



Full length article

## The relationship of financial stress with the timing of the initial claim of U.S. Social Security retirement income



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### ABSTRACT

A large number of U.S. adults claim Social Security benefits at age 62, substantially earlier than the government specified full retirement age. One implication of an early claim is a reduction in the amount of future monthly benefits. The literature on the timing of Social Security claiming has developed numerous hypotheses to explain this behavior; however, previous empirical work has found few factors are statistically significant explanators of early benefit claims. We propose a new test concerning why some older adults claim Social Security benefits early; specifically, we test whether the level of an individual's financial stress prior to the claiming decision is associated with a benefit claim at age 62. Our analysis finds that the greater the level of financial stress prior to claiming, the less likely is claiming, controlling for many aspects of an individual's financial, social, and demographic situation. Comparing two individuals, we find that a person with a relatively high level of financial stress is 4 to 7 percentage points more likely to delay claiming Social Security benefits than a person with a low level of financial stress. We also find that earned income moderates the relationship between an individual's financial stress and early claiming, where the same increase in financial stress is more likely to result in a delay in claiming for those with higher earnings than those with lower earnings.

### Introduction

In the U.S., older adults have a choice of when to first claim Social Security retirement benefits.<sup>2</sup> The age of initial receipt of Social Security retirement benefits varies across individuals with the typical range being 62 to 70.<sup>3</sup> The intertemporal trend in the percentage claiming Social Security retirement benefits at age 62 for men and women is displayed in Fig. 1. A downwards time trend is evident with notable year-to-year variation. In contrast, the average age of initial receipt of Social Security retirement benefits has varied less over time, ranging from 63.5 in 1995 to 64.6 in 2017, masking the substantial variation in the

percentage older adults claiming benefits when first eligible.

Understanding the factors associated with early claiming is important for public policy, as claiming early reduces an individual's future monthly benefits. The reduction in benefits depends on the Social Security program's full retirement age (FRA) and the age when benefits are claimed.<sup>4</sup> The total reduction in monthly benefit if the claim is at age 62 rather than 67 (the FRA) is substantial, equaling 30%.<sup>5</sup> Further, this reduction persists after the individual's death if there is a survivor that claims the survivor benefit (Sass et al., 2007).

The literature on the timing of claiming has developed numerous hypotheses; however, previous empirical work has found few factors are

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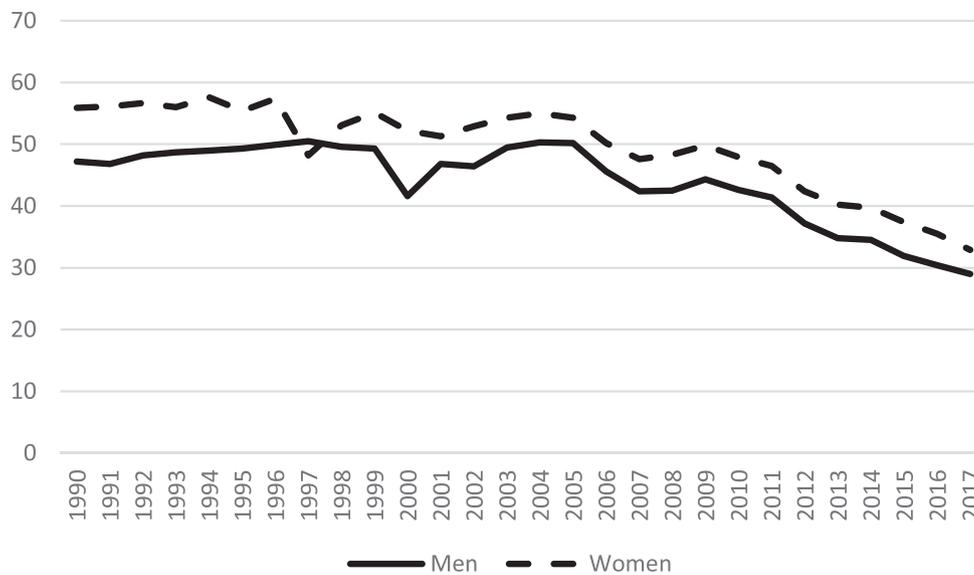
<sup>2</sup> Formally, Social Security in the U.S. is the federal Old-Age, Survivors, and Disability Insurance (OASDI) program and is administered by the Social Security Administration.

<sup>3</sup> In 2010, 5.8% of new Social Security claims were by individuals greater than age 70 (Social Security Administration 2018), with recent immigrants being a substantial share of this group.

<sup>4</sup> The full retirement age is 65 for individuals born 1937 and earlier, rising to 66 for those born 1943 to 1954, and to 67 for those born in 1960 and later.

<sup>5</sup> According to the Social Security Administration "In the case of early retirement, a benefit is reduced 5/9 of one percent for each month before normal retirement age, up to 36 months (maximum 20 percent). If the number of months exceeds 36, then the benefit is further reduced 5/12 of one percent per month (maximum of an additional 10 percent)." (Social Security Administration, 2019).

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Note: The data are from U.S. Social Security Administration 2017, Table 6.B5.

**Fig. 1.** The Percentage of Individuals, Age 62, Claiming U.S. Social Security Retirement Benefits. Note: The data are from U.S. Social Security Administration (2017), Table 6.B5.

statistically significant explanators of early claims. We offer a new test; specifically, that the likelihood of claiming Social Security early is associated with the level of financial stress reported by older adults, controlling for individuals' economic and socio-demographic characteristics. Our focus is on the idiosyncratic component of financial stress that cannot be fully explained by financial variables typically included in estimates of early claiming.

The association of stress and early claiming could be in either direction. A negative association occurs when individuals who are financially stressed defer claiming Social Security. Financially stressed individuals may seek alternatives to an early claim of benefits such as drawing on their assets, increasing debt, or continuing full or part-time work. However, individuals with low earnings or who are unable to work may have less or no incentive to delay claiming than those with higher earnings as they may have fewer alternative resources. A positive association of financial stress and early claiming also is feasible. For example, consider an individual who has a health problem that is worsening and is concerned about the future cost. This health issue may lead to a positive association of early claiming and financial stress.

We recognize that the financial stress measures reflect many aspects of the economic situation of an individual (Keese, 2012). We do not claim to estimate the underlying causal mechanism of the stress-claiming relationship; rather, we describe the direction of relationship. Thereafter, we conduct a series of tests to determine possible mechanisms that are related to this relationship.

We use data from the biennial U.S. Health and Retirement Study (HRS) from 2006 to 2014. The HRS reports whether the respondent received any income from the Social Security retirement program in the past month. This information is used to identify whether or not the respondent received Social Security retirement benefits in the year they were first eligible, when they turned age 62.<sup>6</sup> Thus, our sample is a cross-section of individuals who turn age 62 in the sample period. Justifications for this focus on early claims include understanding the sizeable

<sup>6</sup> Given the biennial nature of the HRS, we identify the wave where a respondent turned either 62 or 63. All variables are measured relative to this baseline wave. In the text we refer to this claiming age as 62.

percentage of claims by newly eligible individuals despite the significant reduction in monthly benefit, and the sizeable intertemporal variation in this percentage. Another justification is that claiming Social Security benefits is essentially irreversible and thus the starting age is a key characteristic of this retirement benefit.

Our primary explanatory variables are two self-reported measures of an individual's financial stress, lagged one survey wave (reported at age 60). The first measures the extent that a respondent has "difficulty paying their bills," a common and widely used subjective measure in the material deprivation literature (Levy, 2015; Lusardi, 2010; Marshall et al., 2015). The other reports the extent of "ongoing financial strain" that lasted 12 months or longer, a subjective indicator of the emotional burden of prolonged financial stress (Smith et al., 2017).

An individual's appraisal of their level of financial stress is influenced by the financial situation that they experience (Dunn and Mirzaie, 2016) and by their idiosyncratic response to this situation (Brown et al., 2020). A person's genetics, coping strategies, psychosocial resources, and social resources may influence the idiosyncratic response. It has also been argued that older adults' history of exposure to stressful experiences influences their appraisal of currently stressful circumstances (Thomas, 2016; Brown et al., 2020). Given that we control for the financial situation of the respondent and the household (assets, debts, income), our financial stress variables capture the association between the likelihood of an early Social Security benefits claim and this idiosyncratic stress response to their particular economic situation. Our use of lagged stress response variables breaks the obvious endogeneity that would occur if we used contemporaneous indicators of claim status and stress level.

We find that both measures of financial stress are negatively associated with early claims of Social Security retirement benefits. Those who report that it is difficult to pay bills at age 60 are about 5 percentage points less likely to claim Social Security benefits at age 62, as are those individuals who report a high level of financial strain. Thus, holding constant an individual's financial and socio-demographic situation, those reporting greater financial stress are more likely to delay claiming Social Security retirement benefits. We also find that the relationship of the timing of claiming with financial stress is moderated by the level of an individual's earnings.

The next section of the paper reviews the relevant literature on claiming Social Security retirement benefits. We then discuss our sample and the set of focal and control variables. Next, we present the results, followed by our conclusions.

## Literature

### *Determinants of early claims and main insights*

Our review of the literature focuses on hypotheses that have been developed to explain the relatively large percentage of older adults who claim U.S. Social Security retirement benefits early. We also note which hypotheses have been supported in prior empirical work.

Coile et al. (2002) construct a simulation model and derive multiple hypotheses regarding claiming behavior. Their hypotheses that are relevant for our study include 1) the greater is a person's expected lifetime, the greater the incentive to delay claiming benefits;<sup>7</sup> 2) there are opposing effects of being married compared to being single with an ambiguous outcome for the timing of claiming; and 3) the greater is wealth, the greater the delay in claiming, although an inverse U-shape is possible due to the liquidity afforded by a large amount of assets. Their empirical results are primarily based on the U.S. Social Security Administration's New Beneficiary Data System, covering a relatively short one-year time period, 1980 to 1981. Their results support the longevity hypothesis, and they find a U-shaped response to wealth.

Hurd et al. (2004) conduct empirical work using the HRS, guided by the life cycle hypothesis. Their model predicts that high levels of pension savings at age 62 should lead to a higher likelihood of an early claim because of substitution among different forms of annuities. In their estimation of the likelihood of claiming at age 62, only two explanatory variables are statistically significant at  $p = 0.05$ . One is owning stocks (an indicator of a relatively sophisticated approach to wealth management) and the other is having a relatively high expected lifetime.

Munnell and Soto (2005) argue that the timing of retirement is coordinated in a married couple. Given that married women are younger on average than their spouses, the implication is that the husband's retirement decision encourages early claiming by married women. They note that the claiming decision of married women is complicated because they have multiple options including claiming on their own record, claiming on their spouse's record, and accounting for survivor benefits. In contrast, in the aggregate, they predict that single women should delay claiming benefits longer than men, all else equal. However, no empirical estimation is presented to test these predictions.

von Wachter (2009) argues that early claiming by relatively low-income households occurs because the income replacement rate of Social Security benefits is relatively high, and they find some supportive evidence using data from the U.S. Survey of Income and Program Participation (SIPP). Li et al. (2008) find that those who claim at age 62 are about twice as likely to report a health-related work limitation as those who postpone claiming until after age 62.<sup>8</sup> Early claimants also were more likely to receive employer-sponsored pensions. Glickman and Hermes (2015) use the HRS and find that individuals who had physically demanding blue-collar jobs were more likely to claim early Social Security benefits.

Butrica and Karamcheva (2013) and Butrica and Karamcheva (2018) argue that financial debts held by older adults affect their labor supply and the timing of their Social Security retirement benefit claims. They

<sup>7</sup> Sun and Webb (2009) show, using a numerical simulation, that although the reduction in Social Security benefits from early claiming is approximately fair in a present value sense, individuals should value the additional longevity insurance (higher benefit) gained by delayed claiming. This insurance aspect should be valued by individuals worried about the risk of outliving their wealth.

<sup>8</sup> Li et al. (2008) dropped individuals from this sample who received Social Security Disability Insurance benefits before age 62.

state that servicing debts may increase the incentive to remain at work and delay claiming benefits, or if working is not feasible (e.g. due to health) or is not sufficiently remunerative, individuals may claim early to generate income. In their preferred results, where debts are exogenous, they find that having a mortgage or credit card debt reduces the likelihood of claiming Social Security benefits by two percentage points and increases the probability of working by 8 percentage points.<sup>9</sup> We note that having debts likely increases the probability of reporting a high level of financial stress, which may then be negatively associated with early claiming.

Shoven et al. (2018) conduct a survey composed of both individuals who claimed and had not yet claimed Social Security retirement income.<sup>10</sup> When asked the reasons for early claiming the responses include (from most frequent to less frequent): stopped working, needed the money, poor health, and concerns about future Social Security system-wide benefit cuts. Survey respondents report being knowledgeable about the reductions in payments resulting from an early claim, but they were not influenced by these rules. Of interest, individuals believed that claiming at age 62 was socially normative.<sup>11</sup>

Huang et al. (2020) focus on the impact of housing wealth on the timing of Social Security claims. Using an instrumental variable regression, they find that increased house value (self-assessed) is associated with delayed claims of Social Security during the 2002–2006 housing boom, but changes in house value had no effect in other years.<sup>12</sup> Their hypothesized mechanism that translates increases in illiquid home equity into liquid wealth is increased mortgage borrowing. A positive relationship between mortgage borrowing and claiming age is verified in a supplemental regression.

### *The present study*

This review of the literature indicates that no previous study has focused on the relationship between subjective financial stress and the likelihood of early claims of Social Security retirement benefits. Prior studies account for the effect on claiming of an individual's financial situation, which is expected to be related to the level of financial stress. However, a person's stress response to his or her financial situation also is idiosyncratic. We test whether this idiosyncratic component adds to the explanation of why some older adults in the U.S. select to claim Social Security early, at age 62. We control for other factors suggested by prior studies to affect the claiming decision, including liquid and illiquid wealth, mortgage and credit card debt, previous earnings of respondent and spouse, pension income, gender, marital status, expected longevity, a measure of risk taking and interest in planning ahead, education, and health status of the respondent and spouse.

## Data

The source of data for the analysis is the Health and Retirement Study (HRS), a long-standing survey of U.S. adults over the age of 50 with a response rate above 80 percent. Respondents are surveyed every two years, with new birth cohorts added to the existing sample every

<sup>9</sup> They also control for gender, age, education, marital status, spouse's earnings and claiming status, self-reported health, whether respondent's age is above the FRA, other income, net worth, and time dummies.

<sup>10</sup> The questions were part of the Understanding America Study, an internet survey.

<sup>11</sup> Knoll (2011) offers a number of insights from behavioral economics that may explain early retirement and claiming Social Security, including "anchoring" at age 62 and a strong reluctance of some individuals to work past this age.

<sup>12</sup> They also control for gender, race, marital status, tenure at last job, education, total non-housing wealth, self-assessed health status, retirement status, state and year fixed effects. We note that retirement status is likely endogenous, this not accounted for in the estimation.

three waves. Each wave has around 20,000 respondents, including a primary financial respondent for each household and his or her partner if applicable (for data set description, Fisher and Ryan, 2018; Sonnega et al. 2014). We use the HRS data from 2006 to 2016.

We focus on the timing of the initial receipt of Social Security retirement benefits of HRS respondents. Specifically, we predict the probability of early claiming for respondents who turn 62 as of the 2008, 2010, 2012, 2014, and 2016 survey waves, with each individual appearing in the sample only once.<sup>13</sup> Respondents who received Social Security Disability Income at age 62 or earlier are dropped from the sample, as this choice preceded their decision to receive Social Security retirement benefits.<sup>14</sup> We focus our study on age 62 because early claims are the most interesting aspect of Social Security claiming behavior. Relatively few individuals claim after their Social Security Administration's specified "full retirement age" (FRA), which ranges from 65 to 67 depending on an individual's birth year.<sup>15</sup> Thus we expect little insight to be gained from an analysis of post-FRA observations. The FRA is an important determinant of claiming age and as the Social Security Administration's increase in the FRA was implemented, claiming age changed in-step with the requirement. This behavior is known; thus we expect our contribution to the analysis of claiming after age 62 would be minimal.

Some U.S. adults do not participate in the Social Security retirement program, including public sector employees in 15 states.<sup>16,17</sup> We drop these individuals from the sample by utilizing the response to a question about whether an individual expects to receive U.S. Social Security retirement income in the future. If the response is "never" and they do not claim Social Security benefits in a future year, we drop the respondent from the sample.<sup>18</sup>

We use two measures of each stress variable, one being the continuous response and the other a dichotomous version. We focus on the dichotomous version, in part, because the response options of the stress questions are ordinal measures, not cardinal. Also, the dichotomous

<sup>13</sup> All explanatory variables are lagged one wave to reduce endogeneity concerns.

<sup>14</sup> We recognize that disability claims are not fully exogenous as they tend to increase when unemployment rates are high (Autor and Duggan, 2003; Johnson et al., 2013).

<sup>15</sup> Because the HRS is a longitudinal data set, we can follow individuals who did not claim early in subsequent survey waves. The distribution of claiming ages for the bill-paying difficulty sample is: Age 62/63: 38.6%, Age 64/65: 19.4%, Age 66/67: 27.6%, Age 68/69: 7.6%, Age >=70: 6.8%.

<sup>16</sup> Alaska, California, Colorado, Connecticut, Georgia (certain local governments), Illinois, Kentucky (certain local governments), Louisiana, Maine, Massachusetts, Missouri, Nevada, Ohio, Rhode Island (certain local governments), and Texas.

<sup>17</sup> Individuals who are not covered by Social Security include not only state and local government employees in 15 states, but also persons who do not have 10 years of contributions to Social Security and are not covered as a spouse (e.g., a recent immigrant from a country that does not have an agreement with the U.S. regarding retirement benefits). Another important category in terms of numbers not covered by Social Security are employees covered by the Federal Government Retirement System (FERS). There are 2.6 million individuals retired under FERS and 3.3 million additional employed individuals contributing to the FERS system. They live in all 50 states. We cannot identify these individuals other than using their response to the "expect to be covered by Social Security" question.

<sup>18</sup> An alternative view is that some individuals included in our sample (those indicating at age 60 that they will not be covered by Social Security but eventually are covered) should be dropped because it is possible that, at age 60, they were not eligible to claim and thus did not make a decision about early claiming. We restructured the sample to drop these individuals, yielding a total of 13 observations dropped in the analysis of bill-paying difficulty and 6 observations dropped in the sample used in the analysis of financial strain. The estimation results were little affected, as would be expected with this modest change in sample size.

version is a concise measure of the association of early claiming with exposure to stress.

The bill-paying difficulty variable ranges from 1 to 5, with 5 being "completely difficult" to "meet monthly payments on your bills". The dichotomous version equals 1 if the respondent reported that it is somewhat, very, or completely difficult; it is 0 otherwise (not at all difficult or not very difficult). The financial strain variable ranges from 1 to 4, with 4 indicating that ongoing financial problems that lasted 12 or more months are "very upsetting." The dichotomous version is coded 1 if the respondent reports they have ongoing financial strain (yes, but not upsetting; yes, somewhat upsetting; yes, very upsetting) and 0 if there was no strain (no, didn't happen). The sample size is 1,036 for the bill-paying difficulty measure and 837 for the financial strain measure, the smaller size because the financial strain question was not asked in 2010.<sup>19</sup>

Regarding trends, the bill-paying difficulty measure of stress trended upwards from 2008 to 2014 as reported by respondents age 62. The financial strain measure peaked in 2012. The percentage of those claiming Social Security at age 62 trended down over this period, falling from 47% to 36%. Thus, in the aggregate, there is an intertemporal pattern of increased stress and decreased early claiming during the sample period.

The economic situation of the respondent is characterized by monthly income, asset, and debt related variables. Household income is separated into the respondent's and spouse's lagged labor market earnings, their lagged pension and annuity income, and the spouse's lagged income from the Social Security retirement or disability programs. We also include an indicator that respondent and spouse's lagged earnings equaled zero (i.e., out of the labor market).<sup>20</sup> Our expectation is that being out of the labor force will impact subsequent early claiming in a way that differs from having relatively low income. Specifically, we expect a positive relationship between this binary variable and early claiming. In our sample, about 33% of respondents and 56% of spouses were out of the labor force at age 60 and thus the impact on early claiming could be substantial. Descriptively, the percentage of respondents and spouses being out of the labor force at age 60 is greater for early claimers than others, in line with our expectations.

Wealth related variables are also lagged and include net financial assets (cash and investment assets), net other assets (including non-housing real estate, transportation, and business assets), house value of the primary and second residence (if present), total mortgage debt on the primary and second residence, credit card and other net non-housing debts. If the respondent rents, then the annual rental cost is included.

The HRS is rich in control variables that may be associated with early Social Security benefit claims.<sup>21</sup> Demographic variables include race (white, black, other (omitted)), gender (female omitted), whether an immigrant, a set of nine Census division dummy variables (New England omitted), location (urban (omitted), suburban, rural), educational attainment (less than high school, GED, high school completion (omitted), and some college, college degree and greater). Being married may influence claiming behavior, especially if a respondent has an older

<sup>19</sup> The financial stress questions are part of the supplementary Psychosocial and Lifestyle Questionnaire of the HRS, which is administered as a paper-based questionnaire that HRS participants complete by themselves after the face-to-face interview and mail back to the HRS offices. This "leave-behind" questionnaire has been administered to about half of the HRS core panel respondents since 2006. The first half of respondents answered the leave-behind questionnaire in 2006, 2010, and 2014. The second half answered the leave-behind questionnaire in 2008, 2012, and 2016. For documentation about the leave behind questionnaire, see (Smith et al., 2017). For additional detail about the financial stress questions see (Haurin et al., 2019).

<sup>20</sup> The earnings = 0 variable can also be interpreted as a variable indicating the person was "retired" at age 60.

<sup>21</sup> For specific information about HRS survey questions see: <https://hrs.isr.umich.edu/documentation/question-concordance>.

**Table 1**  
Descriptive Statistics for Claiming U.S. Social Security at Age 62.

	Full Sample		Early Claim SS		Not Claim SS	
	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
Receive SS at age 62 or 63	0.43	0.49	1.00	0.00	0.00	0.00
Bill-paying difficulty (continuous)	2.13	1.01	2.16	1.02	2.11	1.01
Bill-paying difficulty (binary)	0.09	0.28	0.09	0.28	0.09	0.28
Financial strain (continuous)	1.88	1.00	1.93	1.05	1.84	0.96
Financial strain (binary)	0.52	0.50	0.52	0.50	0.52	0.50
House value (1st home) (0,000)	19.46	17.93	16.42	15.71	21.72	*** 19.12
Total mortgage balance (1st home) (0,000)	4.89	7.30	4.19	6.83	5.42	** 7.58
Net cash assets (0,000)	2.71	5.30	2.48	4.94	2.88	5.55
Net investment assets (0,000)	11.21	21.57	11.65	21.50	10.88	21.64
Credit card debt (0,000)	0.25	0.65	0.23	0.57	0.27	0.71
Other debt (0,000)	0.18	0.75	0.19	0.78	0.18	0.73
Respondent annual earnings (0,000)	3.09	3.43	1.86	2.88	4.00	*** 3.53
Spouse annual earnings (0,000)	1.86	3.07	1.66	2.91	2.01	3.19
Respondent earning = 0 at 60 (binary)	0.32	0.47	0.46	0.50	0.21	*** 0.41
Spouse earning = 0 at 60 (binary)	0.56	0.50	0.60	0.49	0.53	* 0.50
Respondent pension income (0,000)	0.26	0.85	0.36	0.97	0.18	** 0.74
Spouse pension income (0,000)	0.23	0.79	0.35	0.97	0.14	*** 0.61
Spouse Social Security income (0,000)	0.33	0.67	0.43	0.73	0.26	*** 0.60
Observations	1036		441		595	

\*\*\*  $p < 0.001$ , \*\*  $p < 0.01$ , \*  $p < 0.05$ .

Source: Author's calculations using the 2004–2016 Health and Retirement Study data.

Note: This table reports the means for the full sample of those individuals responding to the question about difficulty paying bills. Means also are reported for those who claim at the earliest eligible age and those who do not claim early. All financial variables are measured in \$10,000 s, expressed in 2016 real dollars.

spouse. We include variables indicating the respondent is married to an older spouse or younger spouse, separated/widowed/divorced, and never married (omitted).

Health and family related variables include measures of the respondent's and spouse's difficulty with activities of daily life (ADL); specifically, a five item scale that measures difficulty walking across a room, dressing, getting out of bed, bathing, and eating (e.g., [Capistrant et al., 2014](#)). Higher values indicate greater difficulty. We also include the respondent's self-rated health (a scale of 1 to 5 with 5 indicating better health), self-rated memory (a scale of 1 to 5 with 5 indicating better memory), and an indicator of the presence of health insurance. Family related variables include the number of household members, an indicator of the strength of a household's social support network ([Cheng, 2017](#))<sup>22</sup>, and the number of living children or step-children. Calendar year fixed effects are included to account for policy changes and macro events (2014 omitted).

Control variables suggested by the theoretical literature on the timing of claiming include expected life expectancy, which is measured with two variables: a self-reported probability of living to 75 and of living to between 80 and 100.<sup>23</sup> Individuals that have long planning horizons may view early claiming differently than those with shorter horizons and thus we include a self-reported measure of the respondent's planning horizon. Finally, a variable related to both risk taking and expected longevity is an indicator that the respondent smokes cigarettes.

[Table 1](#) reports the variable means for the full sample, those who claim at the earliest eligibility age ( $N = 441$ ), and those who do not ( $N = 595$ ), using the larger sample where stress is measured by bill-paying difficulty. We limit the number of variables in the table to the focal measures and those describing the economic circumstances of the respondent. The descriptive statistics for the other control variables are

<sup>22</sup> The survey question is "Suppose in the future, you needed help with basic personal care activities like eating or dressing. Do you have relatives or friends [besides your [husband/wife/partner]] who would be willing and able to help you over a long period of time?"

<sup>23</sup> We linearized the categorical responses taking the mid-point of the response categories.

in [Appendix Table 1](#).

The unconditional means for bill-paying difficulty and financial strain are not statistically different from one another for those who claim Social Security retirement benefits at age 62 compared to those who do not. Early claimers have lower home values, lower mortgage balances, and lower respondent and spouse earnings, but in contrast, they have more than twice as much respondent and spouse pension income. In addition, those who claim early were more likely to report no earnings at age 60. Regarding other characteristics, early claimants are much less likely to be college educated, more likely to smoke, have lower self-rated health, a greater number of ADL problems, and have shorter expected lifetimes.

Our measures of financial stress are self-reported, raising the question of their relationship with objective measures of an individual's financial situation. We correlated the two stress measures with a set of variables that likely are inputs to financial stress levels. They include credit card debt, other debts, the ratio of these debts to income, and income. If the subjective measures reflect the objective circumstances, we expect a positive correlation between stress and the debt measures and ratio, and a negative relationship with income. This result occurs for both measures of stress in both their continuous and dichotomous forms. Of the 16 correlations (4 objective financial stress measures and 4 ways of measuring subjective financial stress), 15 are statistically significant at  $p = 0.05$ .

## Methodology

The age when Social Security retirement income is first claimed is tied to the labor force retirement decision. We adopt a reduced form approach in that we do not separately model retirement from the labor force. In part, this approach is justified by the observation that claiming Social Security retirement benefits is irreversible, while stopping work ("retirement") is reversible. In our approach the impact of exogenous factors that affect retirement are combined with their direct impact on claiming age, as moderated by the retirement-claiming association. We address the simultaneity of initial claiming age with many other decisions and outcomes (e.g., financial stress, health, labor force participation, levels of assets and debts) by lagging the set of explanatory

variables by one HRS wave (two years). This temporal difference between the presence or absence of claiming Social Security at age 62 and the explanatory variables helps to break the simultaneity among these choices. However, because it is likely there are omitted factors that affect both the claiming age and lagged explanatory variables, we do not claim to identify causal effects.

Our baseline estimating equation is:

$$C_{it} = \beta_0 + \beta_1 S_{it-1} + \beta_2 Y_{it-1} + \beta_3 A_{it-1} + \beta_4 D_{it-1} + \beta_5 H_{it-1} + \beta_6 X_{it-1} + \beta_7 T_i + \beta_8 L_i + \eta_{it} \quad (1)$$

In (1),  $C$  is a dummy variable indicating whether individual  $i$  claimed Social Security retirement income at time  $t$  when turning 62. Financial stress is represented by  $S$ , measured by the levels of financial strain or bill-paying difficulty at  $t-1$ , which represents a two-year lag due to the timing of the HRS survey waves.  $Y$  represents lagged income, separated into respondent and spouse lagged labor market earnings, indicators of zero lagged earnings, lagged pension income, and lagged spousal Social Security income. Financial assets are  $A$  and non-housing debts are  $D$ , both lagged. Housing is represented by  $H$ , which includes a set of lagged variables: house value (primary and secondary residence), mortgage debt (primary and secondary residence), and annual rental housing costs (for renters).  $X$  represents a large set of household and individual control variables described in the section above. Year fixed effects are represented by  $T$ , and regional and locational (urban/suburban/rural) fixed effects are represented by  $L$ . We estimate (1) using a probit specification and report regression coefficients and marginal effects. Because both a husband and wife may be in our sample, we cluster standard errors at the household level.

Our primary test focuses on the relationship of claiming at age 62 to variations in financial stress. Higher levels of stress may delay early claims if the older adult desires labor market earnings to continue. Also, delaying an early claim avoids the high implicit U.S. federal tax rate on labor market earnings and the associated loss of Social Security benefits. Alternatively, higher levels of financial stress may be positively associated with early claims if the individual values a stable source of income.

We expect respondents who have been out of the labor force (lagged earnings equal zero) to claim early (positive coefficient) as Social Security provides a stable income stream. Greater lagged respondent and spouse pension income is expected to be associated with an increased likelihood of an early claim and reduced participation in the labor market. Private pension income likely continues after claiming Social Security, and pension income does not reduce Social Security retirement benefits, while earned income does.

An extension of the model is the inclusion of an interaction between the respondent's lagged earnings and the measure of financial stress. Here, we test whether the relationship between financial stress and early claiming is moderated by respondent earnings. We expect that if stress is high, those with higher earnings have an even greater incentive to work, resulting in a lower probability of an early claim for high earning older adults relative to those with high earnings who are not financially stressed. Thus, the coefficient of the interaction term is expected to be negative.

Regarding assets, we are interested in comparing the difference in the relationships of early claiming with both financial and housing assets. Specifically, we expect a positive association between higher levels of financial wealth and early claiming. In contrast, we expect the association of the amount of a homeowner's equity to be weakly or not associated with early claiming due to the illiquidity of home equity. Further, housing assets may be held as precautionary savings and thus not be related to the timing of Social Security retirement claims.

## Results

In Table 2 we list results for the model described in equation 1, both coefficients and marginal effects, for the binary versions of the two stress measures. The results for the continuous measures of financial stress are

noted in footnotes. In the table, the measure of stress in Model 1 is an indicator of bill-paying difficulty and in Model 2 stress is measured by an indicator of financial strain. We report only selected results for the financial stress and financial variables in Table 2, with the results for the control variables presented in Appendix Table 2.

As indicated in Table 2, Model 1, reporting difficulty paying bills at age 60 reduces the likelihood of claiming at age 62 by 5.2 percentage points, with a  $t$ -statistic slightly greater than one. Experiencing financial strain at age 60 is associated with a reduced probability of claiming of benefits at age 62 by 4.5 percentage points and  $t$ -statistic of about 1.3 (see Table 2 Model 2). Thus, in the basic model, the direction of the stress-claiming relationship is negative; however, it is not statistically significant at conventional levels.

We next introduce the interaction of the stress measure with respondent earnings, expecting a negative relationship with early claims.<sup>24</sup> Regression results are reported in Table 3 and Appendix Table 3, using the same format as in Table 2.

We find evidence that the relationship between financial stress and early claiming is moderated by the level of a respondent's earnings. The interaction term is negative, as expected, and statistically significant for both measures of financial stress ( $-0.170$  for bill-paying difficulty and  $-0.088$  for financial strain).<sup>25</sup> The total average marginal effects of being stressed on early claiming are 4 to 7 percent, similar to the value estimated in the baseline formulations. However, the marginal effect of stress now varies with the level of respondent earnings.<sup>26</sup> For example, respondents reporting (lagged) earnings of \$20,000 per year and experiencing difficulty paying bills have a 21.4 percent probability of early claiming, while similar individuals earning \$60,000 per year have a 7.0 percent probability of early claiming.<sup>27</sup> The general direction of the results is similar for financial strain.

Using the larger bill-paying difficulty sample (Model 3), we highlight the association of other financial variables with early claiming.<sup>28</sup> A respondent or spouse pension significantly increases the probability of an early claim. For the respondent (spouse) the increase is 4.6 (7.4) percentage points per \$10,000 of pension income.<sup>29</sup> These results highlight the importance of pensions to the early claiming decision.

If the respondent was not in the labor force at age 60, the probability of an early claim is increased by about 10 percentage points. A larger amount of investment assets has the expected relationship of increased

<sup>24</sup> We selected a linear specification of earnings for the interaction, this being a typical formulation. The correlations of the respondent's earnings=0 (out of labor force) variable with the continuous bill paying difficulty and financial strain measures are  $-0.17$  and  $-0.16$ , respectively. The corresponding correlations for the spousal earnings=0 variable and bill paying difficulty and financial strain are  $-0.15$  and  $-0.13$ , respectively. These correlations are statistically significant at  $p=0.05$ . The negative correlation supports the expectation that highly financially stressed people will delay claiming.

<sup>25</sup> The coefficient sign and significance of the interaction variable are similar if the continuous versions of stress are used in the regression.

<sup>26</sup> In alternative specifications, we constructed a measure of "net liquid assets" to proxy for amount available in all forms of savings available in retirement. We interacted this variable with each of the four measures of financial stress measures and added it to the regressions. The new interaction's coefficient is near 0 and always statistically insignificant. The coefficient of the interaction of stress and earnings remains negative and significant. A similar test with home equity produced similar results, insignificance of the interaction of financial stress with home equity, and little change in the featured result.

<sup>27</sup> In this calculation, the respondent is assumed to be a white male high school graduate, married to a younger spouse, living in an urban area. Other explanatory variables' values are set equal to their means.

<sup>28</sup> The results in Model 2, where the measure of stress is the respondent self-report of the being financially strained, are generally similar; however, the level of statistical significance of some variables is lower, perhaps due to the smaller sample size.

<sup>29</sup> The increases are 4.4 percentage points (respondent) and 8.9 percentage points (spouse) in the financial strain specification.

**Table 2**  
Selected Estimation Results for Claiming Social Security at Age 62.

Receive Social Security at age 62	Bill-paying difficulty				Financial strain			
	Model 1				Model 2			
	Coef.	S.E.	M.E.	S.E.	Coef.	S.E.	M.E.	S.E.
Bill-paying difficulty (binary)	-0.161	0.155	-0.052	0.049	-	-	-	-
Financial strain (binary)	-	-	-	-	-0.142	0.112	-0.045	0.035
House value	<b>-0.012</b>	0.004	<b>-0.004</b>	0.001	<b>-0.011</b>	0.005	<b>-0.003</b>	0.002
Total mortgage balance	0.009	0.007	0.003	0.002	0.007	0.008	0.002	0.003
Net cash assets	-0.008	0.010	-0.003	0.003	-0.007	0.012	-0.002	0.004
Net investment assets	<b>0.007</b>	0.002	<b>0.002</b>	0.001	0.004	0.003	0.001	0.001
Credit card debt	0.019	0.075	0.006	0.024	-0.041	0.086	-0.013	0.027
Other debt	-0.014	0.059	-0.004	0.019	0.048	0.067	0.015	0.021
Respondent annual earnings	<b>-0.064</b>	0.021	<b>-0.025</b>	0.007	<b>-0.067</b>	0.024	<b>-0.021</b>	0.008
Spouse annual earnings	0.014	0.021	0.004	0.007	-0.016	0.024	-0.005	0.008
Respondent earning = 0 at 60 (binary)	<b>0.294</b>	0.122	<b>0.099</b>	0.042	<b>0.363</b>	0.137	0.120	0.047
Spouse earning = 0 at 60 (binary)	-0.023	0.132	-0.007	0.043	-0.086	0.150	-0.027	0.047
Respondent pension income	<b>0.143</b>	0.054	<b>0.046</b>	0.017	<b>0.135</b>	0.067	<b>0.043</b>	0.021
Spouse pension income	<b>0.227</b>	0.061	<b>0.074</b>	0.019	<b>0.287</b>	0.084	<b>0.091</b>	0.026
Spouse Social Security income	<b>0.257</b>	0.086	<b>0.083</b>	0.028	<b>0.232</b>	0.097	<b>0.073</b>	0.031
Observations	1036				837			

Notes: This table reports selected results of estimating equation (1), using a probit specification. The first four data columns use the sample of responses to the HRS question about the difficulty paying bills. The next four columns use the sample of responses to the question about the level of financial strain. “Coef.” reports the regression coefficients and “M.E.” reports the marginal effects. Variables significant at the 0.05 level are indicated in bold. All financial variables are measured in \$10,000. All independent variables are lagged one HRS wave (2 years).

**Table 3**  
Estimation Results for Claiming Social Security at Age 62, with Interaction.

Receive SS at age 62	Model 3				Model 4			
	Coef.	S.E.	M.E.	S.E.	Coef.	S.E.	M.E.	S.E.
Bill-paying difficulty (binary)	0.154	0.213	<b>-0.066</b>	0.044	-	-	-	-
Bill-paying difficulty*Resp. earnings	<b>-0.170</b>	0.086	-	-	-	-	-	-
Financial strain (binary)	-	-	-	-	0.108	0.141	-0.038	0.035
Financial strain*Resp. earnings	-	-	-	-	<b>-0.088</b>	0.038	-	-
House value	<b>-0.012</b>	0.004	<b>-0.004</b>	0.001	<b>-0.011</b>	0.005	-0.003	0.002
Total mortgage balance	0.009	0.007	0.003	0.002	0.007	0.008	0.002	0.003
Net cash assets	-0.008	0.010	-0.003	0.003	-0.007	0.012	-0.002	0.004
Net investment assets	<b>0.007</b>	0.002	<b>0.002</b>	0.001	0.004	0.003	0.001	0.001
Credit card debt	0.019	0.075	0.006	0.024	-0.043	0.086	-0.014	0.027
Other debt	-0.014	0.059	-0.004	0.019	0.046	0.067	0.014	0.021
Respondent annual earnings	<b>-0.066</b>	0.022	<b>-0.022</b>	0.007	-0.042	0.026	<b>-0.028</b>	0.008
Spouse annual earnings	0.011	0.021	0.004	0.007	0.016	0.024	0.005	0.008
Respondent earning = 0 at 60 (binary)	<b>0.324</b>	0.123	<b>0.109</b>	0.043	<b>0.292</b>	0.137	<b>0.096</b>	0.046
Spouse earning = 0 at 60 (binary)	-0.017	0.147	-0.005	0.047	-0.090	0.152	-0.028	0.047
Respondent pension income	<b>0.151</b>	0.069	<b>0.048</b>	0.022	<b>0.141</b>	0.066	<b>0.044</b>	0.021
Spouse pension income	<b>0.202</b>	0.132	<b>0.065</b>	0.043	<b>0.282</b>	0.083	<b>0.089</b>	0.026
Spouse Social Security income	<b>0.250</b>	0.086	<b>0.081</b>	0.028	<b>0.232</b>	0.097	<b>0.073</b>	0.030
Observations	857				649			

Notes: This table reports selected results of estimating a modified equation (1), now including an interaction of the stress measure with respondent earnings. The first four data columns use the sample of responses to the HRS question about the difficulty paying bills. The next four columns use the sample of responses to the question about the level of financial strain. “Coef.” reports the regression coefficients and “M.E.” reports the marginal effects. Variables significant at the 0.05 level are indicated in bold. All financial variables are measured in \$10,000. The regression contains indicators for nine Census divisions.

probability of an early claim while, in contrast, illiquid housing value has the opposite relationship. Indicators for mortgage debt, credit card debt, and other debt are not significantly associated with early claiming. These measures of debt amounts remain insignificant in an alternative specification (not shown) where we omit the financial stress indicators, indicating that the lack of relationship is not driven by collinearity.<sup>30</sup>

Among the socio-demographic control variables, relatively few are statistically significant at  $p = 0.05$ , similar to the findings in the literature. A spouse with substantial difficulties with the activities of daily life at (respondent) age 60 increases the likelihood of early claims by 4.7 percentage points ( $p = 0.10$ ). Also at the 10% level of significance is being male (positive effect) and smoking (the two longevity measures are not significant). Positive effects on early claiming are present for respondents without health insurance and for those with short planning horizons ( $p = 0.05$ ).

While the interaction results presented in Table 3 are sensible, there are several possible alternative specifications. In additional analyses, not shown, we added an interaction of the financial stress measures with the dummy variable for respondent earnings equaling zero in the four versions of the key regression, the four versions being two alternative measures of stress and two variations of each (continuous and dichotomous). In all cases the coefficient of the new interaction was negative and not significant at  $p = 0.05$ . The coefficient of the featured interaction of a stress measure and earnings remained negative and statistically significant in all four cases.

To explore possible mechanisms underlying the financial stress-claiming relationship, we conduct subsample regressions, similar to those in Table 3, stratifying by respondents who are still working and those that are not. For respondents with earnings (i.e., in the labor force) the coefficient of bill-paying difficulty is negative and marginally significant ( $p = 0.10$ ). However, in the subsample of individuals out of the labor force, the coefficient of bill-paying difficulty is positive and insignificant. Thus, the strength of the result in the full sample appears to derive from those individuals with earnings. We find this result to be consistent with the earnings-stress interaction variable being significant in our main results. Because the total sample size is relatively small, there are constraints on the extent of forming other subsamples and conducting tests in each subsample. For example, only 14.2% of the sample are renters, the percentage of respondents with pension income is 13.7, and that with spousal pension income is 12.7. Thus, these subsamples are relatively small given the number of control variables.

The use of subsamples is feasible if we separate the full sample using median household income (\$57,000). In both subsamples we estimated our featured regression, including the earnings-stress interaction variable. The resulting coefficients of the interaction were similar ( $-0.16$  and  $-0.19$ ), suggesting that the two subsamples' responses were similar for the key interaction variable, even when allowing the coefficients of the control variables to differ across subsamples. However, neither coefficient was significant at  $p = 0.05$ , perhaps due to the smaller sample sizes.

## Conclusion

The literature addressing the timing of claiming Social Security retirement benefits has grown rapidly since 2005. Numerous hypotheses have been developed; however, empirical work has tended to find few statistically significant factors that explain claiming behavior. The explanation that claiming early is a stable social norm appears inconsistent with the substantial intertemporal changes in the percentage of older adults who claim at age 62. Thus, there is a puzzle, why do some older adults claim at the earliest eligibility while others do not?

Our focal test is of the relationship between claiming Social Security early (when first eligible) and the level of self-reported financial stress. In

<sup>30</sup> The results are similar if a continuous measure of bill-paying difficulty is used. Respondent earnings and pension variables remain statistically significant.

our regression analysis, we account for many details of an individual's financial situation, including assets (financial and housing), debts (mortgage, credit card, other), earnings, and pension income. Thus, our measures of financial stress reflect an individual's idiosyncratic stress response to his or her financial situation. For example, compare two individuals with identical socio-demographic characteristics and financial situations. One responds to this situation with a high level of stress, the other reports a low level of stress. We find that a financially stressed individual is about 5 percentage points more likely to delay claiming Social Security income. Further refinement of this result suggests that higher-earning, financially stressed individuals are the most likely to delay claiming Social Security retirement benefits. A possible explanation for this finding has two components. One is a short run response: financially stressed individuals with high earnings select to continue working rather than receive reduced income from Social Security. The other explanation involves a longer run planning horizon: individuals, especially those with relatively high earnings and reporting a high level of financial stress, may delay claiming Social Security benefits so that they receive an increased monthly retirement benefit once they reach full retirement age.

From a public policy perspective, our study suggests a role for programs that assist older adults at the verge of retirement in short- and longer-term financial planning and asset management decisions. Programs targeted to older workers nearing retirement, such as financial planning or financial counseling sessions, may allow decisions about the timing of claiming benefits to be made on a rational basis. These programs would evaluate the benefits and costs of early retirement based on objective financial measures rather than emotional, stress-related components of this decision-making process.

A related policy question is identification of the effects of economic booms and busts on the timing of claiming Social Security benefits. Financial stress likely increases during recessions and periods of economic stagnation. By itself, this stress response is likely to delay benefit claims. The results suggest this response would be reinforced by reductions in asset levels and pension income. These stress-related responses may thus affect projected labor force participation rates of older adults, with implications for individual financial security and the Social Security trust fund.

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## Appendix A

Appendix Table 1: Additional descriptive statistics for claiming Social Security at age 62

	Full Sample		Early Claim SS		Not Claim SS	
	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
Annual Rent (0,000)	0.13	0.31	0.14	0.31	0.12	0.31
House value (2nd home) (0,000)	1.38	5.27	1.05	4.06	1.63	6.01
Total mortgage balance (2nd home) (0,000)	0.17	1.37	0.17	1.33	0.17	1.41
Male	0.41	0.49	0.38	0.49	0.439	0.49
Hispanic	0.10	0.31	0.10	0.29	0.11	0.31
White	0.77	0.42	0.78	0.42	0.77	0.42
Black	0.16	0.37	0.16	0.37	0.16	0.36
Other race	0.07	0.25	0.06	0.24	0.07	0.26
Immigrant	0.10	0.30	0.07	0.26	0.12	0.33
Other assets (0,000)	6.59	13.77	6.00	11.68	7.05	15.13
Less than high school education	0.09	0.29	0.10	0.31	0.08	0.28
GED	0.05	0.21	0.06	0.23	0.04	0.19
High school diploma	0.31	0.46	0.34	0.47	0.28	*
Some college	0.30	0.46	0.31	0.46	0.29	0.45
College or more	0.26	0.44	0.20	0.40	0.31	***
Separated, divorced, widowed	0.21	0.41	0.22	0.41	0.21	0.41
Never married	0.04	0.19	0.03	0.18	0.04	0.20
Married older spouse	0.41	0.49	0.38	0.49	0.43	0.50
Married younger spouse	0.34	0.47	0.37	0.48	0.31	0.46
Respondent ADL	0.11	0.43	0.16	0.55	0.07	**
Spouse ADL	0.13	0.50	0.17	0.57	0.11	0.44
Self-rated health	3.42	0.96	3.29	0.99	3.51	**
Number of household members	2.33	1.17	2.28	1.13	2.37	1.20
Number of living children	2.79	2.02	2.92	2.11	2.69	1.94
Have health insurance	0.69	0.46	0.59	0.49	0.76	***
Positive self-rated memory	3.14	0.88	3.05	0.86	3.20	**
Family or friends nearby	0.65	0.48	0.63	0.48	0.66	0.48
Probability live to 75	65.56	27.03	62.81	27.79	67.60	**
Probability live to 80–100	45.99	30.22	43.05	30.55	48.16	**
Currently smoke	0.16	0.36	0.20	0.40	0.12	***
Financial planning horizon (years)	5.30	4.60	5.00	4.75	5.53	4.47
Observations	1036		441		595	

\*\*\*  $p < 0.001$ , \*\*  $p < 0.01$ , \*  $p < 0.05$ .

Source: Author's calculations using the 2004–2014 Health and Retirement Study data.

Note: Appendix Table 1 is a companion to Table 1. It reports control variable means for the full sample, for those who claim Social Security retirement benefits at the earliest eligible age, and those who do not claim at the earliest age, where stress is measured by bill paying difficulty. All financial variables are measured in \$10,000 s, expressed in 2016 real dollars. Model variables not shown include Census division indicators, year of survey indicators, and indicators for geography (rural, urban or suburban).

Appendix Table 2: Additional estimation results for claiming Social Security at age 62

Receive SS at age 62	Difficultly paying bills				Financial strain			
	Model 1				Model 2			
	Coef.	S.E.	M.E.	S.E.	Coef.	S.E.	M.E.	S.E.
Annual Rent	−0.040	0.160	−0.013	0.052	−0.067	0.175	−0.021	0.056
House value (2nd home)	−0.005	0.010	−0.001	0.003	−0.015	0.012	−0.005	0.004
Total mortgage balance (2nd home)	−0.008	0.034	0.003	0.011	0.009	0.034	0.003	0.011
Male	0.174	0.107	0.056	0.034	0.071	0.117	0.022	0.037
Hispanic	0.014	0.215	0.005	0.007	0.004	0.234	0.001	0.074
Black	−0.130	0.135	−0.042	0.043	−0.109	0.150	−0.034	0.047
Other race	0.289	0.208	0.095	0.068	0.207	0.226	0.066	0.072
Immigrant	−0.252	0.195	−0.080	0.061	−0.179	0.209	−0.056	0.064
Other assets	0.001	0.004	0.000	0.001	0.002	0.004	0.001	0.001
Less than high school education	−0.084	0.169	−0.027	0.053	−0.025	0.179	−0.008	0.052
GED	0.008	0.222	0.003	0.072	0.232	0.245	0.075	0.079
Some college	0.002	0.110	0.001	0.036	−0.073	0.122	−0.023	0.039
College or more	−0.186	0.129	−0.060	0.042	−0.292	0.146	−0.092	0.045
Separated, divorced, widowed	0.010	0.247	0.003	0.080	0.131	0.271	0.042	0.087
Married older spouse	−0.198	0.265	−0.064	0.085	−0.145	0.291	−0.046	0.092
Married younger spouse	−0.320	0.271	−0.101	0.082	−0.305	0.298	−0.094	0.089

(continued on next page)

**Appendix Table 2: Additional estimation results for claiming Social Security at age 62 (continued)**

Receive SS at age 62	Difficulty paying bills				Financial strain			
	Model 1				Model 2			
	Coef.	S.E.	M.E.	S.E.	Coef.	S.E.	M.E.	S.E.
Respondent ADL	0.173	0.112	0.056	0.036	0.230	0.121	0.073	0.038
Spouse ADL	0.140	0.083	0.045	0.027	0.148	0.096	0.047	0.030
Self-rated health	-0.004	0.053	-0.001	0.017	0.048	0.060	0.015	0.019
Number of household members	-0.049	0.044	-0.016	0.014	-0.057	0.050	-0.018	0.016
Number of living children	0.027	0.024	0.009	0.008	0.016	0.026	0.005	0.008
Have health insurance	<b>-0.352</b>	0.099	<b>-0.118</b>	0.033	<b>-0.355</b>	0.108	<b>-0.116</b>	0.036
Positive self-rated memory	-0.067	0.053	-0.022	0.017	-0.048	0.059	-0.015	0.019
Family or friends nearby	-0.009	0.099	-0.003	0.032	-0.071	0.111	-0.022	0.035
Probability live to 75	-0.001	0.002	0.000	0.001	-0.002	0.003	-0.001	0.001
Probability live to 80-100	-0.002	0.002	-0.001	0.001	-0.003	0.002	-0.001	0.001
Currently smoke	0.203	0.122	0.066	0.039	0.190	0.135	0.060	0.043
Financial planning horizon	<b>-0.020</b>	0.010	<b>-0.007</b>	0.003	<b>-0.024</b>	0.011	<b>-0.007</b>	0.003
Observations	1036				837			

Notes: This appendix table is a companion to Table 2. It reports the regression results for the control variables in equation (1), using a probit specification. The first four data columns use the sample of responses to the HRS question about the difficulty paying bills. The next four columns use the sample of responses to the question about the level of financial strain. “Coef.” reports the regression coefficients and “M.E.” reports the marginal effects. Variables significant at the 0.05 level are indicated in bold. All financial variables are measured in \$10,000. The regression also contains indicators for nine Census divisions, year of survey indicators, and indicators for geography (rural, urban or suburban).

**Appendix Table 3: Additional estimation results for claiming Social Security at age 62, with interaction**

Receive SS at age 62	Difficulty paying bills				Financial strain			
	Model 3				Model 4			
	Coef.	S.E.	M.E.	S.E.	Coef.	S.E.	M.E.	S.E.
Annual Rent	-0.058	0.161	-0.013	0.052	-0.077	0.176	-0.024	0.055
House value (2nd home)	-0.005	0.010	-0.002	0.003	<b>-0.011</b>	0.005	<b>-0.003</b>	0.002
Total mortgage balance (2nd home)	-0.008	0.034	0.003	0.011	0.007	0.008	0.002	0.003
Male	0.180	0.107	0.058	0.034	0.053	0.117	0.017	0.037
Hispanic	0.005	0.215	0.002	0.070	-0.016	0.234	-0.005	0.073
Black	-0.115	0.136	-0.037	0.043	-0.132	0.150	-0.041	0.046
Other race	0.284	0.208	0.092	0.068	0.209	0.233	0.066	0.074
Immigrant	-0.246	0.195	-0.078	0.061	-0.186	0.210	-0.058	0.064
Other assets	0.001	0.004	0.000	0.001	0.002	0.004	0.001	0.001
Less than high school education	-0.079	0.165	-0.025	0.053	-0.022	0.182	-0.007	0.057
GED	-0.012	0.222	-0.004	0.072	0.194	0.246	0.062	0.079
Some college	-0.007	0.110	-0.002	0.036	-0.073	0.123	-0.024	0.038
College or more	-0.186	0.130	-0.060	0.042	<b>-0.290</b>	0.145	<b>-0.091</b>	0.045
Separated, divorced, widowed	-0.006	0.247	-0.002	0.080	0.195	0.264	0.062	0.084
Married older spouse	-0.227	0.265	-0.073	0.085	-0.102	0.285	-0.032	0.090
Married younger spouse	-0.348	0.270	-0.109	0.089	-0.240	0.290	-0.074	0.087
Respondent ADL	0.155	0.112	0.050	0.036	0.218	0.123	0.069	0.039
Spouse ADL	0.146	0.083	0.047	0.027	0.158	0.097	0.049	0.031
Self-rated health	-0.005	0.053	-0.002	0.017	0.049	0.060	0.016	0.019
Number of household members	-0.051	0.045	-0.017	0.014	-0.061	0.051	-0.019	0.016
Number of living children	0.025	0.024	0.008	0.008	0.013	0.026	0.004	0.008
Have health insurance	<b>-0.344</b>	0.100	<b>-0.114</b>	0.034	<b>-0.340</b>	0.109	<b>-0.110</b>	0.036
Positive self-rated memory	-0.073	0.053	-0.024	0.017	-0.051	0.060	-0.016	0.019
Family or friends nearby	-0.007	0.099	-0.002	0.032	-0.061	0.111	-0.019	0.035
Probability live to 75	-0.001	0.002	0.000	0.001	-0.002	0.003	-0.001	0.001
Probability live to 80-100	-0.002	0.002	-0.001	0.001	-0.003	0.002	-0.001	0.001
Currently smoke	0.218	0.123	0.070	0.040	0.179	0.136	0.056	0.043
Financial planning horizon	<b>-0.020</b>	0.010	<b>-0.006</b>	0.003	<b>-0.023</b>	0.011	<b>-0.007</b>	0.003
Observations	1036				837			

Notes: This appendix table is a companion to Table 3. It reports the regression results for the control variables in a modified equation (1), now including an interaction of the stress measure with respondent earnings. The first four data columns use the sample of responses to the HRS question about the difficulty paying bills. The next four columns use the sample of responses to the question about the level of financial strain. “Coef.” reports the regression coefficients and “M.E.” reports the marginal effects. Variables significant at the 0.05 level are indicated in bold. All financial variables are measured in \$10,000. The regression also contains indicators for nine Census divisions, year of survey indicators, and indicators for geography (rural, urban or suburban).

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