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## Financial Literacy and Financial Behavior at Older Ages

Olivia S. Mitchell

*The Wharton School, Univ. of PA*, [mitchelo@wharton.upenn.edu](mailto:mitchelo@wharton.upenn.edu)

Annamaria Lusardi

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### Abstract

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### Keywords

Financial well-being, financial literacy, financial education, financial behavior

### Disciplines

Economics

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The Wharton School, University of Pennsylvania

3620 Locust Walk, 3302 SH-DH

Philadelphia, PA 19104-6302

Tel.: 215.573.3414 Fax: 215.573.3418

Email: [prc@wharton.upenn.edu](mailto:prc@wharton.upenn.edu)

<http://www.pensionresearchcouncil.org>

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# **Financial Literacy and Financial Behavior at Older Ages**

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## **Abstract**

Recent research documents that people are increasingly entering old age with more debt than ever before and with little or no retirement planning. This paper examines some reasons why older people's financial behaviors depart from the predictions of the life-cycle model, where the latter predicts that older persons would be at the peak of their wealth accumulation process and manage their money so as not to run out of savings in retirement. Drawing on the rapidly growing literature on financial literacy and financial behavior at older ages, we highlight findings on financial literacy patterns. We also document that "better" financial behaviors are strongly associated with greater financial literacy in later life. We close with some thoughts regarding limitations, policy implications, and next steps.

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### **Olivia S. Mitchell**

The Wharton School, University of Pennsylvania  
3620 Locust Walk, Ste. 3000 SH-DH, Philadelphia, PA 19104  
mitchelo@wharton.upenn.edu

### **Annamaria Lusardi**

The George Washington School of Business  
2201 G Street, NW. Suite 450E, Duquès Hall  
Washington, D.C. 20052  
alusardi@gwu.edu

The conventional life-cycle model of financial behavior proposes that adults nearing retirement will be at or near the peak of their wealth accumulation process. Accordingly, their major financial concern will be how to spend down their wealth so it will last throughout their remaining lifetimes. People planning for retirement normally forecast a drop in income at retirement, because labor earnings will decline, and pensions and Social Security tend to replace less than pre-retirement earnings. Consequently, near-retirees would pay down their debt, or if necessary, carry only low-interest debt into retirement. Overall, their goal would be to preserve assets that can cover old-age consumption (in addition to setting aside assets to cover bequest motives, if any).

Nevertheless, as we shall show, people's financial behaviors in later life are often inconsistent with these simple theoretical predictions. This paper examines some reasons why, drawing on a rapidly growing literature on financial literacy and financial behavior at older ages. In what follows, we first describe the empirical evidence on older persons' financial behaviors and how these behaviors depart from the predictions of the conventional economic model. Next, we outline recent studies on financial literacy patterns with age, and we show that "better" financial behaviors are strongly associated with greater financial literacy in later life. Finally, we outline some comments regarding limitations, policy implications, and next steps.

### **Retirement Planning, Debt, and Financial Fragility at Older Ages**

One widespread finding from various data sets is that many older Americans fail to think about, and plan for, retirement, despite the importance of this crucial life change for older people's financial well-being. For instance, Lusardi and Mitchell (2007) use data from the Health and Retirement Study (HRS) to examine whether and how much older respondents (age 51–56) had

thought about retirement. They found that more than one-quarter (28 percent) of the early Baby Boomers and almost one-third (32 percent) of the original HRS cohort (age 51–56 in 1992) said they had not thought about retirement *at all*. Lusardi and Mitchell (2011a, b) also confirm that only a minority—fewer than one-third—of older respondents (age 50+) had ever tried to figure out how much they needed to save for retirement, and only 18 percent of them tried and somewhat succeeded in developing a saving plan. Other research has also confirmed that older people tend to be poorly informed about their prospective Social Security and pension benefits.<sup>1</sup> This is concerning because people who plan for retirement are significantly more likely to accumulate more retirement wealth, compared with their non-planner counterparts (Lusardi and Mitchell 2007, 2011b).

In addition to not thinking about retirement and not planning for it financially, people are increasingly likely to carry debt into their later years. For instance, Lusardi et al. (2020b, c) analyze both the 2018 Health and Retirement Study and the 2015 National Financial Capability Study, concluding that more older Americans are carrying debt close to retirement, even debt carrying high interest rates and rates above those normally earned on assets. This debt has also increasingly prompted older women to remain employed at older ages (Lusardi and Mitchell, 2018).

A side effect of this rising indebtedness is that it produces feelings of financial stress in the older population. For instance, Lusardi et al. (2020c, d) show that the most financially distressed subset of the older population faced contact with debt collectors, held student loans, and carried medical debt. Moreover, population subgroups most vulnerable to this stress include the least educated, those that are low income, Black Americans, and women.

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<sup>1</sup> Relevant studies include Mitchell (1988), Gustman and Steinmeier (2004), and the Employee Benefits Research Institute's Retirement Confidence Survey (2001).

Lusardi et al. (2020b) also study the relationship between age and self-reported financial problems, using the 2012 and 2015 National Financial Capability Study (NFCS) surveys. Their results indicate an inverted U-shaped age pattern of having “too much debt,” suggesting that financial difficulties do not necessarily rise with age, but that a sizeable proportion of older respondents (more than 30 percent) continue to report excessive amounts of debt close to retirement, when they should be at the peak of their wealth accumulation (see Figure 1). Lusardi et al. (2011) asked respondents the question now most often used to measure financial fragility: “How confident are you that you could come up with \$2,000 if an unexpected need arose within the next month?” Possible answers to this question were “I am certain I could come up with the full \$2,000”; “I could probably come up with \$2,000”; “I could probably not come up with \$2,000”; “I am certain I could not come up with \$2,000”; and “Don’t know.” Lusardi et al. (2020b, d) show that levels of financial fragility declined with age but remained high in the near-retirement groups. That is, more than 30 percent of those age 50+ reported being unable to face a mid-size shock in a month’s time, even though they would be expected to be close to the peak of their wealth accumulation.

*Figure 1 here*

Turning to another topic important to the older population, DeLiema et al. (2020) explore the chances of older individuals self-reporting investment and other types of financial fraud, using a special module of the HRS. Overall, they find that 5 percent of persons over the age of 50 state they have been victimized, though age per se was not statistically significant in the authors’ multivariate analysis. Other research, including Gamble et al. (2014), conclude that older people are significantly more likely to be defrauded than are younger ones. Thus, older respondents face various financial challenges, including trying to preserve the wealth they have accumulated.

## Financial Literacy at Older Ages

Many older persons exhibit problematic financial behaviors because many are not financially literate. For instance, even if an older individual is not cognitively impaired, she may still be unable to protect her financial well-being if she does not understand key concepts central to financial decision making. Lusardi and Mitchell (2008, 2011a) developed a short and easy-to-administer way to evaluate people's financial literacy, defined as the ability to do some simple calculations and knowledge of some fundamental financial concepts. Specifically, their questions assess the following: (1) the capacity to do calculations related to interest rates, (2) an understanding of inflation, and (3) an understanding of risk diversification. These questions have become known as the "Big Three," as they cover concepts at the basis of most decision making. Their wording is as follows (correct answers **in bold**):

- Suppose you had \$100 in a savings account and the interest rate was 2 percent per year. After 5 years, how much do you think you would have in the account if you left the money to grow: [**more than \$102**, exactly \$102, less than \$102, do not know, refuse to answer].
- Imagine that the interest rate on your savings account was 1 percent per year and inflation was 2 percent per year. After one year, would you be able to buy [more than, exactly the same as, or **less than today** with the money in this account, do not know, refuse to answer]?
- Do you think that the following statement is true or false? "Buying a single company stock usually provides a safer return than a stock mutual fund." [true, **false**, do not know, refuse to answer]

As the wording indicates, these questions are relatively simple and intended to measure basic knowledge. One way to create a financial literacy index is simply to sum the number of

correct answers to the three questions or to examine the share of respondents who can answer all three questions correctly. Using this approach in the 2018 NFCS, we have tallied results for people age 18+ who can answer the Big Three (see Figure 2).<sup>2</sup> A striking finding is how low financial literacy is overall in the population and even among older respondents: less than 40 percent of older respondents age 55–59 know these three basic concepts. While we can expect older respondents to have made many financial decisions, they did so with little knowledge of some fundamental financial concepts.

*Figure 2 here*

Moreover, because the best way to accumulate wealth over the life cycle is to start early and save consistently, such very low levels of financial literacy among the young are disturbing. Mistakes made by the young can compound over time, which is why policy concern about the elderly or retirees does not mean that we should only focus on the older population.

Two additional questions were added to the NFCS from its inception in 2009, reported as follows. These questions, in addition to the Big Three, have become known as the “Big Five.” They are worded as follows:

- If interest rates rise, what will typically happen to bond prices? Possible answers include [they will rise, **they will fall**, they will stay the same, there is no relationship, do not know, refuse to answer].
- True or false? A 15-year mortgage typically requires higher monthly payments than a 30-year mortgage, but the total interest paid over the life of the loan will be less. [**true**, false, do not know, refuse to answer]

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<sup>2</sup> Here correct answers are coded as 1, and incorrect and “don’t know” answers are coded as 0.

An additional question measuring knowledge of interest compounding in the context of debt was also added, more recently, to the NFCS:

- Suppose you owe \$1,000 on a loan and the interest rate you are charged is 20 percent per year compounded annually. If you didn't pay anything off, at this interest rate, how many years would it take for the amount you owe to double? Possible answers include: [less than 2 years, **at least 2 but less than 5 years**, at least 5 but less than 10 years, at least 10 years, do not know, refuse to answer].

We have tallied respondents' answers to these six financial literacy questions as a comprehensive measure of financial literacy by age and sex in the 2018 NFCS, and again a pattern emerges resembling the results using the Big Three (see Figure 3). All respondents, as well as only the older ones, can answer only about half of the financial literacy questions. We also want to highlight a group for which financial knowledge is particularly low, namely, women. As Figure 3 shows, a gender gap in financial literacy by sex persists: women consistently know much less than men, both when young and old. Moreover, financial literacy is even lower among specific subgroups of women: Clark et al. (2021b) report that Hispanic and Black American women have lower financial literacy scores than White women.

*Figure 3 here*

Because cross-sectional results by age do not differentiate between time and cohort effects, the rare panel study by Angrisani et al. (2020) that tracked the same respondents over time is useful. They administered the same Big Five financial literacy questions to respondents in the American Life Panel in 2012 and again in 2018. The results indicated that financial literacy scores are fairly stable for people younger than age 65+, with some decline after that age (see Table 1).

*Table 1 here*

Lusardi et al. (2014) use responses to a 2008 HRS module to assess whether older adults' financial literacy shaped their capital market behavior, accounting for age, race, sex, and cognition scores, among other factors. While the main contribution of that work was to examine alternative ways to combine answers to financial literacy questions to construct a better index, an additional interesting finding appears in Table 2. Specifically, the authors report that age is not significantly associated with financial literacy scores per se, after controlling for cognition and other factors.

*Table 2 here*

Of course, when tracking financial literacy at older ages, controlling for cognitive changes that occur in the older population is also important. For instance, Han et al. (2014, 2016) track older participants in the Rush Memory and Aging Project for as long as a decade, linking participants' responses to financial literacy questions and cognitive measures over time. The authors conclude that "financial literacy and cognitive functioning may be at least partially distinguishable constructs that may have some different neuroanatomical correlates" (Han et al., 2014, 226). Similarly, Li et al. (2015) evaluate the association of financial decision making and financial literacy using a web-based study of 478 U.S. residents age 18–86 linked to credit bureau information, and for whom they had collected information on cognitive function. Despite the small sample and the fact that respondents were better educated than the overall population, the authors find that the more financially literate had higher credit scores and performed better on hypothetical financial exercises allocating repayments across low-interest versus high-interest credit cards and selecting the best health insurance plan. That study concludes that, to obtain a clear picture of the impact of financial literacy on financial behaviors, controlling for cognitive functioning was also important. Nevertheless, in exploring the relationships between financial literacy and cognitive functioning in the HRS, Kim et al. (2018) report that financial literacy is more strongly associated

with spending time on managing one's finances and receiving financial advice, than is scoring better on cognitive tests at the margin.<sup>3</sup>

In sum, while some evidence indicates that financial literacy declines with age in nationally representative panel studies, more research is required to distinguish age from cohort effects. Additionally, at more advanced ages, future research on financial literacy must also investigate the potentially separate influence of cognition when focusing on aging and financial decision making.

### **Financial Literacy and Financial Behaviors in Later Life**

A wide range of papers establishes a strong positive link between financial literacy and positive economic behavior (for reviews, see Lusardi and Mitchell, 2014; Kaiser et al., 2020; Santini et al., 2019). Beginning with the special module in the HRS on planning and financial literacy that pioneered the financial literacy questions, to other surveys using similar questions, a very strong relationship between financial literacy and retirement planning emerges from many studies (see Lusardi and Mitchell, 2014, for a review). Specifically, Lusardi and Mitchell (2011a, b) evaluate how financial literacy shapes planning for retirement, using a sample of older Americans over the age of 50.<sup>4</sup> Their results show that financially literate people are more likely to try to figure out their retirement saving needs, and the most critical determinant of doing so is whether they could correctly answer the interest rate question (in the Big Three). This is also the case when they focus on women, as Figure 3 shows, who are more likely to have lower financial

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<sup>3</sup> Finke et al. (2017) report a negative association of age with a financial literacy index, but that study did not control for cognitive functioning.

<sup>4</sup> The specific questions used to measure retirement planning were as follows:

- Have you ever tried to figure out how much your household would need to save for retirement?
- If yes: Did you develop a plan for retirement saving?
- If yes: How often were you able to stick to this plan: would you say always, mostly, rarely, or never?

literacy levels. More financially literate older women are much more likely to plan for their retirement (Lusardi and Mitchell, 2008).

*Figure 3 here*

Several studies have also sought to link financial literacy at older ages to other key financial decisions; one of these is Kim et al. (2018) using the Health and Retirement Study. Even after controlling for cognitive performance, more financially literate respondents are more likely to spend time managing their finances, more likely to get help with money management, less likely to avoid asking for help due to overconfidence, and less likely not to know whom to ask for help. Other authors explore the relationship between financial literacy and investment performance and concluded that the more financially literate do better (van Rooij et al., 2011; Korniotis and Kumar, 2011; Clark et al., 2017; Deuflhard et al., 2019). Moreover, Lusardi et al. (2020c) report that the more financially savvy are less likely to have costly auto loans, pay expensive credit card fees, and engage in alternative financial services (e.g., pawn shops, rent to own, etc.).

Yu et al. (2021) also report that a “decline in financial and health literacy is subsequently associated with poorer decision making, higher susceptibility to scams and lower psychological well-being,” using around 1,000 members of the Rush Memory and Aging Project and following them longitudinally. Using the same data set, Yu et al. (2018) conclude that financial literacy does not decline over time, whereas declining knowledge of health topics is predictive of the likelihood of cognitive impairment. Lusardi et al. (2020b, d) confirm that financial literacy is negatively related to respondent reports of having excessive debt. Moreover, that study found that NFCS respondents who could answer one additional financial literacy question correctly are less likely to be financially fragile.

These findings continued to hold true during the COVID-19 crisis. The pandemic cast financial fragility in a new light, in view of the huge rise in joblessness, widespread illness and death, and the prospect of many people becoming financially destitute. Clark et al. (2021b) examine evidence on almost 3,000 older (age 45–75) American respondents to an online survey run in May of 2020 in the Understanding America Study, asking people about their financial fragility during the pandemic. The goal was to assess whether respondents who were more financially literate were better able to absorb financial setbacks associated with the virus. The team measured financial fragility using the previously cited question designed by Lusardi et al. (2011) about how confident the respondents were that they could come up with \$2,000 within a month in an emergency. Results confirmed that more financially knowledgeable respondents had a lower likelihood of being financial fragile. Specifically, a respondent who correctly answered the Big Three questions was 6.3 percentage points less likely to report being unable to cover an unexpected \$2,000 expense (a 33.4 percent reduction in fragility relative to the sample mean), compared with someone who answered none of the three questions correctly.

In sum, the evidence is clear: financial literacy can enhance people's financial decisions and well-being, financial security, and resilience, even in abnormal times such as during the COVID-19 pandemic. An implication of this is that providing financial education to the young may well enhance their preparedness for old age, particularly when it helps them make better saving, borrowing, and consumption choices throughout their life cycles. A meta-analysis by Kaiser et al. (2020) shows that the impact of financial literacy on many financial behaviors holds true in many countries and not just the United States.

### **Limitations and Extensions**

Examining the effects of financial literacy on behavior has several potential limitations, particularly when examining older respondents. One important issue is whether financial literacy is an endogenously determined variable. For instance, the financially literate may be those who accumulate savings; alternatively, those who accumulate savings might invest in learning about money management. Addressing causality is difficult because many data sets often do not provide information on, for example, exogenous sources of variation in financial literacy such as access to financial literacy in school or the workplace, or the opening of a new university where young people could learn about financial literacy or changes in the law affecting financial decisions. A second concern is whether people simply learn by doing: that is, by making many financial decisions about saving and debt, they may also accumulate some financial savvy. A third concern is whether and how well financial literacy is measured, how many questions are needed to measure financial literacy among older respondents, and how important is measurement error. A fourth concern is that psychological biases may affect financial behavior including confidence, self-awareness, and so on. Finally, much heterogeneity exists in both financial literacy and financial behavior, making accounting fully for differences across individuals difficult (Klapper and Lusardi, 2020).

A series of research studies summarized by Lusardi and Mitchell (2014) now addresses several of these limitations. Though finding instruments for financial literacy is often difficult, several surveys have included additional questions that provide more robust ways to assess the impact of financial literacy on behavior. Interestingly, these studies show that the measurement of financial literacy via simple multivariate regressions underestimates the true impact of financial literacy. Studies using different measures of financial literacy—including our own research—confirm that even simple or succinct measures of financial literacy do a good job evaluating

people's financial knowledge and assessing the effects of financial literacy on behavior. A more recent meta-analysis looking at the most rigorous evaluation of the effects of financial literacy using randomized controlled trials confirm earlier results about the economic importance of financial literacy on behavior (Kaiser et al., 2020).

Another way to assess the impact of financial literacy on behavior is to employ a theoretical structure that incorporates the impact of financial literacy on behavioral outcomes. Lusardi et al. (2017) do this using an intertemporal model of saving that incorporated many features of the economic environment, including several sources of uncertainty facing consumers, and the fact that people require some financial sophistication to access what complex investments, e.g., stocks. In that model, financial literacy is characterized as a form of human capital that people accumulate to be able to invest in high-return assets. Accordingly, financial literacy is a choice variable and varies over both the life cycle and across individuals. One of the most remarkable findings of that study is how much financial literacy mattered: according to the authors' estimates, financial knowledge accounted for 30–40 percent of retirement savings inequality. These estimates agreed with the fact that estimates derived from simple regression estimates tend to underestimate the true effect of financial knowledge.

We recognize that, besides financial literacy, people may also suffer from behavioral biases, face complex financial decisions when information is “shrouded” and subject to sophisticated scams, just to mention a few additional problems related to the economic environment or the way people approach financial decisions. Nevertheless, we emphasize that during the pandemic financial literacy was strongly associated with financial resilience (Clark et al., 2021a), providing additional evidence of how much basic skills can help people in both normal and difficult times.

## **Policy Implications and Next Steps**

Given that financial literacy can be protective against financial errors and stress in later life, policymakers may wish to consider options that could build up such knowledge. The research we summarize here suggests several paths. First, teaching teens in school about financial matters is essential. The previously reported statistics show that young people's and adults' financial literacy is very low, too low to expect them to make good financial decisions. Moreover, many people arrive near retirement without having grasped some key important concepts central to financial decision making. School-based financial literacy will provide wide access and ensure that young adults start their financial lives on a good footing. This is especially important now that young people are starting their economic lives having taken on student loans, which may compete with saving for the long term.

A second option is to make education widely available to the adult population, particularly those in older age groups. The workplace can be an excellent place, not only because this is where many older people are found, but also because employers have an incentive to help protect their employees from financial stress, and to provide incentives to plan and save for retirement. Several of the behaviors discussed in this paper, including lack of planning, the inability to face emergency expenses, carrying debt into retirement, and more, indicate that many employees are not on a path to financial security and thus may need help to do so. Because of this, financial education should focus not only on retirement savings, but also on the range of financial decisions people face, including debt and debt management. When asked how many hours per week people spent thinking

about and dealing with personal finances, low-literate respondents reported a staggering 12 hours per week, six of which were during work hours (Lusardi et al., 2020a).

A related consideration is that later in life people may experience declining cognitive levels. Here too, financial literacy can play a role: for instance, James et al. (2012) find a stronger positive effect of financial literacy on financial decision making among persons with lower cognitive function. Moreover, financial mistakes made in later life may be more consequential, as less time remains to recover. Thus, it is also critically important that people plan not only for retirement as well as support with financial decisions, including determining to whom they should delegate financial decisions later in life, before they become cognitively impaired (Rentzelas and Santucci, 2018; Santucci 2018, 2019). Additionally, low cognition combined with high wealth can render older people subject to scams. Given that the incidence of dementia among persons age 85+ is estimated at about 30 percent, most of these persons will require help managing their money (Belbase et al., 2018). Nevertheless, Belbase and Sanzenbacher (2017) report that most elderly are unaware that their financial abilities are slipping.

In addition to financial education, redesigned financial products can also help people manage their personal finances in later life. For example, target date funds offer implicit investment advice to people who lack knowledge about investment portfolios that adjust risk exposures with age and offer protection from excessive exposure to the stock market at older ages (Mitchell and Utkus, 2021). Similarly, annuities not only protect against the financial risk due to living too long, but they can also reduce older people's exposure to fraud and scams that may occur when people cash out their pensions as lump sums. Nevertheless, not all insured products are necessarily cost-effective. For example, Horneff et al. (2019) show that money-back guarantees on pension contributions are extraordinarily expensive in this time of low capital market returns.

Given the low levels of financial literacy in the older population and the complexity of decisions that individuals increasingly face close to and after retirement, financial regulation that protects older people in this critical phase of life is also important. Specifically needed is protection regarding assets and debt, and against scams and fraud (Peterson et al. 2014). Numerous federal, state, and private sector agencies offer older persons and their families safeguards against financial misbehavior. Several of these are covered by Blazer et al. (2015), while DeLiema and Deevy (2017) discuss others. Key interventions include training financial advisors and bank personnel and preventing fraudulent exploitation via community outreach. Moreover, data-driven strategies are now in place at retail banks to identify and alert customers to suspicious transactions. U.S. financial institutions are also now responsible for reporting what suspected financial crimes to law enforcement, and federal regulation now charges the Securities and Exchange Commission and the Financial Industry Regulatory Authority with overseeing stockbrokers and investment firms. Some individual states have also promoted laws permitting financial advisors to contact clients' legal representatives or family members if the advisors suspect exploitation. Another area of growing interest is how medical professionals can engage with patients or their guardians if they suspect financial fraud.

We close by acknowledging that the shattering effects of the COVID-19 pandemic are likely to scar the personal finances of many Americans for years to come. Continuing long-term job losses, persistent health problems, home evictions, food scarcity, and other corrosive effects of the virus have dramatically altered people's perceptions of their potential longevity and their need to save (Hurwitz et al., 2021). For all these reasons, it is now high time to focus on strategies to help all people, younger and older individuals, to find and remain on a path to financial security.

Figure 1. Debt Concerns and Financial Fragility in the U.S. Population (Source: Authors' calculations, 2012 and 2015 NFCS)

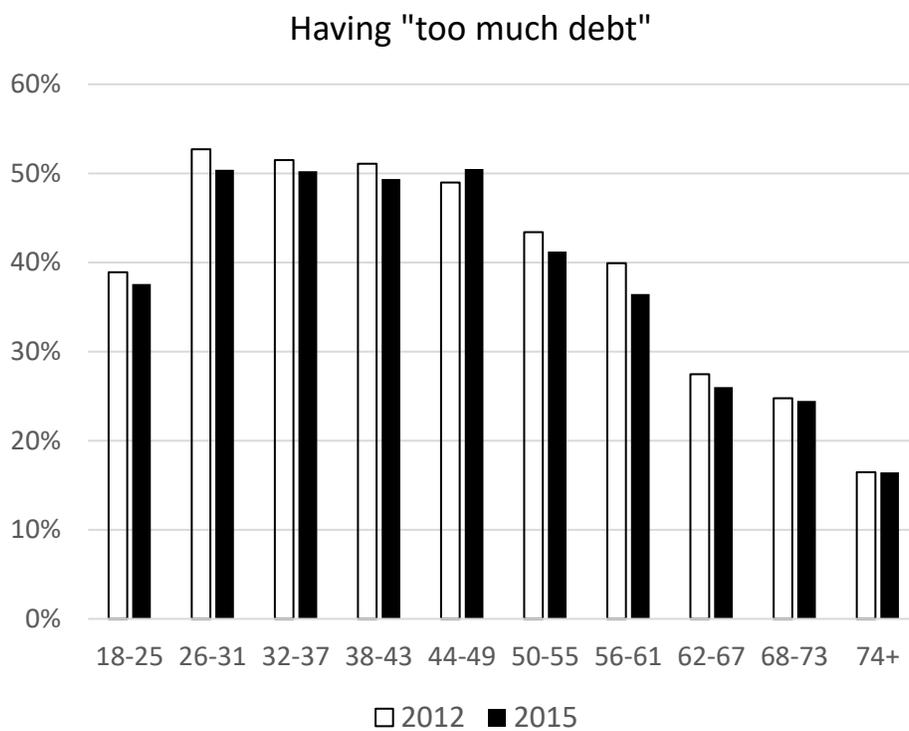
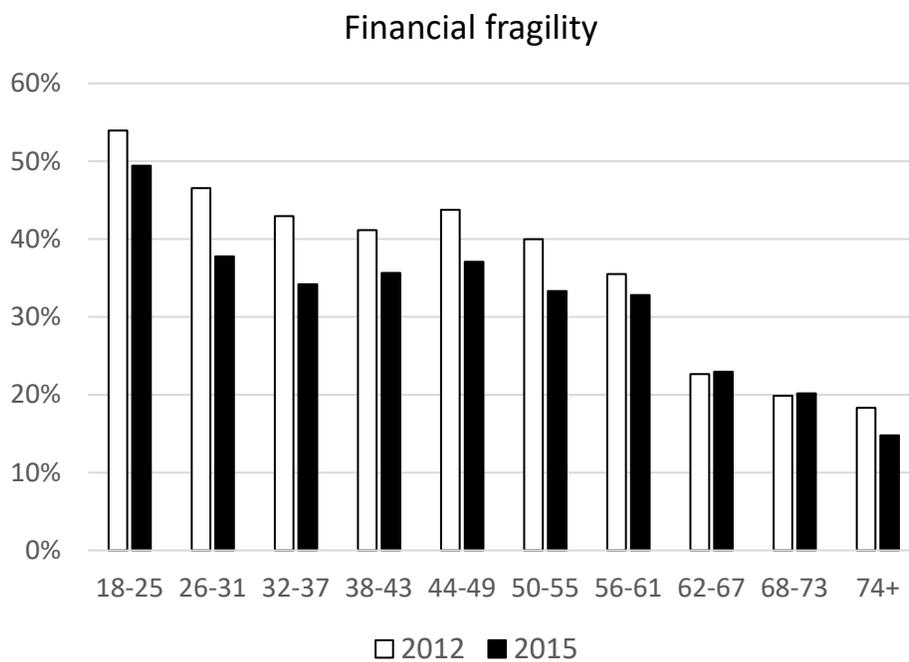


Figure 2. Americans' Financial Literacy by Age (Source: Authors' calculations using the 2018 National Financial Capability Study)

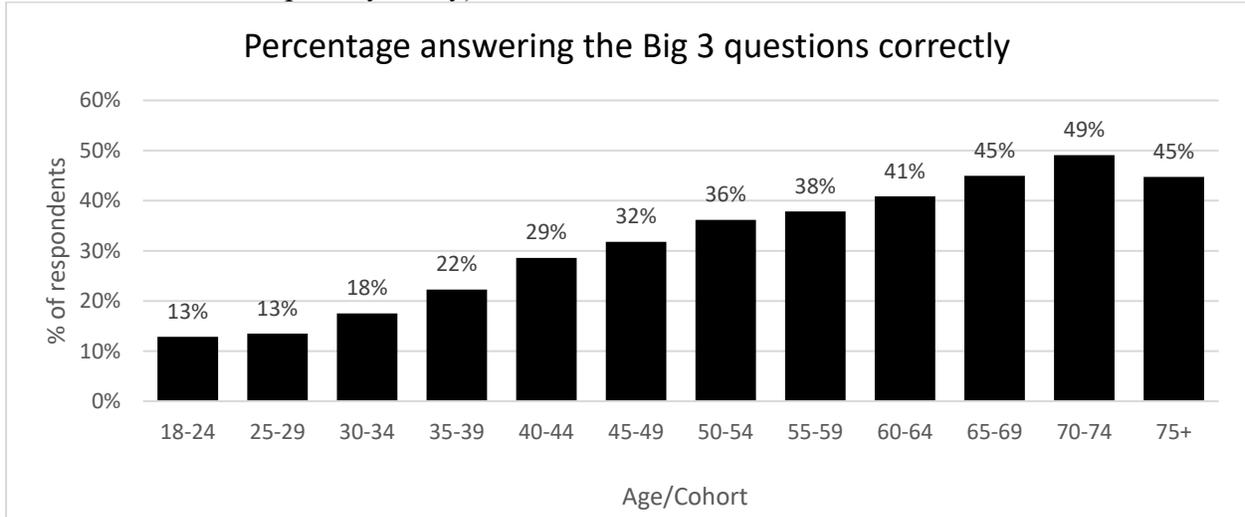


Figure 3. Americans' Financial Literacy by Age and Sex (Source: Authors' computations using six financial literacy questions in the 2018 National Financial Capability Study)

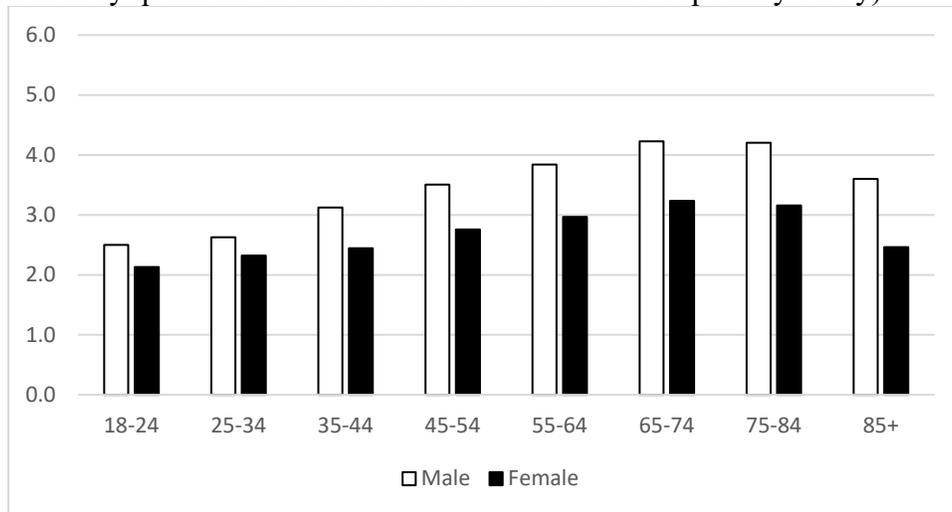


Table 1. Changes in Financial Literacy by Age: Panel Data Analysis (Source: Angrisani et al., 2020)

<b>Age Cohort</b>	<b>Change in Financial Literacy</b>
18–34	-0.014
35–44	-0.159*
45–54	-0.046
55–64	-0.144
65 and older	-0.165***

Note: \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.10$

Table 2. Regression of Financial Literacy Index on Socioeconomic Factors (Source: Lusardi et al. (2014))

	<i>OLS</i>	<i>PRIDIT</i>
	(1)	(2)
Female	-0.048 *** (0.014)	-0.011 *** (0.002)
High School Graduate	0.037 * (0.021)	0.006 * (0.004)
College Graduate	0.062 *** (0.022)	0.008 * (0.004)
Graduate Plus	0.113 *** (0.022)	0.010 ** (0.004)
African American	-0.123 *** (0.021)	-0.017 *** (0.004)
Hispanic	-0.160 *** (0.027)	-0.016 *** (0.004)
Other Race	0.005 (0.031)	-0.003 (0.005)
Age: 65-74	-0.007 (0.014)	-0.002 (0.002)
Age: 75+	-0.028 (0.019)	-0.003 (0.003)
Planning horizon	0.005 (0.006)	0.001 (0.001)
Risk aversion	-0.011 (0.007)	0.000 (0.001)
Total cognition score	0.005 *** (0.002)	0.001 ** 0.000
N	1,147	1,147
R-squared	0.199	0.255

Notes: \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$  OLS refers to Ordinary Least Squares Regression; Pridit refers to an unsupervised, nonparametric aggregation technique using principal components analysis. Standard errors in parentheses.

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