Cognitive Decline and Financial Decision-Making*

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Abstract

Older investors who are unaware of their cognitive decline can suffer substantial financial wealth losses. A simple model predicts that awareness should lead investors to reduce portfolio risk and delegate financial control. In an experimental survey of affluent older US investors, we study whether information designed to raise awareness changes their stated financial decisions. We separately provide general information on the financial costs of memory decline and personalized feedback on respondents' memory performance. Among unaware investors, personalized feedback raises stated preferences for formal delegation and lower portfolio risk by approximately 19 and 18 percentage points more than among aware investors, while general information alone produces little response. Additional data from the Health and Retirement Study (HRS) show that the margins we analyze are relevant for reported behavior, not only for stated preferences: After a severe memory loss, the aware report reducing portfolio risk and delegating financial responsibility more than the unaware.

Keywords: Cognitive decline; memory skills; portfolio choice; financial delegation; information treatments.

JEL classification codes: C93, G11, G51, J14

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1 Introduction

Individuals over the age of 54 hold nearly three quarters of total US household wealth (Federal Reserve Board, 2026). The increasing sophistication of financial products and the growing responsibility for self-management of financial wealth during retirement (Poterba, 2014; Ahmed, Barber and Odean, 2018) require them to make complex financial decisions at a time when their cognitive abilities begin to deteriorate. This exposes them to the risk of substantial wealth losses due to investment mistakes (Korniotis and Kumar, 2011) or financial fraud (Egan, Matvos and Seru, 2019, 2024). Although delegating financial decision-making to a trusted agent could mitigate these risks, delegation is often delayed because cognitive decline goes unnoticed (Ameriks et al., 2023).

Lack of awareness of own cognitive decline is common among older Americans and is associated with significant wealth losses that cannot be explained by rational disinvestment strategies (Mazzonna and Peracchi, 2024). Undiagnosed memory disorders are also linked to worse credit outcomes, including lower credit scores and higher payment delinquency (Gresenz et al., 2025).

However, two important questions remain unanswered. First, do individuals adjust their financial decision-making after becoming aware of cognitive decline and, if so, how? Some may seek help from others (such as a friend, relative, or a professional financial advisor), while others may continue to self-manage but rebalance their portfolios toward safer assets. Second, can policymakers improve awareness of cognitive decline, and if so, which is more effective: generic information about financial risks, or personalized feedback on one's own memory performance? Answering these two questions is essential for designing policies that protect older investors, but direct evidence on either remains limited.

To guide our empirical analysis, we first develop a simple conceptual framework in a higher probability of a negative cognitive shock reduce the effectiveness of information acquisition and makes delegation more attractive. Since investors who underestimate their cognitive decline take on excessive portfolio risk and delay delegation, this implies that the effects of information treatments should be greater for unaware investors than for those who already recognize their decline.

We then conduct an experimental survey of members of the American Association of Individual Investors, an organization with roughly 150,000 members. Our respondents consist mainly of highly-educated financial decision-makers with large financial wealth holdings. This is precisely the group we are interested in, as they are more likely to suffer major wealth losses if unaware of their cognitive decline.

Our survey has three key features. First, it allows us to directly measure unaware-

ness of memory problems by comparing the self-rated memory of respondents with their performance on an objective memory task conducted within the survey. Second, it elicits stated preferences over financial responses to cognitive decline in two different settings: a hypothetical situation regarding a friend ("vignette question") and the intended or self-reported behavior of the respondent in case of own decline ("personal question"). Third, before answering these two questions, respondents are randomly assigned to one of four treatment arms: receiving personalized feedback on their memory score (the "score treatment"), receiving educational information on the financial risks of memory decline (the "education treatment"), receiving both (the "combined treatment") or none. This design allows us to separately identify the causal effects of the two distinct information treatments and their interaction.

Our analysis delivers three main results. First, we show that a substantial fraction of respondents seem unaware of their memory problems. About one in nine report their memory as high ("Very good" or "Excellent") but scores low on the memory task. This confirms that unawareness is not just a correlate of low financial literacy or lack of wealth, but is a widespread behavioral friction even at the top of the wealth distribution.

Second, we show that the information treatments change stated preferences over financial responses to cognitive decline along two margins: reduction of portfolio risk and shift from informal delegation (family or friends) to formal delegation (a professional financial advisor). In the vignette question, the combined treatment increases the probability of risk reduction by 19% relative to no treatment and reduces that of informal delegation by about 14%. In the personal question, it increases the probability of formal delegation by about 13% relative to no treatment and reduces that of informal delegation by about 8%.

Third, we uncover important differences in how aware and unaware respondents react to information treatments. For those who seem unaware of their cognitive decline, only feedback on their own memory performance triggers meaningful changes in intended behavior, shifting stated preferences toward risk reduction and formal delegation. This pattern is robust to alternative definitions of unawareness. Further, our falsification tests show that personalized feedback affects neither responses concerning a hypothetical third party nor past own behavior, confirming that the mechanism operates through personal relevance rather than experimenter demand. This suggests that the effectiveness of information treatments depends crucially on whether investors are aware of their cognitive status. From a policy perspective, this means that broad information campaigns are likely insufficient, while targeted screening (such as a brief standardized memory assessment paired with personalized feedback) may be more appropriate for those at risk of cognitive decline.

A natural concern is whether stated choices elicited in our survey correspond to real financial decisions. To address this concern, we employ data from the Health and Retirement Study (HRS), a biennial representative survey of the non-institutionalized US population aged 50+. Following Mazzonna and Peracchi (2024), we define unawareness as a large discrepancy between self-rated and objective memory assessments. We focus on two outcomes: the portfolio share of risky assets (measured by the percentage of household financial wealth invested in stocks or bonds) and a proxy for financial delegation, measured by a change in the household's financial respondent. We then estimate Difference-in-Differences (DiD) models around a severe memory-loss event to evaluate differential changes in these outcomes between the aware and the unaware.

After a severe memory loss event, HRS respondents who are aware of their cognitive decline tend to reduce their portfolio risk compared to the unaware and are more likely to delegate financial management to their spouse. This is consistent with both our conceptual framework and the evidence from our survey, Their share of risky assets falls by 1.7 percentage points (pps) compared to an average share of 24.4%, while their delegation rate rises by 0.7 pps compared to an average of 0.8%. These results are robust to alternative definitions of the treatment and outcome variables, and to alternative event-time windows. The similarity between the HRS results and our experimental survey supports the external validity of our results. It also suggests that our experimental treatments are likely to matter for self-reported longitudinal behavior and are not just stated preferences over hypothetical situations.

Our findings contribute to the growing literature on cognitive aging and household finance (e.g., Agarwal et al., 2009) in two important ways. First, we move from documenting the financial consequences of unrecognized cognitive decline to studying how misperception might be corrected. Although several papers show that older investors underestimate their own decline and lose wealth as a result (Ameriks et al., 2023; Mazzonna and Peracchi, 2024; Gresenz et al., 2025), we are the first to provide experimental evidence on which type of treatment designed to raise awareness is most effective, and how investors adjust portfolio risk and delegation in response.

Second, our results imply that the standard policy instrument for financial vulnerability – financial education – is problematic in the case of older individuals, as it requires them to recognize that they are at risk. In addition, the financial education literature has focused overwhelmingly on younger populations (Kaiser et al., 2022) and finds that the effects on actual behavior are not as large as those on knowledge. We experimentally separate two informational channels – generic information about the financial risks of cognitive decline and objective feedback on a person's memory – and find that they are not substitutes: Among the unaware, only the latter shifts stated

behavior. The reason is not that these investors lack knowledge of the risks associated with cognitive decline but rather that they underestimate their own exposure to such risks, which generic information leaves untouched.

2 Cognitive decline, investment choices and delegation

Cognitive skills tend to follow an inverted U-shaped pattern over the lifetime of an individual (Mazzonna and Peracchi, 2012; Hanushek et al., 2025), as predicted by the standard human capital model (Ben-Porath, 1967), according to which human capital accumulation (including cognitive skills) dominates until incentives to invest no longer compensate for natural cognitive deterioration. The age at which cognitive skills peak and the rate at which they decline depend on the specific skill considered and vary widely between individuals.

These facts have important consequences for the financial choices of the older investors, especially if cognitive deterioration goes undetected. Gamble et al. (2015) and Finke, Howe and Huston (2017) show that financial self-confidence does not decrease with age or memory decline, while Mazzonna and Peracchi (2024) show that people who experience severe memory loss but are unaware of it tend to suffer large losses in financial wealth.[1] Furthermore, the financial consequences of Alzheimer disease and dementia can manifest themselves well before the onset of severe symptoms or clinical diagnosis (Nicholas et al., 2021; Li et al., 2023, 2026).

Cognitive decline can hinder the ability of older investors to make the right investment choices. Relative to their younger selves, they may be slower in their reasoning and more prone to making mistakes. Korniotis and Kumar (2011) find that the behavior of older investors reflects greater financial knowledge, consistent with a shift from fluid to crystallized intelligence at later ages. However, the adverse effects of cognitive decline seem to prevail over the benefits of experience, so older investors achieve lower overall returns. Unawareness of own cognitive decline can exacerbate these costs through overconfidence, excessive trading, and misuse of information inputs in investment decisions (Odean, 1998; Barber and Odean, 2001; Guiso and Jappelli, 2020). It can also place investors at increased risk of financial fraud, as cognitive decline can hinder their ability to recognize trustworthiness, making them more likely to fall prey to fraud and scams (DeLiema et al., 2020).

By delegating financial management to a trusted agent older investors could in principle mitigate the adverse effects of cognitive decline (Gaudecker, 2015; Kim, Maurer and Mitchell, 2016). However, if the decline goes unnoticed, delegation can be

[1] Similar patterns have also been documented recently for the EU (Cheipesh, Fawaz and Mira, 2025) and the UK (Karjalainen, 2025).

delayed more than necessary (Ameriks et al., 2023).

In the next section, we provide a simple conceptual framework that incorporates the separate effect of cognitive decline on portfolio and delegation choices.

3 Conceptual framework

Cognitive decline may generate wealth losses through several mechanisms, such as higher costs of portfolio monitoring and rebalancing, or increased susceptibility to mistakes and fraud. Our goal in this section is not to provide an exhaustive model of all channels through which cognitive decline can affect financial outcomes, but rather to provide a conceptual framework for our survey design and empirical analysis that focuses on the reduced ability to acquire and process financial information – a mechanism that is especially relevant for the particular population we are interested in, namely experienced and wealthy investors.

The model presented in this section extends a partial-equilibrium version of Peress (2004) in two directions. First, we assume that cognitive decline reduces the effectiveness of financial information acquisition. Second, we allow investors to choose between self-managing their portfolio and delegating financial decisions to an agent who is not affected by cognitive decline.

3.1 Portfolio choice under self-management

If the investor chooses self-management, she must decide how to allocate her initial wealth between two assets: a safe asset with guaranteed return r and a risky asset with stochastic return R. At the time of the decision, the investor does not observe the excess return on the risky asset, $X = R - r$, but receives a noisy private signal $S = X + \varepsilon$, where ε is distributed independently of X with zero mean and finite variance σ_ε^2. The investor may spend time and resources collecting information about the excess return X, thus increasing the quality of her private signal, measured by $1/\sigma_\varepsilon^2$. If I is the effort to acquire information, the cost of information acquisition is $c(I)$, where $c(\cdot)$ is increasing and convex. However, the quality of the private signal can be severely reduced by an adverse cognitive shock $D \in \{0, 1\}$, as

$$\frac{1}{\mathbb{V}[\epsilon|D]} = h(I)\,(1 - D) + \eta D,$$

where $h(\cdot)$ is increasing and concave, $0 \leq \eta < h(0)$ and p is the probability that $D = 1$. We allow investors to have their own subjective probability of the cognitive shock, denoted by $\widehat{p}$, which may differ from the true probability p. In particular, we say that an investor is unaware of her risk of cognitive decline if $\widehat{p} < p$, and is aware if $\widehat{p} = p$.

Given her subjective probability $\widehat{p}$,[2] the investor exerts the information effort I, pays the cost $c(I)$ and selects an allocation rule $\alpha(\cdot)$ that specifies the share of initial wealth ω allocated to the risky asset as a function of the signal received, I and $\widehat{p}$. After observing $S = s$, the investor allocates $\alpha(s)\omega$ to the risky asset. At the end of the period, stochastic returns are realized and the portfolio pays off. We assume no bequest motives, so final wealth is entirely consumed.

In our simple model, a higher probability of a cognitive shock lowers the expected value of information acquisition and the expected portfolio share of the risky asset. Hence, an unaware investor chooses a risky share that is on average higher than what she would choose if her belief were correct. Thus, unawareness leads to excessive portfolio risk.

Proposition 1. *At an interior solution, an unaware investor chooses a risky share which is on average higher than the one chosen by an otherwise identical aware investor.*

Proof. See Appendix A.1.

3.2 Delegation of financial decision-making

If the investor (the "principal") chooses financial delegation, she must pay a fee or provide some compensation to the agent. In the wealth management industry, fees usually consist of a fixed charge plus an amount proportional to the managed assets (Kim, Maurer and Mitchell, 2016). Under delegation, the agent decides the risky share on behalf of the principal.

The investor chooses between self-management and delegation, depending on what alternative has the highest expected value. We assume that the agent is not at risk of cognitive decline, so delegation ensures that the investor is fully protected against such risk. Since this protection is more valuable when the probability of a cognitive shock is higher, an investor who underestimates this probability also underestimates the value of delegation.

Proposition 2. *At an interior solution, an unaware investor assigns a lower expected value to delegation relative to self-management than an otherwise identical aware investor. In particular, if delegation is optimal under the true probability p but not under the subjective probability $\widehat{p} < p$, the unaware investor mistakenly chooses self-management.*

Proof. See Appendix A.2.

[2] We focus on modeling the financial decisions of an older investor, so the period considered can be thought of as the investor's post-retirement life, and the investor's initial wealth can be interpreted as pre-retirement financial wealth.

Delegation can be either formal (e.g., to a professional financial advisor) or informal (e.g., to the investor's spouse or children). Although distinguishing between these two forms of delegation would require a host of specific assumptions, our model is sufficient to predict the transition away from self-management. We therefore leave the choice between the two types as an empirical question that our survey is uniquely designed to answer.[3]

The model's comparative statics can be directly mapped into the stated choices in our survey. In particular, information about the financial consequences of severe memory problems, or feedback on performance in a memory task, should move the subjective probability $\widehat{p}$ of an unaware investor closer to the true probability p. Therefore, Propositions 1 and 2 suggest that information treatments should affect investors' responses along the following margins. First, increased awareness of one's own cognitive decline should reduce the share of wealth invested in risky assets. Second, it should increase the probability of delegating portfolio management to an agent. Finally, these effects should be concentrated among investors who most underestimate their decline.

4 The survey

Our survey was conducted in partnership with the American Association of Individual Investors (AAII), a nonprofit organization with roughly 150,000 members. There are two reasons for our interest in the AAII members. First, the AAII has conducted a weekly Investor Sentiment Survey among its members since 1987, so they are used to surveys.[4] Recently, Jiang, Peng and Yan (2024) also surveyed AAII members to study the relationship between personality differences and investment decision-making. Second, as shown in Section 5.1, AAII members tend to be highly educated older financial decision-makers with large financial wealth holdings – precisely the type of population most vulnerable to the financial consequences of cognitive decline. They are also the group for whom the issue of delegation is most relevant: Using a 2016 HRS module, we show that the delegation response to cognitive decline is concentrated among the wealthy (Appendix E.2), thus making the AAII more informative than the general US population.

[3] We also abstract from the principal-agent problem associated with delegation (see, e.g., Inderst and Ottaviani (2012*a*,*b*)). Older investors may fall victim to misconduct by professional financial advisors (Egan, Matvos and Seru, 2019, 2024; Honigsberg, Hu and Jackson, 2025), and there is also evidence of their financial abuse within the household (Carlin, Umar and Yi, 2023).

[4] The AAII Investor Sentiment Survey has been widely used to assess investor sentiment in the US (Huynh, De Mello and Li, 2025). Recent examples include Martin (2017), Białkowski, Dang and Wei (2022), and Hong and Wei (2025). Greenwood and Shleifer (2014) show that the expectations from the AAII survey are strongly correlated with those from the Gallup survey.

4.1 Survey design

The complete survey is presented in Appendix B. The first part consists of basic demographic questions (sex, years of age, highest level of completed education, current marital status, and state of current residence), as well as questions about the level of trust in others,[5] reliance on a paid financial advisor, and the level and composition of household financial wealth.

As in the HRS, respondents were asked to report the total value of their household financial assets and its breakdown into four categories: liquid assets, government bonds, corporate bonds, and individual stocks, including holdings through ETFs or mutual funds. Real estate, privately-owned businesses, or collectibles were explicitly excluded. Because of our interest in the delegation of financial decision-making, we also asked respondents whether they rely on a professional financial advisor, whether and to whom they have granted a durable Power of Attorney (POA) for their financial affairs.

The second part of the survey was designed to evaluate the memory skills of the respondents. We first asked them to rate their current memory on the same 5-point Likert scale as the HRS Cognition Survey, namely "Poor", "Fair", "Good", "Very good", and "Excellent". Next, we assessed their actual memory performance by administering a short memory task in which respondents were presented with a sequence of eight words, each displayed for two seconds. The order in which the words were presented was randomized. The respondents were then asked to select as many words as they could remember from a larger list of 32 words displayed on the screen.[6] After completion of the memory task, the respondents were randomly assigned to one of four treatment groups. Those in the first group were informed about their memory score, those in the second group received a short message explaining that memory decline can impair financial decision-making and lead to considerable wealth losses, those in the third group were exposed to both treatments simultaneously, while those in the fourth (control) group received no information.

In the last part of the survey, the respondents were presented with both a vignette and a personal question about cognitive decline. The vignette described a hypothetical situation involving a friend, followed by a question about what advice the respondent would give, selecting up to three of the following seven answers: "Reduce the share

[5] This question was included due to the importance of trust for household finance and financial delegation (Guiso, Sapienza and Zingales, 2008). In our context, the level of trust of an investor can influence the delegation of financial decisions to others, including to a paid financial advisor (Gennaioli, Shleifer and Vishny, 2015).

[6] The set of words was taken from the HRS but, to keep the survey concise, we used only eight words instead of ten. Furthermore, our memory task measures word recognition rather than word recall, and therefore may not be directly comparable to the HRS test which instead requires the respondents to type-in the words they remember.

of risky assets", "Get help from the spouse", "Get help from a child", "Get help from a friend", "Get help from a professional financial advisor", "Buy annuities", and "None of the above". The sex and age of the subject in the vignette were randomized; see Vignette 1 for an example with a 70-year-old male.

Vignette 1: Example vignette

Your friend John is aged **70** and has been very successful managing his financial investments on his own, but recently he seems to be experiencing some signs of **cognitive decline** (e.g., easily forgets passwords, fails to solve standard math operations correctly, ...).
What would you advise John to do? Select at most three options.

- ☐ Get help from his spouse
- ✓ Get help from his children
- ☐ Get help from a friend
- ☐ Get help from a professional financial advisor
- ✓ Reduce his share of risky assets
- ☐ Buy annuities
- ☐ None of the above

Note. The ordering of the options is randomized to avoid order effects. This vignette is one of four variants randomly shown to respondents: male 70, male 85, female 70, and female 85.

The personal question instead asked whether the respondent had experienced some signs of cognitive decline. Those who answered "No" were then asked what they would do if they began to experience such signs, while those who answered "Yes" were asked to report how long ago this happened and what they actually did. In both cases, respondents could choose up to three of the same seven options available in the vignette question. To avoid order effects, we randomly assigned the order of presentation of the vignette and personal questions, as well as the order of the options available for each question.

4.2 Response patterns

Invitations to participate in the survey were sent by e-mail on September 4, 2025, to all AAII members by the Vice-President of the association. Two reminders were sent on September 15 and September 25, and the survey was closed on October 15, 2025.[7]

[7] More than half of the sample completed the survey between 5 and 10 minutes.

We received a total of 3,515 survey responses, including multiple submissions by the same person. When someone submitted more than once, we retained the submission with the highest completion rate and excluded responses with durations below the 1st or above the 99th percentile, leaving 3,010 valid responses (the "full sample"). These responses correspond to about 2% of the AAII members, only slightly below the 3,325 completed responses reported by Jiang, Peng and Yan (2024).

The low response rate raises the concern that our respondents may not be representative of the AAII population. Since the AAII provided no summary statistics on the basic characteristics of its members, we cannot study non-response directly. However, two features of the design mitigate the concern. First, the invitation message did not mention the subject matter of the study, which reduces the risk that participation was driven by variables of interest, such as cognitive ability or financial decision-making. Second, the composition of our respondents by age, sex, education, and financial wealth is similar to that reported by Jiang, Peng and Yan (2024), who surveyed the same AAII population with a comparable invitation protocol.

A related concern is that the composition of our respondents may have changed between analysis samples, since participation dropped as initial respondents progressed through the survey instrument. Table C.1 compares the observable characteristics of the full sample (column 1), consisting of respondents who answered at least one demographic question, with those who reached the memory test (column 2), the vignette question (column 3) and the personal question (column 4). Survey participation declines gradually from 3,010 respondents in the full sample to 2,563 in column (2), 2,419 in column (3) and 2,222 in column (4), but the decline is not uniform: it accelerates at two points, the memory test and the personal question. The first acceleration is less abrupt than it appears because disengagement begins with the financial questions, as almost 16% of the full sample declined to report their financial wealth ("prefer not to say" or PNTS). The drop in participation in the memory test falls disproportionately on these less-engaged respondents: the share of PNTS responses falls from 15.8% in column (1) to 14.4% in column (2), indicating that those already reluctant to answer earlier questions were also the most likely to abandon the survey at the memory task. Thus, the attrition at this final stage reflects pre-existing disengagement rather than a reaction to the memory test itself.

Reassuringly, the four samples are otherwise well balanced: age, sex, marital status, education, financial wealth, memory score, and unawareness are all very similar across columns. The only substantive exception is the second acceleration, corresponding to the personal question. Respondents who report having experienced some signs of cognitive decline are also less likely to reach this point: their share falls from 25.0% among those answering the vignette question to 19.7% among those answering

the personal question. This is consistent with respondents who experienced a decline being more reluctant to answer questions which explicitly refer to their own case than to advise a hypothetical third party.

This form of selective attrition is unlikely to threaten the internal validity of our experiment, as treatment assignment is randomized (Table C.2 shows that treatment assignment is balanced within each analysis sample). Although it may matter for external validity in the personal-question (because respondents with direct experience of decline are arguably those for whom the information treatment is most behaviorally relevant), we believe that this kind of attrition is of second-order importance for two reasons. First, those who drop out at the personal question have already experienced some signs of cognitive decline, so for them this question is not a prospective scenario but rather the recollection of past decisions. Indeed, our main estimated treatment effects are qualitatively unchanged when we exclude respondents who report having experienced some signs of decline (Table C.11). Second, this group is also largely different from the unaware respondents who drive our heterogeneity results, since experiencing a cognitive decline is associated with recognizing it (Table C.3).

5 Descriptive analysis

This section serves to establish that our survey respondents consist of financial investors for whom cognitive risk and delegation are salient (Section 5.1), that unawareness is an important phenomenon (Section 5.2), and that our experimental outcomes – the responses to the vignette and personal questions – are sensible (Section 5.3).

In addition to the graphical evidence presented in this section, Appendix C shows the results of estimating simple predictive regressions relating our key outcomes to the individual characteristics of the respondents.[8]

5.1 Demographic and financial characteristics

Figure 1 shows that our sample consists predominantly of males (about 91%), aged 50+ (about 95%), highly educated (about 64% of them have a graduate or professional degree, while another 30% have a bachelor's degree) and currently married or partnered (about 81%). In fact, about half of our sample consists of males, aged 50+, with a bachelor's degree or higher, and currently married or partnered. Compared to the

[8] All these regressions include as covariates the respondent's age and age squared, plus binary indicators for being male, having a postgraduate degree, having a spouse or partner, having a paid professional financial advisor, and the state of current residence. Additional covariates may be included depending on the outcome. Age and trust are expressed as deviations from their sample means. For each regression we report the sample size (Obs.), the number of estimated coefficients excluding the intercept (k), the root mean square error (RMSE) and the coefficient of determination (R^2).

2018 HRS financial respondents with financial wealth above $50k, our respondents are much more likely to be male, aged 65–85, and to hold a graduate degree (Figure D.1). Nearly two thirds of them report household financial wealth of $2M or more (Panel E).

Panel F of Figure 1 groups delegation arrangements into four mutually exclusive categories: "Formal delegation" denotes reliance on a paid professional financial advisor and/or assignment of a POA to such an advisor; "Informal delegation" denotes assignment of a POA to any agent other than a financial advisor; "Both" denotes the simultaneous use of formal and informal delegation channels; and "Self-management" denotes the absence of either arrangement. About 42% of respondents self-manage their financial wealth, 31% rely on informal delegation only, 12% on formal delegation only, and 15% use both arrangements. This confirms that substantial informal delegation mechanisms are already in place for a large fraction of respondents.

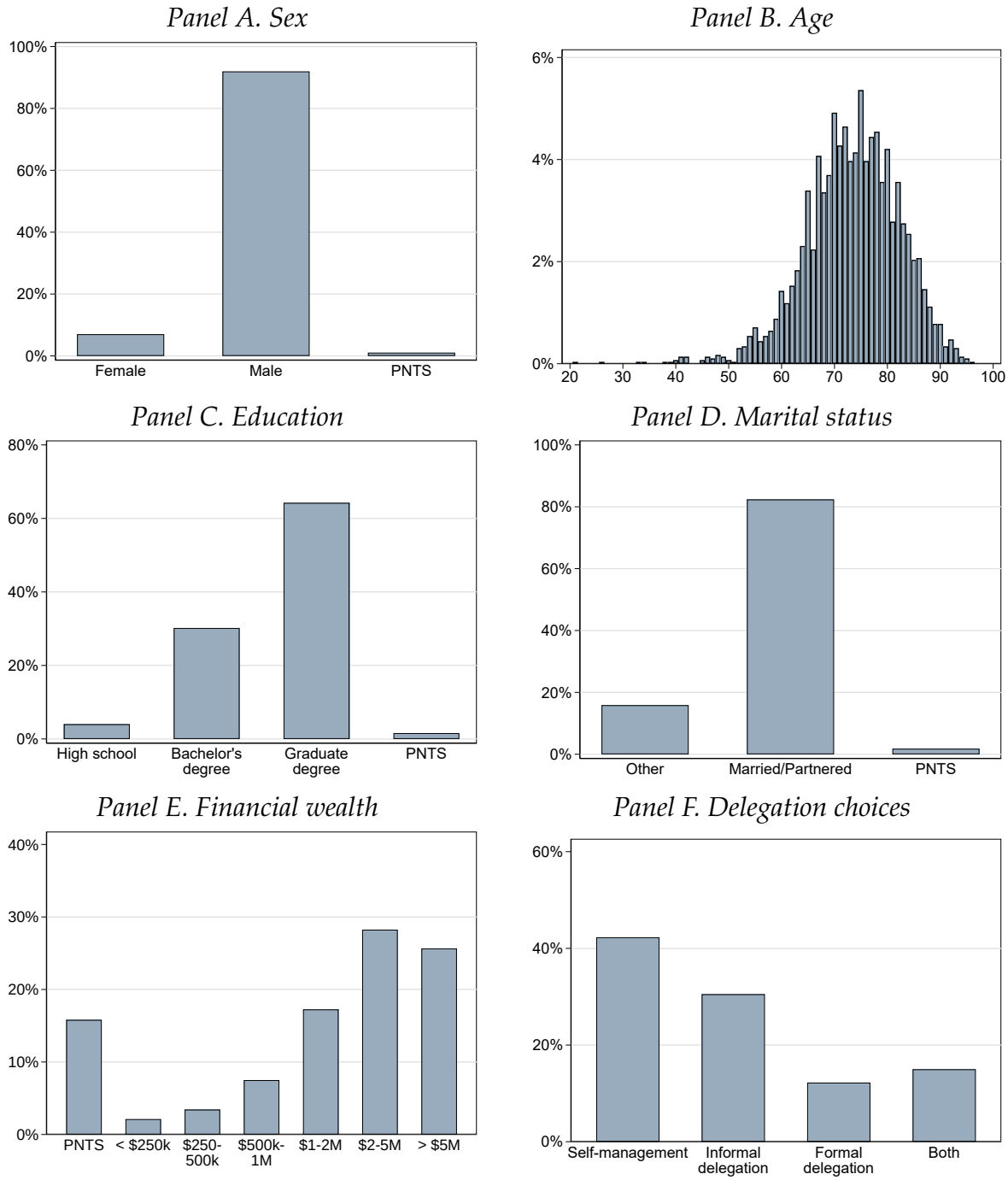
Table C.4 shows the association between delegation choices and the characteristics of the respondents. Consistent with our conceptual framework in Section 3, respondents who are older or wealthier are less likely to self-manage. In particular, those who have experienced some signs of cognitive decline are about 5 pps less likely to self-manage and 3–4 pps more likely to rely on an advisor – a first descriptive hint of the link between awareness and delegation.

The composition of the portfolios of the respondents, and its relation to delegation and trust, is documented in Table C.5. The patterns are in line with the household finance literature (e.g., Gaudecker, 2015; Gennaioli, Shleifer and Vishny, 2015; Guiso, Sapienza and Zingales, 2008): Investors who rely on a paid advisor hold less liquidity and substantially more stocks and government bonds, consistent with more diversified or risk-tolerant portfolios under professional guidance, while more trusting investors tilt away from liquid holdings.

5.2 Memory status and awareness

Panel A of Figure 2 shows the distribution of self-rated memory. Only 7% of respondents with non-missing answers rate their memory as "Poor" or "Fair," while 64% rate it as high (47% as "Very good" and 17% as "Excellent"). Panel B shows the distribution of the memory score, ranging from 0 (no words recognized) to 8 (all words recognized). About 15% of the sample did not complete the task. Among those who did, the mean score is 6.5 and the median is 7, with 20.3% scoring 5 or less and 26.5% scoring 8. Panel C cross-tabulates the two measures. We define an individual as unaware of her memory problems if she rates her memory as high ("Very good" or "Excellent") but recognizes at most five words in the memory task. Based on this definition, 11.9%

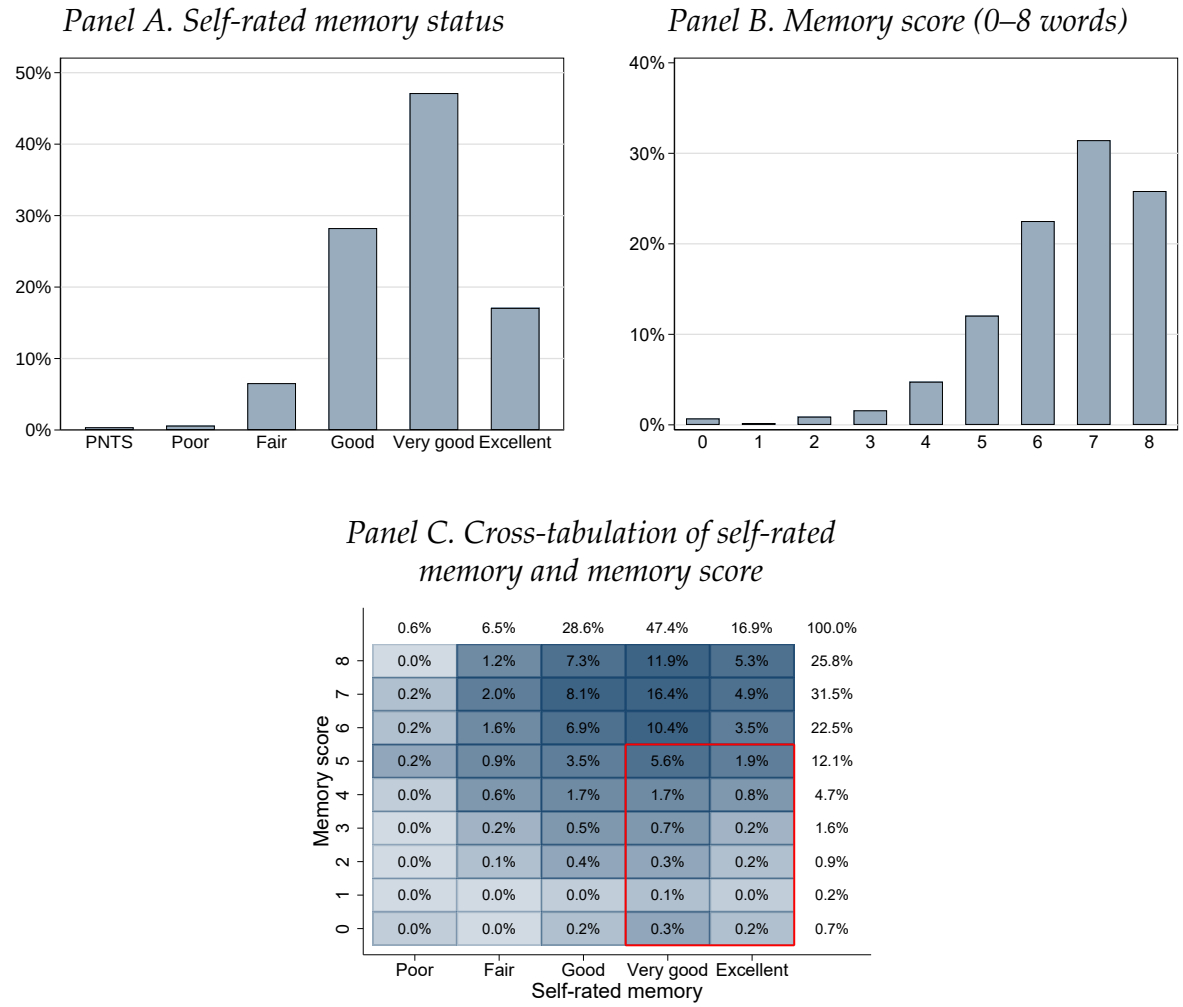
Figure 1: Sample characteristics: demographics, financial wealth, and delegation.



Note. The figure reports the sample distribution of respondent socio-economic and demographic characteristics in the AAII survey: sex, age (in years), highest completed education, marital status, total household financial wealth, and delegation choices. *Informal delegation* indicates a durable POA assigned to a family member, friend, child, or other non-professional contact, without reliance on a paid professional financial advisor. *Formal delegation* indicates reliance on a paid professional financial advisor and/or a durable POA assigned to a professional agent. *Both* indicates simultaneous use of formal and informal delegation channels, and *Self-management* indicates neither arrangement.

of the respondents are classified as unaware.[9]

Figure 2: Subjective and objective measures of memory status.



Note. Panel A shows the distribution of self-rated memory status on a 5-point Likert scale (Poor, Fair, Good, Very good, Excellent). Panel B shows the distribution of the objective memory score from the memory task, defined as the number of target words correctly recognized out of 8 (range 0–8). Panel C cross-tabulates subjective and objective memory measures in the AAII survey. Columns report self-rated memory categories, while rows report the memory-task score. Cell entries report the percentage of respondents in each joint category, computed among respondents with non-missing self-assessment and test score. The highlighted region corresponds to the "unaware", i.e. those with a self-rated memory equal to "Very good" or better but a low test score (at most 5 correct out of 8).

Because unawareness is a key construct in our paper, it is natural to ask how it compares to the HRS. A direct comparison of unawareness rates is uninformative because the memory tasks are different in the two surveys (the HRS elicits recall from a 10-word list, whereas our survey elicits recognition from an 8-word list), so comparable cutoffs cannot be defined. However, two pieces of evidence suggest that our respondents may be particularly over-optimistic about their cognitive abilities, com-

[9] In Section 6.2 we examine the robustness of our main results to alternative definitions of unawareness based on different cutoffs for self-rated memory and the memory score.

pared to HRS respondents. First, on the identical five-point self-assessment scale, our respondents are much more confident: 64% rate their memory as "Very good" or "Excellent," against 37% of HRS financial respondents with financial wealth above $50k, and the median rating is "Very good" in our survey versus "Good" in the HRS (Figure D.1). Second, about 25% of our respondents report having experienced some signs of cognitive decline against the roughly 20% of HRS respondents who report that their memory has worsened relative to the previous wave.

The complementary evidence in Figure D.2 also suggests that our respondents may be more optimistic about their cognitive abilities. Panel A of that figure shows that AAII respondents who have not experienced some signs of cognitive decline tend to rate their memory more favorably, while Panel B shows that their performance in the test is virtually indistinguishable from that of respondents who report the experience of cognitive decline.

Table C.3 shows that the correlates of memory status are as expected: older investors have worse memory on both subjective and objective measures, while neither age nor education predicts awareness, a result consistent with Mazzonna and Peracchi (2024). One notable pattern is that female respondents report higher objective and self-rated memory and lower unawareness, consistent with greater male overconfidence (Barber and Odean, 2001). In addition, those who experienced some signs of cognitive decline also have substantially lower self-ratings and are less likely to be classified as unaware.

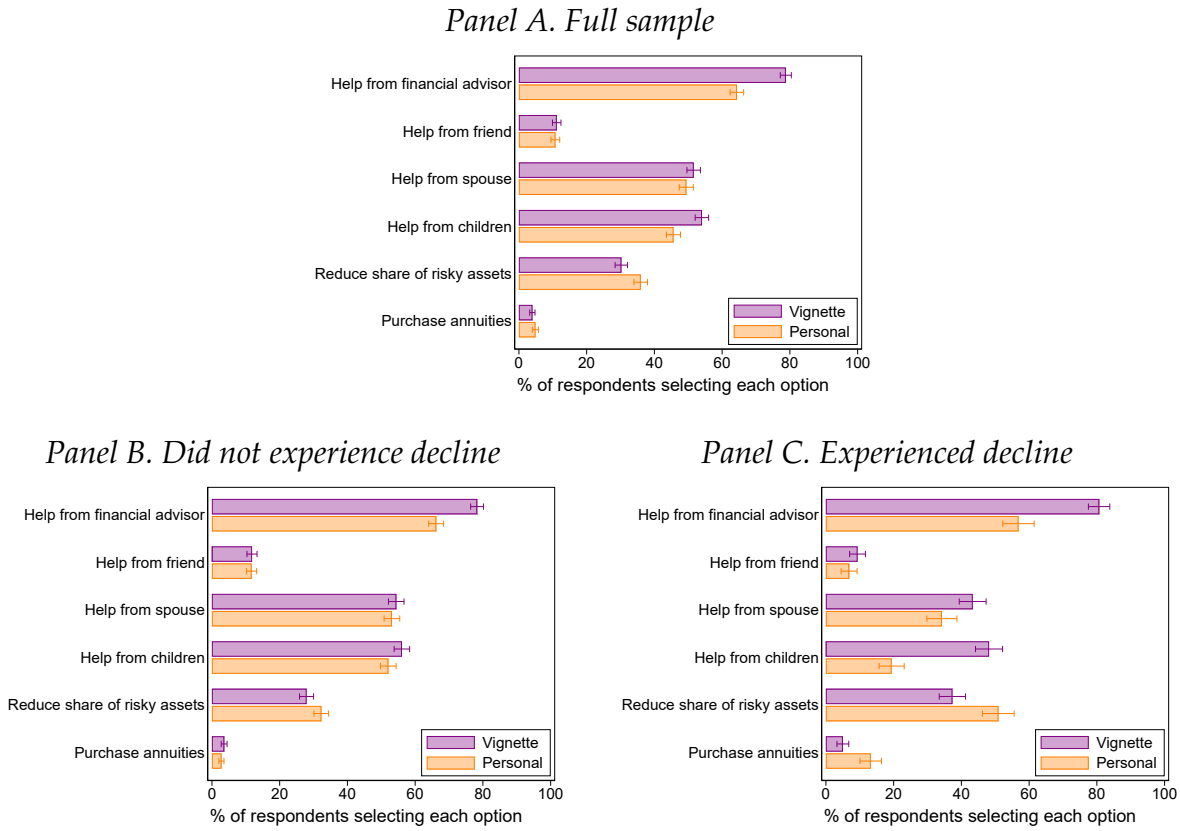
Ultimately, however, the most direct evidence that unawareness is present and economically meaningful in our sample comes from the experiment in Section 6: If respondents correctly assessed their memory, personalized feedback on their own performance would be uninformative and therefore would not move their stated choices.

5.3 Vignette and personal questions

We conclude our descriptive analysis by turning to the vignette and personal questions we asked in our experiment. Panel A of Figure 3 shows the fraction of respondents who select the options available for each question. The modal choice (exceeding 60%) is always to get help from a professional financial advisor, but to get help from a spouse or child is also common (each around 50%, with high variance since it depends on family structure). On average, 30% would reduce their share of risky assets, about 10% would get help from a friend and fewer than 5% would purchase annuities, consistent with the well-documented annuitization puzzle (Benartzi, Previtero and Thaler, 2011).[10]

[10] The analysis of an open-ended follow-up question attributes the reluctance to buy annuities mainly to their perceived high cost and low returns, the availability of other income sources, and skepticism

Figure 3: Responses to vignette and personal questions.



Note. The figure reports the fraction of respondents selecting each option, separately for the vignette question (advice to a hypothetical person) and the personal scenario question (intended or actual own behavior). Respondents could select up to three options, so categories are not mutually exclusive. Panel A uses the full sample for each question. Panels B and C stratify by whether the respondent reports having experienced signs of cognitive decline (Yes/No) in the personal module.

A key finding is the response divergence between the two questions. Although the available options are the same, respondents select fewer of them in the personal question (0.3 fewer on average), with the drop concentrated in delegation: the respondents are 14 pps less likely to recommend a financial advisor to themselves than to the hypothetical subject. Because the personal question records the intended behavior of those who did not experience some cognitive decline but the self-reported behavior of those who did, Panels B and C of Figure 3 stratify the sample by the experienced decline. The vignette–personal gap is largest among those who experienced some decline (Panel C): relative to the advice they give to a stranger, they are less likely to involve family or an advisor and more likely to reduce risk or buy annuities.

The results from the linear probability models in Tables C.6 and C.7 are in line with our expectations: married respondents delegate within the household, those with an existing advisor favor formal delegation, while those who experienced some decline choose safer responses – less family involvement and more risk reduction.

about these financial products (Figure D.3).

Overall, the evidence from this section delivers two messages. First, awareness is imperfect: a non-negligible fraction of respondents self-rate their memory as high and report no experience of decline despite test scores indistinguishable from those who report some decline. Second, the personal question elicits systematically more conservative, and notably less advisor-oriented, choices than the vignette question, indicating that respondents report genuine personal intentions rather than conventional advice they would offer a stranger.

6 Information treatments

The experimental design described in Section 4.1 allows us to identify the individual and joint causal effects of our two information treatments, the education and score treatments, on stated preferences over portfolio risk and delegation. In the conceptual framework of Section 3, a higher risk of cognitive decline lowers the expected quality of the private signal, and therefore the share invested in the risky asset, and increases the value of delegating portfolio management to an agent. If investors underestimate this risk, information that moves their perceptions closer to the truth should lead them to reduce portfolio risk and shift toward delegation.

To simplify the presentation, we group the seven response options to the vignette and personal questions into three outcomes: "Formal delegation" is selecting help from a professional financial advisor, "Informal delegation" is selecting help from a spouse, child, or friend, while "Risk reduction" is selecting to reduce the risky share or buy annuities[11]. Because respondents may select up to three options, these outcomes are not mutually exclusive.

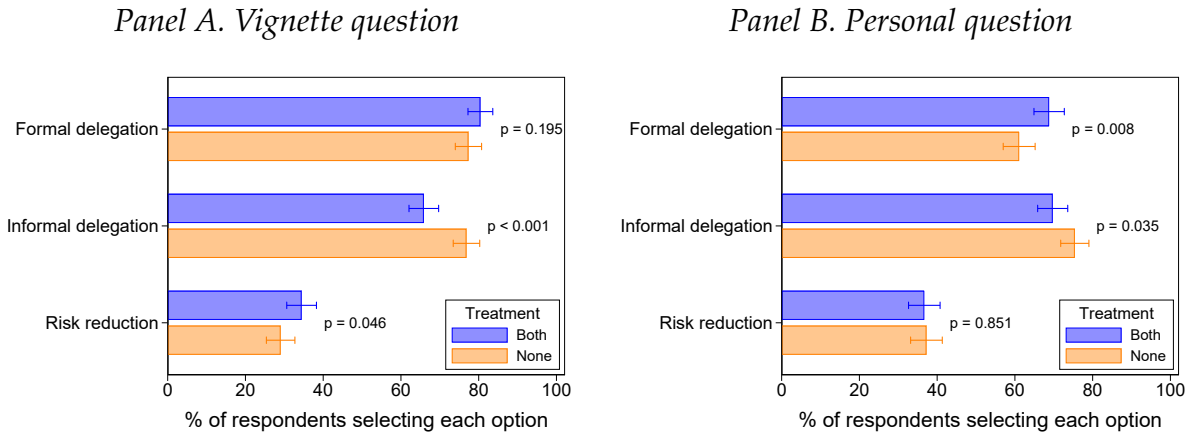
6.1 Estimating the effect of information treatments

To estimate the causal effect of our information treatments, we regress binary indicators for selecting a given option in the vignette and personal questions on a set of treatment dummies. Since treatment is randomly assigned, its average effect can be consistently estimated by the mean difference in outcomes between treatment groups.

Figure 4 describes the effect of the combined treatment on the probability of selecting each option, for the vignette and the personal questions separately. Raising awareness of the financial consequences of cognitive decline induces a shift away from informal arrangements toward professional delegation and risk reduction.

[11]Note that the risk-reduction outcome is a stated intention, not an observable change in asset holdings. In Section 7, we check whether the risky share, directly observable in the HRS, responds to awareness as stated intentions suggest.

Figure 4: Effect of combined treatment versus no treatment.



Note. This figure shows the percentage of respondents in the treatment and control group selecting each option. Panel A shows responses in the vignette question, while Panel B shows responses in the personal question. Outcomes are indicators for (i) Formal delegation (selected help from a professional financial advisor), (ii) Informal delegation (selected any of help from spouse/children/friend), and (iii) Risk reduction (selected reduce risky share and/or buy annuities). Bars show the share selecting each option within treatment and control groups, with 95% confidence intervals. For each outcome, the reported p-value is from a two-sided t-test of the null hypothesis that the fraction of respondents selecting that option is equal in the treatment and control groups.

In the vignette question (Panel A), the combined treatment decreases the probability of selecting informal delegation by 11 pps (corresponding to a 14.3% decrease relative to the control group) and increases the probability of risk reduction by 5.4 pps (corresponding to a 18.6% increase relative to the control group), while the effect on formal delegation is positive but imprecisely estimated.

In principle, we would like to assess whether information treatments have an impact on actual behavior. We cannot do this in our survey, as we only have a single cross-section, not longitudinal data. However, the personal question is perhaps a more credible test because it records what investors say they would do or did (for those who experienced signs of decline) and because it elicits systematically more conservative and less advisor-oriented choices at baseline (Section 5.3).

In the personal question (Panel B), the combined treatment increases the probability of selecting formal delegation by 7.7 pps (corresponding to a 12.6% increase relative to the control group) and reduces the probability of selecting informal delegation by 5.7 pps (corresponding to a 7.6% reduction relative to the control group), whereas the effect on the probability of selecting risk reduction is not statistically significant.

Comparing the two outcomes reveals that the treatments induce convergence between personal intentions and the normative advice in the vignette question. Respondents in the control group are less likely to choose formal delegation for themselves than for the hypothetical subject in the vignette. By significantly boosting intended formal delegation, the combined treatment effectively closes the gap.

While Figure 4 focuses on the combined treatment, Table C.8 considers the separate effects of its two components – the education and score treatments. The coefficients on the constant term measure the expected outcome for an untreated (control) respondent, while the coefficients on the treatment indicator measure the expected difference between the treated and the untreated. Panel A shows that the education treatment is statistically significant for the vignette question, whereas Panel B shows that the effect of the score treatment is less precisely estimated, suggesting that the strongest effects emerge when the two pieces of information are delivered jointly. This also raises the question of whether the effects of our two information treatments are uniform across investors or instead concentrated among those who are currently unaware of their cognitive decline – the question we turn to next.

6.2 Treatment effects by awareness status

Table 1 contains the central result of our paper. It focuses on the personal question, for which the link to behavior is strongest, and interacts each treatment indicator with our indicator of unawareness.[12]

Consider first the treatment effect among the aware, captured by the coefficients on the variables "Education", "Score" and "Both". Among this group, the effect is positive for formal delegation (+6.3 pps), negative for informal delegation (-5.2 pps), and both effects are statistically significant. Among the unaware, the picture is quite different: those who receive no treatment are markedly less prudent than the aware – they are 11.9 pps less likely to choose formal delegation and 10.7 pps less likely to reduce risk. Moreover, the estimated effects are much larger than for the aware. Among the unaware, the score treatment increases the probabilities of selecting formal delegation by 19.3 pps and of risk reduction by 18.1 pps, relative to the aware. By contrast, the education treatment has no significant differential effect on the unaware.

One concern is that our heterogeneity results may depend on the specific thresholds used to define unawareness. Panel A of Table C.9 estimates the interaction between the score treatment and unawareness using different combinations of subjective and objective memory cutoffs. The score treatment consistently increases formal delegation among unaware respondents, with interaction effects ranging from 15.5 to 32.9 pps and remaining statistically significant. The estimated effects on risk reduction also remain positive, but less precisely estimated under the alternative definitions, while the effect on informal delegation is generally small except under the most restrictive definition.

[12] Since the unaware are relatively few (roughly 300 respondents or 11.9% of the personal-question sample), the interactions are estimated less precisely than the average effects. Columns (1), (3), and (5) of the table also show the results for the regressions without interactions.

Table 1: Effects of the information treatments on the answers to the personal question.

	(1)	(2)	(3)	(4)	(5)	(6)
	Formal delegation		Informal delegation		Risk reduction	
Education	0.040	0.026	-0.017	-0.015	0.011	0.006
	(0.029)	(0.031)	(0.026)	(0.028)	(0.029)	(0.031)
Score	0.015	-0.007	-0.006	-0.006	0.030	0.009
	(0.029)	(0.031)	(0.026)	(0.028)	(0.029)	(0.031)
Both	0.077***	0.063**	-0.057**	-0.052*	-0.006	-0.024
	(0.029)	(0.031)	(0.027)	(0.029)	(0.029)	(0.031)
Unaware		-0.119*		0.087*		-0.107*
		(0.066)		(0.051)		(0.060)
Education × Unaware		0.091		-0.019		0.045
		(0.092)		(0.074)		(0.087)
Score × Unaware		0.193**		-0.019		0.181**
		(0.091)		(0.074)		(0.090)
Both × Unaware		0.111		-0.049		0.176**
		(0.091)		(0.078)		(0.089)
Constant	0.611***	0.627***	0.754***	0.744***	0.372***	0.384***
	(0.021)	(0.022)	(0.018)	(0.020)	(0.021)	(0.022)
Obs.	2,197	2,185	2,197	2,185	2,197	2,185
RMSE	0.478	0.478	0.442	0.442	0.486	0.486
R^2	0.004	0.006	0.002	0.005	0.001	0.004

Note. The table estimates treatment effects on responses to the personal-scenario question. Outcomes are indicators for (i) Formal delegation (selected help from a professional financial adviser), (ii) Informal delegation (selected any of help from spouse/children/friend), and (iii) Risk reduction (selected reduce risky share and/or buy annuities). Respondents could select up to three options, so outcomes are not mutually exclusive. Regressors include indicators for assignment to the educational-information treatment ("Education"), the personalized score feedback treatment ("Score"), or their combination ("Both"), with "None" as the omitted group. "Unaware" is an indicator for respondents who self-rate memory as "Very good" or better while scoring at most 5 out of 8 on the memory task. Robust standard errors are in parentheses. $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.10$.

We carry out two falsification tests. First, Table C.10 replicates the analysis of Table 1 replacing the responses to the personal question with those to the vignette question. Now the coefficients on the interaction Score $\times$ Unaware are essentially zero across all three outcomes, in contrast to the large and significant effects documented in Table 1. The fact that information about the memory score of the respondent moves stated behavior only in the personal question, rules out a simple experimenter-demand effect: if the score merely signaled the "correct" answer, it would also shift advice to others – which it does not. Second, Table C.11 further shows that our main results are qualitatively unchanged when we exclude respondents who report having already experienced signs of cognitive decline. For these respondents, the treatment is administered after the relevant actions have occurred and therefore cannot affect past behavior (although it may affect how that behavior is reported).

Our results suggest that the two information treatments matter for different audiences. The combined treatment affects respondents who are already aware of their memory problems, whereas the score treatment generates the strongest response among the unaware.

7 Stated choices vs. reported behavior

In this section, we examine whether the stated choices of our AAII respondents are consistent with the behavior reported in the HRS. Following Mazzonna and Peracchi (2024), we define a severe memory loss as a drop of more than 20% in the memory test score relative to the previous wave and classify respondents as aware or unaware based on whether they report their memory as worse compared to the previous wave. To avoid complications due to Covid-19, we focus on the 12 HRS waves spanning the period from 1996 to 2018. Details on data and sample construction are provided in Appendix E.

We estimate a DiD model comparing outcomes before and after the first severe memory-loss event for three groups: those who experienced a severe memory-loss event during the observation period and are unaware of it, those who also did but are aware of it, and those who never did (the "never treated", serving as the control group). Specifically, we estimate the following model:

$$Y_{it} = \beta_1 \text{Post}_{it} + \beta_2 \left(\text{Post}_{it} \times \text{Unaware}_i\right) + \boldsymbol{\delta}^\top \mathbf{Z}_{it} + \eta_i + \gamma_t + \epsilon_{it}, \tag{1}$$

where Y_{it} is the outcome of interest for individual i in period t, Post_{it} is an indicator equal to one after the first severe memory-loss event, Unaware_i is an indicator equal to one if individual i is unaware of having experienced a severe memory loss, $\mathbf{Z}_{it}$ is a vector of time-varying controls (which include quadratic age terms for both spouses,

and indicators for labor force status, marital status, and census division), η_i and γ_t are individual and time fixed-effects, ϵ_{it} is a regression error, and β_1, β_2 and δ are unknown parameters.

Our coefficients of interest are β_1 (which measures the expected change in the outcome for the aware after a memory loss event relative to the never-treated) and β_2 (which measures the differential expected post-event change in the outcome for the unaware relative to the aware). The key assumption for a causal interpretation of β_2 is that, absent a severe memory-loss event, expected outcomes for the aware and the unaware would have evolved in parallel relative to the never-treated. To avoid potential bias from sample selection, while preserving precision and enough observations to estimate pre-trends, we restrict the observation window to include 6 years before and 6 years after the first severe memory-loss event.

Motivated by the results in Section 3, we consider two outcomes. The first is the share of risky assets, measured by the percentage of household financial wealth held in stocks or bonds. Since the median household does not hold risky financial assets, we only estimate the model for financial respondents with household financial wealth above the median (the "risky-share sample"). In this specification, the time-varying covariates include a quadratic in age and indicators for labor-force status, marital status, and census division. The second outcome is the indicator of a change in the household financial respondent across waves (Hsu and Willis, 2013; Angrisani and Lee, 2019). Although only about 3% of households ever change their financial respondent during the observation period, more than half of the changes occur after a severe memory-loss event (Table E.1). To reduce the concern that these changes reflect other events, such as widowhood or divorce, we restrict attention to those who are financial respondent and live with a spouse at baseline.

Table 2 shows the results of estimating model (1) for our two outcomes. The estimated coefficient on Post $\times$ Unaware in column (1) shows that the aware reduce their average risky asset holdings by 1.7 pps more than the unaware (about 7% of the average risky asset share of 24.4%), an effect that is statistically significant at the 5% level. Column (3) also shows that the aware are 0.7 pps more likely than the unaware to transfer financial responsibility to their spouse after experiencing a severe memory-loss event, an effect that is also statistically significant. Although this effect is small, the baseline switching rate is below 1%, so the implied relative increase is substantial.

Since the treatment period is individual-specific, biases could result if the treatment effects are not constant over time (Goodman-Bacon, 2021). To address this concern, columns (2) and (4) show the results obtained using the interaction-weighted estimator proposed by Sun and Abraham (2021) to address heterogeneity issues. Results do not change under this alternative specification.

Table 2: DiD estimates for risky asset share and delegation.

	Risky share		*Delegation*	
	(1) DiD	(2) Sun-Abraham	(3) DiD	(4) Sun-Abraham
Post	-0.032***	-0.032***	0.012***	0.009***
	(0.008)	(0.008)	(0.003)	(0.002)
Unaware × Post	0.017**	0.018**	-0.007**	-0.006**
	(0.008)	(0.008)	(0.003)	(0.002)
Mean dep. var.	0.244	0.244	0.008	0.008
Obs.	49,021	49,021	32,105	32,105

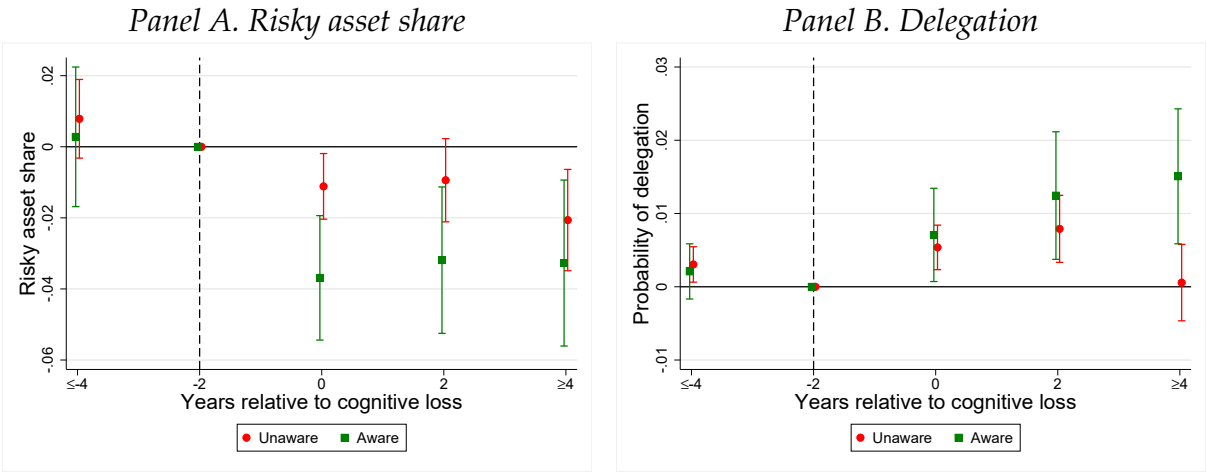
Note. The table reports estimates from DiD specifications for two outcomes: the household risky asset share and delegation of financial decision-making to the spouse. In columns (1) and (3), the estimated model is the one specified in equation (1). Columns (2) and (4) report analogous post-treatment effects using the interaction-weighted estimator of Sun and Abraham (2021). The risky-share regressions are estimated on the sample of financial respondents with household financial wealth above the median. The delegation regressions are estimated on the sample of respondents who are in a couple at baseline, are the financial respondent at baseline, have an observed spouse at baseline, and contribute observations only in waves in which they remain in a couple. All regressions include the covariates described in the text, individual fixed effects, and calendar-time fixed effects. Standard errors are clustered at the household level. $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.10$.

Figure 5 shows the results from a multi-period extension of model (1). To avoid identification issues that arise in fully saturated event-study specifications with fixed time effects (Borusyak, Jaravel and Spiess, 2024), we adopt a binned event-study design. In particular, we group the outer leads and lags by combining periods -6 and -4 into a single bin, and periods +4 and +6 into another, while keeping the intermediate event periods separate.

For the risky asset share, we find no evidence of differential trends in the waves preceding the first severe memory-loss event, supporting our key identifying assumption. Aware respondents reduce their risky asset share immediately after the first severe memory-loss event, while unaware respondents begin to converge only after roughly four years. For delegation, pre-event coefficients are generally small, although the estimates suggest some modest pre-trend for the unaware. After a severe memory-loss event, aware respondents progressively increase the delegation of financial decision-making to their spouse, and this effect increases over time.

As a validation check, we estimate the same event-study specification using self-reported difficulty managing money as the outcome (Figure E.2). After the first severe memory-loss event, aware respondents are 5 pps more likely to report such difficulties (relative to a baseline of 5%), while the corresponding change for the unaware is close to zero. This supports the interpretation that our awareness measure captures recog-

Figure 5: Multi-period DiD estimates for risky asset share and delegation.



Note. The figure shows the estimates from the multi-period extension of model (1) for two outcomes: the share of risky assets (Panel A) and the delegation of financial decision-making to the spouse (Panel B). The horizontal axis reports event time relative to the first severe memory-loss event, occurring at $k = 0$. The omitted period is the wave immediately preceding that event ($k = -2$). Vertical bars denote 95% confidence intervals based on standard errors clustered at the household level. The risky-share regressions are estimated on the sample of financial respondents with household financial wealth above the median. The delegation regressions are estimated for the subset of respondents who are the financial respondents, are in a couple and have an observed spouse at baseline, and contribute observations only while they remain in a couple. All specifications include the same controls as model (1).

nition of the financial consequences of cognitive decline, rather than a mechanical response to the memory test. Appendix E.3 shows that the main results are robust to alternative memory-loss thresholds, persistent-loss definitions, outcome definitions, and event-time windows.

8 Conclusions

Failure to recognize signs of cognitive decline and take appropriate actions puts older investors at significant risk of financial wealth losses. The conceptual framework in Section 3 suggests that these losses may arise because unaware investors hold excessive portfolio risk and delay the transfer of financial control to trusted agents.

Our paper presents the results of an experimental survey of affluent older US investors that studies whether randomized information treatments aimed at raising awareness shift stated intentions toward more careful financial decision-making. The survey yields two main findings. First, the combined treatment, namely personalized feedback on respondents' own memory performance paired with information about the financial consequences of memory decline, increases stated preferences for formal delegation. Second, and most importantly, these effects are concentrated among investors who are unaware of their cognitive decline. For these investors, only personalized memory feedback generates behavioral responses, while general educational

information alone has limited effects.

These results are confirmed by longitudinal data from the HRS: after a severe memory loss, respondents who are aware of their cognitive decline are more likely to report reducing their portfolio risk and delegating financial management to their spouse, compared to unaware respondents.

In their influential paper, Agarwal et al. (2009) identified several unresolved questions: whether people recognize their own decline, whether cognitive tests can identify individuals at risk of making financial mistakes, whether financial education can improve their decisions, and what might be the appropriate regulatory response. Our findings directly address some of these questions and have two main implications for policies intended to protect older investors from the financial consequences of cognitive decline.

First, the scope of financial literacy programs should be expanded to include preparing for cognitive aging. Our survey respondents are older, financially sophisticated and wealthy investors – precisely the population most at risk of financial wealth losses due to cognitive decline. Conventional financial literacy programs, which typically focus on concepts such as compound interest, inflation, and risk diversification (Lusardi and Mitchell, 2014), are unlikely to address this particular source of vulnerability. Older investors should also be informed that cognitive decline may affect financial decision-making well before the onset of severe incapacity and that delaying protective action can be costly. Such knowledge could encourage them to set up contingency plans while they are still able to do so.

Second, repeated cognitive assessments are needed to monitor older individuals at risk of cognitive decline. Our results suggest that general information is unlikely to produce sizable behavioral responses among unaware respondents unless accompanied by personalized feedback. We therefore encourage the development of periodic screening programs that combine brief objective memory assessments with measures of self-rated memory. A substantial discrepancy between the two may then serve as an early warning signal of unawareness.

References

Agarwal, Sumit, John C. Driscoll, Xavier Gabaix, and David Laibson. 2009. "The age of reason: Financial decisions over the life cycle and implications for regulation." *Brookings Papers on Economic Activity*, 40(2): 51–117.

Ahmed, Javed, Brad M. Barber, and Terrance Odean. 2018. "Made poorer by choice: Worker outcomes in social security vs. private retirement accounts." *Journal of Banking & Finance*, 92: 311–322.

Ameriks, John, Andrew Caplin, Minjoon Lee, Matthew D. Shapiro, and Christopher Tonetti. 2023. "Cognitive decline, limited awareness, imperfect agency, and financial well-being." *American Economic Review Insights*, 5(1): 125–140.

Angrisani, Marco, and Jinkook Lee. 2019. "Cognitive decline and household financial decisions at older ages." *Journal of the Economics of Ageing*, 13: 86–101.

Barber, Brad M., and Terrance Odean. 2001. "Boys will be boys: Gender, overconfidence, and common stock investment." *Quarterly Journal of Economics*, 116(1): 261–292.

Benartzi, Shlomo, Alessandro Previtero, and Richard H. Thaler. 2011. "Annuitization Puzzles." *Journal of Economic Perspectives*, 25(4): 143–64.

Ben-Porath, Yoram. 1967. "The production of human capital and the life cycle of earnings." *Journal of Political Economy*, 75(4): 352–365.

Białkowski, Jędrzej, Huong Dieu Dang, and Xiaopeng Wei. 2022. "High policy uncertainty and low implied market volatility: An academic puzzle?" *Journal of Financial Economics*, 143(3): 1185–1208.

Borusyak, Kirill, Xavier Jaravel, and Jann Spiess. 2024. "Revisiting Event-Study Designs: Robust and Efficient Estimation." *Review of Economic Studies*, 91(6): 3253–3285.

Carlin, Bruce, Tarik Umar, and Hanyi Yi. 2023. "Deputizing financial institutions to fight elder abuse." *Journal of Financial Economics*, 149(3): 557–577.

Cheipesh, Oleksandra, Yarine Fawaz, and Pedro Mira. 2025. "Thinking, Fast and Slow: How Response Times Can Predict Cognitive Decline and (Bad) Financial Decision-Making at Older Ages." Unpublished manuscript.

DeLiema, Marguerite, Martha Deevy, Annamaria Lusardi, and Olivia S. Mitchell. 2020. "Financial Fraud Among Older Americans: Evidence and Implications." *The Journals of Gerontology: Series B*, 75(4): 861–868.

Egan, Mark, Gregor Matvos, and Amit Seru. 2019. "The market for financial adviser misconduct." *Journal of Political Economy*, 127(1): 233–295.

Egan, Mark, Gregor Matvos, and Amit Seru. 2024. "The problem of good conduct among financial advisers." *Journal of Economic Perspectives*, 38(4): 193–210.

Federal Reserve Board. 2026. "Distribution of Household Wealth in the U.S. since 1989." *Distributional Financial Accounts*, 2025: Q4 data.

Finke, Michael S., John S. Howe, and Sandra J. Huston. 2017. "Old Age and the Decline in Financial Literacy." *Management Science*, 63(1): 213–230.

Gamble, Keith Jacks, Patricia A. Boyle, Lei Yu, and David A. Bennett. 2015. "Aging and Financial Decision Making." *Management Science*, 61(11): 2603–2610.

Gaudecker, Hans-Martin von. 2015. "How does household portfolio diversification vary with financial literacy and financial advice?" *Journal of Finance*, 70(2): 489–507.

Gennaioli, Nicola, Andrei Shleifer, and Robert Vishny. 2015. "Money Doctors." *The Journal of Finance*, 70(1): 91–114.

Goodman-Bacon, Andrew. 2021. "Difference-in-differences with variation in treatment timing." *Journal of Econometrics*, 225(2): 254–277. Themed Issue: Treatment Effect 1.

Greenwood, Robin, and Andrei Shleifer. 2014. "Expectations of returns and expected returns." *Review of Financial Studies*, 27(3): 714–746.

Gresenz, Carole Roan, Jean M. Mitchell, Belicia Rodriguez, Crystal Wang, R. Scott Turner, and Wilbert van der Klaauw. 2025. "The financial consequences of undiagnosed memory disorders." *Journal of Financial Economics*, 172: 104149.

Guiso, Luigi, and Paolo Sodini. 2013. "Household finance: An emerging field." In *Handbook of the Economics of Finance*. Vol. 2, Chapter 21, 1397–1532. Elsevier.

Guiso, Luigi, and Tullio Jappelli. 2020. "Investment in financial information and portfolio performance." *Economica*, 87(348): 1133–1170.

Guiso, Luigi, Paola Sapienza, and Luigi Zingales. 2008. "Trusting the stock market." *Journal of Finance*, 63(6): 2557–2600.

Hanushek, Eric A., Lavinia Kinne, Frauke Witthöft, and Ludger Woessmann. 2025. "Age and cognitive skills: Use it or lose it." *Science Advances*, 11(10): eads1560.

Hong, Sanghyun, and Xiaopeng Wei. 2025. "Blockbuster or bust? Silver screen effect and stock returns." *Review of Finance*, 29(2): 603–632.

Honigsberg, Colleen, Edwin Hu, and Robert J. Jackson. 2025. "Regulatory leakage among financial advisors: Evidence from FINRA regulation of "bad" brokers." *Journal of Financial Economics*, 174: 104170.

Hsu, Joanne W., and Robert Willis. 2013. "Dementia risk and financial decision making by older households: The impact of information." *Journal of Human Capital*, 7(4): 340–377.

Huynh, Nhan, Lurion De Mello, and Kai Li. 2025. "Evolution of investor sentiment: A systematic literature review and bibliometric analysis." *International Review of Economics & Finance*, 100: 104115.

Inderst, Roman, and Marco Ottaviani. 2012*a*. "Financial advice." *Journal of Economic Literature*, 50(2): 494–512.

Inderst, Roman, and Marco Ottaviani. 2012*b*. "How (not) to pay for advice: A framework for consumer financial protection." *Journal of Financial Economics*, 105(2): 393–411.

Jiang, Zhengyang, Cameron Peng, and Hongjun Yan. 2024. "Personality differences and investment decision-making." *Journal of Financial Economics*, 153: 103776.

Kaiser, Tim, Annamaria Lusardi, Lukas Menkhoff, and Carly Urban. 2022. "Financial education affects financial knowledge and downstream behaviors." *Journal of Financial Economics*, 145(2, Part A): 255–272.

Karjalainen, Heidi. 2025. "Cognitive Decline and Financial Wealth at Older Ages." IFS Report.

Kim, Hugh H., Raimond Maurer, and Olivia S. Mitchell. 2016. "Time is money: Rational life cycle inertia and the delegation of investment management." *Journal of Financial Economics*, 121(2): 427–447.

Kim, Hugh H., Raimond Maurer, and Olivia S. Mitchell. 2021. "How financial literacy shapes the demand for financial advice at older ages." *Journal of the Economics of Ageing*, 20: 100329.

Korniotis, George M., and Alok Kumar. 2011. "Do older investors make better investment decisions?" *Review of Economics and Statistics*, 93(1): 244–265.

Li, Jing, Jonathan S. Skinner, Kathleen McGarry, Lauren Hersch Nicholas, Shao-Pang Wang, Evan Bollens-Lund, and Amy S. Kelley. 2023. "Declines in wealth among US older adults at risk of dementia." *JAMA Neurology*, 80(11): 1250–1252.

Li, Jing, Kathleen M McGarry, Lauren Hersch Nicholas, and Jonathan S Skinner. 2026. "Dementia and Long-run Trajectories in Household Finances." National Bureau of Economic Research Working Paper 34659.

Lusardi, Annamaria, and Olivia S. Mitchell. 2014. "The Economic Importance of Financial Literacy: Theory and Evidence." *Journal of Economic Literature*, 52(1): 5–44.

Martin, Ian. 2017. "What is the Expected Return on the Market?" *Quarterly Journal of Economics*, 132(1): 367–433.

Mazzonna, Fabrizio, and Franco Peracchi. 2012. "Ageing, cognitive abilities and retirement." *European Economic Review*, 56(4): 691–710.

Mazzonna, Fabrizio, and Franco Peracchi. 2024. "Are older people aware of their cognitive decline? Misperception and financial decision-making." *Journal of Political Economy*, 132(6): 1793–1830.

Nicholas, Lauren Hersch, Kenneth M. Langa, Julie P. W. Bynum, and Joanne W. Hsu. 2021. "Financial presentation of Alzheimer disease and related dementias." *JAMA Internal Medicine*, 181(2): 220–227.

Odean, Terrance. 1998. "Are investors reluctant to realize their losses?" *Journal of Finance*, 53(5): 1775–1798.

Peress, Joël. 2004. "Wealth, information acquisition, and portfolio choice." *Review of Financial Studies*, 17(3): 879–914.

Poterba, James M. 2014. "Retirement security in an aging population." *American Economic Review*, 104(5): 1–30.

Sun, Liyang, and Sarah Abraham. 2021. "Estimating dynamic treatment effects in event studies with heterogeneous treatment effects." *Journal of Econometrics*, 225(2): 175–199. Themed Issue: Treatment Effect 1.

A Model solution

To obtain closed-form solutions for the investor's problem, we employ the following assumptions and approximations. First, we normalize the risk-free return to one ($r = 1$). Second, we do not impose the constraint that the risky share must lie in the unit interval and use first- and second-order Taylor approximations of utility around the initial wealth ω. Third, as in Peress (2004), we employ a small excess-return approximation by assuming that $\mathbb{E}[X^2 \mid S] \approx \mathbb{V}[X \mid S]$. Fourth, since the joint distribution of X and S is not normal in our case, we employ the approximations $\mathbb{E}[X|S] \approx (1-\beta)\mu_X + \beta S$ and $\mathbb{V}[X|S] \approx (1-\beta)\sigma_X^2$, with $\beta = \sigma_X^2/\sigma_S^2$. Fifth, we assume that $\mu_X > 0$ (positive equity premium), as standard in household finance (Guiso and Sodini, 2013).

A.1 Solution under self-management

Write the indirect utility from self-management as:

$$V^s = \max_{\alpha, I} \; \mathbb{E}_S \left\{ \mathbb{E}\left[u(W) \mid S \right] \right\} - u'(\omega) c(I) \quad \text{s.t.} \quad W = (1 + \alpha X)\, \omega, \tag{A.1}$$

where the outer expectation is with respect to the marginal distribution of the signal and the inner one is conditional on the value of the signal. To solve the model, we proceed in two steps.

Step 1 (Optimal allocation rule). We take the information effort I as given and choose an optimal allocation rule $\alpha(\cdot)$ by solving

$$\max_{\alpha} \; \mathbb{E}\left[u\left((1 + \alpha X)\, \omega \right) \mid S = s \right].$$

The first-order condition for an interior solution is

$$\mathbb{E}\left[u'(W) \omega X \mid S = s \right] = 0. \tag{A.2}$$

Approximating the marginal utility around the initial wealth ω gives

$$u'(W) \approx u'(\omega) + u''(\omega)(W - \omega) = u'(\omega) + \alpha\, u''(\omega) X \omega.$$

Substituting into (A.2) and using the small excess-return approximation gives

$$u'(\omega)\omega\, \mathbb{E}[X \mid S = s] + \alpha\, u''(\omega)\omega^2\, \mathbb{V}[X \mid S = s] \approx 0.$$

Thus,

$$\alpha(s) \approx \tau(\omega)\, \frac{\mathbb{E}[X \mid S = s]}{\mathbb{V}[X \mid S = s]}, \quad \tau(\omega) = -\frac{u'(\omega)}{u''(\omega)\omega}. \tag{A.3}$$

Now assume that $S = X + \varepsilon$, where ε is independent of X with zero mean and finite variance σ_ε^2. Hence, $\mu_S = \mu_X$ and $\sigma_S^2 = \sigma_X^2 + \sigma_\epsilon^2$. Also assume that the precision of the signal can be increased through costly effort but an adverse cognitive shock $D \in \{0, 1\}$ can reduce the value of information acquisition, that is,

$$\frac{1}{\mathbb{V}[\epsilon|D]} = h(I)\,(1 - D) + \eta D,$$

where $h(\cdot)$ is smooth, increasing and concave and $0 \leq \eta < h(0)$. Thus, ε is a mixture of two distributions, with mixture probability equal to the probability that $D = 1$, and its precision (the reciprocal of its unconditional variance) is:

$$\frac{1}{\sigma_\varepsilon^2} = g(I, p) = \left[\frac{p}{\eta} + \frac{1 - p}{h(I)}\right]^{-1}.$$

To keep the notation simple, we do not distinguish here between the objective and subjective probability that $D = 1$.

Finally, we employ the approximations $\mathbb{E}[X|S = s] \approx (1 - \beta)\mu_X + \beta s$ and $\mathbb{V}[X|S = s] \approx (1 - \beta)\sigma_X^2$, where $\beta = \sigma_X^2/\sigma_S^2$ and $1 - \beta = \sigma_\varepsilon^2/\sigma_S^2$ depend on I and p. Substituting these expressions into (A.3) gives

$$\alpha(s) \approx \tau(\omega)\,\frac{(1 - \beta)\mu_X + \beta s}{(1 - \beta)\sigma_X^2} = \tau(\omega)\,\left[\frac{\mu_X}{\sigma_X^2} + g(I, p)\,s\right]. \tag{A.4}$$

and the expected value of the optimal allocation rule is

$$\overline{\alpha} = \mathbb{E}[\alpha(S)] \approx \tau(\omega)\,\left[\frac{1}{\sigma_X^2} + g(I, p)\right]\mu_X, \tag{A.5}$$

which depends on both I and p.

Step 2 (Optimal information effort). Approximating expected utility to second order around ω and using the optimal allocation rule (A.4) gives:

$$\begin{aligned}
\mathbb{E}[u(W)|S] &\approx u(\omega) + u'(\omega)\omega\alpha(S)\,\mathbb{E}[X|S] + \frac{1}{2}u''(\omega)\omega^2\alpha(S)^2\,\mathbb{V}[X|S] \\
&= u(\omega) + T(\omega)\Lambda(S)\left[u'(\omega) + \frac{1}{2}u''(\omega)T(\omega)\right] \\
&= u(\omega) + \frac{1}{2}T(\omega)u'(\omega)\Lambda(S),
\end{aligned}$$

where $T(\omega) = \omega\tau(\omega) = -u'(\omega)/u''(\omega)$ and

$$\Lambda(S) = \alpha(S)\,\mathbb{E}[X|S] = \frac{[(1 - \beta)\mu_X + \beta S]^2}{(1 - \beta)\sigma_X^2}.$$

Since $\mathbb{E}[u(W)] = \mathbb{E}_S\{\mathbb{E}[u(W)|S]\}$, an approximately optimal information effort is obtained by solving:

$$\max_I \; u(\omega) + \frac{1}{2}T(\omega)u'(\omega)\,\mathbb{E}[\Lambda(S)] - u'(\omega)c(I),$$

where

$$\mathbb{E}[\Lambda(S)] = \frac{\mu_X^2 + \beta^2\sigma_S^2}{(1-\beta)\sigma_X^2} = \frac{\mu_X^2}{(1-\beta)\sigma_X^2} + \frac{\beta}{1-\beta} = \frac{\mu_X^2}{\sigma_X^2} + (\mu_X^2 + \sigma_X^2)\,g(I,p).$$

Thus, at an interior optimum I^*,

$$\frac{1}{2}T(\omega)(\mu_X^2 + \sigma_X^2)\,g_I(I^*,p) = c'(I^*), \tag{A.6}$$

where

$$g_I(I,p) = g(I)^2\,\frac{(1-p)h'(I)}{h(I)^2} > 0.$$

Proof of Proposition 1. Define the positive constant

$$K \equiv \frac{1}{2}T(\omega)(\mu_X^2 + \sigma_X^2)$$

and write the first-order condition (A.6) as

$$K\,g_I(I(p),p) = c'(I(p)).$$

Differentiating this expression with respect to p gives

$$\left[K\,g_{II}(I^*,p) - c''(I^*)\right]I'(p) = -K\,g_{Ip}(I^*,p),$$

where

$$K\,g_{II}(I^*,p) - c''(I^*) < 0,$$

because of the second-order condition for an interior optimum, and

$$g_{Ip}(I,p) = \frac{\eta^2 h'(I)[(p-2)h(I) + \eta(1-p)]}{[ph(I) + \eta(1-p)]^3} < 0,$$

because $h'(I) > 0$ and $(p-2)h(I) + \eta(1-p) = -h(I) + [\eta - h(I)](1-p)$ under our assumption that $\eta < h(I)$. Thus, $I'(p) < 0$.

From (A.5), the expected value of the optimal allocation rule under I^* is

$$\alpha^*(p) = \overline{\alpha}(I(p),p) \approx \tau(\omega)\left[\frac{1}{\sigma_X^2} + g(I^*,p)\right]\mu_X.$$

Differentiating with respect to p gives

$$\frac{d\alpha^*}{dp} \approx \tau(\omega)\left[g_I(I^*,p)\;I'(p) + g_p(I^*,p)\right]\mu_X,$$

where $\tau(\omega) > 0$, $g_I(I^*, p) > 0$, $I'(p) < 0$, $\mu_X > 0$ and

$$g_p(I, p) = g(I, p)^2 \left[\frac{1}{h(I)} - \frac{1}{\eta} \right] < 0.$$

Thus, $d\alpha^*/dp < 0$. Since an unaware investor employs $\widehat{p} < p$ while an aware one employs $\widehat{p} = p$, it follows that $\alpha^*(\widehat{p}) > \alpha^*(p)$.

A.2 Solution under delegation

Under delegation, the investor pays a fixed cost $\zeta \geq 0$ and a proportional fee $\varphi \in [0, 1)$, so the investable value of her initial wealth is $\widetilde{\omega} \equiv (1 - \varphi)\omega - \zeta$. The delegated agent observes the signal $S^d = X + \eta$, with $\eta \sim \mathcal{N}(0, \sigma_\eta^2)$, and chooses an allocation rule to solve:

$$V^d = \max_{\alpha(\cdot)} \mathbb{E}_{S^d} \left\{ \mathbb{E} \left[u(W^d) | S^d \right] \right\} \quad \text{s.t.} \quad W^d = \left[r + \alpha(S^d) X \right] \widetilde{\omega}.$$

Proceeding as before, the optimal allocation rule is:

$$\alpha^\dagger(s) \approx \tau(\widetilde{\omega}) \left(\frac{\mu_X}{\sigma_X^2} + \frac{s}{\sigma_\eta^2} \right). \tag{A.7}$$

Proof of Proposition 2

Let $V^s(\omega, p)$ denote the indirect utility from self-management. By the envelope theorem, at an interior optimum I^*,

$$\frac{\partial V^s(\omega, p)}{\partial p} \approx -\frac{1}{2} T(\omega) u'(\omega) h(I^*, p)(\mu_X^2 + \sigma_X^2) < 0.$$

Let $\Delta V(\omega, p) = V^d(\omega) - V^s(\omega, p)$ denote the value of delegation relative to self-management. Since $V^d(\omega)$ does not depend on p, at an interior optimum,

$$\frac{\partial}{\partial p} \Delta V(\omega, p) = -\frac{\partial V^s(\omega, p)}{\partial p} > 0.$$

Hence, if $\widehat{p} < p$,

$$\Delta V(\omega, \widehat{p}) < \Delta V(\omega, p).$$

Thus, an unaware investor assigns a lower value to delegation than an otherwise identical aware investor. In particular, if $\widehat{p} < p$ and

$$\Delta V(\omega, \widehat{p}) < 0 \leq \Delta V(\omega, p),$$

an unaware investor chooses self-management even when delegation would be optimal.

B The survey questionnaire

Introduction

Dear Investor,

You are invited to take part in an academic survey for research in the Social Sciences, conducted by the *Einaudi Institute for Economics and Finance* (EIEF), Italy, and the *University of Lugano*, Switzerland. Results from this study will help design better tools and guidance for investors like yourself.

- The survey takes less than 10 minutes to complete.
- No personally identifying information is collected.
- All responses will be stored securely and used solely for academic research purposes. No personal data will be sold, shared, or used for any commercial purposes.
- At the conclusion of the project, a summary of the findings will be posted on the AAII website.

Your participation is voluntary, and you may exit the survey at any time without penalty. We sincerely appreciate your time – your input is critical to advancing research in this area.

Thank you!

Demographic questions

1. What is your sex?
   Options: *Male / Female / Prefer not to say*
2. What is your age (in years)?
3. What is your current marital status?
   Options: *Married or Partnered / Other / Prefer not to say*
4. What is the highest level of education you have completed?
   Options: *High school diploma or less / Bachelor's degree / Graduate or professional degree (MA, MS, MBA, PhD, JD, MD, DDS, etc.) / Prefer not to say*

5. In which US state do you currently reside?
   Options: *Drop-down list of all states*

Financial questions

1. Generally speaking, how much do you trust other people?
   Scale: *1 (do not trust at all) – 10 (trust a lot)*

2. What is the total value of your household's financial assets? Include cash, deposits, money-market funds, stocks, bonds, mutual funds and ETFs. Do not include real estate, privately-owned businesses or collectibles.
   Options: *< $250k / $250k-500k / $500k-1M / $1M-2M / $2M-5M / >$5M / Prefer not to say*

3. Do you currently rely on a paid professional financial advisor or planner who can place trades on your behalf?
   Options: *Yes / No / Not sure*

4. Have you formally granted durable power of attorney (POA) for your financial affairs?
   Options: *Yes / No*

   - If Yes: To whom?
     Option: *Spouse / One of my children / A friend / Professional advisor / Other*

5. About what percentage of your household's financial assets is currently held in each category below? Your answers should sum up to 100%:
   (i) Liquid assets (money, treasury bills, etc.)
   (ii) Government bonds (incl. in ETFs/mutual funds)
   (iii) Corporate bonds (incl. in ETFs/mutual funds)
   (iv) Individual company stocks (incl. in ETFs/mutual funds)

Memory Test

1. How would you rate your memory at present time?
   Options: *Excellent / Very good / Good / Fair / Poor / Do not know / Prefer not to say*

2. **Word recognition task**:

   - One random set of 8 words (from Sets I-IV) is shown, words appear one by one for 2 seconds each.

- Afterwards, respondent must select remembered words from the full list of 32 words.
- Word bank (4 variants of 8 words each):
  - Set I: Sky, Ocean, Flag, Wife, Earth, Home, Dollar, Machine
  - Set II: Rock, Blood, Corner, Woman, Tree, Skin, Gold, Child
  - Set III: Paper, Market, Girl, Shoes, Letter, House, Fire, Palace
  - Set IV: Water, Church, Doctor, Sea, Village, Garden, River, Hotel

Treatment Block (randomized)

Each respondent is randomly shown one of the following four treatments:

- **Treatment I:** "In the previous test, you correctly recalled x out of 8 words!"
- **Treatment II:** Managing money well takes concentration and memory. Studies show that around 60% of adults aged 50-80 experience serious memory decline over just seven years. Those unaware of the problem see their portfolios shrink by about 10%, mainly through avoidable stock-market losses. Even modest lapses – missing a fee deadline, mixing up passwords – can cascade into big costs. Memory decline may also expose individuals to greater risk of fraud and scams.
- **Treatment III:** Both **Treatment I** and **Treatment II**.
- **Treatment IV:** None.

Vignette Block (randomized)

Each respondent is randomly assigned to one of four vignettes: Male 70, Male 85, Female 70, Female 85.

- Example vignette (Male 70): "Your friend John is aged 70 and has been very successful managing his financial investments on his own, but recently he seems to be experiencing some signs of cognitive decline (e.g., easily forgets passwords, fails to solve standard math operations correctly, ...). What would you advise John to do? Select at most three options."

  Options (same across all variants): *Get help from spouse / Get help from children / Get help from friend / Get help from professional financial advisor / Reduce share of risky assets / Buy annuities / None of the above*

Personal Questions

1. Have you ever experienced some signs of cognitive decline (forgetting passwords, failing simple math, etc.)?
   Options: *No / Yes* (If Yes: specify how many years ago)

   - If No: Imagine you are beginning to experience such signs. What would you do? (Select up to three)
     Options: *Get help from spouse / Get help from children / Get help from friend / Get help from professional financial advisor / Reduce share of risky assets / Buy annuities / None of the above*
   - If Yes: Which of the following have you actually done? (Select up to three)
     Options: *Get help from spouse / Get help from children / Get help from friend / Get help from professional financial advisor / Reduce share of risky assets / Buy annuities / None of the above*

Open-ended question

If *Buy annuities* is not selected in the **Personal Questions** or **Vignette Block**, then respondents are also asked: "Why did you decide against purchasing an annuity?"

C Additional tables

Table C.1: Check for balance in observable characteristics for the AAII sample and various analysis subsamples.

	Samples:			
	(1) Full sample	(2) Memory test	(3) Vignette question	(4) Personal question
Mean (SD):				
Age	73.42 (8.85)	73.16 (8.82)	73.06 (8.76)	73.08 (8.61)
Memory score	6.48 (1.42)	6.48 (1.42)	6.54 (1.34)	6.54 (1.37)
Percent:				
Male	92.93	93.33	93.56	93.82
Married	83.85	83.94	84.47	86.03
Unaware	11.90	11.90	11.30	11.62
Experienced decline	25.20	25.28	24.99	19.71
Graduate degree	64.23	64.44	64.86	64.62
Fin. wealth: PNTS	15.80	14.44	14.04	14.07
Fin. wealth < $1M	13.05	12.48	12.55	12.62
Fin. wealth > $5M	25.66	26.10	26.01	25.47
Obs.	3,010	2,563	2,419	2,222

Note. Comparison of observable characteristics across survey and analysis samples from the AAII survey. Column (1) uses the de-duplicated sample of unique respondents, keeping the submission with the highest completion rate when multiple submissions exist. Column (2) restricts to respondents who completed the survey up to the memory test. Columns (3) and (4) restrict to respondents who completed the survey up to the vignette and personal question, respectively. The table reports means, with standard deviations in parentheses, for age and memory score, and percentages for the remaining variables. "Memory score" is the number of correctly recognized words (0–8). "Unaware" equals 1 if self-rated memory is "Very good" or better and the memory score is ≤ 5. "Experienced decline" equals 1 if the respondent reports having experienced signs of cognitive decline in the personal module. "Graduate degree" equals 1 if the respondent reports having a graduate degree; respondents who prefer not to report education are included in the denominator and coded as non-graduate. "Fin. wealth: PNTS" equals 1 if the respondent prefers not to report financial wealth. Fin. wealth percentages are computed among respondents with non-missing financial wealth; PNTS is included as a separate category.

Table C.2: Summary statistics of observable characteristics across randomized treatment arms.

	Vignette question				*Personal scenario*			
	(1) None	(2) Score	(3) Info	(4) Both	(5) None	(6) Score	(7) Info	(8) Both
Mean (SD):								
Age	73.06	72.83	73.23	73.07	73.06	73.04	73.05	73.10
	(9.02)	(8.53)	(8.80)	(8.77)	(9.00)	(8.29)	(8.70)	(8.52)
Memory score	6.45	6.58	6.55	6.59	6.48	6.55	6.58	6.54
	(1.41)	(1.33)	(1.30)	(1.29)	(1.40)	(1.33)	(1.34)	(1.39)
Percent:								
Male	92.84	94.45	93.94	92.74	93.15	94.50	94.02	93.32
Married	84.36	84.99	84.25	84.26	86.17	86.95	85.03	86.09
Unaware	11.90	10.83	11.76	10.72	11.99	11.31	11.62	11.58
Exp. decline	25.89	22.70	24.83	26.98	21.83	17.60	18.53	21.28
Graduate degree	64.24	63.95	67.45	63.59	64.27	64.18	66.49	63.35
Fin. wealth: PNTS	14.86	15.09	11.89	14.43	14.13	14.36	12.79	15.10
Fin. wealth < \$1M	12.33	11.94	13.07	12.25	13.03	12.55	11.89	12.15
Fin. wealth > \$5M	23.48	23.71	27.14	30.54	23.67	24.00	26.31	28.91
Obs.	592	603	600	598	545	551	556	545

Note. Balance check for randomized assignment to the four experimental arms, reported separately for the vignette-question and personal-scenario analysis samples. "None" is the control group; "Score" provides personalized feedback on memory-task performance; "Info" provides educational information on the financial risks of memory decline; "Both" combines the two. The table reports means, with standard deviations in parentheses, for age and memory score, and percentages for the remaining variables. "Memory score" is the number of correctly recognized words, on a 0–8 scale. "Unaware" and "Experienced decline" are defined as in Table C.1. "Graduate degree" equals 1 if the respondent reports having a graduate degree; respondents who prefer not to report education are included in the denominator and coded as non-graduate. Fin. wealth: PNTS equals 1 if the respondent prefers not to report financial wealth. Fin. wealth percentages are computed among respondents with non-missing financial wealth; PNTS is included as a separate category.

Table C.3: OLS regression models for self-reported memory, score in the memory task, unawareness.

	(1) Self-rated memory	(2) Memory score	(3) Unaware
Female	0.335***	0.444***	-0.083***
	(0.123)	(0.106)	(0.019)
No postgrad.	0.208***	0.140**	-0.000
	(0.067)	(0.060)	(0.014)
Not married	0.069	-0.064	0.008
	(0.086)	(0.077)	(0.018)
Age	-0.022***	-0.018***	0.000
	(0.004)	(0.004)	(0.001)
Age squared	-0.000*	-0.001***	0.000**
	(0.000)	(0.000)	(0.000)
Exp. decline	-1.393***	-0.051	-0.073***
	(0.073)	(0.065)	(0.013)
Constant	5.630***	-0.010	0.125***
	(0.109)	(0.102)	(0.021)
Obs.	2,633	2,565	2,547
k	63	63	63
RMSE	1.524	1.391	0.317
R^2	0.178	0.075	0.047

Note. Regression analysis of subjective and objective memory measures in the AAII survey. Column (1) uses self-rated memory status as the dependent variable (higher values indicate better self-assessed memory on the Poor–Excellent scale). Column (2) uses the objective memory score (0–8 correctly recognized words). Column (3) uses the "Unaware" indicator, equal to 1 if self-rated memory is "Very good" or better and the memory score is ≤ 5. The constant is to be interpreted as the average value of the outcome for a married male respondent who has a postgraduate degree and self-manages his financial wealth and did not experience cognitive decline, and has age equal to the sample averages. The specification additionally includes state fixed effects and indicators for missing covariates. Robust standard errors are in parentheses. $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.10$.

Table C.4: Linear probability models for delegation choices.

	(1) Self management	(2) Informal delegation	(3) Formal delegation	(4) Both
Female	-0.073**	0.085**	-0.043**	0.031
	(0.035)	(0.035)	(0.021)	(0.027)
No postgrad.	-0.009	-0.032*	-0.011	0.052***
	(0.020)	(0.019)	(0.013)	(0.014)
Not married	0.058**	-0.053**	0.013	-0.018
	(0.024)	(0.022)	(0.016)	(0.017)
Age	-0.007***	0.008***	-0.003***	0.002***
	(0.001)	(0.001)	(0.001)	(0.001)
Age squared	0.000*	0.000*	-0.000***	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)
Exp. decline	-0.049**	-0.025	0.030*	0.044**
	(0.023)	(0.022)	(0.015)	(0.018)
<$1M	0.074**	0.019	-0.037**	-0.057***
	(0.031)	(0.029)	(0.018)	(0.020)
$1M-$2M	-0.013	-0.010	0.016	0.007
	(0.027)	(0.026)	(0.019)	(0.021)
>$5M	-0.005	0.019	0.004	-0.018
	(0.025)	(0.023)	(0.016)	(0.018)
Trust in others	-0.015**	-0.005	0.013***	0.007
	(0.006)	(0.005)	(0.004)	(0.004)
Constant	0.457***	0.291***	0.169***	0.082***
	(0.035)	(0.032)	(0.025)	(0.022)
Obs.	2,987	2,987	2,987	2,987
k	70	70	70	70
RMSE	0.485	0.457	0.322	0.353
R^2	0.056	0.040	0.037	0.042

Note. Linear probability models for each delegation choice of AAII respondents. *Informal delegation* indicates a durable POA assigned to a family member, friend, child, or other non-professional contact, without reliance on a paid professional financial adviser. *Formal delegation* indicates reliance on a paid professional financial adviser and/or a durable POA assigned to a professional agent. *Both* indicates simultaneous use of formal and informal delegation channels, and *Self-management* indicates neither arrangement. The constant is to be interpreted as the average value of the outcome for a married male respondent who has a postgraduate degree and has financial wealth between $2M-$5M, did not experience cognitive decline, and has age and level of trust in others equal to the sample averages. The specification includes state fixed effects and indicators for missing covariates. Robust standard errors are in parentheses. $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.10$.

Table C.5: OLS regression models for portfolio weights of the various assets.

	(1) Liquidity (%)	(2) Gov't bonds (%)	(3) Corp. bonds (%)	(4) Stocks (%)
Female	3.563**	0.388	-4.127**	0.177
	(1.511)	(0.966)	(1.801)	(0.965)
No postgrad.	-0.095	-0.068	0.241	-0.078
	(0.690)	(0.477)	(0.902)	(0.497)
Not married	-2.496***	-0.512	2.986**	0.022
	(0.857)	(0.644)	(1.178)	(0.656)
Age	0.007	0.029	-0.047	0.012
	(0.035)	(0.032)	(0.053)	(0.029)
Age squared	-0.007*	0.001	0.008*	-0.002
	(0.003)	(0.002)	(0.004)	(0.002)
Informal delegation	-0.041	0.560	-0.755	0.236
	(0.781)	(0.569)	(1.003)	(0.511)
Formal delegation	-3.941***	2.358***	-1.622	3.205***
	(0.822)	(0.651)	(1.161)	(0.714)
Both	-2.874***	2.411***	-4.390***	4.853***
	(0.856)	(0.666)	(1.202)	(0.757)
<$1M	9.464***	-0.093	-7.571***	-1.799**
	(1.352)	(0.821)	(1.607)	(0.814)
$1M-$2M	3.141***	-0.145	-2.710**	-0.285
	(0.990)	(0.707)	(1.260)	(0.732)
>$5M	-2.734***	-1.160**	6.329***	-2.435***
	(0.692)	(0.576)	(1.030)	(0.599)
Trust in others	-0.817***	-0.057	0.947***	-0.073
	(0.220)	(0.146)	(0.278)	(0.155)
Constant	17.037***	8.784***	65.367***	8.812***
	(1.178)	(0.856)	(1.593)	(0.868)
Obs.	2,796	2,796	2,796	2,796
k	71	71	71	71
RMSE	16.189	11.706	21.280	11.748
R^2	0.092	0.030	0.075	0.059

Note. OLS regressions of portfolio composition on respondent characteristics in the AAII survey. Dependent variables are portfolio weights (in percentage points) of liquid assets, government bonds, corporate bonds, and individual company stocks, constructed from respondents' reported shares that sum to 100. The constant is to be interpreted as the average value of the outcome for a married male respondent who has a postgraduate degree and self-manages his financial wealth (which is between $2M-$5M), and has age and level of trust in others equal to the sample averages. The specification additionally includes state fixed effects and indicators for missing covariates. Robust standard errors are in parentheses. $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.10$.

Table C.6: Linear probability models for the answers to the vignette question.

	(1) Friend	(2) Spouse	(3) Children	(4) Fin. advisor	(5) Less risk	(6) Annuities
Female	-0.052**	-0.100**	-0.137***	0.084***	0.097**	0.009
	(0.024)	(0.041)	(0.043)	(0.032)	(0.043)	(0.019)
No postgrad.	-0.017	0.054**	0.044*	-0.013	-0.004	0.004
	(0.015)	(0.022)	(0.022)	(0.018)	(0.021)	(0.009)
Not married	0.080***	-0.109***	-0.022	-0.066***	0.024	0.002
	(0.020)	(0.029)	(0.028)	(0.024)	(0.027)	(0.012)
Age	-0.003***	-0.007***	-0.006***	-0.002	0.006***	0.001
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Age squared	-0.000	-0.000**	0.000	-0.000	-0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Exp. decline	-0.017	-0.072***	-0.069***	0.004	0.077***	0.008
	(0.015)	(0.024)	(0.024)	(0.019)	(0.023)	(0.010)
Informal delegation	0.003	-0.016	0.032	-0.011	-0.036	-0.014
	(0.016)	(0.024)	(0.025)	(0.021)	(0.022)	(0.010)
Formal delegation	-0.040**	-0.047	-0.072**	0.165***	-0.007	0.004
	(0.020)	(0.033)	(0.033)	(0.022)	(0.031)	(0.014)
Both	-0.049***	0.033	0.013	0.163***	-0.112***	-0.013
	(0.017)	(0.031)	(0.031)	(0.021)	(0.027)	(0.012)
<$1M	-0.008	-0.009	-0.036	-0.087***	0.074**	0.005
	(0.022)	(0.034)	(0.035)	(0.029)	(0.033)	(0.015)
$1M-$2M	-0.000	-0.048	-0.033	-0.036	0.053*	0.010
	(0.020)	(0.031)	(0.031)	(0.024)	(0.028)	(0.014)
> $5M	0.001	-0.029	0.014	-0.018	-0.024	-0.020**
	(0.018)	(0.027)	(0.027)	(0.022)	(0.024)	(0.010)
Trust in others	-0.003	0.005	0.023***	0.018***	-0.018***	-0.003
	(0.004)	(0.007)	(0.007)	(0.006)	(0.006)	(0.003)
Constant	0.153***	0.587***	0.547***	0.767***	0.360***	0.042**
	(0.027)	(0.040)	(0.040)	(0.033)	(0.038)	(0.017)
Obs.	2,423	2,423	2,423	2,423	2,423	2,423
k	73	73	73	73	73	73
RMSE	0.313	0.491	0.490	0.398	0.446	0.196
R^2	0.048	0.064	0.062	0.081	0.085	0.043

Note. Linear probability models for answers to the vignette question. Each column corresponds to an indicator equal to 1 if the respondent selected the listed action (help from friend/spouse/children/professional adviser; reduce risky share; buy annuities). Respondents could select up to three options, so outcomes are not mutually exclusive across columns. The constant is to be interpreted as the average value of the outcome for a married male respondent who has a postgraduate degree and self-manages his financial wealth (which is between $2M-$5M) and did not experience cognitive decline, and has age and level of trust in others equal to the sample averages. The specification includes state fixed effects and indicators for missing covariates. Robust standard errors are in parentheses. $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.10$.

Table C.7: Linear probability models for the answers to the personal question.

	(1) Friend	(2) Spouse	(3) Children	(4) Fin. advisor	(5) Less risk	(6) Annuities
Female	-0.054**	-0.012	-0.129***	0.046	0.006	0.028
	(0.026)	(0.035)	(0.043)	(0.041)	(0.046)	(0.023)
No postgrad.	0.004	0.021	0.056**	-0.017	-0.025	0.008
	(0.014)	(0.021)	(0.023)	(0.022)	(0.023)	(0.010)
Not married	0.143***	-0.518***	-0.101***	0.032	0.086***	0.007
	(0.024)	(0.019)	(0.029)	(0.027)	(0.030)	(0.014)
Age	-0.004***	-0.009***	0.004***	-0.002*	0.003***	0.000
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Age squared	-0.000	-0.000*	0.000*	0.000	-0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Exp. decline	-0.030**	-0.159***	-0.363***	-0.122***	0.194***	0.101***
	(0.015)	(0.026)	(0.023)	(0.024)	(0.027)	(0.016)
Informal delegation	-0.004	0.028	0.073***	-0.046*	-0.015	-0.025**
	(0.016)	(0.024)	(0.025)	(0.025)	(0.024)	(0.010)
Formal delegation	-0.036*	-0.007	-0.022	0.304***	-0.070**	-0.011
	(0.021)	(0.032)	(0.032)	(0.027)	(0.033)	(0.015)
Both	-0.014	0.088***	0.065**	0.269***	-0.190***	-0.004
	(0.019)	(0.029)	(0.031)	(0.028)	(0.028)	(0.014)
<$1M	0.020	0.015	0.028	-0.071**	0.058*	-0.001
	(0.022)	(0.032)	(0.035)	(0.033)	(0.035)	(0.015)
$1M-$2M	0.021	-0.007	-0.045	-0.010	0.060**	0.010
	(0.019)	(0.029)	(0.030)	(0.029)	(0.030)	(0.015)
>$5M	0.026	0.015	0.030	0.041	-0.048*	-0.003
	(0.018)	(0.027)	(0.028)	(0.026)	(0.027)	(0.011)
Trust in others	0.003	0.002	0.016**	0.022***	-0.020***	-0.002
	(0.004)	(0.006)	(0.007)	(0.007)	(0.007)	(0.003)
Constant	0.097***	0.559***	0.449***	0.598***	0.398***	0.007
	(0.025)	(0.038)	(0.040)	(0.038)	(0.040)	(0.015)
Obs.	2,221	2,221	2,221	2,221	2,221	2,221
k	71	71	71	71	71	71
RMSE	0.304	0.451	0.472	0.452	0.464	0.209
R^2	0.079	0.214	0.134	0.136	0.094	0.072

Note. Linear probability models for answers to the personal-scenario question. Each column corresponds to an indicator equal to 1 if the respondent selected the listed action (help from friend/spouse/children/professional adviser; reduce risky share; buy annuities). Respondents could select up to three options, so outcomes are not mutually exclusive across columns. The constant is to be interpreted as the average value of the outcome for a married male respondent who has a postgraduate degree and self-manages his financial wealth (which is between $2M-$5M) and did not experience cognitive decline, and has age and level of trust in others equal to the sample averages. The specification includes state fixed effects and indicators for missing covariates. Robust standard errors are in parentheses. $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.10$.

Table C.8: Effects of the information treatments on survey answers.

	(1) Formal delegation	(2) Informal delegation	(3) Risk reduction
Answers to the vignette question			
Education	0.023	-0.062**	0.036
	(0.024)	(0.025)	(0.027)
Score	-0.001	-0.044*	0.005
	(0.024)	(0.025)	(0.026)
Both	0.031	-0.110***	0.054**
	(0.024)	(0.026)	(0.027)
Constant	0.774***	0.769***	0.291***
	(0.017)	(0.017)	(0.019)
Obs.	2,393	2,393	2,393
RMSE	0.410	0.450	0.464
R^2	0.001	0.008	0.002

	(1) Formal delegation	(2) Informal delegation	(3) Risk reduction
Answers to the personal question			
Education	0.040	-0.017	0.011
	(0.029)	(0.026)	(0.029)
Score	0.015	-0.006	0.030
	(0.029)	(0.026)	(0.029)
Both	0.077***	-0.057**	-0.006
	(0.029)	(0.027)	(0.029)
Constant	0.611***	0.754***	0.372***
	(0.021)	(0.018)	(0.021)
Obs.	2,197	2,197	2,197
RMSE	0.478	0.442	0.486
R^2	0.004	0.002	0.001

Note. Estimated average treatment effects of the randomized information interventions on grouped outcomes, reported separately for the vignette question (Panel A) and the personal-scenario question (Panel B). "Education" provides educational information on the financial risks of serious memory decline; "Score" provides personalized feedback on the memory-task performance; "Both" combines the two; the omitted category is "None" (control). Outcomes are indicators for *Formal delegation* (selected help from a professional adviser), *Informal delegation* (selected any of spouse/children/friend), and *Risk reduction* (selected reduce risky share and/or buy annuities). Because respondents may select up to three options, outcomes are not mutually exclusive. Robust standard errors are in parentheses. $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.10$.

Table C.9: Robustness check: Effect of score treatment interacted with unawareness under alternative definitions.

	Answers to the personal scenario question		
	(1)	(2)	(3)
	Formal delegation	Informal delegation	Risk reduction
Score × Unaware	0.193**	-0.019	0.181**
	(0.091)	(0.074)	(0.090)
Score × Unaware (2)	0.155**	0.051	0.077
	(0.076)	(0.067)	(0.077)
Score × Unaware (3)	0.329**	-0.248**	0.143
	(0.138)	(0.122)	(0.145)
Score × Unaware (4)	0.245**	-0.037	0.085
	(0.115)	(0.104)	(0.121)
Observations	2,185	2,185	2,185

Note. Each column reports a separate regression of the corresponding personal-scenario outcome on treatment indicators (Education, Score, Both) and their interactions with alternative binary indicators of unawareness. Their definitions are: Unaware=1 if *self-rated memory* $\in$ {very good, excellent} and *memory score* ≤ 5; Unaware (2)=1 if *memory* $\in$ {good, very good, excellent} and *memory score* ≤ 5; Unaware (3)=1 if *memory* $\in$ {very good, excellent} and *memory score* ≤ 4; Unaware (4)=1 if *memory* $\in$ {good, very good, excellent} and *memory score* ≤ 4. $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.10$.

Table C.10: Effects of the information treatments on the answers to the vignette question.

	Formal delegation		Informal delegation		Risk reduction	
	(1)	(2)	(3)	(4)	(5)	(6)
Education	0.023	0.016	-0.062**	-0.060**	0.036	0.038
	(0.024)	(0.025)	(0.025)	(0.027)	(0.027)	(0.029)
Score	-0.001	-0.002	-0.044*	-0.037	0.005	-0.006
	(0.024)	(0.026)	(0.025)	(0.027)	(0.026)	(0.028)
Both	0.031	0.017	-0.110***	-0.106***	0.054**	0.044
	(0.024)	(0.025)	(0.026)	(0.028)	(0.027)	(0.029)
Unaware		-0.053		0.036		-0.071
		(0.056)		(0.051)		(0.054)
Education × Unaware		0.027		0.003		-0.024
		(0.077)		(0.076)		(0.077)
Score × Unaware		0.012		-0.070		0.085
		(0.080)		(0.079)		(0.081)
Both × Unaware		0.098		-0.038		0.071
		(0.074)		(0.081)		(0.083)
Constant	0.774***	0.782***	0.769***	0.764***	0.291***	0.299***
	(0.017)	(0.018)	(0.017)	(0.019)	(0.019)	(0.020)
Obs.	2,393	2,380	2,393	2,380	2,393	2,380
RMSE	0.410	0.409	0.450	0.450	0.464	0.464
R^2	0.001	0.002	0.008	0.008	0.002	0.004

Note. The table estimates treatment effects on responses to the vignette question. Outcomes are indicators for (i) Formal delegation (selected help from a professional financial adviser), (ii) Informal delegation (selected any of help from spouse/children/friend), and (iii) Risk reduction (selected reduce risky share and/or buy annuities). Respondents could select up to three options, so outcomes are not mutually exclusive. Regressors include indicators for assignment to the educational-information treatment ("Education"), the personalized score feedback treatment ("Score"), or their combination ("Both"), with "None" as the omitted group. Unaware is an indicator for respondents who self-rate memory as "Very good" or better while scoring at most 5 out of 8 on the memory task. Robust standard errors are in parentheses. $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.10$.

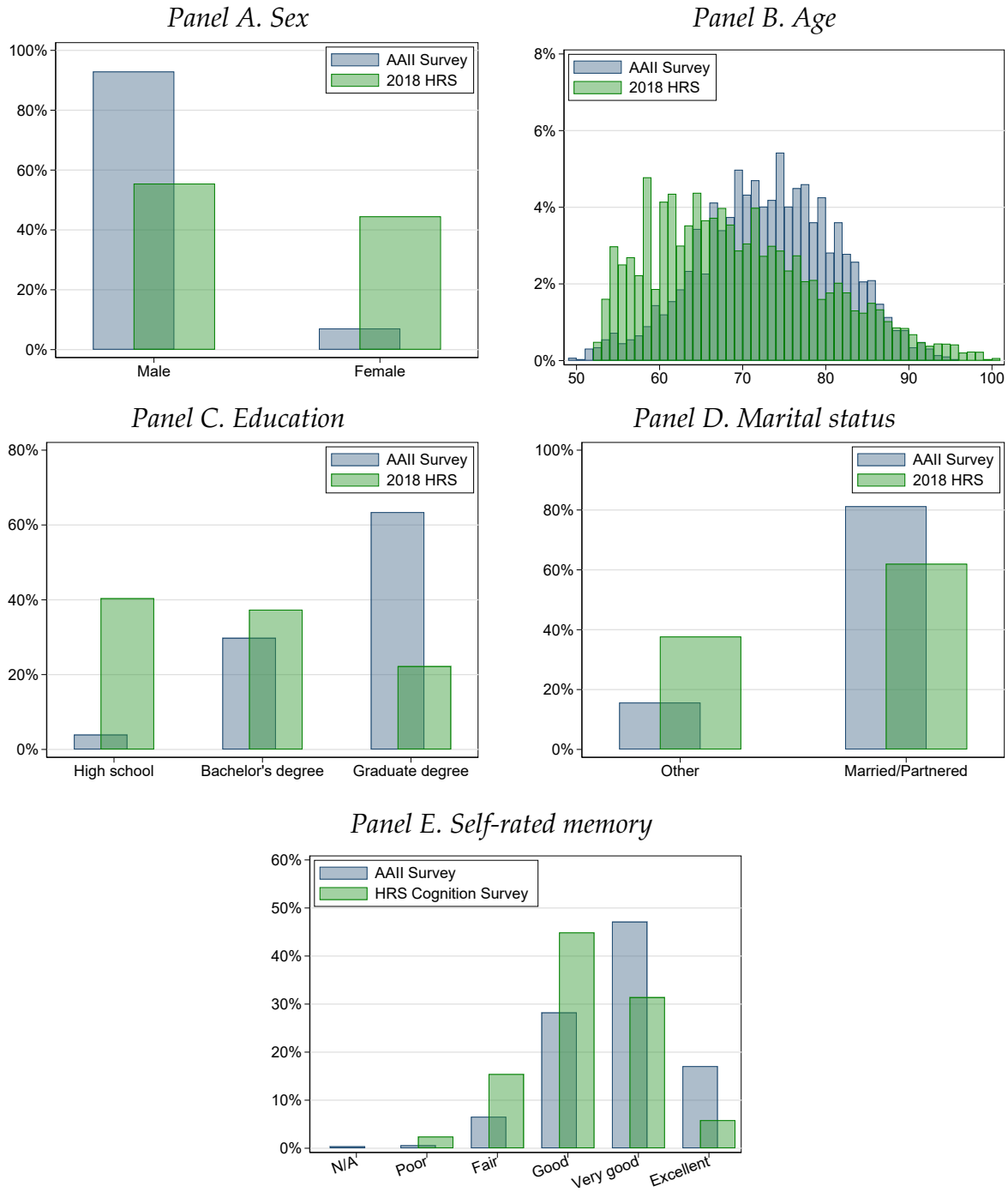
Table C.11: Effects of the information treatments on the answers to the personal question, excluding those who report having experienced cognitive decline.

	(1)	(2)	(3)	(4)	(5)	(6)
	Formal delegation		Informal delegation		Risk reduction	
Education	0.033	0.011	-0.006	-0.007	0.014	0.012
	(0.032)	(0.034)	(0.027)	(0.029)	(0.032)	(0.035)
Score	-0.011	-0.035	-0.004	-0.002	0.013	-0.016
	(0.033)	(0.035)	(0.027)	(0.029)	(0.032)	(0.034)
Both	0.075**	0.065*	-0.041	-0.029	-0.007	-0.030
	(0.032)	(0.034)	(0.028)	(0.030)	(0.032)	(0.035)
Unaware		-0.121*		0.059		-0.100
		(0.070)		(0.050)		(0.062)
Education × Unaware		0.139		-0.013		0.027
		(0.096)		(0.072)		(0.089)
Score × Unaware		0.190**		-0.033		0.205**
		(0.096)		(0.073)		(0.093)
Both × Unaware		0.079		-0.101		0.181*
		(0.097)		(0.081)		(0.093)
Constant	0.638***	0.656***	0.810***	0.803***	0.329***	0.342***
	(0.023)	(0.025)	(0.019)	(0.021)	(0.023)	(0.025)
Obs.	1,762	1,753	1,762	1,753	1,762	1,753
RMSE	0.472	0.472	0.402	0.403	0.472	0.472
R^2	0.005	0.008	0.002	0.003	0.000	0.005

Note. The table estimates treatment effects on responses to the personal-scenario question, excluding respondents who report having experienced cognitive decline. Outcomes are indicators for (i) Formal delegation (selected help from a professional financial adviser), (ii) Informal delegation (selected any of help from spouse/children/friend), and (iii) Risk reduction (selected reduce risky share and/or buy annuities). Respondents could select up to three options, so outcomes are not mutually exclusive. Regressors include indicators for assignment to the educational-information treatment ("Education"), the personalized score feedback treatment ("Score"), or their combination ("Both"), with "None" as the omitted group. Unaware is an indicator for respondents who self-rate memory as "Very good" or better while scoring at most 5 out of 8 on the memory task. Robust standard errors are in parentheses. $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.10$.

D Additional figures

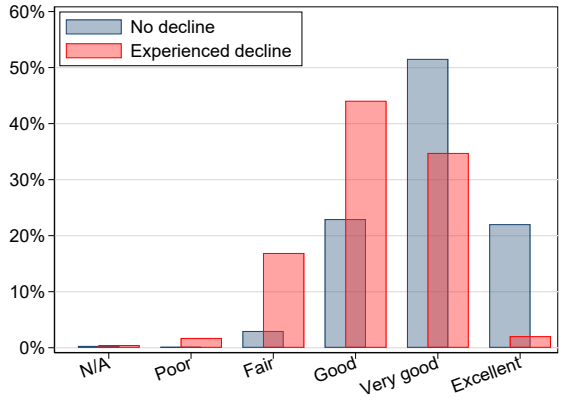
Figure D.1: Distribution of sample demographics and self-rated memory: AAII v. 2018 HRS.



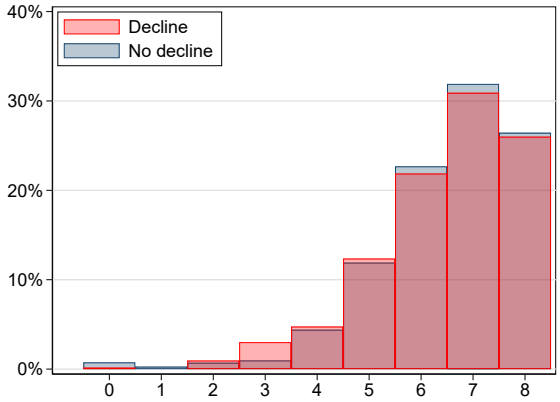
Note. The figure compares sample demographics and distribution of self-rated memory between AAII survey respondents and financial respondents with household financial wealth above $50k in the 2018 wave of the HRS. Panels display distributions for sex, age, education, marital status, and self-rated memory status (N/A, Poor, Fair, Good, Very good, Excellent); bars report category shares within each dataset. The comparison is intended to highlight differences in composition between the AAII sample and the sample of HRS financial respondents.

Figure D.2: Distribution of memory variables by memory decline.

Panel A. Self-rated memory status



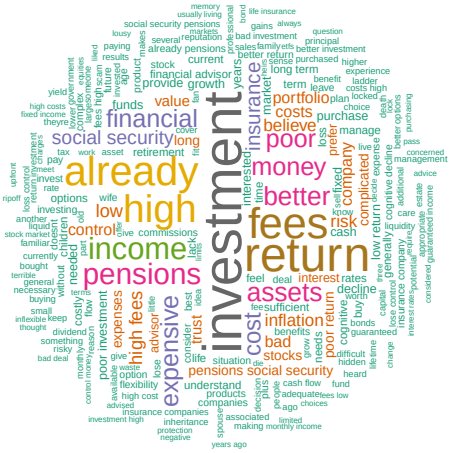
Panel B. Memory score (0-8 words)



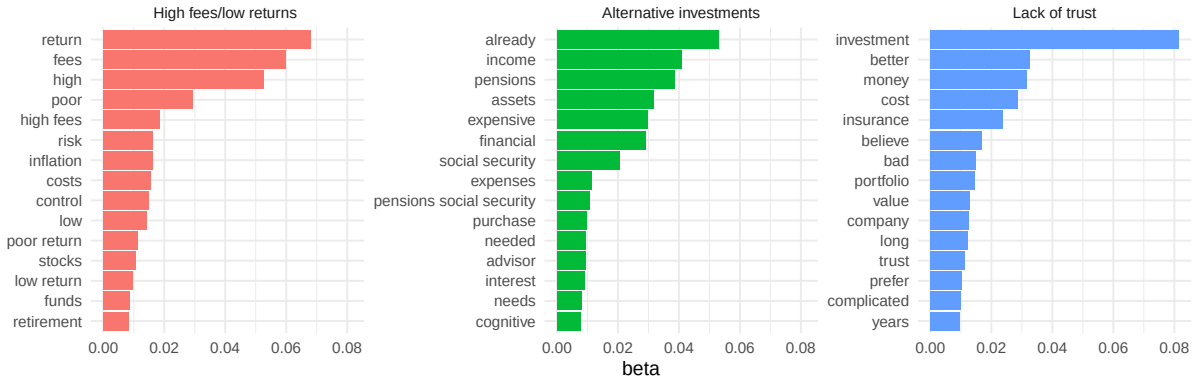
Note. Distributions of (left) self-rated memory status and (right) objective memory score (0–8) are shown separately for respondents who report having experienced signs of cognitive decline (in red) versus those who do not (in blue). "Decline" is based on the personal module question about having ever experienced signs of cognitive decline (e.g., forgetting passwords, failing simple math). Bars/histograms report within-group shares.

Figure D.3: Textual analysis of open-ended question about annuities.

Panel A. Word cloud from open-ended question on annuities.



Panel B. Latent Dirichlet Allocation model results from open-ended question on annuities.



Note. This figure reports results from the text analysis of answers to the following question, which was displayed to respondents who did not select "Purchase annuities" in either the personal or the vignette question: "Why did you decide against purchasing an annuity?". Panel A presents a word cloud of the responses. Panel B presents the Latent Dirichlet Allocation (LDA) topic-model results.

E Evidence from the HRS

The Health and Retirement Study (HRS) is a biennial longitudinal survey, conducted by the University of Michigan, which contains rich information on health and wealth of the respondents. The survey sample is representative of the US population aged 50 and older. We focus on 12 waves of the HRS that span the period 1996–2018.

Our working sample consists of household financial respondents, namely the members designated to answer all financial questions regarding a household. We exclude proxy interviews (because they do not contain information on cognition) and observations for which imputations represent 20% or more of the value of all asset and debt categories. This leaves us with 25,221 individuals (observed on average for 4.8 waves) who are, on average, 67.4 years old, and about half of them are female, are married/partnered and have a high school degree (Table E.1).

E.1 Cognition and awareness

In the memory section of the HRS, the interviewer reads a 10-word list (e.g., sky, ocean, flag) once, and the respondent is asked to recall as many words as possible in any order, both immediately and after a few minutes. We measure the respondent's memory status by the total number of correct answers in the immediate and delayed test, ranging between 0 and 20. Following Mazzonna and Peracchi (2024), we define a severe memory loss as a decline of at least 20% in the objective memory score between adjacent waves. More than half of respondents in our HRS sample experienced a severe memory loss during the observation period (column 1 of Table E.1).

Before completing the tests, respondents are also asked to self-rate their memory relative to the previous survey wave (*"Compared with previous wave interview, would you say your memory is better now, about the same, or worse now than it was then?"*). Awareness is then inferred from the difference between subjective and objective change: respondents are aware if severe loss is accompanied by a worse self-rating, and unaware if severe loss occurs alongside a stable or improved self-rating. Based on this definition, around 18.8% of respondents are classified as unaware of their first severe memory loss.

E.2 Financial assets and delegation

In Section 7, we estimate DiD models for two outcomes. The first is the share of risky assets, measured as the percentage of household financial wealth held in stocks or bonds (*risky-share sample*). Since the median household does not hold risky financial assets, we restrict estimation to financial respondents with household financial wealth

above the median. The second is the indicator of a switch in the household financial respondent across waves (*delegation sample*).

The experimental HRS module "Financial Advice and Capacity at Older Ages", fielded in 2016, includes useful information on other types of delegation.[13] Since the module was fielded only to a random 10% subsample of HRS respondents, we cannot estimate the same regressions used in Section 7. However, the module provides a direct indicator of whether the respondent receives help or advice with managing money, and by whom.

The majority (74%) of the respondents to this module self-manage their finances, with only 17% relying on formal professional delegation and 9% relying on informal delegation (Figure E.1). When respondents who do not delegate are asked why, the main reasons are lack of need (59%) or having too little money to manage (29%), while high fees (7%) or lack of trust (5%) are much less frequent (Figure E.1). This pattern suggests that the distinction between formal and informal delegation is empirically meaningful and that, for a large share of HRS respondents, limited financial wealth does not make delegation a viable option.

This is further confirmed by the evidence in Table E.2, which shows the results of estimating a multinomial logit model of delegation choice, with self-management as the baseline category. Our estimates show that formal delegation is heavily concentrated at the top of the distribution of financial wealth: belonging to the top tercile increases the probability of formal delegation by 22.8 pps. We also find that cognitive decline is associated with an increase in the probability of formal delegation (by 12.2 pps), but only for individuals in the highest tercile of financial wealth. This evidence confirms that the mechanisms we model are primarily relevant for households with substantial financial assets. This motivates our focus on a targeted sample of affluent and financially sophisticated investors, such as members of the AAII.

E.3 Validation and robustness checks

To validate the awareness measure derived from the HRS, we examine whether severe memory loss is associated with self-reported difficulty managing one's own money due to memory problems.[14] Figure E.2 presents the estimates from a binned event-study specification that uses as outcome an indicator for reporting difficulty managing money due to a health or memory problem. After the first severe memory-loss event, aware respondents are 5 pps more likely to report difficulty managing money, while

[13] Kim, Maurer and Mitchell (2021) used this module to study how financial literacy affects the demand for financial advisory services.

[14] In its Core module, the HRS asks respondents "Because of a health or memory problem do you have any difficulty with managing your money – such as paying your bills and keeping track of expenses?".

the corresponding change for the unaware is close to zero. The effect is large, since only about 5% of respondents report such problems on average. This suggests that our awareness measure captures a broader recognition of the financial consequences of cognitive decline, rather than merely a mechanical response to the memory test.

Next, we present several checks of the robustness of the results in Section 7. Our first concern is that the observed memory declines may only be transitory. In Table E.3, we address this concern by using a more restrictive definition of memory decline, in which the first severe memory loss is not followed by a later return to memory score levels close to those observed in the wave preceding the loss.

In the baseline specification, severe memory loss is defined as a drop of at least 20% in the objective memory score (Mazzonna and Peracchi, 2024). In Table E.4 we use the alternative thresholds of 15% and 25%.

In Table E.5 we examine the effect of varying the way in which the outcomes are defined. For portfolio choice, we use the share of household financial wealth invested in stocks only (as opposed to stocks and bonds). For delegation, we use a stricter definition that requires the spouse to remain the financial respondent also in the next observed HRS wave.

Finally, we examine the effect of varying the event-time window used in the main specification. Table E.6 compares our baseline 6-year window with alternative windows of 4 and 8 years on each side of the first severe memory loss.

In all these checks, the sign and magnitude of the estimated DiD coefficients are similar to those in Table 2, and are almost always statistically significant. This provides support for our main finding that, after their first severe memory loss, aware respondents tend to reduce portfolio risk more than unaware respondents, and are more likely to delegate financial decision-making to their spouse.

Table E.1: Summary statistics for different HRS estimation samples.

	(1) Full sample	(2) Risky-share sample	(3) Delegation sample
Panel A. Demographics and sample structure			
Respondents (N)	25,221	17,110	12,436
Respondent-year observations (N)	122,212	76,920	58,277
Years observed per respondent (mean)	9.69	8.99	9.37
Age (mean)	67.45	67.22	65.47
Female (%)	55.95	51.74	39.17
Married / partnered (%)	51.63	56.61	100.00
High school (%)	50.00	51.28	49.35
College (%)	26.49	33.46	32.24
White (%)	75.17	80.91	81.81
Black (%)	18.28	12.85	11.46
Working (%)	31.66	33.91	37.83
Panel B. Cognition and awareness			
Total word recall (mean)	9.82	10.19	10.30
Severe relative memory loss (%)	56.22	46.11	51.71
Age at first severe memory loss (mean)	67.63	67.88	65.74
Aware of first severe memory loss (%)	5.92	5.39	5.30
Unaware of first severe memory loss (%)	18.87	17.04	17.29
Panel C. Wealth, risky share, and delegation			
Total household wealth (mean)	456.84	644.09	635.80
Household financial wealth (mean)	5.48	9.10	10.99
Positive financial wealth (%)	43.27	46.11	46.45
Risky asset share (%)	18.85	24.51	22.38
Switch to spouse this wave (%)	0.30	0.30	0.72
Ever switched to spouse (%)	1.43	1.33	3.34
Switches after first severe memory loss (%)	79.18	80.43	59.81

Note. Column 1 uses the full sample of financial respondents. Column 2 uses the risky-share estimation sample, defined as financial respondents with household financial wealth above the sample median. Column 3 uses the delegation estimation sample, defined as respondents who are in a couple at baseline, are the financial respondent at baseline, have an observed spouse at baseline, and contribute observations only while they remain in a couple. Wealth variables are reported in US $1,000s in 2018 prices. Percentages are multiplied by 100.

Table E.2: Delegation and cognitive decline: Multinomial logit estimates of financial delegation choices of older Americans.

	(1) Formal delegation	(2) Informal delegation
Age	-0.001	0.004***
	(0.001)	(0.001)
Years of education	0.027***	0.001
	(0.004)	(0.003)
Female	0.030	0.005
	(0.021)	(0.017)
Financial wealth:		
Tercile 2	0.053**	-0.034*
	(0.025)	(0.020)
Tercile 3	0.228***	-0.026
	(0.029)	(0.020)
Cognitive decline	-0.045	-0.003
× Fin. wealth-Tercile 1	(0.038)	(0.032)
Cognitive decline	0.038	0.038
× Fin. wealth-Tercile 2	(0.039)	(0.029)
Cognitive decline	0.122***	-0.013
× Fin. wealth-Tercile 3	(0.045)	(0.028)
Obs.	1,179	1,179

Note. The Table presents marginal effects from a multinomial logit model using data from the 2016 HRS. The dependent variable is the method of financial management: formal delegation or informal delegation, relative to the omitted baseline of self-management. Cognitive decline is measured by a drop of 20% or more in the memory test score relative to the previous wave, as in Mazzonna and Peracchi (2024). Cognitive decline is interacted with indicator variables for financial wealth terciles to capture heterogeneous responses to cognitive deterioration across the wealth distribution. Standard errors clustered at the respondent level in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table E.3: DiD estimates: baseline and permanent memory loss.

	Risky share		*Delegation*	
	(1) Baseline loss	(2) Permanent loss	(3) Baseline loss	(4) Permanent loss
Post	-0.032***	-0.030***	0.012***	0.012***
	(0.008)	(0.010)	(0.003)	(0.004)
Unaware × Post	0.017**	0.021*	-0.007**	-0.008*
	(0.008)	(0.011)	(0.003)	(0.004)
Mean dep. var.	0.244	0.237	0.008	0.009
Obs.	49,021	33,161	32,105	19,820

Note. The table reports DiD estimates for the household risky asset share and delegation of financial decision-making to the spouse. For each outcome, the first column uses the baseline 20% relative memory-loss definition. The second column uses a permanent-loss definition that is nested in the baseline definition: a respondent is treated only if the first baseline 20% loss is followed by no later observed return to the memory score recorded one wave before that loss. Respondents whose first baseline loss is transitory are excluded from the permanent-loss specification and are not used as controls. Events with no later observed memory score are not classified as permanent. Both specifications are otherwise the same as model (1). Standard errors are clustered at the household level. $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.10$.

Table E.4: DiD estimates by relative memory-loss definition.

	Risky share			*Delegation*		
	(1) 20% loss	(2) 15% loss	(3) 25% loss	(4) 20% loss	(5) 15% loss	(6) 25% loss
Post	-0.032***	-0.028***	-0.026***	0.012***	0.010***	0.013***
	(0.008)	(0.008)	(0.008)	(0.003)	(0.003)	(0.003)
Unaware × Post	0.017**	0.018**	0.014	-0.007**	-0.006**	-0.008**
	(0.008)	(0.008)	(0.009)	(0.003)	(0.003)	(0.003)
Mean dep. var.	0.244	0.251	0.246	0.008	0.007	0.008
Obs.	49,021	46,791	50,190	32,105	30,622	33,181

Note. The table reports DiD estimates for the household risky asset share and delegation of financial decision-making to the spouse. For each outcome, columns use alternative definitions of relative memory loss: the baseline 20% definition, the 15% definition, and the 25% definition. All specifications are otherwise the same as model (1). Standard errors are clustered at the household level. $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.10$.

Table E.5: DiD estimates by outcome definition.

	Risky share		*Delegation*	
	(1) Baseline	(2) Stocks only	(3) Baseline	(4) Persistent
Post	-0.032***	-0.028***	0.012***	0.007***
	(0.008)	(0.007)	(0.003)	(0.003)
Unaware × Post	0.017**	0.015*	-0.007**	-0.005*
	(0.008)	(0.008)	(0.003)	(0.003)
Mean dep. var.	0.244	0.188	0.008	0.006
Obs.	49,021	57,720	32,105	25,319

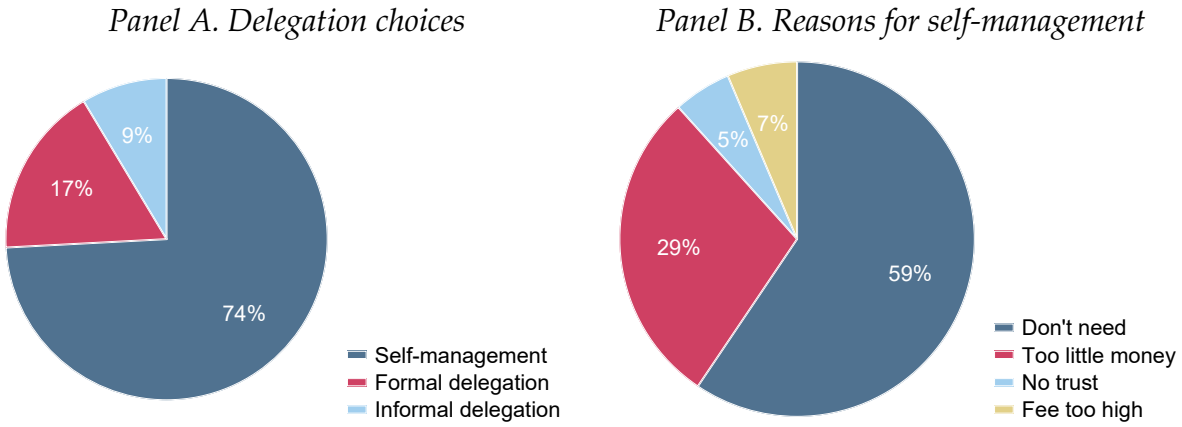
Note. The table reports DiD estimates for the household risky asset share and delegation of financial decision-making to the spouse. Column (1) defines risky assets as stocks and bonds as a share of household financial wealth, while column (2) uses the stocks-only share of household financial wealth. Column (3) defines delegation as a transition from the respondent being the financial respondent in the previous wave to the spouse being the financial respondent in the current wave. Column (4) uses a persistent-delegation definition, which additionally requires the spouse to remain the financial respondent in the next observed wave. All specifications are otherwise the same as model (1). Standard errors are clustered at the household level. $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.10$.

Table E.6: DiD estimates by event-time window.

	Risky share			*Delegation*		
	(1) 6 years	(2) 8 years	(3) 4 years	(4) 6 years	(5) 8 years	(6) 4 years
Post	-0.032***	-0.032***	-0.032***	0.012***	0.012***	0.011***
	(0.008)	(0.008)	(0.008)	(0.003)	(0.003)	(0.003)
Unaware × Post	0.017**	0.016*	0.015*	-0.007**	-0.008***	-0.006*
	(0.008)	(0.008)	(0.008)	(0.003)	(0.003)	(0.003)
Mean dep. var.	0.244	0.247	0.241	0.008	0.008	0.008
Obs.	49,021	53,869	42,319	32,105	35,487	27,390

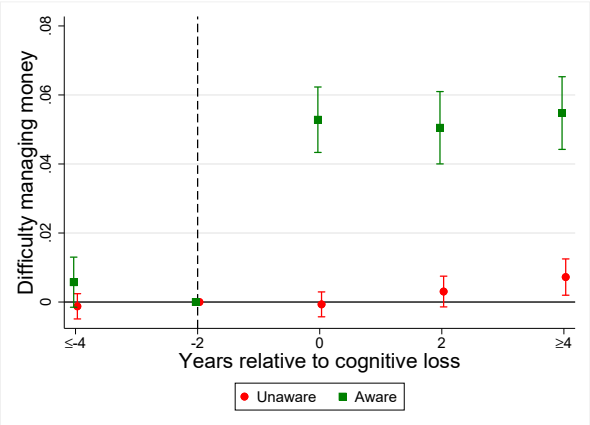
Note. The table reports DiD estimates for the household risky asset share and delegation of financial decision-making to the spouse. For each outcome, the column labeled 6 years uses the baseline event-time restriction used in the main specification, retaining treated observations from three waves before to three waves after the first severe memory-loss event (six years on either side, since HRS waves are biennial). The columns labeled 8 years and 4 years instead retain treated observations from four waves and two waves on either side of the first severe memory-loss event, respectively. All specifications are otherwise the same as model (1). Standard errors are clustered at the household level. $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.10$.

Figure E.1: Delegation choices in the HRS.



Note. Panel A shows the share of HRS respondents utilizing self-management, formal delegation, and informal delegation. Panel B breaks down the reasons cited by self-managing respondents for not seeking financial help. Data are from the 2016 HRS experimental module "Financial Advice and Capacity at Older Ages".

Figure E.2: Multi-period DiD estimates for self-reported difficulty with money management.



Note. The figure presents estimates from the multi-period extension of model (1) for the following outcome: an indicator equal to one if the respondent answered "yes" to the following HRS Core survey question: "Because of a health or memory problem do you have any difficulty with managing your money – such as paying your bills and keeping track of expenses?". The horizontal axis reports event time relative to the first severe memory-loss episode, occurring at $k = 0$. The omitted period is the wave immediately preceding the event ($k = -2$). Vertical bars denote 95% confidence intervals based on standard errors clustered at the household level. Controls include a quadratic in age and indicators for labor-force status, marital status, and census division.