Retirement Security and Financial Decision Making

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Preface

The work reported here was undertaken in 2017 and 2018 and was sponsored by the Bureau of Consumer Financial Protection. The report should be of interest to the Bureau's staff; staff of other federal agencies that have responsibilities related to retirement savings and the financial security of older Americans; and economists and policy analysts with interests related to the financial security of Americans approaching and preparing for retirement.

This research was undertaken within the Center for Financial and Economic Decision Making (CFED). The mission of CFED, a part of RAND's Education and Labor research division, is to understand how people in the United States and around the world collect and think about financial information and how successfully they match their financial decisions to their interests and goals. CFED's researchers are dedicated to finding solutions that can improve decision making quality to enhance the financial well-being of individuals, families, and nations.

RAND Education and Labor is a division of the RAND Corporation that conducts research on early childhood through postsecondary education programs, workforce development, and programs and policies affecting workers, entrepreneurship, and financial literacy and decisionmaking.

More information about RAND can be found at www.rand.org. Questions about this report should be directed to Angela Hung, and questions about RAND Education and Labor should be directed to educationandlabor@rand.org.

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1. Introduction

Financial planning for retirement in the United States has never been more important, since Americans are both living longer and are increasingly responsible for their own financial well-being in retirement. Defined benefit (DB) plans have largely given way to self-directed retirement savings, such as defined contribution (DC) plans and Individual Retirement Accounts (IRAs). In 1978, DB plans accounted for around 70 percent of retirement assets; by 2013, they accounted for only 35 percent (CEA 2015). Over the same period, DC plans and IRAs rose from around 20 percent of retirement assets to 50 percent.

This change in private retirement savings gives greater control to individuals on how much to accumulate during their working years, and how much to deaccumulate during their retirement. With greater control also comes great responsibility for the individual. As this individual-level responsibility has increased so has the relevance of making the right claiming decision about Social Security, which for many will be the only source of life-time income protected against inflation. Longer life spans, and especially longer post-retirement life spans, have also raised long-term care costs for households, further requiring careful financial planning for retirement.

However, a large body of research suggests that Americans have difficulty handling this growing responsibility for retirement planning (Behaghel and Blau 2012; Coe et al. 2013; Goda et al. 2015). For example, the majority of Social Security retirement claimants continue to claim at the earliest possible age, 62 years old (Munnell and Chen 2015), even though for many retirees, their financial well-being would be better served by delaying collection of these benefits (Shoven and Slavov 2012).

The Consumer Financial Protection Bureau's Office of Older Americans seeks to provide older Americans with resources to help them plan for their retirement. To do so, they also need a greater knowledge of which populations are the most at risk. In this report, we seek to identify leading indicators of financial insecurity in retirement that can assist the Office of Older Americans in 1) identifying key decisions prior to retirement that may be correlated with insecurity in later years, and 2) identifying populations who may benefit most from targeted information.

Individuals and households who are financially secure are able to meet their financial goals. In this report, we develop three measures of financial security, related to three common financial goals, among retired Health and Retirement Study (HRS) respondents. These measures cover ability to pay for regular expenses, ability to pay for long-term care costs, and the ability to bequest. Standard lifecycle models predict that individuals should smooth their consumption over the life course; the ability to pay for regular expenses allows for retirees to avoid significant and distressing drops in standards of living. Many individuals in the HRS report a bequest motive, thus whether or not individuals leave a bequest upon death is an indicator of whether they have met their financial goals. Given both the desire to maintain standard of living and to bequest, household should also have a way to finance long term care should it become necessary. Since the HRS follows the same households over time, interviewing them every two years, we investigate whether these financial security measures are associated with decisions made leading up to and during retirement. Doing so allows us to track which decisions are associated with more secure finances as retired individuals continue to age. By examining these

financial security measures and how certain financial decisions are related to them, we explore whether current retirees' are able to balance between regular expenses, maintaining sufficient wealth to cover the costs of long-term care, should the need arise, protecting against longevity risks, and leaving a bequest to their heirs.

In this report, we use descriptive statistics and regressions to identify decisions and characteristics at retirement that are associated with indicators of financial security at later ages using the HRS. These associations allow for categorization of which subgroups and decisions indicate a lack of financial security and can be used to identify vulnerable populations. Our key findings include:

- A substantial fraction, and often a majority, of households are not financially secure at the time of retirement, according to the metrics developed in this report.
- Across all measures, households with married or partnered individuals are substantially more financially secure than single households. Among single households, those who were divorced are consistently less financially secure, when compared to those who were widowed or never married.
- Racial/ethnic minorities and low income households have low levels of financial security.
- The Baby Boomer generation appears to be more financially insecure than the preceding generation.
- Having a pension, being a homeowner and having an IRA are highly associated with greater financial security at the moment of retirement and later on.
- For some households, having drawn wealth from an IRA, cashed out a pension, and claimed Social Security at or after their Full Retirement Age is associated with greater financial security at later ages.
- Starting retirement with debt, specifically non-housing debt, is significantly and consistently associated with lower financial security.
- Having a will or trust at the time of retirement is associated with substantially more secure finances throughout retirement.

2. Data and Methodology

We use the biennial HRS to examine which decisions before and at retirement are associated with indicators of financial security at later ages. The HRS is a nationally representative panel survey of Americans age 51 and over. The HRS includes core questions on a range of health, asset, income, socio-demographic characteristics, family structure, and labor market measures, first beginning with 51-61 year-olds and their spouses in 1992.

For our analyses, we use all available HRS finalized survey waves, currently including core interview years 1992-2014[1] and consumption measures from 2001-2015 as well as exit interviews from 1993-2015.[2] Our primary sample restriction is the requirement that we observe the household's transition to full retirement, which we define based on labor force status.[3] We define this transition as the first HRS interview wave in which at least one spouse or partner[4] reports being fully retired,[5] and the other spouse or partner reports being either fully retired, not in the labor force, or disabled (see Box 1 for more details).

[1] Although an early version of the 2016 core survey has been released, we do not use it, since it has not been edited for consistency and harmonized with prior survey years.

[2] Health and Retirement Study, public use datasets. Produced and distributed by the University of Michigan with funding from the National Institute on Aging (grant number NIA U01AG009740). Ann Arbor, MI, (1992-2014). RAND HRS Data, Version P. Produced by the RAND Center for the Study of Aging, with funding from the National Institute on Aging and the Social Security Administration. Santa Monica, CA (August 2016).

[3] Alternatively, we could define retirement based on claiming of Social Security or Pensions. However, the intention of this research is to understand financial well-being when households can no longer rely on labor income.

[4] Throughout this report we distinguish between "single" and "married," but we include unmarried couples within the latter category, and refer to this group of married and unmarried partners variously as "married," "married/partnered at retirement," and "couples." However, these different references are for the ease of the reader, and they all represent the same sample restriction described in this paragraph.

[5] To identify retirement status, we use the RAND HRS variable RwLBRF, which defines retirement based on the respondent's responses to questions on current labor force status and whether he or she considers himself/herself to be retired. Throughout this analysis, we rely on the RAND HRS Version P where possible. For more details, see http://hrsonline.isr.umich.edu/modules/meta/rand/randhrsp/randhrs_P.pdf

Box 1: Defining Retirement

For our analyses, we define "transition to full retirement" as the first HRS interview wave in which at least one spouse or partner reports being fully retired, and the other spouse or partner reports being either fully retired, not in the labor force, or disabled. If a respondent does not have a spouse or partner when first fully retiring, then this transition is the first HRS interview wave in which he or she reports being fully retired.

In order to ensure that we are observing the first wave of retirement, we exclude households that are fully retired in their first HRS interview; that is, we must observe at least one wave prior to full retirement. Of the 23,373 unique households in the HRS from 1992 to 2014, we do not observe full retirement for 8,731 households, and 4,774 report being fully retired in their first wave, leaving 9,968 unique households for which we observe at least one transition into full retirement.

Because the HRS also tracks divorced spouses if their birth cohort places them within the HRS sampling frame, we observe an additional 441 households, who transition to full retirement due to divorces. That is, if spouses divorce before they retired, then we continue to follow each ex-spouse separately and assign them their first wave of full retirement once they satisfy the above criteria for single households, or, if one or both of them remarry, satisfy these criteria for married households. As a result, there are a total of 10,309 households transitioning to retirement.

We conduct our analyses at the household level, with the exception of our analysis of bequests. Because we focus on retirement as a labor force outcome, we emphasize labor force status in defining a primary spouse. Additionally, since we are concerned with financial security as individuals age within retirement, we also focus on the older spouse. For couples, we designate the primary spouse as: 1) the spouse or partner who reports being fully retired if the other spouse or partner reports being disabled or not in the labor force; 2) if both report being fully retired, then the spouse or partner who is older; and 3) if both report being fully retired and are the same age, the male spouse or partner.[6]

[6] A small number of couples retire, then divorce or separate and return to work, then retire later. Currently, we count the couple as retiring when they first retired and do not count subsequent post-separation retirements as another retirement. Additionally, in approximately 8% of the sample of retiring households, the other spouse is not available for an interview. If a couple divorces before they both retire, we count them as separate households for the purpose of measuring subsequent retirement transitions.

The method described here for selecting the primary spouse leads to husbands being more likely to be selected; given the cohorts under study, the relative pension and Social Security entitlements of the two spouses, findings in the retirement literature of retirement behavior among the HRS cohorts, and the necessity for some tie-breaker rule, we argue this selection is appropriate for the population at hand.

Figure 1: Distribution of Age of Single Respondent or Primary Spouse at First Wave of Full Retirement, by Household Structure

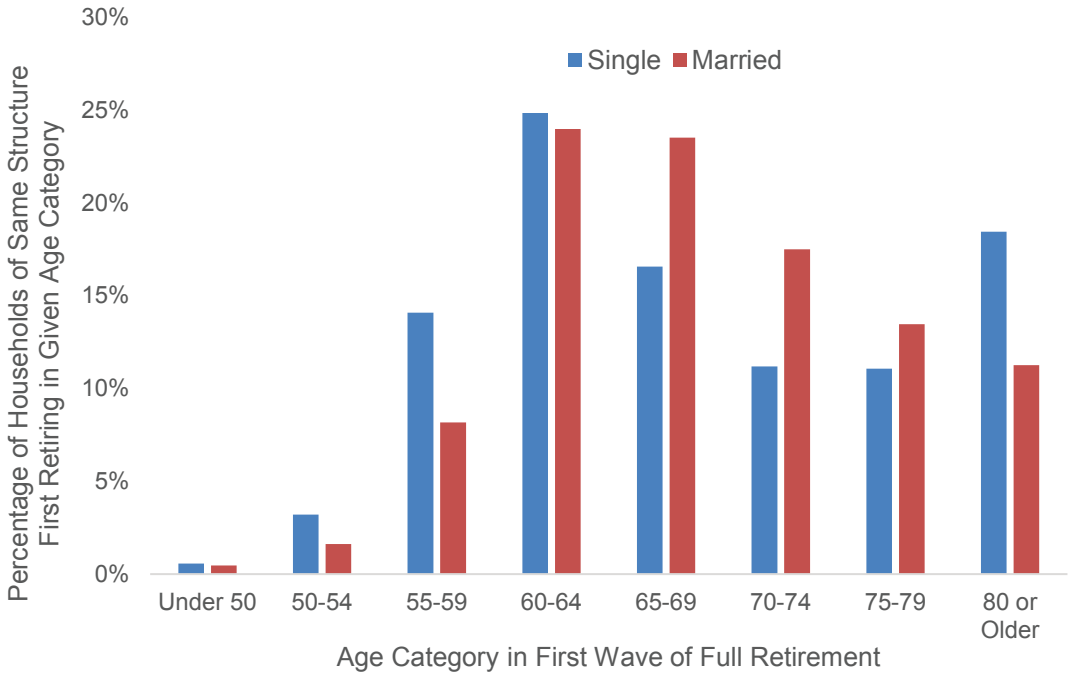

Figure 1 presents the age distribution of single respondents or the household's primary spouse in the first wave of full retirement. The most common age range of full retirement is 60-64, consistent with often-observed retirement spike at the earliest age one can claim Social Security retirement benefits: 62 (Coile and Gruber 2007). However, the patterns for single households and married households differ. For couples, retirement before age 60 is uncommon, with only 10 percent of the sample retiring at these earlier ages. Almost half of couples retire when the primary spouse is in his or her sixties. Although retiring at age 70 or older is not uncommon - just over 40 percent retire at or after 70 – fewer individuals retire in each successively older age category.

Single respondents also have a spike of retirement in their early 60s, but their distribution has both earlier and later retirees: approximately 18 percent of single respondents retired before age 60, and another 18 percent of respondents retired after age 80. These percentages are nearly double the corresponding figures for couples, indicating that single households are a heterogeneous mix of those who exit the labor force as early as possible and those who stay working for as long as possible. This distribution is consistent with a similar pattern for Social Security claiming among single and low-wealth households found in Armour and Hung (2016): such a population is a mix of those claiming as early as possible and those who delay claiming for as long as possible, both likely due to resource constraints. We also find that older single retirees are disproportionately more likely to be widowed, with 87 percent of singles retiring at or after the age of 80 being widows or widowers.

Table 1 presents the demographic description of our sample in the first HRS interview wave after full retirement. Because respondents who are single at full retirement are observationally different from households that are married (or partnered) at full retirement, we

present their descriptive statistics separately. Additionally, we provide demographics for both the primary spouse as discussed above, as well as the secondary spouse in that household, such that the last two columns are statistics calculated for the same households. Single respondents and primary spouses are almost 70 years old, on average, at the first interview wave after full retirement. By construction, the primary spouse is older and more likely to be male than the secondary spouse. HRS respondents who are single at full retirement are more likely to be female than male. A greater proportion of married households are white than compared to single households.

Table 1 also shows that more than half of respondents who are single at full retirement are widowed, more than one-third are divorced or separated, and ten percent have never been married. Respondents who are married at full retirement are more likely to be college graduates, are less likely to be in fair or poor health, and have greater wealth and income than respondents who are single at full retirement.

Table 1: Mean Values for Retiring Households in the First Wave of Full Retirement, by Marital Status

	Single at Retirement	Married/Partnered at Retirement	
		Primary Spouse	Secondary Spouse/Partner
Age	68.94	68.84	64.90
Female	0.73	0.17	0.86
Race/Ethnicity			
White, Non-Hispanic	0.61	0.75	0.76
Black, Non-Hispanic	0.26	0.13	0.12
Hispanic	0.10	0.10	0.10
Other, Non-Hispanic	0.02	0.02	0.02
Marital Status			
Widowed	0.53		
Divorced/Separated	0.37		
Never Married	0.10		
Veteran	0.13	0.13	0.47
% Baby Boomers	0.20	0.12	0.20
Educational Attainment			
Less than High School	0.35	0.28	0.25
High School/GED	0.33	0.34	0.40
Some College	0.19	0.19	0.21
College and Above	0.12	0.20	0.14
Self-Reported Health			
Excellent	0.07	0.10	0.11
Very Good	0.20	0.25	0.28
Good	0.30	0.31	0.30
Fair	0.27	0.22	0.21
Poor	0.16	0.12	0.11
Usual Household Income (2016 $'s)	19,731.62	45,556.90	
Non-Housing Wealth (2016 $'s)	149,169.53	390,647.75	
N	5,139	5,170	4,734

Note: secondary spouse/partners are not always available for interview, leading to fewer counts relative to head of household. Usual household income includes pension and annuity income, Social Security retirement and disability income, capital income, and other income from government programs, inflated to 2016 dollars with the CPI-U-RS.

Decision Variables

Table 2 describes our key "decision variables," decisions that were made before or at retirement that we hypothesize will be associated with financial security during the retirement years. In particular, we focus on decisions related to retirement savings and income (for example, whether the household receives private pension income, ever cashed out or withdrawn retirement funds, or started claiming Social Security benefits), and debt (mortgage and non-mortgage debt).

We focus on the relationship between these decision variables and financial security, as many of them are common decisions that Americans must make leading to or at their retirement. This research aims to provide information on how these decisions may be leading indicators of financial insecurity in retirement. It is important to note that all decisions reported in Table 2 are measured at the time of retirement.

Respondents who are single at full retirement are much less likely to have pension income, and are less likely to have cashed out a pension or withdrawn from an IRA compared to respondents who are married at full retirement. Conditional on having a pension, they have smaller pensions.

Single respondents are less likely to have claimed Social Security by the first wave of retirement, compared to primary spouses. We further break out Social Security claiming by age; individuals who claim benefits before age 62 do so for one of two reasons: entry onto Social Security Disability Insurance or because of the death of a spouse, both correlated with poor health of individuals or couples. Those who claim between age 62 and the Full Retirement Age (FRA) receive a reduced benefit, although this benefit is reduced in an actuarially fair manner for the average American, but the present value of early claiming rises with mortality for such single individuals. Comparing timing of claiming for single respondents who have claimed by full retirement and primary spouses who have claimed by full retirement, primary spouses are more likely to have claimed Social Security benefits between age 62 and their FRA, whereas single respondents are more likely to claim either after FRA, or before age 62. Over one-third of households (35 percent of single households and 38 percent of married households) have mortgage debt,[7] and 27 percent of households have non-mortgage debt.[8]

[7] Mortgage debt consists of first and second mortgages on primary and secondary residences, as well as any home equity loans or lines of credit with these residences as collateral. Although these questions were not intended to elicit the presence of reverse mortgages, it was not until 2008 that respondents were specifically asked *not* to include reverse mortgages in answering them, and reverse mortgages were separately elicited. However, the number of respondents with reverse mortgages was very low: of the nearly 4,000 respondents reporting having any kind of mortgage or home loan in 2012, fewer than 100 report having a reverse mortgage, or roughly 2%.

[8] Respondents were asked if they or their spouses "have any debts that we haven't asked about, such as credit card balances, medical debts, life insurance policy loans, loans from relatives, and so forth?" Non-mortgage debt corresponds to their answer to this question.

Table 2: Descriptive Statistics of Decisions, Measured in First Wave of Full Retirement among those who First Retired At or After Age 62

	Single	Married
Household Private Pension Income		
Any	26%	48%
Mean if Positive	14,216.23	26,038.70
Median if Positive	8,384.35	15,386.18
Household Member Ever Cashed out Pension[1]	11%	13%
Household Member Ever Withdrawn from IRA[2]	52%	51%
Household Member Has a Will or Trust	62%	78%
Social Security Claiming		
Household Receiving Social Security in First Wave of Retirement	67%	77%
Started Receiving Social Security Income Before 62	26%	15%
Started Receiving Social Security Income Between 62 and FRA	30%	46%
Started Receiving Social Security Income After FRA	11%	15%
Social Security Claiming, Spouse		
Started Receiving Social Security Income Before 62		15%
Started Receiving Social Security Income Between 62 and FRA		40%
Started Receiving Social Security Income After FRA		8%
Mortgage Debt and Home Loans among Homeowners (Includes Primary and Secondary Residences)		
Any	35%	38%
Mean if Positive	78,016.30	96,862.46
Median if Positive	53,383.80	62,740.22
Mean Fraction of Home's Value if Positive	47%	44%
Median Fraction of Home's Value if Positive	38%	33%
Non-Mortgage Debt		
Any	27%	27%
Mean if Positive	11,902.87	14,178.78
Median if Positive	3,572.44	5,226.80
N	5,139	5,170

All Dollar Statistics in 2016 Dollars (CPI-U-RS); 2996 single households are homeowners and 4,535 married households are homeowners. [1]Sample limited to households who reported any current or prior pension eligibility. [2]Sample limited to households who reported any current or prior IRA wealth.

Measures of Financial Security

Ability to pay for regular expenses

The first measure is the ability to pay for regular expenses, which is drawn from the HRS Consumption and Activities Mail Survey (CAMS).[9] The CAMS is an off-year biennial mailing

[9] See the CAMS codebooks at https://hrs.isr.umich.edu/documentation/codebooks for more information.

survey sent to a subset of HRS respondents, starting in 2001 and continuing through 2015, for which a preformatted RAND-constructed data set is available. The CAMS asks respondents about the range of activities and spending in the preceding year. We follow the RAND CAMS approach of aggregating the available spending categories into the four general groups reported in Box 2 below, and define "regular expenses" as the sum of these spending groups reported in the CAMS by the household directly following the first HRS wave of full retirement. Our definition includes not only basic needs but also additional costs that are part of regular spending; reducing spending in these areas would result in personal hardship. Therefore, we exclude gifts and vacations, which could be eliminated without a significant change in day-to-day lifestyle. However, we include spending on non-grocery food, which is a regular spending category for many households in our sample. Additionally, although replacing durable goods may not be regular in nature, they nevertheless may be necessary expenditures for a household and are thus included in our measure. Our imputation procedure, discussed below, averages durable spending over the likelihood of its occurrence in similar households. Finally, while we acknowledge that housing spending differs in nature for renters and homeowners, our measure is constructed just after retirement, and represents the regular expenses that a household faces in order to determine whether the household can continue to meet these expenses going forward.

Box 2: Defining Regular Expenses

1. Durable goods spending, which includes purchases of refrigerators, washers, dryers, dishwashers, televisions, and computers.
2. Non-durable goods spending, which we follow the RAND CAMS in including spending on utilities (electricity, water, heat, and phone/cable/internet), health insurance, health services, medical supplies, drugs, house/yard supplies, groceries, dining out/take-out, clothing, and hobbies. However, we specifically *exclude* spending on trips/vacations, charitable contributions, and gifts.
3. Transportation spending, which includes purchases of vehicles, vehicle payments, gasoline spending, and vehicle insurance spending.
4. Housing spending, which includes rent or mortgage, property taxes, home or renter's insurance, and spending on home repairs and maintenance.

Only 1,459 of households responded to the CAMS directly following their first wave of full retirement. Instead of limiting our analysis to this much smaller sample, we use observable economic and demographic variables to impute spending for all households in their first wave of full retirement. The details of this imputation and the estimated regression equation used to predict spending in the first wave of full retirement are in included in the Appendix and reported in Appendix Table A1. Although the principle reason for imputation is in order to draw on the much larger overall HRS sample and increase statistical power, there is another advantage to this approach: it averages durable spending in the first wave of full retirement over observationally similar households, replacing a large expense for one fraction of households people and zero expense for the remainder with the average spending on that category of similar households. We then index this imputed measure of regular expenses to inflation using the CPI-U-RS to account for changes in the overall price level in later waves.

We compare how adequate financial resources in retirement are to pay for these regular expenses; in particular, we focus on net non-housing wealth as the measure of the available

wealth that individuals can draw upon, since housing wealth may be difficult to draw upon in meeting expenses. As shown in Table 3, a fifth of single households and about a third of couples have enough non-housing wealth to pay for five years of these regular expenses. The average respondent who is single at retirement has enough non-housing wealth to cover 3.7 years of regular expenses (0.40 years at the median). The average married household has enough non-housing wealth to cover 6.4 years of regular expenses (2.22 at the median).

Table 3: Ability to Pay For Regular Expenses, As Measured in the First Wave of Full Retirement, by Marital Status

	Single		Married	
	Statistic	N	Statistic	N
Fraction with Non-Housing Wealth Greater Than 5 Years of Regular Expenses	20%	5,139	35%	5,170
Avg Years of Regular Expenses Can Afford with Non-Housing Wealth (median in parentheses)	3.69 (0.40)	5,139	6.44 (2.22)	5,170
Fraction Not In Deficit (Regular Expenses Less than Usual Income)	20%	5,139	34%	5,170
Fraction in Deficit	80%	5,139	66%	5,170
Among Those with Income Deficit				
Fraction with Non-Housing Wealth Greater Than 5 Years of Deficit	25%	4,090	44%	3,421
Avg Years of Deficit Can Afford with Non-Housing Wealth (median in parentheses)	15.02 (0.52)	4,090	78.86 (3.07)	3,421
Fraction in Deficit Who Are Homeowners with Non-Housing Greater than 5 Years of Deficit[1]	35%	2,409	48%	2,969
Fraction with Total Net Wealth (Including Housing Wealth) Greater Than 5 Years of Deficit	52%	4,090	73%	3,421
Fraction Able to Pay for Regular Expenses (Not in Deficit, OR Have Non-Housing Wealth to Afford 5 Years of Deficit)	40%	5,139	63%	5,170

Note: Regular expenses include durable goods spending, transportation spending, housing expenses, and non-durable goods and services, excluding charitable contributions, gifts, trips, and vacations. Calculated from Consumption and Activities Mail Survey; for CAMS non-respondents, spending imputed based on demographic and economic characteristics in the first wave of full retirement, given regression results shown in the appendix.[1]Of single households in deficit who do not having non-housing wealth to afford 5 years of this deficit, 59% are homeowners; this percentage is 86% for married households.These homeowner households in deficit without sufficient non-housing wealth for 5 years of deficit have average net home equity of $142,375 for singles and $194,132 for couples in 2016 US dollars (CPI-U-RS).

However, these households also receive income in their retirement years. So, in order to measure whether a household has adequate resources in their first year of full retirement to pay for these regular expenses, we compare their "usual income" in that first retirement wave, which includes household income from pensions, annuities, capital, Social Security retirement, Social Security disability, Supplemental Security Income, VA benefits, welfare, and food stamps. If usual income exceeds regular expenses, we define that household as being able to pay for regular expenses. About 20 percent of single households and 34 percent of married households have usual income that is greater than regular expenses.

If there is a deficit, that is, spending exceeds usual income, then we calculate whether the household has sufficient non-housing wealth to pay for five years of the deficit between regular expenses and usual income. By including usual income in the financial resources available for households, the fraction of single households with resources to pay for five years of regular

expenses rises to 40 percent, and the fraction of couples with sufficient resources rises to 63 percent.

Ability to pay for long-term care expenses

We next turn to our second measure of financial security: the ability to pay for long-term care. We consider two resources that enable an individual to pay for long-term care: non-housing wealth, net of having to pay for regular expenses; and long-term care insurance coverage. We also consider two types of long-term care: a six-month nursing home stay, at a cost of the 2016 national average of $225/day, and six-months of part-time home-care help at a cost of the 2016 national average of $20/hour.[10] If the primary spouse or single respondent indicates that he or she has a long-term care insurance policy that covers nursing home care, he or she is considered able to pay for nursing home LTC; similarly, if he or she indicates that the insurance policy covers home care, then he or she is considered able to pay for home care LTC. However, if there is no such insurance coverage, we compare the household's non-housing wealth, subtracting five years of regular expenses and adding five years of usual income (which, for those running a surplus, means that their resources for LTC costs increase after factoring in net regular expenses), to the corresponding LTC costs, after inflating all amounts to 2016 dollars.

Table 4 shows the corresponding ability to pay for LTC costs for respondents in our sample. We find that less than one third of single respondents and 57% of couples have the financial resources in their first wave of full retirement to pay for both five years of regular expenses and a six month nursing home stay. Similarly, 31 percent of single respondents and 53 percent of married households can cover six months of part-time home health care on top of five years of regular expenses.

Table 4: Ability to Pay For Long-Term Care in Addition to 5 Years of Income Deficit, As Measured in the First Wave of Full Retirement, by Marital Status

	Single		Married	
	Statistic	**N**	**Statistic**	**N**
Fraction with Long-Term Care Insurance (LTCI) for Nursing Home (NH)	6%	5139	9%	5170
Of those without LTCI:				
Can Afford 6 Month NH Stay and 5 Years of Regular Expense Deficit from Non-Housing Wealth	27%	4818	52%	4697
Average Days of NH Can Afford With Non-Housing wealth (median in parentheses)	594.32 (0.00)	4818	1742.90 (243.88)	4697
Fraction with LTCI or Have Wealth to Afford 6-Month NH Stay and Regular Expenses	32%	5139	57%	5170
Fraction with Long-Term Care Insurance for Home Care	6%	5139	8%	5170
Of those without LTCI for Home Care:				
Can Afford 6 Months of Part-Time Home-Care and 5 Years of Regular Expense Deficit from Non-Housing Wealth	33%	4843	57%	4754
Average Days of Home Care can afford with Non-housing wealth (median in parentheses)	1671.53 (0.00)	4843	4910.90 (685.90)	4754
Fraction with LTCI or Have Wealth to Afford 6 Months of Part-time Home Care and Regular Expenses	31%	5139	53%	5170

Affordability measure based on $225/day nursing room cost, and $20/hour for home-care workers, working 4 hours per day. Wealth drawn from net non-housing financial wealth (hWatotn), inflated to 2016 dollars.

[10] These costs were taken from https://longtermcare.acl.gov/costs-how-to-pay/costs-of-care.html.

Ability to bequest

The third measure of financial security is the ability to leave a bequest. For this measure we make use of the HRS exit files. When an individual leaves the HRS, typically upon death, a separate survey is conducted with survivors to understand the circumstances surrounding the death. The survey includes questions about whether the individual had a will or trust, whether his or her assets were distributed, and the value of the estate. The exit interviews contain information about 12,780 HRS respondents who have died since the beginning of the survey; however, we further limit the sample to respondents we observe entering full retirement to be consistent with the first two financial security measures; our sample sizes are smaller than the above measures because of this limitation to those who died. Table 5 below provides descriptive statistics for the sample of HRS respondents who we observe transitioning to retirement and die during the survey.

We use four questions from the HRS to develop four measures of bequests. The first three questions ask whether the decedent had a trust, had a will, or if the assets from their estate have been divided. From these three questions, we create our first measure--whether the survivor reported a bequest. We find that 63 percent of exit interview respondents report that the decedent left a will or trust, of decedents who were single at retirement. Seventy-seven percent of decedents who were married at retirement left a will or trust. Our remaining three measures are derived from a fourth question which asks what the total value of the estate was. For those survivors who respond with an amount or with "don't know," we consider them to have reported a positive estate value. The second row of Table 5 shows that 37 percent report that a single decedent's estate had a positive value, and 44 percent of married decedents left an estate with positive value. Some exit interview respondents (8.5 percent) report that the estate had a positive value but do not provide meaningful information about the value of the estate. Furthermore, five percent of respondents report that there was an estate but refuse to provide any information about the size of the estate. We make use of both of the existence of a will or trust and the indicator for a positive estate value because the responses to these HRS questions are not always consistent.[11]

The third and fourth measures of bequests consider the overall value of the bequest. The third uses data from the reported value of the bequest, only for those individuals where a total estate value is reported. As shown in row 3, the distribution of estate values is highly skewed. Average reported estate value for married decedents is over two million dollars, whereas the median is $145,000. Because estate value is often missing, for our fourth measure we impute the value of the estate for those who report a positive value of their estate but provide no or limited information about estate size or who refuse to provide any information about the estate value. Information about the imputation is included in the appendix. Row 4 reports combined imputed and reported estate value. The imputed estate amounts are also skewed, with a mean for married

[11] There are two reasons why this may occur. First, some who report that there was a will, trust, or division of assets, ultimately report that the estate has no or negligible value. This could easily be the case if the decedent dies in debt, or with only personal effects but no other assets. Second, most people who report a positive estate value also report that there was a will, trust, or division of assets but, that is not always the case. While individuals who report that there was no will, trust, or division of assets are not supposed to be asked about the value of the estate, there are some respondents who are asked these questions. This seems to be an anomaly in the HRS data. Because these two indicators are not always consistent, we consider both in our analyses.

decedents of $1,545,238 and a median of $172,000. The details of the imputation and the fitted regression equation are reported in the Appendix and Appendix Table A2.

By imputing missing values for estates, we are better able to assess how large of a bequest individuals are able to leave. Because nearly 20 percent of exit interviews do not contain information about estate size, a potentially large and selected population would be excluded from our results. Thus, we will compare results for those where we have information about the size of the bequest, and those where we do not.

Table 5: Descriptive Statistics of Bequests, by Marital Status at Retirement

	Decedent Single at Retirement		Decedent Married at Retirement	
	Statistic	N	Statistic	N
Fraction who Reported that Decedent had a Will, Trust, or Division of Estate	63%	1910	77%	1942
Fraction who Reported the Decedent Left an Estate with Positive Value	37%	1833	45%	1846
Average Reported Estate Value (median in parentheses)	$235,033 ($75,000)	565	$2,295,458 ($145,000)	569
Average Combined Reported and Imputed Estate Value (median in parentheses)	$225,238 ($89,652)	733	$1,545,238 ($172,000)	901

3. Results

In this section, we first discuss differences in our financial security measures by demographic characteristics as well as by the measures of decisions at retirement shown in Table 2 and retirement decisions, to provide insight as to whether there are strong and consistent differences in financial security across easily measurable socioeconomic groups. Although these comparisons are not intended to be conclusive, they provide insight both to the distribution of our measures across the sub-groups under study, as well as the magnitude of these differences across such groups to aid in benchmarking the multivariate findings.

Descriptive Results

Financial Security in Retirement by Demographic Characteristics

We begin by examining how our financial security measures—ability to cover regular expenses, ability to cover LTC, and leaving a bequest—vary by key demographic characteristics. Table 6 shows ability to pay for regular expenses and ability to pay for LTC, by whether the household is headed by a female, whether the household is headed by someone from the Baby Boomer generation (i.e., those born after 1945 and before 1965), marital status, veteran status, and economic vulnerability, evaluated in the first wave of full retirement.[12] We consider the Baby Boomer generation separately as they represent the youngest cohort in the our sample, allowing us to consider whether patterns change across cohorts.

Baby Boomer households, households that are currently under 200 percent of the federal poverty line (FPL), and households who received government means-tested benefits in the first wave of full retirement are less likely to be able to cover regular expenses or cover LTC when compared to other HRS households.[13] Households with a veteran are more likely to be able to cover regular expenses and more likely to be able to cover LTC than other HRS households. At the time of retirement, single individuals may be never married, widowed, or separated or divorced. Those who are widowed are more likely to be able to cover regular expenses or LTC than those who are never married or those who are divorced. Those who are separated or divorced are less likely to be able to cover regular expenses or LTC.

[12] Appendix Table A3 reports these financial security measures calculated at age 80/81.

[13] It is worth noting that households receiving means-tested benefits are likely to have future LTC needs covered by Medicaid instead of relying on their own resources. In our sample, 20.3% of single households and 10.3% of married households are covered by Medicaid health insurance in their first wave of full retirement.

Table 6: Ability to Pay for Regular Expenses and Ability to Pay for LTC, by Demographic Subgroup

	Fraction of Households that Can Cover Regular Expenses (Not in Deficit, or Have Non-Housing Wealth to Afford 5 Years of Deficit):				Fraction of Households that Can Cover Regular Expenses and LTC (Has LTCI or Additional Wealth to Pay for 6 Month NH Stay):			
	Single		Married		Single		Married	
	Statistic	N	Statistic	N	Statistic	N	Statistic	N
Overall	40%	5,139	62%	5,170	31%	5,139	56%	5,170
Households in which Primary Spouse is Female	39%	3,752	56%	855	30%	3,752	50%	855
Households in which Primary Spouse is Baby Boomer	26%	1,009	48%	636	21%	1,009	43%	636
Marital Status								
Never Married	39%	546			29%	546		
Separated/Divorced	32%	1,885			26%	1,885		
Widowed	46%	2,708			36%	2,708		
Veteran in Household	51%	676	71%	2,832	42%	676	64%	2,832
Health status								
Excellent	58%	358	79%	492	51%	358	75%	492
Very Good	54%	1,052	75%	1,299	46%	1,052	70%	1,299
Good	43%	1,526	64%	1,603	35%	1,526	58%	1,603
Fair	31%	1,387	50%	1,163	21%	1,387	43%	1,163
Poor	25%	808	41%	612	15%	808	33%	612
Education								
Less than High School	26%	1,803	36%	1,447	15%	1,803	29%	1,447
High School/GED	40%	1,711	64%	1,736	32%	1,711	57%	1,736
Some College	47%	998	71%	957	40%	998	66%	957
College or Higher	69%	626	89%	1,028	63%	626	87%	1,028
Race/ethnicity								
White, Non-Hispanic	51%	3,154	72%	3,876	41%	3,154	66%	3,876
Black, Non-Hispanic	23%	1,352	35%	658	15%	1,352	30%	658
Hispanic	21%	520	25%	509	15%	520	18%	509
Other, Non-Hispanic	34%	109	49%	121	26%	109	46%	121
Households under 200% of FPL (2002 onward)	18%	1,679	24%	823	13%	1,679	21%	823
Households Receiving Means-Tested Benefits	25%	1,067	25%	423	8%	1,067	18%	423

Table 7 shows similar descriptive comparisons for our measures of leaving a bequest, by demographic subgroup. For both measures of bequests, the results are qualitatively similar.

Overall, fewer report a positive estate value than report a trust, will, or division of assets. As with our other measures of financial security, decedents who were baby boomers, under 200 percent of the federal poverty line (FPL), or had received government means-tested benefits are less likely to leave a will or trust, or leave an estate with positive value. Baby boomers may be less likely to leave a bequest because of sample selection: since they are the youngest cohorts in our HRS sample, observed deaths are occurring at, on average, younger ages. Since life expectancy is negatively correlated with wealth, comparing older cohorts' bequests at death with the bequests of only those baby boomers who have died at the younger ages we observe in the HRS leads to baby boomers leaving smaller bequests in our sample. The differences between couples and single individuals seems to be largely driven by individuals who are either never married or divorced (where the shares leaving a will or trust are roughly 50 percent and the shares leaving an estate with positive value are roughly 30 percent). Among those who are widowed, the share leaving a will or trust is 69 percent, and the share leaving an estate with positive value is 41 percent. Households with veterans whether single or married are marginally more likely to report a bequest, measured in terms of leaving a will or trust or leaving an estate with positive value.

Table 7: Ability to Leave a Bequest, by Demographic Subgroup

	Fraction who Reported that Decedent had a Will, Trust, or Division of Estate:				Fraction who Reported the Decedent Left an Estate with Positive Value:			
	Single		Married		Single		Married	
	Statistic	N	Statistic	N	Statistic	N	Statistic	N
Overall	63%	1909	77%	1942	37%	1832	45%	1846
Households in which Primary Spouse is Female	65%	1394	76%	235	39%	1337	46%	222
Households in which Primary Spouse is Baby Boomer	50%	58	51%	37	33%	57	26%	35
Marital Status								
Never Married	46%	125			28%	117		
Separated/Divorced	52%	502			28%	483		
Widowed	69%	1265			41%	1215		
Veteran in Household	67%	246	83%	1028	38%	237	49%	981
Health status								
Excellent	70%	98	84%	111	40%	92	54%	104
Very Good	74%	286	86%	347	45%	274	58%	320
Good	68%	501	81%	553	40%	472	48%	524
Fair	58%	573	71%	542	36%	554	38%	522
Poor	55%	448	70%	389	30%	437	39%	376
Education								
Less than High School	53%	930	64%	730	28%	908	34%	709
High School/GED	68%	565	84%	620	41%	542	47%	593
Some College	77%	270	84%	306	52%	252	56%	288
College or Higher	84%	144	90%	285	56%	130	60%	255
Race/ethnicity								
White, Non-Hispanic	75%	1295	86%	1490	45%	1238	51%	1410
Black, Non-Hispanic	38%	447	48%	250	17%	432	25%	239
Hispanic	36%	141	51%	160	24%	137	29%	157
Other, Non-Hispanic	50%	26	51%	39	40%	25	29%	38
Households under 200% of FPL (2002 onward)	49%	320	64%	193	29%	309	37%	187
Households Receiving Means-Tested Benefits	30%	418	38%	160	16%	414	18%	159

We can also examine the value of the estate, using either reported, or reported and imputed values. Here the mean value of the estate is much higher for some subgroups, largely due to a few very large estate values. As a result, we present the median values rather than the means in Table 8. At the median, the estates of individuals who are married at the time of retirement have larger estates than those who are single ($145,000 vs $75,000). When we consider subsamples sample sizes can be very small, thus results should be interpreted with caution.

However, a few characteristics stand out. First, when the primary spouse is female, estate sizes tend to be smaller. Furthermore, estates of those who were never married are much smaller than those who are single but were previously married ($33,000 vs over $75,000). This may reflect differences in bequest motives of those who had no spouse, and therefore were less likely (in this generation) to have children. Those with veterans in the household have slightly larger estates, while those receiving means testing benefits have much smaller estates. Sample sizes increase when we use imputed values as well as reported values, but overall the results are similar.

Table 8: Estate Values, by Demographic Subgroup

	Reported Estate Value				Combined Reported and Imputed Estate Value			
	Single		Married		Single		Married	
	Median	N	Median	N	Median	N	Median	N
Overall	75,000	565	145,000	569	89,652	733	172,000	901
Households in which Primary Spouse is Female	70,000	438	65,500	74	80,000	558	96,385	111
Households in which Primary Spouse is Baby Boomer	83,000	18	15,000	6	83,000	20	88,987	11
Marital Status								
Never Married	40,000	27			50,000	39		
Separated/Divorced	75,000	103			89,741	148		
Widowed	79,500	428			90,000	539		
Veteran in Household	90,000	69	180,000	313	117,000	95	200,000	508
Health status								
Excellent	132,000	33	130,500	40	150,000	41	158,013	59
Very Good	125,000	101	200,000	131	150,000	134	245,000	206
Good	75,000	152	150,000	162	90,000	207	200,000	271
Fair	67,500	172	100,000	133	80,000	215	147,280	210
Poor	30,000	107	85,000	103	45,039	136	100,000	155
Education								
Less than High School	38,000	218	90,000	156	50,000	267	114,000	252
High School/GED	82,500	188	115,000	195	100,000	239	150,000	296
Some College	120,000	99	150,000	105	150,082	144	200,000	175
College or Higher	150,000	60	400,000	112	200,000	83	393,050	177
Race/ethnicity								
White, Non-Hispanic	89,000	474	150,000	492	100,000	604	197,258	778
Black, Non-Hispanic	50,000	57	60,000	39	50,000	83	65,000	61
Hispanic	17,000	27	53,000	31	25,000	35	71,082	48
Other, Non-Hispanic	30,000	7	150,000	6	40,000	11	100,000	11
Households under 200% of FPL (2002 onward)	80,000	79	70,000	38	90,000	101	90,000	74
Households Receiving Means-Tested Benefits	19,500	54	25,000	23	20,000	66	20,000	30

Financial Security in Retirement by Key Decisions Made At or Before Retirement

Next, we examine how key decisions made at or before retirement are related to financial security at the moment of retirement. In Table 9, we show ability to pay for regular expenses and to pay for LTC by decisions such as debt, pension, and Social Security decisions, evaluated in the first wave of full retirement.[14] Both the averages and the counts are included to indicate what fraction of each household type made each key decision.

Overall, for singles, 40 percent can pay for regular expenses and 31 percent can pay for long-term care, while for couples, these figures are higher at 62 percent and 56 percent. Respondents with mortgage debt, particularly single respondents, are slightly more likely to be able to afford regular expenses and LTC at the time of retirement, these differences are small. This may be due to the fact that these respondents are homeowners, and therefore have more wealth. Homeowners without mortgage debt are even more likely to be financially secure, with 49 percent of singles and 69 percent of couples who are homeowners without mortgage debt able to pay for regular expense. Households with non-mortgage debt, on the other hand, are less likely to be able to afford regular expenses or LTC, when compared to other HRS households, with only 31 percent of singles and 52 percent of couples able to pay for regular expenses. For the ability to pay for long-term care, these figures are 23 percent and 46 percent.

Those who are receiving pension income or have withdrawn from an IRA are more likely than the average HRS household to be able to cover regular expenses and LTC.[15] Having a will or trust is associated with a higher rate of being able to cover regular expenses and LTC. Finally, the share of respondents who can cover regular expenses and LTC increases with later Social Security claiming, although it is worth noting that the majority of households claiming at or after 62 claim before the Full Retirement Age.

[14] Appendix Table A4 provides these financial security measures at age 80/81.

[15] These withdrawals were reported during the HRS. They may have happened as early as age 51, or even earlier for spouses who are observed prior to age 51.

Table 9: Ability to Pay for Regular Expenses and Ability to Pay for LTC, by Key Decisions

	Fraction of Households that Can Cover Regular Expenses (Not in Deficit, or Have Non-Housing Wealth to Afford 5 Years of Deficit):				Fraction of Households that Can Cover Regular Expenses and LTC (Has LTCI or Additional Wealth to Pay for 6 Month NH Stay):			
	Single		Married		Single		Married	
	Statistic	N	Statistic	N	Statistic	N	Statistic	N
Overall	40%	5,139	62%	5,170	31%	5,139	56%	5,170
Any Mortgage Debt (among Homeowners)	44%	1,059	62%	1,721	38%	1,059	58%	1,721
Homeowner but no morftgage debt	49%	1,936	69%	2,814	42%	1,936	62%	2,814
Any Non-Mortgage Debt	31%	1,391	52%	1,421	23%	1,391	46%	1,421
No non-mortgage debt	43%	3,748	66%	3,749	34%	3,748	60%	3,749
Household Receiving Pension Income	64%	1,356	78%	2,484	52%	1,356	70%	2,484
No pension income	32%	3,783	48%	2,686	24%	3,783	43%	2,686
Household Member Ever Cashed out Pension	37%	327	67%	533	29%	327	61%	533
Has a pension but never cashed out	51%	2,571	69%	3,469	43%	2,571	63%	3,469
Household Member Ever Withdrawn from IRA	78%	553	90%	1,133	72%	553	86%	1,133
Has an IRA but had not withdrawn	75%	519	86%	1,102	67%	519	81%	1,102
Household Member Has a Will or Trust	51%	3,169	71%	4,018	43%	3,169	66%	4,018
No will or trust	22%	1,970	31%	1,152	12%	1,970	25%	1,152
Primary Spouse Started Receiving Social Security:								
Before 62	24%	1,353	41%	793	18%	1,353	35%	793
Between 62 and FRA	41%	1,556	65%	2,371	36%	1,556	60%	2,371
At or After FRA	53%	544	73%	754	44%	544	68%	754
Other Spouse Started Receiving Social Security:								
Before 62			45%	756			39%	756
Between 62 and FRA			69%	2,050			64%	2,050
At or After FRA			75%	404			68%	404

Table 10 presents the share reporting a bequest by household decisions. Mortgage debt is associated with higher or similar reporting of having a will or trust or dividing of assets, 75 percent among singles and 77 percent among couples, relative to 63 percent and 77 percent respectively in the overall population. Homeownership without mortgage debt is associated with an even higher fraction having a will or trust or dividing assets: 82 percent among single households, and 85 percent among married households. Non-mortgage debt reduces the share leaving an estate from 63 percent to 56 percent among singles and 77 percent to 69 percent among couples. Pension income is associated with higher rates of reporting a bequest, perhaps

because those with higher fixed incomes are able to maintain more assets for their heirs. Cashing out a pension is associated with a lower share leaving a bequest, while withdrawing from an IRA is associated with a higher share. Unsurprisingly those who reported in earlier waves that they have a will or trust are more likely to have their survivors report at death that they have a will or trust. For the most part, leaving a bequest is associated with a later age of claiming social security.

Table 10 also presents the share currently reporting an estate with a positive value, by household decisions. Recall that there are two, sometime inconsistent measures. The results are qualitatively similar, suggesting our results are robust to the measure used. Mortgage debt is associated with higher or similar reporting of bequests, non-mortgage debt reduces the share leaving an estate, and pension income is associated with higher rates of reporting a bequest. Similar results obtain for the other decision variables as in Table 10.

Table 10: Ability to Leave a Bequest, by Key Decisions

	Fraction who Reported that Decedent had a Will, Trust, or Division of Estate:				Fraction who Reported the Decedent Left an Estate with Positive Value:			
	Single		Married		Single		Married	
	Statistic	N	Statistic	N	Statistic	N	Statistic	N
Overall	63%	1909	77%	1942	37%	1832	45%	1846
Any Mortgage Debt (among Homeowners)	75%	262	77%	528	48%	248	46%	504
Homeowner but no mortgage debt	82%	733	85%	1139	50%	696	51%	1074
Any Non-Mortgage Debt	56%	378	69%	496	34%	365	39%	477
No non-mortgage debt	65%	1531	80%	1446	38%	1467	48%	1369
Household Receiving Pension Income	78%	506	86%	969	49%	478	52%	921
No pension income	58%	1403	69%	973	33%	1354	39%	925
Household Member Ever Cashed out Pension	51%	55	72%	116	30%	54	46%	113
Has a pension but never cashed out	75%	821	83%	1266	46%	778	50%	1196
Household Member Ever Withdrawn from IRA	91%	113	94%	335	72%	106	60%	310
Has an IRA but had not withdrawn	88%	120	91%	340	53%	108	60%	318
Household Member Has a Will or Trust	81%	1208	87%	1589	48%	1138	52%	1497
No will or trust	33%	701	35%	353	18%	694	19%	349
Primary Spouse Started Receiving Social Security:								
Before 62	51%	341	65%	285	31%	331	38%	278
Between 62 and FRA	63%	368	77%	650	38%	357	47%	623
At or After FRA	60%	142	79%	271	36%	135	49%	253
Other Spouse Started Receiving Social Security:								
Before 62			64%	258			35%	252
Between 62 and FRA			81%	644			50%	616
At or After FRA			84%	166			51%	156

Table 11 examines the amount of a bequest by the same decision variables. Bequest amounts are higher among those with mortgage debt, receiving pension income, those who cash out pensions, have withdrawn from IRAs, have a will or a trust, or retire later. They are lower among those with non-mortgage debt. These differences likely represent underlying differences

in wealth. Thus the multivariate analysis is likely to shine more light on these relationships. Similar results are found among those with imputed estate values.

Table 11: Estate Values, by Key Decisions

	Reported Estate Value				Combined Reported and Imputed Estate Value			
	Single		Married		Single		Married	
	Median	N	Median	N	Median	N	Median	N
Overall	75,000	565	145,000	569	89,652	733	172,000	901
Any Mortgage Debt (among Homeowners)	84,000	105	122,000	167	110,000	129	158,485	248
Homeowner but no mortgage debt	100,000	271	150,000	359	127,000	374	200,000	593
Any Non-Mortgage Debt	54,500	106	99,500	140	63,750	134	100,000	197
No non-mortgage debt	80,000	459	150,000	429	100,000	599	197,258	704
Household Receiving Pension Income	97,000	191	150,000	326	115,183	253	188,330	506
No pension income	60,000	374	100,000	243	80,000	480	150,000	395
Household Member Ever Cashed out Pension	81,000	10	200,000	35	94,914	16	144,560	55
Has a pension but never cashed out	90,000	297	150,000	408	106,953	388	180,000	642
Household Member Ever Withdrawn from IRA	280,000	64	350,000	123	250,000	81	300,000	204
Has an IRA but had not withdrawn	300,000	53	200,000	133	250,000	65	250,000	210
Household Member Has a Will or Trust	90,000	461	150,000	527	116,401	602	186,460	837
No will or trust	25,000	104	77,000	42	27,000	131	84,679	64
Primary Spouse Started Receiving Social Security:								
Before 62	50,000	83	67,500	74	50,000	111	100,000	111
Between 62 and FRA	100,000	107	150,000	189	140,000	141	174,710	306
At or After FRA	160,000	38	200,000	90	160,000	53	200,000	134
Other Spouse Started Receiving Social Security:								
Before 62			55,000	62			130,000	93
Between 62 and FRA			150,000	197			158,646	322
At or After FRA			190,000	52			250,801	88

Expectations and Experiences

Although these financial security measures are constructed with a rich set of variables, the question arises as to how they correspond with respondents' own predictions and experiences. Put simply: are more financially secure households more likely to afford subsequent expenses or bequest more, and are they more likely to expect future expenses or bequests? Such

an analysis is intrinsically difficult due to data limitations (e.g., we can observe changes in spending only among CAMS respondents, local long-term care options may differ from national averages, and numerous expenses or different valuations of assets arise after death), but Tables 12, 13, and 14 provide evidence as to how these measures compare with prior expectations and subsequent experiences.

Table 12 indicates that among households that continue to remain in the CAMS sample three waves, or six years, after their first wave of full retirement, the average drop in nominal spending is approximately 25 percent for single households, or 20 percent for couple households. However, this spending drop is larger for those who could not pay for five years of their "spending deficit" as measured in the first financial security measure: for such single households, the spending drop was 29 percent, while for couples, it was 24 percent.

Additionally, we measured the fraction of households who experienced a spending drop of at least 50 percent. For single households, the likelihood of spending 50 percent less than in the first full wave of retirement six years later was 5 percentage points higher for those who could not pay for regular expenses at retirement, which is approximately 36 percent greater than for those who could. For couples, those who could not pay for regular expenses were 7 percentage points more likely to experience a drop in spending of at least 50 percent, which is 46 percent more than those who had the resources to pay for regular expenses entering retirement. These patterns indicate that among the subsample for whom we observe subsequent spending, our measure of the ability to pay for regular expenses at retirement is predictive of sustained spending patterns.

Table 12: Spending Changes by Ability to Pay for Regular Expenses

Fractional Drop in Spending Three Waves after First Wave of Full Retirement, by Marital Status and Financial Security Measure				
	Single		Married	
	Mean	N	Mean	N
Full Sample	-0.25	394	-0.20	231
	(0.06)		(0.05)	
Can Pay for Regular Expenses at Retirement	-0.19	171	-0.18	161
	(0.06)		(0.06)	
Cannot Pay for Regular Expenses at Retirement	-0.29	223	-0.24	70
	(0.10)		(0.11)	
Whether Spending Dropped by at Least 50% Three Waves after First Wave of Full Retirement, by Marital Status and Financial Security Measure				
	Single		Married	
	Mean	N	Mean	N
Full Sample	0.14	394	0.14	231
	(0.02)		(0.02)	
Can Pay for Regular Expenses at Retirement	0.11	171	0.12	161
	(0.02)		(0.03)	
Cannot Pay for Regular Expenses at Retirement	0.16	223	0.19	70
	(0.02)		(0.05)	

Note: Standard errors in parentheses.

Table 13 shows expectations of moving to a nursing home over the next five years, as measured in the first wave of full retirement, compared to actual nursing home usage over the following three waves (i.e., six years). Among those who provide an expectation of nursing home usage in the first wave of retirement, expected probabilities of nursing home stays are low, 13 percent for single households and 11 percent for couples. Actual nursing home stays over the six years after the first wave of retirement are also low, 13 percent for single households and 6 percent for couples, indicating that the actual nursing home stays are similar or less frequent than retirees expect. But these are only population averages, and one particular population of concern is the group who reports a zero likelihood of staying in a nursing home soon given that this group may be unprepared. Actual nursing home stays among those who respond that there is a zero percent likelihood of moving to a nursing home are similar to the average, suggesting the potential of a lack of planning for long-term care needs. The frequency of such stays are even higher for such individuals who are unable to afford LTC costs in their first year of full retirement.

Table 13: Expected vs. Actual Nursing Home Use, by Marital Status, First Wave of Full Retirement

		Single		Married	
		Mean	N	Mean	N
All Non-Missing Respondents					
	Any NH Stay in Next 3 Waves	0.128	2,476	0.064	2,784
		(0.007)		(0.005)	
	Any NH Stay Covered by Medicaid in Next 3 Waves	0.043	2,476	0.014	2,784
		(0.004)		(0.002)	
	Able to Afford LTC	0.313	5,139	0.564	5,170
		(0.006)		(0.007)	
	Unable to Afford LTC	0.687	5,139	0.436	5,170
		(0.006)		(0.007)	
Same Sample of Respondents					
	Expected Probability of Moving to NH in Next 5 Years	0.129	977	0.113	1,081
		(0.007)		(0.006)	
	Any NH Stay Covered by Medicaid in Next 3 Waves	0.410	977	0.664	1,081
		(0.016)		(0.014)	
	Can Afford LTC	0.046	977	0.023	1,081
		(0.007)		(0.005)	
Respondents who say there is a Zero Probability of Moving to NH in Next 5 Years					
	Any NH Stay in Next 3 Waves	0.170	569	0.098	579
		(0.016)		(0.012)	
	Able to Afford LTC	0.158	209	0.078	357
		(0.025)		(0.014)	
	Unable to Afford LTC	0.178	360	0.131	222
		(0.020)		(0.023)	
Fraction with Medicaid Covering NH Stay, Conditional on Having a NH Stay in the Next 3 Waves					
	Could Afford 6 Month NH Stay	0.124	113	0.075	93
		(0.031)		(0.028)	
	Could Not Afford 6 Month NH Stay	0.424	205	0.337	86
		(0.035)		(0.051)	

Note: Standard errors in parentheses.

Table 13 also shows how our measure of the ability to afford LTC in the first wave of retirement relates to subsequent Medicaid coverage of such expenses. That is, Medicaid generally covers nursing home care once non-housing assets are depleted, and thus reported Medicaid coverage of a nursing home stay is one indication of a lack of ability to afford these expenses. Of those who did experience a nursing home stay in the three waves after first

retirement and whom we determined would not be able to afford LTC, 42 percent of singles and 34 percent of couples relied on Medicaid, while for those whom we determined could afford LTC, only 12 percent of singles and 8 percent of couples had this care covered by Medicaid. Although these figures are not 100 percent Medicaid reliance for those who do not meet our LTC financial security measure and 0 percent for those who do, there are many extenuating circumstances (e.g., spousal or familial arrangements, other income shocks) that would prevent such extreme outcomes, and the substantial and statistically significant difference between reliance on Medicaid argues for the validity of this LTC affordability metric.

Table 14 presents the fraction of actual bequests of varying sizes, by the reported likelihood of leaving a bequest of those sizes in the wave immediately prior to death. Although there is a strong relationship between expecting to leave any bequest and actually leaving a bequest – for both single and couple households, over 80 percent of respondents who consider it a certainty that they will leave a bequest actually do so – the corresponding relationship for bequest size is substantially less strong. For example, only 45 percent of single respondents who report it a certainty they will leave at least $10,000 actually do so, while this figure is only 37 percent for respondents in married households. These figures are slightly higher for those expecting to leave bequests of at least half a million dollars, but, at most, only half of those who expect to leave such a large bequest have surviving members who attest to them doing so.

Table 14: Actual Bequests, by Expectation of Bequest in Wave Prior to Death

		Single		Couple	
		Mean	**N**	**Mean**	**N**
Fraction Bequesting, by Expected Probability of Leaving Any Bequest in Wave Prior to Death					
	100% certain	0.85	291	0.88	508
		(0.02)		(0.01)	
	At Least 50% certain	0.83	320	0.88	527
		(0.02)		(0.01)	
Fraction Bequesting at Least 10K, by Expected Probability of Leaving a Bequest of at Least 10K in Wave Prior to Death					
	100% certain	0.45	267	0.37	493
		(0.03)		(0.02)	
	At Least 50% certain	0.46	268	0.37	498
		(0.03)		(0.02)	
Fraction Bequesting at Least 100K, by Expected Probability of Leaving a Bequest of at Least 100K in Wave Prior to Death					
	100% certain	0.45	127	0.33	276
		(0.04)		(0.03)	
	At Least 50% certain	0.41	164	0.32	376
		(0.04)		(0.02)	
Fraction Bequesting at Least 500K, by Expected Probability of Leaving a Bequest of at Least 500K in Wave Prior to Death					
	100% certain	0.50	34	0.36	70
		(0.09)		(0.06)	
	At Least 50% certain	0.34	56	0.29	121
		(0.06)		(0.04)	

Note: Standard errors of parentheses.

Multivariate Regression Results

Although these comparisons of financial security measures by subgroup and by key decisions shed some light on which household characteristics and actions are associated with lower likelihoods of financial security, many of these characteristics are correlated with one another. For example, for single households in these birth cohorts, the likelihood of being male and the likelihood of being a veteran are highly correlated, so some of the differences in financial security comparisons across veteran status also contain differences due to sex. Similarly, being a

homeowner and having a will or trust are also correlated, so any inferences based on differences across these decisions are confounded due to their interrelatedness. Thus, in this section, we conduct multivariate analyses, whereby we estimate the relationships between the demographic and key decision variables above and the financial security outcomes in a single equation, to isolate the relationship of each variable on our outcome of interest, controlling for the others.

We do so by estimating probit equations[16] following the general specification:

$$\Pr(Security\ Measure_{it} = 1 \mid Z_{it}) = \Phi(\alpha + \boldsymbol{\beta} Decisions_{i,retirement} + \boldsymbol{\theta} X_{it} + \rho_t + \varepsilon_{it})$$

Where the left-hand side is the probability that one of our three financial security measures is equal to one for a given household in a given interview (i.e., the household can pay for regular expenses, pay for LTC costs, or leave a bequest in that year), as a function of a range of observable variables Z_{it}. These variables are included on the right-hand side, and include a dummy variable for the current year t given by ρ_t, a vector of demographic variables X_{it}, such as sex, race, or marital history, and the vector of key decision variables given by $Decisions_{i,retirement}$, where these key decisions are measured in the first wave of the households full retirement.[17] The probit model estimates the relationship of each of these variables via the normal cumulative distribution function Φ, where the vector of coefficients β measures the relationship of each prior key decision and the financial security measure, and the vector of coefficients θ measures differences in financial security across demographic groups. We do not report the coefficients themselves due to difficulty in interpreting effect sizes. Instead, we report average marginal effects; that is, the average percentage point effect of a change in a given right-hand side variable.

In our regression results that consider the amount of the bequest, we find no qualitatively significant differences between our results based using only self-reported bequests vs both self-reported and imputed bequests and typically few differences between single and married individuals. Therefore, we focus on those with the self-reported data only and on those married in the wave before death. We run Tobit regressions, specifically accounting for the fact that many respondents do not leave any positive bequest amount, since Tobit regressions account for censoring that occurs when values are only observed above or below some threshold. In this case all estates are either zero or positive amounts, and many leave no estate at all, so there is considerable bunching at zero. Tobit regressions allow for this distribution, and results can be interpreted as the marginal effect on estate values. The dependent variables in all regressions are the log of estate values; our coefficients can thus be interpreted as the percentage impact of a one unit change in each explanatory variable.

All of the above probit and Tobit estimates are descriptive in nature. They do not take into account underlying unobserved or unobservable characteristics that could simultaneously influence both explanatory and outcome variables; however, they will highlight which groups see the greatest disparities in financial security related to important retirement decisions. Additionally, we do not explicitly take into account differential attrition due to mortality with regard to our first two financial security measures. For example, if mortality is higher among

[16] We considered alternative specifications, such as linear probability or logit models, and did not find qualitatively different results.

[17] An alternative specification, wherein key decisions are measured at age 60 or 61, produces qualitatively and statistically equivalent results.

those who claim Social Security benefits before the Full Retirement Age, and is even higher among those who do so because they have difficulty paying for regular expenses, then at older ages, these early claimants will have disproportionately exited the sample and any association will attenuate over time. However, the focus of this analysis is to identify the characteristics and key decisions associated with lower financial security at older ages, not to identify how changes in these characteristics or decisions would change financial security. Thus, our conclusions as to which variables characterize financially insecure households at each age are valid regardless of differential attrition; these variables can nevertheless be used to target likely financially insecure households at each age. Moreover, our third measure – the ability to leave a bequest – is measured at death, and hence is not affected by differential attrition.

Tables 15 through 17 provide marginal effect estimates for select variables from our multivariate analyses. Although the estimates reported correspond to specifications that include a rich set of covariates, we report estimates corresponding to key decision variables in the body of the text and report the effects of control variables in Appendix Tables A5, A6, and A7. The marginal effects of these control variables are as expected: there is a positive gradient with regard to health and education, lower financial security among non-white groups, lower financial security among those household receiving means-tested income, and higher financial security among homeowners.

Given the large number of coefficients and the three areas of financial security, we will discuss the overarching patterns tht emerge. First, greater home debt has a negative impact on our regular expenses and LTC financial security measures, but only in the first wave of full retirement. This effect is stronger for LTC, but at older ages, it no longer has a statistically significant impact. In contrast, having non-housing debt entering retirement has immediate and persistent negative impacts on the ability to pay for regular expenses and LTC, with a suggestive negative impact on bequests.

The role of retirement savings vehicles – both pensions and IRAs – is generally positive. Having had pension eligibility and starting to receive pension income at retirement both increase our first two financial security measures, although with the exception of couples' ability to pay for LTC, the positive effect of receiving pension income dissipates by age 80. Having cashed-out a pension has a persistent but only marginally significant negative impact on financial security, especially bequests; however, prior research (Armour, Hurd, and Rohwedder 2016) has found that pension cash-outs are strongly correlated with negative shocks to health, as well as financial stresses such as falling behind on mortgage payments, and thus the negative relationship found herein may instead be indicative of such shocks' impact on both the likelihood of cashing out a pension as well as financial security.

IRA ownership and taking IRA withdrawals have strong positive impacts on all our financial security measures, most strongly on ability to bequest and bequest amounts. For single respondents, having an IRA increases the size of one's bequest by an estimated 248 percent, while for couples, this effect is 176 percent. The effect of having previously withdrawn from an IRA strongly increases the other two financial security measures in the beginning of retirement as well as at age 80, although the impact in the intervening ages is less clear. Although it may initially seem unintuitive that having drawing down retirement wealth increases financial security, when asked what they spent these withdrawals on, a quarter to a third of households indicated they deposited it in other savings, while half said they used it to pay for regular expenses.

The decision variable with the most consistently statistically and economically significant impact on our three financial security measures is having a will or trust when entering retirement.[18] It is always statistically significant at every age for each measure across both household types, with almost always a double-digit percentage point positive impact on the likelihood of satisfying each measure. Indeed, having a will or trust at retirement increases the size of a bequest by 387 percent for singles and 636 percent for primary spouses. Although there is clearly selection into which types of households have wills or trusts, this relationship does stand out as the strongest in the analysis.

Finally, although later Social Security claiming was associated with improved financial security in our bivariate analyses, once we control for the variables included in the multivariate analysis, there is no consistent impact of later claiming across our measures. One exception is having claimed benefits before age 62 in the first wave of full retirement, which indicates a disabled or recently widowed individual. Additionally, there appears to be a negative impact of claiming at or after FRA on both the ability to afford regular expenses and LTC for single individuals at the first wave of retirement. However, for many respondents in this sample, the FRA is later than 66, and thus many of these individuals are not yet receiving their Social Security benefits at age 65, and we see this negative relationship disappear at older ages.

[18] Having a will or trust may be a proxy for a variety of factors including "active planning" or the use of a financial professional. Data from an HRS module shows that having a financial planner increases the likelihood of having a will or trust, however many respondents have a will or trust without a financial planner (84%) (vs. 95% of those with a financial planner).

Table 15: Probit Average Marginal Effects, Dependent Variable: Ability to Pay for Regular Expenses

	Single Household, Sample Restriction			Married Household, Sample Restriction		
	First Retirement Wave	Age 70/71, Retired	Age 80/81, Retired	First Retirement Wave	Age 70/71, Retired	Age 80/81, Retired
In First Wave of Full Retirement						
Any Home Debt	-0.0390*	0.0113	-0.0516	-0.0559***	-0.0720**	-0.0101
	(0.0206)	(0.0342)	(0.0496)	(0.0184)	(0.0280)	(0.0403)
Any Other Debt	-0.0670***	-0.0780***	-0.0863**	-0.0797***	-0.0748**	-0.0383
	(0.0176)	(0.0299)	(0.0431)	(0.0187)	(0.0294)	(0.0413)
Any Prior Pension Eligibility	0.00266	0.0279***	0.0307**	-0.000484	0.0135*	0.00977
	(0.00429)	(0.00758)	(0.0123)	(0.00448)	(0.00774)	(0.0115)
Any Pension Income	0.242***	0.0677**	0.00313	0.225***	0.0647**	0.0282
	(0.0207)	(0.0344)	(0.0505)	(0.0179)	(0.0303)	(0.0438)
Ever Cashed out Pension	-0.0596*	-0.0293	-0.155*	-0.00586	-0.0586	0.0761
	(0.0305)	(0.0517)	(0.0911)	(0.0276)	(0.0434)	(0.0633)
Any IRA Wealth	0.248***	0.173***	0.188***	0.237***	0.174***	0.0963**
	(0.0206)	(0.0335)	(0.0503)	(0.0192)	(0.0323)	(0.0432)
Withdrew from IRA	0.245***	0.0907**	0.111*	0.142***	0.129***	0.0768*
	(0.0290)	(0.0437)	(0.0653)	(0.0210)	(0.0320)	(0.0419)
Had a Will Or Trust	0.133***	0.126***	0.136***	0.117***	0.125***	0.139**
	(0.0179)	(0.0317)	(0.0474)	(0.0221)	(0.0377)	(0.0600)
Age of First Social Security Income Receipt (Omitted Category: Never Received Social Security Income)						
Before 62	-0.0748***	-0.00446	-0.0217	-0.0576*	-0.0971	-0.0637
	(0.0248)	(0.0618)	(0.0790)	(0.0312)	(0.0694)	(0.0884)
Between 62 and FRA	-0.0514**	0.0508	0.0136	-0.0404	-0.0455	-0.0564
	(0.0233)	(0.0585)	(0.0699)	(0.0250)	(0.0585)	(0.0643)
FRA or Older	0.0179	0.182***	-0.0224	-0.00522	0.0339	0.0158
	(0.0307)	(0.0697)	(0.0679)	(0.0315)	(0.0651)	(0.0665)
Pseudo R-Squared	0.293	0.294	0.219	0.371	0.264	0.237
Observations	5,139	1,626	963	5,142	1,861	1,103
Standard errors in parentheses; controls include race, ethnicity, veteran status, marital history, educational attainment, self-reported health, homeownership, means-tested benefit receipt, and fixed effects for interview wave . *** p<0.01, ** p<0.05, * p<0.1						

Table 16: Probit Average Marginal Effects, Dependent Variable: Ability to Pay for Long-Term Care

	Single Household, Sample Restriction			Married Household, Sample Restriction		
	First Retirement Wave	Age 70/71, Retired	Age 80/81, Retired	First Retirement Wave	Age 70/71, Retired	Age 80/81, Retired
In First Wave of Full Retirement						
Any Home Debt	-0.0390*	0.0295	-0.0580	-0.0377**	-0.0269	-0.110**
	(0.0206)	(0.0336)	(0.0458)	(0.0191)	(0.0285)	(0.0430)
Any Other Debt	-0.0670***	-0.0812***	-0.0923**	-0.0944***	-0.114***	-0.0619
	(0.0176)	(0.0293)	(0.0406)	(0.0194)	(0.0301)	(0.0429)
Any Prior Pension Eligibility	0.00266	0.0265***	0.0209*	0.00338	0.00723	-0.00883
	(0.00429)	(0.00747)	(0.0117)	(0.00466)	(0.00783)	(0.0115)
Any Pension Income	0.242***	0.0619*	0.0390	0.178***	0.0332	0.119***
	(0.0207)	(0.0340)	(0.0490)	(0.0192)	(0.0312)	(0.0450)
Ever Cashed out Pension	-0.0596*	-0.0716	-0.138*	-0.0194	-0.0721	0.102
	(0.0305)	(0.0477)	(0.0758)	(0.0286)	(0.0444)	(0.0630)
Any IRA Wealth	0.248***	0.204***	0.225***	0.229***	0.213***	0.0926**
	(0.0206)	(0.0327)	(0.0487)	(0.0197)	(0.0327)	(0.0431)
Withdrew from IRA	0.245***	0.0477	0.182***	0.161***	0.0875***	0.144***
	(0.0290)	(0.0420)	(0.0668)	(0.0221)	(0.0331)	(0.0407)
Had a Will Or Trust	0.133***	0.135***	0.150***	0.159***	0.143***	0.265***
	(0.0179)	(0.0311)	(0.0447)	(0.0229)	(0.0382)	(0.0632)
Age of First Social Security Income Receipt (Omitted Category: Never Received Social Security Income)						
Before 62	-0.0812***	-0.0179	-0.0878	-0.0687**	-0.0805	0.000832
	(0.0214)	(0.0621)	(0.0709)	(0.0325)	(0.0697)	(0.0850)
Between 62 and FRA	-0.0253	0.0186	-0.0264	-0.0421	0.0219	0.0114
	(0.0204)	(0.0594)	(0.0674)	(0.0265)	(0.0598)	(0.0635)
FRA or Older	0.00399	0.101	0.0228	0.00395	0.0627	0.0873
	(0.0264)	(0.0715)	(0.0693)	(0.0326)	(0.0626)	(0.0627)
Pseudo R-Squared	0.293	0.334	0.290	0.343	0.330	0.323
Observations	5,139	1,626	963	5,142	1,861	1,103
Standard errors in parentheses; controls include race, ethnicity, veteran status, marital history, educational attainment, self-reported health, homeownership, means-tested benefit receipt, and fixed effects for interview wave . *** p<0.01, ** p<0.05, * p<0.1						

Table 17: Probit Average Marginal Effects and Tobit Coefficients, Any Bequest and Bequested Amount

	Single		Married	
	Probit	Tobit	Probit	Tobit
In First Wave of Full Retirement				
Any Home Debt	-0.0393	2.118**	-0.0297	0.0836
	(0.0415)	(0.918)	(0.0235)	(0.807)
Any Other Debt	-0.0541*	0.352	-0.0369	-0.283
	(0.0321)	(0.798)	(0.0227)	(0.815)
Any Prior Pension Eligibility	0.0114	-0.0266	0.00638	0.296
	(0.0107)	(0.25)	(0.0068)	(0.239)
Any Pension Income	0.0149	1.063	0.0429*	0.489
	(0.0373)	(0.885)	(0.0245)	(0.866)
Ever Cashed out Pension	-0.211**	-4.442**	-0.0984**	-1.035
	(0.0827)	(2.14)	(0.0492)	(1.441)
Any IRA Wealth	0.124***	2.482***	0.0705***	1.762**
	(0.0375)	(0.951)	(0.0244)	(0.868)
Withdrew from IRA	0.126**	4.422***	0.0563*	0.109
	(0.0633)	(1.356)	(0.0292)	(1.003)
Had a Will Or Trust	0.279***	3.872***	0.289***	6.356***
	(0.0286)	(0.801)	(0.0342)	(1.137)
Age of First Social Security Income Receipt (Omitted Category: Never Received Social Security Income in Sample)				
Before 62	0.00839	-0.382	0.0633**	2.072
	(0.0439)	(1.192)	(0.0304)	(1.445)
Between 62 and FRA	-0.0677	-1.768	0.00777	0.21
	(0.0436)	(1.09)	(0.0322)	(1.249)
FRA or Older	-0.0542	-2.390*	0.0357	1.827
	(0.0576)	(1.409)	(0.0334)	(1.362)
Pseudo R-Squared	0.312	0.074	0.326	0.051
Observations	1,944	1,748	1,930	1,567
Standard errors in parentheses; controls include race, ethnicity, veteran status, marital history, educational attainment, self-reported health, homeownership, means-tested benefit receipt, and fixed effects for interview wave. *** p<0.01, ** p<0.05, * p<0.1				

In general, one important limitation of this analysis is due to its sample size: we are unable look at the measures of financial security at ages 90, when several of the key decisions examined here, most notably cashing out a pension and Social Security claiming, are hypothesized to have the strongest effects as a result of the greater exposure to longevity risk.

4. Summary and Discussion

In this report, we constructed three general measures of financial security in retirement: the ability to pay for regular expenses, the ability to pay for long-term care on top of these regular expenses, and the ability to bequest any remaining wealth. We looked at these outcomes in the first years in retirement, at ages 70 and 80, and, in the case of bequests, at death.

In general, we found that there are a substantial portion of households that are financially insecure according to these measures at the moment of retirement. In particular, the majority of single individuals do not have the financial resources to maintain their level of spending in their first year of retirement for more than five years without either cutting their expenditures or accessing their housing wealth if available. Moreover, many households are overly optimistic about the size of a bequest they expect to leave: although nearly 90 percent of those who are certain they will leave any bequest in the last interview before their death do leave a bequest, less than half who are certain they will leave at least $10,000 end up leaving at least that amount.

The financial security measures developed in this study are predictive of future economic hardship: for example, households who cannot afford to pay for five years of regular expenses at the time of retirement are more likely to experience a decline in spending of at least 50 percent five years later, and those who can afford long-term care expenses at retirement are substantially less likely to require Medicaid coverage during nursing home stays. Furthermore, in developing the bequest measure, we examined whether non-response of decedents' surviving respondent affected the analysis. Of note for researchers using the bequest variables from HRS, we find no qualitatively significant differences between our results based using only self-reported bequests versus both self-reported and imputed bequests and typically few differences between single and married individuals.

We found that only a few decisions made prior to retirement have a consistent impact (positive or negative) in the first year of retirement and beyond. After controlling for a number of relevant factors and characteristics, we find for pension and retirement savings decisions:

- Decisions made before retirement related to pension and Social Security claiming do not consistently explain differences in our key financial security measures at the moment of retirement, age 70 or 80. For instance, having cashed out a pension is associated with greater financial security at later ages only for some households at certain ages.
- Claiming Social Security at the FRA or after is positively correlated with measures of financial security but only rarely has a statistically significant relationship with the measures of security at retirement and at ages 70 or 80 when controlling for all other factors.
- Having a pension and having an IRA are highly associated with greater financial security at the moment of retirement and later on.
- Having withdrawn from IRAs at retirement (even controlling for having had an IRA) is associated with greater financial security.

These findings surrounding retirement savings decision-making suggest that, once one controls for a range of household characteristics, these decisions do not clearly differentiate financially

insecure households from those that are financially secure, with the exception of those with more retirement savings vehicles (i.e., those with pension entitlements and IRAs).

Financial security measures were strongly associated with demographic characteristics and other financial decisions:

- Households including those led by racial/ethnic minorities had lower levels of financial security, even controlling for a rich set of covariates. Through the analysis, we find that traditionally economically disadvantaged households – those receiving means-tested benefits, those with lower educational attainment, and those in worse health – also score consistently low in our financial security metrics.
- Households led by a veteran have higher levels of financial security than households led by non-veterans in the cohorts under study.

Even with these newly developed measures of financial security and controlling for a rich array of covariates, traditional measures of economic hardship are predictive of lower financial security. Veteran status is positively correlated with financial security; however, these veterans are from cohorts largely preceding the all-volunteer military and are thus demographically dissimilar from more recent veteran cohorts.

Homeownership, less debt, and estate planning are all associated with improved financial security:

- Having a will or trust when entering retirement is statistically significant at every age for each measure across both household types; it almost always has a double-digit percentage point positive impact on the likelihood of satisfying each measurement. Having a will or trust at retirement increases the size of a bequest by 387 percent for singles and 636 percent for primary spouses.
- While homeownership is associated with greater ability to bequest and to pay for LTC the first year in retirement and beyond, its association with ability to pay for regular expenses is more complex. The results show that homeowners have greater ability than renters to pay for regular expenses the first year in retirement and age 70, but less able to pay for such expenses at age 80.
- Staying longer in the workforce is only associated with greater ability to pay for regular expenses the first year in retirement and at age 80.
- Both housing debt and non-housing debt at retirement are associated with lower financial security, although non-housing debt has a larger and more frequently statistically significant negative impact.

Carrying debt into retirement, in particular non-housing debt, such as credit card or medical debt, is strongly associated with financial insecurity. Homeownership is associated with higher financial security, despite our measures of ability to pay for regular expenses and long-term care specifically excluding housing wealth as a resource households can draw upon. Estate planning, measured in the HRS as having established a will or trust, is strongly and consistently associated with higher financial security.

With the measures of financial security we develop in this report, we explore which types of households are more financially secure, and which decisions at retirement are associated with higher financial security. These associations allow for categorization of which subgroups and

decisions indicate a lack of financial security and can be used to identify vulnerable populations. Our findings suggest that some decisions made at or before retirement are strongly correlated with improved financial security, such as having an IRA or establishing a will or trust. Having debt, particularly non-housing debt, is a strong indicator of financial insecurity. However, after controlling for a range of characteristics, measures of tapping into retirement wealth are not consistently predictive of low financial security. The measures of financial security we develop in this study are predictive of future financial stability and reliance on Medicaid, and the indicators of poor financial security provide insight as to which subpopulations are most financially vulnerable.

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Appendix

Construction of Ability to Pay for Regular Expenses and Imputation of Spending

We use the 1,459 households whom we observe in the Consumption and Activities Mailing Survey in their first wave of full retirement as defined above to fit a regression equation predicting regular expenses in this wave. Our goal was to maximize statistical power without overfitting; to this end, we included variables that increased R-squared values, but did not include variables that were not statistically significant at the 10% level. For financial variables and age, we pursued the same approach to choose the degree of the polynomial of their inclusion.

The variables that satisfied these criteria were: usual income,[19] usual income squared, non-housing wealth, non-housing wealth squared, value of primary residence, value of primary residence squared, age, age squared, age cubed, interview wave (1-12), interview wave squared, marital status, primary spouse's sex, and whether the household was receiving any means tested government transfers, including SSI income, food stamps, and TANF. The coefficients are reported in Appendix Table A1.

We included both single and married households in the same regression; after having controlled for the variables included in our regression, there was no gain in variation explained in splitting the samples separately.

[19] Usual income is calculated as the sum of the RAND HRS Version P variables rWipena, rWisret, rWissdi, rWigxfr, sWipena, sWisret, sWissdi, sWigxfr, and hWicap.

Table A1: Regression Model Predicting Regular Expenses in First Wave of Full Retirement, RAND CAMS Respondents, Nominal Dollar Amounts

	Regular Expenses
Usual Income	0.0965***
	(0.0270)
Usual Income, Squared	-5.23e-08**
	(2.50e-08)
Non-Housing Wealth	0.00553***
	(0.00153)
Non-Housing Wealth, Squared	-2.01e-10***
	(7.79e-11)
Wave	3,894*
	(2,143)
Wave Squared	-211.0*
	(126.2)
Value of Primary Residence	0.0351***
	(0.00424)
Value of Primary Residence, Squared	-6.59e-09***
	(1.30e-09)
Age	11,160*
	(6,571)
Age, Squared	-160.4*
	(94.06)
Age, Cubed	0.736*
	(0.445)
Never Married	-10,166***
	(2,483)
Separated/Divorced	-7,063***
	(1,658)
Widowed	-6,284***
	(1,708)
Female	-257.5
	(1,373)
Any Means-Tested Government Transfer	-6,209***
	(1,747)
Constant	-236,855
	(151,494)
Observations	1,459
R-squared	0.239
Standard errors in parentheses	
***** p<0.01, ** p<0.05, * p<0.1**	

Imputing Bequests

We follow a similar method for imputation as used above for regular expenses. Among those for whom we have information about estate size, we ran a regression of estate size on individual and bequest characteristics and use the predicted value from these regression to impute the missing values. With these regressions the goal is to maximize predictive power, thus we excluded variables that were not statistically significant at the 10 percent level. We can then use both reported bequests and imputed bequests as outcome variables in our regression analysis. We used the following characteristics to predict bequests: wealth in the final wave before death, relationship of the exit interview respondent to the person who died (spouse, family member, other), gender of the decedent, whether they had a will, whether they had a trust, and marital status prior to the death (allowing us to distinguish between people who were married, widowed, or otherwise not married). For those who do not participate in the wave prior to death, we do not have information about wealth and therefore are unable to impute bequest amounts. We also considered controlling for the impact of end of life costs to allow for the possibility that wealth was depleted towards the end of life. However, we have found that end of life costs do little to predict remaining bequestable wealth. We found that entered separately age at death, year of death, and birth year are not strong predictors. Since these variables do not significantly predict bequestable wealth, we leave them out.20 Row 4 reports combined imputed and reported estate value. The imputed estate amounts are also skewed, with a mean for married decedents of $1,545,238 and a median of $172,000.21.

[20] We also exclude a small number of exit interview respondents who report implausibly high bequests. Five percent of the reported bequests are over $1 million dollars, but three are over $10 billion dollars. These very high amounts are often not closely aligned with the wealth that the individual reported to the HRS before they retired. As a result, we limit our estimation of the imputation equation to estates with less than $10,000,000, which excludes 14 reported estates.

[21] Our imputation process, which uses linear regressions, will lead to a less skewed distribution than may be observed in the actual data. Linear regression are unlikely to predict very large outliers.

Table A2: Regression Model Predicting Estate Amount reported in Exit Interview, Sample limited to Exit Interview Respondents who report an Estate Value, Nominal Dollar Amounts

	Estate Value
Wealth in wave prior to death	0.668***
	(0.0190)
Wealth in wave prior to death squared	-2.61e-07***
	(1.37e-08)
Wealth in wave prior to death cubed	3.26e-14 ***
	(0)
Wealth in wave prior to death squared to fourth power	-1.26e-21 ***
	(0)
Exit interview respondent (relative to surviving spouse)	
Relative	32,154***
	(8,266)
Non-relative	24,248
	(16,520)
Paid Helper	73,222*
	(39,356)
Decendent was male	30,756***
	(5,697)
Decendent was unmarried	-6,924
	(9,606)
Dececent was widowed	17,902**
	(8,350)
Decendent was black (relative to all other races)	-17,413*
	(9,987)
Decendent had a will	33,998***
	(6,489)
Decedent had a trust	75,116***
	(6,664)
Exit interview indicated estate had nothing of value	-52,238**
	(20,540)
Constant	-29,975***
	(8,704)
Observations	3,082
R-squared	0.494
Standard errors in parentheses	
***** p<0.01, ** p<0.05, * p<0.1**	

Additional Tables

Table A3: Income, Wealth and Expenses

	Single			Couples		
	At Retirement	**Age 70/71**	**Age 80/81**	**At Retirement**	**Age 70/71**	**Age 80/81**
	All Retired					
Average Regular Income	20,130.93	26,841.93	24,281.83	45,544.11	53,159.51	51,743.64
Average Non-Housing Wealth	152,471.71	151,864.52	144,085.69	390,505.67	447,122.29	431,635.03
Average Regular Expenses	27,263.34	31,436.93	26,108.40	43,188.59	46,611.64	44,355.69
	Not in Deficit					
Average Regular Income	50,414.83	57,032.63	46,892.53	90,872.07	90,604.59	84,556.79
Average Non-Housing Wealth	337,457.90	321,873.32	301,920.47	704,606.26	797,625.84	709,710.01
Average Regular Expenses	27,667.22	33,837.97	26,272.43	46,701.36	49,464.93	47,445.96
	In Deficit with Enough Wealth					
Average Regular Income	19,073.78	23,694.92	19,753.27	29,903.63	33,318.10	31,107.32
Average Non-Housing Wealth	387,553.15	381,662.36	282,268.88	497,648.85	437,932.21	463,174.94
Average Regular Expenses	33,294.28	38,054.23	30,590.39	46,818.32	49,440.39	47,841.20
	In Deficit without Enough Wealth					
Average Regular Income	9,930.15	13,927.85	12,201.34	16,271.12	21,229.95	19,654.09
Average Non-Housing Wealth	9,443.26	9,675.65	6,013.66	20,638.10	17,420.39	14,266.65
Average Regular Expenses	25,107.16	28,575.36	24,317.69	37,167.88	40,532.91	37,160.70

Table A4: Financial Security Measures at Age 80/81, by Subgroup

	Fraction of Households that Can Cover Regular Expenses (Not in Deficit, or Have Non-Housing Wealth to Afford 5 Years of Deficit):				Fraction of Households that Can Cover Regular Expenses and LTC (Has LTCI or Additional Wealth to Pay for 6 Month NH Stay):			
	Single		Married		Single		Married	
	Statistic	N	Statistic	N	Statistic	N	Statistic	N
Overall	55%	1,316	75%	1,571	42%	1,316	67%	1,571
Households in which Primary Spouse is Female	53%	1,068	64%	229	40%	1,068	57%	229
Marital Status								
Never Married	62%	65			34%	65		
Separated/ Divorced	56%	215			38%	215		
Widowed	51%	918			39%	918		
Veteran in Household	73%	155	82%	1,052	57%	155	74%	1,052
Health status								
Excellent	67%	89	80%	104	60%	89	75%	104
Very Good	61%	276	83%	393	50%	276	76%	393
Good	58%	417	81%	522	43%	417	72%	522
Fair	50%	345	66%	368	35%	345	55%	368
Poor	46%	186	61%	184	30%	186	49%	184
Education								
Less than High School	38%	557	56%	484	20%	557	42%	484
High School/GED	62%	423	77%	495	51%	423	69%	495
Some College	72%	208	85%	252	59%	208	76%	252
College or Higher	83%	128	93%	340	76%	128	91%	340
Race/ethnicity								
White, Non-Hispanic	64%	916	83%	1,284	52%	916	75%	1,284
Black, Non-Hispanic	35%	249	45%	131	18%	249	34%	131
Hispanic	34%	127	30%	120	16%	127	18%	120
Other, Non-Hispanic	46%	24	61%	36	29%	24	44%	36
Households under 200% of FPL (2002 onward)	34%	420	33%	330	17%	420	22%	330
Households Receiving Means-Tested Benefits	42%	185	32%	87	11%	185	15%	87

Table A5: Financial Security Measures at Age 80/81, by Decisions

	Fraction of Households that Can Cover Regular Expenses (Not in Deficit, or Have Non-Housing Wealth to Afford 5 Years of Deficit):				Fraction of Households that Can Cover Regular Expenses and LTC (Has LTCI or Additional Wealth to Pay for 6 Month NH Stay):			
	Single		Married		Single		Married	
	Statistic	N	Statistic	N	Statistic	N	Statistic	N
Overall	55%	1,316	75%	1,571	42%	1,316	67%	1,571
Any Mortgage Debt (among Homeowners)	52%	162	77%	301	43%	162	67%	301
Homeowner but no mortgage debt	62%	672	81%	1,050	52%	672	72%	1,050
Any Non-Mortgage Debt	51%	231	67%	325	35%	231	55%	325
No non-mortgage debt	56%	1,085	78%	1,246	43%	1,085	70%	1,246
Household Receiving Pension Income	73%	437	88%	810	60%	437	80%	810
No pension income	47%	879	62%	761	33%	879	53%	761
Household Member Ever Cashed out Pension	64%	36	82%	110	50%	36	74%	110
Has a pension but never cashed out	65%	662	81%	1,078	53%	662	72%	1,078
Household Member Ever Withdrawn from IRA	91%	176	95%	555	86%	176	92%	555
Has an IRA but had not withdrawn	77%	30	90%	67	67%	30	84%	67
Household Member Has a Will or Trust	62%	984	80%	1,379	51%	984	72%	1,379
No will or trust	37%	332	42%	192	15%	332	27%	192
Primary Spouse Started Receiving Social Security:								
Before 62	48%	129	65%	100	34%	129	53%	100
Between 62 and FRA	55%	274	76%	577	41%	274	67%	577
At or After FRA	56%	204	79%	341	46%	204	71%	341

	Fraction of Households that Can Cover Regular Expenses (Not in Deficit, or Have Non-Housing Wealth to Afford 5 Years of Deficit):				Fraction of Households that Can Cover Regular Expenses and LTC (Has LTCI or Additional Wealth to Pay for 6 Month NH Stay):			
	Single		Married		Single		Married	
	Statistic	N	Statistic	N	Statistic	N	Statistic	N
Other Spouse Started Receiving Social Security:								
Before 62			66%	161			53%	161
Between 62 and FRA			80%	677			71%	677
At or After FRA			83%	182			73%	182

Table A6: Probit Marginal Effects, Dependent Variable: Ability to Pay for Regular Expenses

		Single Household, Sample Restriction				Married Household, Sample Restriction			
		First Retirement Wave	Age 65/66, Retired	Age 70/71, Retired	Age 80/81, Retired	First Retirement Wave	Age 65/66, Retired	Age 70/71, Retired	Age 80/81, Retired
In Current Wave									
	Age	0.0144***				0.00942***			
		(0.00120)				(0.00188)			
	Female	-0.0675***	-0.106***	-0.119***	-0.0360	-0.0174	-0.0234	0.0313	-0.0551
		(0.0231)	(0.0409)	(0.0429)	(0.0651)	(0.0241)	(0.0439)	(0.0406)	(0.0593)
	Veteran	0.0574*	0.0401	0.0553	0.126	0.0254	0.0289	0.0808***	0.0526
		(0.0294)	(0.0479)	(0.0515)	(0.0774)	(0.0179)	(0.0313)	(0.0286)	(0.0399)
	Any Means Tested Income	0.215***	-0.0142	-0.0313	0.104*	0.0540*	0.0147	-0.00323	-0.0971
		(0.0241)	(0.0417)	(0.0442)	(0.0590)	(0.0302)	(0.0625)	(0.0663)	(0.0954)
	Race/Ethnicity (White, Non-Hispanic Omitted)								
	Black	-0.131***	-0.0423	-0.122***	-0.128***	-0.151***	-0.182***	-0.0618	-0.139*
		(0.0185)	(0.0325)	(0.0323)	(0.0484)	(0.0264)	(0.0441)	(0.0444)	(0.0724)
	Hispanic	-0.0946***	-0.0741	-0.122***	-0.0651	-0.145***	-0.146***	-0.147***	-0.262***
		(0.0264)	(0.0479)	(0.0474)	(0.0673)	(0.0319)	(0.0554)	(0.0539)	(0.0733)
	Other, Non-Hispanic	-0.0451	0.121	-0.0550	-0.189*	-0.0951*	-0.414***	0.00548	-0.410***
		(0.0528)	(0.0991)	(0.108)	(0.108)	(0.0548)	(0.0912)	(0.0946)	(0.0906)
	Marital Status (Never Married Omitted)								
	Widowed	-0.0652***	-0.217***	-0.202***	-0.236***				
		(0.0252)	(0.0356)	(0.0375)	(0.0645)				
	Divorced/Separated	-0.116***	-0.176***	-0.164***	-0.247***				
		(0.0241)	(0.0354)	(0.0362)	(0.0600)				
	Educational Attainment (HS Omitted)								
	Less than HS	-0.111***	-0.122***	-0.0641*	-0.0904**	-0.143***	-0.128***	-0.108***	-0.0543
		(0.0195)	(0.0341)	(0.0371)	(0.0453)	(0.0221)	(0.0402)	(0.0373)	(0.0444)
	Some College	0.0769***	0.0514	0.0928**	0.121**	0.0409*	0.109***	0.0306	0.0848*
		(0.0222)	(0.0361)	(0.0386)	(0.0531)	(0.0216)	(0.0353)	(0.0348)	(0.0458)
	College	0.224***	0.195***	0.317***	0.298***	0.177***	0.149***	0.165***	0.137***
		(0.0274)	(0.0459)	(0.0432)	(0.0630)	(0.0216)	(0.0390)	(0.0347)	(0.0459)

		Single Household, Sample Restriction				Married Household, Sample Restriction			
		First Retirement Wave	Age 65/66, Retired	Age 70/71, Retired	Age 80/81, Retired	First Retirement Wave	Age 65/66, Retired	Age 70/71, Retired	Age 80/81, Retired
	Health Status (Good Omitted)								
	Excellent	0.0945***	0.131**	0.106*	0.153*	0.0880***	0.0514	0.00700	-0.0287
		(0.0331)	(0.0547)	(0.0599)	(0.0881)	(0.0281)	(0.0488)	(0.0485)	(0.0788)
	Very Good	0.0589***	0.0688*	0.0378	-0.0186	0.0326	0.00939	0.0351	0.0112
		(0.0218)	(0.0366)	(0.0370)	(0.0515)	(0.0209)	(0.0352)	(0.0320)	(0.0437)
	Fair	-0.0344*	-0.0548	-0.0379	-0.0762*	-0.0226	-0.0746*	-0.0241	-0.0290
		(0.0204)	(0.0346)	(0.0364)	(0.0454)	(0.0220)	(0.0409)	(0.0366)	(0.0439)
	Poor	-0.0922***	-0.114***	0.0184	-0.162***	-0.0718**	-0.145**	-0.0542	-0.0230
		(0.0238)	(0.0437)	(0.0520)	(0.0507)	(0.0288)	(0.0571)	(0.0519)	(0.0533)
	Spouse's Age					0.00592***	0.00541	-0.000418	-0.00453
						(0.00180)	(0.00334)	(0.00343)	(0.00389)
	Spousal Educational Attainment (HS Omitted)								
	Less than HS					-0.130***	-0.180***	-0.160***	-0.218***
						(0.0328)	(0.0582)	(0.0542)	(0.0736)
	Some College					-0.0722***	-0.0604	-0.0605	-0.179***
						(0.0279)	(0.0490)	(0.0445)	(0.0621)
	College					-0.0135	0.0124	0.00282	-0.115*
						(0.0300)	(0.0518)	(0.0475)	(0.0667)
	Spousal Health Status (Good Omitted)								
	Excellent					0.101***	0.128***	-0.0403	0.0955
						(0.0269)	(0.0460)	(0.0529)	(0.0707)
	Very Good					0.0814***	0.0187	-0.00483	0.0900**
						(0.0197)	(0.0353)	(0.0322)	(0.0401)
	Fair					-0.00640	-0.0234	-0.0576	-0.0858*
						(0.0221)	(0.0403)	(0.0386)	(0.0439)
	Poor					-0.0829***	-0.0860	-0.0594	-0.0606
						(0.0307)	(0.0549)	(0.0542)	(0.0640)
In First Wave of Full Retirement									
	Homeowner	0.0515***	0.150***	0.0750**	-0.0958**	0.0900***	0.197***	0.173***	-0.0185
		(0.0186)	(0.0315)	(0.0348)	(0.0460)	(0.0282)	(0.0600)	(0.0546)	(0.0583)

		Single Household, Sample Restriction				Married Household, Sample Restriction			
		First Retirement Wave	Age 65/66, Retired	Age 70/71, Retired	Age 80/81, Retired	First Retirement Wave	Age 65/66, Retired	Age 70/71, Retired	Age 80/81, Retired
	Any Home Debt	-0.0390*	-0.0682**	0.0113	-0.0516	-0.0559***	-0.00766	-0.0720**	-0.0101
		(0.0206)	(0.0316)	(0.0342)	(0.0496)	(0.0184)	(0.0294)	(0.0280)	(0.0403)
	Any Other Debt	-0.0670***	-0.0152	-0.0780***	-0.0863**	-0.0797***	-0.0370	-0.0748**	-0.0383
		(0.0176)	(0.0287)	(0.0299)	(0.0431)	(0.0187)	(0.0302)	(0.0294)	(0.0413)
	Any Prior Eligibility	0.00266	0.0196**	0.0279***	0.0307**	-0.000484	0.00686	0.0135*	0.00977
		(0.00429)	(0.00771)	(0.00758)	(0.0123)	(0.00448)	(0.00938)	(0.00774)	(0.0115)
	Any Pension Income	0.242***	0.109***	0.0677**	0.00313	0.225***	0.0769**	0.0647**	0.0282
		(0.0207)	(0.0346)	(0.0344)	(0.0505)	(0.0179)	(0.0317)	(0.0303)	(0.0438)
	Ever Cashed out Pension	-0.0596*	-0.0980**	-0.0293	-0.155*	-0.00586	-0.0849*	-0.0586	0.0761
		(0.0305)	(0.0440)	(0.0517)	(0.0911)	(0.0276)	(0.0465)	(0.0434)	(0.0633)
	Any IRA Wealth	0.248***	0.225***	0.173***	0.188***	0.237***	0.257***	0.174***	0.0963**
		(0.0206)	(0.0325)	(0.0335)	(0.0503)	(0.0192)	(0.0328)	(0.0323)	(0.0432)
	Withdrew from IRA	0.245***	0.0428	0.0907**	0.111*	0.142***	0.0192	0.129***	0.0768*
		(0.0290)	(0.0430)	(0.0437)	(0.0653)	(0.0210)	(0.0408)	(0.0320)	(0.0419)
	Had a Will Or Trust	0.133***	0.0856***	0.126***	0.136***	0.117***	0.100***	0.125***	0.139**
		(0.0179)	(0.0312)	(0.0317)	(0.0474)	(0.0221)	(0.0380)	(0.0377)	(0.0600)
	Age at Retirement		-0.0103**	-0.00832**	0.00881*		-0.000396	0.0120***	0.00817*
			(0.00484)	(0.00403)	(0.00489)		(0.00584)	(0.00447)	(0.00472)
	Age of First Social Security Income Receipt								
	Before 62	-0.0748***	-0.116**	-0.00446	-0.0217	-0.0576*	0.0846	-0.0971	-0.0637
		(0.0248)	(0.0502)	(0.0618)	(0.0790)	(0.0312)	(0.0581)	(0.0694)	(0.0884)
	Between 62 and FRA	-0.0514**	-0.0662	0.0508	0.0136	-0.0404	0.118**	-0.0455	-0.0564
		(0.0233)	(0.0513)	(0.0585)	(0.0699)	(0.0250)	(0.0584)	(0.0585)	(0.0643)
	FRA or Older	0.0179	-0.126**	0.182***	-0.0224	-0.00522	-0.0302	0.0339	0.0158
		(0.0307)	(0.0583)	(0.0697)	(0.0679)	(0.0315)	(0.0786)	(0.0651)	(0.0665)
	Age of Spouse's First Social Security Income Receipt								
	Before 62					0.0358	-0.0312	-0.00470	-0.0147
						(0.0245)	(0.0435)	(0.0433)	(0.0729)
	Between 62 and FRA					0.0616***	0.0448	0.0541	0.0198
						(0.0209)	(0.0378)	(0.0377)	(0.0564)
	FRA or Older					0.0373	0.118*	6.32e-05	0.0149

		Single Household, Sample Restriction				Married Household, Sample Restriction			
		First Retirement Wave	Age 65/66, Retired	Age 70/71, Retired	Age 80/81, Retired	First Retirement Wave	Age 65/66, Retired	Age 70/71, Retired	Age 80/81, Retired
						(0.0341)	(0.0718)	(0.0643)	(0.0635)
Observations		5,139	1,662	1,626	963	5,142	1,712	1,861	1,103
Standard errors in parentheses									
***** p<0.01, ** p<0.05, * p<0.1**									

Table A7: Probit Marginal Effects, Dependent Variable: Ability to Pay for Long-Term Care

		Single Household, Sample Restriction				Married Household, Sample Restriction			
		First Retirement Wave	Age 65/66, Retired	Age 70/71, Retired	Age 80/81, Retired	First Retirement Wave	Age 65/66, Retired	Age 70/71, Retired	Age 80/81, Retired
In Current Wave									
	Age	0.00614***				0.00611***			
		(0.00107)				(0.00202)			
	Female	-0.0492**	-0.0856**	-0.129***	-0.0835	-0.0117	0.0238	0.0556	-0.0423
		(0.0209)	(0.0381)	(0.0440)	(0.0652)	(0.0254)	(0.0435)	(0.0406)	(0.0607)
	Veteran	0.0356	0.0155	0.0522	-0.00383	0.0121	0.00162	0.0243	0.0442
		(0.0258)	(0.0418)	(0.0515)	(0.0714)	(0.0189)	(0.0323)	(0.0294)	(0.0403)
	Any Means Tested Income	-0.0369*	-0.153***	-0.0709	-0.0591	0.00835	-0.0372	0.0467	-0.0404
		(0.0219)	(0.0327)	(0.0438)	(0.0601)	(0.0368)	(0.0689)	(0.0622)	(0.102)
	Race/Ethnicity (White, Non-Hispanic Omitted)								
	Black	-0.0773***	-0.0320	-0.152***	-0.128***	-0.129***	-0.214***	-0.154***	-0.167**
		(0.0167)	(0.0294)	(0.0309)	(0.0459)	(0.0268)	(0.0444)	(0.0464)	(0.0761)
	Hispanic	-0.0106	-0.102**	-0.110**	-0.0717	-0.181***	-0.137**	-0.260***	-0.205**
		(0.0259)	(0.0401)	(0.0474)	(0.0668)	(0.0329)	(0.0566)	(0.0560)	(0.0801)
	Other, Non-Hispanic	-0.0211	0.155	-0.0601	-0.170*	-0.0370	-0.338***	-0.0911	-0.274**
		(0.0483)	(0.103)	(0.101)	(0.0925)	(0.0557)	(0.104)	(0.103)	(0.112)
	Marital Status (Never Married Omitted)								
	Widowed	-0.0211	-0.144***	-0.188***	-0.113*				
		(0.0224)	(0.0323)	(0.0379)	(0.0662)				
	Divorced/Separated	-0.0725***	-0.146***	-0.168***	-0.0723				
		(0.0215)	(0.0320)	(0.0362)	(0.0651)				
	Educational Attainment (HS Omitted)								
	Less than HS	-0.106***	-0.131***	-0.101***	-0.192***	-0.125***	-0.146***	-0.102***	-0.0698
		(0.0168)	(0.0294)	(0.0361)	(0.0411)	(0.0227)	(0.0408)	(0.0372)	(0.0444)
	Some College	0.0692***	0.00731	0.0517	0.0293	0.0586***	0.108***	0.0517	0.0554
		(0.0198)	(0.0309)	(0.0376)	(0.0498)	(0.0226)	(0.0358)	(0.0342)	(0.0467)
	College	0.198***	0.183***	0.287***	0.232***	0.208***	0.194***	0.201***	0.184***

		Single Household, Sample Restriction				Married Household, Sample Restriction			
		First Retirement Wave	Age 65/66, Retired	Age 70/71, Retired	Age 80/81, Retired	First Retirement Wave	Age 65/66, Retired	Age 70/71, Retired	Age 80/81, Retired
		(0.0263)	(0.0447)	(0.0451)	(0.0700)	(0.0234)	(0.0383)	(0.0333)	(0.0437)
	Health Status (Good Omitted)								
	Excellent	0.102***	0.102**	0.0690	0.207**	0.0828***	0.140***	0.0169	0.00977
		(0.0302)	(0.0515)	(0.0578)	(0.0913)	(0.0309)	(0.0467)	(0.0486)	(0.0802)
	Very Good	0.0514***	0.0872***	0.0111	0.0555	0.0226	0.0102	0.0835***	0.00705
		(0.0191)	(0.0338)	(0.0361)	(0.0517)	(0.0220)	(0.0356)	(0.0317)	(0.0454)
	Fair	-0.0309*	-0.0504	-0.0544	-0.0133	-0.0395*	-0.0364	-0.0626*	-0.0686
		(0.0178)	(0.0307)	(0.0354)	(0.0454)	(0.0231)	(0.0411)	(0.0372)	(0.0454)
	Poor	-0.0643***	-0.0825**	-0.0685	-0.0553	-0.105***	-0.0556	-0.0903*	-0.129**
		(0.0211)	(0.0404)	(0.0495)	(0.0529)	(0.0296)	(0.0562)	(0.0536)	(0.0575)
	Spouse's Age					0.00333*	0.00238	0.000836	-0.00220
						(0.00193)	(0.00345)	(0.00350)	(0.00392)
	Spousal Educational Attainment (HS Omitted)								
	Less than HS					-0.148***	-0.159***	-0.238***	-0.310***
						(0.0326)	(0.0587)	(0.0582)	(0.0794)
	Some College					-0.0919***	-0.0493	-0.106**	-0.193***
						(0.0282)	(0.0495)	(0.0484)	(0.0680)
	College					-0.0211	0.0219	-0.112**	-0.241***
						(0.0304)	(0.0527)	(0.0544)	(0.0756)
	Spousal Health Status (Good Omitted)								
	Excellent					0.101***	0.0520	-0.0361	-0.0167
						(0.0295)	(0.0503)	(0.0565)	(0.0780)
	Very Good					0.0931***	0.0440	-0.0238	0.103**
						(0.0209)	(0.0360)	(0.0330)	(0.0405)
	Fair					-0.0136	-0.0811*	-0.0952**	-0.127***
						(0.0236)	(0.0424)	(0.0395)	(0.0453)
	Poor					-0.0577*	-0.0816	-0.101*	-0.0244
						(0.0317)	(0.0563)	(0.0569)	(0.0633)
In First Wave of Full Retirement									
	Homeowner	0.0822***	0.151***	0.125***	0.0438	0.107***	0.0529	0.180***	0.162**

		Single Household, Sample Restriction				Married Household, Sample Restriction			
		First Retirement Wave	Age 65/66, Retired	Age 70/71, Retired	Age 80/81, Retired	First Retirement Wave	Age 65/66, Retired	Age 70/71, Retired	Age 80/81, Retired
		(0.0158)	(0.0275)	(0.0334)	(0.0430)	(0.0295)	(0.0584)	(0.0566)	(0.0672)
	Any Home Debt	-0.0405**	-0.0278	0.0295	-0.0580	-0.0377**	0.0336	-0.0269	-0.110**
		(0.0170)	(0.0279)	(0.0336)	(0.0458)	(0.0191)	(0.0300)	(0.0285)	(0.0430)
	Any Other Debt	-0.0776***	-0.00161	-0.0812***	-0.0923**	-0.0944***	-0.0715**	-0.114***	-0.0619
		(0.0149)	(0.0260)	(0.0293)	(0.0406)	(0.0194)	(0.0310)	(0.0301)	(0.0429)
	Any Prior Eligibility	0.00420	0.0236***	0.0265***	0.0209*	0.00338	0.0135	0.00723	-0.00883
		(0.00363)	(0.00680)	(0.00747)	(0.0117)	(0.00466)	(0.00959)	(0.00783)	(0.0115)
	Any Pension Income	0.143***	0.0644**	0.0619*	0.0390	0.178***	0.0892***	0.0332	0.119***
		(0.0188)	(0.0305)	(0.0340)	(0.0490)	(0.0192)	(0.0322)	(0.0312)	(0.0450)
	Ever Cashed out Pension	-0.0710***	-0.0679*	-0.0716	-0.138*	-0.0194	-0.0326	-0.0721	0.102
		(0.0237)	(0.0384)	(0.0477)	(0.0758)	(0.0286)	(0.0476)	(0.0444)	(0.0630)
	Any IRA Wealth	0.180***	0.191***	0.204***	0.225***	0.229***	0.239***	0.213***	0.0926**
		(0.0189)	(0.0295)	(0.0327)	(0.0487)	(0.0197)	(0.0334)	(0.0327)	(0.0431)
	Withdrew from IRA	0.205***	0.0445	0.0477	0.182***	0.161***	0.0602	0.0875***	0.144***
		(0.0275)	(0.0381)	(0.0420)	(0.0668)	(0.0221)	(0.0408)	(0.0331)	(0.0407)
	Had a Will Or Trust	0.139***	0.0806***	0.135***	0.150***	0.159***	0.172***	0.143***	0.265***
		(0.0155)	(0.0280)	(0.0311)	(0.0447)	(0.0229)	(0.0392)	(0.0382)	(0.0632)
	Age at Retirement		-0.0147***	-0.00412	0.00668		-0.0226***	-0.00242	-0.00717
			(0.00446)	(0.00405)	(0.00486)		(0.00603)	(0.00451)	(0.00486)
	Age of First Social Security Income Receipt								
	Before 62	-0.0812***	-0.0961**	-0.0179	-0.0878	-0.0687**	0.0799	-0.0805	0.000832
		(0.0214)	(0.0467)	(0.0621)	(0.0709)	(0.0325)	(0.0607)	(0.0697)	(0.0850)
	Between 62 and FRA	-0.0253	-0.0369	0.0186	-0.0264	-0.0421	0.159***	0.0219	0.0114
		(0.0204)	(0.0477)	(0.0594)	(0.0674)	(0.0265)	(0.0603)	(0.0598)	(0.0635)
	FRA or Older	0.00399	-0.109**	0.101	0.0228	0.00395	0.0279	0.0627	0.0873
		(0.0264)	(0.0471)	(0.0715)	(0.0693)	(0.0326)	(0.0771)	(0.0626)	(0.0627)
	Age of Spouse's First Social Security Income Receipt								
	Before 62					-0.00127	-0.00362	0.0111	-0.169**
						(0.0274)	(0.0441)	(0.0433)	(0.0823)
	Between 62 and FRA					0.0430*	0.0424	0.0672*	-0.0324
						(0.0224)	(0.0393)	(0.0382)	(0.0585)

		Single Household, Sample Restriction				Married Household, Sample Restriction			
		First Retirement Wave	Age 65/66, Retired	Age 70/71, Retired	Age 80/81, Retired	First Retirement Wave	Age 65/66, Retired	Age 70/71, Retired	Age 80/81, Retired
	FRA or Older					-0.00118	0.0165	-0.0557	-0.0393
						(0.0366)	(0.0842)	(0.0671)	(0.0682)
Observations		5,139	1,662	1,626	963	5,142	1,712	1,861	1,103
Standard errors in parentheses									
***** p<0.01, ** p<0.05, * p<0.1**									

Table A8: Probit Marginal Effects and Tobit Coefficients, Any Bequest and Log Bequested Amount

		Single		Married	
		Probit, First Retirement Wave	**Tobit, First Retirement Wave**	**Probit, First Retirement Wave**	**Tobit, First Retirement Wave**
In Current Wave					
	Age	0.00167	-0.00291	9.17e-05	-0.0921
		(0.00180)	(0.0479)	(0.00200)	(0.0792)
	Female	0.0715*	0.924	-0.0141	-0.153
		(0.0378)	(0.946)	(0.0333)	(1.119)
	Veteran	0.0181	-0.414	-0.0139	-1.279*
		(0.0468)	(1.201)	(0.0220)	(0.770)
	Any Means Tested Income	-0.144***	-2.536***	-0.0177	-1.242
		(0.0350)	(0.973)	(0.0361)	(1.548)
	Race/Ethnicity (White, Non-Hispanic Omitted)				
	Black	-0.193***	-5.401***	-0.179***	-4.400***
		(0.0332)	(0.930)	(0.0369)	(1.214)
	Hispanic	-0.186***	-2.417*	-0.0912**	-1.214
		(0.0516)	(1.358)	(0.0415)	(1.414)
	Other, Non-Hispanic	-0.144	-0.863	-0.201**	-6.383**
		(0.113)	(2.749)	(0.0915)	(3.071)
	Marital Status (Never Married Omitted)				
	Widowed	0.0606	1.646		
		(0.0460)	(1.160)		
	Divorced/Separated	0.0162	-1.050		
		(0.0470)	(1.268)		
	Educational Attainment (HS Omitted)				
	Less than HS	-0.0318	-1.068	-0.0697***	-1.161
		(0.0307)	(0.762)	(0.0264)	(0.911)
	Some College	0.0654*	1.776*	-0.0353	0.565
		(0.0391)	(0.956)	(0.0339)	(1.019)
	College	0.120**	1.890	-0.0356	0.769
		(0.0483)	(1.204)	(0.0391)	(1.102)
	Health Status (Good Omitted)				
	Excellent	-0.0626	-0.690	0.00619	1.664
		(0.0634)	(1.407)	(0.0455)	(1.484)
	Very Good	0.00767	0.126	0.0238	2.161**
		(0.0412)	(0.962)	(0.0289)	(1.004)
	Fair	-0.0194	1.013	-0.0320	-1.270
		(0.0335)	(0.813)	(0.0266)	(0.911)
	Poor	-0.00532	-0.786	-0.0306	-0.574
		(0.0357)	(0.917)	(0.0294)	(1.014)
	Spouse's Age			0.00588***	0.141*
				(0.00214)	(0.0832)
	Spousal Educational Attainment (HS Omitted)				
	Less than HS			-0.0433	-3.519***

		Single		Married	
		Probit, First Retirement Wave	**Tobit, First Retirement Wave**	**Probit, First Retirement Wave**	**Tobit, First Retirement Wave**
				(0.0432)	(1.319)
	Some College			-0.00895	-3.052***
				(0.0379)	(1.147)
	College			0.0128	-0.482
				(0.0394)	(1.192)
	Spousal Health Status (Good Omitted)				
	Excellent			-0.0453	-0.0170
				(0.0425)	(1.236)
	Very Good			-0.0309	1.060
				(0.0286)	(0.901)
	Fair			-0.0656**	-0.136
				(0.0295)	(0.957)
	Poor			-0.0901**	1.468
				(0.0377)	(1.165)
In First Wave of Full Retirement					
	Homeowner	0.269***	4.039***	0.234***	4.512***
		(0.0272)	(0.709)	(0.0387)	(1.159)
	Any Home Debt	-0.0393	2.118**	-0.0297	0.0836
		(0.0415)	(0.918)	(0.0235)	(0.807)
	Any Other Debt	-0.0541*	0.352	-0.0369	-0.283
		(0.0321)	(0.798)	(0.0227)	(0.815)
	Any Prior Eligibility	0.0114	-0.0266	0.00638	0.296
		(0.0107)	(0.250)	(0.00680)	(0.239)
	Any Pension Income	0.0149	1.063	0.0429*	0.489
		(0.0373)	(0.885)	(0.0245)	(0.866)
	Ever Cashed out Pension	-0.211**	-4.442**	-0.0984**	-1.035
		(0.0827)	(2.140)	(0.0492)	(1.441)
	Any IRA Wealth	0.124***	2.482***	0.0705***	1.762**
		(0.0375)	(0.951)	(0.0244)	(0.868)
	Withdrew from IRA	0.126**	4.422***	0.0563*	0.109
		(0.0633)	(1.356)	(0.0292)	(1.003)
	Had a Will Or Trust	0.279***	3.872***	0.289***	6.356***
		(0.0286)	(0.801)	(0.0342)	(1.137)
	Age at Retirement				
	Age of First Social Security Income Receipt				
	Before 62	0.00839	-0.382	0.0633**	2.072
		(0.0439)	(1.192)	(0.0304)	(1.445)
	Between 62 and FRA	-0.0677	-1.768	0.00777	0.210
		(0.0436)	(1.090)	(0.0322)	(1.249)
	FRA or Older	-0.0542	-2.390*	0.0357	1.827
		(0.0576)	(1.409)	(0.0334)	(1.362)
	Age of Spouse's First Social Security Income Receipt				
	Before 62	0.00839		-0.0296	-1.507

		Single		Married	
		Probit, First Retirement Wave	**Tobit, First Retirement Wave**	**Probit, First Retirement Wave**	**Tobit, First Retirement Wave**
		(0.0439)		(0.0342)	(1.248)
	Between 62 and FRA	-0.0677		0.00261	-0.178
		(0.0436)		(0.0278)	(1.045)
	FRA or Older	-0.0542		0.0105	-0.572
		(0.0576)		(0.0395)	(1.414)
Observations		1,944	1,748	1,930	1,567
Standard errors in parentheses					
***** p<0.01, ** p<0.05, * p<0.1**					