***	-4.352***
	(1.670)	(1.670)	(1.683)	(1.713)	(1.713)	(1.729)	(1.677)	(1.676)	(1.686)
Retired Indicator	-0.0696	-0.0644	-0.231	-1.098	-1.085	-1.119	-1.089	-1.060	-1.217
	(1.560)	(1.559)	(1.570)	(1.601)	(1.600)	(1.612)	(1.569)	(1.567)	(1.577)
Married Indicator	2.884	2.881	2.759	3.265	3.255	3.149	3.560*	3.538*	3.156
	(2.044)	(2.045)	(2.082)	(2.057)	(2.058)	(2.098)	(2.077)	(2.078)	(2.116)
Family Labor Income	0.459***	0.458***	0.445***	0.548***	0.546***	0.545***	0.471***	0.466***	0.461***
	(0.109)	(0.109)	(0.111)	(0.110)	(0.110)	(0.112)	(0.107)	(0.107)	(0.109)
Family Net Worth	0.0522***	0.0522***	0.0513***	0.0951***	0.0952***	0.0952***	0.101***	0.101***	0.101***
	(0.00943)	(0.00943)	(0.00952)	(0.00959)	(0.00959)	(0.00966)	(0.00900)	(0.00900)	(0.00908)
Family Pension Income	0.0399	0.0403	-0.00508	0.212	0.213	0.180	0.174	0.176	0.134
	(0.262)	(0.262)	(0.267)	(0.264)	(0.264)	(0.268)	(0.255)	(0.255)	(0.259)
Number of Children	-0.930*	-0.930*	-0.498	-1.408***	-1.407***	-1.100*	-1.007**	-1.006**	-0.547
	(0.503)	(0.503)	(0.550)	(0.519)	(0.519)	(0.579)	(0.503)	(0.503)	(0.548)
Age-squared/100 of Head		-0.0935	-0.131		-0.246	-0.327		-0.553	-0.636
		(0.405)	(0.410)		(0.403)	(0.407)		(0.389)	(0.394)
Family Healthcare Expenditures			0.0440			0.0525			-0.0102
			(0.191)			(0.191)			(0.179)
Observations	21502	21502	21169	21657	21657	21322	21915	21915	21574
Families	5832	5832	5767	5928	5928	5865	6104	6104	6038
R-squared	0.0127	0.0127	0.0124	0.0181	0.0181	0.0179	0.0175	0.0177	0.0173

Table 2.4: Household Asset Allocations and Retirement, Dynamic Difference-in-Difference specifications

This table presents the results of dynamic difference-in-difference specifications regressing risky asset class 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 leftmost panel displays the estimation results of specifications where the dependent variable is the allocation to equity. The dependent variable in the middle panel is the allocation to equity and private business holdings. Finally, the dependent variable in the rightmost panel is the allocation to equity, 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.

		Risky Allocation - Equity (%)			Risky Allocation - Equity + Private Business (%)			Risky Allocation - Equity + Private Business + Real Estate (%)		
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
4-6 years PRE-Retirement	Period Indicator x Married Indicator	-0.0285	-0.0279	-0.0622	-1.752	-1.749	-1.860	-3.223*	-3.213*	-3.208*
		(1.914)	(1.914)	(1.928)	(1.973)	(1.973)	(1.986)	(1.927)	(1.927)	(1.938)
	Period Indicator	-0.776	-0.776	-0.656	-0.340	-0.340	-0.235	1.049	1.050	1.075
		(1.715)	(1.715)	(1.720)	(1.771)	(1.771)	(1.776)	(1.733)	(1.732)	(1.736)
1-3 years PRE-Retirement	Period Indicator x Married Indicator	-3.213	-3.214	-3.157	-4.995**	-4.999**	-5.282**	-3.879*	-3.890*	-4.019*
		(2.193)	(2.192)	(2.208)	(2.305)	(2.305)	(2.310)	(2.276)	(2.276)	(2.287)
	Period Indicator	-0.898	-0.893	-0.975	-2.041	-2.015	-1.821	-2.499	-2.427	-2.384
		(2.088)	(2.087)	(2.101)	(2.194)	(2.193)	(2.194)	(2.178)	(2.178)	(2.189)
0-3 years POST-Retirement	Period Indicator x Married Indicator	-3.810	-3.811	-4.065*	-5.636**	-5.639**	-6.000**	-3.740	-3.747	-4.099*
		(2.432)	(2.433)	(2.444)	(2.499)	(2.499)	(2.501)	(2.489)	(2.489)	(2.495)
	Period Indicator	2.723	2.725	2.887	2.911	2.922	3.232	1.933	1.965	2.262
		(2.224)	(2.225)	(2.230)	(2.285)	(2.285)	(2.279)	(2.292)	(2.292)	(2.291)
4-6 years POST-Retirement	Period Indicator x Married Indicator	-9.019***	-9.019***	-9.152***	-11.63***	-11.63***	-12.00***	-11.75***	-11.75***	-11.87***
		(2.667)	(2.667)	(2.693)	(2.794)	(2.794)	(2.816)	(2.781)	(2.782)	(2.804)
	Period Indicator	1.567	1.572	1.679	0.224	0.258	0.572	1.255	1.352	1.451
		(2.642)	(2.640)	(2.659)	(2.776)	(2.775)	(2.789)	(2.742)	(2.741)	(2.753)
7-9 years POST-Retirement	Period Indicator x Married Indicator	-7.459***	-7.459***	-7.281***	-10.24***	-10.24***	-10.38***	-10.63***	-10.63***	-10.56***
		(2.787)	(2.787)	(2.810)	(2.848)	(2.848)	(2.869)	(2.858)	(2.859)	(2.880)
	Period Indicator	0.117	0.125	0.0832	-0.739	-0.694	-0.448	0.148	0.275	0.268
		(2.827)	(2.826)	(2.844)	(2.905)	(2.905)	(2.920)	(2.875)	(2.875)	(2.887)
10+ years POST-Retirement	Period Indicator x Married Indicator	-8.782***	-8.784***	-8.895***	-12.19***	-12.20***	-12.51***	-12.92***	-12.95***	-12.96***
		(2.789)	(2.788)	(2.817)	(2.854)	(2.853)	(2.883)	(2.903)	(2.901)	(2.935)
	Period Indicator	0.584	0.597	0.679	-0.207	-0.126	0.147	1.425	1.652	1.566
		(3.060)	(3.059)	(3.084)	(3.145)	(3.146)	(3.171)	(3.132)	(3.133)	(3.156)
	Married Indicator	6.924**	6.923**	7.070***	9.769***	9.762***	9.982***	10.53***	10.51***	10.35***
		(2.738)	(2.739)	(2.778)	(2.797)	(2.798)	(2.838)	(2.921)	(2.921)	(2.976)
	Family Labor Income	0.405***	0.405***	0.390***	0.524***	0.523***	0.524***	0.441***	0.437***	0.434***
		(0.112)	(0.112)	(0.114)	(0.113)	(0.113)	(0.115)	(0.109)	(0.109)	(0.111)
	Family Net Worth	0.0530***	0.0530***	0.0521***	0.0971***	0.0971***	0.0971***	0.103***	0.103***	0.103***
		(0.00944)	(0.00944)	(0.00952)	(0.00959)	(0.00959)	(0.00966)	(0.00899)	(0.00899)	(0.00906)
	Family Pension Income	0.0684	0.0685	0.0221	0.213	0.214	0.175	0.175	0.177	0.131
		(0.263)	(0.263)	(0.268)	(0.264)	(0.264)	(0.269)	(0.256)	(0.256)	(0.260)
	Number of Children	-0.946*	-0.946*	-0.538	-1.403***	-1.403***	-1.131*	-1.011**	-1.010**	-0.588
		(0.506)	(0.506)	(0.551)	(0.522)	(0.522)	(0.580)	(0.504)	(0.504)	(0.548)
	Age-squared/100 of Head		-0.0278	-0.0649		-0.176	-0.257		-0.503	-0.582
			(0.408)	(0.412)		(0.406)	(0.410)		(0.393)	(0.398)
	Family Healthcare Expenditures			0.0375			0.0474			-0.0108
				(0.193)			(0.192)			(0.180)
	Observations	21502	21502	21169	21657	21657	21322	21915	21915	21574
	Families	5832	5832	5767	5928	5928	5865	6104	6104	6038
	R-squared	0.0142	0.0142	0.0140	0.0204	0.0204	0.0203	0.0198	0.0199	0.0196

Table 2.5: Household Asset Allocations and Retirement, Transition-adjusted specifications

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 equity. The dependent variable in the middle panel is the allocation to equity and private business holdings. Finally, the dependent variable in the rightmost panel is the allocation to equity, 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.

		Risky Allocation - Equity (%)			Risky Allocation - Equity + Private Business (%)			Risky Allocation - Equity + Private Business + Real Estate (%)		
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
4+ years POST-Retirement	Retired Indicator x Married Indicator	-8.533***	-8.535***	-8.608***	-10.56***	-10.56***	-10.80***	-10.05***	-10.06***	-10.11***
		(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)
3 years PRE-Retirement to 3 years POST-Retirement	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	0.0515***	0.0516***	0.0507***	0.0950***	0.0951***	0.0950***	0.100***	0.101***	0.100***
		(0.00944)	(0.00944)	(0.00953)	(0.00959)	(0.00959)	(0.00966)	(0.00900)	(0.00900)	(0.00908)
	Family Pension Income	-0.00248	-0.00216	-0.0490	0.127	0.128	0.0898	0.0792	0.0811	0.0343
		(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		-0.0856	-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			0.0433			0.0526			-0.00832
				(0.192)			(0.191)			(0.180)
	Observations	21502	21502	21169	21657	21657	21322	21915	21915	21574
	Families	5832	5832	5767	5928	5928	5865	6104	6104	6038
	R-squared	0.0133	0.0133	0.0131	0.0186	0.0186	0.0184	0.0177	0.0179	0.0174

Table 2.6: Household Asset Allocations and Retirement, Transition-adjusted specifications - Subsample: Couples

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). Also included in the regression is a transition indicator (equal to 1 for the +/-3 years surrounding retirement of the husband). The leftmost panel displays the estimation results of specifications where the dependent variable is the allocation to equity. The dependent variable in the middle panel is the allocation to equity and private business holdings. Finally, the dependent variable in the rightmost panel is the allocation to equity, 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.

	Risky Allocation - Equity (%)			Risky Allocation - Equity + Private Business (%)			Risky Allocation - Equity + Private Business + Real Estate (%)		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Retired Indicator	-3.607***	-3.599***	-3.902***	-5.630***	-5.618***	-5.999***	-4.917***	-4.883***	-5.189***
	(1.387)	(1.387)	(1.420)	(1.397)	(1.398)	(1.427)	(1.343)	(1.344)	(1.376)
Transition Indicator	-1.548	-1.548	-1.705*	-3.777***	-3.777***	-4.052***	-3.163***	-3.161***	-3.389***
	(0.994)	(0.994)	(1.006)	(1.019)	(1.019)	(1.028)	(0.982)	(0.982)	(0.995)
Family Labor Income	0.491***	0.490***	0.465***	0.596***	0.595***	0.591***	0.531***	0.526***	0.523***
	(0.117)	(0.117)	(0.120)	(0.118)	(0.118)	(0.121)	(0.114)	(0.114)	(0.116)
Family Net Worth	0.0398***	0.0399***	0.0390***	0.0885***	0.0885***	0.0888***	0.0940***	0.0941***	0.0941***
	(0.0110)	(0.0110)	(0.0111)	(0.0114)	(0.0114)	(0.0115)	(0.0106)	(0.0106)	(0.0107)
Family Pension Income	0.00811	0.00859	-0.0498	0.0539	0.0546	0.00742	0.0774	0.0793	0.0268
	(0.290)	(0.290)	(0.295)	(0.290)	(0.290)	(0.296)	(0.280)	(0.280)	(0.285)
Number of Children	-0.300	-0.299	0.259	-0.984*	-0.983*	-0.615	-0.813	-0.811	-0.356
	(0.553)	(0.553)	(0.607)	(0.597)	(0.597)	(0.676)	(0.566)	(0.566)	(0.625)
Education of Wife		-0.133	-0.222		-0.197	-0.331		-0.568	-0.697
		(0.467)	(0.474)		(0.468)	(0.474)		(0.449)	(0.456)
Family Healthcare Expenditures			-0.00825			-0.00736			-0.0500
			(0.248)			(0.244)			(0.239)
Observations	15234	15234	14901	15323	15323	14988	15454	15454	15113
Families	4114	4114	4034	4170	4170	4091	4263	4263	4181
R-squared	0.0093	0.0093	0.0095	0.0153	0.0153	0.0155	0.0179	0.0181	0.0180

Table 2.7: Household Asset Allocations and Retirement, Transition-adjusted specifications - Subsample: Singles

This table presents the results of specifications regressing singles' risky asset class allocations on an indicator for retirement of the individual (equal to 1 if the individual has been retired for more than 3 years at time of observation, and equal to 0 otherwise). Also included in the regression is a transition indicator (equal to 1 for the +/-3 years surrounding retirement of the individual). The leftmost panel displays the estimation results of specifications where the dependent variable is the allocation to equity. The dependent variable in the middle panel is the allocation to equity and private business holdings. Finally, the dependent variable in the rightmost panel is the allocation to equity, 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.

	Risky Allocation - Equity (%)			Risky Allocation - Equity + Private Business (%)			Risky Allocation - Equity + Private Business + Real Estate (%)		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Retired Indicator	0.157	0.147	0.174	-1.027	-1.002	-0.969	-2.048	-2.022	-2.003
	(2.811)	(2.810)	(2.811)	(2.919)	(2.920)	(2.920)	(2.815)	(2.816)	(2.813)
Transition Indicator	-0.0153	-0.0166	-0.00598	-0.329	-0.326	-0.313	-1.106	-1.103	-1.096
	(2.142)	(2.142)	(2.141)	(2.221)	(2.221)	(2.220)	(2.213)	(2.214)	(2.212)
Family Labor Income	0.384	0.386	0.385	0.593*	0.587*	0.585*	0.321	0.315	0.314
	(0.335)	(0.335)	(0.335)	(0.345)	(0.344)	(0.345)	(0.326)	(0.325)	(0.326)
Family Net Worth	0.0816***	0.0816***	0.0816***	0.110***	0.110***	0.110***	0.122***	0.122***	0.122***
	(0.0192)	(0.0192)	(0.0192)	(0.0193)	(0.0193)	(0.0193)	(0.0182)	(0.0182)	(0.0182)
Family Pension Income	-0.105	-0.106	-0.109	0.438	0.439	0.436	0.177	0.178	0.176
	(0.649)	(0.649)	(0.650)	(0.655)	(0.655)	(0.655)	(0.623)	(0.622)	(0.623)
Number of Children	-3.506**	-3.503**	-3.504**	-3.545**	-3.555**	-3.556**	-2.381**	-2.390**	-2.391**
	(1.460)	(1.461)	(1.461)	(1.425)	(1.426)	(1.426)	(1.217)	(1.218)	(1.218)
Education of Wife		0.123	0.120		-0.339	-0.342		-0.337	-0.339
		(0.818)	(0.818)		(0.809)	(0.808)		(0.785)	(0.785)
Family Healthcare Expenditures			0.0587			0.0703			0.0413
			(0.325)			(0.331)			(0.293)
Observations	6268	6268	6268	6334	6334	6334	6461	6461	6461
Families	2083	2083	2083	2127	2127	2127	2217	2217	2217
R-squared	0.0258	0.0258	0.0258	0.0286	0.0286	0.0286	0.0236	0.0236	0.0236

Table 2.8: Household Asset Allocations and Retirement, Transition-adjusted specifications - Subsample: Single Males

This table presents the results of specifications regressing single males' risky asset class allocations on an indicator for retirement of the individual (equal to 1 if the individual has been retired for more than 3 years at time of observation, and equal to 0 otherwise). Also included in the regression is a transition indicator (equal to 1 for the +/-3 years surrounding retirement of the individual). The leftmost panel displays the estimation results of specifications where the dependent variable is the allocation to equity. The dependent variable in the middle panel is the allocation to equity and private business holdings. Finally, the dependent variable in the rightmost panel is the allocation to equity, 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.

	Risky Allocation - Equity (%)			Risky Allocation - Equity + Private Business (%)			Risky Allocation - Equity + Private Business + Real Estate (%)		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Retired Indicator	0.528	0.648	0.653	-1.339	-1.179	-1.174	-0.727	-0.595	-0.593
	(4.366)	(4.370)	(4.362)	(4.511)	(4.507)	(4.502)	(4.395)	(4.392)	(4.390)
Transition Indicator	1.904	1.907	1.785	1.789	1.784	1.709	1.968	1.966	1.896
	(3.436)	(3.437)	(3.436)	(3.537)	(3.534)	(3.540)	(3.536)	(3.534)	(3.544)
Family Labor Income	-0.183	-0.191	-0.191	-0.0646	-0.0756	-0.0758	-0.231	-0.239	-0.240
	(0.476)	(0.475)	(0.476)	(0.483)	(0.483)	(0.484)	(0.473)	(0.472)	(0.472)
Family Net Worth	0.0291	0.0297	0.0310	0.0734**	0.0743**	0.0751**	0.0868***	0.0876***	0.0883***
	(0.0332)	(0.0332)	(0.0332)	(0.0322)	(0.0322)	(0.0322)	(0.0299)	(0.0299)	(0.0299)
Family Pension Income	-0.492	-0.481	-0.528	-0.228	-0.211	-0.241	0.0856	0.0982	0.0707
	(0.915)	(0.915)	(0.917)	(0.952)	(0.953)	(0.956)	(0.968)	(0.967)	(0.970)
Number of Children	-3.341*	-3.379*	-3.402*	-4.081**	-4.136**	-4.151**	-3.459**	-3.502**	-3.516**
	(2.015)	(2.022)	(2.021)	(1.839)	(1.843)	(1.843)	(1.541)	(1.545)	(1.544)
Education of Wife		-1.193	-1.222		-1.668	-1.686		-1.288	-1.305
		(1.293)	(1.293)		(1.268)	(1.267)		(1.214)	(1.214)
Family Healthcare Expenditures			0.526*			0.330			0.307
			(0.287)			(0.394)			(0.357)
Observations	2336	2336	2336	2369	2369	2369	2422	2422	2422
Families	923	923	923	947	947	947	985	985	985
R-squared	0.0204	0.0211	0.0218	0.0203	0.0215	0.0217	0.0185	0.0192	0.0195

Table 2.9: Household Asset Allocations and Retirement, Transition-adjusted specifications - Subsample: Single Females

This table presents the results of specifications regressing single females' risky asset class allocations on an indicator for retirement of the individual (equal to 1 if the individual has been retired for more than 3 years at time of observation, and equal to 0 otherwise). Also included in the regression is a transition indicator (equal to 1 for the +/-3 years surrounding retirement of the individual). The leftmost panel displays the estimation results of specifications where the dependent variable is the allocation to equity. The dependent variable in the middle panel is the allocation to equity and private business holdings. Finally, the dependent variable in the rightmost panel is the allocation to equity, 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.

	Risky Allocation - Equity (%)			Risky Allocation - Equity + Private Business (%)			Risky Allocation - Equity + Private Business + Real Estate (%)		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Retired Indicator	0.510	0.453	0.284	-0.0991	-0.132	-0.228	-1.837	-1.855	-1.977
	(3.590)	(3.584)	(3.592)	(3.743)	(3.739)	(3.748)	(3.604)	(3.602)	(3.606)
Transition Indicator	-0.715	-0.726	-0.824	-1.049	-1.055	-1.111	-2.315	-2.319	-2.390
	(2.712)	(2.710)	(2.710)	(2.827)	(2.826)	(2.825)	(2.808)	(2.808)	(2.807)
Family Labor Income	0.826*	0.857*	0.866*	1.058**	1.075**	1.080**	0.652	0.662	0.669
	(0.474)	(0.475)	(0.476)	(0.497)	(0.497)	(0.498)	(0.469)	(0.469)	(0.470)
Family Net Worth	0.110***	0.109***	0.110***	0.131***	0.130***	0.130***	0.141***	0.141***	0.141***
	(0.0229)	(0.0230)	(0.0230)	(0.0236)	(0.0237)	(0.0237)	(0.0224)	(0.0224)	(0.0224)
Family Pension Income	0.0698	0.0722	0.0796	0.771	0.772	0.776	0.138	0.138	0.143
	(0.867)	(0.867)	(0.869)	(0.864)	(0.864)	(0.865)	(0.806)	(0.806)	(0.807)
Number of Children	-3.471	-3.446	-3.449	-2.790	-2.774	-2.777	-1.354	-1.346	-1.350
	(2.136)	(2.139)	(2.140)	(2.166)	(2.167)	(2.168)	(1.820)	(1.819)	(1.819)
Education of Wife		1.022	1.032		0.581	0.586		0.315	0.322
		(1.053)	(1.053)		(1.046)	(1.046)		(1.025)	(1.025)
Family Healthcare Expenditures			-0.263			-0.147			-0.188
			(0.431)			(0.432)			(0.401)
Observations	3932	3932	3932	3965	3965	3965	4039	4039	4039
Families	1160	1160	1160	1180	1180	1180	1232	1232	1232
R-squared	0.0348	0.0351	0.0353	0.0397	0.0398	0.0398	0.0334	0.0334	0.0335

Table 2.10: Household Asset Allocations and Retirement, Transition-adjusted specifications - Incorporating Social Security Wealth

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. The head of household is defined to be the husband in couple households. In this table the financial portfolio is augmented to include implicit Social Security wealth, in addition to explicit stock, bond, and cash holdings. The leftmost panel displays the estimation results of specifications where the dependent variable is the allocation to equity. The dependent variable in the middle panel is the allocation to equity and private business holdings. Finally, the dependent variable in the rightmost panel is the allocation to equity, 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.

	Financial Portfolio Inclusive of Social Security Wealth								
	Risky Allocation - Equity (%)			Risky Allocation - Equity + Private Business (%)			Risky Allocation - Equity + Private Business + Real Estate (%)		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Retired Indicator x Married Indicator	-3.368***	-3.345***	-3.331***	-5.624***	-5.603***	-5.721***	-6.283***	-6.271***	-6.363***
	(1.232)	(1.232)	(1.234)	(1.271)	(1.269)	(1.271)	(1.263)	(1.262)	(1.264)
Retired Indicator	0.191	0.0897	0.0550	0.889	0.794	0.826	1.365	1.314	1.297
	(1.222)	(1.220)	(1.223)	(1.262)	(1.260)	(1.261)	(1.279)	(1.278)	(1.279)
Transition Indicator x Married Indicator	-2.450***	-2.437***	-2.492***	-4.179***	-4.166***	-4.346***	-4.214***	-4.207***	-4.366***
	(0.919)	(0.919)	(0.919)	(1.010)	(1.010)	(1.001)	(1.030)	(1.030)	(1.025)
Transition Indicator	0.189	0.158	0.174	0.172	0.144	0.254	0.130	0.114	0.168
	(0.845)	(0.844)	(0.847)	(0.923)	(0.923)	(0.914)	(0.952)	(0.951)	(0.947)
Married Indicator	-0.216	-0.212	-0.182	1.924	1.928	1.970	1.516	1.518	1.575
	(1.584)	(1.584)	(1.577)	(1.652)	(1.651)	(1.647)	(1.630)	(1.630)	(1.630)
Family Labor Income	0.281***	0.287***	0.283***	0.492***	0.499***	0.500***	0.453***	0.457***	0.454***
	(0.0750)	(0.0752)	(0.0754)	(0.0850)	(0.0850)	(0.0854)	(0.0825)	(0.0826)	(0.0826)
Family Net Worth	0.163***	0.163***	0.161***	0.228***	0.227***	0.226***	0.254***	0.254***	0.252***
	(0.00947)	(0.00946)	(0.00946)	(0.0102)	(0.0102)	(0.0102)	(0.0100)	(0.0100)	(0.0100)
Family Pension Income	0.271	0.274	0.246	0.424*	0.426*	0.395*	0.331	0.332	0.274
	(0.233)	(0.233)	(0.234)	(0.237)	(0.237)	(0.238)	(0.232)	(0.232)	(0.233)
Number of Children	-0.289	-0.285	-0.272	-0.579*	-0.575*	-0.603*	-0.242	-0.240	-0.222
	(0.251)	(0.251)	(0.263)	(0.302)	(0.302)	(0.318)	(0.318)	(0.318)	(0.334)
Education of Wife		0.567*	0.541*		0.531*	0.467		0.285	0.207
		(0.306)	(0.308)		(0.316)	(0.317)		(0.315)	(0.317)
Family Healthcare Expenditures			0.106			0.125			0.0709
			(0.159)			(0.157)			(0.130)
Observations	14091	14091	13978	14092	14092	13979	14094	14094	13981
Families	4077	4077	4062	4077	4077	4062	4077	4077	4062
R-squared	0.121	0.121	0.121	0.154	0.154	0.154	0.168	0.168	0.167

Table 2.11: Household Asset Allocations and Retirement, Transition-adjusted specifications - Conditional Analysis: Health Level

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 the health level of the head-of-household at retirement: not poor vs. poor. 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 equity. The dependent variable in the middle panel is the allocation to equity and private business holdings. Finally, the dependent variable in the rightmost panel is the allocation to equity, 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.

	Risky Allocation - Equity (%)			Risky Allocation - Equity + Private Business (%)			Risky Allocation - Equity + Private Business + Real Estate (%)		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Retired Indicator x Married Indicator	-8.426***	-8.428***	-8.494***	-10.41***	-10.42***	-10.65***	-9.852***	-9.863***	-9.904***
Health at Retirement: Not Poor	(2.263)	(2.263)	(2.286)	(2.342)	(2.342)	(2.364)	(2.349)	(2.349)	(2.371)
Retired Indicator x Married Indicator	-6.801	-6.803	-7.060	-9.572*	-9.576*	-10.11*	-7.114*	-7.122*	-7.441*
Health at Retirement: Poor	(4.691)	(4.690)	(4.788)	(5.127)	(5.124)	(5.243)	(4.313)	(4.304)	(4.389)
Retired Indicator	3.175	3.184	3.243	2.615	2.641	2.914	2.764	2.820	2.954
	(2.199)	(2.198)	(2.216)	(2.287)	(2.287)	(2.300)	(2.277)	(2.277)	(2.289)
Transition Indicator x Married Indicator	-3.375*	-3.376*	-3.466*	-5.670***	-5.674***	-6.017***	-4.567**	-4.575**	-4.786**
	(1.990)	(1.990)	(2.004)	(2.085)	(2.085)	(2.087)	(2.101)	(2.101)	(2.108)
Transition Indicator	1.045	1.048	1.125	0.842	0.850	1.146	0.442	0.460	0.673
	(1.854)	(1.854)	(1.864)	(1.948)	(1.948)	(1.942)	(1.971)	(1.972)	(1.974)
Married Indicator	6.519***	6.516***	6.648***	8.138***	8.128***	8.271***	7.775***	7.753***	7.586***
	(2.440)	(2.440)	(2.480)	(2.495)	(2.496)	(2.537)	(2.577)	(2.577)	(2.627)
Family Labor Income	0.473***	0.472***	0.458***	0.603***	0.601***	0.604***	0.532***	0.527***	0.526***
	(0.109)	(0.109)	(0.111)	(0.110)	(0.110)	(0.112)	(0.107)	(0.107)	(0.108)
Family Net Worth	0.0515***	0.0515***	0.0506***	0.0949***	0.0950***	0.0949***	0.100***	0.101***	0.100***
	(0.00945)	(0.00944)	(0.00953)	(0.00960)	(0.00960)	(0.00966)	(0.00900)	(0.00900)	(0.00908)
Family Pension Income	-0.000296	0.0000294	-0.0471	0.129	0.130	0.0912	0.0824	0.0844	0.0370
	(0.263)	(0.263)	(0.267)	(0.263)	(0.263)	(0.268)	(0.254)	(0.254)	(0.258)
Number of Children	-0.960*	-0.960*	-0.547	-1.424***	-1.424***	-1.143**	-1.046**	-1.045**	-0.611
	(0.507)	(0.507)	(0.553)	(0.524)	(0.524)	(0.582)	(0.508)	(0.508)	(0.552)
Age-squared/100 of Husband		-0.0854	-0.125		-0.250	-0.335		-0.561	-0.648*
		(0.405)	(0.410)		(0.403)	(0.408)		(0.389)	(0.395)
Family Healthcare Expenditures			0.0425			0.0522			-0.00976
			(0.192)			(0.191)			(0.180)
Observations	21502	21502	21169	21657	21657	21322	21915	21915	21574
Families	5832	5832	5767	5928	5928	5865	6104	6104	6038
R-squared	0.0133	0.0133	0.0130	0.0186	0.0186	0.0184	0.0177	0.0178	0.0174

Table 2.12: Household Asset Allocations and Retirement, Transition-adjusted specifications - Conditional Analysis: 3 Health Levels

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 the health level of the head-of-household at retirement: excellent or very good vs. good vs. fair or poor. 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 equity. The dependent variable in the middle panel is the allocation to equity and private business holdings. Finally, the dependent variable in the rightmost panel is the allocation to equity, 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.

	Risky Allocation - Equity (%)			Risky Allocation - Equity + Private Business (%)			Risky Allocation - Equity + Private Business + Real Estate (%)		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Retired Indicator x Married Indicator	-8.714***	-8.716***	-8.707***	-10.82***	-10.83***	-10.99***	-10.17***	-10.18***	-10.13***
Health: Very Good - Excellent	(2.321)	(2.321)	(2.344)	(2.407)	(2.407)	(2.428)	(2.410)	(2.410)	(2.432)
Retired Indicator x Married Indicator	-7.285***	-7.287***	-7.439***	-9.428***	-9.434***	-9.716***	-9.191***	-9.202***	-9.334***
Health: Good	(2.473)	(2.473)	(2.504)	(2.551)	(2.551)	(2.582)	(2.559)	(2.559)	(2.590)
Retired Indicator x Married Indicator	-9.618***	-9.621***	-9.821***	-10.89***	-10.90***	-11.33***	-9.618***	-9.637***	-9.901***
Health: Fair - Poor	(2.915)	(2.914)	(2.954)	(2.938)	(2.938)	(2.977)	(2.840)	(2.839)	(2.874)
Retired Indicator	3.185	3.194	3.251	2.616	2.642	2.913	2.762	2.819	2.953
	(2.199)	(2.198)	(2.215)	(2.287)	(2.287)	(2.300)	(2.277)	(2.277)	(2.290)
Transition Indicator x Married Indicator	-3.391*	-3.392*	-3.480*	-5.682***	-5.686***	-6.030***	-4.575**	-4.583**	-4.793**
	(1.990)	(1.990)	(2.003)	(2.085)	(2.085)	(2.087)	(2.101)	(2.101)	(2.108)
Transition Indicator	1.052	1.055	1.132	0.843	0.852	1.148	0.442	0.459	0.673
	(1.853)	(1.853)	(1.864)	(1.948)	(1.948)	(1.941)	(1.971)	(1.971)	(1.974)
Married Indicator	6.476***	6.473***	6.613***	8.108***	8.099***	8.245***	7.755***	7.732***	7.571***
	(2.440)	(2.440)	(2.480)	(2.495)	(2.496)	(2.537)	(2.578)	(2.578)	(2.628)
Family Labor Income	0.472***	0.472***	0.458***	0.602***	0.599***	0.602***	0.531***	0.526***	0.525***
	(0.109)	(0.109)	(0.111)	(0.110)	(0.110)	(0.112)	(0.106)	(0.106)	(0.108)
Family Net Worth	0.0514***	0.0514***	0.0505***	0.0949***	0.0950***	0.0949***	0.100***	0.101***	0.100***
	(0.00945)	(0.00945)	(0.00953)	(0.00960)	(0.00960)	(0.00967)	(0.00901)	(0.00900)	(0.00908)
Family Pension Income	-0.0120	-0.0117	-0.0580	0.120	0.121	0.0826	0.0756	0.0776	0.0309
	(0.263)	(0.263)	(0.267)	(0.263)	(0.263)	(0.268)	(0.254)	(0.254)	(0.258)
Number of Children	-0.972*	-0.972*	-0.562	-1.434***	-1.433***	-1.153**	-1.053**	-1.052**	-0.618
	(0.508)	(0.508)	(0.553)	(0.524)	(0.524)	(0.583)	(0.508)	(0.508)	(0.552)
Age-squared/100 of Husband		-0.0863	-0.127		-0.250	-0.336		-0.560	-0.648*
		(0.405)	(0.410)		(0.403)	(0.408)		(0.389)	(0.395)
Family Healthcare Expenditures			0.0425			0.0512			-0.00958
			(0.192)			(0.191)			(0.180)
Observations	21502	21502	21169	21657	21657	21322	21915	21915	21574
Families	5832	5832	5767	5928	5928	5865	6104	6104	6038
R-squared	0.0134	0.0134	0.0131	0.0186	0.0187	0.0184	0.0177	0.0178	0.0174

Table 2.13: Household Asset Allocations and Retirement, Transition-adjusted specifications - Conditional Analysis: Change in Health Status

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 the directional change in health level of the head-of-household at retirement: 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. The leftmost panel displays the estimation results of specifications where the dependent variable is the allocation to equity. The dependent variable in the middle panel is the allocation to equity and private business holdings. Finally, the dependent variable in the rightmost panel is the allocation to equity, 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.

	Risky Allocation - Equity (%)			Risky Allocation - Equity + Private Business (%)			Risky Allocation - Equity + Private Business + Real Estate (%)		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Retired Indicator x Married Indicator	-7.813***	-7.817***	-7.889***	-9.777***	-9.789***	-10.02***	-9.774***	-9.802***	-9.882***
Deteriorating Health Status	(2.339)	(2.339)	(2.360)	(2.423)	(2.422)	(2.443)	(2.416)	(2.416)	(2.437)
Retired Indicator x Married Indicator	-8.708***	-8.710***	-8.852***	-10.88***	-10.88***	-11.20***	-10.41***	-10.43***	-10.54***
Steady Health Status	(2.286)	(2.286)	(2.309)	(2.364)	(2.364)	(2.385)	(2.358)	(2.359)	(2.381)
Retired Indicator x Married Indicator	-8.672***	-8.672***	-8.618***	-10.47***	-10.48***	-10.58***	-9.586***	-9.586***	-9.509***
Improving Health Status	(2.302)	(2.302)	(2.326)	(2.379)	(2.380)	(2.402)	(2.378)	(2.379)	(2.401)
Retired Indicator	3.339	3.346	3.375	2.744	2.768	3.009	2.875	2.930	3.034
	(2.206)	(2.205)	(2.223)	(2.294)	(2.294)	(2.307)	(2.280)	(2.280)	(2.292)
Transition Indicator x Married Indicator	-3.473*	-3.475*	-3.564*	-5.781***	-5.785***	-6.130***	-4.748**	-4.756**	-4.969**
	(1.996)	(1.996)	(2.009)	(2.090)	(2.090)	(2.092)	(2.100)	(2.101)	(2.108)
Transition Indicator	1.148	1.150	1.210	0.924	0.932	1.210	0.522	0.538	0.735
	(1.857)	(1.857)	(1.867)	(1.951)	(1.951)	(1.945)	(1.972)	(1.973)	(1.975)
Married Indicator	6.640***	6.638***	6.761***	8.257***	8.248***	8.380***	7.948***	7.925***	7.747***
	(2.446)	(2.446)	(2.486)	(2.500)	(2.501)	(2.542)	(2.577)	(2.578)	(2.627)
Family Labor Income	0.470***	0.469***	0.456***	0.600***	0.598***	0.600***	0.530***	0.525***	0.523***
	(0.109)	(0.109)	(0.111)	(0.110)	(0.110)	(0.112)	(0.107)	(0.107)	(0.108)
Family Net Worth	0.0515***	0.0515***	0.0506***	0.0950***	0.0950***	0.0950***	0.100***	0.101***	0.100***
	(0.00945)	(0.00945)	(0.00953)	(0.00960)	(0.00960)	(0.00967)	(0.00900)	(0.00900)	(0.00908)
Family Pension Income	-0.00310	-0.00282	-0.0501	0.126	0.127	0.0878	0.0769	0.0788	0.0316
	(0.263)	(0.263)	(0.267)	(0.263)	(0.263)	(0.268)	(0.254)	(0.254)	(0.258)
Number of Children	-0.961*	-0.960*	-0.547	-1.424***	-1.423***	-1.140**	-1.048**	-1.047**	-0.612
	(0.507)	(0.507)	(0.552)	(0.524)	(0.524)	(0.582)	(0.508)	(0.507)	(0.552)
Age-squared/100 of Husband		-0.0742	-0.116		-0.243	-0.330		-0.566	-0.656*
		(0.406)	(0.411)		(0.403)	(0.408)		(0.389)	(0.394)
Family Healthcare Expenditures			0.0398			0.0488			-0.00930
			(0.192)			(0.191)			(0.180)
Observations	21502	21502	21169	21657	21657	21322	21915	21915	21574
Families	5832	5832	5767	5928	5928	5865	6104	6104	6038
R-squared	0.0134	0.0134	0.0132	0.0187	0.0187	0.0186	0.0179	0.0180	0.0176

Table 2.14: Household Asset Allocations and Retirement, Transition-adjusted specifications - Conditional Analysis: Disease Diagnosis at Retirement

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 diagnosis of the head-of-household with a disease 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.

	Risky Allocation - Equity (%)			Risky Allocation - Equity + Private Business (%)			Risky Allocation - Equity + Private Business + Real Estate (%)		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Retired Indicator x Married Indicator	-6.540***	-6.542***	-6.616***	-8.285***	-8.290***	-8.459***	-7.886***	-7.897***	-7.970***
No Disease	(1.648)	(1.648)	(1.670)	(1.832)	(1.832)	(1.868)	(1.811)	(1.811)	(1.848)
Retired Indicator x Married Indicator	-6.968***	-6.966***	-5.961***	-7.526***	-7.519***	-6.744***	-9.142***	-9.127***	-8.700***
High Blood Pressure	(2.264)	(2.264)	(2.329)	(2.593)	(2.593)	(2.605)	(2.488)	(2.488)	(2.540)
Retired Indicator x Married Indicator	-2.868	-2.863	-3.004	-6.687**	-6.670**	-6.745*	-4.736	-4.695	-4.639
Diabetes	(3.044)	(3.044)	(3.142)	(3.416)	(3.415)	(3.678)	(3.035)	(3.033)	(3.264)
Retired Indicator x Married Indicator	-6.749***	-6.754***	-6.015**	-9.164***	-9.181***	-8.788***	-8.293***	-8.332***	-7.965***
Cancer	(2.583)	(2.583)	(2.671)	(2.652)	(2.652)	(2.721)	(2.437)	(2.438)	(2.518)
Retired Indicator x Married Indicator	-10.86***	-10.86***	-12.12***	-11.85***	-11.83***	-13.13***	-12.97***	-12.92***	-13.55***
Lung Disease	(4.184)	(4.185)	(4.250)	(3.916)	(3.917)	(3.955)	(3.815)	(3.819)	(3.837)
Retired Indicator x Married Indicator	-4.418*	-4.419*	-4.812**	-6.415**	-6.419**	-6.850***	-6.572***	-6.581***	-7.007***
Heart Disease	(2.318)	(2.319)	(2.352)	(2.598)	(2.598)	(2.691)	(2.579)	(2.580)	(2.672)
Retired Indicator x Married Indicator	-6.698*	-6.692*	-5.250	-3.920	-3.899	-3.072	-1.460	-1.412	-0.565
Stroke	(3.571)	(3.571)	(3.626)	(4.119)	(4.118)	(4.112)	(3.600)	(3.597)	(3.587)
Retired Indicator x Married Indicator	-3.426	-3.427	-4.109	-4.032	-4.036	-4.474	-3.970	-3.978	-4.370
Psychological Disease	(4.227)	(4.227)	(4.293)	(3.559)	(3.558)	(3.698)	(3.624)	(3.623)	(3.767)
Retired Indicator x Married Indicator	-6.695***	-6.696***	-6.764***	-6.536***	-6.540***	-6.665***	-7.271***	-7.280***	-7.303***
Arthritis	(2.035)	(2.036)	(2.062)	(2.278)	(2.277)	(2.307)	(2.220)	(2.219)	(2.248)
Retired Indicator	1.838	1.845	1.872	1.074	1.097	1.296	1.442	1.496	1.632
	(1.723)	(1.723)	(1.741)	(1.947)	(1.946)	(1.969)	(1.910)	(1.909)	(1.935)
Transition Indicator x Married Indicator	-2.295	-2.296	-2.322	-4.314**	-4.316**	-4.561**	-3.464*	-3.470*	-3.662**
	(1.611)	(1.611)	(1.626)	(1.798)	(1.798)	(1.806)	(1.789)	(1.789)	(1.802)
Transition Indicator	0.168	0.170	0.216	-0.194	-0.187	0.0509	-0.432	-0.416	-0.206
	(1.528)	(1.528)	(1.538)	(1.763)	(1.763)	(1.760)	(1.764)	(1.764)	(1.771)
Married Indicator	5.099***	5.096***	5.173***	6.303***	6.293***	6.319***	6.284***	6.259***	6.084***
	(1.846)	(1.846)	(1.884)	(2.113)	(2.113)	(2.166)	(2.160)	(2.160)	(2.224)
Family Labor Income	0.476***	0.476***	0.465***	0.605***	0.603***	0.609***	0.534***	0.529***	0.530***
	(0.100)	(0.100)	(0.102)	(0.110)	(0.110)	(0.112)	(0.106)	(0.107)	(0.108)
Family Net Worth	0.0514***	0.0514***	0.0506***	0.0947***	0.0948***	0.0949***	0.100***	0.100***	0.100***
	(0.00738)	(0.00738)	(0.00745)	(0.00958)	(0.00958)	(0.00965)	(0.00899)	(0.00899)	(0.00907)
Family Pension Income	0.00788	0.00815	-0.0427	0.137	0.138	0.0954	0.0908	0.0926	0.0423
	(0.242)	(0.242)	(0.245)	(0.263)	(0.263)	(0.268)	(0.254)	(0.254)	(0.258)
Number of Children	-0.905*	-0.905*	-0.497	-1.338***	-1.337***	-1.057*	-0.960*	-0.959*	-0.526
	(0.468)	(0.468)	(0.510)	(0.525)	(0.525)	(0.581)	(0.510)	(0.510)	(0.551)
Age-squared/100 of Head		-0.0709	-0.111		-0.240	-0.321		-0.550	-0.632
		(0.414)	(0.419)		(0.403)	(0.408)		(0.389)	(0.395)
Family Healthcare Expenditures			0.0477			0.0524			-0.00692
			(0.174)			(0.191)			(0.180)
Observations	21502	21502	21169	21657	21657	21322	21915	21915	21574
Families	5832	5832	5767	5928	5928	5865	6104	6104	6038
R-squared	0.0137	0.0137	0.0134	0.0189	0.0189	0.0186	0.0184	0.0185	0.0180

Table 2.15: Household Asset Allocations and Retirement, Transition-adjusted specifications - Conditional Analysis: Disease Diagnosis During Retirement

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. I also include the interaction between retirement and married indicators and indicators for having been diagnosed with a disease (equal to 1 for all periods after being diagnosed, and 0 otherwise). 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.

	Risky Allocation - Equity (%)			Risky Allocation - Equity + Private Business (%)			Risky Allocation - Equity + Private Business + Real Estate (%)		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Retired Indicator x Married Indicator	-3.054***	-3.054***	-3.041***	-3.591***	-3.589***	-3.534***	-3.920***	-3.916***	-3.899***
No Disease	(1.122)	(1.122)	(1.131)	(1.206)	(1.206)	(1.215)	(1.186)	(1.186)	(1.194)
Retired Indicator x Married Indicator	-2.061*	-2.061*	-1.717	-2.193	-2.193	-1.846	-3.000**	-2.999**	-2.742**
x High Blood Pressure Diagnosis	(1.228)	(1.228)	(1.245)	(1.365)	(1.365)	(1.374)	(1.316)	(1.316)	(1.326)
Retired Indicator x Married Indicator	-1.772	-1.769	-1.812	-2.826	-2.818	-2.819	-3.049*	-3.029*	-3.025*
x Diabetes Diagnosis	(1.560)	(1.560)	(1.580)	(1.763)	(1.763)	(1.805)	(1.733)	(1.733)	(1.769)
Retired Indicator x Married Indicator	-2.715**	-2.716**	-2.508*	-3.327**	-3.330**	-3.169**	-2.367	-2.373	-2.218
x Cancer Diagnosis	(1.342)	(1.342)	(1.355)	(1.507)	(1.507)	(1.520)	(1.473)	(1.474)	(1.487)
Retired Indicator x Married Indicator	-0.415	-0.410	-0.473	-0.209	-0.196	-0.238	-0.448	-0.417	-0.326
x Lung Disease Diagnosis	(1.989)	(1.989)	(2.006)	(2.006)	(2.006)	(2.037)	(1.985)	(1.985)	(2.014)
Retired Indicator x Married Indicator	-0.753	-0.753	-0.779	-0.289	-0.289	-0.257	-1.511	-1.511	-1.465
x Heart Disease Diagnosis	(1.241)	(1.241)	(1.252)	(1.336)	(1.336)	(1.351)	(1.296)	(1.297)	(1.311)
Retired Indicator x Married Indicator	-0.597	-0.597	-0.211	-0.712	-0.713	-0.405	0.480	0.478	0.770
x Stroke Diagnosis	(1.675)	(1.675)	(1.688)	(1.865)	(1.865)	(1.881)	(1.928)	(1.928)	(1.945)
Retired Indicator x Married Indicator	-2.297	-2.300	-2.534	-1.021	-1.032	-1.139	-1.909	-1.934	-2.153
x Psychological Disease Diagnosis	(2.088)	(2.088)	(2.107)	(2.132)	(2.132)	(2.170)	(2.018)	(2.018)	(2.034)
Retired Indicator x Married Indicator	-1.166	-1.166	-1.606	-1.998	-1.999	-2.380*	-3.073**	-3.076**	-3.439**
x Arthritis Diagnosis	(1.234)	(1.234)	(1.253)	(1.368)	(1.368)	(1.389)	(1.382)	(1.381)	(1.402)
Retired Indicator	-1.569	-1.563	-1.526	-3.358**	-3.338**	-3.239**	-2.453*	-2.408	-2.283
	(1.365)	(1.366)	(1.377)	(1.544)	(1.544)	(1.554)	(1.480)	(1.481)	(1.491)
Transition Indicator x Married Indicator	0.502	0.502	0.458	-0.745	-0.745	-0.907	-0.438	-0.437	-0.606
	(1.353)	(1.353)	(1.360)	(1.511)	(1.511)	(1.509)	(1.481)	(1.481)	(1.482)
Transition Indicator	-2.142	-2.141	-2.072	-3.169**	-3.164**	-2.979*	-3.031**	-3.022**	-2.809*
	(1.348)	(1.348)	(1.356)	(1.563)	(1.563)	(1.555)	(1.537)	(1.537)	(1.538)
Married Indicator	1.583	1.578	1.670	1.900	1.887	1.808	2.631	2.599	2.403
	(1.486)	(1.486)	(1.518)	(1.715)	(1.716)	(1.762)	(1.740)	(1.740)	(1.794)
Family Labor Income	0.502***	0.502***	0.489***	0.640***	0.638***	0.643***	0.566***	0.561***	0.560***
	(0.1000)	(0.100)	(0.102)	(0.110)	(0.110)	(0.112)	(0.107)	(0.107)	(0.109)
Family Net Worth	0.0507***	0.0507***	0.0499***	0.0940***	0.0941***	0.0940***	0.0996***	0.0998***	0.0997***
	(0.00738)	(0.00738)	(0.00746)	(0.00961)	(0.00961)	(0.00967)	(0.00901)	(0.00901)	(0.00908)
Family Pension Income	-0.0148	-0.0145	-0.0604	0.114	0.115	0.0776	0.0574	0.0593	0.0139
	(0.242)	(0.242)	(0.245)	(0.264)	(0.264)	(0.268)	(0.255)	(0.255)	(0.259)
Number of Children	-0.929**	-0.929**	-0.501	-1.388***	-1.387***	-1.085*	-0.998**	-0.998**	-0.551
	(0.468)	(0.468)	(0.510)	(0.524)	(0.524)	(0.582)	(0.509)	(0.509)	(0.552)
Age-squared/100 of Head		-0.0794	-0.118		-0.240	-0.323		-0.551	-0.636
		(0.414)	(0.419)		(0.403)	(0.408)		(0.389)	(0.395)
Family Healthcare Expenditures			0.0415			0.0491			-0.0149
			(0.174)			(0.190)			(0.179)
Observations	21502	21502	21169	21657	21657	21322	21915	21915	21574
Families	5832	5832	5767	5928	5928	5865	6104	6104	6038
R-squared	0.0129	0.0129	0.0126	0.0179	0.0179	0.0176	0.0174	0.0175	0.0171

Table 2.16: Household Asset Allocations and Retirement, Transition-adjusted specifications - Conditional Analysis: Defined Benefit Pension Recipients

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 an indicator for DB pension plan recipients. 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 equity. The dependent variable in the middle panel is the allocation to equity and private business holdings. Finally, the dependent variable in the rightmost panel is the allocation to equity, 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.

	Risky Allocation - Equity (%)			Risky Allocation - Equity + Private Business (%)			Risky Allocation - Equity + Private Business + Real Estate (%)		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Retired Indicator x Married Indicator	-8.082***	-8.085***	-8.077***	-9.698***	-9.708***	-9.878***	-7.667***	-7.691***	-7.672***
DB Pension: Yes	(2.345)	(2.345)	(2.356)	(2.676)	(2.676)	(2.694)	(2.649)	(2.648)	(2.666)
Retired Indicator x Married Indicator	-8.577***	-8.579***	-8.662***	-10.64***	-10.64***	-10.90***	-10.27***	-10.28***	-10.35***
DB Pension: No	(2.000)	(2.000)	(2.014)	(2.352)	(2.352)	(2.374)	(2.350)	(2.351)	(2.373)
Retired Indicator	3.258*	3.267*	3.320*	2.680	2.706	2.976	2.790	2.847	2.976
	(1.966)	(1.966)	(1.975)	(2.296)	(2.295)	(2.308)	(2.278)	(2.278)	(2.291)
Transition Indicator x Married Indicator	-3.475*	-3.477*	-3.567**	-5.783***	-5.787***	-6.133***	-4.741**	-4.749**	-4.963**
	(1.813)	(1.813)	(1.823)	(2.090)	(2.090)	(2.092)	(2.100)	(2.100)	(2.107)
Transition Indicator	1.109	1.112	1.187	0.902	0.911	1.205	0.506	0.524	0.734
	(1.659)	(1.659)	(1.664)	(1.951)	(1.951)	(1.945)	(1.972)	(1.972)	(1.974)
Married Indicator	6.661***	6.658***	6.802***	8.325***	8.315***	8.471***	8.121***	8.098***	7.949***
	(2.118)	(2.119)	(2.151)	(2.502)	(2.503)	(2.544)	(2.578)	(2.578)	(2.628)
Family Labor Income	0.469***	0.468***	0.453***	0.596***	0.594***	0.595***	0.513***	0.508***	0.505***
	(0.101)	(0.101)	(0.103)	(0.110)	(0.110)	(0.112)	(0.107)	(0.107)	(0.108)
Family Net Worth	0.0515***	0.0515***	0.0506***	0.0949***	0.0950***	0.0950***	0.100***	0.101***	0.100***
	(0.00738)	(0.00738)	(0.00746)	(0.00959)	(0.00959)	(0.00966)	(0.00900)	(0.00900)	(0.00908)
Family Pension Income	-0.00350	-0.00317	-0.0503	0.125	0.126	0.0875	0.0735	0.0755	0.0279
	(0.242)	(0.242)	(0.245)	(0.263)	(0.263)	(0.268)	(0.254)	(0.254)	(0.258)
Number of Children	-0.961**	-0.961**	-0.550	-1.425***	-1.425***	-1.145**	-1.050**	-1.049**	-0.618
	(0.468)	(0.468)	(0.510)	(0.524)	(0.524)	(0.582)	(0.507)	(0.507)	(0.551)
Age-squared/100 of Head		-0.0846	-0.125		-0.249	-0.334		-0.555	-0.643
		(0.414)	(0.419)		(0.403)	(0.408)		(0.389)	(0.395)
Family Healthcare Expenditures			0.0430			0.0521			-0.00979
			(0.174)			(0.191)			(0.180)
Observations	21502	21502	21169	21657	21657	21322	21915	21915	21574
Families	5832	5832	5767	5928	5928	5865	6104	6104	6038
R-squared	0.0133	0.0133	0.0131	0.0186	0.0187	0.0185	0.0180	0.0181	0.0177

Table 2.17: Household Asset Allocations and Retirement, Transition-adjusted specifications - Conditional Analysis: Defined Benefit Pension Recipients, by Recipient

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 who is a DB pension recipient: husband only vs. wife only vs. husband and wife vs. neither husband nor wife. 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 equity. The dependent variable in the middle panel is the allocation to equity and private business holdings. Finally, the dependent variable in the rightmost panel is the allocation to equity, 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.

	Risky Allocation - Equity (%)			Risky Allocation - Equity + Private Business (%)			Risky Allocation - Equity + Private Business + Real Estate (%)		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Retired Indicator x Married Indicator	-7.472**	-7.477**	-7.312**	-9.984***	-10.00***	-9.935***	-7.886**	-7.923**	-7.656**
DB Pension: Husband Only	(3.375)	(3.375)	(3.390)	(3.787)	(3.787)	(3.802)	(3.811)	(3.809)	(3.824)
Retired Indicator x Married Indicator	-8.224***	-8.227***	-8.263***	-9.718***	-9.725***	-9.972***	-7.883***	-7.902***	-7.962***
DB Pension: Wife Only	(2.449)	(2.449)	(2.459)	(2.776)	(2.776)	(2.794)	(2.733)	(2.732)	(2.752)
Retired Indicator x Married Indicator	-8.956	-8.967	-8.866	-6.486	-6.518	-6.351	1.293	1.224	1.529
DB Pension: Husband and Wife	(7.761)	(7.761)	(7.765)	(7.824)	(7.821)	(7.936)	(6.412)	(6.385)	(6.455)
Retired Indicator x Married Indicator	-8.574***	-8.576***	-8.658***	-10.64***	-10.65***	-10.90***	-10.28***	-10.29***	-10.37***
DB Pension: No	(2.000)	(2.000)	(2.015)	(2.353)	(2.353)	(2.375)	(2.350)	(2.351)	(2.373)
Retired Indicator	3.261*	3.270*	3.324*	2.681	2.707	2.979	2.798	2.855	2.987
	(1.966)	(1.967)	(1.975)	(2.296)	(2.295)	(2.308)	(2.278)	(2.278)	(2.291)
Transition Indicator x Married Indicator	-3.475*	-3.477*	-3.567**	-5.784***	-5.788***	-6.135***	-4.745**	-4.753**	-4.969**
	(1.813)	(1.813)	(1.823)	(2.090)	(2.090)	(2.092)	(2.100)	(2.100)	(2.107)
Transition Indicator	1.111	1.114	1.189	0.903	0.911	1.207	0.509	0.527	0.740
	(1.659)	(1.659)	(1.664)	(1.951)	(1.951)	(1.945)	(1.972)	(1.972)	(1.974)
Married Indicator	6.661***	6.658***	6.801***	8.327***	8.318***	8.475***	8.129***	8.106***	7.960***
	(2.119)	(2.119)	(2.151)	(2.503)	(2.503)	(2.544)	(2.578)	(2.578)	(2.628)
Family Labor Income	0.469***	0.468***	0.454***	0.595***	0.593***	0.595***	0.512***	0.507***	0.504***
	(0.101)	(0.101)	(0.103)	(0.110)	(0.110)	(0.112)	(0.107)	(0.107)	(0.108)
Family Net Worth	0.0515***	0.0515***	0.0506***	0.0949***	0.0950***	0.0949***	0.100***	0.100***	0.100***
	(0.00738)	(0.00738)	(0.00746)	(0.00959)	(0.00959)	(0.00966)	(0.00900)	(0.00900)	(0.00908)
Family Pension Income	-0.00227	-0.00196	-0.0486	0.126	0.127	0.0884	0.0756	0.0775	0.0308
	(0.242)	(0.242)	(0.245)	(0.263)	(0.263)	(0.268)	(0.255)	(0.254)	(0.259)
Number of Children	-0.962**	-0.961**	-0.551	-1.428***	-1.427***	-1.149**	-1.058**	-1.057**	-0.628
	(0.468)	(0.468)	(0.510)	(0.524)	(0.524)	(0.582)	(0.507)	(0.507)	(0.551)
Age-squared/100 of Head		-0.0843	-0.124		-0.248	-0.333		-0.552	-0.640
		(0.414)	(0.419)		(0.403)	(0.408)		(0.389)	(0.395)
Family Healthcare Expenditures			0.0426			0.0528			-0.00790
			(0.174)			(0.191)			(0.180)
Observations	21502	21502	21169	21657	21657	21322	21915	21915	21574
Families	5832	5832	5767	5928	5928	5865	6104	6104	6038
R-squared	0.0133	0.0133	0.0131	0.0186	0.0187	0.0185	0.0181	0.0182	0.0178

Table 2.18: Household Asset Allocations and Retirement, Transition-adjusted specifications - Conditional Analysis: Homemaker Status of Wives

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 whether the wife is a homemaker (never worked) 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. The leftmost panel displays the estimation results of specifications where the dependent variable is the allocation to equity. The dependent variable in the middle panel is the allocation to equity and private business holdings. Finally, the dependent variable in the rightmost panel is the allocation to equity, 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.

	Risky Allocation - Equity (%)			Risky Allocation - Equity + Private Business (%)			Risky Allocation - Equity + Private Business + Real Estate (%)		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Retired Indicator x Married Indicator	-10.85***	-10.85***	-10.84***	-11.93***	-11.94***	-11.89***	-11.29***	-11.31***	-11.13***
Wife: Homemaker	(2.539)	(2.539)	(2.557)	(3.007)	(3.007)	(3.025)	(2.921)	(2.922)	(2.940)
Retired Indicator x Married Indicator	-8.190***	-8.192***	-8.268***	-10.35***	-10.36***	-10.64***	-9.866***	-9.876***	-9.959***
Wife: Not Homemaker	(2.010)	(2.010)	(2.025)	(2.355)	(2.355)	(2.377)	(2.354)	(2.354)	(2.376)
Retired Indicator	3.342*	3.352*	3.412*	2.775	2.801	3.071	2.999	3.057	3.188
	(1.964)	(1.964)	(1.973)	(2.293)	(2.293)	(2.306)	(2.278)	(2.278)	(2.290)
Transition Indicator x Married Indicator	-3.461*	-3.462*	-3.550*	-5.776***	-5.780***	-6.127***	-4.743**	-4.750**	-4.964**
	(1.813)	(1.813)	(1.823)	(2.090)	(2.090)	(2.092)	(2.100)	(2.100)	(2.107)
Transition Indicator	1.145	1.148	1.227	0.942	0.951	1.246	0.596	0.613	0.826
	(1.659)	(1.659)	(1.664)	(1.951)	(1.951)	(1.945)	(1.971)	(1.972)	(1.974)
Married Indicator	6.433***	6.430***	6.564***	8.155***	8.145***	8.315***	7.885***	7.862***	7.720***
	(2.122)	(2.122)	(2.154)	(2.499)	(2.500)	(2.541)	(2.576)	(2.577)	(2.626)
Family Labor Income	0.471***	0.470***	0.457***	0.602***	0.600***	0.602***	0.531***	0.526***	0.524***
	(0.100)	(0.100)	(0.102)	(0.110)	(0.110)	(0.112)	(0.107)	(0.107)	(0.108)
Family Net Worth	0.0515***	0.0515***	0.0506***	0.0950***	0.0950***	0.0950***	0.100***	0.101***	0.100***
	(0.00738)	(0.00738)	(0.00745)	(0.00959)	(0.00959)	(0.00966)	(0.00900)	(0.00900)	(0.00908)
Family Pension Income	-0.0125	-0.0122	-0.0578	0.121	0.122	0.0855	0.0737	0.0756	0.0302
	(0.242)	(0.242)	(0.245)	(0.263)	(0.263)	(0.268)	(0.254)	(0.254)	(0.258)
Number of Children	-0.962**	-0.962**	-0.550	-1.426***	-1.426***	-1.145**	-1.049**	-1.049**	-0.617
	(0.468)	(0.468)	(0.510)	(0.524)	(0.524)	(0.583)	(0.508)	(0.508)	(0.553)
Age-squared/100 of Head		-0.0887	-0.129		-0.252	-0.337		-0.562	-0.649*
		(0.414)	(0.419)		(0.403)	(0.408)		(0.389)	(0.394)
Family Healthcare Expenditures			0.0459			0.0538			-0.00720
			(0.174)			(0.191)			(0.180)
Observations	21502	21502	21169	21657	21657	21322	21915	21915	21574
Families	5832	5832	5767	5928	5928	5865	6104	6104	6038
R-squared	0.0134	0.0134	0.0132	0.0186	0.0187	0.0184	0.0178	0.0179	0.0175

Table 2.19: Household Asset Allocations and Retirement, Transition-adjusted specifications - Conditional Analysis: Wealth

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 the quartile of the household wealth level 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. The leftmost panel displays the estimation results of specifications where the dependent variable is the allocation to equity. The dependent variable in the middle panel is the allocation to equity and private business holdings. Finally, the dependent variable in the rightmost panel is the allocation to equity, 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.

	Risky Allocation - Equity (%)			Risky Allocation - Equity + Private Business (%)			Risky Allocation - Equity + Private Business + Real Estate (%)		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Retired Indicator x Married Indicator	-0.562	-0.570	-0.622	-3.817	-3.843	-4.097	-4.648	-4.705	-4.619
Wealth: Quartile 1	(10.39)	(10.39)	(10.39)	(10.67)	(10.67)	(10.66)	(9.169)	(9.173)	(9.392)
Retired Indicator x Married Indicator	-8.320**	-8.323**	-8.873**	-9.508**	-9.517**	-9.603**	-8.251*	-8.274**	-8.157*
Wealth: Quartile 2	(3.912)	(3.913)	(3.958)	(4.120)	(4.121)	(4.158)	(4.231)	(4.234)	(4.276)
Retired Indicator x Married Indicator	-10.39***	-10.39***	-10.46***	-11.37***	-11.37***	-11.70***	-10.75***	-10.74***	-10.93***
Wealth: Quartile 3	(2.586)	(2.586)	(2.619)	(2.691)	(2.691)	(2.726)	(2.705)	(2.706)	(2.742)
Retired Indicator x Married Indicator	-8.098***	-8.100***	-8.137***	-10.50***	-10.51***	-10.74***	-10.07***	-10.08***	-10.11***
Wealth: Quartile 4	(2.308)	(2.308)	(2.332)	(2.380)	(2.380)	(2.402)	(2.368)	(2.368)	(2.390)
Retired Indicator	3.223	3.231	3.290	2.729	2.755	3.031	2.966	3.023	3.161
	(2.208)	(2.206)	(2.224)	(2.295)	(2.294)	(2.307)	(2.279)	(2.279)	(2.291)
Transition Indicator x Married Indicator	-3.480*	-3.481*	-3.569*	-5.789***	-5.793***	-6.139***	-4.757**	-4.764**	-4.975**
	(1.996)	(1.996)	(2.010)	(2.090)	(2.091)	(2.092)	(2.100)	(2.101)	(2.108)
Transition Indicator	1.102	1.104	1.180	0.927	0.935	1.232	0.587	0.605	0.816
	(1.858)	(1.858)	(1.868)	(1.951)	(1.951)	(1.945)	(1.972)	(1.972)	(1.974)
Married Indicator	6.795***	6.792***	6.942***	8.311***	8.301***	8.450***	7.978***	7.955***	7.808***
	(2.448)	(2.448)	(2.487)	(2.504)	(2.505)	(2.545)	(2.583)	(2.584)	(2.632)
Family Labor Income	0.477***	0.476***	0.463***	0.601***	0.599***	0.601***	0.529***	0.524***	0.522***
	(0.109)	(0.109)	(0.111)	(0.110)	(0.110)	(0.111)	(0.106)	(0.106)	(0.108)
Family Net Worth	0.0509***	0.0509***	0.0500***	0.0950***	0.0950***	0.0950***	0.101***	0.101***	0.101***
	(0.00948)	(0.00948)	(0.00956)	(0.00964)	(0.00964)	(0.00970)	(0.00904)	(0.00903)	(0.00911)
Family Pension Income	-0.00377	-0.00349	-0.0509	0.125	0.126	0.0873	0.0774	0.0793	0.0325
	(0.263)	(0.263)	(0.267)	(0.263)	(0.263)	(0.268)	(0.254)	(0.254)	(0.258)
Number of Children	-0.950*	-0.950*	-0.540	-1.416***	-1.416***	-1.137*	-1.040**	-1.039**	-0.610
	(0.508)	(0.508)	(0.553)	(0.524)	(0.524)	(0.583)	(0.508)	(0.508)	(0.553)
Age-squared/100 of Head		-0.0734	-0.114		-0.244	-0.329		-0.555	-0.641
		(0.405)	(0.410)		(0.403)	(0.408)		(0.389)	(0.395)
Family Healthcare Expenditures			0.0395			0.0513			-0.00887
			(0.192)			(0.191)			(0.180)
Observations	21502	21502	21169	21657	21657	21322	21915	21915	21574
Families	5832	5832	5767	5928	5928	5865	6104	6104	6038
R-squared	0.0136	0.0136	0.0134	0.0187	0.0187	0.0186	0.0179	0.0180	0.0176

Table 2.20: Household Asset Allocations and Retirement, Transition-adjusted specifications - Large Changes in Life Expectancy During Retirement

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. I also include the interaction between retirement and married indicators and indicators for having experience a large change in optimism (below the 10th or above the 90th percentile). Optimism is measured as the difference between the head's self-assessed survival probability less that implied by mortality tables. 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 equity. The dependent variable in the middle panel is the allocation to equity and private business holdings. Finally, the dependent variable in the rightmost panel is the allocation to equity, 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.

	Risky Allocation - Equity (%)			Risky Allocation - Equity + Private Business (%)			Risky Allocation - Equity + Private Business + Real Estate (%)		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Retired Indicator x Married Indicator	0.736	0.749	0.825	0.384	0.417	0.465	0.838	0.907	0.961
x Large decrease in optimism (10th %ile)	(1.187)	(1.188)	(1.205)	(1.293)	(1.295)	(1.306)	(1.275)	(1.277)	(1.288)
Retired Indicator x Married Indicator	0.686	0.711	0.281	1.560	1.624	1.249	1.201	1.333	0.997
x Large increase in optimism (90th %ile)	(1.302)	(1.305)	(1.320)	(1.442)	(1.447)	(1.462)	(1.390)	(1.393)	(1.413)
Retired Indicator x Married Indicator	-8.718***	-8.725***	-8.757***	-10.79***	-10.81***	-11.01***	-10.31***	-10.34***	-10.36***
	(2.006)	(2.006)	(2.021)	(2.348)	(2.347)	(2.368)	(2.345)	(2.345)	(2.365)
Retired Indicator	3.462*	3.478*	3.505*	2.951	2.993	3.239	3.208	3.293	3.403
	(1.972)	(1.973)	(1.982)	(2.295)	(2.295)	(2.308)	(2.280)	(2.279)	(2.292)
Transition Indicator x Married Indicator	-3.505*	-3.508*	-3.594**	-5.821***	-5.828***	-6.170***	-4.790**	-4.802**	-5.013**
	(1.814)	(1.814)	(1.823)	(2.090)	(2.090)	(2.092)	(2.100)	(2.101)	(2.108)
Transition Indicator	1.202	1.208	1.271	1.027	1.042	1.325	0.695	0.724	0.926
	(1.661)	(1.661)	(1.666)	(1.952)	(1.952)	(1.946)	(1.972)	(1.973)	(1.975)
Married Indicator	6.639***	6.635***	6.767***	8.284***	8.273***	8.414***	8.001***	7.977***	7.811***
	(2.117)	(2.118)	(2.149)	(2.500)	(2.500)	(2.541)	(2.575)	(2.576)	(2.625)
Family Labor Income	0.470***	0.469***	0.456***	0.601***	0.598***	0.601***	0.529***	0.524***	0.522***
	(0.100)	(0.101)	(0.102)	(0.110)	(0.110)	(0.112)	(0.107)	(0.107)	(0.108)
Family Net Worth	0.0516***	0.0516***	0.0507***	0.0950***	0.0951***	0.0951***	0.100***	0.101***	0.101***
	(0.00738)	(0.00738)	(0.00746)	(0.00959)	(0.00959)	(0.00966)	(0.00901)	(0.00900)	(0.00908)
Family Pension Income	0.00181	0.00237	-0.0454	0.133	0.134	0.0947	0.0852	0.0879	0.0403
	(0.242)	(0.242)	(0.245)	(0.263)	(0.263)	(0.268)	(0.254)	(0.254)	(0.258)
Number of Children	-0.970**	-0.970**	-0.556	-1.440***	-1.440***	-1.157**	-1.062**	-1.062**	-0.628
	(0.468)	(0.468)	(0.510)	(0.524)	(0.524)	(0.582)	(0.508)	(0.508)	(0.553)
Age-squared/100 of Head		-0.119	-0.149		-0.301	-0.376		-0.613	-0.692*
		(0.416)	(0.420)		(0.406)	(0.410)		(0.391)	(0.396)
Family Healthcare Expenditures			0.0449			0.0540			-0.00606
			(0.174)			(0.191)			(0.179)
Observations	21502	21502	21169	21657	21657	21322	21915	21915	21574
Families	5832	5832	5767	5928	5928	5865	6104	6104	6038
R-squared	0.0134	0.0134	0.0131	0.0187	0.0187	0.0185	0.0179	0.0180	0.0175

Table 2.21: Household Asset Allocations and Retirement, Transition-adjusted specifications - Conditional Analysis: Difference in Risk Tolerance Among Spouses

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 leftmost panel displays the estimation results of specifications where the dependent variable is the allocation to equity. The dependent variable in the middle panel is the allocation to equity and private business holdings. Finally, the dependent variable in the rightmost panel is the allocation to equity, 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.

		Risky Allocation - Equity (%)			Risky Allocation - Equity + Private Business (%)			Risky Allocation - Equity + Private Business + Real Estate (%)		
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Difference in Spouses' Risk-Tolerance Levels (Husband - Wife, increasing in tercile)	Husband Retired Indicator Tercile 1	-2.614	-2.611	-2.690	-4.994***	-4.987***	-5.093***	-3.959**	-3.922**	-4.000**
		(1.630)	(1.630)	(1.642)	(1.659)	(1.659)	(1.671)	(1.601)	(1.601)	(1.611)
	Husband Retired Indicator Tercile 2	-3.703**	-3.701**	-3.535**	-5.767***	-5.761***	-5.540***	-4.983***	-4.950***	-4.686***
		(1.521)	(1.521)	(1.539)	(1.547)	(1.547)	(1.565)	(1.493)	(1.494)	(1.509)
	Husband Retired Indicator Tercile 3	-6.080***	-6.075***	-6.082***	-8.506***	-8.494***	-8.455***	-6.420***	-6.364***	-6.300***
		(1.685)	(1.687)	(1.720)	(1.716)	(1.717)	(1.752)	(1.656)	(1.657)	(1.689)
	Transition Indicator	-1.770*	-1.770*	-1.699*	-4.114***	-4.113***	-4.103***	-3.239***	-3.232***	-3.197***
		(0.947)	(0.947)	(0.958)	(0.963)	(0.964)	(0.974)	(0.930)	(0.930)	(0.940)
	Family Labor Income	0.495***	0.495***	0.464***	0.598***	0.597***	0.583***	0.541***	0.537***	0.520***
		(0.105)	(0.105)	(0.107)	(0.107)	(0.107)	(0.109)	(0.104)	(0.104)	(0.105)
	Family Net Worth	0.0413***	0.0413***	0.0391***	0.0890***	0.0890***	0.0876***	0.0940***	0.0941***	0.0925***
		(0.00853)	(0.00853)	(0.00862)	(0.00866)	(0.00866)	(0.00876)	(0.00836)	(0.00836)	(0.00845)
	Family Pension Income	0.00740	0.00755	-0.0685	0.0373	0.0377	-0.0283	0.0602	0.0619	-0.0150
		(0.264)	(0.264)	(0.267)	(0.268)	(0.268)	(0.272)	(0.259)	(0.259)	(0.263)
	Number of Children	-0.144	-0.144	0.414	-0.830	-0.830	-0.473	-0.672	-0.670	-0.207
		(0.551)	(0.551)	(0.609)	(0.561)	(0.561)	(0.619)	(0.542)	(0.542)	(0.598)
	Age-squared/100 of Head		-0.0401	-0.128		-0.100	-0.237		-0.480	-0.602
			(0.487)	(0.494)		(0.496)	(0.503)		(0.479)	(0.486)
	Family Healthcare Expenditures			-0.104			-0.0531			-0.114
				(0.237)			(0.242)			(0.233)
	Observations	15112	15112	14801	15201	15201	14888	15330	15330	15011
	Families	4085	4085	4011	4142	4142	4068	4234	4234	4156
	R-squared	0.00985	0.00985	0.00978	0.0159	0.0159	0.0154	0.0181	0.0182	0.0176

Table 2.22: Household Asset Allocations and Retirement of Husbands and Wives, Transition-adjusted specifications

This table presents the results of specifications regressing couples' risky asset class 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. The leftmost panel displays the estimation results of specifications where the dependent variable is the allocation to equity. The dependent variable in the middle panel is the allocation to equity and private business holdings. Finally, the dependent variable in the rightmost panel is the allocation to equity, 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.

	Risky Allocation - Equity (%)			Risky Allocation - Equity + Private Business (%)			Risky Allocation - Equity + Private Business + Real Estate (%)		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Wife Retired Indicator	1.705	1.709	2.126	2.298	2.305	2.811*	2.864**	2.880**	3.538**
	(1.406)	(1.406)	(1.423)	(1.430)	(1.430)	(1.448)	(1.384)	(1.384)	(1.400)
Husband Retired Indicator	-3.777***	-3.768***	-4.141***	-5.876***	-5.861***	-6.372***	-5.227***	-5.189***	-5.674***
	(1.251)	(1.252)	(1.277)	(1.273)	(1.274)	(1.300)	(1.232)	(1.232)	(1.257)
Wife Transition Indicator	0.138	0.136	0.339	0.520	0.517	0.748	0.560	0.553	0.937
	(1.074)	(1.074)	(1.084)	(1.092)	(1.092)	(1.103)	(1.057)	(1.057)	(1.066)
Husband Transition Indicator	-1.500	-1.499	-1.689*	-3.803***	-3.802***	-4.111***	-3.133***	-3.130***	-3.427***
	(0.923)	(0.923)	(0.938)	(0.939)	(0.939)	(0.955)	(0.908)	(0.908)	(0.923)
Family Labor Income	0.518***	0.517***	0.499***	0.641***	0.639***	0.640***	0.584***	0.579***	0.583***
	(0.106)	(0.106)	(0.108)	(0.108)	(0.108)	(0.110)	(0.105)	(0.105)	(0.106)
Family Net Worth	0.0399***	0.0399***	0.0390***	0.0906***	0.0906***	0.0908***	0.0963***	0.0964***	0.0964***
	(0.00848)	(0.00848)	(0.00859)	(0.00863)	(0.00863)	(0.00874)	(0.00834)	(0.00834)	(0.00845)
Family Pension Income	-0.0134	-0.0129	-0.0766	0.00771	0.00851	-0.0454	0.0311	0.0331	-0.0327
	(0.263)	(0.263)	(0.267)	(0.268)	(0.268)	(0.272)	(0.259)	(0.259)	(0.263)
Number of Children	-0.302	-0.301	0.248	-1.012*	-1.011*	-0.658	-0.849	-0.846	-0.367
	(0.546)	(0.546)	(0.604)	(0.556)	(0.556)	(0.614)	(0.538)	(0.537)	(0.594)
Age-squared/100 of Head		-0.152	-0.243		-0.249	-0.388		-0.609	-0.742
		(0.485)	(0.492)		(0.494)	(0.501)		(0.478)	(0.484)
Family Healthcare Expenditures			0.0000818			0.00619			-0.0345
			(0.225)			(0.229)			(0.222)
Observations	15234	15234	14901	15234	15234	14901	15234	15234	14901
Families	4114	4114	4034	4114	4114	4034	4114	4114	4034
R-squared	0.00957	0.00958	0.00988	0.0163	0.0163	0.0166	0.0193	0.0195	0.0196

Table 2.23: Household Asset Allocations and Retirement of Husbands and Wives, Transition-adjusted specifications - Conditional Analysis: Husband and Wife's Relative Earnings

This table presents the results of specifications regressing couples' risky asset class 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), conditioning on those couples where the wife earned more/less than the husband before retirement. 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. The leftmost panel displays the estimation results of specifications where the dependent variable is the allocation to equity. The dependent variable in the middle panel is the allocation to equity and private business holdings. Finally, the dependent variable in the rightmost panel is the allocation to equity, 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.

	Risky Allocation - Equity (%)			Risky Allocation - Equity + Private Business (%)			Risky Allocation - Equity + Private Business + Real Estate (%)		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Wife Retired Indicator	3.048*	3.056*	3.157*	4.138**	4.150**	4.299**	4.634***	4.664***	5.080***
Higher-Earning Wife	(1.761)	(1.761)	(1.775)	(1.791)	(1.792)	(1.806)	(1.733)	(1.733)	(1.745)
Husband Retired Indicator	-3.460**	-3.443**	-3.604**	-5.838***	-5.811***	-6.049***	-4.914***	-4.850***	-5.207***
Higher-Earning Wife	(1.644)	(1.644)	(1.665)	(1.672)	(1.673)	(1.695)	(1.617)	(1.618)	(1.638)
Wife Retired Indicator	0.847	0.848	1.406	1.197	1.199	1.855	1.754	1.758	2.523*
Lower-Earning Wife	(1.529)	(1.529)	(1.548)	(1.556)	(1.556)	(1.576)	(1.505)	(1.505)	(1.523)
Husband Retired Indicator	-3.494***	-3.485***	-3.999***	-5.372***	-5.358***	-6.031***	-4.822***	-4.788***	-5.362***
Lower-Earning Wife	(1.344)	(1.344)	(1.375)	(1.367)	(1.367)	(1.399)	(1.322)	(1.323)	(1.353)
Wife Transition Indicator	0.0390	0.0361	0.215	0.446	0.441	0.641	0.446	0.435	0.805
	(1.085)	(1.085)	(1.096)	(1.104)	(1.104)	(1.115)	(1.068)	(1.068)	(1.078)
Husband Transition Indicator	-1.336	-1.334	-1.541	-3.608***	-3.605***	-3.927***	-2.926***	-2.919***	-3.227***
	(0.930)	(0.930)	(0.945)	(0.946)	(0.946)	(0.962)	(0.915)	(0.915)	(0.930)
Family Labor Income	0.511***	0.510***	0.491***	0.634***	0.632***	0.632***	0.576***	0.571***	0.574***
	(0.106)	(0.106)	(0.108)	(0.108)	(0.108)	(0.110)	(0.105)	(0.105)	(0.107)
Family Net Worth	0.0402***	0.0402***	0.0393***	0.0909***	0.0910***	0.0911***	0.0967***	0.0968***	0.0967***
	(0.00848)	(0.00848)	(0.00859)	(0.00863)	(0.00863)	(0.00874)	(0.00835)	(0.00835)	(0.00845)
Family Pension Income	-0.0129	-0.0124	-0.0762	0.00888	0.00972	-0.0448	0.0319	0.0339	-0.0320
	(0.263)	(0.263)	(0.267)	(0.268)	(0.268)	(0.272)	(0.259)	(0.259)	(0.263)
Number of Children	-0.311	-0.310	0.241	-1.025*	-1.024*	-0.667	-0.861	-0.858	-0.376
	(0.546)	(0.546)	(0.604)	(0.556)	(0.556)	(0.614)	(0.538)	(0.537)	(0.594)
Age-squared/100 of Head		-0.166	-0.258		-0.264	-0.405		-0.627	-0.761
		(0.485)	(0.493)		(0.494)	(0.501)		(0.478)	(0.484)
Family Healthcare Expenditures			0.00121			0.00819			-0.0325
			(0.225)			(0.229)			(0.222)
Observations	15234	15234	14901	15234	15234	14901	15234	15234	14901
Families	4114	4114	4034	4114	4114	4034	4114	4114	4034
R-squared	0.00976	0.00977	0.0100	0.0166	0.0166	0.0168	0.0197	0.0198	0.0199

Table 2.24: Household Asset Allocations and Wives' Pension Income Share, fixed-effect specifications

This table presents the results of specifications with head-of-household fixed effects, regressing risky asset class allocations on the wife's share of pension income. The leftmost panel displays the estimation results of specifications where the dependent variable is the allocation to equity. The dependent variable in the middle panel is the allocation to equity and private business holdings. Finally, the dependent variable in the rightmost panel is the allocation to equity, 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.

	Risky Allocation - Equity (%)			Risky Allocation - Equity + Private Business (%)			Risky Allocation - Equity + Private Business + Real Estate (%)		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Wife's Pension Income Share	-3.954**	-3.948**	-3.303**	-3.333**	-3.334**	-2.678	-3.297**	-3.297**	-2.488
	(1.595)	(1.595)	(1.630)	(1.599)	(1.600)	(1.634)	(1.571)	(1.571)	(1.605)
Family Labor Income	0.201	0.203	0.123	0.274	0.274	0.194	0.245	0.245	0.135
	(0.175)	(0.175)	(0.179)	(0.175)	(0.175)	(0.179)	(0.172)	(0.172)	(0.176)
Family Net Worth	0.0769***	0.0769***	0.0767***	0.112***	0.112***	0.112***	0.114***	0.114***	0.114***
	(0.0106)	(0.0106)	(0.0107)	(0.0106)	(0.0106)	(0.0108)	(0.0104)	(0.0104)	(0.0105)
Family Pension Income	-0.319	-0.323	-0.299	-0.331	-0.330	-0.293	-0.0365	-0.0368	-0.0266
	(0.369)	(0.369)	(0.373)	(0.370)	(0.371)	(0.375)	(0.364)	(0.364)	(0.368)
Number of Children	-0.0859	-0.0851	0.184	0.00148	0.00136	0.265	0.155	0.155	0.414
	(0.608)	(0.608)	(0.653)	(0.611)	(0.611)	(0.657)	(0.601)	(0.601)	(0.645)
Age-squared/100 of Husband		0.201	0.155		-0.0333	-0.0880		0.0142	-0.0564
		(0.522)	(0.527)		(0.525)	(0.530)		(0.515)	(0.520)
Family Healthcare Expenditures			0.216			0.241			0.231
			(0.259)			(0.261)			(0.256)
Observations	12454	12454	12239	12489	12489	12274	12596	12596	12379
Families	4347	4347	4279	4371	4371	4303	4455	4455	4386
R-squared	0.0146	0.0147	0.0142	0.0199	0.0199	0.0196	0.0165	0.0165	0.0161

Table 2.25: Household Asset Allocations and Retirement, Difference-in-Difference specifications - Robustness: Selection Correction

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 is retired 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. Results are corrected for selection bias using the method of Wooldridge (1995). 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 equity. The dependent variable in the middle panel is the allocation to equity and private business holdings. Finally, the dependent variable in the rightmost panel is the allocation to equity, 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.

	Risky Allocation - Equity (%)			Risky Allocation - Equity + Private Business (%)			Risky Allocation - Equity + Private Business + Real Estate (%)		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Retired Indicator x Married Indicator	-3.606***	-3.619***	-3.653***	-4.476***	-4.493***	-4.526***	-4.340***	-4.362***	-4.388***
	(1.354)	(1.354)	(1.353)	(1.465)	(1.465)	(1.465)	(1.480)	(1.480)	(1.480)
Retired Indicator	0.178	0.216	0.261	-0.765	-0.718	-0.674	-0.987	-0.926	-0.892
	(1.289)	(1.287)	(1.287)	(1.394)	(1.393)	(1.393)	(1.408)	(1.406)	(1.407)
Married Indicator	3.872**	3.849**	3.908**	4.075**	4.047**	4.104**	3.659**	3.623**	3.667**
	(1.593)	(1.593)	(1.590)	(1.682)	(1.682)	(1.680)	(1.753)	(1.753)	(1.752)
Family Labor Income	1.365***	1.359***	1.362***	1.428***	1.420***	1.423***	1.260***	1.250***	1.252***
	(0.0879)	(0.0879)	(0.0879)	(0.0950)	(0.0950)	(0.0950)	(0.0950)	(0.0950)	(0.0950)
Family Net Worth	0.229***	0.229***	0.229***	0.266***	0.266***	0.266***	0.256***	0.256***	0.256***
	(0.00788)	(0.00787)	(0.00787)	(0.00836)	(0.00836)	(0.00836)	(0.00819)	(0.00818)	(0.00818)
Family Pension Income	2.433***	2.436***	2.447***	2.471***	2.476***	2.486***	2.187***	2.192***	2.200***
	(0.208)	(0.207)	(0.207)	(0.217)	(0.217)	(0.217)	(0.218)	(0.217)	(0.217)
Number of Children	-1.783***	-1.784***	-1.792***	-2.337***	-2.338***	-2.346***	-1.707***	-1.707***	-1.713***
	(0.440)	(0.440)	(0.438)	(0.478)	(0.478)	(0.476)	(0.455)	(0.455)	(0.454)
Age-squared/100 of Husband		-0.682**	-0.683**		-0.860**	-0.861**		-1.102***	-1.103***
		(0.340)	(0.340)		(0.347)	(0.347)		(0.344)	(0.344)
Family Healthcare Expenditures			0.490***			0.475***			0.371**
			(0.148)			(0.155)			(0.147)
Wooldridge Selection Correction	8.653***	8.656***	8.668***	8.188***	8.193***	8.203***	7.378***	7.383***	7.392***
	(0.0939)	(0.0939)	(0.0938)	(0.100)	(0.100)	(0.100)	(0.105)	(0.105)	(0.105)
Observations	21169	21169	21169	21169	21169	21169	21169	21169	21169
Families	5767	5767	5767	5767	5767	5767	5767	5767	5767
R-squared	0.370	0.370	0.371	0.329	0.329	0.329	0.286	0.287	0.287

Table 2.26: Household Asset Allocations and Retirement, Difference-in-Difference specifications - Robustness: Nonlinear Income and Wealth Controls

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 is retired 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. 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 equity. The dependent variable in the middle panel is the allocation to equity and private business holdings. Finally, the dependent variable in the rightmost panel is the allocation to equity, private business, and real estate holdings. Within each vertical panel, the first specification contains controls for the natural log of total household income, the natural log of family net worth, 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.

	Risky Allocation - Equity (%)			Risky Allocation - Equity + Private Business (%)			Risky Allocation - Equity + Private Business + Real Estate (%)		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Retired Indicator x Married Indicator	-6.237***	-6.235***	-6.215***	-6.637***	-6.633***	-6.592***	-6.776***	-6.769***	-6.655***
	(1.492)	(1.492)	(1.505)	(1.496)	(1.496)	(1.505)	(1.435)	(1.435)	(1.446)
Retired Indicator	2.584*	2.599*	2.596*	2.886**	2.916**	2.930**	3.193**	3.246**	3.189**
	(1.397)	(1.396)	(1.405)	(1.400)	(1.399)	(1.403)	(1.326)	(1.325)	(1.331)
Married Indicator	4.181**	4.167**	4.220**	4.055**	4.028**	3.929**	4.282**	4.232**	3.925**
	(1.876)	(1.877)	(1.912)	(1.870)	(1.871)	(1.899)	(1.874)	(1.875)	(1.917)
ln(Total Household Income)	0.982***	0.984***	0.981**	1.208***	1.211***	1.208***	1.464***	1.469***	1.458***
	(0.386)	(0.386)	(0.390)	(0.395)	(0.395)	(0.400)	(0.379)	(0.379)	(0.382)
ln(Family Net Worth)	2.257***	2.261***	2.222***	4.140***	4.147***	4.087***	4.890***	4.903***	4.861***
	(0.499)	(0.498)	(0.505)	(0.507)	(0.507)	(0.512)	(0.496)	(0.496)	(0.501)
Number of Children	-0.909*	-0.908*	-0.513	-1.378***	-1.377***	-1.094*	-0.984*	-0.982*	-0.555
	(0.506)	(0.506)	(0.551)	(0.524)	(0.524)	(0.581)	(0.511)	(0.511)	(0.555)
Age-squared/100 of Head		-0.204	-0.234		-0.395	-0.468		-0.712*	-0.786**
		(0.407)	(0.412)		(0.406)	(0.411)		(0.391)	(0.396)
Family Healthcare Expenditures			0.0670			0.0891			0.0400
			(0.193)			(0.193)			(0.181)
Observations	21243	21243	20915	21390	21390	21061	21616	21616	21284
Families	5752	5752	5690	5752	5752	5690	5752	5752	5690
R-squared	0.0118	0.0118	0.0117	0.0147	0.0148	0.0143	0.0174	0.0175	0.0170

Table 2.27: Household Asset Allocations and Retirement, Difference-in-Difference specifications - Robustness: Partial vs. Full Retirement

This table presents the results of difference-in-difference specifications regressing risky asset class allocations on an indicator for full retirement of the head-of-household (equal to 1 if the head-of-household is fully retired at time of observation, and equal to 0 otherwise), an indicator for partial retirement of the head-of-household (equal to 1 if the head-of-household is partially retired 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 two retirement and married indicators. 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 equity. The dependent variable in the middle panel is the allocation to equity and private business holdings. Finally, the dependent variable in the rightmost panel is the allocation to equity, 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.

	Risky Allocation - Equity (%)			Risky Allocation - Equity + Private Business (%)			Risky Allocation - Equity + Private Business + Real Estate (%)		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Fully Retired Indicator x Married Indicator	-6.337***	-6.337***	-6.295***	-6.587***	-6.587***	-6.452***	-6.900***	-6.900***	-6.685***
	(1.565)	(1.565)	(1.577)	(1.575)	(1.575)	(1.582)	(1.519)	(1.519)	(1.530)
Fully Retired Indicator	0.236	1.128	0.958	-0.631	0.467	0.359	-0.515	0.553	0.306
	(1.608)	(1.627)	(1.636)	(1.628)	(1.639)	(1.651)	(1.607)	(1.620)	(1.627)
Partially Retired Indicator x Married Indicator	-2.967	-2.970	-3.031	-2.827	-2.837	-3.004	-3.069	-3.091	-3.223*
	(2.042)	(2.042)	(2.066)	(2.095)	(2.094)	(2.122)	(1.935)	(1.935)	(1.956)
Partially Retired Indicator	0.565	0.572	0.494	0.711	0.734	0.787	0.652	0.702	0.744
	(1.853)	(1.853)	(1.867)	(1.904)	(1.904)	(1.919)	(1.729)	(1.728)	(1.737)
Married Indicator	4.107**	4.103**	4.159**	3.876**	3.863**	3.703*	4.422**	4.393**	4.032**
	(1.887)	(1.887)	(1.922)	(1.885)	(1.886)	(1.913)	(1.894)	(1.894)	(1.941)
Family Labor Income	0.489***	0.489***	0.476***	0.637***	0.634***	0.639***	0.564***	0.559***	0.558***
	(0.109)	(0.109)	(0.111)	(0.110)	(0.110)	(0.112)	(0.107)	(0.107)	(0.109)
Family Net Worth	0.0497***	0.0497***	0.0489***	0.0914***	0.0915***	0.0915***	0.0974***	0.0975***	0.0975***
	(0.00943)	(0.00943)	(0.00951)	(0.00959)	(0.00959)	(0.00966)	(0.00900)	(0.00900)	(0.00908)
Family Pension Income	-0.0296	-0.0293	-0.0730	0.0740	0.0750	0.0426	0.0343	0.0365	-0.00492
	(0.263)	(0.263)	(0.268)	(0.264)	(0.264)	(0.268)	(0.255)	(0.254)	(0.259)
Number of Children	-1.004**	-1.004**	-0.579	-1.507***	-1.506***	-1.201**	-1.116**	-1.115**	-0.662
	(0.507)	(0.507)	(0.552)	(0.524)	(0.524)	(0.582)	(0.509)	(0.508)	(0.553)
Age-squared/100 of Head		-0.0838	-0.122		-0.256	-0.339		-0.566	-0.651*
		(0.405)	(0.411)		(0.403)	(0.408)		(0.389)	(0.395)
Family Healthcare Expenditures			0.0418			0.0535			-0.00737
			(0.192)			(0.191)			(0.180)
Observations	21502	21502	21169	21657	21657	21322	21915	21915	21574
Families	5832	5832	5767	5928	5928	5865	6104	6104	6038
R-squared	0.0131	0.0131	0.0128	0.0171	0.0171	0.0168	0.0167	0.0168	0.0164

Table 2.28: Household Asset Allocations and Retirement, Difference-in-Difference specifications - Robustness: Children

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 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. The leftmost panel displays the estimation results of specifications where the dependent variable is the allocation to equity. The dependent variable in the middle panel is the allocation to equity and private business holdings. Finally, the dependent variable in the rightmost panel is the allocation to equity, 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.

	Risky Allocation - Equity (%)			Risky Allocation - Equity + Private Business (%)			Risky Allocation - Equity + Private Business + Real Estate (%)		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Retired Indicator x Married Indicator	-12.24***	-12.24***	-12.91***	-15.54***	-15.55***	-16.31***	-15.36***	-15.37***	-15.63***
No Children	(3.677)	(3.677)	(3.790)	(3.877)	(3.877)	(4.005)	(3.784)	(3.783)	(3.893)
Retired Indicator x Married Indicator	-8.115***	-8.116***	-8.132***	-10.38***	-10.38***	-10.50***	-9.938***	-9.946***	-9.844***
1-2 Children	(2.380)	(2.380)	(2.402)	(2.444)	(2.444)	(2.465)	(2.446)	(2.447)	(2.468)
Retired Indicator x Married Indicator	-8.049***	-8.051***	-8.170***	-9.596***	-9.603***	-9.923***	-9.143***	-9.158***	-9.291***
3-4 Children	(2.383)	(2.383)	(2.412)	(2.474)	(2.475)	(2.502)	(2.459)	(2.460)	(2.488)
Retired Indicator x Married Indicator	-9.997***	-9.999***	-9.875***	-12.30***	-12.31***	-12.43***	-11.38***	-11.40***	-11.52***
5+ Children	(2.734)	(2.734)	(2.761)	(2.793)	(2.793)	(2.822)	(2.755)	(2.755)	(2.783)
Retired Indicator	3.295	3.304	3.351	2.750	2.776	3.034	2.981	3.038	3.156
	(2.207)	(2.206)	(2.223)	(2.295)	(2.294)	(2.307)	(2.280)	(2.280)	(2.292)
Transition Indicator x Married Indicator	-3.474*	-3.476*	-3.558*	-5.777***	-5.781***	-6.121***	-4.736**	-4.744**	-4.956**
	(1.996)	(1.996)	(2.010)	(2.091)	(2.091)	(2.093)	(2.101)	(2.102)	(2.108)
Transition Indicator	1.126	1.129	1.201	0.937	0.945	1.233	0.594	0.612	0.816
	(1.858)	(1.858)	(1.868)	(1.952)	(1.952)	(1.945)	(1.973)	(1.973)	(1.975)
Married Indicator	6.685***	6.682***	6.813***	8.340***	8.330***	8.467***	8.064***	8.042***	7.867***
	(2.445)	(2.446)	(2.486)	(2.500)	(2.501)	(2.543)	(2.578)	(2.579)	(2.629)
Family Labor Income	0.474***	0.473***	0.459***	0.603***	0.601***	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	0.0513***	0.0513***	0.0504***	0.0947***	0.0948***	0.0947***	0.100***	0.100***	0.100***
	(0.00945)	(0.00945)	(0.00953)	(0.00960)	(0.00960)	(0.00966)	(0.00899)	(0.00899)	(0.00907)
Family Pension Income	0.00106	0.00138	-0.0452	0.135	0.136	0.0965	0.0876	0.0895	0.0408
	(0.263)	(0.263)	(0.268)	(0.264)	(0.264)	(0.268)	(0.255)	(0.255)	(0.259)
Number of Children	-0.886*	-0.885*	-0.461	-1.358**	-1.358**	-1.044*	-1.022*	-1.021*	-0.538
	(0.535)	(0.535)	(0.580)	(0.550)	(0.550)	(0.608)	(0.531)	(0.531)	(0.575)
Age-squared/100 of Head		-0.0852	-0.125		-0.249	-0.335		-0.559	-0.647*
		(0.405)	(0.410)		(0.403)	(0.408)		(0.389)	(0.394)
Family Healthcare Expenditures			0.0428			0.0530			-0.00803
			(0.192)			(0.191)			(0.180)
Observations	21502	21502	21169	21657	21657	21322	21915	21915	21574
Families	5832	5832	5767	5928	5928	5865	6104	6104	6038
R-squared	0.0135	0.0135	0.0133	0.0190	0.0190	0.0188	0.0181	0.0182	0.0178

Table 2.29: Household Asset Allocations and Retirement, Difference-in-Difference specifications - Robustness: Age of Retirement

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.

	Risky Allocation - Equity (%)			Risky Allocation - Equity + Private Business (%)			Risky Allocation - Equity + Private Business + Real Estate (%)		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Retired Indicator x Married Indicator	-11.65**	-11.32**	-11.80**	-12.56**	-12.35**	-12.96**	-9.228*	-9.272*	-8.995
Retirement Age: 50 or lower	(5.565)	(5.570)	(5.759)	(5.569)	(5.564)	(5.817)	(5.511)	(5.512)	(5.739)
Retired Indicator x Married Indicator	-13.38***	-12.76***	-13.22***	-14.44***	-14.04***	-14.59***	-11.86***	-11.97***	-12.40***
Retirement Age: 51 to 55	(2.891)	(2.890)	(2.922)	(2.964)	(2.965)	(2.994)	(2.957)	(2.955)	(2.981)
Retired Indicator x Married Indicator	-9.767***	-9.012***	-9.157***	-11.07***	-10.60***	-11.08***	-10.00***	-10.13***	-10.38***
Retirement Age: 56 to 60	(2.543)	(2.551)	(2.580)	(2.633)	(2.637)	(2.665)	(2.624)	(2.622)	(2.650)
Retired Indicator x Married Indicator	-8.473***	-7.702***	-7.499***	-10.38***	-9.906***	-9.794***	-9.489***	-9.614***	-9.389***
Retirement Age: 61 to 65	(2.356)	(2.365)	(2.384)	(2.438)	(2.443)	(2.462)	(2.439)	(2.435)	(2.456)
Retired Indicator x Married Indicator	-7.684***	-6.791**	-7.152**	-11.01***	-10.45***	-11.03***	-9.752***	-9.899***	-10.28***
Retirement Age: 66 to 70	(2.941)	(2.938)	(2.987)	(3.047)	(3.046)	(3.096)	(2.988)	(2.983)	(3.027)
Retired Indicator x Married Indicator	-7.622**	-6.532*	-6.020	-8.254**	-7.573**	-7.246**	-8.635**	-8.815**	-8.187**
Retirement Age: 71 to 75	(3.707)	(3.691)	(3.766)	(3.679)	(3.673)	(3.700)	(3.473)	(3.477)	(3.481)
Retired Indicator x Married Indicator	-1.210	-0.106	-0.387	-4.483	-3.796	-4.264	-8.024	-8.205	-8.515
Retirement Age: 75 or higher	(6.537)	(6.556)	(6.585)	(6.234)	(6.242)	(6.272)	(6.029)	(6.030)	(6.055)
Retired Indicator	8.742***	4.008*	4.108*	6.252***	3.299	3.627	2.617	3.394	3.568
	(2.062)	(2.188)	(2.204)	(2.157)	(2.275)	(2.287)	(2.165)	(2.257)	(2.268)
Transition Indicator x Married Indicator	-4.084**	-3.656*	-3.747*	-6.152***	-5.887***	-6.241***	-4.725**	-4.795**	-5.014**
	(1.988)	(1.997)	(2.010)	(2.086)	(2.091)	(2.092)	(2.098)	(2.098)	(2.105)
Transition Indicator	4.064**	1.761	1.878	2.824	1.388	1.733	0.522	0.901	1.143
	(1.792)	(1.843)	(1.853)	(1.893)	(1.936)	(1.929)	(1.919)	(1.953)	(1.954)
Married Indicator	5.714**	6.399***	6.488***	7.644***	8.074***	8.175***	7.976***	7.864***	7.663***
	(2.428)	(2.447)	(2.483)	(2.490)	(2.504)	(2.542)	(2.577)	(2.580)	(2.626)
Family Labor Income	0.363***	0.466***	0.452***	0.534***	0.598***	0.600***	0.547***	0.530***	0.528***
	(0.109)	(0.109)	(0.111)	(0.108)	(0.110)	(0.112)	(0.105)	(0.106)	(0.108)
Family Net Worth	0.0643***	0.0523***	0.0514***	0.103***	0.0953***	0.0952***	0.0988***	0.101***	0.101***
	(0.00907)	(0.00941)	(0.00949)	(0.00925)	(0.00956)	(0.00962)	(0.00870)	(0.00898)	(0.00906)
Family Pension Income	0.114	0.0326	-0.00756	0.203	0.152	0.121	0.0918	0.105	0.0629
	(0.264)	(0.264)	(0.269)	(0.264)	(0.265)	(0.269)	(0.255)	(0.255)	(0.260)
Number of Children	-0.718	-0.844*	-0.443	-1.269**	-1.346***	-1.067*	-1.070**	-1.050**	-0.610
	(0.500)	(0.504)	(0.549)	(0.517)	(0.520)	(0.577)	(0.506)	(0.506)	(0.551)
Education of Wife		0.403***	0.400***		0.251***	0.244***		-0.0661	-0.0698
		(0.0693)	(0.0705)		(0.0701)	(0.0711)		(0.0682)	(0.0690)
Family Healthcare Expenditures			0.0217			0.0441			-0.00918
			(0.191)			(0.190)			(0.179)
Observations	21502	21502	21169	21657	21657	21322	21915	21915	21574
Families	5832	5832	5767	5928	5928	5865	6104	6104	6038
R-squared	0.00877	0.0116	0.0114	0.0166	0.0177	0.0175	0.0172	0.0173	0.0168

Table 2.30: Household Asset Allocations and Retirement, Difference-in-Difference specifications - Robustness: Entrepreneurs

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 to 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. The leftmost panel displays the estimation results of specifications where the dependent variable is the allocation to equity. The dependent variable in the middle panel is the allocation to equity and private business holdings. Finally, the dependent variable in the rightmost panel is the allocation to equity, 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.

	Risky Allocation - Equity (%)			Risky Allocation - Equity + Private Business (%)			Risky Allocation - Equity + Private Business + Real Estate (%)		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Retired Indicator x Married Indicator	-5.999**	-6.010**	-5.944**	-9.785***	-9.803***	-10.09***	-8.962***	-8.986***	-9.129***
Entrepreneurs	(2.477)	(2.477)	(2.500)	(2.562)	(2.563)	(2.587)	(2.518)	(2.519)	(2.541)
Retired Indicator x Married Indicator	-9.894***	-9.894***	-9.831***	-10.79***	-10.79***	-10.83***	-9.917***	-9.916***	-9.892***
Non-Entrepreneurs	(2.452)	(2.453)	(2.480)	(2.525)	(2.527)	(2.550)	(2.493)	(2.495)	(2.516)
Retired Indicator	4.188*	4.241*	4.040*	4.414*	4.501*	4.553*	4.696*	4.810**	4.786**
	(2.386)	(2.383)	(2.401)	(2.471)	(2.469)	(2.482)	(2.423)	(2.422)	(2.433)
Transition Indicator x Married Indicator	-3.314*	-3.322*	-3.481*	-5.804***	-5.816***	-6.233***	-4.718**	-4.733**	-5.058**
	(2.011)	(2.011)	(2.024)	(2.105)	(2.105)	(2.105)	(2.110)	(2.110)	(2.115)
Transition Indicator	1.418	1.440	1.465	1.866	1.901	2.161	1.658	1.702	1.897
	(1.906)	(1.906)	(1.916)	(1.994)	(1.994)	(1.988)	(2.010)	(2.010)	(2.011)
Married Indicator	6.679**	6.670**	6.573**	8.243***	8.225***	8.085***	8.562***	8.536***	7.984***
	(2.656)	(2.656)	(2.702)	(2.693)	(2.694)	(2.738)	(2.800)	(2.800)	(2.859)
Family Labor Income	0.437***	0.433***	0.423***	0.575***	0.569***	0.575***	0.487***	0.478***	0.484***
	(0.113)	(0.113)	(0.115)	(0.115)	(0.115)	(0.116)	(0.111)	(0.111)	(0.113)
Family Net Worth	0.0312***	0.0313***	0.0292***	0.0867***	0.0869***	0.0865***	0.0891***	0.0893***	0.0890***
	(0.0113)	(0.0113)	(0.0114)	(0.0118)	(0.0118)	(0.0118)	(0.0110)	(0.0110)	(0.0110)
Family Pension Income	-0.0688	-0.0677	-0.125	0.164	0.166	0.118	0.0728	0.0750	0.0278
	(0.309)	(0.309)	(0.315)	(0.311)	(0.311)	(0.316)	(0.298)	(0.297)	(0.302)
Number of Children	-1.142*	-1.138*	-0.727	-1.465**	-1.459**	-1.234*	-1.454**	-1.446**	-1.061
	(0.630)	(0.630)	(0.686)	(0.649)	(0.649)	(0.718)	(0.630)	(0.629)	(0.685)
Education of Wife		-0.389	-0.437		-0.662	-0.774		-0.869*	-0.989**
		(0.473)	(0.479)		(0.470)	(0.474)		(0.457)	(0.464)
Family Healthcare Expenditures			-0.0422			-0.0504			-0.0568
			(0.258)			(0.260)			(0.228)
Observations	21502	21502	21169	21657	21657	21322	21915	21915	21574
Families	5832	5832	5767	5928	5928	5865	6104	6104	6038
R-squared	0.0137	0.0138	0.0139	0.0169	0.0170	0.0171	0.0179	0.0182	0.0176

Table 2.31: Household Asset Allocations and Retirement, Difference-in-Difference specifications - Robustness: Divorcees vs. Non-Divorcees

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 marriage is the first for both members of a couple household (non-divorcees) or if at least one member has been previously married (divorcees). 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 equity. The dependent variable in the middle panel is the allocation to equity and private business holdings. Finally, the dependent variable in the rightmost panel is the allocation to equity, 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.

	Risky Allocation - Equity (%)			Risky Allocation - Equity + Private Business (%)			Risky Allocation - Equity + Private Business + Real Estate (%)		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Retired Indicator x Married Indicator	-8.025***	-8.028***	-8.026***	-9.922***	-9.929***	-10.14***	-9.450***	-9.464***	-9.507***
Divorcees	(2.291)	(2.291)	(2.315)	(2.368)	(2.368)	(2.390)	(2.374)	(2.374)	(2.396)
Retired Indicator x Married Indicator	-9.987***	-9.987***	-10.48***	-12.38***	-12.38***	-12.94***	-11.78***	-11.78***	-12.08***
Non-Divorcees	(2.518)	(2.518)	(2.598)	(2.589)	(2.590)	(2.668)	(2.544)	(2.545)	(2.615)
Retired Indicator	3.288	3.297	3.372	2.740	2.765	3.059	2.970	3.026	3.178
	(2.207)	(2.206)	(2.224)	(2.295)	(2.294)	(2.308)	(2.280)	(2.280)	(2.293)
Transition Indicator x Married Indicator	-3.469*	-3.471*	-3.560*	-5.777***	-5.781***	-6.127***	-4.744**	-4.752**	-4.967**
	(1.996)	(1.996)	(2.010)	(2.091)	(2.091)	(2.093)	(2.101)	(2.102)	(2.109)
Transition Indicator	1.098	1.101	1.177	0.898	0.906	1.204	0.554	0.572	0.789
	(1.858)	(1.858)	(1.868)	(1.952)	(1.952)	(1.945)	(1.973)	(1.973)	(1.975)
Married Indicator	6.754***	6.751***	6.909***	8.423***	8.413***	8.572***	8.142***	8.119***	7.964***
	(2.448)	(2.449)	(2.488)	(2.504)	(2.504)	(2.545)	(2.580)	(2.581)	(2.630)
Family Labor Income	0.474***	0.474***	0.461***	0.605***	0.603***	0.606***	0.534***	0.529***	0.528***
	(0.109)	(0.109)	(0.111)	(0.110)	(0.110)	(0.112)	(0.106)	(0.106)	(0.108)
Family Net Worth	0.0516***	0.0517***	0.0508***	0.0951***	0.0952***	0.0952***	0.101***	0.101***	0.101***
	(0.00945)	(0.00944)	(0.00953)	(0.00960)	(0.00960)	(0.00967)	(0.00900)	(0.00900)	(0.00908)
Family Pension Income	0.00625	0.00656	-0.0388	0.139	0.139	0.102	0.0907	0.0926	0.0462
	(0.262)	(0.262)	(0.267)	(0.263)	(0.263)	(0.267)	(0.254)	(0.254)	(0.258)
Number of Children	-0.871*	-0.871*	-0.427	-1.312**	-1.312**	-1.004*	-0.943*	-0.943*	-0.489
	(0.513)	(0.513)	(0.558)	(0.528)	(0.528)	(0.587)	(0.512)	(0.511)	(0.556)
Education of Wife		-0.0814	-0.123		-0.245	-0.332		-0.556	-0.645
		(0.405)	(0.410)		(0.403)	(0.408)		(0.389)	(0.394)
Family Healthcare Expenditures			0.0398			0.0486			-0.0118
			(0.192)			(0.191)			(0.180)
Observations	21502	21502	21169	21657	21657	21322	21915	21915	21574
Families	5832	5832	5767	5928	5928	5865	6104	6104	6038
R-squared	0.0135	0.0135	0.0133	0.0188	0.0189	0.0187	0.0180	0.0181	0.0177

Table 2.32: Household Asset Allocations and Retirement, Difference-in-Difference specifications - Robustness: Cognitive Ability

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 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. The leftmost panel displays the estimation results of specifications where the dependent variable is the allocation to equity. The dependent variable in the middle panel is the allocation to equity and private business holdings. Finally, the dependent variable in the rightmost panel is the allocation to equity, 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.

	Risky Allocation - Equity (%)			Risky Allocation - Equity + Private Business (%)			Risky Allocation - Equity + Private Business + Real Estate (%)		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Retired Indicator x Married Indicator	-8.058***	-8.000***	-8.119***	-10.22***	-10.24***	-10.54***	-9.537***	-9.623***	-9.729***
Cognitive Ability: Top Half	(2.282)	(2.280)	(2.302)	(2.363)	(2.361)	(2.382)	(2.360)	(2.356)	(2.377)
Retired Indicator x Married Indicator	-9.160***	-9.225***	-9.237***	-11.00***	-10.98***	-11.14***	-10.72***	-10.63***	-10.61***
Cognitive Ability: Bottom Half	(2.299)	(2.311)	(2.335)	(2.374)	(2.387)	(2.409)	(2.371)	(2.386)	(2.408)
Retired Indicator	3.320	3.300	3.364	2.765	2.771	3.048	3.003	3.030	3.169
	(2.206)	(2.204)	(2.222)	(2.294)	(2.293)	(2.306)	(2.279)	(2.278)	(2.291)
Transition Indicator x Married Indicator	-3.461*	-3.455*	-3.550*	-5.775***	-5.776***	-6.126***	-4.733**	-4.740**	-4.958**
	(1.996)	(1.996)	(2.009)	(2.091)	(2.090)	(2.092)	(2.101)	(2.101)	(2.108)
Transition Indicator	1.160	1.156	1.235	0.956	0.957	1.252	0.623	0.627	0.840
	(1.858)	(1.857)	(1.868)	(1.952)	(1.951)	(1.945)	(1.973)	(1.973)	(1.975)
Married Indicator	6.551***	6.549***	6.688***	8.216***	8.217***	8.374***	7.901***	7.903***	7.750***
	(2.446)	(2.446)	(2.485)	(2.501)	(2.501)	(2.541)	(2.578)	(2.577)	(2.627)
Family Labor Income	0.473***	0.475***	0.461***	0.603***	0.603***	0.604***	0.533***	0.530***	0.527***
	(0.109)	(0.109)	(0.111)	(0.110)	(0.110)	(0.112)	(0.107)	(0.107)	(0.108)
Family Net Worth	0.0514***	0.0514***	0.0505***	0.0949***	0.0949***	0.0949***	0.100***	0.100***	0.100***
	(0.00945)	(0.00945)	(0.00953)	(0.00960)	(0.00960)	(0.00966)	(0.00901)	(0.00901)	(0.00908)
Family Pension Income	-0.00433	-0.00535	-0.0520	0.126	0.126	0.0882	0.0773	0.0787	0.0321
	(0.262)	(0.262)	(0.267)	(0.263)	(0.263)	(0.267)	(0.254)	(0.254)	(0.258)
Number of Children	-0.965*	-0.966*	-0.552	-1.428***	-1.428***	-1.146**	-1.053**	-1.052**	-0.617
	(0.508)	(0.508)	(0.553)	(0.525)	(0.525)	(0.583)	(0.508)	(0.508)	(0.552)
Education of Wife		0.213	0.145		-0.0695	-0.192		-0.317	-0.436
		(0.447)	(0.452)		(0.446)	(0.451)		(0.430)	(0.435)
Family Healthcare Expenditures			0.0457			0.0539			-0.00645
			(0.191)			(0.191)			(0.179)
Observations	21502	21502	21169	21657	21657	21322	21915	21915	21574
Families	5832	5832	5767	5928	5928	5865	6104	6104	6038
R-squared	0.0135	0.0135	0.0132	0.0187	0.0187	0.0185	0.0180	0.0180	0.0175

Table 2.33: Household Asset Allocations and Retirement, Difference-in-Difference specifications - Robustness: Timing of Social Security Benefit Claims

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 retiring husband claimed benefits before age 65, between age 65 and 67, or after age 67. 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 equity. The dependent variable in the middle panel is the allocation to equity and private business holdings. Finally, the dependent variable in the rightmost panel is the allocation to equity, 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.

	Risky Allocation - Equity (%)			Risky Allocation - Equity + Private Business (%)			Risky Allocation - Equity + Private Business + Real Estate (%)		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Retired Indicator x Married Indicator	-9.486***	-9.489***	-9.297***	-10.80***	-9.489***	-10.86***	-10.38***	-10.40***	-10.31***
Timing of Social Security Claim: Early	(2.426)	(2.426)	(2.449)	(2.510)	(2.426)	(2.533)	(2.495)	(2.495)	(2.517)
Retired Indicator x Married Indicator	-7.617***	-7.617***	-7.519***	-10.18***	-7.617***	-10.13***	-9.658***	-9.656***	-9.568***
Timing of Social Security Claim: Regular	(2.505)	(2.505)	(2.532)	(2.567)	(2.505)	(2.593)	(2.539)	(2.541)	(2.566)
Retired Indicator x Married Indicator	-8.286***	-8.289***	-8.757***	-10.62***	-8.289***	-11.29***	-10.03***	-10.05***	-10.36***
Timing of Social Security Claim: Late	(2.463)	(2.463)	(2.498)	(2.541)	(2.463)	(2.573)	(2.540)	(2.541)	(2.573)
Retired Indicator	3.275	3.284	3.321	2.729	3.284	3.002	2.961	3.018	3.138
	(2.208)	(2.206)	(2.224)	(2.296)	(2.206)	(2.309)	(2.279)	(2.279)	(2.292)
Transition Indicator x Married Indicator	-3.523*	-3.525*	-3.594*	-5.795***	-3.525*	-6.128***	-4.766**	-4.774**	-4.976**
	(1.996)	(1.996)	(2.010)	(2.091)	(1.996)	(2.093)	(2.100)	(2.101)	(2.108)
Transition Indicator	1.110	1.113	1.191	0.925	1.113	1.229	0.579	0.597	0.811
	(1.857)	(1.857)	(1.867)	(1.951)	(1.857)	(1.945)	(1.972)	(1.972)	(1.974)
Married Indicator	6.552***	6.550***	6.835***	8.303***	6.550***	8.611***	7.992***	7.972***	7.914***
	(2.479)	(2.479)	(2.521)	(2.533)	(2.479)	(2.576)	(2.613)	(2.613)	(2.667)
Family Labor Income	0.470***	0.469***	0.456***	0.602***	0.469***	0.602***	0.531***	0.526***	0.524***
	(0.109)	(0.109)	(0.111)	(0.110)	(0.109)	(0.112)	(0.106)	(0.107)	(0.108)
Family Net Worth	0.0515***	0.0515***	0.0506***	0.0950***	0.0515***	0.0949***	0.100***	0.101***	0.100***
	(0.00944)	(0.00944)	(0.00952)	(0.00959)	(0.00944)	(0.00966)	(0.00900)	(0.00900)	(0.00907)
Family Pension Income	-0.00121	-0.000862	-0.0489	0.128	-0.000862	0.0888	0.0799	0.0818	0.0341
	(0.262)	(0.262)	(0.267)	(0.263)	(0.262)	(0.268)	(0.254)	(0.254)	(0.258)
Number of Children	-0.951*	-0.951*	-0.545	-1.424***	-0.951*	-1.148**	-1.046**	-1.045**	-0.616
	(0.507)	(0.507)	(0.552)	(0.524)	(0.507)	(0.582)	(0.508)	(0.508)	(0.552)
Education of Wife		-0.0904	-0.131		-0.0904	-0.338		-0.563	-0.650*
		(0.406)	(0.411)		(0.406)	(0.408)		(0.390)	(0.395)
Family Healthcare Expenditures			0.0433			0.0543			-0.00760
			(0.192)			(0.191)			(0.180)
Observations	21502	21502	21169	21657	21657	21322	21915	21915	21574
Families	5832	5832	5767	5928	5928	5865	6104	6104	6038
R-squared	0.0134	0.0134	0.0132	0.0186	0.0134	0.0185	0.0178	0.0179	0.0175

Table 2.34: Household Asset Allocations and Retirement, Difference-in-Difference specifications - Robustness: Geographic Region

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 each of four geographic census regions. 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 equity. The dependent variable in the middle panel is the allocation to equity and private business holdings. Finally, the dependent variable in the rightmost panel is the allocation to equity, 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.

	Risky Allocation - Equity (%)			Risky Allocation - Equity + Private Business (%)			Risky Allocation - Equity + Private Business + Real Estate (%)		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Retired Indicator x Married Indicator	-8.967***	-8.969***	-8.466***	-10.65***	-10.66***	-10.30***	-9.768***	-9.777***	-9.168***
Census Region: Northeast	(2.645)	(2.645)	(2.650)	(2.705)	(2.705)	(2.708)	(2.718)	(2.719)	(2.730)
Retired Indicator x Married Indicator	-9.440***	-9.439***	-9.351***	-10.77***	-10.77***	-10.89***	-10.77***	-10.77***	-10.67***
Census Region: Midwest	(2.443)	(2.443)	(2.434)	(2.550)	(2.550)	(2.541)	(2.534)	(2.535)	(2.534)
Retired Indicator x Married Indicator	-8.799***	-8.802***	-8.675***	-11.17***	-11.18***	-11.17***	-9.702***	-9.722***	-9.438***
Census Region: South	(2.409)	(2.409)	(2.408)	(2.501)	(2.501)	(2.502)	(2.503)	(2.503)	(2.513)
Retired Indicator x Married Indicator	-8.141***	-8.145***	-8.081***	-10.96***	-10.98***	-11.07***	-9.569***	-9.594***	-9.492***
Census Region: West	(2.668)	(2.668)	(2.687)	(2.708)	(2.707)	(2.722)	(2.670)	(2.670)	(2.692)
Retired Indicator	3.608	3.616*	3.485	3.029	3.055	3.131	2.980	3.036	2.939
	(2.206)	(2.205)	(2.207)	(2.292)	(2.292)	(2.291)	(2.282)	(2.282)	(2.286)
Transition Indicator x Married Indicator	-3.743*	-3.745*	-3.667*	-6.048***	-6.052***	-6.219***	-4.746**	-4.754**	-4.759**
	(1.992)	(1.992)	(1.997)	(2.085)	(2.085)	(2.079)	(2.100)	(2.101)	(2.104)
Transition Indicator	1.350	1.352	1.291	1.138	1.146	1.297	0.598	0.616	0.662
	(1.852)	(1.852)	(1.859)	(1.945)	(1.945)	(1.936)	(1.968)	(1.969)	(1.971)
Married Indicator	6.918***	6.915***	6.873***	8.580***	8.571***	8.531***	7.928***	7.907***	7.515***
	(2.459)	(2.460)	(2.470)	(2.513)	(2.513)	(2.524)	(2.591)	(2.592)	(2.621)
Family Labor Income	0.470***	0.470***	0.457***	0.601***	0.599***	0.603***	0.533***	0.528***	0.528***
	(0.109)	(0.109)	(0.111)	(0.110)	(0.110)	(0.112)	(0.107)	(0.107)	(0.108)
Family Net Worth	0.0515***	0.0515***	0.0506***	0.0951***	0.0952***	0.0950***	0.100***	0.101***	0.100***
	(0.00945)	(0.00945)	(0.00953)	(0.00960)	(0.00959)	(0.00966)	(0.00900)	(0.00900)	(0.00908)
Family Pension Income	-0.000722	-0.000411	-0.0500	0.129	0.130	0.0894	0.0805	0.0824	0.0331
	(0.263)	(0.263)	(0.267)	(0.263)	(0.263)	(0.267)	(0.254)	(0.254)	(0.258)
Number of Children	-0.973*	-0.972*	-0.560	-1.421***	-1.420***	-1.142**	-1.059**	-1.058**	-0.622
	(0.508)	(0.508)	(0.553)	(0.525)	(0.525)	(0.583)	(0.507)	(0.507)	(0.551)
Education of Wife		-0.0811	-0.121		-0.253	-0.338		-0.555	-0.642
		(0.405)	(0.410)		(0.403)	(0.408)		(0.389)	(0.394)
Family Healthcare Expenditures			0.0435			0.0533			-0.00803
			(0.192)			(0.191)			(0.179)
Observations	21502	21502	21169	21657	21657	21322	21915	21915	21574
Families	5832	5832	5767	5928	5928	5865	6104	6104	6038
R-squared	0.0135	0.0135	0.0132	0.0188	0.0188	0.0185	0.0178	0.0179	0.0174

Table 2.35: Household Asset Allocations and Retirement, Difference-in-Difference specifications - Robustness: Split-Sample Analysis

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. The leftmost panel displays the estimation results of specifications where the dependent variable is the allocation to equity. The dependent variable in the middle panel is the allocation to equity and private business holdings. Finally, the dependent variable in the rightmost panel is the allocation to equity, 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.

	Risky Allocation - Equity (%)			Risky Allocation - Equity + Private Business (%)			Risky Allocation - Equity + Private Business + Real Estate (%)		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Retired Indicator x Married Indicator Time of Retirement: Pre-2000	-8.182*** (2.285)	-8.185*** (2.284)	-8.266*** (2.307)	-10.12*** (2.364)	-10.13*** (2.363)	-10.33*** (2.386)	-9.655*** (2.364)	-9.693*** (2.363)	-9.718*** (2.385)
Retired Indicator x Married Indicator Time of Retirement: Post-2000	-10.80*** (2.932)	-10.79*** (2.943)	-10.78*** (2.972)	-13.36*** (2.952)	-13.30*** (2.964)	-13.76*** (2.980)	-12.58*** (2.876)	-12.41*** (2.889)	-12.61*** (2.912)
Retired Indicator	3.479 (2.212)	3.482 (2.211)	3.534 (2.228)	2.977 (2.302)	2.991 (2.301)	3.282 (2.314)	3.181 (2.284)	3.219 (2.285)	3.364 (2.296)
Transition Indicator x Married Indicator	-3.393* (1.996)	-3.394* (1.996)	-3.488* (2.009)	-5.680*** (2.090)	-5.686*** (2.090)	-6.023*** (2.092)	-4.655** (2.101)	-4.669** (2.101)	-4.877** (2.108)
Transition Indicator	1.226 (1.860)	1.227 (1.860)	1.301 (1.870)	1.057 (1.954)	1.060 (1.954)	1.367 (1.948)	0.699 (1.974)	0.707 (1.975)	0.927 (1.977)
Married Indicator	6.397*** (2.452)	6.397*** (2.452)	6.539*** (2.491)	7.977*** (2.507)	7.977*** (2.507)	8.099*** (2.548)	7.723*** (2.582)	7.721*** (2.582)	7.544*** (2.631)
Family Labor Income	0.469*** (0.109)	0.469*** (0.109)	0.455*** (0.111)	0.599*** (0.110)	0.597*** (0.110)	0.600*** (0.112)	0.528*** (0.106)	0.524*** (0.106)	0.522*** (0.108)
Family Net Worth	0.0518*** (0.00944)	0.0518*** (0.00944)	0.0509*** (0.00953)	0.0953*** (0.00959)	0.0953*** (0.00959)	0.0953*** (0.00966)	0.101*** (0.00900)	0.101*** (0.00900)	0.101*** (0.00907)
Family Pension Income	0.00840 (0.263)	0.00848 (0.263)	-0.0396 (0.267)	0.141 (0.263)	0.141 (0.263)	0.102 (0.268)	0.0915 (0.254)	0.0924 (0.254)	0.0453 (0.258)
Number of Children	-0.951* (0.509)	-0.951* (0.509)	-0.540 (0.554)	-1.413*** (0.526)	-1.413*** (0.526)	-1.132* (0.585)	-1.038** (0.510)	-1.038** (0.509)	-0.606 (0.554)
Education of Wife		-0.0360 (0.408)	-0.0794 (0.413)		-0.191 (0.405)	-0.273 (0.410)		-0.510 (0.391)	-0.596 (0.396)
Family Healthcare Expenditures			0.0475 (0.192)			0.0583 (0.191)			-0.00352 (0.179)
Observations Families R-squared	21502 5832 0.0134	21502 5832 0.0134	21169 5767 0.0132	21657 5928 0.0188	21657 5928 0.0188	21322 5865 0.0186	21915 6104 0.0179	21915 6104 0.0180	21574 6038 0.0176

3

Household Bargaining and Asset Allocation

3.1 Introduction

A pervasive question in finance is that concerning the determinants of individual investors' asset allocation decisions. Financial economists have amassed a burgeoning recent literature examining this issue.[1] To date, a common characteristic of the vast majority of articles in this literature lies in the unit of observation: the household as a whole. While data on individual households represents a relatively high degree of disaggregation, evidence from labor economics suggests that intra-household bargaining is an important factor in household decision-making. The household finance literature has primarily ignored intra-household frictions by either explicitly or implicitly assuming Becker's (1973) neoclassical setting, where the household head maximizes a family social welfare function subject to a pooled budget constraint. Conversely, in labor economics there is an extensive literature supporting the significance of the bargaining paradigm in rationalizing real household decisions, but not financial ones. The observation that real and financial decisions are jointly determined suggests that

[1] Campbell (2006) provides an excellent survey of the household finance literature.

intra-household bargaining ought to play a similarly important role in determining households' asset allocation choices.[2]

In this paper, we empirically study the effect of intra-household bargaining on household portfolio decisions, focusing on households' risky asset allocations. Consistent with theoretical predictions, we find that shocks to the distribution of intra-household bargaining power are associated with significant asset allocation shifts between risky and comparatively safer asset classes in households' portfolios. In contrast, the neoclassical paradigm predicts that changes in bargaining power have no effect on asset allocations. Thus, these results provide strong evidence supporting intra-household bargaining as a significant determinant of within-household variation in portfolio choice. Our identification strategy exploits both events affecting the distribution of intra-household bargaining power, as well as time-series variation in proxies for bargaining power. The economic significance of our results is large. We consider both the pooled cross-sectional distribution, and that of the within-household range, of explanatory variables in quantifying relative importance. Considering within-household range-based distributions allows us to quantify the relative importance of explanatory variables as drivers of time-series fluctuations in households' risky asset allocations over the life cycle. We also find our results to be robust to a variety of risky asset definitions, including the addition of holdings in private businesses and non-residential real estate. Finally, we show that intra-household bargaining is at least as important as labor income, net worth, and education as a determinant of household portfolio choice.

Intra-household bargaining relies on general differences in husbands' and wives' utility functions; otherwise, bargaining is unnecessary. In our portfolio choice setting, we rely on heterogeneity in the risk aversion parameter. A large literature

[2] Addoum (2011) finds evidence consistent with household bargaining being the dominant driver behind differences in singles' and couples' asset allocation decisions surrounding retirement.

examines gender-based differences in risk aversion, supporting the conclusion that, on average, men are less risk averse than women. In the psychology literature, Hudgens and Fatkin (1985) and Levin, Snyder, and Chapman (1988) conduct controlled simulations, finding evidence of males being less averse to risks than their female counterparts. More recent attention in the economics literature has yielded experimental evidence by Powell and Ansic (1997) and survey-based evidence by Barsky, Juster, Kimball, and Shapiro (1997), Sunden and Surette (1998), and Jianakoplos and Bernasek (1998) supporting the conclusion of greater female risk aversion. Further, the work of Bajtelsmit and VanDerhei (1997), Hinz, McCarthy, and Turner (1997), and Barber and Odean (2001) suggests strong gender-based differences in investment preferences. In a Nash bargaining framework, the assumption that males are less risk averse than females would predict that an increase in the relative bargaining power of males (females) would increase (decrease) risky asset holdings. We formalize this result in a household bargaining model (e.g. McElroy and Horney (1981)) that includes an asset allocation decision between a risky and riskless asset. Our empirical results support this prediction.

We use longitudinal data from the Panel Study of Income Dynamics (PSID) on asset allocations at the household level and sources of within-household power disparity measured at the finer level of household members. We construct measures of, and exploit lifecycle events affecting, the distribution of spouses' bargaining power within a household and test the effect of these measures on the household's portfolio choice decisions. Specifically, our empirical work is comprised of three main tests designed to distinguish between the neoclassical and intra-household bargaining paradigms of decision-making in household portfolio choice. In all cases, we find strong evidence in support of intra-household bargaining in household portfolio decisions.

Our first test centers around retirement. We document differences in portfolio allocation shifts at retirement for married couple households and singles, as docu-

mented in the HRS by Addoum (2011). If a husband's bargaining power depends on his current income or employment status, and retirement causes a relative deterioration in his influence on household decisions, then a dichotomy in the effect of retirement on changes in risky portfolio allocations provides evidence in support of the effect of intra-household bargaining on household portfolio choice. We find evidence in support of this hypothesis. Specifically, we find a significant drop in the risky allocations of married couple households when the husband retires, and the absence of a retirement effect on singles' portfolio allocations.

In our second test, we are careful to recognize that spouses' relative levels of labor income are a poor proxy for intra-household bargaining power. This is due to issues such as the inability to account for differentials in household production not reflected in labor income, as well as the endogeneity of labor market entry choices among married women. We use a new measure proposed by Pollak (2005); the dollar difference in wives' hourly wage rates relative to their husbands. Since observed overall earnings in marital equilibrium are likely to be different from those outside of marriage, it is wage rates of spouses which determines well-being at the threat-point outside of marriage. Using this measure, and holding both observable and time-invariant unobserved sources of heterogeneity constant, we find strong evidence supporting intra-household bargaining's effect on household portfolio choice.

Our third test of the effect of intra-household bargaining on household portfolio choice also considers the fact that labor income shares among married couples may be a noisy proxy for the distribution of bargaining power. Labor income is problematic, in that women with high overall productivity, and therefore a relatively good option outside of marriage, may still choose to stay home and purposely forgo labor income when married. However, nonwage income separately accruing to husbands and wives is thought to be relatively invariant to marital status (whether the couple stays together or chooses to split), making it the standard measure of bargaining

power in labor economics.[3] We find that increases in the wife's share of nonwage income are highly negatively correlated with household-level allocations to risky assets, controlling for a host of household characteristics.

A large literature examines household portfolio choice.[4] Guiso, Jappelli, and Terlizzese (1996), Heaton and Lucas (2000a and 2000b), Vissing-Jorgensen (2002), and Cocco (2005) examine the non-participation of a significant fraction of households in the stock market. They explain non-participation using background risks, which drive out investment in risky asset classes, or fixed costs of participation. Conditional on participation in stocks, a large body of papers aim to explain the level of risky holdings using observable characteristics of households. Papers in this area of the literature include those of King and Leape (1987), Yoo (1994), Poterba and Samwick (1997), Ameriks and Zeldes (2004), and Cocco, Gomes, and Maenhout (2005), among others, modeling and documenting the effect of age on portfolio choice, and advancing a hump-shaped risky allocation pattern over the life cycle. Other sources of heterogeneity between married households and individuals include wealth and education. A number of papers find a strong positive correlation between household wealth and the proportion of wealth invested in stocks, conditional on participation. Similar relations have also been found for household education measures, with more educated households holding a larger proportion of wealth in stocks. Notable references include articles by Vissing-Jorgensen (2002), Curcuru, Heaton, Lucas, and Moore (2004), Campbell (2006), and Calvet, Campbell, and Sodini (2007 and 2008). Curcuru et al. (2004) also find a positive relation between labor income and stock participation and allocations, while Guiso, Japelli, and Terlizzese (1996) and Cocco,

[3] See, for example, McElroy and Horney (1981), McElroy (1990), Schultz (1990), Thomas (1990 and 1994), Altonji, Hayashi, and Kotlikoff (1992), and Browning, Bourguignon, Chiappori, and Lechene (1994).

[4] See Campbell (2006) for a discussion of household portfolio choice, and Brandt (2010) for an excellent discussion of portfolio choice, in general.

Gomes, and Maenhout (2005) highlight the importance of non-diversifiable risk in labor earnings as a factor driving stock allocations among participants. This papers contributes to this literature in documenting intra-household bargaining as a significant determinant of household portfolio choice, accounting for the above-mentioned factors. However, it is among the first to take a collective approach to the decision making of couple households. In this regard, this paper supports the conclusions of Addoum (2011) in this literature, who finds that household bargaining is the dominant driver of differences in singles' and couples' asset allocation decisions surrounding retirement.

The remainder of the paper proceeds as follows: Section 2 describes the data used in our study. Section 3 motivates our empirical work, presenting a household bargaining model of asset allocation. Section 4 presents the results of empirical tests of intra-household bargaining as a significant determinant of portfolio choice decisions. Section 5 quantifies the economic importance of intra-household bargaining on household portfolio choice. Section 6 concludes the paper.

3.2 Data, Sample Selection, and Summary Statistics

Our study makes use of data from the Panel Study of Income Dynamics (PSID), a nationally representative longitudinal survey of nearly 9,000 U.S. families. The main variables of interest are those concerning household financial asset holdings. These include values with respect to holdings in stocks, bonds, and cash, as well as primary residential equity, the value of private business interests, equity in vehicles, and non-residential real estate. The data also makes available a host of demographic and socioeconomic measures, including age, education, marital status, labor income, and total income. We restrict attention to eight waves of the PSID from 1984 through

2007[5], since the main variables of interest are available only for waves after (and including) 1984.

In constructing the final data set used in the study, we apply a series of filters to the raw data. As highlighted in the existing literature on household portfolio choice, wealthy households are willing to take greater risk in their portfolios, the result of not only higher participation rates in risky asset classes, but also greater portfolio weights conditional on participation (see, for example, Campbell (2006) and Carroll (2002)). Therefore, we require a measure of net worth for use in our empirical analysis. We define and construct this net worth measure as the sum of holdings in public equity, bonds, cash accounts, primary residential equity, private business interests, non-residential real estate holdings, and equity held in vehicles, less unrelated outstanding debts (ie. credit cards, student loans, etc.). We keep only those observations for which this measure of net worth is non-missing. Effectively, this requires that each of the above-outlined components of our net worth measure are non-missing. Further, we require observations to have non-missing values for labor income, total income, age, education, and number of children, all variables that have been shown in the literature to be important determinants of household portfolio choice (see, for example, Curcuru, Heaton, Lucas, and Moore (2002) and Love (2009)).

Empirical work in the literature on household portfolio choice is mainly concerned with two decisions: the decision to participate in risky asset classes, and the decision of how much to invest, conditional on participation. Since we are primarily interested in analyzing the latter, we further impose a participation requirement on observations in our estimation sample. However, positive participation naturally leads to the issue of an appropriate measure of what exactly constitutes risky asset alloca-

[5] PSID waves including household asset allocations were released quinquennially (every five years) until 1999, and biennially (every two years) thereafter. Therefore, we make use of eight waves of data: 1984, 1989, 1994, 1999, 2001, 2003, 2005, and 2007.

tion in households' portfolios. We follow the empirical portfolio choice standard in classifying holding in cash and bonds as non-risky holdings (see, for example, Guiso et al. (2002), Rauh (2009), and Addoum, van Binsbergen, and Brandt (2010)). As in Guiso et al. (2002), we ensure the robustness of our results by constructing and analyzing three measures of risky holdings: the first being the value of stocks, the second stocks plus the value of private business holdings, and the third the sum of stocks, private business holdings, and the value of non-residential real estate holdings. In all three cases, we define the value of the household's investment portfolio to be the sum of holdings in the measure of risky assets, plus holdings in bonds and cash.

Given evidence of strong gender-based differences in risk preferences, a natural starting point for summary and comparison of portfolio allocation decisions in our study is by contrasting holdings of single males and females. Additionally, Sunden and Surette (1998) show important interactions between gender and marital status. Therefore, we compare the holdings of single males and females both with each other, and with those of married couple households.

Table 3.1 presents summary statistics for the subset of single (never married) household heads in our data set. Panel a outlines the statistics for 464 observations on 139 single males, while panel b presents statistics for 758 observations on 292 single females. Comparing the summary statistics across the gender-based panels, mean and median characteristics such as age and education are comparable, while male heads earn slightly more in labor income, both on average and at the median ($22,626 vs. $18,550 and $18,706 vs. $16,000, respectively), and have higher total income ($30,192 vs. $18,855 at the mean, and $23,113 vs. $16,275 at the median). Consistent with the retirement plan findings in the literature mentioned above, single males invest a larger proportion of their portfolios in risky stocks (5.13% vs. 3.62%), slightly less in cash (87.53% vs. 87.96%), and less in bonds (7.34% vs. 8.42%), than

single females.

Table 3.2 presents summary statistics for the subset of divorced and separated household heads in the data set. As in Table 3.1, panel a outlines the statistics for males (433 observations on 162 individuals), while panel b focuses on females (1,028 observations on 567 individuals). Comparing the summary statistics across the gender-based panels, it is again evident that divorced and separated males take more risk in their portfolio allocations than their female counterparts. In this marital status subgroup, males invest more in stocks (9.31% vs. 5.15%), and less overall in the comparatively safer asset classes of cash and bonds (90.69% vs. 94.64% in aggregate, and 81.29% vs. 85.98% and 9.40% vs. 8.86%, respectively).

Table 3.3 presents summary statistics for the subset of married household heads in the data set, with 5,434 observations on 4,059 couples. Comparing observed asset allocations of these couples with individuals from both Tables 3.1 and 3.2, we can see that couples hold a much higher proportion of financial wealth in stocks (14.24%), and a much lower proportion in cash (74.19%). Couples' allocations to bonds (11.57%) are slightly higher than those seen for individuals. Comparing characteristics of couples with those of individuals may yield some insight into the source of these differences.

The average and median ages of married household heads are about forty, with wives in their late thirties. In contrast, single males and females from Table 3.1 are, on average, in their late twenties. Separated/divorced males from Table 3.2 are in their early forties at the mean, and separated/divorced females are, on average, in their late thirties. Other sources of heterogeneity between married households and individuals include wealth and education.

In this paper, we advance intra-household bargaining, over and above those factors described in the preceding paragraphs, as an important determinant of household

portfolio choice.[6] Before presenting the results of our empirical tests, we first motivate our hypotheses by developing a parsimonious model of portfolio choice in the presence of intra-household bargaining.

3.3 Model

To elucidate the mechanism and to guide our empirical work, we present a household bargaining model motivated by McElroy and Horney (1981) and include an asset allocation decision between a risky and riskless asset. In this framework, a married or cohabiting couple play a Nash bargaining game to determine allocations of real resources within the household. The strategic interactions arise due to limited commitment between partners; namely, either partner can dissolve the relationship and take their outside option or reservation utility as a single-person household. This reservation utility is determined endogenously given income levels. A key insight of this paradigm is that the outside option dictates the bargaining power of each member, so that changes in bargaining power will alter allocations within the family, which is absent in the neoclassical paradigm.

3.3.1 Model Specification

A household will consist of two individuals, male (m) and female (f), who each live for one period. Let c_k and I_k denote consumption and income of $k \in \{m, f\}$. We assume that households receive their income at time 0, which is given exogenously. Then, they invest their income in a portfolio comprising of a risky and riskless asset, so that at time 1, when the state is realized they make their consumption and leisure decisions. Thus let $\widetilde{R}$ and R_b denote the gross return on the risky asset and riskless asset, respectively. Finally, let ω denote the portfolio weight on the risky asset.

[6] There exists a large literature in labor economics analyzing the effect of intra-household bargaining on household decisions. Seminal papers include Manser and Brown (1980) and McElroy and Horney (1981).

The preferences for a married individual $k \in \{m, f\}$ are assumed to take a standard expected utility form,

$$E\left[U^k(c_m, c_f)\right], \tag{3.1}$$

and,

$$U^k(x) \quad = \quad \frac{(\widetilde{C}^k)^{1-\gamma_k}}{1-\gamma_k}, \tag{3.2}$$

where γ_k is the coefficient of relative risk aversion. $\widetilde{C}^k$ is a quantity index that aggregates the consumption goods c_m and c_f via a Cobb-Douglas function,

$$\widetilde{C}^k = c_m^{\theta_k} c_f^{1-\theta_k} \tag{3.3}$$

where the parameter θ_k captures the relative importance of c_m to c_f for individual k.

Preferences for an unmarried individual k are defined over only c_k.

$$E\left[\widehat{U}^k(c_k)\right], \tag{3.4}$$

and,

$$\widehat{U}^k(c_k) = \left[\frac{c_k^{1-\gamma_k}}{1-\gamma_k}\right], \tag{3.5}$$

where the risk aversion parameter γ_k is the same as above for consistency.

To obtain the value of the outside option (of being unmarried) for each individual, we can solve for the indirect utility function $V_o^k(I_k)$ by solving the constrained optimization problem of the unmarried agents. For k

$$V_o^k(I_k) = \max_{\omega_k, c_k} E\left[\widehat{U}^k(c_k)\right] \tag{3.6}$$

subject to the budget constraint

$$c_k \leqslant I_m \left(\omega_m \widetilde{R} + (1 - \omega_k) R_b \right). \tag{3.7}$$

If m and f play a Nash bargaining game, the household maximizes a utility-gain product function subject to the pooled budget constraint:

$$\max_{\omega, c_m, c_f} [E[U^m(x)] - V_o^m(I_m)][E[U^f(x)] - V_o^f(I_f)], \tag{3.8}$$

subject to,

$$c_m + c_f \leqslant (I_m + I_f) \left(\omega \widetilde{R} + (1 - \omega) R_b \right). \tag{3.9}$$

Contrast this with the neoclassical setting where the household maximizes a family social welfare function subject to the pooled budget constraint:

$$\max_{\omega, x} \alpha E \left[\widehat{U}^m(c_m) \right] + (1 - \alpha) E \left[\widehat{U}^f(c_f) \right] \tag{3.10}$$

subject to

$$c_m + c_f \leqslant (I_m + I_f) \left(\omega \widetilde{R} + (1 - \omega) R_b \right), \tag{3.11}$$

where $\alpha \in [0, 1]$ is an exogenous parameter.

3.3.2 Model Predictions

Solving the model above gives us testable implications and formalizes our intuition regarding the impact of changes in bargaining power on household portfolio choice. Namely, assuming that females are more risk averse than males $\gamma_f > \gamma_m$, then an increase in the relative bargaining power of males (females) would increase (decrease) risky asset holdings. Figure 1 illustrates this result in a plot from the model. We can see that the share of risky assets is a monotonically increasing function of the

husband's share of bargaining power. In other words, as his bargaining power increases, the the household-level asset allocation decision reflects his risk preferences more strongly. This is in contrast to the neoclassical paradigm, in which the share of risky assets does not depend on the distribution of bargaining power within the household.

3.4 Empirical Tests of Bargaining

Motivated by our theoretical results in the previous section, we aim to test the hypothesis of intra-household bargaining as a significant determinant of household asset allocation decisions. We test the model using a number of proxies for bargaining power within households.

3.4.1 Retirement Event

Lundberg, Startz, and Stillman (2003) examine the retirement-consumption puzzle, the observation that households appear to reduce consumption expenditures substantially at retirement, using a marital bargaining approach. They interpret their findings as being consistent with a downward shift in husbands' marital bargaining power at retirement, where a husband's bargaining power depends on his current income or employment status, and retirement causes a relative deterioration in his influence on household decisions. Noting that life-cycle consumption models predict that households will smooth consumption in the face of a predictable drop in income, Lundberg et al. (2003) test the hypothesis that married couple households exhibit a drop in consumption at retirement of the husband, but that singles, expected to behave in a manner consistent with single-agent life-cycle utility maximization, will have a smooth consumption transition at retirement. Addoum(2011) documents a similar relation between retirement and household portfolio choice, showing that singles and couples differ significantly in their asset allocation decisions surrounding

retirement. Like Lundberg et al., he finds that household bargaining is the dominant driver of this phenomenon.

In this section, we adopt the intuition and methodology of Lundberg et al. (2003) and Addoum (2011) in testing for the effect of marital bargaining on households' risky asset holdings. If husbands and wives have differing tastes for risky asset holdings and such holdings are determined through bargaining at the household level, then we should see a dichotomy in the effect of retirement on risky portfolio allocations similar to that outlined above. Namely, we expect to see significant changes in the risky allocations of married couple households when the husband retires, and the absence of a retirement effect on singles' portfolio allocations.

Main Test: Retirement Event

In our main test of the hypothesis presented above, we consider regressions of the following form:

$$\Delta w_{risky,i,t} = \alpha + \eta_{married}\left(Retire \times Married\right) + \eta Retire + \Gamma \Delta X_{i,t} + \varepsilon_{i,t},$$

where $\Delta w_{risky,i,t}$ is the change in family i's allocation to risky assets between times $t-1$ and t, Γ is a vector of coefficients on a set of control variables, $X_{i,t}$, for household i at time t. $\eta_{married}$ is the coefficient of interest, measuring the effect of the interaction between the indicator for the first observation after retirement of the household head (the husband in married couple households), $Retire$, and the indicator for married couple households, $Married$. $\eta_{married}$ measures the difference in the effect of retirement on portfolio allocations of married couple and single households, the latter for whom the effect of retirement is estimated by η.

Table 3.4 presents results of running regressions of the above form. The table is split into three panels horizontally. The leftmost panel contains specifications where the dependent variable, $\Delta w_{risky,i,t}$, is the change in allocation to equity, the

middle panel contains specifications where $\Delta w_{risky,i,t}$ is the change in allocation to equity and private business holdings, and the rightmost panel's specifications have $\Delta w_{risky,i,t}$ defined as the change in the sum of equity, private business, and real estate holdings. Again, we estimate three variants of the above regression function within each horizontal panel, each differing with respect to the content of the control vector $X_{i,t}$. The first, corresponding to the columns labeled (1), (4), and (7), includes controls for changes in the following: household labor income, household net worth, an indicator for the presence of children, and the number of children the couple has. The second, corresponding to columns (2), (5), and (8), adds to these controls ones for changes in the squared-age, and years of education for the household head and wife. Finally, those specifications in columns (3), (6), and (9) contain an additional control indicating changes in the presence of elderly parents.

We first examine the leftmost panel of Table 3.4. From specification (1), we can see that the coefficient $\eta_{married}$ is negative, with a point estimate of -19.76%, and is statistically significant at the 5% level. Including controls for changes in squared-age and education for the household head and wife in specification (2) yields a coefficient of interest which is slightly larger in magnitude, with a point estimate of -20.31%, again significant at the 5% level. Finally, this result is robust to controlling for changes in the presence of elderly parents in the household, with $\eta_{married}$ estimated at -20.36% and significant at the 5% level in specification (3). In all three specifications ((1) through (3)), the null hypothesis that η is equal to zero cannot be rejected at standard levels of statistical significance. Interpretation of the insignificant 4.96% estimate of η in specification (3) indicates that, holding the full set of control variables constant, a household head within the estimation sample who is single does not, on average, make a statistically significant change to their risky asset holdings upon retirement. This is consistent with the view that single household heads, who are not subject to marital bargaining forces, are free to smooth marginal utilities over the

lifecycle. Furthermore, the -20.36% estimate of $\eta_{married}$ in specification (3) indicates that upon retirement, married couple households make risky asset allocation changes that are significantly different from those of their single counterparts. The direction of the effect is also consistent with the previous discussion of differences in tastes for risky asset holdings between men and women. In particular, if women generally prefer lower allocations to risky assets than do men, then our estimates of $\eta_{married}$ are consistent with a drop in marital bargaining power of the husband upon his retirement.

We next examine the middle panel of Table 3.4. From specification (4), we can see that incorporation of private business holdings in the definition of a household's risky asset allocation does not qualitatively change the results seen in specification (1). Quantitatively, the coefficient of $\eta_{married}$ is estimated with larger magnitude, at -24.79%, and is again statistically significant at the 5% level. The addition of variables controlling for the squared-age and education of heads and wives in specification (5) yields an economically stronger estimate for $\eta_{married}$ of -25.83%, which is again statistically significant at the 5% level. Finally, adding a control indicator for changes in the presence of elderly parents does not affect the result, with specification (6) indicating an estimate of -25.92% for $\eta_{married}$ with the full set of controls. Again, this estimate is statistically significant at the 5% level. In all three specifications in this panel ((4) through (6)), the null hypothesis that η is equal to zero is not rejected at standard levels of statistical significance. As in specification (3), the insignificant 11.12% estimate of η in specification (6) yields the interpretation that, holding the full set of control variables constant, a household head within the estimation sample who is single does not, on average, make a statistically significant change to their risky asset holdings upon retirement. In addition, the -26.24% estimate of $\eta_{married}$ in specification (6) indicates that incorporating private business holdings in the definition of risky asset holdings does not change the conclusion that, upon retirement,

married couple households make portfolio allocation changes in a way significantly different from their single counterparts.

Finally, examining the rightmost panel of Table 3.4, corresponding to the sum of holdings in public equities, private business, and real estate, we can see results similar to those discussed thus far. Specifically, specification (7) yields a coefficient of interest similar in magnitude to that seen in specification (4), with a point estimate of -25.55%, which is statistically significant at the 5% level. Including controls for heads' and wives' squared-age and education measures in specification (8), as seen before, increases the magnitude of the estimate of $\eta_{married}$, maintaining statistical significance at the 5% level. Finally, the result is once again robust to the addition of an indicator for changes in the presence of elderly parents in specification (9), in which $\eta_{married}$ is estimated at -27.55%, with statistical significance at the 5% level. In all three specifications in this panel ((7) through (9)), the null hypothesis that η is equal to zero cannot be rejected at standard levels of statistical significance. As in specifications (3) and (6), the insignificant 13.04% estimate of η in specification (9) yields the interpretation that, holding the full set of control variables constant, a household head within the estimation sample who is single does not, on average, make a statistically significant change to their risky asset holdings upon retirement. In addition, the -27.55% estimate of $\eta_{married}$ in specification (9) indicates that including real estate holdings in the definition of risky asset holdings does not change the conclusion that, upon retirement, married couple households make portfolio allocation changes in a way significantly different from their single counterparts.

Split-Sample Analysis: Retirement Event

The analysis in the previous subsection provided strong evidence that the retirement of household heads leads to very different effects on risky asset holdings for households in which the head is married versus those in which the head is single

at retirement. Following the work of Lundberg et al. (2003) and Addoum (2011), we interpret this finding as evidence of a strong effect of intra-household bargaining on observed household portfolio allocations. Specifically, the specifications in the previous subsection provided evidence that the *difference* in the effect of retirement between married and single household heads is economically and statistically significant. However, it is interesting to quantify the effect of retirement for married couple household heads, and to consider its significance. Therefore, restricting the sample to only those observations in which the household head is married, we consider regressions of the following form:

$$\Delta w_{risky,i,t} = \alpha + \eta Retire + \Gamma X_{i,t} + \varepsilon_{i,t},$$

where $\Delta w_{risky,i,t}$ is the change in family i's allocation to risky assets between times $t-1$ and t, Γ is a vector of coefficients on a set of control variables, $X_{i,t}$, for household i at time t. η is the coefficient of interest, measuring the effect of the indicator for the first observation after retirement of the husband in married couple households, *Retire*.

Table 3.5 presents results of running regressions of the above form. The table is organized in the same manner as Table 3.4, with three horizontal panels, each differing with respect to the definition of risky assets. For each definition of risky assets, we again estimate three variants of the regression function presented above, each with different control vector specifications. The contents of the three control vector specifications match those presented in Table 3.4 earlier.

We first examine the leftmost panel of Table 3.5. From specification (1), we can see that the coefficient η is negative, with a point estimate of -13.07%, and is statistically significant at the 5% level. Including controls for squared-age and education of the household head and wife in specification (2) yields a coefficient of interest which is larger in magnitude, with a point estimate of -15.32%, and significant

at the 1% level. Finally, the result is robust to controlling for changes in the presence of elderly parents in the household, with η estimated at -15.46% and significant at the 1% level in specification (3).

We next examine the middle panel of Table 3.5. Cursory inspection of specifications (4) to (6) indicates that incorporating private business holdings in the definition of a household's risky asset allocation does not qualitatively change the results seen in the leftmost panel just discussed. Quantitatively, the coefficient of η is estimated with similar magnitudes, in the range of -14.45% to -13.61%, with all estimates statistically significant at the 1% level.

Finally, examining the rightmost panel of Table 3.5, where in addition to public equity and private business, holdings in real estate are included in the definition of a household's allocation to risky assets, we can see that the results of the three control specifications echo those seen in the first two panels. Coefficient estimates for η are similar to those seen before, falling in the range of -15.23% to -14.42%, and are all statistically significant at the 1% level.

Interpretation of the -15.46% estimate of η in specification (3) indicates that, holding the full set of control variables constant, a household head within the estimation sample who is married makes a statistically significant change to their risky asset holdings upon retirement. The highly significant -14.45% and -14.59% estimates of η in specifications (6) and (9), respectively, show that this result is robust to the inclusion of private business and real estate holdings in the definition of households' risky asset holdings. Moreover, these changes are not only highly significant statistically, they are also economically large and meaningful.

Conditional Analysis: Retirement Event

The interpretation of a downward shift in a husband's marital bargaining power at retirement yields a further testable implication of bargaining. Namely, if a husband's

bargaining power depends on his current income or employment status, then so too should his wife's. Therefore, if bargaining is a driving force behind household portfolio choice, conditioning on the employment status of a retiring head's wife should yield differing effects of his retirement.

In answering this question, we consider regressions of a form similar to those presented in Table 3.5. However, we condition the effect of the *Retire* indicator on the employment status of the wife at the time of the husband's retirement. That is, we consider conditional regressions of the following form:

$$\Delta w_{risky,i,t} = \alpha + \eta_{NotWorking} Retire + \eta_{Working} Retire + \Gamma \Delta X_{i,t} + \varepsilon_{i,t},$$

where $\Delta w_{risky,i,t}$ is the change in family i's allocation to risky assets between times $t-1$ and t, Γ is a vector of coefficients on a set of control variables, $X_{i,t}$, for household i at time t. $\eta_{NotWorking}$ is the coefficient of interest for households in which the wife is not working at the time of her husband's retirement. Conversely, $\eta_{Working}$ is the coefficient of interest for households in which the wife is working at the time of her husband's retirement. As before, the coefficients of interest measure the effect of the indicator for the first observation after retirement of the husband in married couple households, *Retire*.

Before presenting the results of estimating the conditional regression function presented above, we first consider the effect we expect to see. Since it is hypothesized that retirement affects a husband's bargaining power through its effect on his current income or employment status, it is natural to condition retiring husbands' wives on the basis of their employment status at the time of his retirement. However, classifying wives as those who are employed versus those who are not, for which employment status should we expect to see the larger effect of the husband's retirement? To carefully answer this question, one must consider that despite employed wives likely having a higher *level* of bargaining power than their non-working coun-

terparts, it is not the relative *level* of bargaining power that matters in the context we are considering. Since the dependent variable in the regression function detailed above is Δw_{risky}, the change in the allocation to risky assets, it is in fact the relative *change* in bargaining power that is of importance. Then, the question becomes for which classification of a wife's employment status should we expect the change in bargaining power to be greater at the time of the husband's retirement? If working wives have a relatively high level of bargaining power before their husband's retirement, then their household portfolio allocations already reflect their risk preferences to a greater degree than those of households in which wives are not employed before the husband's retirement. Ceteris paribus, we then expect the retirement of a husband whose wife continues working to be associated with a smaller increase in the wife's bargaining power than would be the case in a household in which the wife is not working at the time of her husband's retirement. In the language of the regression function presented above, we expect the magnitude of $\eta_{NotWorking}$ to be greater than that of $\eta_{Working}$.

Table 3.6 presents the results of running conditional regressions of the form shown above. The table is organized in the same manner as Tables 3.4 and 3.5, with three horizontal panels, each differing with respect to the definition of risky assets. For each definition of risky assets, we again estimate three variants of the regression function presented above, each with different control vector specifications. The contents of the three control vector specifications match those presented in Tables 3.4 and 3.5.

We first examine the leftmost panel of Table 3.6. In all three specifications ((1) through (3)), we can see that the estimates of $\eta_{NotWorking}$ are significantly negative at the 1% level, with point estimates ranging from -17.63% to -16.25%. Additionally, the estimates of $\eta_{Working}$ are insignificant in all three specifications, with magnitudes that are smaller than those of $\eta_{NotWorking}$ in all cases.

We next examine the middle panel of Table 3.6. Inspection of the results of

specifications (4) through (6) indicates that incorporating private business holdings in the definition of a household's risky asset allocation does not qualitatively change the results seen in the leftmost panel just discussed. Again, in all three specifications, the estimates of $\eta_{NotWorking}$ are significantly negative at least at the 5% level, the estimates of $\eta_{Working}$ are insignificant, and the magnitudes of $\eta_{Working}$ are smaller than those of $\eta_{NotWorking}$.

Finally, examining the rightmost panel of Table 3.6, where in addition to public equity and private business, holdings in real estate are included in the definition of a household's allocation to risky assets, the results of the three control specifications echo those seen in the first two panels. In all three specifications, the estimates of $\eta_{NotWorking}$ are significantly negative at least at the 5% level, the estimates of $\eta_{Working}$ are insignificant, and the magnitudes of $\eta_{Working}$ are smaller than those of $\eta_{NotWorking}$.

Interpretation of the economically and statistically significant estimates of $\eta_{NotWorking}$ in Table 3.6, all of which are greater in magnitude than those of $\eta_{Working}$, indicates confirmation of our hypothesis discussed above, in which the retirement of a husband whose wife continues working is associated with a smaller increase in the wife's bargaining power than is the case in a household in which the wife is not working at the time of her husband's retirement. In all, Tables 3.4, 3.5, and 3.6, using the retirement event as an instrument, provide strong support for household bargaining's importance as a determinant of household portfolio choice.

3.4.2 Hourly Wage Difference

Since the seminal work of Manser and Brown (1980) and McElroy and Horney (1981), it has been recognized that spouses' relative levels of labor income are a poor proxy for intra-household bargaining power. Issues such as the inability to account for differentials in household production not reflected in labor income, as well as the

endogeneity of labor market entry choices among married women, have led to the widespread use of measures of spouses' relative non-wage income levels as a proxy for bargaining power in the literature. Recently, Pollak (2005) argues that an alternative measure determining bargaining power in marriage is the relative wage rate of spouses. He argues that since observed overall earnings in marital equilibrium can be, and most likely are, different from those outside of marriage, it is wage rates of spouses which determines well-being at the threat-point outside of marriage. In this section, we use the aforementioned measure from Pollak (2005) in testing the effect of bargaining on household financial decision-making.

Main Test: Hourly Wage Difference

For married couples with positive risky asset holdings, we construct a measure of bargaining power reflecting the dollar difference in wives' hourly wage rates relative to their husband. The PSID data provides information on household heads' and wives' total labor income during each year, as well as their total hours worked during the year. Then, for all households in which the head is married and both the head and wife have positive labor income hours worked, we calculate the following measure of intra-household bargaining power:

$$WifeWageDifference = \frac{WifeLaborIncome}{WifeHoursWorked} - \frac{HeadLaborIncome}{HeadHoursWorked}.$$

Then, to examine the effect of variations in bargaining power on households' allocations to risky assets, we consider regressions of the following form:

$$w_{risky,i,t} = \alpha_i + \phi WifeWageDifference + \Gamma X_{i,t} + \varepsilon_{i,t},$$

where $w_{risky,i,t}$ is family i's allocation to risky assets at time t, ϕ is the coefficient of interest on $WifeWageDifference$ defined above, and Γ is a vector of coefficients on a set of control variables, $X_{i,t}$, for household i at time t. α_i is a household-specific

constant term, since we estimate the above function with household-level fixed effects in order to control for unobserved heterogeneity.

Table 3.7 presents results of running regressions of the above form. The table is split into three panels horizontally. The leftmost panel contains specifications where the dependent variable, $w_{risky,i,t}$, is the allocation to equity, the middle panel contains specifications where $w_{risky,i,t}$ is the allocation to equity and private business holdings, and the rightmost panel's specifications have $w_{risky,i,t}$ defined as the sum of equity, private business, and real estate holdings. Within each horizontal panel, we estimate three variants of the above regression function, each differing with respect to the content of the control vector $X_{i,t}$. The first, corresponding to the columns labeled (1), (4), and (7), includes controls for household labor income and household net worth. Also included in these specifications are an indicator for the presence of children, as well as a measure of the number of children the couple has, both measures of so-called background risks affecting portfolio choice, as described by Curcuru, Heaton, Lucas, and Moore (2004). The second, corresponding to columns (2), (5), and (8), adds to these controls ones for the squared-age (scaled by 100), and years of education for the household head and wife.[7] The square of age measure is included to capture the hump-shaped lifecycle pattern of portfolio holdings modeled by Cocco, Gomes, and Maenhout (2005), and documented by King and Leape (1987), Yoo (1994), Poterba and Samwick (1997), and Ameriks and Zeldes (2004), among others. Finally, those specifications in columns (3), (6), and (9) contain an additional control indicating the presence of elderly parents.

We first examine the leftmost panel of Table 3.7. From specification (1), we can see that the coefficient ϕ is negative, with a point estimate of -0.192%, and is statistically significant at the 1% level. Including controls for age and education of

[7] Note that since all specifications are estimated using time and household-head fixed effects, age of the head and wife are implicitly controlled for.

the household head and wife in specification (2) yields a coefficient of interest which is larger in magnitude, with a point estimate of -0.254%, and again significant at the 1% level. Finally, this result is robust to controlling for the presence of elderly parents in the household, with ϕ again estimated at -0.254% and significant at the 1% level in specification (3). Interpretation of the -0.254% estimate in specification (3) indicates that, holding the full set of control variables constant, a household within the estimation sample in which the hourly wage difference between the wife and husband is $1 higher will have an equity portfolio allocation that is, on average, 0.254% lower. This result is statistically significant at the 1% level.

We next examine the middle panel of Table 3.7. From specification (4), we can see that incorporation of private business holdings in the definition of a household's risky asset allocation does not qualitatively change the results seen in specification (1). Quantitatively, the coefficient of ϕ is estimated at -0.187%. Consistent with the estimate when using only public equity holdings in specification (1), the regression in specification (3) again estimates ϕ with enough precision to yield statistical significance at the 1% level. The addition of variables controlling for the squared-age and education of heads and wives in specification (5) yields an economically stronger relation between the measure of risky portfolio weights and $WifeWageDifference$, with an estimate of -0.238% for ϕ, statistically significant at the 1% level. Finally, adding a control indicator for the presence of elderly parents does not affect the result, with specification (6) indicating an estimate of -0.235% for ϕ with the full set of controls. Again, this estimate is statistically significant at the 1% level. Also, this estimate indicates that, holding the full set of control variables constant, a household within the estimation sample in which the hourly wage difference between the wife and husband is $1 higher will have an allocation to risky assets, here defined as the sum of public equity and private business holdings, that is 0.235% lower on average.

Finally, we examine the rightmost panel of Table 3.7, where the allocation to

risky assets is defined as the sum of holdings in public equities, private business, and real estate. Overall, the results in this panel are similar to those discussed thus far. Specifically, specification (7) yields a coefficient of interest similar in magnitude to those seen in specifications (1) and (4), with a point estimate of -0.184%, and statistical significance at the 5% level. Including controls for heads' and wives' squared-age and education measures in specification (8), as seen before, increases the magnitude of the estimate of ϕ, and returns statistical significance to the 1% level. Again, this result is robust to the addition of an indicator for the presence of elderly parents in specification (9), in which ϕ is estimated at -0.235%, with statistical significance at the 1% level. The estimate in specification (9) indicates that, holding the full set of control variables constant, a household within the estimation sample in which the hourly wage difference between the wife and husband is $1 higher will have an allocation to risky assets, here defined as the sum of public equity, private business, and non-residential real estate holdings, that is 0.235% lower on average.

3.4.3 Nonwage Income

In much of the bargaining literature in labor economics, a female's share of household nonwage income is used as a proxy for her bargaining power relative to her spouse.[8] Labor income is thought to be endogenous, in that women with high overall productivity, and therefore a relatively good option outside of marriage, may still choose to stay home and purposely forgo labor income when married. However, nonwage income separately accruing to husbands and wives is thought to be relatively invariant to marital status (whether the couple stays together or chooses to split). Therefore, shifts in non-wage income should predict changes in bargaining power.

For married couples with positive risky asset holdings, the richness of the PSID

[8] McElroy and Horney (1981) motivate this measure qualitatively. Empirical studies using nonwage income share include those of Schultz (1990), Thomas (1990 and 1994), Altonji, Hayashi, and Kotlikoff (1992), and Browning, Bourguignon, Chiappori, and Lechene (1994), among others.

data allows us to draw from a rich set of sources of non-wage income in constructing a measure of bargaining power. Specifically, the PSID provides data on the following sources of non-wage income: rental income, interest and dividends, welfare benefits, social security benefits, veterans' and other pension benefits, help from friends and relatives, and benefits from the Aid to Families with Dependent Children (AFDC) and Temporary Assistance for Needy Families (TANF) programs.

Close examination of this list of non-wage income sources reveals that other than from the first two sources (rental income and interest and dividends), non-wage income is most likely to accrue to poorer families. This is problematic because, as documented by Campbell (2006), it is primarily the wealthiest families who participate in risky asset classes. Consistent with our intuition, in our estimation sample just 22.66% of households participating in the stock market receive nonwage income from the sources outlined above, excluding interest, dividends, and rental income. Conversely, 75.84% of such households receive income from interest, dividends, and rental income. Therefore, in our test of bargaining power using nonwage income, we calculate nonwage income as the sum of interest, dividends, and rental income for each member in a married couple. Then, the coefficient of interest in our regressions will be that on the female member's share of total non-wage income for the couple. That is,

$$WifeNonwageShare = \frac{WifeNonwageIncome}{HusbandNonwageIncome + WifeNonwageIncome}.$$

Then, to examine the effect of variations in bargaining power on households' allocations to risky assets, we consider regressions of the following form:

$$w_{risky,i,t} = \alpha_i + \theta WifeNonwageShare + \Gamma X_{i,t} + \varepsilon_{i,t},$$

where $w_{risky,i,t}$ is family i's allocation to risky assets at time t, θ is the coefficient of interest on $WifeNonwageShare$ defined above, and Γ is a vector of coefficients on

a set of control variables, $X_{i,t}$, for household i at time t. α_i is a household-specific constant term, since we estimate the above function with household-level fixed effects in order to control for unobserved heterogeneity.

Table 3.8 presents results of running regressions of the above form. The table is organized in the same manner as Table 3.4, with three horizontal panels. The leftmost panel contains specifications where the dependent variable, $w_{risky,i,t}$, is the allocation to equity, the middle panel contains specifications where $w_{risky,i,t}$ is the allocation to equity and private business holdings, and the rightmost panel's specifications have $w_{risky,i,t}$ defined as the sum of equity, private business, and real estate holdings. As in Table 3.7, we estimate three variants of the above regression function within each horizontal panel, each differing with respect to the content of the control vector $X_{i,t}$. The contents of the control vectors are identical to those of the specifications presented in Table 3.7.

We first examine the leftmost panel of Table 3.8. From specification (1), we can see that θ is negative, with a point estimate of -7.74%, though not quite statistically significant at the 10% level. Including controls for the squared-age and education of the household head and wife in specification (2) yields a coefficient of interest which is both larger in magnitude, with a point estimate of -14.38%, and significant at the 5% level. Finally, this result is robust to controlling for the presence of elderly parents in the household, with θ estimated at -14.41% and significant at the 5% level in specification (3). Interpretation of the -14.41% estimate in specification (3) indicates that, holding the full set of control variables constant, a household within the estimation sample in which the wife controls all non-wage income will have an equity portfolio allocation that is, on average, 14.41% lower than a household in which the husband controls all non-wage income. In addition to statistical significance at the 5% level, this result is also economically meaningful.

We next examine the middle panel of Table 3.8. From specification (4), we can

see that incorporation of private business holdings in the definition of a household's risky asset allocation does not qualitatively change the results seen in specification (1). Quantitatively, the coefficient of θ is estimated at -9.86%. In contrast with the estimate when using only public equity holdings in specification (1), the regression in specification (3) estimates θ with enough precision to yield statistical significance at the 10% level. The addition of variables controlling for the squared-age and education of heads and wives in specification (5) yields an economically and statistically stronger relation between the measure of risky portfolio weights and $WifeNonwageShare$. θ is estimated at -16.89%, with statistical significance at the 1% level, in this specification. Finally, adding a control indicator for the presence of elderly parents does not affect the result, with specification (6) indicating an estimate of -16.87% for θ with the full set of controls. Again, this estimate is statistically significant at the 1% level. As before, this result can be interpreted as the average effect of a wife in our estimation sample controlling all of a household's non-wage income (as opposed to none) being associated with a 16.87% lower allocation to risky assets, where risky asset holdings are here defined as the sum of those in public equities and private business, and non-risky holdings are those in cash and bonds.

Finally, examining the rightmost panel of Table 3.8, where risky assets are defined as the sum of holdings in public equities, private business, and real estate, we can see results similar to those discussed thus far. Specifically, specification (7) yields a coefficient of interest similar in magnitude and significance to that seen in specification (1), with a point estimate of -6.06% and statistical significance somewhat shy of the 10% level. However, including controls for heads' and wives' squared-age and education measures in specification (8) increases the magnitude of the estimate of θ, and yields statistical significance at the 10% level. Again, this result is robust to the addition of an indicator for the presence of elderly parents in specification (9), in which θ is estimated at -12.20%, with statistical significance at the 10% level.

In all, the results of using a wife's share of nonwage income as a proxy for bargaining power support the conclusion that intra-household bargaining is an important factor in household portfolio allocation decisions. The spirit of this conclusion is robust to all three definitions of risky assets, and the results are especially strong for the cases where risky assets are defined as the allocation to public equity and the sum of holdings in public equity and private businesses.

3.5 Quantifying the Importance of Bargaining

In the preceding section, we found strong evidence in support of intra-household bargaining as a statistically significant factor in household portfolio choice. In this section, we consider the economic significance of these results. The results at the retirement of the household head are easily interpreted, and have undeniable economic significance. However, the importance of these results comes into question when considering that for the majority of individuals, retirement is a once-in-a-lifetime event. More broadly, intra-household bargaining can be thought of as a continuous process throughout the lifetime of a couple, subject to a constant barrage of environmental forces affecting the relative bargaining power of members of a couple. In this section, we therefore compare the quantitative magnitude of the implied effects of our measures of relative intra-household bargaining power, comparing these effects with those of other explanatory variables advanced in the literature thus far.

3.5.1 Cross-Sectional Implications

We first quantify the effects of identified drivers of household portfolio allocations by considering the pooled distributions of explanatory variables in our estimation sample. Table 3.9 presents the results of this comparison. The table is split into four panels vertically. Panel a presents the cross-sectional distributions of the explanatory variables we consider; bargaining and non-bargaining related. Panel b presents the

implied variation in the allocation to equity, calculated using the coefficients from specification (3) of Table 3.7 in all cases except for $WifeNonwageShare$, which is calculated using the coefficient from specification (3) of Table 3.8. The implied variations are calculated by multiplying the respective coefficients by the distributional values of the explanatory variables in panel a. Panel c presents the implied variation in the allocation to the second definition of risky assets, the sum of holdings in equity and private business. Calculations use the coefficients from specification (6) of Table 3.7 in all cases except for $WifeNonwageShare$, which is calculated using the coefficient from specification (6) of Table 3.8. Finally, panel d presents the implied variation in the allocation to the sum of holdings in equity, private business, and real estate. Calculations use the coefficients from specification (9) of Table 3.7 in all cases except for $WifeNonwageShare$, which is calculated using the coefficient from specification (9) of Table 3.8.

We first examine panel a of Table 3.9. The bargaining variables $WifeWageDifference$ and $WifeNonwageShare$ take on respective mean values of -$9.17 and 8.66%, with respective standard deviations of $29.07 and 24.11%. The non-bargaining explanatory variables we consider are family labor income, net worth, and education of the head (in years). Respective mean values for these three variables are $86,523.29, $221,262.60, and 14.72 years. Respective standard deviations are $85,093.84, $222,437.30, and 1.98 years. Panel a also presents pooled cross-sectional distribution values of these variables at the 10th, 50th (median), and 90th percentiles, which will be discussed below.

Turning to implied variations in household allocations to risky assets, we highlight and interpret the key findings presented in Table 3.9. First, the bargaining-related explanatory variables imply variation in household risky asset allocations that is of a similar magnitude to that from the non-bargaining variables of labor income and net worth. Specifically, the results imply that a family experiencing a

one standard deviation move in $WifeWageDifference$ and $WifeNonwageShare$ will experience equity allocation shifts of 7.38% and 3.47%, respectively, compared to respective shifts of 4.00% and 4.47% for the same movement in labor income and net worth. Moreover, a household moving between the 10th and 90th percentile of $WifeWageDifference$ and $WifeNonwageShare$ will, all else equal, experience equity allocation shifts of 11.12%[9] and 7.20%, respectively. Comparatively, a household moving between the 10th and 90th percentile of labor income and net worth will experience respective equity allocation movements of 5.58% and 10.55%.

Second, the results highlighted above, showing that bargaining-related variation in household risky asset allocations is of a similar magnitude to that from labor income and net worth, are robust to the definition of risky asset holdings. Panel c (panel d) of Table 3.9 highlights this for the case of equity plus private business (equity, private business, and real estate), where one standard deviation moves in $WifeWageDifference$ and $WifeNonwageShare$ are associated with respective risky allocation shifts of 6.83% and 4.07% (6.83% and 2.94%). Movement between the 10th and 90th percentiles of $WifeWageDifference$ and $WifeNonwageShare$ are associated with respective risky allocation shifts of 10.29% and 8.43% (10.29% and 6.10%).

Finally, the results in panels a though c of Table 3.9 consistently indicate that the education level of the household head is overriding in its importance to household portfolio choice. However, if education levels are fairly constant for household heads, then the importance of this factor may be smaller than the results of Table 3.9 would indicate. To examine this issue, we consider within-household range-based distributions next.

[9] Calculated as $2.93 - (-8.19)$

3.5.2 Within-Household Range-Based Implications

The analysis presented in Table 3.9 and discussed in the preceding subsection suggests that intra-household bargaining is a quantitatively and economically important driver of household portfolio choice. However, one very important question comes to mind when considering the analysis: how likely are large variations in the explanatory variables within a household? Put another way, is it reasonable to consider and compare within-household movements from the 10th to the 90th percentiles of variables such as $WifeWageDifference$, $WifeNonwageShare$, labor income, net worth, and education? The likelihoods of such large within-household shifts are likely to be very different across explanatory variables. We therefore consider another way of quantifying the effects of explanatory variables on within-household fluctuations in household portfolio composition. To do this, we consider the distribution of within-household ranges of the variables in our estimation sample.

Table 3.10 presents the results of quantifying the implied effects of our considered set of explanatory variables using range-based distributions. The table is organized in the same way as Table 3.9. Panel a presents the range-based distributions of the explanatory variables we consider. Panel b presents the implied variation in the allocation to equity, calculated using the coefficients from specification (3) of Table 3.7 in all cases except for $WifeNonwageShare$, which is calculated using the coefficient from specification (3) of Table 3.8. The implied variations are calculated by multiplying the respective coefficients by the distributional values of the explanatory variables in panel a. Panel c presents the implied variation in the allocation to the second definition of risky assets, the sum of holdings in equity and private business. Calculations use the coefficients from specification (6) of Table 3.7 in all cases except for $WifeNonwageShare$, which is calculated using the coefficient from specification (6) of Table 3.8. Finally, panel d presents the implied variation in the

allocation to the sum of holdings in equity, private business, and real estate. Calculations use the coefficients from specification (9) of Table 3.7 in all cases except for $WifeNonwageShare$, which is calculated using the coefficient from specification (9) of Table 3.8.

We first examine panel a of Table 3.10. The within-household range of bargaining variables $WifeWageDifference$ and $WifeNonwageShare$ take on respective mean values of -$25.83 and 18.55%, with respective standard deviations of $38.11 and 31.05%. Again, the non-bargaining explanatory variables we consider are family labor income, net worth, and education of the head (in years). Respective mean values for the within-household ranges of these three variables are $67,491.16, $224,071.10, and 0.12 years. Respective standard deviations are $116,739.30, $195,448.70, and 0.42 years. Panel a also presents range-based distribution values of these variables at the 10th, 25th, 50th (median), 75th, and 90th percentiles. While the range of $WifeWageDifference$ shows variation even at the 10th percentile of households, $WifeNonwageShare$ does not vary within households up to and including the median. However, there is significant variation above the median, with ranges of 37.78% and 66.45% at the 75th and 90th percentiles, respectively. Also, as we alluded to earlier, it appears that household heads do not generally change their education levels over time, implying that education is not a channel through which within-household fluctuations in risky portfolio weights can be quantitatively explained.

Turning to implied variations in household allocations to risky assets, we highlight and interpret the key findings presented in Table 3.10. As in Table 3.9, the bargaining-related explanatory variables imply variation in household risky asset allocations that is of a similar magnitude to that from the non-bargaining variables of labor income and net worth. Specifically, the results imply that for a household at the median in terms of the range of $WifeWageDifference$, the associated variation in equity allocation is 3.94%. This can be compared to respective shifts of 2.35%

and 3.62% associated with the median range of labor income and net worth.

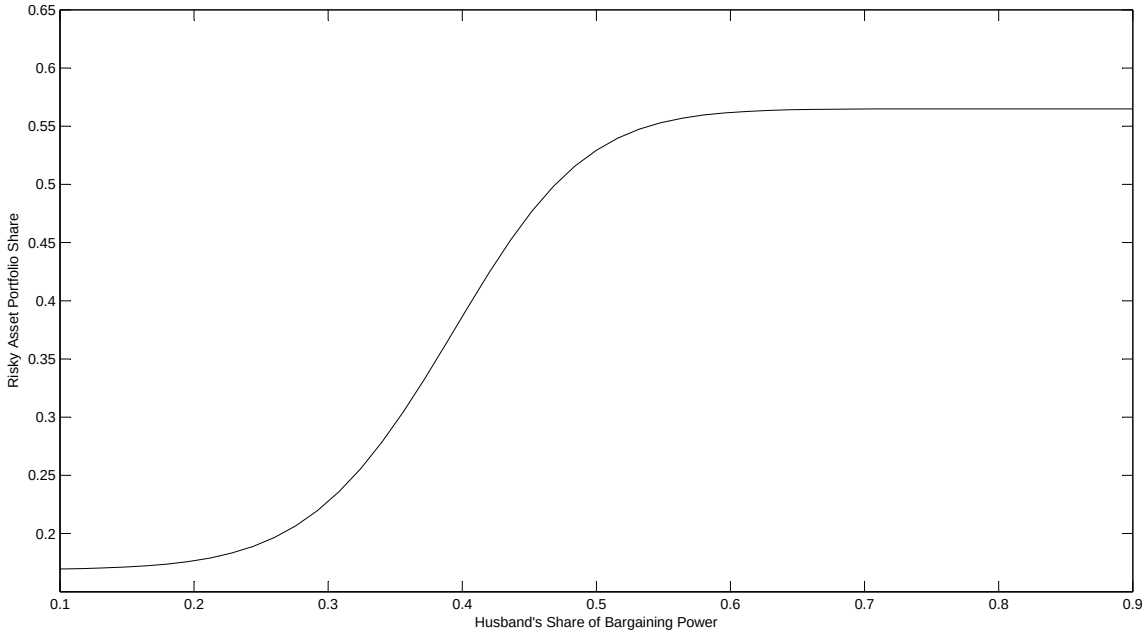
Considering ranges above the median, our results imply that a household at the 75th percentile in terms of the range of $WifeNonwageShare$ experiences bargaining-induced variation in equity portfolio shares of 5.44%. Moreover, bargaining-related variation in the allocation to equity is estimated at 8.60% when considering a household at the 75th percentile of the range in $WifeWageDifference$. These variation figures are again comparable to those associated with labor income and net worth, which are 4.14% and 6.14%, respectively, at the 75th percentile.

The discussion above is robust to the definition of risky asset holdings. Panels c and d of Table 3.10 highlight this for the cases of equity plus private business, and equity, private business, and real estate.

3.6 Conclusion

In this paper, we examined the effect of intra-household bargaining on household portfolio choice. Our empirical tests supported the hypothesis that redistributions of intra-household bargaining power are associated with asset allocation shifts between risky and safer asset classes in households' portfolios. Our results were robust to alternative risky asset definitions, including investments in stocks, real estate, and holdings in private business, as well as to alternative control specifications. Economically, we found that the effect of intra-household bargaining is large in magnitude, both when considering the cross-sectional distribution of explanatory variables and when considering within-household fluctuations in portfolio allocations. Hence, intra-household frictions should be considered when analyzing household portfolio choice decisions.

FIGURE 3.1: The effect of bargaining power on risky asset allocation



This figure displays the effect of changes in bargaining power on the allocation to risky assets. Risky asset allocations are generated by numerically solving the model presented in section 3.1. Model parameters are set to the following values: $\gamma_m = 3$, $\gamma_f = 10$, $\tilde{R} = [R_{hi}, R_{lo}]' = [1.08, 0.97]'$ with $p_{hi} = p_{lo} = 0.5$, and $R_b = 1.02$. Total nonwage income, $I_m + I_f$, is set equal to 10.

Table 3.1: PSID summary statistics for Single Heads (1984-2007 waves): (a) Males and (b) Females

Data are from the 1984-2007 waves of the Panel Study of Income Dynamics (PSID). This table displays summary statistics for the sample of household heads who are single (never married) 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 possession of an undergraduate degree, and 17 representing at least some post-graduate education.

	Mean	Median	Standard deviation	5th %ile	95th %ile
Panel a: Single Male Heads					
Characteristics					
Age (years)	27.28	25.00	7.18	19.00	51.00
Education (years)*	13.31	13.00	2.14	11.00	17.00
Labor Income ($)	22,625.73	18,706.00	20,580.87	926.00	52,000.00
Total Household Income ($)	30,192.47	23,112.50	35,147.25	3,150.00	70,000.00
Levels (in dollars)					
Net Worth	25,217.65	4,400.00	74,644.40	-25,800.00	160,000.00
Home Equity	12,062.53	0.00	41,310.14	0.00	70,000.00
Vehicle Equity	6,359.78	3,000.00	9,768.89	0.00	25,000.00
Other Debts	7,060.79	1,000.00	13,440.33	0.00	40,000.00
Cash	5,166.63	1,000.00	23,979.30	10.00	18,000.00
Stocks	1,131.03	0.00	9,693.24	0.00	2,600.00
Bonds	1,797.27	0.00	9,810.38	0.00	7,500.00
Private Business	4,058.63	0.00	25,686.25	0.00	4,000.00
Real Estate	1,702.59	0.00	13,205.06	0.00	0.00
Portfolio allocation (%)					
Cash	87.53	100.00	29.01	8.11	100.00
Stocks	5.13	0.00	18.87	0.00	56.18
Bonds	7.34	0.00	23.23	0.00	75.00
Total observations	464				
Panel b: Single Female Heads					
Characteristics					
Age (years)	29.90	28.00	8.49	19.00	47.00
Education (years)**	12.95	12.00	1.72	11.00	16.00
Labor Income ($)	18,550.29	16,000.00	14,428.95	0.00	45,000.00
Total Household Income ($)	18,855.21	16,275.00	14,561.47	0.00	47,172.00
Levels (in dollars)					
Net Worth	15,393.57	2,100.00	52,784.61	-20,000.00	93,800.00
Home Equity	7,512.07	0.00	32,262.24	0.00	40,000.00
Vehicle Equity	4,708.96	2,000.00	8,167.91	0.00	18,000.00
Other Debts	5,317.44	525.00	12,193.62	0.00	30,000.00
Cash	4,449.42	500.00	26,438.44	3.00	10,000.00
Stocks	952.50	0.00	11,875.37	0.00	500.00
Bonds	1,921.95	0.00	10,500.68	0.00	7,500.00
Private Business	280.21	0.00	4,855.19	0.00	0.00
Real Estate	885.89	0.00	8,944.37	0.00	0.00
Portfolio allocation (%)					
Cash	87.96	100.00	29.56	2.74	100.00
Stocks	3.62	0.00	16.68	0.00	10.71
Bonds	8.42	0.00	25.41	0.00	92.59
Total observations	758				

* 316 observations
** 545 observations

Table 3.2: PSID summary statistics for Separated/Divorced Heads (1984-2007 waves): (a) Males and (b) Females

Data are from the 1984-2007 waves of the Panel Study of Income Dynamics (PSID). This table displays summary statistics for the sample of household heads who are divorced, separated, or widowed 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 possession of an undergraduate degree, and 17 representing at least some post-graduate education.

	Mean	Median	Standard deviation	5th %ile	95th %ile
Panel a: Divorced/Separated Male Heads					
Characteristics					
Age (years)	40.12	39.00	9.70	28.00	56.00
Education (years)*	13.13	12.00	2.38	9.00	17.00
Labor Income ($)	38,386.75	31,000.00	35,322.68	0.00	100,000.00
Total Household Income ($)	46,204.17	36,000.00	44,476.31	0.00	117,200.00
Levels (in dollars)					
Net Worth	67,467.74	21,400.00	130,077.60	-12,150.00	328,000.00
Home Equity	34,595.52	0.00	68,326.83	0.00	175,000.00
Vehicle Equity	9,641.98	6,000.00	11,760.22	0.00	30,000.00
Other Debts	6,617.89	1,100.00	13,566.21	0.00	35,000.00
Cash	9,791.75	1,800.00	27,564.16	7.00	50,000.00
Stocks	6,749.38	0.00	30,135.45	0.00	40,000.00
Bonds	4,037.76	0.00	16,276.21	0.00	20,000.00
Private Business	5,866.70	0.00	33,868.54	0.00	10,000.00
Real Estate	3,402.54	0.00	21,467.55	0.00	6,000.00
Portfolio allocation (%)					
Cash	81.29	100.00	33.52	1.57	100.00
Stocks	9.31	0.00	24.30	0.00	80.00
Bonds	9.40	0.00	25.45	0.00	83.33
Total observations	433				
Panel b: Divorced/Separated Female Heads					
Characteristics					
Age (years)	39.99	40.00	8.12	27.00	54.00
Education (years)**	13.23	13.00	1.90	11.00	17.00
Labor Income ($)	26,266.04	23,923.50	23,774.23	0.00	62,690.00
Total Household Income ($)	27,307.91	24,000.00	25,734.34	0.00	63,900.00
Levels (in dollars)					
Net Worth	41,804.65	10,500.00	88,318.54	-12,700.00	184,300.00
Home Equity	28,532.02	0.00	57,685.11	0.00	140,000.00
Vehicle Equity	6,401.27	3,700.00	9,743.36	0.00	20,000.00
Other Debts	6,592.45	2,000.00	12,129.34	0.00	30,000.00
Cash	4,758.58	1,000.00	17,242.06	10.00	20,000.00
Stocks	3,107.37	0.00	21,867.35	0.00	5,000.00
Bonds	2,291.23	0.00	11,463.26	0.00	10,000.00
Private Business	1,342.71	0.00	15,968.07	0.00	0.00
Real Estate	1,963.92	0.00	16,041.82	0.00	0.00
Portfolio allocation (%)					
Cash	85.98	100.00	31.05	2.78	100.00
Stocks	5.15	0.00	19.44	0.00	51.56
Bonds	8.86	0.00	25.63	0.00	88.50
Total observations	1,028				

* 307 observations
** 759 observations

Table 3.3: PSID summary statistics for Households with Married Heads (1984-2007 waves)

Data are from the 1984-2007 waves of the Panel Study of Income Dynamics (PSID). This table displays summary statistics for the sample of households with a married head 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 possession of an undergraduate degree, and 17 representing at least some post-graduate education.

	Mean	Median	Standard deviation	5th %ile	95th %ile
Characteristics					
Age - Head (years)	39.90	40.00	9.12	26.00	55.00
Age - Wife (years)	37.51	38.00	9.28	24.00	52.00
Education - Head (years)*	13.64	13.00	2.30	10.00	17.00
Education - Wife (years)**	14.37	14.00	2.07	12.00	17.00
Labor Income - Head ($)	48,796.09	37,000.00	65,312.32	0.00	121,000.00
Labor Income - Wife ($)	19,851.13	15,000.00	25,605.28	0.00	57,000.00
Total Household Income ($)	74,594.10	59,000.00	82,506.52	14,600.00	172,876.00
Levels (in dollars)					
Net Worth	132,122.60	62,317.50	184,716.20	-3,980.00	525,000.00
Home Equity	66,561.30	31,000.00	91,479.08	0.00	280,000.00
Vehicle Equity	14,800.03	10,000.00	16,515.18	0.00	45,000.00
Other Debts	7,221.41	2,000.00	13,210.53	0.00	30,000.00
Cash	15,203.96	4,000.00	40,616.66	60.00	60,000.00
Stocks	15,832.96	0.00	53,777.92	0.00	100,000.00
Bonds	5,696.84	0.00	18,954.94	0.00	40,000.00
Private Business	12,612.85	0.00	51,079.76	0.00	89,641.00
Real Estate	8,636.04	0.00	34,938.74	0.00	50,000.00
Portfolio allocation (%)					
Cash	74.19	100.00	36.48	3.08	100.00
Stocks	14.24	0.00	28.82	0.00	88.24
Bonds	11.57	0.00	26.18	0.00	85.29
Total observations	5,434				

* 4,528 observations
** 5,354 observations

Table 3.4: Household Asset Allocations and Retirement, pooled first-difference specifications

This table presents the results of specifications regressing the first-difference of risky asset class allocations on an indicator for retirement of the head-of-household (equal to 1 if the head-of-household is retired at time of observation, but was not retired at the previous observation, and equal to 0 otherwise), as well as the interaction between this retirement indicator and an indicator for the head-of-household's marital status (equal to 1 for married, and 0 otherwise). The leftmost panel displays the estimation results of specifications where the dependent variable is the change in allocation to equity. The dependent variable in the middle panel is the change in allocation to equity and private business holdings. Finally, the dependent variable in the rightmost panel is the change in allocation to equity, private business, and real estate holdings. See Table 3.3 for summary statistics of the three risky asset definitions. Within each vertical panel, the first specification contains controls for changes in family labor income, net worth, and an indicator for having children in the household. The second specification adds controls for changes in the quadratic age of the head and spouse (if present), as well as for changes in the education levels (in years) of the head and spouse (if present). The third specification within each panel adds an indicator variable controlling for changes in the presence of elderly parents of either the head or spouse living in the household. Standard errors are heteroskedasticity robust and clustered by head-of-household. ***Statistically significant at the 1% level, **statistically significant at the 5% level, *statistically significant at the 10% level.

	Change in Risky Allocation - Equity (%)			Change in Risky Allocation - Equity + Private Business (%)			Change in Risky Allocation - Equity + Private Business + Real Estate (%)		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Retirement Indicator x Married Indicator	-19.76**	-20.31**	-20.36**	-24.79**	-25.83**	-25.92**	-25.55**	-27.48**	-27.55**
	(9.127)	(10.24)	(10.25)	(9.928)	(10.96)	(10.98)	(11.78)	(12.78)	(12.79)
Retirement Indicator	6.362	5.015	4.963	10.71	11.21	11.12	9.941	13.12	13.04
	(7.754)	(8.963)	(8.970)	(8.613)	(9.721)	(9.736)	(10.88)	(11.98)	(11.99)
Family Labor Income (chg)	-0.0851	-0.0785	-0.0800	-0.0760	-0.119	-0.121	-0.0244	-0.0794	-0.0817
	(0.0729)	(0.0923)	(0.0922)	(0.0806)	(0.101)	(0.101)	(0.0711)	(0.0827)	(0.0823)
Family Non-Portfolio Net Worth (chg)	0.264***	0.271***	0.272***	0.355***	0.384***	0.386***	0.315***	0.308***	0.309***
	(0.0373)	(0.0414)	(0.0415)	(0.0393)	(0.0450)	(0.0450)	(0.0376)	(0.0414)	(0.0414)
Presence of Children (chg)	3.287	6.843**	6.831**	3.343	6.479*	6.460*	2.726	5.485	5.469
	(3.192)	(3.359)	(3.373)	(3.198)	(3.388)	(3.393)	(3.223)	(3.519)	(3.531)
Age-squared/100 of Head (chg)		1.491***	1.496***		0.636*	0.645*		-0.437	-0.430
		(0.319)	(0.319)		(0.353)	(0.353)		(0.338)	(0.338)
Education of Head (chg)		2.564**	2.546*		2.069	2.040		1.240	1.215
		(1.306)	(1.307)		(1.417)	(1.415)		(1.477)	(1.476)
Age-squared/100 of Wife (chg)		0.0406	0.0434		0.0173	0.0220		0.00640	0.00980
		(0.0754)	(0.0754)		(0.0770)	(0.0769)		(0.0815)	(0.0814)
Education of Wife (chg)		-0.331	-0.329		0.146	0.149		0.123	0.126
		(0.614)	(0.613)		(0.615)	(0.615)		(0.614)	(0.616)
Presence of Elderly Parents (chg)			-4.063			-6.695*			-5.869*
			(2.710)			(3.525)			(3.415)
Observations	5128	4046	4046	5128	4046	4046	5128	4046	4046
Families	2309	2016	2016	2309	2016	2016	2309	2016	2016
R-squared	0.155	0.181	0.181	0.129	0.148	0.149	0.0951	0.112	0.113

Table 3.5: Household Asset Allocations and Retirement, pooled first-difference specifications - Married Subsample

This table presents the results of specifications regressing the first-difference of risky asset class allocations on an indicator for retirement of the head-of-household (equal to 1 if the head-of-household is retired at time of observation, but was not retired at the previous observation, and equal to 0 otherwise), where the estimation sample is restricted to those observations where the head-of-household is married. The leftmost panel displays the estimation results of specifications where the dependent variable is the change in allocation to equity. The dependent variable in the middle panel is the change in allocation to equity and private business holdings. Finally, the dependent variable in the rightmost panel is the change in allocation to equity, private business, and real estate holdings. See Table 3.3 for summary statistics of the three risky asset definitions. Within each vertical panel, the first specification contains controls for changes in family labor income, net worth, and an indicator for having children in the household. The second specification adds controls for changes in the quadratic age of the head and spouse (if present), as well as for changes in the education levels (in years) of the head and spouse (if present). The third specification within each panel adds an indicator variable controlling for changes in the presence of elderly parents of either the head or spouse living in the household. Standard errors are heteroskedasticity robust and clustered by head-of-household. ***Statistically significant at the 1% level, **statistically significant at the 5% level, *statistically significant at the 10% level.

	Change in Risky Allocation - Equity (%)			Change in Risky Allocation - Equity + Private Business (%)			Change in Risky Allocation - Equity + Private Business + Real Estate (%)		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Retirement Indicator	-13.07**	-15.32***	-15.46***	-13.61***	-14.27***	-14.45***	-15.34***	-14.42***	-14.59***
	(5.187)	(5.439)	(5.441)	(5.337)	(5.593)	(5.595)	(4.911)	(4.983)	(4.987)
Family Labor Income (chg)	-0.100	-0.105	-0.107	-0.0916	-0.149	-0.152	-0.0496	-0.115	-0.118
	(0.0738)	(0.0933)	(0.0932)	(0.0825)	(0.104)	(0.103)	(0.0700)	(0.0803)	(0.0798)
Family Non-Portfolio Net Worth (chg)	0.256***	0.260***	0.261***	0.341***	0.366***	0.368***	0.302***	0.284***	0.285***
	(0.0400)	(0.0447)	(0.0446)	(0.0423)	(0.0486)	(0.0485)	(0.0398)	(0.0439)	(0.0439)
Presence of Children (chg)	1.928	4.569	4.485	3.401	6.069*	5.962*	3.353	5.708	5.610
	(3.272)	(3.468)	(3.477)	(3.260)	(3.488)	(3.504)	(3.338)	(3.675)	(3.696)
Age-squared/100 of Head (level)		1.422***	1.425***		0.422	0.426		-0.596	-0.592
		(0.387)	(0.387)		(0.406)	(0.406)		(0.395)	(0.395)
Education of Head (chg)		3.102**	3.071**		2.673*	2.634*		1.791	1.755
		(1.293)	(1.293)		(1.468)	(1.465)		(1.523)	(1.519)
Age-squared/100 of Wife (chg)		0.345*	0.350*		0.341*	0.348*		0.362**	0.368**
		(0.185)	(0.185)		(0.179)	(0.180)		(0.176)	(0.177)
Education of Wife (chg)		-0.312	-0.309		0.161	0.165		0.119	0.123
		(0.616)	(0.615)		(0.617)	(0.617)		(0.616)	(0.617)
Presence of Elderly Parents (chg)			-5.799**			-7.397**			-6.810*
			(2.893)			(3.695)			(3.533)
Observations	4323	3434	3434	4323	3434	3434	4323	3434	3434
Families	1980	1738	1738	1980	1738	1738	1980	1738	1738
R-squared	0.158	0.184	0.185	0.132	0.150	0.151	0.0958	0.114	0.115

Table 3.6: Household Asset Allocations and Retirement, pooled first-difference specifications - Married Subsample: Conditional Analysis

This table presents the results of specifications regressing the first-difference of risky asset class allocations on an indicator for retirement of the head-of-household (equal to 1 if the head-of-household is retired at time of observation, but was not retired at the previous observation, and equal to 0 otherwise). The results are conditioned on the basis of whether the wife is also retired or a homemaker at the time of the head-of-household's retirement, or the wife is still working. The estimation sample is restricted to those observations where the head-of-household is married. The leftmost panel displays the estimation results of specifications where the dependent variable is the change in allocation to equity. The dependent variable in the middle panel is the change in allocation to equity and private business holdings. Finally, the dependent variable in the rightmost panel is the change in allocation to equity, private business, and real estate holdings. See Table 3.3 for summary statistics of the three risky asset definitions. Within each vertical panel, the first specification contains controls for changes in family labor income, net worth, and an indicator for having children in the household. The second specification adds controls for changes in the quadratic age of the head and spouse (if present), as well as for changes in the education levels (in years) of the head and spouse (if present). The third specification within each panel adds an indicator variable controlling for changes in the presence of elderly parents of either the head or spouse living in the household. Standard errors are heteroskedasticity robust and clustered by head-of-household. ***Statistically significant at the 1% level, **statistically significant at the 5% level, *statistically significant at the 10% level.

	Change in Risky Allocation - Equity (%)			Change in Risky Allocation - Equity + Private Business (%)			Change in Risky Allocation - Equity + Private Business + Real Estate (%)		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Retirement Indicator: Wife Retired or Homemaker	-16.25***	-17.49***	-17.63***	-16.96***	-16.58**	-16.76***	-19.88***	-17.76***	-17.93***
	(6.068)	(6.397)	(6.399)	(6.239)	(6.569)	(6.571)	(5.574)	(5.725)	(5.728)
Retirement Indicator: Wife Working	-0.390	-5.889	-6.019	-0.229	-4.253	-4.419	2.769	-0.0871	-0.240
	(7.115)	(6.963)	(6.969)	(7.247)	(7.243)	(7.251)	(7.263)	(6.858)	(6.866)
Family Labor Income (chg)	-0.101	-0.101	-0.103	-0.0923	-0.146	-0.149	-0.0506	-0.112	-0.114
	(0.0738)	(0.0932)	(0.0930)	(0.0825)	(0.103)	(0.103)	(0.0699)	(0.0805)	(0.0800)
Family Non-Portfolio Net Worth (chg)	0.256***	0.265***	0.266***	0.342***	0.371***	0.372***	0.302***	0.288***	0.290***
	(0.0400)	(0.0445)	(0.0445)	(0.0422)	(0.0485)	(0.0484)	(0.0397)	(0.0437)	(0.0437)
Presence of Children (chg)	1.929	4.724	4.644	3.401	6.222*	6.120*	3.353	5.871	5.778
	(3.273)	(3.464)	(3.472)	(3.260)	(3.485)	(3.501)	(3.338)	(3.673)	(3.695)
Age-squared/100 of Head (level)		1.734***	1.741***		0.731**	0.741**		-0.269	-0.259
		(0.347)	(0.346)		(0.368)	(0.368)		(0.362)	(0.362)
Education of Head (chg)		2.980**	2.948**		2.551*	2.510*		1.651	1.614
		(1.299)	(1.298)		(1.472)	(1.468)		(1.521)	(1.517)
Education of Wife (chg)		-0.268	-0.264		0.204	0.209		0.159	0.164
		(0.617)	(0.616)		(0.619)	(0.618)		(0.619)	(0.620)
Presence of Elderly Parents (chg)			-5.712**			-7.311**			-6.720*
			(2.894)			(3.698)			(3.541)
Observations	4323	3434	3434	4323	3434	3434	4323	3434	3434
Families	1980	1738	1738	1980	1738	1738	1980	1738	1738
R-squared	0.158	0.183	0.184	0.132	0.149	0.151	0.0965	0.113	0.114

Table 3.7: Household Asset Allocations and Wage Differentials, fixed-effect specifications

This table presents the results of specifications with head-of-household fixed effects, regressing risky asset class allocations on the difference in hourly wages between wives and husbands. The leftmost panel displays the estimation results of specifications where the dependent variable is the allocation to equity. The dependent variable in the middle panel is the allocation to equity and private business holdings. Finally, the dependent variable in the rightmost panel is the allocation to equity, private business, and real estate holdings. See Table 3.3 for summary statistics of the three risky asset definitions. Within each vertical panel, the first specification contains controls for family labor income, net worth, an indicator for having children, and a measure of the number of children in the household. The second specification adds controls for quadratic age of the head and spouse, as well as for their education levels in years. The third specification within each panel adds an indicator variable controlling for the presence of elderly parents of either the head or spouse living in the household. Standard errors are heteroskedasticity robust and clustered by head-of-household. ***Statistically significant at the 1% level, **statistically significant at the 5% level, *statistically significant at the 10% level.

	Risky Allocation - Equity (%)			Risky Allocation - Equity + Private Business (%)			Risky Allocation - Equity + Private Business + Real Estate (%)		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Hourly Wage Differential	-0.192***	-0.254***	-0.254***	-0.187***	-0.238***	-0.235***	-0.184**	-0.239***	-0.235***
	(0.0674)	(0.0774)	(0.0777)	(0.0633)	(0.0718)	(0.0720)	(0.0749)	(0.0854)	(0.0836)
Family Labor Income	-0.387	-0.471*	-0.470	-0.628***	-0.670***	-0.663***	-0.669***	-0.757***	-0.747***
	(0.241)	(0.286)	(0.287)	(0.212)	(0.239)	(0.239)	(0.244)	(0.276)	(0.272)
Family Net Worth	0.226**	0.202	0.201	0.323***	0.271**	0.267**	0.356***	0.324***	0.318***
	(0.0932)	(0.125)	(0.126)	(0.0931)	(0.121)	(0.123)	(0.0920)	(0.114)	(0.114)
Presence of Children	2.176	4.402	4.403	4.470	7.226	7.233	2.920	4.652	4.662
	(3.805)	(4.581)	(4.585)	(3.930)	(4.540)	(4.547)	(4.066)	(4.812)	(4.824)
Number of Children	-0.932	-2.904	-2.907	-1.251	-3.293	-3.321	-1.069	-3.680*	-3.722*
	(1.981)	(2.329)	(2.334)	(2.014)	(2.132)	(2.142)	(2.052)	(2.188)	(2.192)
Age-squared/100 of Head		-4.942**	-4.935**		-6.247***	-6.188***		-5.782**	-5.695**
		(2.428)	(2.423)		(2.267)	(2.259)		(2.501)	(2.486)
Education of Head		11.72***	11.71***		12.39***	12.38***		9.859**	9.838**
		(4.206)	(4.207)		(4.253)	(4.237)		(4.234)	(4.222)
Age-squared/100 of Wife		3.260	3.277		3.754*	3.899*		1.987	2.203
		(2.196)	(2.207)		(2.033)	(2.025)		(2.617)	(2.560)
Education of Wife		1.950	1.958		2.408	2.469		1.456	1.549
		(1.690)	(1.691)		(1.786)	(1.782)		(1.965)	(1.959)
Presence of Elderly Parents			-0.618			-5.061			-7.569
			(6.351)			(7.199)			(6.163)
Observations	1133	908	908	1133	908	908	1133	908	908
Families	497	439	439	497	439	439	497	439	439
R-squared	0.100	0.153	0.153	0.110	0.159	0.160	0.0983	0.129	0.131

Table 3.8: Household Asset Allocations and Wives' Nonwage Income Share, fixed-effect specifications

This table presents the results of specifications with head-of-household fixed effects, regressing risky asset class allocations on the wife's share of nonwage income. The leftmost panel displays the estimation results of specifications where the dependent variable is the allocation to equity. The dependent variable in the middle panel is the allocation to equity and private business holdings. Finally, the dependent variable in the rightmost panel is the allocation to equity, private business, and real estate holdings. See Table 3 for summary statistics of the three risky asset definitions. Within each vertical panel, the first specification contains controls for family labor income, net worth, an indicator for having children, and a measure of the number of children in the household. The second specification adds controls for quadratic age of the head and spouse, as well as for their education levels in years. The third specification within each panel adds an indicator variable controlling for the presence of elderly parents of either the head or spouse living in the household. Standard errors are heteroskedasticity robust and clustered by head-of-household. ***Statistically significant at the 1% level, **statistically significant at the 5% level, *statistically significant at the 10% level.

	Risky Allocation - Equity (%)			Risky Allocation - Equity + Private Business (%)			Risky Allocation - Equity + Private Business + Real Estate (%)		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Wife's Nonwage Income Share	-7.741	-14.38**	-14.41**	-9.857*	-16.89***	-16.87***	-6.059	-12.29*	-12.20*
	(5.838)	(6.242)	(6.260)	(5.773)	(6.250)	(6.307)	(5.977)	(6.427)	(6.516)
Family Labor Income	0.0299	0.0430	0.0433	-0.147	-0.133	-0.133	-0.181*	-0.205	-0.206
	(0.161)	(0.227)	(0.228)	(0.109)	(0.162)	(0.162)	(0.107)	(0.167)	(0.167)
Family Net Worth	0.172*	0.148	0.148	0.308***	0.278**	0.278**	0.265***	0.225**	0.225**
	(0.0920)	(0.115)	(0.115)	(0.0874)	(0.110)	(0.110)	(0.0897)	(0.107)	(0.107)
Presence of Children	2.440	3.527	3.524	3.476	5.022	5.024	2.598	4.655	4.664
	(4.065)	(4.549)	(4.554)	(3.991)	(4.426)	(4.429)	(4.123)	(4.811)	(4.811)
Number of Children	-1.432	-1.944	-1.934	-1.163	-2.153	-2.159	-0.559	-1.711	-1.739
	(1.913)	(2.166)	(2.174)	(1.832)	(2.003)	(2.013)	(1.749)	(1.881)	(1.896)
Age-squared/100 of Head		-2.552	-2.580		-3.641*	-3.624*		-4.254**	-4.176**
		(1.921)	(1.919)		(2.127)	(2.135)		(1.967)	(1.999)
Education of Head		4.200	4.262		5.818	5.780		5.633	5.464
		(5.708)	(5.724)		(5.421)	(5.450)		(4.034)	(4.125)
Age-squared/100 of Wife		2.840	2.823		2.890	2.901		3.300	3.346*
		(1.806)	(1.807)		(1.827)	(1.831)		(2.036)	(2.026)
Education of Wife		1.884	1.884		2.875	2.876		1.624	1.627
		(2.065)	(2.069)		(2.119)	(2.119)		(2.058)	(2.052)
Presence of Elderly Parents			1.493			-0.908			-4.093
			(6.515)			(6.870)			(6.947)
Observations	985	793	793	985	793	793	985	793	793
Families	385	340	340	385	340	340	385	340	340
R-squared	0.0973	0.131	0.131	0.0933	0.122	0.122	0.0760	0.0990	0.0995

Table 3.9: The Importance of Bargaining on Household Portfolio Choice - Cross-Sectional Analysis

This table quantifies the effects of identified drivers of household portfolio allocations by considering the pooled distributions of explanatory variables in the estimation sample. The table is split into four panels vertically. Panel a presents the cross-sectional distributions of the explanatory variables considered. Panel b presents the implied variation in the allocation to equity. Calculations use the coefficients from specification (3) of Table 3.4 in all cases except for Wife's Nonwage Income Share, which uses the coefficient from specification (3) of Table 3.8. Implied variations are calculated by multiplying the respective coefficients by the distributional values of the explanatory variables in panel a. Panel c presents the implied variation in the allocation to equity and private business holdings. Calculations use the coefficients from specification (6) of Table 3.4 in all cases except for Wife's Nonwage Income Share, which uses the coefficient from specification (6) of Table 3.8. Panel d presents the implied variation in the allocation to equity, private business, and real estate holdings. Calculations use the coefficients from specification (9) of Table 3.4 in all cases except for Wife's Nonwage Income Share, which uses the coefficient from specification (9) of Table 3.8.

	Mean	Standard deviation	10th %ile	Median	90th %ile
Panel a: Cross-Sectional Distributions					
Bargaining Explanatory Variables					
Wife Wage Difference ($)	-9.17	29.07	-32.24	-5.61	11.53
Wife's Nonwage Income Share (%)	8.66	24.11	0.00	0.00	49.99
Non-Bargaining Explanatory Variables					
Family Labor Income ($)	86,523.29	85,093.84	31,235.00	73,241.00	150,000.00
Family Net Worth ($)	221,262.60	222,437.30	17,150.00	149,500.00	542,000.00
Education - Head (years)	14.72	1.98	12.00	16.00	17.00
Panel b: Implied Variation in Allocation to Risky Assets (Equity) (%)					
Bargaining Explanatory Variables					
Wife Wage Difference	-2.33	7.38	-8.19	-1.42	2.93
Wife's Nonwage Income Share	1.25	3.47	0.00	0.00	7.20
Non-Bargaining Explanatory Variables					
Family Labor Income ($)	4.07	4.00	1.47	3.44	7.05
Family Net Worth ($)	4.45	4.47	0.34	3.00	10.89
Education - Head (years)	172.37	23.19	140.52	187.36	199.07
Panel c: Implied Variation in Allocation to Risky Assets (Equity + Private Business) (%)					
Bargaining Explanatory Variables					
Wife Wage Difference	-2.15	6.83	-7.58	-1.32	2.71
Wife's Nonwage Income Share	1.46	4.07	0.00	0.00	8.43
Non-Bargaining Explanatory Variables					
Family Labor Income ($)	5.74	5.64	2.07	4.86	9.95
Family Net Worth ($)	4.45	4.47	0.34	3.00	10.89
Education - Head (years)	182.23	24.51	148.56	198.08	210.46
Panel d: Implied Variation in Allocation to Risky Assets (Equity + Private Business + Real Estate) (%)					
Bargaining Explanatory Variables					
Wife Wage Difference	-2.15	6.83	-7.58	-1.32	2.71
Wife's Nonwage Income Share	1.06	2.94	0.00	0.00	6.10
Non-Bargaining Explanatory Variables					
Family Labor Income ($)	6.46	6.36	2.33	5.47	11.21
Family Net Worth ($)	7.04	7.07	0.55	4.75	17.24
Education - Head (years)	144.82	19.48	118.06	157.41	167.25

Table 3.10: The Importance of Bargaining on Household Portfolio Choice - Within-Household Range-Based Analysis

This table quantifies the effects of identified drivers of household portfolio allocations by considering the distributions of the within-household range of explanatory variables in the estimation sample. The table is split into four panels vertically. Panel a presents the cross-sectional distributions of the explanatory variables considered. Panel b presents the implied variation in the allocation to equity. Calculations use the coefficients from specification (3) of Table 3.4 in all cases except for Wife's Nonwage Income Share, which uses the coefficient from specification (3) of Table 3.8. Implied variations are calculated by multiplying the respective coefficients by the distributional values of the explanatory variables in panel a. Panel c presents the implied variation in the allocation to equity and private business holdings. Calculations use the coefficients from specification (6) of Table 3.4 in all cases except for Wife's Nonwage Income Share, which uses the coefficient from specification (6) of Table 3.8. Panel d presents the implied variation in the allocation to equity, private business, and real estate holdings. Calculations use the coefficients from specification (9) of Table 3.4 in all cases except for Wife's Nonwage Income Share, which uses the coefficient from specification (9) of Table 3.8.

	Mean	Standard deviation	10th %ile	25th %ile	Median	75th %ile	90th %ile
Panel a: Within-Household Range-Based Distributions							
Bargaining Explanatory Variables							
Wife Wage Difference ($)	25.83	38.11	3.73	7.79	15.52	33.86	60.50
Wife's Nonwage Income Share (%)	18.55	31.05	0.00	0.00	0.00	37.78	66.45
Non-Bargaining Explanatory Variables							
Family Labor Income ($)	67,491.16	116,739.30	7,000.00	24,000.00	50,000.00	88,000.00	120,500.00
Family Net Worth ($)	224,071.10	195,448.70	30,400.01	77,000.01	179,890.00	319,000.00	497,000.00
Education - Head (years)	0.12	0.42	0.00	0.00	0.00	0.00	0.00
Panel b: Implied Variation in Allocation to Risky Assets (Equity) (%)							
Bargaining Explanatory Variables							
Wife Wage Difference	6.56	9.68	0.95	1.98	3.94	8.60	15.37
Wife's Nonwage Income Share	2.67	4.47	0.00	0.00	0.00	5.44	9.58
Non-Bargaining Explanatory Variables							
Family Labor Income ($)	3.17	5.49	0.33	1.13	2.35	4.14	5.66
Family Net Worth ($)	4.50	3.93	0.61	1.55	3.62	6.41	9.99
Education - Head (years)	1.41	4.92	0.00	0.00	0.00	0.00	0.00
Panel c: Implied Variation in Allocation to Risky Assets (Equity + Private Business) (%)							
Bargaining Explanatory Variables							
Wife Wage Difference	6.07	8.96	0.88	1.83	3.65	7.96	14.22
Wife's Nonwage Income Share	3.13	5.24	0.00	0.00	0.00	6.37	11.21
Non-Bargaining Explanatory Variables							
Family Labor Income ($)	4.47	7.74	0.46	1.59	3.32	5.83	7.99
Family Net Worth ($)	4.50	3.93	0.61	1.55	3.62	6.41	9.99
Education - Head (years)	1.49	5.20	0.00	0.00	0.00	0.00	0.00
Panel d: Implied Variation in Allocation to Risky Assets (Equity + Private Business + Real Estate) (%)							
Bargaining Explanatory Variables							
Wife Wage Difference	6.07	8.96	0.88	1.83	3.65	7.96	14.22
Wife's Nonwage Income Share	2.26	3.79	0.00	0.00	0.00	4.61	8.11
Non-Bargaining Explanatory Variables							
Family Labor Income ($)	5.04	8.72	0.52	1.79	3.74	6.57	9.00
Family Net Worth ($)	7.13	6.22	0.97	2.45	5.72	10.14	15.80
Education - Head (years)	1.18	4.13	0.00	0.00	0.00	0.00	0.00

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