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FINANCIAL REGRET AT OLDER AGES AND LONGEVITY AWARENESS

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### **ABSTRACT**

Older people often express regret about financial decisions made earlier in life that left them susceptible to old-age insecurity. Prior work has explored one outcome, saving regret, or peoples' expressed wish that they had saved more earlier in life. The present paper extends attention to five additional areas regarding financial decisions, examining whether older Americans also regret not having insured better, claimed benefits and quit working too early, and becoming financially dependent on others. Using a controlled randomized experiment conducted on 1,764 respondents age 50+ in the Health and Retirement Study, we show that providing people objective longevity information does alter their self-reported financial regret. Specifically, giving people information about objective survival probabilities more than doubled regret expressed about not having purchased long term care, and it also boosted their regret by 2.4 times for not having purchased lifetime income. We conclude that information provision can be a potent, as well as cost-effective, method of alerting people to retirement risk.

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# Financial Regret at Older Ages and Longevity Awareness

## 1. Introduction

As the global population ages, researchers and policymakers have proposed numerous strategies to spur retirement saving<sup>1</sup> and boost the demand for insurance products crucial to later life.<sup>2</sup> One motivation for such effort is that around 60% of older survey respondents express regret for not having saved more during their working years, so as to ensure adequate retirement consumption.<sup>3</sup> Moreover, most of these individuals had not purchased long-term care<sup>4</sup> or longevity insurance,<sup>5</sup> leaving them susceptible to health and other shocks.

Earlier work by Börsch-Supan et al. (2018) has explored how demographic characteristics, wealth, personality traits, and external shocks affect saving regret. These authors found that personality traits explained only 1.6% of the variation in saving regret, and that the most influential factor (explaining 7.13% of the variation in regrets) was shocks experienced earlier in life (e.g., divorce). The present paper considers a different explanation for financial regret, which is that people may simply not understand how long they will live in retirement, leading them to make suboptimal life cycle financial decisions. To this point, Hurwitz et al. (2022a) reported that informing people about both life expectancy and longevity risk boosted their demand for annuities in an experimental setting. Other studies have found that peoples' decisions to save or buy insurance of various types are correlated with subjective survival probabilities.<sup>6</sup> Yet some people exhibit systemic biases when predicting their expected survival probabilities,<sup>7</sup> while others avoid thinking about mortality.<sup>8</sup>

To determine how lack of understanding drives poor financial decision making, we analyze how longevity expectations shape financial regret in later life using an experimental

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<sup>1</sup> E.g., Thaler & Benartzi 2004; Beshears et al. 2021; Dolls et al. 2018; and O'Donoghue & Rabin 1999.

<sup>2</sup> C.f., Heimer et al. 2019; Horneff et al. 2020; Hurwitz & Sade, 2020; Hurwitz et al. 2022a; Post & Hanewald, 2013; and Remler & Glied 2003.

<sup>3</sup> E.g., Mitchell & Moore 1998, Lusardi & Mitchell 2007, and Borsch-Supan et al 2018. An earlier study, Morrison & Roese (2011) reported that 10% of the American adults surveyed had a financial regret. Yet that experiment was quite different from ours, in that those participants were asked to report one salient regret in detail, and then to provide further information about the nature of that specific regret. Twelve life domains were elicited (following Roese & Summerville, 2005): education, romance, career, family, parenting, leisure, spirituality, finances, community, health, friends, and self-improvement. In a related study, Gruber et al. (2022) found that many who had retired prior to a Finnish pension reform raising the retirement age returned to work afterwards.

<sup>4</sup> E.g., Zhou-Richter et al. 2010; Brown et al. 2012; Finkelstein & McGarry, 2006; and Brown & Finkelstein, 2008.

<sup>5</sup> E.g., Beshears et al. 2014; Brown 2001; Finkelstein & Poterba (2004); and Pashchenko 2013.

<sup>6</sup> E.g., Bloom et al. 2007; Hurd, Smith & Zissimopoulos 2004; and Salm 2010.

<sup>7</sup> E.g., Elder 2013, and Wu et al. 2015.

<sup>8</sup> E.g., McGarry 2022.

module we designed and fielded in the Health and Retirement Study (HRS). A first group (the Control group) was not asked nor informed about either subjective or objective longevity. Two other groups elicited older peoples' *subjective* survival probabilities; thereafter Treatment group 1 received no additional information, while Treatment group 2 was also informed about the *objective* risks of living a long time using relevant survival tables. We then assessed whether our respondents reported regret regarding the financial decisions made at younger ages, by asking all of them about their prior decisions regarding savings, insurance, financial dependency, and benefit claiming ages.

Our results reveal that many in the older population experience high levels of financial regret. Specifically, 57% of participants report regretting not having saved more, 40% regretted not buying Long Term Care (LTC) insurance, 23% regretted that they did not delay claiming social security benefits, 33% regretted not having purchased lifetime income payments, 10% expressed regret for having to depend financially on others, and 37% regretted not working longer. We also show that providing individuals with *objective* life table information (Treatment 2) makes a significant difference: that is, respondents shown objective survival probabilities report expressed twice as much regret about not having purchased LTC insurance, and 2.4 times greater regret for not having purchased lifetime income payments, compared to the Control group not receiving the survival information. Healthy people given objective longevity information were 43% more likely to express regret about not having saved more. Furthermore, we document important population heterogeneity. For example, merely drawing peoples' attention to longevity (Treatment 1) reduced regret about saving too little among Hispanics by 57.2% and regret for not purchasing LTC insurance by 59%. Conversely, African-Americans regretted claiming social security early by an additional 55.2% compared to the Control group.<sup>9</sup>

Some prior studies have suggested that people experience regret when they compare the potential results from having made one choice to those from other choices,<sup>10</sup> while regret is less likely when people are unable to compare the results of the choice they made versus other outcomes (Zeelenberg & Pieters 2004). For instance, if someone does not understand or does not think about anticipated longevity, that individual may be less likely to experience regret in later life regarding financial decisions made when young. Moreover, regret aversion

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<sup>9</sup> The latter is consistent with past literature showing that African-Americans in the US tend to overestimate their survival chances in later life (e.g., Roebuck Bulanda et al. 2009; Hurd & McGarry 1995; Irby-Shasanmi 2013; Mirowsky 1999; Palloni & Novak 2016; and Hurwitz et al. 2022b).

<sup>10</sup> E.g., Zeelenberg and Pieters 2004, 2007; Muermann et al. 2006; and George & Dane 2016.

could lead individuals to avoid information about other possible outcomes, as well as the risks of the chosen option (Golman et al. 2017). Accordingly, we hypothesize that, since many people avoid obtaining objective survival information, providing them with such information will increase their chances of experiencing regret and potentially alter financial choices relevant for old age.

## 2. Data and Methodology

In 2020, we fielded a special purpose module in the HRS assessing older Americans' ex-post regrets about savings, insurance, financial dependency, and retirement age.<sup>11</sup> For our research, the survey organization randomly selected 1,764 individuals over the age of 50 to participate in this module. We then randomly assigned respondents to one of three conditions. The Control group (C) was only asked the regret questions (and was not asked about subjective survival expectations nor provided with objective survival probabilities). The T1 group was asked about subjective survival probabilities followed by the regret questions; and group T2 was asked about subjective survival probabilities, followed by objective information about longevity, and thereafter the regret questions. This design was intended to draw peoples' attention to their subjective assessments of their potential longevity, and for the T2 group, also to show them objective information on longevity. Our hypothesis was that respondents not alerted to objective longevity information might not understand the potential consequences of their financial decisions or the possible outcomes of options not chosen. Hence, making this concept more salient would be expected to draw their attention to their financial decisions both taken and not taken, and consequently would be expected to shape their reported regret.

In our sample, respondents' average age was 72.5, 59% were female, and 55% were married; moreover, 71% of respondents were White, 21% African-Americans, and 12% Hispanic. Around 15% had less than a high school education, 30% completed high school, 25% had some college education, and 29% had college or advanced degrees. Some two thirds of respondents had retired, and three-quarters rated themselves in good or better health. Table 1 offers summary statistics for the entire sample and each of the treatment groups.

*Table 1 here*

To evaluate how people rated their subjective chances of survival to older ages, we asked two questions of respondents in both T1 and T2 regarding their subjective longevity

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<sup>11</sup> The HRS is a panel study national representative of Americans age 50+; for further information see [About | Health and Retirement Study \(umich.edu\)](https://www.umich.edu/healthandretirement).

expectations. First, we asked: *What is the percent chance that you will live at least [F3\*Sex\*Current age] more years?* Next, we asked: *And what is the percent chance that you will live at least [F4\*Sex\*Current age] more years?*<sup>12</sup> Participants in the second group (T2) were then also informed about objective survival probabilities as follows: *According to statistics, out of 100 [men/women (specify R's Sex)] your age, about [F5\*Sex\*current age] will live at least [F4\*Sex\*current age] more years on average. Would you say your chances of living at least [F4\*Sex\*current age] more years are higher than that, lower than that, or about the same?* Control group participants were not asked either set of questions.

To assess financial regret, we asked all respondents about decisions they might have taken in the past, in various financial contexts. Specifically, to evaluate saving regret (as in Börsch-Supan et al. 2018), we asked: *Think about your saving over your life: do you think that what you saved was too little, about right, or too much?* and coded the variable *Undersaving regret* such that it takes the value of 1 if participant *i* saved too little. Extending the logic to measure regarding LTC insurance purchase, we first asked: *Do you currently have Long Term Care insurance? (Insurance for nursing home care?)* And for those who answered they did not, we then asked: *If you could do it all over again, do you think you would purchase more Long Term Care Insurance?* Next, we coded the variable *LTC regret* such that it takes the value of 1 if participant *i* answered yes. Similarly, we asked about social security claiming: *If you could do it all over again, do you think you would have delayed claiming social security until later, in exchange for higher benefit payments?* and coded the variable *Social Security early claim regret* such that it takes the value of 1 if participant *i* answered yes. For life annuities we asked participants who mentioned purchasing longevity insurance before: *If you could do it all over again, do you think you would have purchased a higher lifetime payment in exchange for a higher premium?* And further asked those with no longevity insurance: *If you could do it all over again, do you think you would have purchased a lifetime payment from an insurance provider?* we then coded the variable *Lifetime income regret* such that it takes the value of 1 if participant *i* answered yes to either of these questions. Regarding financial dependence on others, the respondents were first asked: *Do you feel financially dependent on someone other than yourself?* As well as: *If you could do it all over again, do you think you would save more for retirement to avoid depending on them?* We then coded the variable *Fin. dependence regret* such that it takes the value of 1 if participant *i* answered yes on both questions. Finally,

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<sup>12</sup> The questionnaire and look-up tables appear online at [Module9 Longevity and Regret 2020B-A.pdf \(umich.edu\)](#).

regarding working longer, we asked: *If you could do it all over again, do you think you would have worked longer, stopped at about the same age, or stopped working sooner?* We coded the variable *Quit work too soon regret* such that it takes the value of 1 if participant  $i$  answered that she would have worked longer.

Results in Table 1 document that a majority of older Americans stated that they regretted financial decisions made in the past. More than half of respondents, 57%, regretted not having saved more,<sup>13</sup> and the two most common reasons for insufficient saving were not planning ahead (27%), and living day to day (29%). Two-fifths (40%) expressed regret for not having bought Long Term Care (LTC) insurance, 23% regretted taking social security benefits early, 33% regretted not having purchased higher lifetime income benefits, 10% regretted being financially dependent on others, and 37% regretted not working longer. In other words, older respondents reported regret over quite a wide range of important financial decisions critical for old age wellbeing.

To explore these outcomes in more depth, we estimate the following multivariate regression model across our sample of  $i$  individuals, for each of the six dependent regret variables ( $j$ ):

$$regret_{i,j} = \alpha_j + \beta_{1,j}T1_i + \beta_{2,j}T2_i + \gamma_j X_i' + \epsilon_i.$$

Controls include an indicator for being in the Treatment group 1 who were asked only about subjective survival probabilities ( $T1_i$ ); or for being in Treatment group 2, also asked about subjective probabilities and who additionally saw the objective survival table information ( $T2_i$ ); the reference group is the Control. We also include  $X_i'$ , a vector of controls, including the respondent's *Age* (in years); *Female* =1 if respondent female (else 0); indicators of race/ethnicity (*African American*, *Hispanic*, and *Other*, with *White* as the reference group); *Married*=1 if respondent was married (else=0); indicators of educational levels (*high school*, *some college*, *college+*; the reference group is high school dropout); employment status (*working*, *retired*; reference group is other including unemployed, disabled, homemaker); an indicator of *Good health* =1 if self-reported health was good/very good/excellent (else 0); *Memory* score;<sup>14</sup> and *CESD* or depression score.<sup>15</sup> In addition we control on household net wealth and income (*HH total wealth*; *HH total income*); and *Financial planning horizon* which

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<sup>13</sup> This is a comparable fraction to the 59% of the age 60-79 respondents in the RAND American Life Panel (Börsch-Supan et al. 2018).

<sup>14</sup> The memory score totals the number of words correctly recalled immediately from a list of 10 words read to the respondent and after a delay of five minutes.

<sup>15</sup> This measures symptoms of depression computed from eight questions taken from the Center for Epidemiologic Studies Depression Scale (CESD); see Steffick (2000). A higher score indicates more depressive symptoms.

takes values 1-5 indicating the time horizon over which the respondent makes financial plans (next few months, next year, next few years, next 5-10 years, longer than 10 years, as in Khwaja et al. 2006). Finally, we also include interactions between *Age*, *Female*, *Married*, *Good health*, and race/ethnicity variables, along with indicators for the treatment groups (*T1* and *T2*), to test for differences in how participants respond to the information provided.

### 3. Empirical Results

In what follows we first summarize the factors associated with each of the six financial regret outcomes examined here. Then we examine the impact of the two treatments compared to the Control group, to assess how providing longevity information shaped older peoples' evaluation of their past financial decisions.

#### 3.1 Factors associated with financial regret at older ages

Tables 2 and 3 summarize our main findings relative to regret at older ages across the six financial domains of interest. Column 1 in each case reports a stripped-down model, while column 2 also includes controls for wealth, income cognition, financial planning horizon as well as interactions between the treatment variables and the demographics. Overall, the evidence indicates that regret regarding saving, social security benefit claiming, working longer, and being financially dependent tends to decline with age. By contrast, older persons were no more likely to regret not having bought LTC insurance or higher lifetime income. Women were 28% ( $=-0.064/0.226$ ) less regretful about having claimed social security early, but they were 38.5% ( $=0.037/0.096$ ) more disappointed about being financially dependent. Black/African American respondents were notably more regretful, particularly for having saved too little (they were 25.8% more likely to express regret ( $=0.147/0.569$ )), having claimed social security benefits too early (62.3% more likely), not having bought LTC (69.5% more likely), and not having purchased more lifetime income (88.8% more likely). These results are consistent with previous research finding that Black households are less likely to save.<sup>16</sup> Hispanics are also regretful for not having purchased LTC (30% more likely to express LTC regrets) and are 60% more likely to regret for not buying lifetime income. Past studies have suggested that the low levels of LTC demand by the US population (Zhou-Richter et. al, 2010;

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<sup>16</sup> E.g., Galenson 1972; Rha et al. 2006; Hogarth & Anguelov 2003; and Yuh & Hanna 2010. Higher likelihood of regretting not buying LTC insurance among African-Americans and Hispanics is consistent with racial disparities in LTC purchase reported by McGarry & Temkin-Greener (2014), as is the likelihood of persons from minority groups and with higher depression scores to reside in poor quality nursing homes (Fennell et al. 2010).



Brown et al. 2012) stem from preferences and beliefs about the likelihood of needing this insurance, along with the availability of substitutes for formal care.

*Tables 2 and 3 here*

Better educated respondents expressed less regret compared to high school dropouts regarding saving too little, quitting work too soon, not having purchased LTC and lifetime income, and being financially dependent. Likewise, healthier respondents were 23.4% less prone to regret having saved too little, claimed social security (in one model) and 24.1% less likely to regret having stopped work too soon; they also were 25.4% significantly less likely to regret not having bought more lifetime income. Individuals who scored higher on the memory recall test were somewhat more likely to regret having saved too little, as were people scoring higher on the depression scale. Similarly, those with better memory scores expressed more lifetime income regret, and more depressed respondents regretted not having LTC, more lifetime income, and being financially dependent. Interestingly, our results are quite robust to including household total wealth and income, peoples' financial planning horizons, and their cognition scores.<sup>17</sup> Moreover, there is a negative relation between wealth and the chances of regretting saving too little, as well as not having purchased LTC and income insurance. This last result contributes to the vast literature about the relationship between wealth and insurance. While some theoretical studies have predicted a negative correlation between wealth and insurance purchase (Gollier 2003; Koijen et al. 2016), there is also evidence that wealthier people do hold more insurance (Eisenhauer & Halek 1999; Fang & Kung 2021). In the older population, we confirm that having more wealth is negatively associated with regret over saving too little, having too little LTC, and having purchased too little lifetime income.

Finally, African-Americans are more likely to report financial regret, consistent with evidence of racial disparities in savings and insurance. Better educated and healthier persons are less likely to express regret regarding their financial situations, while those scoring higher on the depression metric are more likely to express financial regret.

### **3.2 Longevity awareness and financial regret**

Next, we turn to an examination of whether and how the two different information treatments provided shaped respondents' reports of financial regret. Interestingly, in this older population, simply asking people about their subjective survival probabilities (T1) did not alter any of the reported regret coefficients compared to the Control group, as the coefficients are

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<sup>17</sup> The findings with regard to age, education, wealth, and health for saving regret are similar to those in Börsch-Supan et al. (2018). That study did not examine the additional regret outcomes explored here.

not statistically significant. By contrast, respondents who received the objective longevity information (T2) controlling on wealth and income were more than twice as likely ( $=0.85/0.39$ ) to regret not having bought LTC insurance, and 2.4 times more likely ( $=0.756/0.31$ ) to regret not having purchased higher lifetime income payments. As both of these products provide insurance protection against old-age risk, this is an important finding. Indeed, it suggests that information provision can be a potent, as well as cost-effective, method of alerting people to and helping them protect against retirement risk.

*Figure 1 here*

Interactions of both treatments with the main demographic controls show some additional statistically significant effects. Older people shown the T2 information were 4.13% less regretful about not having purchased LTC and 3.53% less regretful for not having purchased higher lifetime income, whereas Hispanics were 79.2% more likely to regret undersaving.<sup>18</sup> The impact of providing objective information (T2) was smaller for social security claiming regret among married individuals, but it was higher for people in good health. The effect of providing objective longevity information (T2) on savings regrets was larger for people in good health

#### **4 Conclusions and Implications**

This study shows that providing longevity information can shape older peoples' regrets related to financial decisions that shape later life wellbeing, including LTC insurance, annuity benefits, and social security claiming. To this end, we designed a special purpose module in the HRS assessing ex-post saving, work, and insurance regret, where we randomly assigned participants to a Control and two Treatment groups: one was asked about longevity perceptions, and the second was provided with objective longevity information. A first important finding is that large proportions of older Americans express regret regarding key financial decisions they made in earlier years. Over half (57%) of our participants expressed regret about undersaving; 40% regretted not buying LTC; 33% regretted not having annuitized; 23% regretted claiming social security too early; 37% regretted not working longer; and 15% regretted depending on others for financial matters. Second, we document that providing information about longevity can alter older persons' expressed regret regarding financial decisions. Specifically, giving them information about objective survival probabilities more than doubled their regret

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<sup>18</sup> See for instance Roebuck Bulanda et al. 2009; Hurd & McGarry 1995; Irby-Shasanmi 2013; Mirowsky 1999; Palloni & Novak 2016; and Hurwitz et al. 2022b.

expressed about not having purchased LTC, and it also strongly increased (by 2.4 times) their regret for not having purchased lifetime income. Those provided with objective survival probabilities and who were in good health expressed greater regret for having undersaved (by 43%) and having claimed social security benefits too early (by 79%).

Our results illuminate a major reason older people end up with financial regret, namely because they had inaccurate perceptions of longevity when they made key saving, benefit claiming, and insurance decisions. This has an important policy implication, in that providing people with objective longevity information when they make key financial decisions could help them avoid making mistakes and hence avoid regret in later life. Our study will be informative to researchers and policymakers interested in saving and insurance decisions, since we show that providing survival information to older adults can influence important financial decisions they must make. Key decisions they could revisit given this sort of information include their purchase of LTC insurance and annuities. Better understanding of these risk management tools could substantially strengthen financial resilience in old age.

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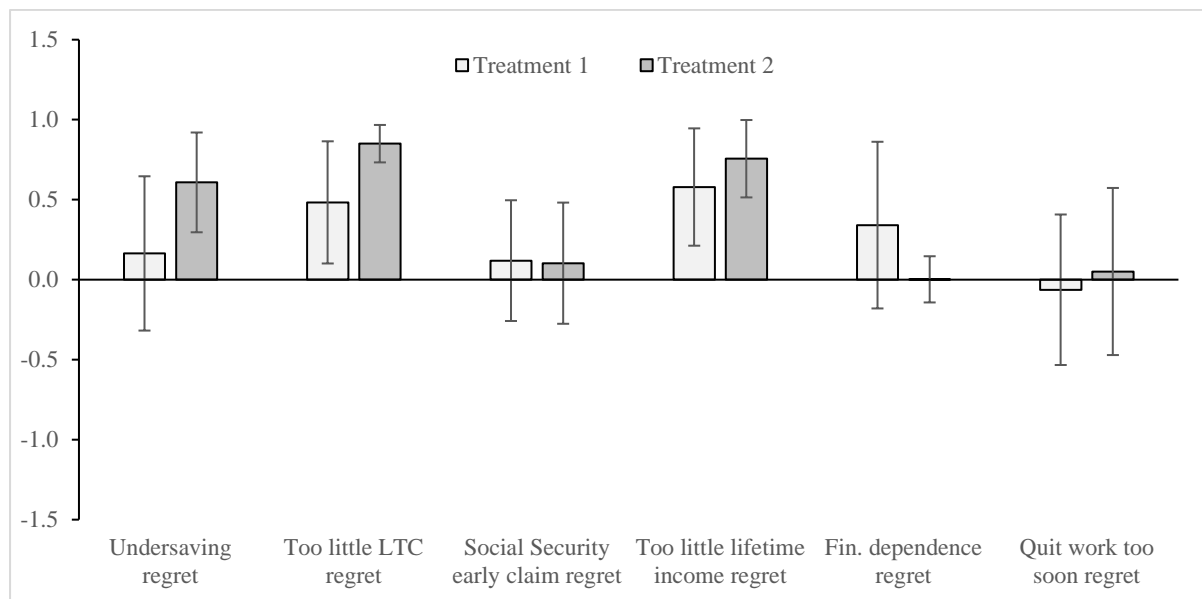
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**Figure 1 – Treatment Effects (versus Control Group) of Subjective and Objective Longevity Information on 6 Aspects of Financial Regret**



Note: Confidence intervals indicate +/- 5% significance around the estimated mean of the Treatment group (1 or 2), compared to the null effect in the Control group.



**Table 1. Descriptive statistics**

Variable	Full sample		Treatment 1		Treatment 2		Control	
	Mean	Std.Dev.	Mean	Std.Dev.	Mean	Std.Dev.	Mean	Std.Dev.
Undersaving regret	0.57	0.50	0.59	0.49	0.55	0.50	0.56	0.50
Social Security early claim regret	0.23	0.42	0.23	0.42	0.25	0.43	0.20	0.40
Quit work too soon regret	0.37	0.48	0.37	0.48	0.38	0.49	0.35	0.48
LTC regret	0.40	0.49	0.41	0.49	0.40	0.49	0.40	0.49
Lifetime income regret	0.33	0.47	0.34	0.47	0.35	0.48	0.31	0.46
Fin. dependence regret	0.10	0.29	0.12	0.33	0.09	0.28	0.08	0.27
Age	72.56	7.61	72.48	7.46	72.51	7.82	72.69	7.57
Female	0.59	0.49	0.61	0.49	0.59	0.49	0.57	0.50
White	0.71	0.46	0.69	0.46	0.70	0.46	0.72	0.45
Black/African American	0.21	0.41	0.22	0.42	0.21	0.41	0.19	0.39
Other race	0.08	0.28	0.08	0.27	0.08	0.28	0.09	0.28
Hispanic	0.12	0.33	0.13	0.34	0.11	0.32	0.13	0.34
Married	0.55	0.50	0.54	0.50	0.56	0.50	0.54	0.50
Education, less than high school	0.15	0.36	0.15	0.36	0.15	0.35	0.17	0.37
Education, high school	0.30	0.46	0.32	0.47	0.29	0.46	0.29	0.45
Education, some college	0.25	0.43	0.24	0.43	0.23	0.42	0.26	0.44
Education, college+	0.29	0.45	0.28	0.45	0.31	0.46	0.27	0.45
Employment, working	0.18	0.38	0.16	0.36	0.19	0.39	0.18	0.39
Employment, retired	0.66	0.47	0.66	0.47	0.64	0.48	0.67	0.47
Good health	0.75	0.44	0.71	0.45	0.77	0.42	0.76	0.43
Memory score	8.47	4.94	8.52	5.11	8.48	4.94	8.41	4.79
CESD (depression score)	1.39	1.93	1.58	2.06	1.28	1.88	1.31	1.82
HH total wealth in 2018 (2020\$)	681,465	1,889,880	646,955	2,102,284	720,758	2,105,997	678,238	1,397,768
HH total income in 2018 (2020\$)	77,672	211,650	65,446	79,637	86,046	343,362	81,708	117,351
Financial planning horizon	3.23	1.22	3.23	1.23	3.18	1.21	3.28	1.22
Cognition score	22.68	4.84	22.78	5.14	22.74	4.66	22.52	4.72
N	1,764		579		572		613	

*Notes:* Descriptive statistics for the full sample and the 2 treatment groups: individuals in the first group (Treatment 1) were first asked about subjective survival probabilities and thereafter about regrets; individuals in the second group (Treatment 2), were first asked about subjective survival probabilities, followed by receiving objective information about longevity, and thereafter were asked about regrets; individuals in the Control group were only asked regret questions.

**Table 2. Multivariate Models of Treatment Effects on Regret regarding LTC, Lifetime Income, and Financial Dependence**

	LTC regret		Lifetime income regret		Fin. dependence regret	
Treatment 1	-0.017 (0.32)	0.483 (0.38)	0.301 (0.32)	0.579 (0.37)	0.648 * (0.36)	0.341 (0.52)
Treatment 2	0.606 *** (0.21)	0.850 *** (0.12)	0.650 *** (0.22)	0.756 *** (0.24)	0.159 (0.28)	0.002 (0.14)
Age	0.001 (0.00)	0.004 (0.00)	0.004 (0.00)	0.003 (0.00)	-0.001 (0.00)	-0.001 (0.00)
Female	0.057 (0.04)	0.088 * (0.05)	0.037 (0.04)	0.072 (0.05)	0.065 *** (0.02)	0.049 *** (0.02)
Black/African American	0.299 *** (0.05)	0.369 *** (0.07)	0.261 *** (0.06)	0.191 ** (0.08)	-0.009 (0.03)	-0.022 (0.02)
Other race	0.108 (0.09)	-0.014 (0.11)	0.032 (0.09)	-0.082 (0.07)	-0.030 (0.03)	-0.013 (0.02)
Hispanic	0.185 *** (0.07)	0.244 ** (0.10)	0.276 *** (0.07)	0.295 *** (0.10)	0.075 (0.05)	0.056 (0.04)
Married	-0.007 (0.05)	0.035 (0.05)	-0.079 * (0.04)	-0.047 (0.05)	0.065 *** (0.02)	0.052 *** (0.02)
Education, high school	-0.078 ** (0.04)	-0.060 (0.05)	-0.019 (0.04)	-0.045 (0.04)	-0.010 (0.02)	-0.016 (0.01)
Education, some college	-0.118 *** (0.04)	-0.080 * (0.05)	-0.068 * (0.04)	-0.059 (0.04)	-0.009 (0.02)	-0.004 (0.01)
Education, college+	-0.133 *** (0.04)	-0.098 * (0.05)	-0.171 *** (0.03)	-0.133 *** (0.04)	-0.043 *** (0.02)	-0.018 (0.02)
Employment, working	-0.006 (0.05)	-0.015 (0.06)	0.102 ** (0.05)	0.087 (0.06)	-0.052 *** (0.01)	-0.041 *** (0.01)
Employment, retired	-0.002 (0.04)	-0.007 (0.05)	0.030 (0.03)	0.033 (0.04)	-0.041 ** (0.02)	-0.027 * (0.02)
Good health	-0.052 (0.05)	-0.081 (0.06)	-0.100 ** (0.05)	-0.128 ** (0.06)	-0.042 (0.03)	-0.034 (0.03)
Memory score	0.003 (0.00)	0.003 (0.00)	0.006 *** (0.00)	0.008 ** (0.00)	0.000 (0.00)	0.000 (0.00)
CESD	0.022 *** (0.01)	0.023 *** (0.01)	0.022 *** (0.01)	0.013 * (0.01)	0.007 ** (0.00)	0.003 (0.00)
HH total wealth (\$100k)		-0.005 *** (0.00)		-0.013 *** (0.00)		-0.004 *** (0.00)
HH total income (\$100k)		-0.005 (0.01)		0.027 (0.03)		0.000 (0.00)
Financial planning horizon		0.007 (0.01)		-0.004 (0.01)		-0.005 (0.00)
Cognition score		-0.009 ** (0.00)		-0.009 ** (0.00)		-0.001 (0.00)

(cont)

Table 2 (cont)

	LTC regret		Lifetime income regret		Fin. dependence regret	
Treatment1*Age	0.000 (0.00)	-0.006 (0.01)	-0.004 (0.00)	-0.008 (0.01)	-0.004 * (0.00)	-0.002 (0.00)
Treatment1*Female	0.008 (0.06)	0.016 (0.08)	-0.012 (0.06)	-0.022 (0.06)	-0.050 ** (0.02)	-0.037 *** (0.01)
Treatment1*Black/African Amer	-0.035 (0.07)	-0.132 * (0.08)	0.074 (0.08)	0.080 (0.09)	0.016 (0.04)	0.026 (0.04)
Treatment1*Other race	0.087 (0.13)	0.227 (0.18)	0.209 (0.13)	0.411 ** (0.16)	0.027 (0.07)	-0.013 (0.03)
Treatment1*Hispanic	-0.133 (0.08)	-0.228 *** (0.07)	-0.090 (0.07)	-0.118 * (0.07)	-0.044 ** (0.02)	-0.027 * (0.01)
Treatment1*Married	-0.024 (0.06)	-0.035 (0.07)	0.028 (0.06)	0.031 (0.07)	0.013 (0.04)	0.006 (0.03)
Treatment1*Good health	0.039 (0.07)	0.088 (0.09)	0.026 (0.07)	0.112 (0.08)	0.026 (0.04)	0.035 (0.03)
Treatment2*Age	-0.009 ** (0.00)	-0.016 *** (0.01)	-0.009 ** (0.00)	-0.011 ** (0.01)	-0.001 (0.00)	0.000 (0.00)
Treatment2*Female	0.045 (0.07)	-0.005 (0.08)	0.038 (0.06)	0.030 (0.07)	-0.026 (0.03)	-0.005 (0.03)
Treatment2*Black/African Amer	0.000 (0.08)	-0.111 (0.08)	0.042 (0.08)	0.016 (0.08)	0.015 (0.05)	0.006 (0.04)
Treatment2*Other race	-0.095 (0.11)	-0.191 (0.12)	0.115 (0.13)	0.166 (0.18)	0.098 (0.11)	0.036 (0.08)
Treatment2*Hispanic	-0.048 (0.10)	-0.023 (0.14)	-0.105 (0.07)	-0.093 (0.08)	-0.025 (0.03)	-0.014 (0.02)
Treatment2*Married	-0.005 (0.06)	-0.036 (0.08)	0.032 (0.06)	0.043 (0.07)	-0.018 (0.03)	-0.019 (0.02)
Treatment2*Good health	-0.030 (0.07)	0.079 (0.09)	0.027 (0.07)	0.117 (0.08)	0.041 (0.04)	0.063 (0.05)
N	1,761	1,218	1,762	1,219	1,763	1,220
Pseudo R2	0.08	0.11	0.128	0.176	0.106	0.155
Mean of dep. var.	0.403	0.387	0.33	0.311	0.096	0.087
Std. Dev. of dep. var.	0.491	0.487	0.47	0.463	0.294	0.282

Note: This table provides estimates of factors associated with 3 types of financial regret: Column (1) refers to regret about not having long term care insurance; Column (2) refers to regret about insufficient lifetime income; and Column (3) regret for being financially dependent on others. Participants in Treatment 1 were asked about subjective survival probabilities and those in Treatment 2 were provided with objective survival probabilities as well; individuals in the Control group were only asked regret questions. In addition, we control on age, sex, racial group, being married, education, health status, memory scores, depression (CESD), wealth, income, financial planning horizon, cognition and interactions of key demographic variables with our treatments. Standard errors in parentheses \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

**Table 3. Multivariate Models of Treatment Effects on Regret regarding Saving, Social Security, and Quit Work Too Soon**

	Undersaving regret		Social Security early claim regret		Quit work too soon regret	
Treatment 1	0.344 (0.27)	0.164 (0.48)	0.273 (0.30)	0.119 (0.38)	0.183 (0.41)	-0.063 (0.47)
Treatment 2	0.117 (0.32)	0.608 * (0.31)	0.228 (0.30)	0.103 (0.38)	0.264 (0.39)	0.051 (0.52)
Age	-0.009 *** (0.00)	-0.006 (0.00)	0.007 *** (0.00)	0.005 (0.00)	-0.006 (0.00)	-0.010 ** (0.00)
Female	-0.010 (0.05)	0.010 (0.06)	-0.092 ** (0.04)	-0.081 * (0.05)	0.072 (0.05)	0.068 (0.06)
Black/African American	0.115 ** (0.06)	0.100 (0.09)	0.190 *** (0.06)	0.207 *** (0.07)	0.049 (0.07)	0.008 (0.08)
Other race	0.045 (0.08)	-0.002 (0.12)	0.081 (0.08)	0.021 (0.10)	-0.085 (0.09)	-0.113 (0.10)
Hispanic	0.123 * (0.07)	0.073 (0.11)	0.059 (0.07)	0.036 (0.08)	0.095 (0.09)	0.073 (0.10)
Married	-0.057 (0.05)	0.073 (0.06)	0.038 (0.04)	0.060 (0.05)	-0.104 ** (0.05)	-0.099 (0.06)
Education, high school	-0.049 (0.04)	-0.022 (0.05)	0.001 (0.03)	-0.007 (0.04)	-0.118 *** (0.04)	-0.121 ** (0.05)
Education, some college	-0.059 (0.05)	-0.014 (0.06)	0.025 (0.03)	0.043 (0.05)	-0.109 ** (0.04)	-0.113 ** (0.05)
Education, college+	-0.238 *** (0.04)	-0.100 * (0.06)	-0.037 (0.03)	-0.001 (0.05)	-0.169 *** (0.04)	-0.118 ** (0.05)
Employment, working	0.092 ** -0.05	0.089 -0.07	-0.079 *** -0.03	-0.007 -0.05		
Employment, retired	-0.018 (0.04)	0.004 (0.05)	-0.016 (0.03)	-0.019 (0.04)	-0.106 ** (0.04)	-0.087 * (0.05)
Good health	-0.210 *** (0.05)	-0.171 *** (0.07)	-0.101 ** (0.04)	-0.127 ** (0.05)	-0.100 * (0.06)	-0.074 (0.06)
Memory score	0.006 ** (0.00)	0.003 (0.00)	0.003 (0.00)	0.002 (0.00)	-0.002 (0.00)	0.002 (0.00)
CESD	0.033 *** (0.01)	0.034 *** (0.01)	0.008 (0.01)	0.002 (0.01)	0.010 (0.01)	0.012 (0.01)
HH total wealth (\$100k)		-0.037 *** (0.01)		-0.001 (0.00)		0.000 (0.00)
HH total income (\$100k)		0.012 ** (0.01)		-0.040 * (0.02)		-0.061 ** (0.03)
Financial planning horizon		-0.015 (0.01)		-0.003 (0.01)		-0.011 (0.01)
Cognition score		0.007 (0.00)		-0.001 (0.00)		-0.008 * (0.01)

(cont)

Table 3 (cont)

	Undersaving regret		Social Security early claim regret		Quit work too soon regret	
Treatment1*Age	-0.005 (0.00)	-0.002 (0.01)	-0.003 (0.00)	-0.002 (0.00)	-0.002 (0.01)	0.002 (0.01)
Treatment1*Female	0.000 (0.07)	-0.033 (0.08)	0.047 (0.06)	0.021 (0.07)	-0.027 (0.07)	-0.032 (0.08)
Treatment1*Black/African American	0.061 (0.09)	-0.040 (0.11)	-0.087 ** (0.04)	-0.132 *** (0.04)	-0.005 (0.09)	-0.012 (0.10)
Treatment1*Other race	0.015 (0.12)	0.155 (0.17)	-0.075 (0.07)	0.009 (0.14)	0.246 (0.15)	0.266 (0.20)
Treatment1*Hispanic	-0.262 *** (0.10)	-0.302 *** (0.08)	0.004 (0.08)	0.029 (0.11)	-0.075 (0.11)	-0.115 (0.11)
Treatment1*Married	-0.035 (0.07)	-0.082 (0.08)	-0.016 (0.05)	-0.011 (0.06)	0.037 (0.08)	0.073 (0.09)
Treatment1*Good health	0.064 (0.08)	0.067 (0.09)	0.048 (0.06)	0.089 (0.07)	-0.038 (0.08)	-0.075 (0.08)
Treatment2*Age	-0.003 (0.00)	-0.010 (0.01)	-0.003 (0.00)	-0.002 (0.00)	-0.004 (0.01)	-0.002 (0.01)
Treatment2*Female	-0.079 (0.07)	-0.157 * (0.08)	0.035 (0.06)	-0.001 (0.06)	-0.023 (0.08)	-0.032 (0.08)
Treatment2*Black/African American	0.048 (0.08)	0.078 (0.12)	-0.007 (0.06)	-0.032 (0.07)	0.086 (0.10)	0.065 (0.11)
Treatment2*Other race	-0.043 (0.12)	-0.155 (0.18)	0.151 (0.13)	0.010 (0.14)	0.313 ** (0.15)	0.234 (0.22)
Treatment2*Hispanic	-0.021 (0.11)	0.418 *** (0.13)	-0.097 * (0.06)	0.007 (0.11)	0.026 (0.13)	0.238 (0.18)
Treatment2*Married	-0.039 (0.07)	-0.113 (0.08)	-0.084 ** (0.04)	-0.093 * (0.05)	-0.017 (0.08)	0.006 (0.09)
Treatment2*Good health	0.182 *** (0.07)	0.228 ** (0.09)	0.131 ** (0.07)	0.189 ** (0.09)	0.094 (0.08)	0.162 (0.10)
N	1,759	1,217	1,763	1,220	1,203	931
Pseudo R2	0.11	0.22	0.06	0.05	0.09	0.09
Mean of dep. var.	0.570	0.530	0.230	0.240	0.370	0.330
Std. Dev. of dep. var.	0.500	0.500	0.420	0.430	0.480	0.470

Note: This table provides estimates of factors associated with 3 different types of financial regret: Column (1) refers to regret about undersaving; Column (2) to having claimed social security early; and Column (3) refers to regret for quitting work too soon. Participants in Treatment 1 were asked about subjective survival probabilities, and those in Treatment 2 were provided with objective survival probabilities as well. In addition, we control on age, sex, racial group, being married, education, health status, memory scores, depression (CESD), wealth, income, financial planning horizon, cognition and interactions of key demographic variables with our treatments. Standard errors in parentheses \* p<0.10, \*\* p<0.05, \*\*\* p<0.01