Cognitive Decline and Financial Decision-Making

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Abstract

Cognitive decline severely impairs financial decision-making, but often develops unnoticed. We propose a model of portfolio choice with endogenous information acquisition which predicts that investors unaware of their decline will take on excessive risk and delay the transfer of financial control to a trusted agent. We test these implications in an experimental survey of affluent older US investors by eliciting their intended actions under hypothetical scenarios of memory decline. About one in nine respondents overestimates their memory skills. Our randomized interventions reveal that making the financial risks of memory decline salient shifts stated choices toward more prudent behaviors, namely risk reduction and a reallocation from informal arrangements toward professional financial advice. Most importantly, we uncover significant heterogeneity: among unaware investors, only personalized, objective feedback on memory performance triggers a shift in intended behavior, while general educational information alone has limited effects. Finally, we document substantial gender asymmetries in delegation advice, with male respondents less likely to suggest delegation when the hypothetical subject is of the opposite sex. These findings can shape information campaigns and advisory practices aimed at protecting older investors from the financial consequences of cognitive decline.

Keywords: Cognitive decline; portfolio choice; memory skills; financial delegation; vignettes.
JEL classification codes: C93, G11, G51, J14

1 Introduction

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) force older investors — who hold a large fraction of national wealth in most developed countries — to make complex financial decisions at a time when their cognitive abilities start 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 control to a trusted agent could in principle mitigate these risks, the timing of delegation is often delayed due to unawareness of cognitive decline (Ameriks et al., 2023).

Misperception of own cognitive abilities is widespread among older Americans, and those who are unaware of their cognitive decline tend to experience significant wealth losses that cannot be explained by rational disinvestment strategies (Mazzonna and Peracchi, 2024). Undiagnosed memory disorders are also associated with worse credit outcomes, such as lower credit scores or higher payment delinquency (Gresenz et al., 2025).

Much remains unknown about the relationship between cognitive decline and financial decision-making. In particular, two 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 (a spouse, a child, a friend, or a professional financial advisor), while others may continue to self-manage but rebalance their portfolios toward safer assets. Second, can policymakers actually raise this awareness, and what is most effective — generic information about the financial risks of memory decline, or personalized feedback about one's own memory performance? Understanding both questions is essential for designing policies that protect older investors, yet neither has been addressed with direct evidence.

To address these questions, we develop a simple model of portfolio choice with endogenous information acquisition in which cognitive decline interacts with asset allocation and delegation decisions. Investors allocate wealth between safe and risky assets and choose how much effort to spend acquiring information about risky returns. Cognitive decline reduces the effectiveness of information acquisition, lowering both the optimal information effort and the optimal risky share. At the same time, investors may delegate portfolio management to an agent (e.g., a professional financial advisor, the investor's spouse or child, or a friend) who charges a fee or asks for compensation.

Our model predicts that perceived cognitive deterioration leads a self-managing investor to reduce the riskiness of her portfolio and increases the benefits of delegation. When investors are unaware of their cognitive decline or underestimate its prob-

ability, delegation may be inefficiently delayed, leading to excessive exposure to risky assets. The model delivers two testable predictions: Investors who underestimate their cognitive decline take on excessive risk and delay delegation, and informational interventions should have larger behavioral effects among unaware investors than among those who already recognize their decline.

We test these predictions using an experimental survey of members of the American Association of Individual Investors (AAII), a roughly 150,000-member organization of self-directed investors formed in 1978. AAII members 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 (Mazzonna and Peracchi, 2024).

The survey has four key features. First, it measures unawareness of cognitive decline, by comparing respondents' self-rated memory with their performance on an objective memory task administered within the survey. Second, it elicits stated preferences over financial responses to cognitive decline in two forms: a vignette question about a hypothetical investor and a personal question about the respondent's own intended or actual behavior. Third, the sex and age of the subject in the vignette are randomized, allowing us to identify whether advice varies with the investor's characteristics in ways that cannot reflect beliefs about financial competence. Fourth, respondents are randomly assigned to one of four conditions before answering both questions: receiving personalized feedback on their memory score, receiving educational information about the financial risks of memory decline, receiving both, or receiving neither. This design allows us to separately identify the causal effects of these two distinct informational treatments and their interaction.

Our analysis delivers a number of results. First, we show that a significant fraction of respondents seem to be unaware of their cognitive abilities. About one in nine respondents report that their memory is "Very good" or "Excellent" but scores poorly 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 (Mazzonna and Peracchi, 2024).

Second, consistent with our model, our informational interventions shift stated preferences toward more prudent financial decision-making along two margins: risk reduction and reallocation of delegation from informal to formal. In the vignette question, the combined treatment — which provides both information on the financial consequences of serious memory decline and feedback on own memory performance — increases the probability of risk reduction by 18% and reduces informal delegation by about 12% (relative to the control mean). In the personal question, it increases formal delegation by about 11% and reduces informal delegation by about 7% (relative to the

control mean).

Third, we uncover substantial heterogeneity in how investors update their beliefs and stated preferences. Among investors who appear to be unaware of their cognitive decline, only feedback on own memory performance triggers meaningful behavioral changes — shifting stated preferences toward formal delegation and risk reduction. This suggests that the effectiveness of informational interventions depends crucially on whether investors are aware of their cognitive status and that personalized feedback acts as a signal to correct biased priors. From a policy perspective, this implies that broad financial literacy campaigns are likely insufficient and that targeted screening — brief standardized memory assessments paired with personalized feedback — is more appropriate for investors most at risk.

Finally, randomization of the subject's sex in the vignette reveals evidence of gender asymmetry in delegation advice. We estimate that respondents are more likely (by 5.8 to 7.2 percentage points) to suggest delegation to a relative if the subject is an older woman. Because the vignette describes the subjects as having been successful at self-managing their finances, this difference cannot reflect beliefs about lower financial competence of older women (Lusardi and Mitchell, 2008), and is instead more consistent with paternalistic behavior toward female investors. This pattern is concerning because older women are among the most financially vulnerable to cognitive decline, as they are more likely to be widowed at advanced ages (Streeter, 2020) and have historically been less involved in household financial decision-making (Smith, McArdle and Willis, 2010), yet they appear to be systematically steered toward informal rather than formal financial arrangements by those around them.

Taken together, our findings contribute to the growing literature on cognitive aging and household finance (e.g., Agarwal et al., 2009; Mazzonna and Peracchi, 2024; Ameriks et al., 2023) by providing the first experimental evidence on how awareness of cognitive decline shapes financial decision-making. We show that targeted informational interventions can overcome the behavioral friction of unawareness, but only when they deliver personalized objective feedback rather than generic education. Our results also contribute to the literature on financial delegation (Kim, Maurer and Mitchell, 2016; Gaudecker, 2015) by documenting that even well-intentioned advice may reflect implicit assumptions about gender rather than the investor's best interests.

2 Cognitive decline, investment choices, and delegation

Cognitive skills tend to follow an inverted U-shaped pattern over the lifetime of an individual (Hanushek et al., 2025). The age at which they peak and the rate at which

they decline depend on the specific skill considered. Fluid intelligence (the ability to reason, think abstractly, and solve novel problems independently of prior knowledge and experience) is highly correlated with working memory, peaks early — between ages 20 and 30 — and declines rapidly afterward, while crystallized intelligence (the accumulation of knowledge and skills acquired over a lifetime of learning and experience) is highly correlated with long-term memory, peaks at much later ages and declines at a slower rate (Horn and Cattell, 1967).

The standard human capital model (Ben-Porath, 1967) predicts that human-capital accumulation (including cognitive skills) dominates until the incentives to invest can no longer compensate for natural cognitive deterioration, at which point cognitive decline becomes noticeable. These patterns have also been established empirically (Mazzonna and Peracchi, 2012).

The economic literature largely focuses on human capital accumulation — rather than decumulation (McFadden, 2008). Yet, the probability of having dementia during the last six months before death is 41.3% for Americans older than 70 (Hudomiet, Hurd and Rohwedder, 2025), and cognitive decline (without dementia) is even more frequent. These issues have important consequences for the financial choices of the elderly, especially when cognitive deterioration remains undetected. Mazzonna and Peracchi (2024) show that people who experienced a severe memory loss but are unaware of it are likely to suffer large losses in financial wealth. Recent evidence also shows that the financial consequences of Alzheimer disease and dementia may begin years before severe symptoms onset or clinical diagnosis (Nicholas et al., 2021; Li et al., 2023).

Cognitive decline can hinder the ability of older investors to make the correct investment choices (see Gomes, Haliassos and Ramadorai (2021) for a review on the relationship between cognition and household finance). Relative to their young self, they may be slower in their reasoning and more prone to making mistakes. Korniotis and Kumar (2011) find that older investors' investments reflect greater financial knowledge, consistent with a shift from fluid to crystallized intelligence at later ages. However, the adverse effects of cognitive aging seem to prevail over the benefits of experience, and older investors achieve lower overall returns. Unawareness of their own cognitive decline can exacerbate these costs through overconfidence, excessive trading, and misuse of information input in investment decisions (Odean, 1998; Barber and Odean, 2001; Guiso and Jappelli, 2020).

By delegating the management of their finances 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, the timing of delegation can be excessively delayed (Ameriks et al., 2023). For example, Hsu and

Willis (2013) document that financial responsibility is often transferred from the cognitively declining household financial respondent to the unimpaired spouse only with delay, well after the original decision maker began to experience difficulties handling money.

In the next section, we provide a conceptual framework that incorporates these two mechanisms, namely the effects of cognitive decline on portfolio allocation and on delegation.

3 Conceptual framework

Peress (2004) presents a portfolio choice model in which financial investors can acquire private information about the return on a risky asset. We extend a partial-equilibrium version of his model in two directions. First, we assume that cognitive decline reduces the effectiveness of 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 aging. For now, we assume that investors are correct about the risk of experiencing cognitive decline, an assumption that will be relaxed in Section 3.3.

3.1 Portfolio choice under self-management

If the investor chooses self-management, she must decide how to allocate her initial wealth between a safe asset with a guaranteed return r and a risky asset with stochastic return $R \sim \mathcal{N}(\mu_R, \sigma_R^2)$. At the time of the allocation decision, the investor does not observe the excess return $X = R - r$ but receives a private signal about it, $S = X + \varepsilon$, where ε is distributed independently of X as $\mathcal{N}(0, \sigma_\varepsilon^2)$. The investor may spend time and resources collecting information about the risky asset, thereby increasing the quality $1/\sigma_\varepsilon^2$ of her private signal. However, the occurrence of an adverse cognitive shock D destroys the value of information acquisition with positive probability p:

$$\frac{1}{\sigma_\varepsilon^2} = (1 - D)\, h(I) = \begin{cases} 0, & \text{with probability } p, \\ h(I), & \text{with probability } 1 - p, \end{cases}$$

where $I \geq 0$ is the information effort. We assume that $h(I)$ is positive, increasing, and concave in I, and that a positive value of I entails a cost $c(I)$ that is positive, increasing and convex in I.

At the beginning of the period,[1] the investor exerts an information effort I, pays a cost $c(I)$, and selects an optimal rule $\alpha(\cdot)$ for allocating initial wealth ω between the

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[1] 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.

two assets. After the signal S is revealed, the investor follows the chosen rule and allocates $\alpha(S)\omega$ to the risky asset. At the end of the period, stochastic returns are realized, the portfolio pays off and the investor consumes all final wealth W (we assume no bequest motives, so final wealth is entirely consumed). Therefore, the investor's problem is:

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

where $\mathbb{E}_S[\cdot]$ denotes expectations with respect to the marginal distribution of S, $\mathbb{E}[\cdot \mid S]$ denotes expectations conditional on S, $c(I)$ has been multiplied by $u'(\omega)$ to express it in utility terms, and the probability p of a cognitive shock enters the problem because it affects the optimal level of information effort and the optimal allocation rule.

In this simple model, cognitive decline reduces the effectiveness of information acquisition and therefore the quality of the investor's signal. For a risk-averse investor, this leads to a lower level of information acquisition and a lower optimal risky share.

As in Peress (2004), to obtain a solution for the problem, we employ a "small excess return approximation", i.e., we assume that $\mathbb{E}[X^2 \mid S] \approx \mathbb{V}[X \mid S]$.

Proposition 1. *Under a small excess return approximation, an increase in the probability p of cognitive decline:*

   i) reduces the investor's level of effort in information-collection activities, and

   ii) reduces the expected share of wealth invested in the risky asset.

Proof. See Appendix A.1.

The intuition is straightforward: A higher probability of cognitive decline reduces the expected return to information acquisition, which lowers both the optimal effort and, through the resulting noisier signal, the optimal share of wealth allocated to the risky asset.

3.2 Delegation of financial decision-making

If the investor chooses to delegate, she must pay a fee or provide some compensation to the agent. For example, in the wealth management industry, fees usually consist of a fixed charge ζ plus an amount $\varphi\omega$ proportional to the assets under management (Kim, Maurer and Mitchell, 2016). Ignoring the information acquisition problem, we assume that the agent observes a signal $S^d = X + \eta$, with $\eta \sim \mathcal{N}(0, \sigma_\eta^2)$, where the signal quality, $1/\sigma_\eta^2$, is now given exogenously.

Under delegation, the agent decides an optimal allocation rule on behalf of the investor (the "principal"). Thus, the investor's indirect utility from delegation is:

$$V^d(\omega) = \max_{\alpha(\cdot)} \mathbb{E}_{S^d}\left\{\mathbb{E}\left[u(W^d) \mid S^d\right]\right\} \quad \text{s.t.} \quad W^d = [r + \alpha(S^d)X]\left[(1-\varphi)\omega - \zeta\right].$$

Delegation can be either formal (e.g., to a professional financial advisor) or informal (e.g., to the investor's spouse or children). We do not distinguish between the two channels and adopt a formulation that accommodates both. For example, one may think that the investor's spouse has lower investment skills (i.e., lower σ_η^2) than a financial advisor, but she does not demand a fixed fee (i.e., $\zeta = 0$).

The investor chooses between self-management and delegation depending on which alternative yields the highest value. Since we assume that the agent is not at risk of cognitive decline, delegating ensures the investor against such risk.

Proposition 2. *Under a small excess return approximation, the gain from delegation, $\Delta V(\omega, p) = V^d(\omega) - V(\omega, p)$, increases in p. If $\Delta V(\omega, p)$ is continuous in p, and $\Delta V(\omega, 0) < 0 < \Delta V(\omega, 1)$, then there exists a threshold probability of cognitive decline p^* such that delegation is optimal if and only if $p \geq p^*$.*

Proof. See Appendix A.2.

By Proposition 2, the delegation rule is characterized by a threshold p^* solving

$$V^d(\omega) = V(\omega, p^*).$$

The intuition is that delegation insures the investor against cognitive risk: Since the agent's signal quality is unaffected by the investor's decline, the relative value of delegation over self-management increases with the probability of an adverse cognitive shock, eventually crossing a threshold p^* above which delegation is optimal.

We remain agnostic on whether formal or informal delegation is better when cognition declines. While distinguishing between these two forms of delegation would require a host of specific assumptions, our conceptual framework is enough 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.[2]

3.3 The role of misperception about cognitive status

We now examine the implications of our model when the investor underestimates her risk of cognitive decline, i.e. $\widehat{p} < p$, where $\widehat{p}$ represents the investor's "prior" probability of an adverse cognitive shock and p represents the true probability.

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[2] We also abstract from the principal-agent problem associated with delegation (see, e.g., Inderst and Ottaviani (2012a,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).

By Proposition 1, such "unaware" investor will collect too much information or take on excessive portfolio risk. By Proposition 2, she will also hand over portfolio management when the risk of cognitive decline is higher than optimal. If cognitive skills depreciate over time, this implies that unaware investors will delay the optimal timing of delegation.

The model's comparative statics can be directly mapped into the stated choices in our survey. In particular, information about the financial risks of serious memory problems or feedback about own performance on a memory task should move the prior probability $\hat{p}$ of an unaware investor closer to the true p. Thus, Propositions 1 and 2 suggest that we should expect informational interventions to affect investors' responses along the following two margins. First, increased awareness of 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 cognitive decline, for whom the treatments move $\hat{p}$ furthest from its initial biased value.

4   Data and experimental design

To investigate how older US investors adjust their financial decision-making in response to cognitive decline, we conducted a survey specifically targeting wealthy Americans. To motivate the need for this targeted sample, we first analyze the prevalence of financial delegation in the Health and Retirement Study (HRS), a representative panel survey of the non-institutionalized US population aged 50+.

4.1   Motivating evidence from the HRS

In 2016, HRS included an experimental module on financial advice and literacy that we use to investigate delegation and its relationship with cognitive decline.[3]

Panel A of Figure 1 shows that the vast majority (74%) of HRS respondents self-manage their finances, with only 17% relying on formal professional delegation and 9% relying on informal delegation. When respondents who do not delegate are asked why, the predominant reasons are perceived 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 (Panel B).

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[3] The experimental module "Financial Advice and Capacity at Older Ages" was submitted to a random 10% subsample of core HRS respondents. Kim, Maurer and Mitchell (2021) used this module to study how financial literacy affects the demand for financial advisory services.

Figure 1: Wealth management choices of older Americans.

Panel A. Delegation choices

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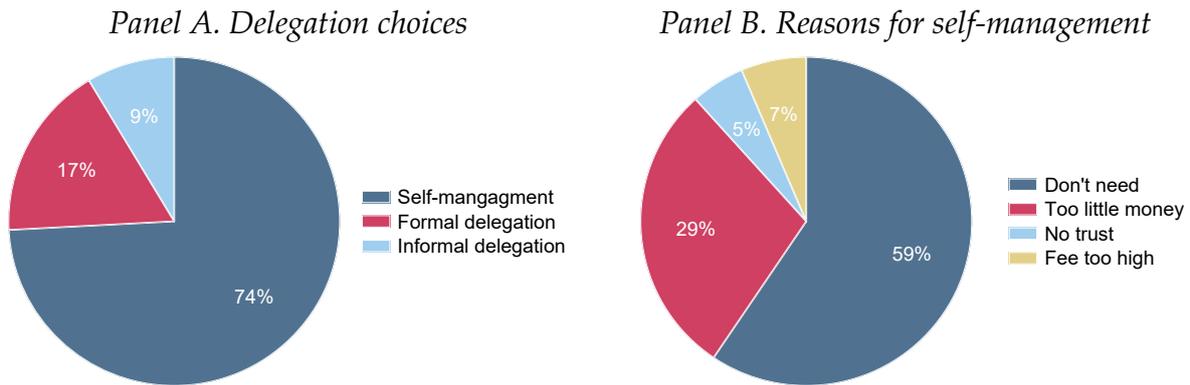
Note. Panel A shows the share of HRS respondents utilizing self-management, formal delegation, and informal delegation. Panel B breaks down the reasons cited by self-managing respondents for not seeking financial help. Data are from the 2016 HRS experimental module on financial delegation.

This pattern immediately suggests that the formal/informal delegation distinction is empirically meaningful, and 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 Appendix Table B.1, where we report the results of estimating a multinomial logit model of delegation choices using HRS data, 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 percentage points. We also investigate the relationship with cognitive decline, measured by a drop of 20% or more in the memory test score relative to the previous wave,[4] as in Mazzonna and Peracchi (2024). We find that this drop is associated with an increase in the probability of formal delegation (by 12.2 percentage points), but only for individuals in the highest tercile of financial wealth.

Ultimately, this evidence confirms that the mechanisms we model are primarily relevant for households with substantial financial assets. Therefore, evidence for our model's predictions requires a targeted sample of affluent and financially sophisticated investors, such as the members of the AAII.

4.2 The AAII survey

We are especially interested in the AAII members for two reasons. First, they are used to surveys because, since 1987, the AAII has produced a weekly Investor Sentiment Survey. Greenwood and Shleifer (2014) show that the expectations elicited by this sur-

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[4] The HRS memory test is structured as follows: the interviewer reads a 10-word list once, and participants have to recall as many words as possible (in any order) both immediately and again after a short delay. The memory score is then given by the total number of correctly recalled words across the immediate and delayed tests, yielding an integer value from 0 to 20.

vey are strongly positively correlated with those elicited by the Gallup survey. More recently, Jiang, Peng and Yan (2024) also surveyed the AAII members to study the relationship between personality differences and investment decision-making.

Second, and most important for our purposes, AAII members can be regarded as broadly representative of the US population of highly-educated older financial decision-makers with large financial wealth holdings, which are precisely those most vulnerable to the financial consequences of cognitive decline.

We structured our survey in three parts. The first asked basic demographic questions (sex, age in years, highest level of completed education, current marital status, and state of current residence), as well as questions on the level of trust in others,[5] reliance on a paid professional financial advisor, and the level and composition of household financial wealth. The complete survey is presented in Appendix C.

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 and 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 they have granted a durable Power of Attorney (POA) and, if so, to whom.

The second part of the survey was designed to evaluate the memory skills of the respondents. We first asked them to self-rate their current memory on a 5-point Likert scale using the same measure as the HRS Cognition Survey ("Poor", "Fair", "Good", "Very good", "Excellent"). We then assessed their actual memory performance by administering a short memory task consisting of presenting respondents with a sequence of eight words, each displayed for two seconds. After all eight words had been displayed, respondents were asked to select as many as they could remember from a larger list of 32 words displayed on the screen.[6] The order in which words were presented was randomized.

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

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[5] The question about the level of trust in others was included due to the importance of trust for household finance (Guiso, Sapienza and Zingales, 2008; Sapienza, Toldra-Simats and Zingales, 2013). In our context, an investor's level of trust may influence delegation of financial decisions to others, including a paid professional financial advisor.

[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 respondents to type-in the words they remember.

losses, those in the third group were exposed to both treatments simultaneously, while those in the fourth (control) group received no information.

In the third part of the survey, 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 make, selecting up to three of the following seven answers: "Reduce the share 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 signs of cognitive decline. Those who answered no were 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 occurred 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 answers available for each question.

4.3 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 we closed the survey on October 15, 2025.[7] We received 3,515 total survey responses. When someone submitted multiple responses, we retained the submission with the highest completion rate. We then trimmed the sample by excluding implausibly short or long completion times (keeping durations between 67 and 5,000 seconds), leaving 3,015 valid responses. Although this number represents just about 2% of the total population of AAII members, it is only slightly below the 3,325 completed responses reported by Jiang, Peng and Yan (2024). Therefore, we have no reason to think that our response rate is unusually low, especially considering that we provided no monetary incentive and participation in the survey was voluntary and fully anonymized.

One concern is that our respondents may not be representative of the AAII population, i.e., they may differ systematically from non-respondents in terms of their characteristics (Stantcheva, 2023). Because we do not have information on the characteristics of AAII members, we cannot check whether the selection into response was random. However, the invitation message did not mention the specific subject matter of the study, which reduces the risk that participation is driven by key variables of interest such as cognitive ability or financial decision-making.

A related concern is whether the composition of respondents changes over the survey field period and whether differential item nonresponse or attrition affects the analysis samples. Appendix Table D.2 addresses these issues by comparing observable characteristics across the de-duplicated full sample (column (1)), respondents who completed the survey before the median completion time ("early respondents", column (2)) and those who completed it after the median ("late respondents", column (3)), as well as the subsamples of respondents who answered the vignette question (column (4)) and the personal question (column (5)).

The table shows that the respondents are remarkably similar across subsamples in terms of observable characteristics such as age, sex, marital status, education, financial wealth, memory score, and unawareness. The only exception is that respondents in the personal-question sample are somewhat less likely to report having experienced cognitive decline (0.19 versus 0.25 for both the full and vignette samples). This pattern is consistent with some respondents who have experienced decline being more reluctant to answer questions referring explicitly to their own situation.

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[7]More than half of the sample completed the survey between 5 and 10 minutes. Appendix Figure E.1 shows the time profile of the cumulated number of daily responses and the histogram of survey duration for those who took less than one hour to complete the survey (99% of the sample).

This form of selective attrition is unlikely to threaten the internal validity of the experimental comparisons, since treatment assignment is randomized (Appendix Table D.3 shows that treatment assignment is balanced within each analysis sample) and the observable composition of the analysis samples remains very close to that of the full de-duplicated sample. At the same time, it may matter for external validity in the personal-question, because respondents with direct experience of decline are arguably those for whom the intervention is most behaviorally relevant. Reassuringly, our main results are robust to excluding respondents who report having already experienced cognitive decline. Further, selective attrition of these respondents should attenuate estimated treatment effects in the personal scenario, so our estimates should be interpreted as a lower bound.

5 Descriptive analysis

This section describes the demographic characteristics of our survey respondents, their trust and delegation to others, and the level and composition of their household financial wealth (Section 5.1), their self-rated and "objective" memory levels (Section 5.2), and their response patterns to the vignette and personal questions (Section 5.3).

We complement the graphical descriptions with simple regression analyses of the relationship between our key outcomes and the observable characteristics of the respondents. We vary both the outcome (portfolio shares, memory measures, awareness, vignette and personal choices) and, when relevant, the subsample considered.[8] All models include as covariates the respondent's age and age squared, her level of trust in others, her score in the memory task (or "memory score"), and binary indicators for being male, having a postgraduate degree, having a spouse or partner, having a paid professional financial advisor, having granted a durable POA to others, being unaware of memory problems,[9] having experienced some signs of cognitive decline, household financial wealth brackets, and the state of current residence. The age and memory score are expressed as deviations from their sample means. The intercept of each model can therefore be interpreted as the average value of the outcome for an unmarried female respondent who does not rely on a paid financial advisor, has not granted a durable POA, does not have a postgraduate degree, has a household financial wealth of $2–5 million, is not unaware, resides in California, and has age and level of trust in others equal to the sample averages.

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[8] In addition to the point estimates and the t-ratios based on conventional heteroskedasticity-robust standard errors, we report the sample size (Obs.), the total number of estimated coefficients excluding the intercept (k), the root mean squared error (RMSE) and the R^2. Estimates that are significant at the 10%, 5% and 1% levels are denoted by single, double or triple stars, respectively.

[9] We exclude this control when the outcome of interest is being unaware of memory problems.

In what follows, we use N/A to denote missing answers or the answers "Prefer not to say" and "Do not know".
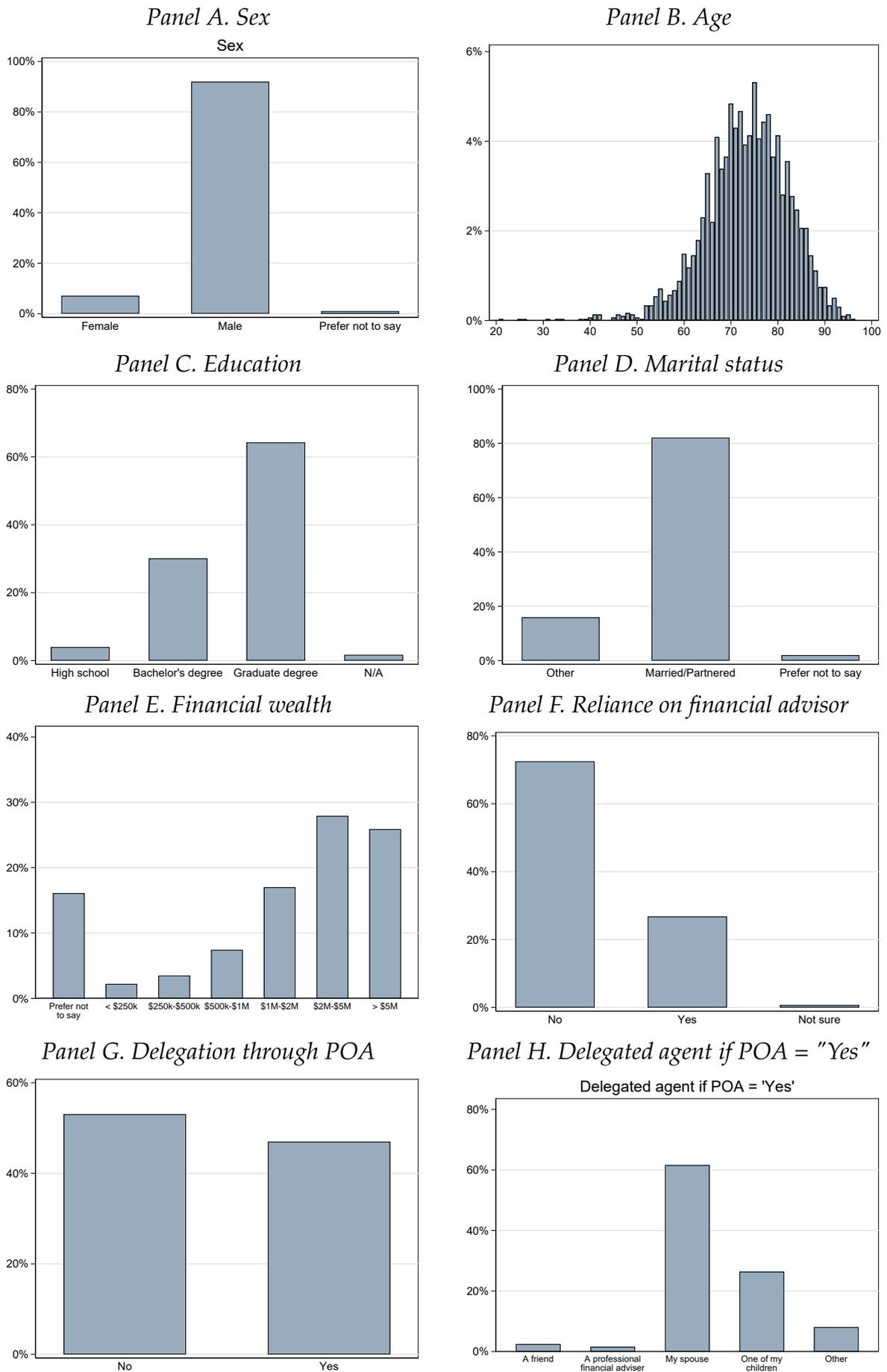
5.1 Demographic and financial characteristics

The members of the AAII are older, more educated, and financially more sophisticated than the general population, and are therefore the subpopulation for which cognitive risk and delegation are both salient and consequential (Figure 2). Our respondents consist predominantly of males (about 91% of the sample), aged 50+ (about 95%), highly educated (about 64% of them report a graduate or professional degree as the highest level of education completed, while another 30% report a bachelor degree) and currently married or partnered (about 81%). About 40% of them currently reside in six states: California, Florida, Texas, Illinois, Virginia and New York (see Appendix Figure E.3 for the geographical distribution of respondents). Figure E.4 compares the distribution by demographics characteristics of our AAII respondents with the 2022 HRS financial respondents with financial wealth above $50k and shows that the former are much more likely to be males, to be in the 65–85 age range, and to have a graduate degree.

Panels E–H of Figure 2 summarize the distribution of survey respondents by financial wealth and delegation arrangements. Panel E shows the distribution of total household financial wealth. Nearly two thirds of the sample report a household financial wealth of $2M or more (33% report $2M–5M and 31% report more than $5M). Panel F shows that about 27% of respondents rely on a paid professional financial advisor or planner who can place trades on their behalf. Panel G shows that about 47% of respondents grant a durable POA to others. Finally, Panel H shows that, among those who grant a durable POA, the grantee is usually a close family member (the spouse in 61% of cases and a child in 26%), while only 1.6% of respondents grant a durable POA to a professional financial advisor. However, among those who are currently married or partnered, 73% grant a durable POA to the spouse, while among those who are not, 51% grant a durable POA to a child. These patterns confirm that substantial informal delegation mechanisms are already in place for a large fraction of respondents.

Appendix Figure E.2 breaks down household financial wealth into asset categories. Liquid assets and corporate bonds are the two most important categories, with liquid assets representing more than 20% of household financial wealth in portfolios below $1M but only 15% in portfolios above $5M, and corporate bonds representing around 60% in portfolios below $1M, but more than 70% of household financial wealth in portfolios above $5M. Somewhat surprising, stocks on average only represent 9% of household financial wealth, with little variation between wealth brackets, a result that

Figure 2: Sample characteristics: demographics, financial wealth, and delegation.

Panel A. Sex

Panel B. Age

Panel C. Education

Panel D. Marital status

Panel E. Financial wealth

Panel F. Reliance on financial advisor

Panel G. Delegation through POA

*Panel H. Delegated agent if POA = "Yes"*

may reflect the sample composition by age and other socio-demographic characteristics.

To verify that portfolio behavior in our sample is consistent with the broader household finance literature, and to establish baseline relationships between delegation, trust, and portfolio composition, Appendix Table D.4 reports estimates from linear models for the portfolio shares of the various asset categories. Investors with higher trust levels tend to hold less liquid assets and more corporate bonds. Investors with a paid financial advisor hold less liquidity (-3.4 percentage points) and fewer corporate bonds (-2.5 percentage points), but substantially more stocks (+3.9 percentage points) and government bonds (+1.9 percentage points), consistent with more diversified or risk-tolerant portfolios under professional guidance. Taken together, these facts suggest that delegation and trust are systematically related to how older investors allocate their financial wealth.

5.2 Memory status and awareness

Panel A of Figure 3 shows the distribution of self-rated memory, ranging from "Poor" to "Excellent". Only 7% of respondents with non-missing answers rate their memory as "Poor" or "Fair," while 64% rate it as "Very good" (47%) or "Excellent" (17%). Panel B instead 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 memory task. Among those who did, the mean score is 6.5, the median is 7, with 20.3% scoring 5 or less, and 26.5% earning the full score of 8.

Figure 3: Sample distribution of self-rated memory status and score in the memory task.

Panel A. Self-rated memory status   *Panel B. Memory score (0-8 words)*
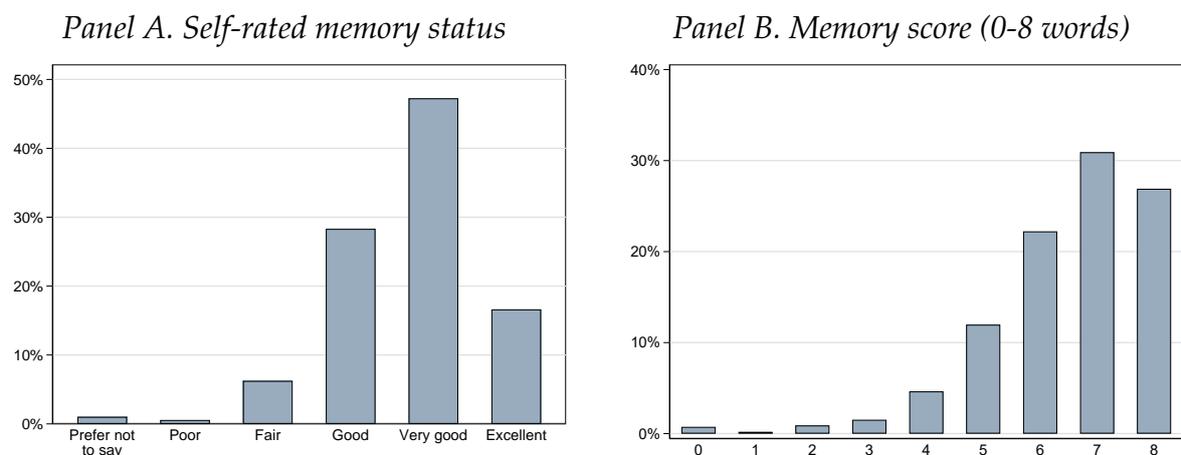
Note. Panel A shows the distribution of self-rated memory status, elicited on a 5-point Likert scale (Poor, Fair, Good, Very good, Excellent). Panel B shows the distribution of the objective memory score from the memory task, defined as the number of target words correctly recognized out of 8 (range 0–8).

Appendix Figure E.5 tabulates the self-rated memory status against the score in

the memory task. We define an individual as unaware of having memory problems if she rates her memory as "Very good" or better but correctly recognizes at most five words in the memory task. Based on this definition, 11.6% of respondents are classified as unaware. Appendix Table D.8 shows that our main results are robust to alternative definitions of unawareness based on different combinations of self-rated memory categories and memory score cutoffs.

It is useful to compare our measures of memory status with an external benchmark, namely the HRS. Our median respondent rates her memory as "Very good", whereas the median financial respondent with financial wealth above $50k in the 2022 wave of the HRS rates it as "Good" (Appendix Figure E.6). While this discrepancy could reflect overly positive self-assessments among our respondents, it may also arise from differences in sample composition with respect to the HRS — especially by age and education, given the finding that more educated individuals experience slower cognitive deterioration (Hanushek et al., 2025).

The complementary evidence in Appendix Figure E.7 suggests that our respondents may be over-optimistic about their cognitive abilities. Panel A of the figure shows that respondents who do not report having experienced 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 having experienced some signs of cognitive decline.

Table 1 presents the estimates of our linear probability models that control for the observable characteristics of the respondents. As expected, older investors have worse memory status according to both subjective and objective measures, but neither age nor education seem to be significantly related to our measure of awareness. However, female respondents report higher memory scores and lower rates of unawareness, consistent with evidence that males tend to be relatively more overconfident (Barber and Odean, 2001). Further, those who report ever experiencing signs of cognitive decline also display substantially lower self-ratings and are less likely to be classified as unaware.

5.3   Vignette and personal questions

We conclude our descriptive analysis by examining how respondents state that they would react to cognitive decline.

Panel A of Figure 4 shows average responses to the two questions. In both, investors are asked how they would delegate financial decision-making in case of cognitive decline. The modal response (exceeding 60%) is always to get help from a professional financial advisor. Getting help from the spouse or a child is also frequent,

Table 1: OLS regression models for self-reported memory, score in the memory task, and unawareness.

	(1) Self-rated memory	(2) Memory score	(3) Unaware
Female	0.103	0.441***	-0.086***
	(0.076)	(0.105)	(0.019)
No graduate degree	0.125***	0.100	0.004
	(0.038)	(0.061)	(0.014)
Not married	0.045	-0.048	0.007
	(0.050)	(0.078)	(0.018)
Has advisor	0.023	-0.089	0.002
	(0.037)	(0.064)	(0.015)
Granted POA	0.049	-0.105*	0.009
	(0.034)	(0.056)	(0.013)
Experienced decline	-0.693***	-0.033	-0.067***
	(0.039)	(0.064)	(0.013)
Age	-0.013***	-0.017***	-0.000
	(0.002)	(0.004)	(0.001)
Age squared	-0.000**	-0.001***	0.000*
	(0.000)	(0.000)	(0.000)
Trust in others	0.032***	0.060***	-0.004
	(0.012)	(0.019)	(0.004)
Constant	3.703***	0.065	0.105***
	(0.069)	(0.113)	(0.023)
Obs.	2,662	2,566	2,564
k	74	74	74
RMSE	0.842	1.378	0.317
R^2	0.175	0.082	0.049

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. Covariates include demographics, delegation arrangements, experienced decline, and "Trust in others" (1–10 scale). The specification includes also state fixed effects, financial wealth brackets, and indicators for missing covariates. Robust standard errors are in parentheses. ***$p < 0.01$, **$p < 0.05$, *$p < 0.10$.

with the probability of selecting either being approximately 50%. These are also the options with the highest variance, as answers depend on whether the respondent is married/partnered or has children. On average, 30% of investors opt to reduce their share of risky assets, and only a few would get help from a friend.

Only a small fraction of the respondents (less than 5%) would purchase annuities. We therefore asked those who did not select the annuity option to explain their choice in an open-ended follow-up question. Text analysis of open-ended responses suggests three main reasons: concerns about high costs and low returns, the availability of other sources of retirement income, and general skepticism toward annuity products or providers (Appendix Figures E.8 and E.9).

Although the actions that could be taken under cognitive decline are essentially the same in the vignette and the personal questions, there are remarkable differences in response between the two types of questions. Out of a maximum of three options, respondents tend to select fewer options (on average 0.3 less) when answering the personal question. Further, the probability of selecting more than one option decreases for each category, except for reducing the share of risky assets and purchasing an annuity. Getting help from a financial advisor is the option with the largest drop: respondents are 14 percentage points less likely to suggest this in the personal question compared to the vignette question.

Figure 4 helps clarify where these vignette–personal differences come from by stratifying the sample according to whether respondents report having experienced signs of cognitive decline. Because the personal question captures intended behavior for those who did not experience decline but actual behavior for those who did, the panels separate plans from actions. Panel C shows that realized decline leads to less delegation than what respondents recommend in the vignette, while the opposite holds for risk reduction. Compared to their advice to a hypothetical friend, respondents who experienced decline are less likely to involve family members or an advisor, but more likely to suggest reducing risky exposure and the purchase of annuities.

Appendix Tables D.5 and D.6 report linear probability models for answers to the vignette and personal questions. Several patterns are common across the two sets of responses. Married participants are more likely to delegate within the household — especially to their spouse — and less likely to turn to friends. Respondents who already have a financial advisor are much more likely to indicate professional delegation and, in the personal scenario, less likely to report reducing portfolio risk directly. Trust in others is positively associated with delegating to a financial advisor and negatively associated with reducing the share of risky assets, consistent with greater perceived tolerance for risk among more trusting respondents. Finally, those who report having experienced signs of cognitive decline are less likely to rely on family members and more likely to report safer financial responses, particularly reducing portfolio risk and, in the personal scenario, purchasing annuities. This pattern is consistent with a shift toward more prudent financial choices once decline is recognized.

Overall, the evidence from this section delivers three main messages. First, our

Figure 4: Responses to vignette and personal questions.

Panel A. Full sample

Panel B. Did not experience decline

Panel C. Experienced decline
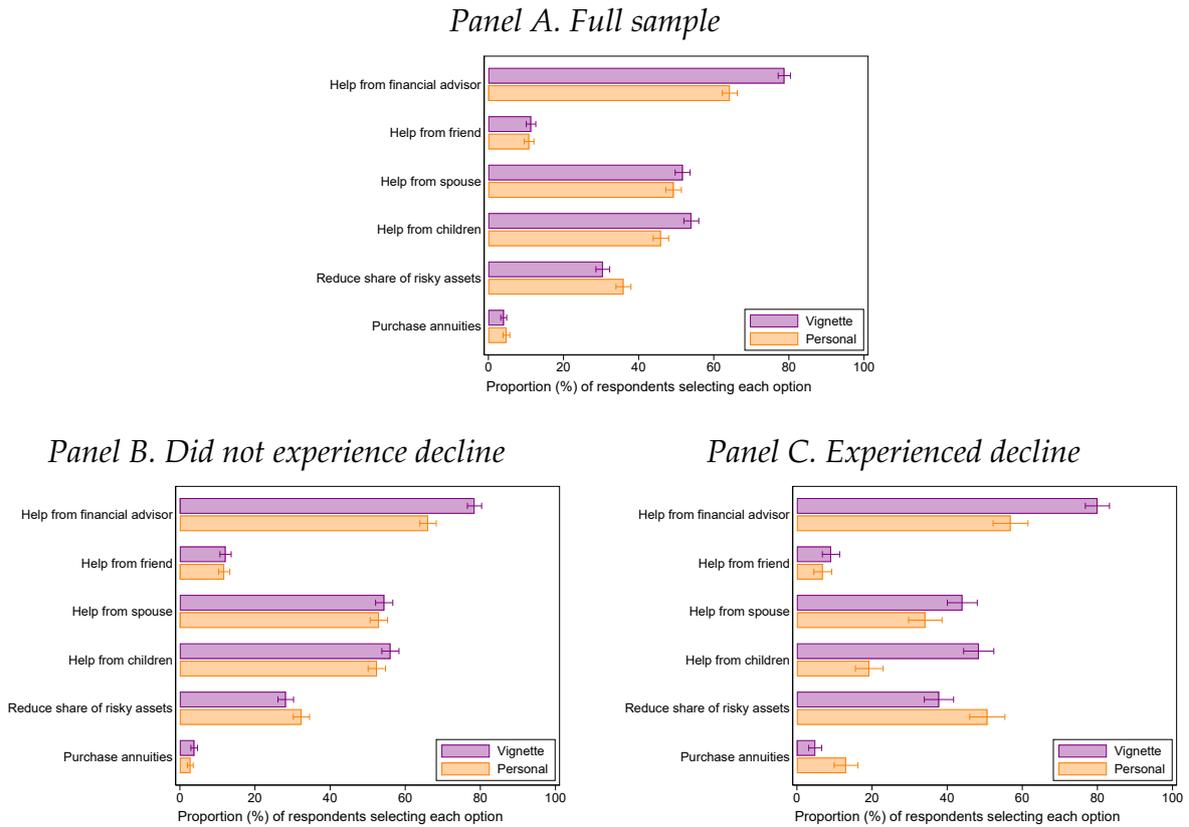
Note. The figure reports the fraction of respondents selecting each action in response to cognitive decline, separately for the vignette question (advice to a hypothetical person) and the personal-scenario question (intended or actual own behavior). Respondents could select up to three options, so categories 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.

respondents are older, highly educated, wealthy investors for whom cognitive risk and delegation are likely to be salient, so they already make extensive use of advisors and durable POAs. Second, awareness of own cognitive abilities is imperfect, and a non-negligible fraction of respondents appears to be overoptimistic. Third, stated willingness to delegate is systematically related to trust, existing delegation arrangements, and experienced decline.

5.4 Randomizing the characteristics of the subject in the vignette

Since we randomize the sex and age of the subject in the vignette, we can causally identify whether financial advice given to a cognitively impaired investor depends on the investor's sex. Because the vignette is otherwise identical across variants — including the explicit description of the subject as having been successful at self-managing their finances — any difference in advice cannot reflect beliefs about the subject's financial competence and is more consistent with paternalistic behavior toward female

investors.

To analyze how varying these characteristics affects individual responses, we regress binary indicators for providing a specific answer to the vignette question on a set of binary indicators for the different characteristics of the subject in the vignette, namely a 70-year old male, an 85-year old male, a 70-year old female, and an 85-year old female, with the first category as the baseline. To aid interpretation, we henceforth group responses as follows: "Help from children", "Help from friend" and "Help from spouse" are grouped as "Informal Delegation", "Purchase annuities" and "Reduce share of risky assets" as "Risk reduction", and "Help from financial advisor" as "Formal delegation". The results are presented in Table 2.

Table 2: Estimated average effects of randomized subject characteristics on vignette answers.

	(1) Formal delegation	(2) Informal delegation	(3) Risk reduction
Male 85	-0.008	0.033	-0.036
	(0.024)	(0.027)	(0.027)
Female 70	-0.011	0.072***	-0.064**
	(0.024)	(0.026)	(0.027)
Female 85	-0.016	0.058**	-0.040
	(0.024)	(0.026)	(0.027)
Constant	0.795***	0.675***	0.350***
	(0.017)	(0.019)	(0.020)
Obs.	2,396	2,396	2,396
RMSE	0.411	0.451	0.464
R^2	0.000	0.004	0.002

Note. The table reports estimated average effects of randomized vignette-subject characteristics on respondents' recommendations in 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 are indicators for the vignette subject being Male 85, Female 70, or Female 85; the omitted category is Male 70. The constant reports the mean outcome in the omitted category. Robust standard errors are in parentheses. $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.10$.

We only comment on the effects that are statistically significant. In column (2), we find that investors who are shown a 70-year (85-year) old female subject are 7.2 (5.8) percentage points more likely to suggest the subject to turn to informal delegation (i.e., to her husband or son) for help in case of cognitive decline, compared to the 70-year old male baseline subject. Interestingly, there is no corresponding increase in formal delegation, suggesting that the effect reflects a reallocation from formal to informal

channels rather than a general increase in the perceived need for help.

6   Informational interventions

We now turn to causal analysis by exploiting the randomized intervention embedded in our survey. The intervention described in Section 4.2 assigned respondents to receive their memory score (the "score treatment"), information about the financial risks associated with serious memory decline (the "educational treatment"), both the score and the educational treatments (the "combined treatment"), or no treatment. This design allows us to separately identify the individual and joint causal effects of targeted information campaigns.

In our conceptual framework, a higher probability 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 the risk of cognitive decline, information should shift their perceived status closer to the truth, leading them to reduce the share invested in the risky asset, and financial decision-making towards delegation. Section 6.1 reports the average treatment effects in the full sample; Section 6.2 turns to heterogeneity by awareness status, which is the central empirical contribution of the paper.

6.1   Estimating the effect of informational interventions

To estimate the causal effect of the information treatments, we regress binary indicators for choosing a given option in the vignette or personal questions on a set of treatment dummies. Since the treatments are randomly assigned, their average effects can be estimated consistently by the mean difference in the outcomes between treatment groups. In this specification, the model intercepts represent the expected value of the outcome for a baseline individual who received no treatment, while the coefficients on the treatment indicators represent the estimates of the expected difference in the outcome between treated and untreated individuals.

Figure 5 describes the effect of the combined treatment on the probability of selecting each option for the vignette and the personal scenario questions. Consistent with the model in Section 3, raising awareness about the financial consequences of cognitive decline induces a shift away from informal arrangements toward professional delegation and more conservative portfolio choices. In the vignette question (Panel A), the combined treatment decreases the probability of selecting informal delegation by 9.5 percentage points (significant at the 1% level) and increases the probability of risk reduction by 5.3 percentage points (significant at the 10% level), while the effect on

Figure 5: Effect of combined treatment versus no treatment.

Panel A. Vignette question

Panel B. Personal scenario question
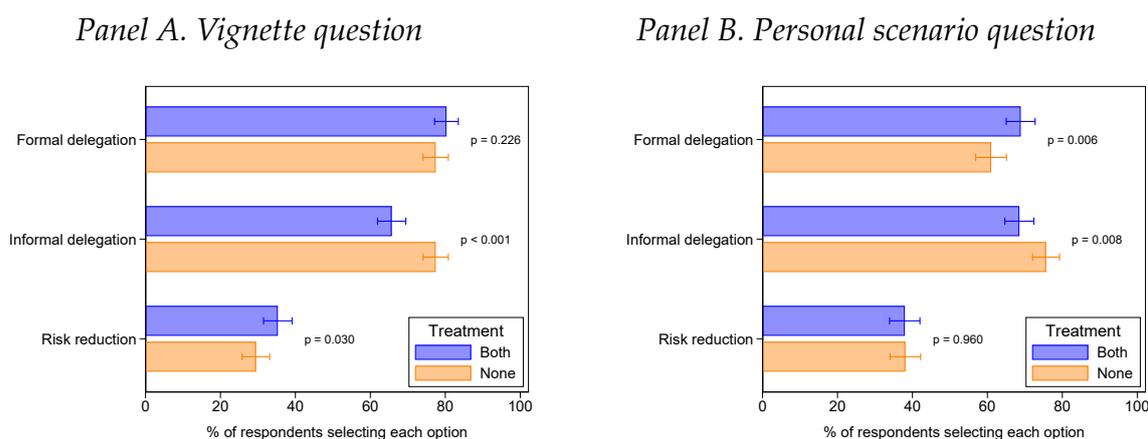
Note. This figure shows the percentage of respondents in the treatment and control group selecting each option. Panel A shows responses in the vignette question, while Panel B shows responses in the personal scenario question. Outcomes are indicators for (i) *Formal delegation* (selected help from a 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. We have reported two-sided t-test probabilities of observing a treatment-control difference in the fraction of respondents selecting each option is at least as large as the one shown, under the null-hypothesis of equal means.

formal delegation is positive but imprecisely estimated.

In principle, we would like to assess whether targeted interventions have an impact on actual behavior. We cannot directly test this with our survey, because we only have cross-sectional information on our respondents. However, by examining responses to the personal question, we can infer what investors would do, or have actually done, after experiencing a cognitive decline. In the personal scenario (Panel B), the combined treatment increases the probability of selecting formal delegation by 7 percentage points (significant at the 5% level) and reduces the probability of selecting informal delegation by 5.4 percentage points (significant at the 5% level), whereas the effect on the probability of selecting risk reduction is not statistically significant. Relative to the choice probabilities for the control group, these effects are sizable. In particular, the control-group probability of selecting formal (informal) delegation in the personal scenario is 61.6% (75.5%), so the estimated effects correspond to a relative increase of 11.4% (relative decline of 7.2%). Comparing these outcomes reveals that the treatments induce a convergence between normative advice and personal intentions. At baseline, respondents in the control group are less likely to choose formal delegation for themselves than for the hypothetical third person in the vignette. By significantly boosting intended formal delegation, the combined treatment effectively bridges this behavioral gap, bringing personal intentions closer to the normative standard.

While Figure 5 focuses on the combined treatment, a natural question is whether

the two components — receiving the memory score and receiving educational information — also have independent effects. Table D.7 considers the effect of the various treatments on the probability of selecting different response options. The educational intervention is statistically significant for the vignette question (panel A), whereas the score-only arm is less precisely estimated (panel B), suggesting that the strongest effects emerge when the two pieces of information are delivered jointly. This underscores the importance of combining the two informational channels, and raises the question of whether their effects are uniform across investors or concentrated among those who are currently unaware of their cognitive decline — the question we turn to next.

6.2 Effect heterogeneity

We now explore heterogeneity in the effects of the treatments, focusing solely on the personal question, as the link to behavior is strongest. Table 3 decomposes the personal responses by awareness of cognitive problems, using the joint distribution of self-assessed and test-based memory to separate "Aware" and "Unaware" investors (Appendix Figure E.5). The interaction terms measure the additional response to treatment of the unaware and reveal that awareness is a key determinant of how investors react to the treatments. At baseline, respondents who overestimate their cognitive abilities exhibit a systematically lower probability of making prudent financial choices — specifically, they are less likely to opt for both formal delegation and risk reduction. Targeted interventions significantly increase the likelihood of selecting both of these prudent options among the unaware subgroup. Among the aware respondents, only the combined treatment has a positive and significant effect on formal delegation (+6.5 percentage points) but a negative and significant effect on informal delegation (-6.2 percentage points), as predicted by the model. Among the unaware respondents, instead, the *Score* treatment — providing direct feedback on own performance — is essentially the only one that generates statistically significant effects: it increases the probability of selecting formal delegation (risk reduction) by 21.8 (17.5) percentage points more compared to aware respondents. Similar evidence is found for risk reduction, as the score treatment (alone or in combination with the information) substantially increases the risk reduction option only for unaware respondents.

This asymmetry strongly suggests that our measure of awareness is economically meaningful: individuals who had underestimated their cognitive abilities react after receiving personalized performance feedback. Appendix Table D.8 shows that this effect is robust to using alternative definitions of unawareness. From a policy perspective, these results imply that both types of intervention matter, but for different

Table 3: Estimated average effects of the information treatments on personal scenario answers

	(1) Formal delegation	(2) Informal delegation	(3) Risk reduction
Information	0.027	-0.017	-0.007
	(0.031)	(0.028)	(0.031)
Score	-0.009	0.011	-0.011
	(0.031)	(0.028)	(0.031)
Both	0.062**	-0.065**	-0.024
	(0.030)	(0.029)	(0.031)
$\mathbb{1}_{Unaware}$	-0.142**	0.088*	-0.106*
	(0.065)	(0.050)	(0.060)
Information $\times$ $\mathbb{1}_{Unaware}$	0.078	-0.029	0.014
	(0.093)	(0.075)	(0.087)
Score $\times$ $\mathbb{1}_{Unaware}$	0.218**	-0.022	0.175*
	(0.091)	(0.072)	(0.090)
Both $\times$ $\mathbb{1}_{Unaware}$	0.142	-0.047	0.195**
	(0.091)	(0.079)	(0.090)
Constant	0.627***	0.746***	0.394***
	(0.022)	(0.020)	(0.022)
Obs.	2,197	2,197	2,197
RMSE	0.478	0.441	0.486
R^2	0.007	0.007	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 ("Information"), the personalized score feedback treatment ("Score"), or their combination ("Both"), with "None" as the omitted group. $\mathbb{1}_{Unaware}$ 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. ***$p < 0.01$, **$p < 0.05$, *$p < 0.10$.

audiences. General information on the financial consequences of cognitive decline (the educational treatment) is particularly effective for those who already recognize their vulnerability, while the personalized score feedback is crucial for the investors who are unaware of their cognitive decline.

7 Conclusions

Failure to recognize the signs of cognitive decline and to take appropriate actions puts the elderly at significant risk of financial losses. In this paper, we examine whether awareness of own memory decline would cause investors to delegate to a trusted agent, or to shift their portfolio composition towards less risky assets. To structure our analysis, we first develop a parsimonious model of portfolio choice with endogenous information acquisition, where cognitive aging impairs an investor's ability to process financial signals. The model predicts that investors who are unaware of their cognitive decline will maintain excessive portfolio risk and sub-optimally delay the transition from self-management to delegation.

Motivated by these theoretical predictions, we empirically examine whether an experimental treatment can change survey responses in a hypothetical scenario. Consistent with the findings in Mazzonna and Peracchi (2024), our sample — primarily composed of wealthy and highly-educated older males — exhibits substantial unawareness of their cognitive abilities.

Our experimental treatments yield three main results. First, providing information about the financial consequences of serious memory decline — when combined with feedback on respondents' own memory performance — shifts stated behavior toward more prudent delegation. Treated respondents are significantly more likely to indicate that they would turn to a professional financial advisor and less likely to rely exclusively on informal advice. Second, respondents who appear unaware of their own decline respond more strongly to the score feedback, suggesting that our measure of unawareness is economically meaningful and highlighting the role of personalized interventions in protecting vulnerable investors against the financial risks of aging. Finally, we uncover evidence of gender asymmetry. Male investors are more likely to recommend informal delegation to a spouse or children when the subject in the vignette is a woman.

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A   Model details

A.1   Solution under self-management

To solve the model, we proceed in two steps. First, we derive the optimal allocation rule $\alpha^*(S)$ taking the information effort I as given. Second, we take expectations with respect to the private signal S and characterize the optimal information effort I^*. In what follows, we normalize r to be equal to one and therefore $X = R - 1$.

Step 1 (Optimal signal-conditional portfolio allocation). Conditional on S, the investor chooses $\alpha^*(\cdot)$ by solving the following problem:

$$\max_{\alpha(\cdot)} \mathbb{E}[u(W) \mid S] \quad \text{s.t.} \quad W = [1 + \alpha(S)X]\,\omega.$$

The first-order condition is $\mathbb{E}[u'(W)\,\omega\,X \mid S] = 0$. To obtain a tractable expression for $\alpha^*(S)$, we approximate marginal utility around initial wealth ω:

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

Substituting into the FOC yields:

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

Hence

$$\alpha^*(S) \approx \tau(\omega)\,\frac{\mathbb{E}[X \mid S]}{\mathbb{E}[X^2 \mid S]}, \qquad \tau(\omega) \equiv -\frac{u'(\omega)}{u''(\omega)\omega}. \tag{1}$$

Assume $S = X + \varepsilon$, where $\varepsilon \sim \mathcal{N}(0, \sigma_\varepsilon^2)$ and $X \sim \mathcal{N}(\mu_X, \sigma_R^2)$ are independent. This implies that the conditional mean of X is linear in S and its conditional variance is constant. Moreover, under our small-return approximation, $\mathbb{E}[X^2 \mid S] \approx \mathbb{V}(X \mid S)$. Substituting these expressions into (1) gives the convenient closed form

$$\alpha^*(S) \approx \tau(\omega)\left(\frac{\mu_X}{\sigma_R^2} + \frac{S}{\sigma_\varepsilon^2}\right). \tag{2}$$

Taking expectations over the signal S and using $\mathbb{E}_S[S] = \mu_X$, gives: $\mathbb{E}_S[\alpha^*(S)] \approx \tau(\omega)\left(1/\sigma_R^2 + 1/\sigma_\varepsilon^2\right)\mu_X$. Finally, by replacing the expected signal quality, we obtain:

$$\mathbb{E}_S[\alpha^*(S)] \approx \tau(\omega)\left[\frac{1}{\sigma_R^2} + (1-p)h(I)\right]\mu_X. \tag{3}$$

Step 2 (Optimal information effort). At the beginning of the period, the investor chooses $I \geq 0$ and pays $c(I)$, then observes S and invests the fraction $\alpha^*(S)$ in the risky asset. Effort is valuable because it increases the expected signal quality, $\mathbb{E}[1/\sigma_\varepsilon^2] =$

$(1 - p)h(I)$, where the expectation is with respect to the distribution of the cognitive shock D. Thus, the investor's initial problem is:

$$\max_{I \geq 0} \mathbb{E}_S\{\mathbb{E}[u(W) \mid S]\} - u'(\omega)c(I) \quad \text{s.t.} \quad W = (1 + \alpha^* X)\omega.$$

To quantify the marginal benefit of information, we again approximate $\mathbb{E}[u(W) \mid S]$ around ω to second order. Substituting $\alpha^*(S)$ with $\tau(\omega) \mathbb{E}[X \mid S] / \mathbb{E}[X^2 \mid S]$ then gives:

$$\mathbb{E}[u(W) \mid S] \approx u(\omega) + \frac{1}{2} T(\omega) u'(\omega) \Lambda(S),$$

where $T(\omega) \equiv -u'(\omega)/u''(\omega)$, and $\Lambda(S) \equiv \mathbb{E}[X \mid S]^2 / \mathbb{E}[X^2 \mid S]$. Therefore, the investor's initial problem can be written:

$$\max_{I \geq 0} u(\omega) + \frac{1}{2} T(\omega)u'(\omega) \mathbb{E}_S[\Lambda(S)] - u'(\omega)c(I).$$

Under our small-return approximation, we get:

$$\mathbb{E}_S[\Lambda(S)] \approx \frac{\sigma_R^2}{\sigma_\varepsilon^2} + \mu_X^2 \left(\frac{1}{\sigma_\varepsilon^2} + \frac{1}{\sigma_R^2} \right),$$

which depends on I through σ_ε^2. Thus, an interior optimum I^* must satisfy

$$\frac{1}{2} T(\omega) (1 - p)h'(I^*) (\mu_X^2 + \sigma_R^2) = c'(I^*). \tag{4}$$

Proof of Proposition 1

Fix ω and consider the approximations used to derive (3) and (4). Define the positive constant $K \equiv T(\omega) (\mu_X^2 + \sigma_R^2)/2 > 0$. Then, (4) can be written as

$$c'(I^*) = K(1 - p) h'(I^*).$$

Differentiate with respect to p:

$$c''(I^*) \frac{dI^*}{dp} = K\left[-h'(I^*) + (1 - p)h''(I^*) \frac{dI^*}{dp} \right].$$

Hence,

$$\left[c''(I^*) - K(1 - p)h''(I^*) \right] \frac{dI^*}{dp} = -Kh'(I^*),$$

and therefore:

$$\frac{dI^*}{dp} = -\frac{Kh'(I^*)}{c''(I^*) - K(1 - p)h''(I^*)} < 0,$$

because $h'(I^*) > 0$, $c''(I^*) > 0$, and $h''(I^*) \leq 0$. Now let $\bar{\alpha}(p) \equiv \mathbb{E}_S[\alpha^*(S)]$. From (3),

$$\bar{\alpha}(p) \approx \tau(\omega) \left[\frac{1}{\sigma_R^2} + (1 - p)h(I^*(p)) \right] \mu_X.$$

Differentiate:

$$\frac{d\bar{\alpha}(p)}{dp} \approx \tau(\omega)\mu_X \left[-h(I^*) + (1 - p)h'(I^*) \frac{dI^*}{dp} \right] < 0,$$

since $h(I^*) \geq 0$, $h'(I^*) > 0$, and $dI^*/dp < 0$ from part i).

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 net investable 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 in order to solve:

$$\max_{\alpha(\cdot)} \; \mathbb{E}\big[u(W^d) \,|\, S^d\big] \quad \text{s.t.} \quad W^d = [1 + \alpha(S^d)X]\,\widetilde{\omega}.$$

Proceeding exactly as before, the optimal allocation rule is:

$$\alpha^\dagger(S^d) \approx \tau(\widetilde{\omega}) \left(\frac{\mu_X}{\sigma_R^2} + \frac{S^d}{\sigma_\eta^2} \right). \tag{5}$$

Proof of Proposition 2

Under the usual small-return approximation, the investor's indirect utility under self-management is

$$V(\omega, p) \approx \max_{I \geq 0} \left\{ u(\omega) + \frac{1}{2}T(\omega)u'(\omega)\left[(1-p)h(I)(\mu_X^2 + \sigma_R^2) + \frac{\mu_X^2}{\sigma_R^2}\right] - u'(\omega)c(I) \right\}.$$

By the envelope theorem,

$$\frac{\partial V(\omega, p)}{\partial p} = \frac{1}{2}T(\omega)u'(\omega) \cdot \left[-h(I^*(p))(\mu_X^2 + \sigma_R^2) \right] \leq 0,$$

with strict inequality whenever $I^*(p) > 0$ (hence $h(I^*(p)) > 0$). Since, by construction, $V^d(\omega)$ does not depend on p,

$$\frac{\partial}{\partial p}\Delta V(\omega, p) = -\frac{\partial V(\omega, p)}{\partial p} \geq 0,$$

with strict inequality when $I^*(p) > 0$. The threshold claim follows from continuity and the sign change $\Delta V(\omega, 0) < 0 < \Delta V(\omega, 1)$.

B Delegation in the HRS

Table B.1: Delegation and cognitive decline: Multinomial logit estimates of financial delegation choices of older Americans.

	(1) Formal	(2) Informal
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 X Fin. wealth-Tercile 1	-0.045	-0.003
	(0.038)	(0.032)
Cognitive decline X Fin. wealth-Tercile 2	0.038	0.038
	(0.039)	(0.029)
Cognitive decline X Fin. wealth-Tercile 3	0.122***	-0.013
	(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. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

C   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 U.S. 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 recall 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 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?"

D   Additional tables

Table D.2: Validation check: observable characteristics across survey and analysis samples.

	Samples:				
	(1)	(2)	(3)	(4)	(5)
	De-duplicated (full sample)	Early respondents	Late respondents	Vignette question	Personal question
Mean:					
Age	73.389	72.963	73.816	73.051	73.065
Sex	0.929	0.936	0.921	0.935	0.939
Marital status	0.838	0.847	0.828	0.844	0.859
Memory score	6.499	6.524	6.472	6.567	6.562
Unaware	0.116	0.112	0.120	0.109	0.114
Exp. decline	0.251	0.243	0.259	0.248	0.194
Median:					
Education	Grad.	Grad.	Grad.	Grad.	Grad.
Financial wealth	$2-5M	$2-5M	$2-5M	$2-5M	$2-5M
Obs.	3,015	1,508	1,507	2,423	2,221

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. Columns (2) and (3) split the de-duplicated sample at the median survey completion datetime, with "Early respondents" defined as those completing the survey on or before the median and "Late respondents" as those completing after the median. Columns (4) and (5) restrict to respondents observed in the vignette-question and personal-question analysis samples, respectively. "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. "Exp. decline" equals 1 if the respondent reports having experienced signs of cognitive decline in the personal module.

Table D.3: Balance check: observable characteristics across randomized treatment arms.

| | Vignette question | | | | Personal scenario question | | | |
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
	None	Score	Info	Both	None	Score	Info	Both
Mean:								
Age	72.946	72.802	73.199	73.169	72.918	73.013	73.030	73.212
Sex	0.926	0.937	0.946	0.931	0.929	0.939	0.946	0.938
Marital status	0.843	0.843	0.858	0.830	0.862	0.860	0.866	0.848
Memory score	6.471	6.607	6.561	6.627	6.511	6.581	6.584	6.573
Unaware	0.120	0.107	0.111	0.100	0.121	0.112	0.113	0.110
Exp. decline	0.260	0.213	0.246	0.276	0.219	0.172	0.177	0.212
Median:								
Education	Grad.	Grad.	Grad.	Grad.	Grad.	Grad.	Grad.	Grad.
Financial wealth	$2-5M	$2-5M	$2-5M	$2-5M	$2-5M	$2-5M	$2-5M	$2-5M
Obs.	601	591	594	609	552	546	543	553

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 the memory-task performance; "Info" provides educational information on the financial risks of memory decline; "Both" combines the two. Entries report sample means (and selected medians) of baseline characteristics within each arm. "Memory score" is on a 0–8 scale; "Unaware" and "Exp. decline" are defined as in Table D.2.

Table D.4: OLS regression models for portfolio weights of the various assets.

	(1) Liquid assets (%)	(2) Gov't bonds (%)	(3) Corp. bonds (%)	(4) Stocks (%)
Female	4.305***	0.688	-5.197***	0.204
	(1.552)	(0.980)	(1.870)	(0.961)
No postgrad.	-0.254	-0.071	0.457	-0.132
	(0.696)	(0.480)	(0.908)	(0.499)
Not married	-2.356***	-0.623	2.888**	0.091
	(0.866)	(0.646)	(1.186)	(0.660)
Has advisor	-3.371***	1.933***	-2.505***	3.943***
	(0.624)	(0.481)	(0.877)	(0.537)
Granted POA	0.055	0.451	-1.088	0.582
	(0.634)	(0.471)	(0.831)	(0.450)
Unaware	0.063	0.322	-0.808	0.423
	(1.031)	(0.738)	(1.329)	(0.728)
Exp. decline	0.929	-0.393	-0.624	0.088
	(0.795)	(0.545)	(1.034)	(0.565)
Age	0.008	0.041	-0.064	0.014
	(0.037)	(0.033)	(0.054)	(0.029)
Age squared	-0.009***	0.002	0.010***	-0.003*
	(0.002)	(0.002)	(0.004)	(0.002)
Trust in others	-0.923***	-0.064	1.050***	-0.063
	(0.220)	(0.147)	(0.280)	(0.156)
Constant	17.091***	8.724***	65.805***	8.380***
	(1.152)	(0.877)	(1.582)	(0.879)
Obs.	2,798	2,798	2,798	2,798
k	76	76	76	76
RMSE	16.291	11.802	21.427	11.805
R^2	0.088	0.026	0.067	0.061

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. Key covariates include sex, education ("No postgrad."), marital status ("Not married"), reliance on a paid professional financial adviser ("Has advisor"), durable POA status ("Granted POA"), awareness ("Unaware"), and whether the respondent reports having experienced signs of cognitive decline ("Exp. decline"). "Trust in others" is measured on a 1–10 scale, from 1 (do not trust at all) to 10 (trust a lot). Age enters with a quadratic term. The specification additionally includes state fixed effects, financial wealth brackets, and indicators for missing covariates. Robust standard errors are in parentheses. ***$p < 0.01$, **$p < 0.05$, *$p < 0.10$.

Table D.5: Linear probability models for answers to vignette questions.

	(1) Friend	(2) Spouse	(3) Children	(4) Fin. advisor	(5) Less risk	(6) Annuities
Female	-0.053**	-0.121***	-0.133***	0.076**	0.101**	0.011
	(0.024)	(0.041)	(0.043)	(0.033)	(0.043)	(0.019)
No postgrad.	-0.011	0.062***	0.045**	-0.015	-0.014	0.002
	(0.015)	(0.022)	(0.022)	(0.018)	(0.021)	(0.009)
Not married	0.081***	-0.102***	-0.024	-0.072***	0.032	0.001
	(0.020)	(0.029)	(0.028)	(0.025)	(0.027)	(0.012)
Has advisor	-0.038***	-0.000	-0.046**	0.167***	-0.035*	-0.002
	(0.014)	(0.023)	(0.023)	(0.016)	(0.021)	(0.009)
Granted POA	0.003	0.008	0.037*	-0.005	-0.062***	-0.012
	(0.013)	(0.021)	(0.021)	(0.017)	(0.019)	(0.008)
Unaware	0.008	0.017	0.007	-0.008	-0.008	0.002
	(0.022)	(0.032)	(0.032)	(0.027)	(0.028)	(0.013)
Exp. decline	-0.018	-0.073***	-0.066***	0.012	0.076***	0.013
	(0.015)	(0.024)	(0.024)	(0.019)	(0.023)	(0.010)
Age	-0.003***	-0.008***	-0.005***	-0.002*	0.007***	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)
Trust in others	-0.002	0.001	0.021***	0.018***	-0.013**	-0.004
	(0.004)	(0.007)	(0.007)	(0.006)	(0.006)	(0.003)
Constant	0.155***	0.559***	0.536***	0.764***	0.393***	0.046***
	(0.027)	(0.040)	(0.040)	(0.033)	(0.038)	(0.017)
Obs.	2,424	2,424	2,424	2,424	2,424	2,424
k	75	75	75	75	75	75
RMSE	0.314	0.491	0.491	0.398	0.447	0.195
R^2	0.043	0.066	0.059	0.086	0.082	0.046

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. Covariates include demographics, wealth and delegation arrangements, "Unaware" (equal to 1 if self-rated memory is "Very good" or better and the memory score is ≤ 5.), "Exp. decline" (self-reported experience of decline), age and age squared, and "Trust in others" (1–10 scale). The specification includes state fixed effects, financial wealth brackets, and indicators for missing covariates. Robust standard errors are in parentheses. $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.10$.

Table D.6: Linear probability models for answers to personal scenario questions.

	(1) Friend	(2) Spouse	(3) Children	(4) Fin. advisor	(5) Less risk	(6) Annuities
Female	-0.052**	-0.014	-0.130***	0.050	-0.001	0.024
	(0.026)	(0.036)	(0.043)	(0.041)	(0.046)	(0.023)
No postgrad.	0.002	0.026	0.053**	-0.017	-0.029	0.012
	(0.014)	(0.021)	(0.023)	(0.022)	(0.023)	(0.010)
Not married	0.143***	-0.518***	-0.099***	0.047*	0.078***	0.013
	(0.024)	(0.019)	(0.029)	(0.027)	(0.030)	(0.015)
Has advisor	-0.022	0.022	-0.014	0.307***	-0.129***	0.004
	(0.014)	(0.022)	(0.023)	(0.020)	(0.022)	(0.010)
Granted POA	-0.002	0.045**	0.078***	-0.028	-0.049**	-0.016*
	(0.013)	(0.020)	(0.021)	(0.020)	(0.021)	(0.009)
Unaware	0.028	-0.013	-0.008	-0.046	0.027	-0.004
	(0.023)	(0.031)	(0.034)	(0.032)	(0.032)	(0.013)
Exp. decline	-0.029**	-0.156***	-0.361***	-0.129***	0.201***	0.106***
	(0.015)	(0.026)	(0.023)	(0.024)	(0.027)	(0.017)
Age	-0.004***	-0.009***	0.005***	-0.003**	0.004***	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)
Trust in others	0.003	0.003	0.015**	0.023***	-0.018***	-0.004
	(0.004)	(0.006)	(0.007)	(0.006)	(0.007)	(0.003)
Constant	0.089***	0.551***	0.451***	0.583***	0.413***	0.002
	(0.025)	(0.038)	(0.040)	(0.038)	(0.040)	(0.015)
Obs.	2,226	2,226	2,226	2,226	2,226	2,226
k	73	73	73	73	73	73
RMSE	0.302	0.451	0.472	0.453	0.466	0.212
R^2	0.077	0.213	0.133	0.137	0.090	0.074

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. "Exp. decline" indicates respondents who report having experienced signs of cognitive decline; such respondents report what they actually did, while others report intended actions under a hypothetical onset. "Unaware" (equal to 1 if self-rated memory is "Very good" or better and the memory score is $\leq$ 5.). Controls include state fixed effects, financial wealth brackets, and indicators for missing covariates. Robust standard errors are in parentheses. ***$p < 0.01$, **$p < 0.05$, *$p < 0.10$.

Table D.7: Estimated average effects of the information treatments on survey answers.

	(1) Formal delegation	(2) Informal delegation	(3) Risk reduction
Panel A. Answers to the vignette question			
Information	0.026	-0.063**	0.038
	(0.024)	(0.025)	(0.027)
Score	0.004	-0.040	-0.012
	(0.024)	(0.025)	(0.026)
Both	0.037	-0.095***	0.053*
	(0.024)	(0.026)	(0.027)
Constant	0.769***	0.766***	0.295***
	(0.017)	(0.017)	(0.019)
Obs.	2,396	2,396	2,396
RMSE	0.410	0.450	0.464
R^2	0.001	0.006	0.003

	(1) Formal delegation	(2) Informal delegation	(3) Risk reduction
Panel B. Answers to the personal scenario question			
Information	0.034	-0.029	0.007
	(0.029)	(0.026)	(0.029)
Score	0.007	0.004	0.024
	(0.030)	(0.026)	(0.030)
Both	0.070**	-0.054**	-0.005
	(0.029)	(0.027)	(0.029)
Constant	0.616***	0.755***	0.375***
	(0.021)	(0.019)	(0.021)
Obs.	2,199	2,199	2,199
RMSE	0.478	0.441	0.486
R^2	0.003	0.003	0.000

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). "Information" 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. ***$p < 0.01$, **$p < 0.05$, *$p < 0.10$.

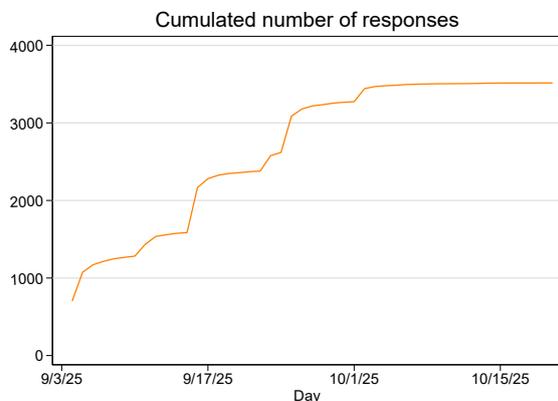Table D.8: Robustness check: effect of score treatment interacted with unawareness under alternative definitions

	(1) Formal delegation	(2) Informal delegation	(3) Risk reduction
Personal scenario question			
Score $\times$ $\mathbb{1}_{\text{Unaware}}$	0.218**	-0.022	0.175*
	(0.091)	(0.072)	(0.090)
Score $\times$ $\mathbb{1}_{\text{Unaware(2)}}$	0.161**	0.017	0.096
	(0.076)	(0.066)	(0.077)
Score $\times$ $\mathbb{1}_{\text{Unaware(3)}}$	0.280*	-0.206*	0.188
	(0.147)	(0.121)	(0.146)
Score $\times$ $\mathbb{1}_{\text{Unaware(4)}}$	0.208*	-0.008	0.119
	(0.119)	(0.104)	(0.122)
Observations	2,197	2,197	2,197

Note. Each column reports a separate regression of the corresponding personal-scenario outcome on treatment indicators (Information, Score, Both) and their interactions with the indicated *Unaware* definition. The table reports only the coefficient on the interaction between the *Score* treatment and *Unaware*. Definitions are: $\mathbb{1}_{\text{Unaware}} = 1$ if *self-rated memory* $\in$ {very good, excellent} and *memory score* ≤ 5; $\mathbb{1}_{\text{Unaware(2)}} = 1$ if *memory* $\in$ {good, very good, excellent} and *memory score* ≤ 5; $\mathbb{1}_{\text{Unaware(3)}} = 1$ if *memory* $\in$ {very good, excellent} and *memory score* ≤ 4; $\mathbb{1}_{\text{Unaware(4)}} = 1$ if *memory* $\in$ {good, very good, excellent} and *memory score* ≤ 4.
Robust standard errors are in parentheses. $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.10$.
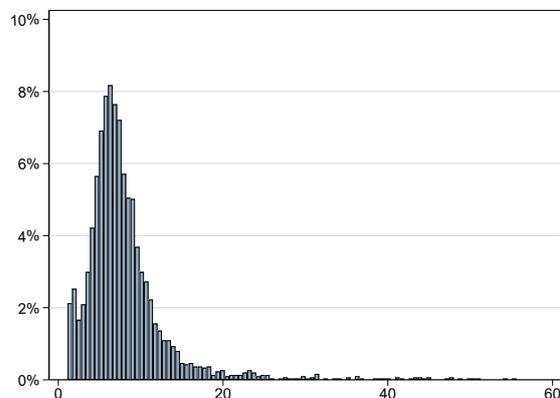
E   Additional figures

Figure E.1: Cumulated number of daily responses and distribution of survey duration.
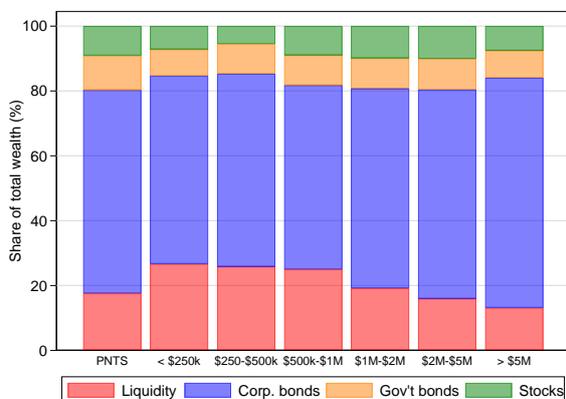
Panel A. Cumulated number of responses   *Panel B. Survey duration (minutes)*


Note. Panel A plots the cumulative number of survey responses over calendar time during the AAII field period, with visible increases following reminder emails. Panel B shows the distribution of survey completion time in minutes for respondents with duration below one hour; bars report the share of respondents in each duration bin.

Figure E.2: Composition of household financial wealth by wealth and age brackets.

Panel A. Financial composition by wealth   *Panel B. Financial composition by age*
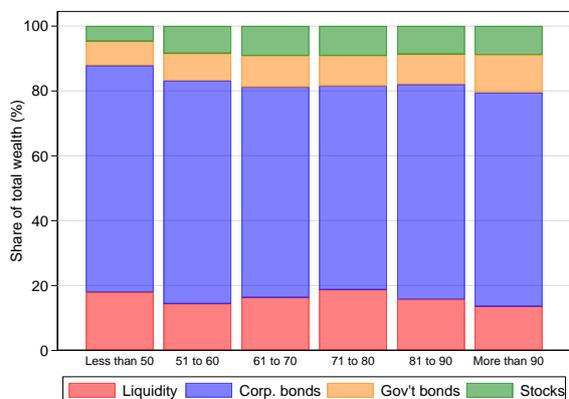

Note. Stacked bars report the average composition of household financial wealth across (Panel A) financial-wealth brackets and (Panel B) age brackets in the AAII survey. Asset categories are: liquidity (cash, deposits, money-market funds, treasury bills), government bonds (including holdings via ETFs/mutual funds), corporate bonds (including holdings via ETFs/mutual funds), and individual company stocks (including holdings via ETFs/mutual funds). Shares are expressed as percentages of total reported financial wealth and sum to 100 within each bracket.

Figure E.3: Distribution of the sample by state of current residence.

Note: Percent of total sample size
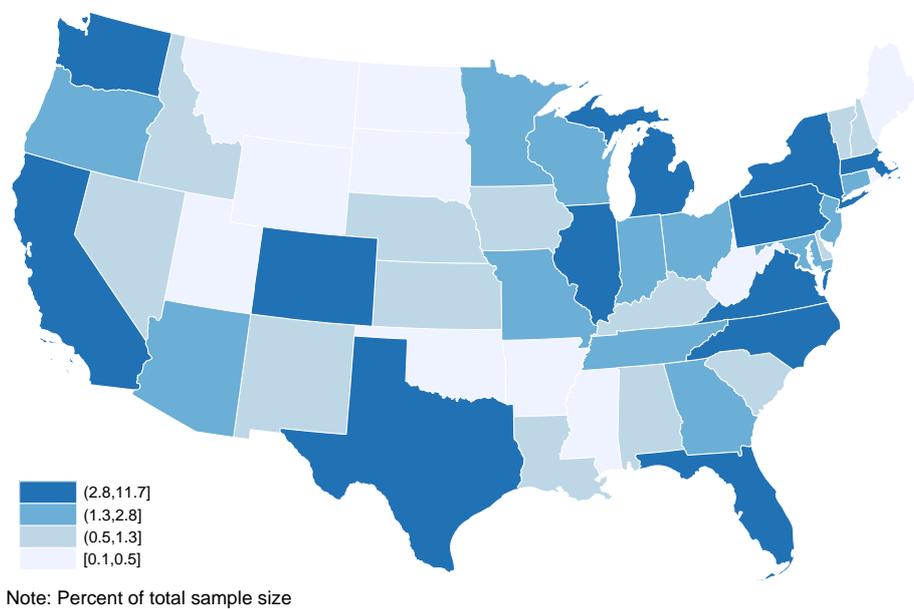
Note. Choropleth map of the United States showing the geographic distribution of AAII survey respondents by state of current residence. Shading indicates the percent of the total sample residing in each state, using the bins shown in the legend; lighter shades correspond to smaller sample shares.

Figure E.4: Distribution of sample demographics: AAII v. 2022 HRS.

Panel A. Sex

Panel B. Age

Panel C. Education

Panel D. Marital status
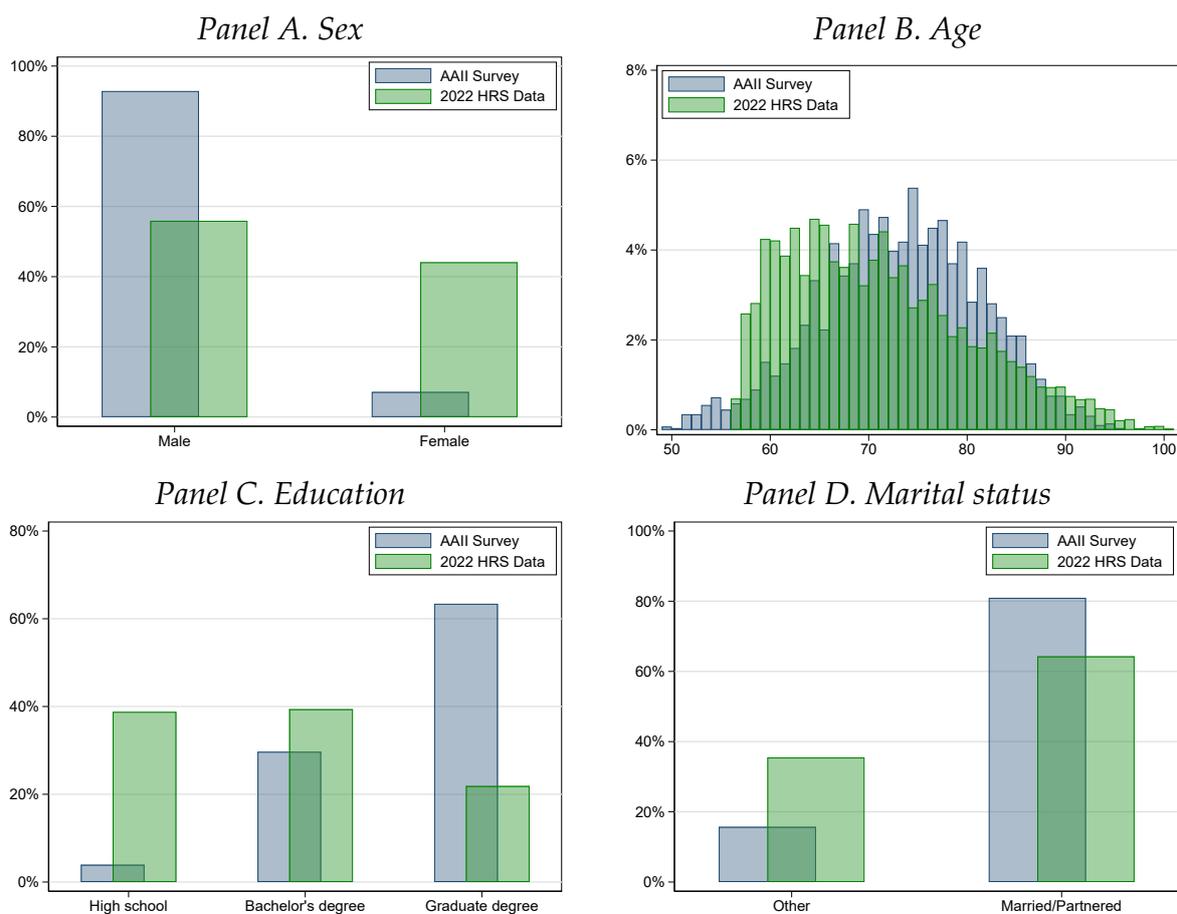
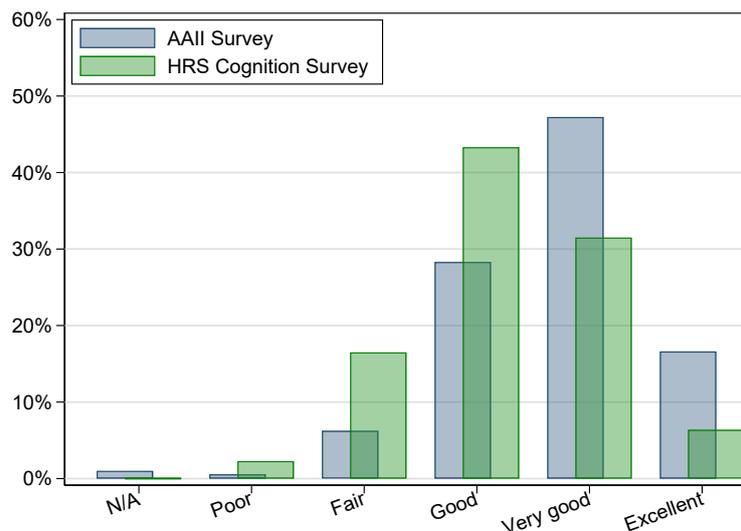*Note.* The figure compares sample demographics between AAII survey respondents and financial respondents with household financial wealth above $50k in the 2022 wave of the HRS. Panels display distributions for sex, age, education, and marital status; bars report category shares within each dataset. The comparison is intended to highlight differences in composition between the AAII sample and the sample of HRS financial respondents.

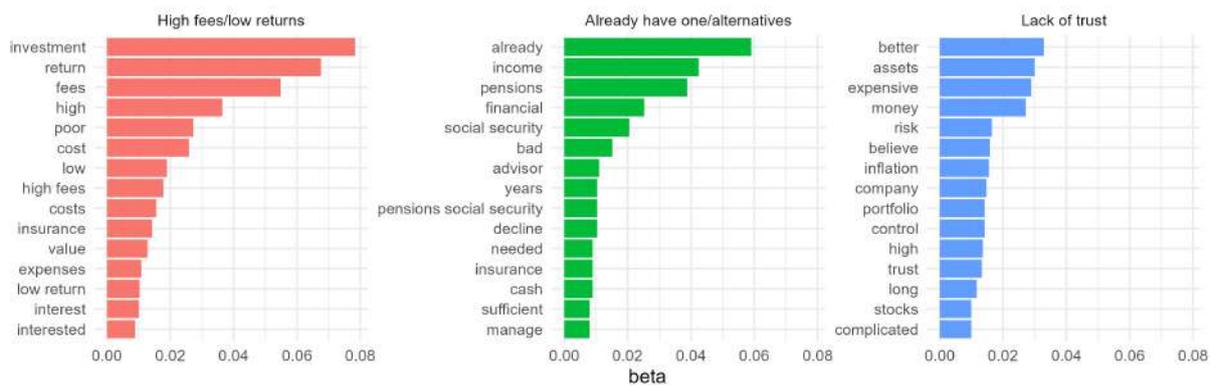Figure E.5: Cross-tabulation of self-assessment of memory status and memory test.

Note. The heatmap cross-tabulates subjective and objective memory measures in the AAII survey. Columns are self-rated memory categories (Poor, Fair, Good, Very good, Excellent) and rows are the score in the memory task (0–8 correct out of 8). 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" classification: self-rated memory "Very good" or better combined with a low test score (at most 5 correct out of 8).

Figure E.6: Distribution of self-rated memory status: AAII v. 2022 HRS Cognition Survey.

Note. Distribution of self-rated memory status (N/A, Poor, Fair, Good, Very good, Excellent) for AAII survey respondents compared to financial respondents with household financial wealth above $50k in the 2022 wave of the HRS. Bars report within-sample shares by category.

Figure E.7: 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 E.8: Word cloud from open-ended question on annuities.

Note. The figure plots the world cloud from the text analysis of the answers to the following question (which was displayed if the respondent did not select "Purchase annuities" in either the personal scenario or vignette question): "Why did you decide against purchasing an annuity?"

Figure E.9: Latent Dirichlet Allocation model results from open-ended question on annuities.

Note. The Figure plots the LDA model results from the text analysis of the answers to the following question (which was displayed if the respondent did not select "Purchase annuities" in either the personal scenario or vignette question): "Why did you decide against purchasing an annuity?"