# How financial literacy shapes the demand for financial advice at older ages☆

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## ARTICLE INFO

## ABSTRACT

We investigate how financial literacy shapes older Americans' demand for financial advice. Using an experimental module fielded in the Health and Retirement Study, we show that financial literacy strongly improves the *quality* but not the *quantity* of financial advice sought. In particular, more financially literate people seek financial help from professionals. This effect is more pronounced among older people and those with more wealth and more complex financial positions. Our analysis result implies that financial literacy and financial advisory services are complementary with, rather than substitutes for, each other.

## Introduction

Over the past four decades, there has been a global trend toward disintermediation of retirement savings and decumulation, as company-provided defined benefit pensions gave way to defined contribution plans and governmental old-age benefit programs developed shortfalls. Nevertheless, shifting the risks of saving too little, investing poorly, and outliving assets to individuals does not make such risks disappear. There is also growing evidence that retail investors have a difficult time setting spending goals, paying debt, deciding how much and where to invest, determining when to stop working and claim their retirement benefits, and handling insurance needs (e.g., Brüine de Bruin, 2017; Mitchell, 2018). Financial disintermediation poses an even more significant challenge when a large segment of the older population lacks financial sophistication (c.f., Lusardi and Mitchell, 2014; Finke et al., 2016).

This paper explores how financial literacy shortfalls influence older Americans' demand for financial advice. This issue is of concern since the older population holds more wealth than do younger people, and when financial literacy deteriorates with age, this can undermine retirement security (Agarwal et al., 2009; Angrisani and Lee, 2019; Huffman et al., 2019; Lichtenberg, 2016). Prior research has examined stock market participation and allocation patterns, and there is evidence that more financially literate people tend to participate in the stock market and reap better investment returns (e.g., Kézdi and Willis, 2003; Christelis et al., 2010; Grinblatt et al., 2011; van Rooij et al., 2011; Bogan and Fertig, 2013; Clark et al., 2015; and Cole and Shastry, 2014). Of course, people unable to manage their finances in later life may be able to hire investment professionals, thus substituting financial advisors' inputs for their own. Yet financial literacy can also affect the decision to delegate, since delegation requires a complicated process of acquiring, screening, and monitoring information about financial advisors, their fees, and their services.

Moreover, there is still no consensus on the impact of financial literacy on the demand for financial advice at older ages. It is important to understand whether financial literacy and the demand for professional financial advice complement or substitute for each other. The answer offers useful insights about how to enhance older peoples' financial well-being, especially in countries with rapidly-aging populations.

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Accordingly, to evaluate whether financial literacy complements older people's demand for financial advice or substitutes for it, we designed a purpose-built experimental module and fielded it in the nationally representative Health and Retirement Study (HRS). In it, we asked Americans age 50+ several questions about whether they had obtained financial advice, and if so, which types of advice they sought. For those who did not access financial advice, we asked them why they had not. To this module, we link a rich array of information from the core HRS, including financial literacy scores, socio-demographic factors, wealth, and health. Using an instrumental variable (IV) approach, we trace the causal impacts of financial literacy on older peoples' financial behavior, focusing on their demand for financial advice.

Our results show that financial literacy affects the *quality*, but not the *quantity,* of financial advice that older persons seek out. Specifically, financial literacy does not affect the *likelihood* of seeking financial advice, but it does influence the *types* of financial advice people receive. More financially literate individuals are more likely to obtain financial advice from professional advisors over families, relatives, or friends. The economic significance of our results is also sizable: for instance, in our preferred instrumental variable analysis, one standard deviation improvement in financial literacy leads to a 6.8 percent greater chance of seeking professional financial advice. We also find that financial literacy's impact on the demand for professional financial advice is greater for people with more wealth and older persons.

Because only around one-third (28 percent) of our older respondents indicated that they ever sought financial advice, we query the others as to why they did not. We estimate multivariate regression models linking respondents' financial literacy and potential reasons for not seeking financial advice: self-confidence, distrust, and lack of knowledge. We find that the estimated coefficient on financial literacy is not statistically distinguishable from zero, implying that financial literacy plays a less important role than some of the other socio-economic factors for why older people do not seek financial advice due to the above reasons.

Our study contributes to a growing literature exploring the relationship between investor characteristics and the demand for financial advice. Among those who have investigated the impact of financial literacy on financial advice, Calcagno and Monticone (2015) study a large Italian bank's customers and conclude that the financially literate are more likely to seek financial advice from bankers, but they are less likely to delegate their portfolio choices. Works by Hackethal et al. (2012) and Calcagno and Monticone (2015) provide useful insights into the demand for financial advice, but those authors examine only advice provided by banks and brokerage firms. We extend this analysis by including other sources of financial advice, such as from family and close friends, who are among the most frequently used providers of financial advice in the U.S. (Survey of Consumer Finances, 2016).

In addition, we contribute to the literature by documenting a complementary effect of financial literacy on the demand for professional financial advice. We note that simply providing financial advice does not solve the problem of retail investors' sub-optimal investment decisions, especially among older persons with limited financial literacy. Our results suggest that financial literacy education can reinforce the beneficial effect of offering financial advice.

In what follows, we first briefly summarize prior research on financial management patterns in later life. Next, we discuss anticipated hypotheses linking financial literacy and the demand for financial advice. Following a discussion of empirical results using our HRS module, a final section concludes.

## Related studies and hypothesis development

Three related threads in the literature are relevant to our research: (1) studies on investors' limited attention; (2) analyses of financial illiteracy; and (3) inquiries into the complex institutional environment confronting older persons when they make financial decisions. We touch on each, in turn, to develop our hypotheses

In the context of a life-cycle model with stochastic labor income and endogenous work effort, Kim et al. (2016), Kim et al. (2017) showed that managing a portfolio consumes mental resources, and devoting time to the task imposes an opportunity cost in that employees lose the chance to invest in job-specific human capital.[1] Older individuals may value input from financial advisors to the extent that they experience declining mental faculties and financial literacy, making it more challenging to do the job on their own.

A second reason that older people may seek financial advice is that many of them are financially illiterate, leading them to undersave and underinvest (Choi et al., 2011; Calcagno and Monticone, 2015; Lusardi et al., 2017; Stolper, 2018). While few of these studies focus on older adults, there is evidence that financial mistakes rise with age in both developed and developing countries (e.g., Badarinza et al., 2016, 2019). To this point, there is now a growing literature on the consequences of poor financial capability in later life (Agarwal et al., 2009). For instance, the FINRA Investor Education Foundation (2013) found that over 80 percent of all Americans had been solicited for potentially fraudulent offers, and older Americans were the most likely targets and most likely to lose money when targeted (DeLiema et al., 2020). Even worse, education has only a limited role in protecting older peoples' financial management capabilities (Fernandes et al., 2014).

A third reason that older persons may seek financial advice is that institutional complexity bedevils the decisions people must confront when planning for, making provision for, and moving into retirement. In the US, for instance, rules regarding when to claim one's Social Security benefits are extremely complicated, particularly if one has a spouse who is also entitled (or will be entitled) to Social Security benefits (Kotlikoff et al., 2016). There are also numerous and quite complex regulations regarding tax-qualified retirement savings accounts (Horneff et al., 2020).

As a result, there are several possible links between financial literacy and the probability of seeking financial advice at older ages, as well as the type of advice sought. The anticipated directionality could be either positive or negative. If financial literacy effectively reduces peoples' time costs associated with managing their own financial tasks, older people with high financial literacy will need less financial advice. Nevertheless, screening and monitoring financial advisors also require consumers to expend cognitive and financial resources, so financial literacy can boost the demand for financial advisory services. In addition, some older investors would rationally delegate managing their finances to others, when they recognize that their ability to manage finances has declined. In other words, the net impact of the link remains to be established empirically.

As a null hypothesis, we posit that financial literacy does not affect the demand for financial advice:

*Hypothesis 1 (Likelihood of seeking financial advice): Financial literacy is not significantly related to the likelihood of seeking financial advice.*

If this null hypothesis is rejected and the estimated impact is positive (negative), this would imply that the positive (negative) impact of financial literacy dominates in the older population in terms of this group's demand for financial advice.

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[1] Other authors have also postulated that a rational, fully-informed, forward-looking individual makes optimal decisions regarding saving, portfolio choice, asset location, benefit claiming, while taking into consideration individual factors such as preferences (risk, time, leisure, bequest, intertemporal substitution, loss aversion), mortality, health, and family status (e.g., Cocco et al., 2005; Gomes et al., 2008; Hubener et al., 2016, and Horneff et al., 2020). None integrates the opportunity cost of managing one's own finances, however, which we believe to be an important factor driving the life cycle demand for financial advice. Pagel (2018) recently introduced news-utility theory to show within a life-cycle portfolio choice model that such (behavioral) preferences are able to account for inattention, predict realistic stock portfolio shares, involve non-participation in the stock market, and include a willingness to pay for delegated portfolio management.

Hypothesis 1 focuses on the *quantity* of financial advice sought by older adults, yet customer sophistication can also affect the *quality* of advice, since all types of financial advice do not require the same background and knowledge. For example, receiving help from professional advisors requires a more sophisticated consumer, compared to getting help with simple money management tasks from family members (e.g., paying bills). Receiving high-quality but potentially biased advice from professional financial advisors who use a commission-based payment structure also requires fairly sophisticated consumers. For this reason, Inderst and Ottaviani (2012) predict that unsophisticated consumers will not fully incorporate potential conflicts of interest due to commission-based fees when they assess the quality of financial advice received. By contrast, sophisticated customers are likely to understand that commission-based fees can be an effective incentive to get advisers to learn about the suitability of complex financial products for their customers' needs.

Accordingly, we hypothesize the following:

*Hypothesis 2 (Quality of financial advice received): Among those receiving financial advice, greater financial literacy will increase the likelihood of seeking financial advice from professionals.*

A natural corollary of Hypothesis 2 is that people with high financial literacy will be able to utilize 'free' professional consultations even if they also embody potential conflicts of interest. Accordingly, testing Hypothesis 2 offers insights relevant to policymakers and financial advisory service providers. For instance, if older persons who are financially illiterate seek advice that is conflicted, policymakers may believe it important to protect them from potentially exploitative services.

## Methodology and Data

We designed and fielded an experimental module in the 2016 HRS to explore how people age 50+ manage their financial affairs.[2] This module, assigned randomly, has a smaller sample than the core HRS modules by construction; it consists of 1594 age-eligible respondents (age 50+) who respond to our questions on their financial behaviors.[3] Specifically, we asked respondents whether they receive any type of financial advice, and if so, what types of financial advice they receive and from whom. Additionally, we asked persons who do not seek financial advice why not (see Appendix Table A1 for details). As a result, sample sizes for our financial behavior questions differ depending on how respondents answered precursor questions.

Summary statistics on our financial behavior variables and several controls collected from other core HRS surveys appear in Table 1 (correlations appear in Appendix Table A2). Responses to the first Module question show that only one-third (28 percent) of the age 50+ respondents indicated that they received advice on money management (*Help w/financial mgmt*). Of those who do, half received advice on investments (*Help w/invst*), and a large majority (68 percent) of these sought help from a professional outside of their family/friends network. A sizeable fraction (12 percent) said they received 'free' professional advice, which of course is unlikely to be completely free as commissions or fees are embedded in the products purchased. Focusing on respondents who did not seek financial advice, 52 percent said they were confident enough to manage the money on their own (*No money help: Self-confidence*); 2 percent indicated they did not trust advisors (*No money help: Distrust*); and 4 percent indicated they did not know whom to ask (*No money help: DK whom to ask*).

It is useful to say more regarding the definition of the variables "*Help*

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**Table 1**

Descriptive Statistics for Key Variables This table presents summary statistics for our main variables. The full sample includes 1594 HRS module respondents. All variables are defined in Appendix Table A1.

Panel A: Financial Behaviors

| Variable | Mean | St Dev | Respondent Group |
|---|---|---|---|
| *Any Financial Help* | | | |
| Help w/ financial mgmt (0/1) | 0.28 | 0.45 | Full sample |
| *Types of Financial Advice* | | | |
| Help w/ invst (0/1) | 0.47 | 0.50 | Those receiving financial advice |
| Help from profl/other non-family advisors (0/1) | 0.68 | 0.47 | Those receiving financial advice |
| 'Free' profl help (0/1) | 0.12 | 0.32 | Those receiving financial advice |
| *Reasons for Not Seeking Advice* | | | |
| No money help: Self-confidence (0/1) | 0.52 | 0.50 | Those not receiving financial advice |
| No money help: Distrust (0/1) | 0.02 | 0.15 | Those not receiving financial advice |
| No money help: DK whom to ask (0/1) | 0.04 | 0.19 | Those not receiving financial advice |

Panel B: Distribution of Answers to "Who helps with money management."

| | First answer | | Second answer | | Third answer | |
|---|---|---|---|---|---|---|
| | N | Percent | N | Percent | N | Percent |
| 1. Child or child-in-law | 86 | 19.07 | 4 | 7.02 | | |
| 2. Other relative | 33 | 7.32 | 6 | 10.53 | | |
| 3. Friend | 15 | 3.33 | 3 | 5.26 | | |
| 4. Financial advisor, planner, accountant, or other professional investment counselor | 270 | 59.87 | 16 | 28.07 | 2 | 25 |
| 5. Lawyer | 4 | 0.89 | 5 | 8.77 | 2 | 25 |
| 6. Banker | 17 | 3.77 | 4 | 7.02 | | |
| 7. Social Security representative | | | | | | |
| 8. Human Resources staff | | | 1 | 1.75 | | |
| 9. On line calculator | | | | | | |
| 10. Other | 23 | 5.1 | 18 | 31.58 | 4 | 50 |
| 98 DK | 1 | 0.22 | | | | |
| 99. RF | 2 | 0.44 | | | | |
| Total | 451 | | 57 | | 8 | |

Panel C. Control Variables

| Variable | Mean | St Dev |
|---|---|---|
| FinLit score | 2.00 | 0.91 |
| Cognition score | 22.53 | 4.85 |
| Age | 65.45 | 10.84 |
| Male | 0.42 | 0.49 |
| White | 0.69 | 0.46 |
| Hispanic | 0.17 | 0.37 |
| Married | 0.57 | 0.50 |
| Education (yrs) | 12.96 | 3.13 |
| Good health | 0.71 | 0.45 |
| Non-housing wealth (/100 k, 2014$) | 1.13 | 4.24 |
| Housing wealth (/100 k, 2014$) | 1.81 | 17.72 |
| Economic class | 0.32 | 0.47 |
| Live near to children | 0.42 | 0.49 |
| Frequent contact with children | 0.50 | 0.50 |
| Own stock | 0.18 | 0.39 |
| Has DC | 0.37 | 0.48 |
| Has DB | 0.30 | 0.46 |
| Covered by fed. Govt HI | 0.60 | 0.49 |
| Covered by priv. HI | 0.50 | 0.50 |
| Covered by ER HI | 0.05 | 0.21 |
| Has life insurance | 0.55 | 0.50 |
| Has long-term care insurance | 0.11 | 0.32 |

from profl/other non-family advisors" and "*Free profl help*." For example, free professional advice might be obtained by a short consult with a Social Security field agent, which would differ substantially from saving/investment advice obtainable from a financial advisor. Panel B of Table 1 lists each source of financial advice reported by respondents who say that they receive some financial input. The table provides a categorization of answers to the question "*Who helps with money management?*" (Question V108 in the experimental module). As the table shows, no one indicated that a Social Security agent provided them with financial advice. Accordingly, no one equated "*receiving help from Social Security representatives*" with free advice. Hence, we believe that "receiving professional financial advice" (*Help from profl/other non*) is a clean variable consistent with our interpretation. To construct a variable "receiving free financial advice" (*Free professional help*), we restrict the sample to only people receiving professional help from financial advisors, planners, accountants, and other professionals. This variable implies receiving professional advice and paying zero fees.

Two important conclusions are evident from Panel B of Table 1. First, most respondents chose only a single source of advice, and the majority elected "*financial adviser, planner, account, or other professional investment counselors*" as that source. The second-largest group selected "*child, child-in law, other relatives and friends.*" Second, only 13 people chose family members or friends as an additional source of financial advice (column 2 in Panel B of Table 1). Focusing on the 270 people selecting "financial advisor, planner, account or other professional investment counselor" as the first answer, only three people chose "child or child-in-law," six people chose "other relative," and only one listed "friend" as a source of financial advice.

The main HRS survey also asks questions as follows: "*Does anyone ever help you manage your money?*"(PG061) and "*What is that person's relationship to you or are they an employee of the place you live?*" (PG063). For those receiving financial advice (i.e., where PG061 ="Yes"), we create a binary variable "Help from family" =1 if the answers to PG063 were family members (e.g., spouse/partner, sons, daughters, brothers/ sisters, or other relatives). When calculating the Pearson correlation between this variable and our variable "*Help from profl/other non-family advisors,*" we find that the Pearson correlation is −0.3317 ($\chi^2(1)$ = 48.85, *p*-value < 0.001), suggesting that respondents answered our module questions consistently with the other HRS questions.

Next, we link these responses to each respondent's financial literacy (*FinLit* score) based on the Big Three questions pioneered by Lusardi and Mitchell (2014). We also relate the responses to other HRS data on respondents' demographic and socio-economic backgrounds.[4] Panel C of Table 1 shows that the *FinLit* score averaged 2.00 (maximum of 3) with a standard deviation of 0.91. The other variables behave as expected: the mean age was 65 (with a range from 50 to 98), and 42 percent of the sample was male. Most HRS respondents were White (70 percent) or Hispanic (17 percent), and most (52 percent) of respondents were married. Their education averaged 12.9 years; they held an average net non-housing wealth of about $113,000 (median of $2,100), and housing net wealth of $181,000.[5]

Additional core HRS questions probed respondents' proximity to children/family members and frequency of contacts with these questions: "*Do any of your children who do not live with you live within 10 miles of you?*" and "*In the past 12 months, how often have you or your wife/ husband/partner or your late husband/wife/partner had contact with children, either in person or by phone, mail, or e-mail.*" We also extracted information about stock and mutual fund holdings based on the core HRS

question: "*Aside from anything you have already told me about, do you or your husband/wife/partner have any shares of stock or stock mutual funds?*" To determine whether respondents had a retirement plan, we use the RAND variable: "*Detailed type of pension plan from current job,*" to create new variables "*Has DC plan*" or "*Has DB plan.*"

To derive information about insurance holdings, we created three variables based on core HRS questions:

1. *Has any health insurance* from RAND variables: "Covered by federal government health insurance program," "Whether employer-provided health plan covers retirees," and "Covered by other health insurance."

2. *Has any life insurance* from RAND variable: "Covered by life insurance."

3. *Has long-term care insurance* from RAND variable: "Covered by long-term care insurance."

In total, we create eight additional control variables regarding stock ownership, retirement plans, and insurance holdings. Panel C of Table 1 reports summary statistics for these additional controls.

## Empirical Analysis

To evaluate how financial behaviors of interest relate to respondents' financial literacy, holding other factors constant, we estimate multivariate Probit models of the following form:

$$\Pr(Y_i = 1 | X_i) = \Phi(\beta \times FinLit_i + \delta^{.} X_i), \tag{1}$$

where the dependent variable measures the probability of respondent *i* indicating that he or she engaged in the behavior of interest ($Y_i = 1$). The term $\Phi(\cdot)$ is the standard normal cumulative distribution with respect to the control variables of the Probit model. To mitigate potential confounding effects, other controls besides financial literacy noted above are included in the $X_i$ vector.[6]

It is conceivable that estimates of Eq. (1) could be biased due to unobservable omitted variables, for instance, if *FinLit* reflected some unobservable personal trait that could also affect the demand for, as well as the quantity and quality of, financial advice. For example, professional advisors might enhance clients' financial literacy, which in turn could lead to more demand for financial advice. Such simultaneity could amplify the association between financial literacy and the demand for professional advice, so the estimate might overstate the effect of financial literacy. In addition, a respondent's (unobservable) interest in financial management might be positively correlated with both financial literacy and the demand for professional financial advice. If so, this could make the coefficients overstate the effect of financial literacy on the demand for professional financial advice.

To address such potential endogeneity concerns, we undertake an instrumental variable (IV) analysis for our key explanatory variable (*FinLit* score). Following the literature (Bucher-Koenen et al., 2021; van Rooij et al., 2012), our IV indicates whether a respondent reported having taken an economics/finance course in school (*Economics class*). Table 1 shows that 32 percent of our subjects had done so. The first-stage regression (Appendix Table A3) confirms that having taken an *Economics class* is positively and statistically significantly linked to financial literacy scores: a one standard deviation increase in *Economics class* is associated with a 5.2 percent increase in *FinLit* (=0.220 × 0.47/2.00). The *F*-statistic for the weak IV test is 21.54, well above the Stock and Yogo (2005) threshold.

A potential concern regarding the exclusion restriction is that *Economics class* could also affect the demand for financial advice, in that people with more wealth may have taken economics classes and thus be more likely to seek out advice. To protect against this, our empirical

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[4] While some studies find a positive correlation between cognition and financial literacy score, we do not include a respondent's cognition score in this paper. This is because we focus our attention on the role of financial literacy in shaping the demand for financial advice. Our main results remain robust to including the cognition score as an additional control (available upon request).

[5] All monetary values are provided in real $2014.

[6] We posit that the sampling probability is not correlated with error terms in our sample, and thus we estimate regression models without sampling weights for improved efficiency (Wooldridge, 1999; Solon et al., 2015).

models control for respondents' housing/non-housing wealth, thus mitigating the impact of alternative channels through which the proposed IV could affect the demand for financial advice. Nevertheless, it is still possible that those who took economics classes could be those more interested in managing their finances effectively. Accordingly, we created a binary variable (*Spent time on investment decisions last year*) equal to one if a respondent spent on financial management (zero otherwise). We then ran a regression of this variable on the "*Economics class*" variable and other controls. Table A4 in the Appendix shows that the "*Economics class*" coefficient is not statistically significant, refuting the conjecture that this variable violates the exclusion restriction due to respondents' unobservable interest in financial management.[7] Below we present both Probit and IVProbit results of our two key variables on financial behaviors of interest.

**Results: who seeks financial advice and what type?**

Table 2 reports the factors associated with seeking financial advice as well as the types of advice respondents indicated they received. In each case, we report marginal effects from the Probit and IV Probit regressions to facilitate a comparison of the impact of addressing endogeneity concerns. *p*-values of the estimated coefficients' *Z*-statistics from Probit and IV Probit regressions are reported in parentheses.[8] Columns 1–2 of this table indicate that *FinLit* is unrelated to the take-up of financial advice in both models. Accordingly, the unconditional probability of receiving *any* financial advice is unaffected by financial literacy, holding other factors constant. Even for those who do receive financial advice, *FinLit* scores are uncorrelated with the probability of receiving financial advice regarding sophisticated financial topics such as investments (Column 3). Additionally, the IV analysis (Column 4) confirms that, for those who did seek financial advice, the probability of receiving more sophisticated financial advice (e.g., about investments) is not statistically significantly associated with the *FinLit* score. Overall, our results in Columns 1–4 cannot reject the null hypothesis that financial literacy is unrelated to the *quantity* of financial advice received by the older population (Hypothesis 1).

Next, we evaluate how financial literacy shapes the quality of financial advice people receive, testing Hypothesis 2. Column 5 in Table 2 shows that *FinLit* score is positively related to receiving advice from professional financial advisors. In other words, financially literate respondents are more likely to seek professional financial advice, rather than receiving casual help from family/friends. The IV analysis (Column 6) confirms that this positive association is attributable to the causal impact of *FinLit*. The economic magnitude of the effect is also sizable: a standard deviation increase in *FinLit* is associated with a 6.8 percent higher (=0.051 × 0.91/0.68) chance of receiving professional financial advice. Put differently, poor financial literacy reduces the probability of seeking professional advice by 2.1 percent (=0.051 × (1.96 −2.24)/0.68) for those age 70+ versus people in their 60's.[9] These results support Hypothesis 2, in that financial literacy does shape *whom*

older people ask when they seek financial advice.

Columns 7 and 8 of Table 2 report how *FinLit* influences the probability of receiving so-called 'free' professional financial advice. A corollary of Hypothesis 2 is that more sophisticated consumers might elect 'free' consultation, understanding that advisors get paid via the products sold and therefore are better incentivized to collect more information. IVProbit analysis (Column 8) indicates that those scoring higher on financial literacy tests are, indeed, more likely to seek free financial advice. This result supports the Inderst and Ottaviani (2012) theoretical argument that sophisticated investors actively use free commission-based advice, understanding that such commission-based payments can provide effective incentives for financial advisors to find them suitable financial products.

Other results in Table 2 are also worth noting. Better-educated respondents are more likely to receive financial advice in the Probit model (Column 1), and the result continues to hold in the IV analysis (Column 2). The IV model also shows that better-educated people seek advice from professional advisors (Column 6). Those with more housing wealth are more likely to receive financial advice on investment in the Probit model (Column 3), but this effect becomes statistically insignificant in the IVProbit analysis (Column 4). Older people are more likely to seek financial advice (Columns 1 and 2) but less likely to receive professional financial advice (Columns 5 and 6). Furthermore, we observe that the coefficients on "Own stock" are positive and statistically significant in both regressions, implying that stock owners are more likely to seek financial advice than others. In addition, conditional on receiving advice, stock owners are more likely to seek advice from professionals (Columns 5 and 6). The estimated coefficients on the control variables for retirement plans and insurance holdings are not statistically significant, except that those having health insurance provided by the federal government are less likely to seek financial advice.

Taken as a whole, then, Table 2 confirms that financially literate respondents seek professional advice rather than resorting to casual or informal help. Since, based on the IV analysis, financial literacy does not affect the likelihood of seeking financial advice, we conclude that financial literacy determines the *quality* rather than the *quantity* of financial advice sought.

In the empirical specifications above, we assumed that financial literacy has a linear impact on the likelihood of receiving professional financial advice, regardless of the respondent's wealth, age and financial positions. Yet the link could be non-linear, since fee-based financial advisors often have a minimum investable threshold of $200,000 or more (Kim et al., 2016). Accordingly, for those with little non-housing wealth, financial literacy might not substantially increase the demand for financial advice. Nonetheless, it is worth noting that the types of financial advice enumerated in our experimental HRS module did include a broader range of services than those studied by Kim et al. (2016); those authors considered only full portfolio delegation to a financial advisor. This explains why lower-wealth HRS respondents still seek some professional financial advice.

To explore this point further, Table 3 evaluates the impact of financial literacy on the demand for professional financial advice by wealth levels. Here we use the median non-housing wealth of $2100 as a threshold to define two sub-samples. Specifically, Panel A reports estimated Probit and IVProbit marginal effects for "Receiving advice from non-professional" regressed on *FinLit* and other controls, for people above/below this wealth threshold.[10] Here we see that the marginal effects of *Finlit score* is higher for those having non-housing wealth above the median, implying that wealth and financial literacy have a

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[7] Another concern might be that the insignificant effect of "Economics class" on "time spent on financial management" could be driven by an offsetting effect of delegation. That is, those having "unobserved interest in financial management" may think of "delegation" and "self-management" as mutually exclusive actions, and delegating individuals would spend less time in financial management. This view is not supported in our dataset, because the correlation between "spent time on investment decisions last year" and "receiving financial advice" is significantly positive.

[8] The *p*-values of the marginal effects do not reflect each separate covariate's statistical significance, since the statistical significance of any one marginal effect is affected by other covariate values in a nonlinear way. Thus, we believe it to be helpful to readers to report the regressors' marginal effects and the *p*-value for the corresponding regressor's coefficient estimate.

[9] Average *Finlit* scores for persons in their 60s, 70s, and 80+ are 2.24, 1.96 and 1.88, respectively.

[10] We present the heterogeneous effects using split-sample analysis for the non-linear Probit and IV Probit models because interaction effects in nonlinear models are not the same as the marginal effects of the interaction terms. Moreover, there is controversy about how to obtain an unbiased estimator of interaction effects with endogenous variables in a non-linear model.

**Table 2**

Determinants of Financial Advice Seeking This table presents marginal effects from Probit analysis (odd-numbered Columns) and IV Probit (even-numbered Columns) of four key financial behaviors: *Help w/ financial mgmt, Help w/ invst, Help from profl/other non-family advisors,* and *'Free' profl help.* All dependent variables are binary; see Appendix 1 for variable definitions. Regressors include missing data controls. *p*-values for the estimated coefficients' *Z*-statistics based on clustered standard errors at the household level are reported in parentheses. * and ** represent statistical significance at 5% and 1% level, respectively.

| | Full sample | | Those receiving financial advice | | | | | |
|---|---|---|---|---|---|---|---|---|
| | *Help w/ financial mgmt (0/1)* | | *Help w/ invst (0/1)* | | *Help from profl/other non family advisors (0/1)* | | *'Free' profl help (0/1)* | |
| | (1) Probit | (2) IVProbit | (3) Probit | (4) IVProbit | (5) Probit | (6) IVProbit | (7) Probit | (8) IVProbit |
| FinLit score | 0.005 | 0.003 | 0.008 | 0.012 | 0.063* | 0.051* | 0.019 | 0.019* |
| | (0.718) | (0.554) | (0.814) | (0.837) | (0.040) | (0.022) | (0.434) | (0.045) |
| Age | 0.004** | 0.004** | 0.000 | 0.000 | −0.006* | −0.005** | 0.002 | 0.003* |
| | (0.002) | (0.002) | (0.889) | (0.892) | (0.039) | (0.000) | (0.357) | (0.026) |
| Male | −0.027 | −0.027 | 0.003 | 0.005 | −0.035 | −0.028 | −0.045 | −0.054 |
| | (0.249) | (0.244) | (0.955) | (0.916) | (0.481) | (0.300) | (0.220) | (0.052) |
| White | 0.079** | 0.081* | 0.124 | 0.094 | 0.187** | 0.123* | −0.039 | −0.005 |
| | (0.003) | (0.040) | (0.132) | (0.591) | (0.003) | (0.037) | (0.571) | (0.384) |
| Hispanic | −0.054 | −0.056 | −0.044 | −0.060 | −0.052 | −0.027 | −0.089 | −0.144 |
| | (0.142) | (0.136) | (0.712) | (0.578) | (0.524) | (0.311) | (0.187) | (0.980) |
| Married | 0.001 | 0.002 | 0.041 | 0.029 | 0.223** | 0.169 | −0.040 | −0.045 |
| | (0.966) | (0.896) | (0.519) | (0.893) | (0.000) | (0.063) | (0.321) | (0.108) |
| Education (yrs) | 0.021** | 0.019* | 0.012 | 0.007 | 0.015 | 0.015** | −0.014 | −0.018** |
| | (0.000) | (0.036) | (0.327) | (0.993) | (0.134) | (0.000) | (0.105) | (0.000) |
| Good health | 0.005 | 0.006 | 0.163* | 0.125 | 0.092 | 0.075* | −0.018 | −0.028 |
| | (0.856) | (0.903) | (0.035) | (0.382) | (0.107) | (0.030) | (0.747) | (0.899) |
| Non-housing wealth (/100 k, 2014$) | 0.001 | 0.001 | 0.001 | 0.001 | 0.013 | 0.009 | −0.004 | −0.004 |
| | (0.675) | (0.879) | (0.919) | (0.970) | (0.108) | (0.150) | (0.263) | (0.460) |
| Housing wealth (/100 k, 2014$) | 0.000 | 0.000 | 0.042* | 0.032 | 0.021 | 0.017 | −0.004 | −0.004 |
| | (0.357) | (0.487) | (0.011) | (0.051) | (0.197) | (0.359) | (0.638) | (0.780) |
| Live near to children | −0.009 | −0.009 | −0.162** | −0.125 | −0.004 | −0.004 | 0.070 | 0.070 |
| | (0.724) | (0.770) | (0.008) | (0.206) | (0.940) | (0.461) | (0.079) | (0.459) |
| Frequent contact with children | 0.003 | 0.003 | 0.152* | 0.114* | 0.043 | 0.037 | 0.027 | 0.023 |
| | (0.894) | (0.792) | (0.012) | (0.028) | (0.398) | (0.503) | (0.477) | (0.317) |
| Own stock | 0.176** | 0.148** | 0.207** | 0.165 | 0.145** | 0.129* | −0.067 | −0.078 |
| | (0.000) | (0.000) | (0.001) | (0.299) | (0.008) | (0.039) | (0.092) | (0.284) |
| Has DC | 0.018 | 0.016 | 0.154* | 0.116 | 0.069 | 0.056 | −0.006 | −0.002 |
| | (0.514) | (0.649) | (0.013) | (0.339) | (0.164) | (0.051) | (0.888) | (0.279) |
| Has DB | 0.024 | 0.022 | 0.063 | 0.049 | 0.021 | 0.016 | 0.051 | 0.055 |
| | (0.398) | (0.382) | (0.326) | (0.480) | (0.695) | (0.733) | (0.173) | (0.412) |
| Covered by fed. Govt HI | −0.072* | −0.068* | 0.081 | 0.048 | 0.045 | 0.046* | −0.043 | −0.049* |
| | (0.031) | (0.044) | (0.346) | (0.920) | (0.535) | (0.014) | (0.440) | (0.020) |
| Covered by priv. HI | 0.024 | 0.022 | 0.200** | 0.154 | 0.103 | 0.080* | −0.036 | −0.039 |
| | (0.394) | (0.617) | (0.004) | (0.399) | (0.071) | (0.022) | (0.428) | (0.328) |
| Covered by ER HI | 0.017 | 0.013 | 0.020 | −0.013 | −0.158 | −0.109 | −0.003 | −0.030 |
| | (0.751) | (0.692) | (0.866) | (0.835) | (0.170) | (0.466) | (0.971) | (0.459) |
| Has life insurance | 0.005 | 0.005 | 0.075 | 0.053 | 0.078 | 0.065 | 0.040 | 0.053 |
| | (0.827) | (0.904) | (0.230) | (0.532) | (0.123) | (0.158) | (0.311) | (0.994) |
| Has long-term insurance | 0.079* | 0.069 | 0.067 | 0.051 | 0.099 | 0.084 | −0.030 | −0.034 |
| | (0.032) | (0.077) | (0.375) | (0.694) | (0.113) | (0.205) | (0.469) | (0.435) |
| N | 1,614 | 1,614 | 421 | 421 | 444 | 444 | 286 | 286 |
| Pseudo R-sq/Log likelihood | 0.108 | −2,808.2 | 0.222 | −700.0 | 0.314 | −699.3 | 0.098 | −412.5 |

complementary effect on the demand for professional financial advice.

We also investigate whether the impact of *FinLit* varies by age group. To this end, Panel B in Table 3 shows estimated Probit and IVProbit marginal effects for people in three age groups (50–64, 65–74, and 75 + ). Here we observe that the IVProbit marginal effects of *Finlit score* are all positive and statistically significant for all age groups. Moreover, the marginal effects of financial literacy are greater for people ages 50–64 and 75+, compared to those age 65–74. This result suggests that more financially literate people seek more professional advice in the early and late stages of retirement, when major lifetime events are likely to require careful financial management.

We also investigate the heterogeneous effects of financial literacy based on the survey respondents' financial positions, focusing in particular on the complexity of their financial positions. Presumably, financially literate people with more complex financial positions are likely to seek more professional advice. We create a binary variable "high complexity" equal to one if the respondent held stocks or bonds (based on HRS question PQ316, "Stock and Stock Mutual Funds" and PQ330, "Bond Assets"). Results appear in Panel C of Table 3, where we see that the association of financial literacy with the demand for

professional financial advice is higher for those holding more complex financial assets.

Overall, the patterns in Table 3 suggest that financial literacy has a complementary effect on the demand for professional financial advice, and this effect is stronger for people who need the advice most.

**Reasons for not seeking financial advice: confidence, distrust, and lack of knowledge**

Two-thirds of the older HRS respondents reported that they did not seek financial advice, leading us to ask why. Table 4 presents marginal effects from Probit and IV Probit models of reasons people gave for not receiving financial advice, linked to *FinLit,* self-confidence, distrust, and lack of knowledge as potential explanations. Columns 1 and 2 report marginal effects from Probit and IVProbit models of self-confidence. Here, *FinLit* is positively correlated with self-confidence, but this relation is not statistically significant. In other words, we find little evidence that *FinLit* scores are related to self-confidence. Interestingly, the estimated *Age* coefficient is positive and statistically significant, consistent with prior studies reporting that older people become more confident in

**Table 3**

Heterogeneity Analysis of the Impact of Financial Literacy by Wealth, Age and Financial Positions This table replicates the results of Table 2, columns 5–6, by non-housing wealth (Panel A), age groups (Panel B), and respondents' financial positions (Panel C). Estimated marginal effects of control variables are omitted for brevity. See Appendix 1 for variable definitions. Regressors include missing data controls. *p*-values for the estimated coefficients' *Z*-statistics based on clustered standard errors at the household level are reported in parentheses. * and ** represent statistical significance at 5% and 1% level, respectively.'

| Panel A: Heterogeneity analysis by non-housing wealth level | | | | |
|---|---|---|---|---|
| Dep. Var. = Help from profl/other non family advisors (0/1) | | | | |
| | Non-housing Wealth < Median | | Non-housing Wealth > Median | |
| | (1) Probit | (2) IVProbit | (3) Probit | (4) IVProbit |
| FinLit score | 0.059 | 0.034** | 0.045 | 0.043** |
| | (0.483) | (0.001) | (0.133) | (0.004) |
| N | 136 | 136 | 308 | 308 |
| Pseudo R-sq/Log likelihood | 0.549 | −188.9 | 0.186 | −486.5 |

| Panel B: Heterogeneity analysis by age group | | | | | |
|---|---|---|---|---|---|
| Help from profl/other non family advisors (0/1) | | | | | |
| below Age 65 | | Age 65–74 | | Age 75+ | |
| (1) Probit | (2) IVProbit | (3) Probit | (4) IVProbit | (5) Probit | (6) IVProbit |
| FinLit score 0.054 | 0.057* | 0.001 | 0.012** | 0.090 | 0.056** |
| (0.178) | (0.016) | (0.645) | (0.000) | (0.182) | (0.000) |
| N 223 | 223 | 91 | 88 | 130 | 122 |
| Pseudo R-sq/Log likelihood 0.328 | −328.9 | 0.621 | −102.9 | 0.349 | −204.5 |

| Panel C: Heterogeneity analysis by respondents' financial positions | | | | |
|---|---|---|---|---|
| Dep. Var. = Help from profl/other non family advisors (0/1) | | | | |
| | High complexity = 1 | | High complexity = 0 | |
| | (1) Probit | (2) IVProbit | (3) Probit | (4) IVProbit |
| FinLit score | 0.081* | 0.125** | 0.028 | 0.024** |
| | (0.025) | (0.000) | (0.385) | (0.000) |
| N | 80 | 77 | 364 | 364 |
| Pseudo R-sq/Log likelihood | 0.281 | −118.9 | 0.351 | −558.1 |

their financial acumen, although their actual ability deteriorates (Mazzonna and Peracchi, 2018).

Another potential reason for not receiving financial advice could be that respondents distrusted financial advisors (Gennaioli et al., 2015). Columns 3–4 of Table 4 present marginal effects from Probit and IV Probit models regressing *Distrust* on *FinLit* as well as other controls. The IV Probit model, in which we place more confidence, indicates that male respondents are more likely to identify distrust as a key reason for not seeking financial advice. *FinLit* is not statistically significantly related to this outcome.

Table 4 also shows results from Probit and IV Probit regressions of "Do not know whom to ask" on *FinLit* as well as the other controls. The Probit and IV Probit (Columns 5–6) show that *FinLit* scores are not tightly linked to not knowing whom to ask for financial advice. In the IV Probit estimation, few of the control variables are related to self-confidence and lack of knowledge. One that does stand out appears in Column (5), where non-white men with less education are more likely to indicate "Do not know whom to ask" as a reason for not receiving financial advice.

Overall, Table 4 indicates that financial literacy is not influential in driving respondents' "self-confidence," "distrust," or "lack of knowledge," in terms of explaining why some people do not seek financial advice.

### Discussion and conclusion

This paper has explored the impact of several key factors driving the demand for financial advice in an aging population, with a particular focus on financial literacy. Given increasingly complex financial products and the disintermediation of retirement decisions, many older persons with substantial savings may not be able to manage financial tasks on their own, so it is important to understand how and why they hire financial advisors. We show that financial literacy helps shape the

*quality*, but not the *quantity*, of financial advice sought by older persons. Nevertheless, being more financially literate does enhance the likelihood that older people seek advice from *more sophisticated* sources, such as professional advisors.

The fact that financial literacy helps shape the quality of financial advice sought implies that the mere existence of financial advisors will not, on its own, correct many older households' sub-optimal financial practices. Indeed, we show that poor financial literacy can actually be a barrier to receiving quality financial advice. This result has implications for the value of financial literacy education. That is, financial literacy not only helps individuals make better decisions on their own, but it also helps them understand when professional help is needed.

Our results also imply that researchers and policymakers may need to find new ways to evaluate and monitor financial behavior for an aging population. Financial institutions are likely to find it useful to enhance protections for their older customers with deteriorating financial literacy. Efforts along these lines include programs teaching bank tellers how to recognize when customers show signs of declining mental capacity or are being financially exploited (Moye and Marson, 2007; Gunther, 2015). Various federal agencies also handle complaints regarding financial fraud, and some states have also passed laws seeking to protect elders from financial exploitation, for instance, allowing triple damages for victims winning legal cases against their perpetrators (DeLiema and Deevy, 2017). Moreover, since we find that the less financially literate are unlikely to utilize professional financial advisors, policymakers may find it useful to target financial education to those groups most likely to suffer in old age.

### Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

**Table 4**

Factors Associated with Not Seeking Financial Advice This table presents marginal effects from Probit analysis (odd-numbered columns) and IV Probit (even-numbered columns) for factors explaining why people did not seek financial advice: *Self-confidence*, *Distrust*, and *DK whom to ask*. These are regressed on *FinLit score* along with other controls. All dependent variables are binary; see Appendix 1 for detailed definitions. Regressors include missing data controls. *p*-values for the estimated coefficients' *Z*-statistics based on clustered standard errors at the household level are reported in parentheses. * and ** represent statistical significance at 5% and 1% level, respectively.

| | No money help: Self-confidence (0/1) | | No money help: Distrust (0/1) | | No money help: DK whom to ask (0/1) | |
| --- | --- | --- | --- | --- | --- | --- |
| | (1) Probit | (2) IVProbit | (3) Probit | (4) IVProbit | (5) Probit | (6) IVProbit |
| FinLit score | 0.019 | 0.015 | 0.000 | 0.006 | −0.002 | −0.002 |
| | (0.292) | (0.186) | (0.280) | (0.525) | (0.669) | (0.814) |
| Age | 0.006** | 0.006** | 0.000 | 0.000 | −0.001* | −0.002 |
| | (0.002) | (0.001) | (0.385) | (0.345) | (0.041) | (0.085) |
| Male | 0.050 | 0.047 | 0.002* | 0.017* | −0.003 | −0.005 |
| | (0.115) | (0.952) | (0.028) | (0.016) | (0.719) | (0.618) |
| White | 0.044 | 0.030 | −0.001 | −0.010 | −0.027** | −0.034** |
| | (0.202) | (0.929) | (0.266) | (0.656) | (0.002) | (0.006) |
| Hispanic | 0.020 | 0.041 | −0.001 | −0.029 | −0.010 | −0.016 |
| | (0.660) | (0.263) | (0.115) | (0.136) | (0.386) | (0.372) |
| Married | 0.008 | 0.005 | 0.000 | 0.006 | 0.017* | 0.024 |
| | (0.808) | (1.000) | (0.604) | (0.530) | (0.051) | (0.060) |
| Education (yrs) | −0.002 | −0.003 | 0.000 | −0.001 | 0.001 | 0.002 |
| | (0.781) | (0.313) | (0.152) | (0.955) | (0.343) | (0.673) |
| Good health | 0.026 | 0.021 | 0.001 | 0.011 | 0.006 | 0.009 |
| | (0.455) | (0.995) | (0.338) | (0.199) | (0.492) | (0.687) |
| Non-housing wealth (/100 k, 2014$) | 0.005 | 0.005 | 0.000 | 0.000 | −0.001 | −0.001 |
| | (0.275) | (0.463) | (0.520) | (0.881) | (0.582) | (0.693) |
| Housing wealth (/100 k, 2014$) | 0.001 | 0.001 | 0.000 | 0.000 | 0.000 | 0.000 |
| | (0.205) | (0.564) | (0.132) | (0.767) | (0.478) | (0.776) |
| Live near to children | 0.095** | 0.089** | 0.000 | 0.000 | 0.008 | 0.012 |
| | (0.003) | (0.003) | (0.894) | (0.949) | (0.314) | (0.325) |
| Frequent contact with children | 0.039 | 0.033 | 0.001 | 0.008 | −0.018* | −0.025 |
| | (0.219) | (0.154) | (0.402) | (0.574) | (0.015) | (0.082) |
| Own stock | −0.068 | −0.063 | 0.008** | 0.036** | 0.006 | 0.008 |
| | (0.178) | (0.102) | (0.000) | (0.001) | (0.707) | (0.794) |
| Has DC | 0.029 | 0.027 | −0.001 | −0.007 | 0.004 | 0.006 |
| | (0.453) | (0.618) | (0.448) | (0.628) | (0.708) | (0.746) |
| Has DB | −0.014 | −0.015 | 0.000 | −0.007 | 0.005 | 0.008 |
| | (0.736) | (0.830) | (0.536) | (0.474) | (0.617) | (0.589) |
| Covered by fed. Govt HI | 0.102* | 0.093** | 0.000 | −0.001 | −0.007 | −0.008 |
| | (0.018) | (0.008) | (0.959) | (0.708) | (0.534) | (0.746) |
| Covered by priv. HI | 0.058 | 0.055 | 0.001 | 0.010 | −0.017 | −0.024 |
| | (0.135) | (0.367) | (0.315) | (0.257) | (0.088) | (0.130) |
| Covered by ER HI | −0.056 | −0.056 | 0.000 | −0.010 | 0.025 | 0.025 |
| | (0.470) | (0.729) | (0.725) | (0.502) | (0.188) | (0.211) |
| Has life insurance | 0.009 | 0.008 | 0.000 | 0.003 | 0.018* | 0.026 |
| | (0.770) | (0.912) | (0.732) | (0.662) | (0.026) | (0.063) |
| Has long-term insurance | 0.044 | 0.044 | 0.000 | −0.005 | 0.010 | 0.010 |
| | (0.416) | (0.673) | (0.765) | (0.949) | (0.457) | (0.716) |
| N | 1,170 | 1,170 | 1,143 | 1,143 | 1,143 | 1,143 |
| Pseudo R-sq/Log likelihood | 0.046 | −2,212.5 | 0.154 | −1,507.7 | 0.125 | −1,571.0 |

## Appendix Table A1. Variable Descriptions

Note: R refers to HRS Respondent
A. Financial Behaviors (questions detailed in the 2016 HRS Module, https://hrs.isr.umich.edu/documentation.)

*Help w/ financial mgmt.* (0/1) is a binary variable equal to one if R got help with money management in past year (Item v106 = 1), 0 else.

**Types of Financial Advice**

*Help w/ invst* (0/1) is a binary variable equal to one if R got help with investing stocks, bonds or mutual funds, 0 else.

*Help from profl/other non-family advisors* (0/1) (v108 = 4, 5, 6, 7, 8; advisor_help3) = 1 if R gets help from professional financial advisors or other nonfamily member; 0 else

*Free' profl help* (0/1) (v112 = 7; free_advice1) = 1 if R gets help for free from professional advisor; 0 else conditional on v108 = 4, 5, 6 (receiving professional financial advice)

**Reasons for Not Seeking Advice**

*No money help: Overconfidence* (0/1) is a binary variable equal to one if R did not receive financial advice because he can do financial management on his own, 0 else.

*No money help: Distrust* (0/1) is a binary variable equal to one if R did not receive financial advice due to no trust in financial advisors, 0 else.

*No money help: DK whom to ask* (0/1) is a binary variable equal to one if R did not financial advice because he knows no one to ask, 0 else.

B. Control variables (from HRS Core).

**FinLit score**: Sum of number of correct answers to four financial literacy questions.
**Age**: R age in years
**Male**: binary variable equal to one if R male, 0 else.
**White**: binary variable equal to one if R white, 0 else.
**Hispanic**: binary variable equal to one if R Hispanic, 0 else.
**Married**: binary variable equal to one if R married, 0 else.
**Education**: number of years of education
**Good health**: binary variable equal to one R reports health status excellent/good, 0 else.
**Non-housing wealth**: net value of non-housing financial wealth (stock, saving, CDs, bonds, and other saving less debt) in 2014 $100,000 s.
**Housing wealth**: net value of housing (value of 1ry residence less mortgages and home loans) in 2014 $100,000 s.
**Live near to children**: binary variable equal to one if R said yes to "Do any of your children who do not live with you live within 10 miles of you? (PE012)"
**Frequent contact with children**: binary variable equal to one if R's answer to "In the past 12 months, how often have you or your wife/husband/partner or your late husband/wife/partner had contact with children, either in person or by phone, mail, or e-mail. (PE033)" more than median.
**Own stock**: binary variable equal to one if R said yes to "Aside from anything you have already told me about, do you or your husband/wife/partner have any shares of stock or stock mutual funds? (PQ316)?"
**Has DC**: binary variable equal to one if R said DC to "Detailed type of pension plan from current job (R13PTYP1-4)
**Has DB**: binary variable equal to one if R said DB to "Detailed type of pension plan from current job (R13PTYP1-4)"
**Covered by fed. Govt HI**: binary variable equal to one if R said yes to "Covered by federal government health insurance program (R13HIGOV)"
**Covered by priv. HI**: binary variable equal to one if R said yes to "Whether employer-provided health plan covers retirees (R13COVRT)"
**Covered by ER HI**: binary variable equal to one if R said yes to "Covered by other health insurance (R13HIOTHP)"
**Has life insurance**: binary variable equal to one if R said yes to "Covered by life insurance (R13LIFEIN)"
**Has long-term insurance**: binary variable equal to one if R said yes to "Covered by long-term care insurance (R13HILTC)"
**High complexity**: binary variable equal to one if R holds stock/stock mutual fund (PQ316) or bond/bond mutual fund (PQ330).

### C. Instrumental variables

Economic class: A binary variable equal to one if R had an economics/finance class in school, 0 else.

### Appendix Table A2. Pairwise Correlations for Key Variables

This table reports correlations among key variables used in the empirical analysis.

| | Help w/ financial mgmt (0/1) | Help w/ invst (0/1) | Help from profl/other non-family advisors (0/1) | Free' profl help (0/1) | No money help: Self-confidence (0/1) | No money help: Distrust (0/1) | No money help: DK whom to ask (0/1) |
|---|---|---|---|---|---|---|---|
| Help w/ financial mgmt (0/1) | 1.00 | | | | | | |
| Help w/ invst (0/1) | | 1.00 | | | | | |
| Help from profl/other non-family advisors (0/1) | | 0.42 | 1.00 | | | | |
| Free' profl help (0/1) | | 0.09 | 0.26 | 1.00 | | | |
| No money help: Self-confidence (0/1) | | | | | 1.00 | | |
| No money help: Distrust (0/1) | | | | | −0.16 | 1.00 | |
| No money help: DK whom to ask (0/1) | | | | | −0.22 | −0.03 | 1.00 |
| FinLit score | 0.12 | 0.22 | 0.35 | 0.04 | 0.02 | 0.06 | 0.02 |
| Age | 0.09 | −0.04 | −0.14 | 0.02 | 0.19 | −0.01 | −0.10 |
| Male | −0.01 | 0.03 | 0.03 | −0.03 | 0.05 | 0.08 | 0.01 |
| White | 0.16 | 0.18 | 0.23 | 0.06 | 0.07 | 0.00 | −0.11 |
| Hispanic | −0.14 | −0.13 | −0.13 | −0.08 | −0.01 | −0.06 | −0.03 |
| Married | 0.06 | 0.17 | 0.37 | 0.00 | 0.03 | 0.04 | 0.06 |
| Education (yrs) | 0.22 | 0.26 | 0.34 | 0.02 | −0.01 | 0.04 | 0.05 |
| Good health | 0.13 | 0.25 | 0.26 | 0.06 | 0.03 | 0.05 | 0.04 |
| Non-housing wealth (/100 k, 2014$) | 0.14 | 0.18 | 0.20 | −0.03 | 0.06 | 0.04 | −0.02 |
| Housing wealth (/100 k, 2014$) | 0.04 | 0.07 | 0.05 | −0.02 | 0.03 | 0.01 | −0.01 |
| Economic class | 0.10 | 0.11 | 0.08 | 0.00 | 0.01 | 0.02 | 0.06 |

**Appendix Table A3.  The First-Stage Regression of Financial Literacy on the Instrumental Variable**

This table presents coefficient estimates from the first-stage OLS regressions of *FinLit* scores on the instrumental variable, *Economics class,* along with all other controls. Variables are described in Appendix 1. Regressors include missing data controls; standard errors are reported in parentheses and clustered at the household level. * and ** represent statistical significance at 5% and 1% level, respectively.

|  | FinLit score |
| --- | --- |
| Economics class | 0.220** |
|  | (0.047) |
| Age | −0.008** |
|  | (0.003) |
| Male | 0.283** |
|  | (0.042) |
| White | 0.204** |
|  | (0.049) |
| Hispanic | −0.075 |
|  | (0.070) |
| Married | 0.084 |
|  | (0.045) |
| Education (yrs) | 0.041** |
|  | (0.009) |
| Good health | 0.159** |
|  | (0.052) |
| Non-housing wealth (/100 k, 2014$) | 0.011** |
|  | (0.004) |
| Housing wealth (/100 k, 2014$) | 0.001* |
|  | (0.000) |
| Live near to children | −0.044 |
|  | (0.045) |
| Frequent contact with children | −0.060 |
|  | (0.044) |
| Own stock | 0.145* |
|  | (0.057) |
| Has DC | 0.073 |
|  | (0.049) |
| Has DB | −0.017 |
|  | (0.051) |
| Covered by fed. Govt HI | −0.058 |
|  | (0.058) |
| Covered by priv. HI | 0.122* |
|  | (0.053) |
| Covered by ER HI | −0.131 |
|  | (0.097) |
| Has life insurance | 0.034 |
|  | (0.045) |
| Has long-term insurance | 0.112 |
|  | (0.069) |
| Intercept | 1.461** |
|  | (0.193) |
| N | 1,614 |
| R-sq | 0.204 |
| F-test, H0: beta (Economics class) = 0 | 21.54 |
| P value | 0.000 |

**Appendix Table A4.  Testing a Potential Channel Violating the Exclusion Restriction Condition**

This table presents marginal effects from the Probit regression of *Spent time on investment decisions last year (0/1)* on the instrumental variable, *Economics class,* along with all other controls. Variables are described in Appendix 1. Regressors include missing data controls. *p*-values for the estimated coefficients' *Z*-statistics based on clustered standard errors at the household level are reported in parentheses. * and ** represent statistical significance at 5% and 1% level, respectively.

|  | Spent time on Invest decisions last year (0/1) |
| --- | --- |
| Economics class | 0.081 |
|  | (0.138) |
| Age | −0.001 |
|  | (0.728) |
| Male | −0.009 |
|  | (0.863) |
| White | 0.013 |

*(continued)*

|  | Spent time on Invest decisions last year (0/1) |
| --- | --- |
|  | (0.858) |
| Hispanic | 0.135 |
|  | (0.144) |
| Married | 0.193** |
|  | (0.000) |
| Education (yrs) | 0.012 |
|  | (0.320) |
| Good health | 0.205** |
|  | (0.004) |
| Non-housing wealth (/100 k, 2014$) | 0.000 |
|  | (0.997) |
| Housing wealth (/100 k, 2014$) | 0.003 |
|  | (0.845) |
| Live near to children | −0.042 |
|  | (0.456) |
| Frequent contact with children | 0.071 |
|  | (0.197) |
| Own stock | 0.146* |
|  | (0.012) |
| Has DC | 0.084 |
|  | (0.137) |
| Has DB | −0.019 |
|  | (0.742) |
| Covered by fed. Govt HI | −0.055 |
|  | (0.459) |
| Covered by priv. HI | 0.087 |
|  | (0.149) |
| Covered by ER HI | −0.092 |
|  | (0.437) |
| Has life insurance | 0.072 |
|  | (0.189) |
| Has long-term insurance | 0.019 |
|  | (0.770) |
| N | 426 |
| Pseudo R-sq/R-sq | 0.160 |

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