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Building Financial and Health Literacy at Older Ages: The Role of Online Information

Improving financial and health literacy is an important step in reducing economic vulnerability in older age, yet the means by which individuals accumulate these types of human capital remains an open question. This article evaluates the impact of online search activities on the levels of financial and health literacy. We find that using the internet for such information increases literacy significantly: doing so frequently (versus not at all) increases financial literacy by 16%, and health literacy by 12%. Our results are robust to alternative measures of financial literacy. They are also robust to an instrumental variable approach using other web skills such as email use to proxy for how individuals use the internet.

Understanding how people accumulate financial and health knowledge is of paramount importance given an increasing shift toward individual control over such decisions. This is especially true for older Americans, who must navigate different retirement and health care options compared to prior generations. For example, a recent study shows that nearly one-third of firms studied offer dominated health insurance plans, meaning that one plan (typically a high-deductible one) is the optimal choice (Liu and Sydnor 2018)—but one needs a certain level of financial literacy to identify this option. Additionally, with most retirement plans being limited to defined contribution plans (Kruse 1995) compounded with the health care needs that accompany longer lives (e.g., chronic disease management), financial and health literacy form a critical foundation for sound decision making. In fact, research shows that having both forms of literacy is predictive of improved decision making on these topics even after controlling for general cognitive abilities (James et al. 2012).

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One way to increase financial and health literacy at older ages is to help people access the internet for information tailored to their needs. While many interventions currently focus on using specific portals or tools, there may be hitherto unexplored gains from interventions that enable people to access information at their fingertips. (Of course, information obtained online may not be reliable and can even be dangerous, so sensible interventions must also help people identify credible sources of information.) Helping individuals to find financial and health information online can also assist older Americans to overcome social and physical isolation. The Pew Research Center (2017) estimates that over half of individuals age 65+ now have broadband internet at home and about 42% own a smartphone. Facility with internet use among this group is not to be taken for granted, however, as according to Pew, many older Americans remain “divorced from digital life.”

The idea of providing internet training as a tool to boost financial and health literacy among vulnerable populations is not new, and pilot evidence from recent studies suggests that it may have significant potential. For example, Campbell and Wabby (2003) finds that training a small group of participants of age 65 and above to use the internet helps them become more active in their own health care. Several related studies find that internet training improves participants’ confidence and ability to search for health information online (Chu et al. 2009; Hoffman-Goetz, Friedman, and Celestine 2006; Susic 2009; Xie 2011), though there are exceptions. For example, Campbell and Nolfi (2005) does not find such training to be effective in improving participants’ health management behaviors. Combined with the present analysis, more exploration of these types of interventions would be valuable for practitioners in financial and health education.

We make three key contributions in this article. First, we show how the search for financial information online influences the attainment of financial literacy. Second, we show an analogous impact for health literacy—that is, the extent to which online searches for health information are linked to health literacy. Third, we use an instrumental variable approach to show that the effects we document are arguably causal. We instrument the propensity to search for health or financial information online with the propensity to engage in other online activities such as email, shopping, and general web browsing. To the best of our knowledge, no prior work has attempted to conduct this type of causal analysis, though we build on a substantial body of prior work on related topics.

We show that online search for financial and health information is, indeed, linked to measured human capital on these topics. The main estimation results using ordinary least squares (OLS) regressions imply

that using the internet for frequent searches (vs. not at all) increases financial literacy by 16% and health literacy by 12%. Our instrumental variable estimates are larger, suggesting that the OLS effects are underestimated. The bias-corrected results imply effect sizes of 23% for financial literacy (although the confidence interval overlaps with the OLS result) and 35% for health literacy.

Establishing the direction of causality is important for designing effective interventions. For example, if accumulated financial literacy boosts online searches about financial information, then additional financial literacy may not be achieved through interventions showing individuals how to use the internet for this purpose. But if online searches about financial information are an input to developing human capital on this topic, there may be great value in expanding such skills among low-literacy individuals. The same concerns arise in dealing with health literacy, as noted by Levy, Janke, and Langa (2015). Using a dataset that overlaps with ours, their article examines the impact of health literacy on general internet use and online search for health information, the reverse of what we study in this article. In essence, that article provides a “reversed” reduced form analysis to parallel ours, and finds that health literacy is associated with web skills. Our article builds on that finding by attempting to isolate the causal linkages between these variables through a formal instrumental variable analysis.

Our research shows that the internet is a primary channel for information transfer, which is important in light of the many interventions that rely on online financial education tools or information to improve decision making. A major advantage of online education is that it can be a cost-effective way to reach a large audience. For example, a key resource offered by the Financial Literacy and Education Commission (FLEC) is the website MyMoney.gov; this website is rich in content and hosts many resources including online budgeting tools (FLEC 2016). Other websites encouraged by FLEC include Investor.gov, an effort of the U.S. Securities and Exchange Commission, and IdentityTheft.gov, an effort of the Federal Trade Commission. The present article’s findings suggest that federal agencies such as FLEC may be underestimating the value of their online resources if they do not factor in the general ability of their clients to search for financial information online. For example, if a majority of the population does not currently conduct these searches (as we find in our sample of older adults), then there may be added benefit to a centralized portal that reduces the difficulty of doing so.

We acknowledge that measuring the efficacy of online education is challenging (Hepler et al. 2018 provides a review of these challenges),

though there are good examples in the prior literature. For example, using a carefully designed randomized controlled trial, Collins, Gjertson, and O'Rourke (2016) finds that an online-based financial education program, "MyBudgetCoach," was effective in helping clients reduce excess expenses. Interestingly, their research points out the importance of matching client preferences with the mode of financial education delivery as some clients assigned to the online mode chose to supplement with in-person sessions, and vice versa. Keeping such preferences in mind are important as federal agencies seek to improve and evaluate the different modes of financial education.

The rest of this article proceeds as follows. We begin by providing some background of the study and describing the data and methods. We then report our OLS and bias-corrected instrumental variable analysis results, followed by robustness checks. Throughout our analyses, we present results on both financial and health literacy. A final section concludes and offers some perspective on the impacts of our findings for the design of future financial and health literacy interventions.

BACKGROUND

Financial and health literacy are important outcomes for a variety of reasons. Prior research shows that being financially literate reduces the probability of being financially fragile or having excessive debt, and increases the likelihood of planning for retirement (Gupta et al. 2018; Lusardi, Mitchell, and Oggero 2017). Also, financial literacy has been linked to wealth accumulation (Behrman et al. 2012). Educating older individuals on such matters is challenging, however, because they are less likely to seek opportunities for building their human capital via school or other programs. In response, many organizations have attempted to identify "teachable moments"—such as when people purchase a home or are diagnosed with a chronic disease—to intervene and teach financial and health literacy. Individuals are also more likely to pursue financial education during these types of pivotal times; for example, Roll and Moulton (2016) shows that job loss is a predictor of participation in credit counseling.

Much of the current evidence on financial education comes from school-based interventions. There is a good reason for this, as there are high returns to imparting such knowledge in these early and formative years of one's life. For example, Urban et al. (2018) finds that personal finance education in high school positively affects post-graduation credit reports, and several other studies have also examined interventions on

students (e.g., Batty et al. 2017; Cole, Paulson, and Shastry 2016; Stoddard, Urban, and Schmeiser 2017).

Nevertheless, many working-age and retired individuals also lack adequate information about finances (Lusardi, Mitchell, and Curto 2014) and health (Kobayashi et al. 2015). Moreover, information can have high returns at older ages: for example, more financially literate individuals are better prepared to deal with the intricacies of social insurance eligibility for long-term care needs (Liu and Mukherjee 2018). Financial and health literacy can also reduce vulnerability to financial fraud and other forms of financial abuse, which are significant problems in present day (DeLiema et al. 2018; DeLiema and Conrad 2017).

Some of the evidence on financial education for working-age adults comes from retirement planning at the workplace, including retirement seminars (Bayer, Bernheim, and Scholz 2009; Lusardi 2004), retirement income projections (Goda, Manchester, and Sojourner 2014), and personal finance courses (Skimmyhorn 2016). There has also been research examining the effectiveness of financial incentives for learning about employee benefits (Duflo and Saez 2003), and more generally on the effectiveness of employer-sponsored retirement planning advice (Bernheim and Garrett 2003).

Our work is also broadly connected to research examining technology adoption and the determinants of financial and health literacy. We should note that our key covariate of interest in the financial literacy analysis differs from other internet behaviors, such as online banking, which was the focus of prior work. For example, Servon and Kaestner (2008) examines the effect of online banking on financial literacy and find limited effects. Relatedly, Anderson, Strand, and Collins (2018) shows that financially vulnerable households were the slowest to adopt electronic receipt of Social Security payments, so that financial technology adoption can exacerbate disparities. Much other work has examined the measurement of financial literacy and financial education (see Hung, Parker, and Yoong 2009; Huston 2010). Lusardi, Michaud, and Mitchell (2017) adopts a stochastic life cycle model and shows that the endogenous decision to acquire financial knowledge can explain a substantial part of wealth inequality. Less work exists on health literacy, though Berkman, Davis, and McCormack (2010) provides a useful review.

DATA

We use data from the Health and Retirement Study (HRS), which is a nationally representative longitudinal survey of about 20,000 individuals

over the age of 51. The core HRS survey has been conducted every two years since 1992 and provides comprehensive information on the health and economic behaviors of older Americans. In addition to the core survey, we also use data from a special module on internet use that was given to a random subsample of respondents who reported regular internet use between 2003 and 2013. An advantage of the HRS is that we can match these individuals with a rich set of covariates (described below) from the core survey, reducing the possibility of omitted variable bias.

We note that the HRS captures a demographic that is likely to be vulnerable on several dimensions. Nearly half of Americans over age 65 are economically vulnerable, defined as having a ratio of income-to-poverty-threshold of less than two (Gould and Cooper 2013). In addition to their lack of income to protect them from economic shocks, older individuals are at greater risk of encountering financial fraud: they are more likely to be targeted by fraud schemes and more likely to lose money if targeted (FINRA Investor Education Foundation 2013). The annual loss by older financial abuse victims is estimated to be over \$2.9 billion (MetLife Mature Market Institute 2011). Also, the probability of an older person experiencing financial exploitation is substantial: Peterson et al. (2014) estimates that about 5% New York residents will experience financial exploitation at least once after turning age 60, and Beach et al. (2010) estimates this percentage to be about 10% for Pennsylvania residents. For this reason, the HRS is ideal in its focus on older people.

Constructing Online Search Indices

Our main independent variables are the frequency with which individuals search for financial or health information online. We collect information on these outcomes from two questions in the HRS Internet surveys in 2009 and 2011, as follows:

How often do you do each of the following activities on the internet?

(i) *Get financial information online, such as stock quotes or mortgage interest rates.*¹

(ii) *Get medical or health information online.*

[never; rarely; sometimes; often]

1. We acknowledge that the survey question may have primed respondents to consider specifically investment- or housing-related information, which may produce an underestimate of their online searches for financial information. Specifically, people may neglect to consider searches related to topics such as retirement planning, credit cards, insurance, and other financial products due to the wording of the question.

We apply a simple scoring rule² that maps these discrete responses to generate financial and health search indices that take values between 0 and 1.

For the instrumental variable analysis, we require information on more general measures of internet use. We obtain these information from variables regarding the frequency with which respondents send or read emails, buy products online, and view webpages from the HRS Internet Surveys in 2003, 2006, 2007, 2009, and 2011. Each of these activities is mapped to an index between 0 and 1 using similar scoring rules.³

Measurement of Financial Literacy

The financial literacy data are obtained from two special modules in the HRS: “Retirement Planning,” administered in 2004, and “Financial Sophistication and Investment Decision Making,” administered in 2010. We use the “Big Three” financial literacy questions discussed in Lusardi, Mitchell, and Curto (2010) and developed earlier by Annamaria Lusardi and Olivia S. Mitchell.⁴ These questions elicit knowledge about interest rates, inflation, and risk diversification of stocks versus mutual funds. To construct a summary index of financial literacy, we use a count of the number of correct answers to the three questions asked; an index is preferred

2. The codes for each response: “never” as 0, “rarely” as 0.33, “sometimes” as 0.67, and “often” as 1.

3. In 2003, 2006, and 2007, the survey question pertaining to using email and viewing webpages, and the question pertaining to online purchases was worded as:

Not counting right now, when was the last time you used the Internet to check, read or send email/look at a webpage? [earlier today; yesterday; a couple of days ago; about a week ago; several weeks ago; never]

How often do you use the Internet to make online purchases? [hardly ever (or never); some of the time; often (always)]

The scoring rule for the first question is: 0 for “never,” 0.33 for “several weeks ago,” 0.67 for “about a week ago”/“a couple of days ago,” and 1 for “earlier today”/“yesterday.” The scoring rule for the question about online purchases is: 0.17 for “hardly ever (or never),” 0.67 for “some of the time,” and 1 for “often (always).” The question about webpages was not asked in the 2009 and 2011 surveys, so we impute that variable by taking the average of using email and purchasing products online and have verified that this imputation does not affect our results.

4. Specifically, these questions are (correct answers are bolded):

(i) *Suppose you had \$100 in a savings account and the interest rate was 2% 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.];*

(ii) *Imagine that the interest rate on your savings account was 1% per year and inflation was 2% per year. After 1 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.];*

(iii) *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.]*

to examining individual components of financial literacy as we seek to understand the broader object. We choose a simple count based on Lusardi, Mitchell, and Curto (2014), which finds that the unweighted average of the number of questions answered correctly is highly correlated with a more sophisticated weighted scoring mechanism involving additional questions. Still, we acknowledge that a drawback of these questions is that they may be context-dependent; in other words, individuals may know about other topics such as budgeting and saving but could still be categorized as financially illiterate. To provide further assurance in this measure, we explore alternative and broader measures of financial literacy in the robustness section.

Measurement of Health Literacy

The health literacy data are collected from the 2009 and 2013 HRS Internet Surveys. While we only use one question as our metric of health literacy, prior research indicates that this question is a meaningful proxy for health knowledge when compared to a larger suite of standard health literacy tests (see Levy, Janke, and Langa 2015).⁵ The HRS question is worded as follows:

*How confident are you filling out medical forms by yourself?
[not at all confident; a little bit; somewhat; quite a bit; extremely; don't know]*

To create a numerical variable from these responses, we use a scoring system assigning a value of 0 to the response “not at all” and a value of 1 to the response “extremely,” with values of 0.25, 0.50, and 0.75 in between.

Matching Data from the HRS Special Modules to the Core Data

For the financial literacy analyses, we match data on internet use and financial literacy to the core HRS survey; this provides a sample of 585 respondents. The health literacy analysis requires us to match data on internet use and health literacy to the core HRS survey, which provides a sample of 3,987 respondents. Because the data come from HRS surveys in different years, we make our best effort to match the key outcomes to other information collected in the same or prior survey. For

5. Additionally, Chew et al. (2008) finds that among three health literacy screening questions with proven performance, this question has the highest overall test accuracy to detect health literacy as measured by the Short Test of Functional Health Literacy in Adults (S-TOFHLA) and the Rapid Estimate of Adult Literacy in Medicine (REALM).

example, for the financial literacy data collected via the special module in 2004, we try and use web search frequency data from 2003; if that respondent's data from 2003 is not available, however, we try to use web search frequency data from 2006. If that too is unavailable, we use 2007 web search data and so forth (until 2011). This procedure allows us to build two cross-sectional datasets to analyze the outcomes of financial and health literacy, respectively. In the robustness section, we show that our results are robust to a sample in which the online search variables are measured *before* the measurements of financial and health literacy.

Summary Statistics

Table 1 shows the summary statistics of the two samples used for the financial and health literacy analyses. The average number of correctly answered financial literacy questions is 2.51 out of 3, and the average level of self-reported health literacy is 0.80 out of 1.⁶ Among the three key online activities, webpage browsing is the most frequently reported use, followed by communicating via emails, both of which are, on average, between “sometimes” and “often.” Online purchase is less frequent, and the average is between “rarely” and “sometimes.” The main independent variable of web financial search index is 0.37, slightly over “rarely” on average, with a large variance. The web health search index has a mean of 0.57.

Other covariates in our regression analysis are also shown in Table 1. Demographic, economic, health, and pension and insurance characteristics all appear comparable between the two samples (though comparability is not necessary for the analyses that follow). The health literacy sample has relatively older respondents because of the later timing of health literacy survey. Most people in both samples have a high school education and are married or partnered. The majority (53% and 54% in the two samples) of respondents are female, and over 93% are white. The average household wealth (winsorized at the 0.5th and 99.5th percentiles) is over \$600,000 in both samples, and over half of all respondents were working at the time of the survey.

6. Comparing the financial literacy scores for respondents who completed both the 2004 and 2010 modules ($N = 199$), we observe that 53% of respondents had the same level of financial literacy across the 2 years, while about a quarter of them improved their financial literacy (and about a quarter got worse). To the extent that there is a concern about whether financial literacy can change at older ages, at least one related paper documents that this can be the case: Hsu (2016) finds that women become more financially literate as they approach widowhood and expect to manage finances on their own.

TABLE 1
Summary Statistics

	Financial Literacy Sample (<i>N</i> = 585)		Health Literacy Sample (<i>N</i> = 3,987)	
	Mean	SD	Mean	SD
Financial Literacy	2.51	0.71	–	–
Stock	0.77	0.42	–	–
Compound	0.85	0.36	–	–
Inflation	0.90	0.31	–	–
Health Literacy	–	–	0.80	0.24
Internet Use				
Email	0.89	0.23	0.90	0.21
Online Purchase	0.54	0.31	0.57	0.32
Webpage ^a	0.91	0.20	0.92	0.19
Financial Search Index	0.37	0.38	–	–
Health Search Index	–	–	0.57	0.29
Demographics				
Age	61.95	8.22	65.21	8.03
Years of Education	14.36	2.18	14.40	2.18
High School	0.95	0.23	0.96	0.19
Female	0.53	0.50	0.54	0.50
Married or Partnered	0.79	0.41	0.76	0.43
Black	0.04	0.20	0.04	0.19
Other Race	0.02	0.15	0.03	0.16
Economic and Health Status				
Wealth (MN)	0.64	1.07	0.68	1.03
Working	0.59	0.49	0.52	0.50
Bad Health	2.56	1.00	2.48	0.98
Medical Exp (10k)	0.31	0.49	0.32	0.45
Pension and Insurance				
Any Pension	0.20	0.40	0.14	0.35
Medicaid	0.02	0.14	0.02	0.13
Employer Insurance	0.50	0.50	0.42	0.49
Other Health Insurance	0.11	0.31	0.14	0.35
Long-Term Care Insurance	0.13	0.34	0.17	0.38

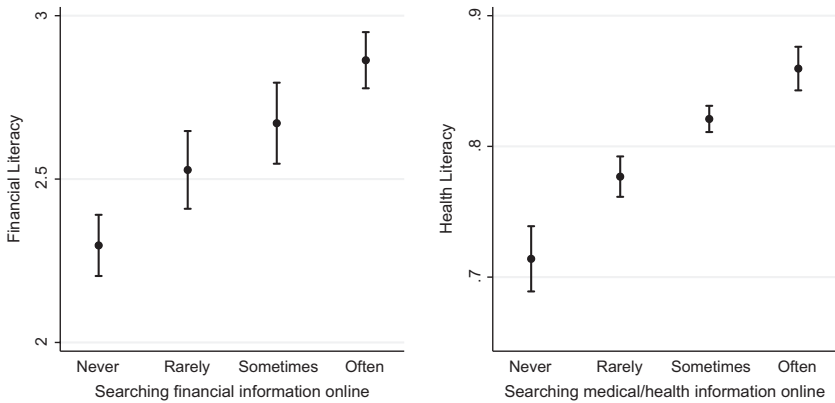
Notes: Wealth is in units of \$ million and medical expenditure is in units of \$10,000; both are converted to 2012 dollars. Observations are weighted at the respondent level.

^a*N* = 385 for the Financial Literacy sample and *N* = 2,773 for the Health Literacy sample.

Data source: HRS, 2003–2013.

Respondents rated themselves as having an average health condition of about 2.5 out of 5 (with 5 being worst) in the samples. The average out-of-pocket medical spending over the last 2 years is slightly above \$3,000 for both samples. Moreover, 20% of the financial literacy sample and 14% of the health literacy sample are receiving a pension; 2% of respondents in each sample are covered by Medicaid; and about half of the

FIGURE 1
Financial and Health Literacy by Online Search Intensities



Notes: Financial literacy is the number of correct responses to three questions on the topic. Health literacy is the score (between 0 and 1) measuring how confident the respondent is filling out a medical form. Observations are weighted at the respondent level.

Data source: HRS, 2003–2013. $N = 585$ (left), 3,987 (right).

respondents have health insurance from their current or previous employer. The correlations between all outcomes and explanatory variables used in the regression analyses appear in Tables A1 and A2.

Figure 1 shows the mean levels of financial and health literacy by their associated levels of web search intensities. We observe that both types of literacy are monotonically increasing in web skills, a pattern that persists in our formal regression analyses. The web-literacy gradient is quite steep: in the case of financial literacy, individuals who never search for any financial information online answer 2.30 out of 3 questions correctly, whereas individuals who often search for such information online answer 2.86 out of 3 questions correctly. The gradient is similar for health literacy, with individuals never receiving medical or health information online having health literacy of 0.71 versus 0.86 for individuals who do so frequently. (The 95% confidence intervals on the first and fourth bars in both panels of Figure 1 do not overlap, indicating the statistically significant difference between the “Never” and “Often” groups.)

METHODS

We begin our analyses with OLS regressions using financial literacy and health literacy as the dependent variables. The main independent variables are “Financial Search Index” and “Health Search Index,” which

capture the extent to which individuals acquire such information online. Our analyses control for a rich set of variables that are either known or hypothesized to impact the outcomes of interest. The estimation equation for our first outcome is thus:

$$\text{Financial Literacy}_i = \alpha + \beta \text{ Financial Search Index}_i + \gamma X_i + \varepsilon_i, \quad (1)$$

where α is the intercept, β is the coefficient of interest, and ε_i is the error term.

The vector X_i includes an indicator for the survey year and a number of demographic, health, economic, pension, and insurance variables. Demographic variables include sex (female); race (indicators for white, black, or other); marital status (an indicator for married or partnered); residence region (indicators for each Census region); age (in years); and years of education. We also include quadratic terms for the latter two variables to allow for potential nonlinearities. Health and economic variables in X_i include controls for the respondent's self-reported general health status (measured on a scale of 1 to 5, with 1 being excellent and 5 being poor); medical expenditures over the past 2 years (in units of \$10,000); household wealth; and whether the respondent is currently working. We include these controls because health status may predict online search patterns, specifically about health, and may also predict health literacy if poor health indicates more complex needs that are difficult to understand and convey.

Pension and insurance variables in X_i include controls for whether the respondent is receiving any pension; has Medicaid; is covered by health insurance from his/her current or previous employer; has long-term care insurance; and is covered by any health insurance other than government, employer-provided, or long-term care insurance. These controls are included because they might be related to financial literacy and health literacy if having different types of pension or insurance leads to a better understanding of personal finance or health care.

We use an analogous specification to examine health literacy:

$$\text{Health Literacy}_i = \alpha + \beta \text{ Health Search Index}_i + \gamma X_i + \varepsilon_i, \quad (2)$$

using the same vector X_i as in Equation (1).

Potential Bias and Instrumental Variable Analysis

As noted above, the OLS estimates may be biased if there is reverse causality between the online search behaviors and financial or health

literacy.⁷ To deal with this and other possible sources of bias, we implement an instrumental variable (IV) analysis using variation from more general aspects of internet use. Specifically, we instrument for whether an individual uses the internet to search for information related to finance and health by that individual's frequency of using the internet for email, general shopping, and general web browsing.

The basic idea of these instruments is that they capture a measure of the individual's "web savviness" which predicts online information seeking but does not have a direct relationship with the outcomes of interest. These instruments are likely to satisfy the exclusion restriction, a necessary assumption for the IV analysis to produce unbiased estimates. A violation would occur if reading or sending email, for example, had a direct effect on financial or health literacy; while such linkages are possible, we argue that they are unlikely. The other condition needed is that the instruments are relevant, and we will show this using standard statistical tests.

We lay out the first and second stage estimation equations for the IV (2SLS) analysis below. The equations for the financial literacy outcome are the following:

$$\begin{aligned} \text{Financial Search Index}_i = & \alpha + \theta_1 \text{Email}_i + \theta_2 \text{Purchase}_i \\ & + \theta_3 \text{Webpage}_i + \gamma X_i + \eta_i, \end{aligned} \quad (3)$$

$$\text{Financial Literacy}_i = \alpha + \beta_{IV} \widehat{\text{Financial Search Index}}_i + \gamma X_i + \varepsilon_i. \quad (4)$$

We use an analogous IV analysis to examine health literacy. Since we are using three instruments for one endogenous variable, each model is overidentified (in our results, we will report the corresponding Hansen *J*-test of overidentifying restrictions).

RESULTS

OLS Analysis on Financial and Health Literacy

We report the results of our OLS regressions in Tables 2 and 3. To demonstrate the stability of our coefficients, we layer on controls moving across columns with fully saturated models in column (5). To interpret our findings on financial literacy in Table 2, we focus on the full model in column (5). The impact of the financial search index is statistically significant ($p < 0.01$) across all specifications, and it becomes smaller

7. A methodologically related paper is Monticone (2010), which uses an instrumental variable analysis to estimate the impact of wealth on financial literacy.

TABLE 2
OLS Estimates of the Impact of Financial Search Index on Financial Literacy

	(1)	(2)	(3)	(4)	(5)
Financial Search Index	0.603*** (0.076)	0.481*** (0.085)	0.469*** (0.087)	0.455*** (0.088)	0.400*** (0.080)
Demographics					
Age		0.077 (0.055)	0.076 (0.053)	0.080 (0.053)	0.067 (0.055)
Age squared		-0.001 (0.000)	-0.001 (0.000)	-0.001* (0.000)	-0.001 (0.000)
Years of Education		0.322** (0.137)	0.331** (0.139)	0.330** (0.138)	0.299* (0.167)
Years of Education squared		-0.010* (0.005)	-0.010** (0.005)	-0.010** (0.005)	-0.009 (0.006)
Female		-0.165** (0.067)	-0.165** (0.067)	-0.174*** (0.067)	-0.147** (0.064)
Married or Partnered		0.056 (0.078)	0.038 (0.078)	0.025 (0.078)	0.005 (0.065)
Black		-0.422*** (0.122)	-0.414*** (0.123)	-0.414*** (0.125)	-0.387*** (0.122)
Other Race		-0.521*** (0.173)	-0.517*** (0.171)	-0.542*** (0.174)	-0.564*** (0.173)
Economic and Health Status					
Wealth (MN)			0.051*** (0.017)	0.048*** (0.018)	0.040** (0.018)
Working			0.042 (0.073)	0.033 (0.072)	0.023 (0.078)
Bad Health				-0.028 (0.034)	-0.033 (0.032)
Medical Exp (10k)				-0.074 (0.066)	-0.088 (0.067)
Pension and Insurance					
Any Pension					-0.043 (0.068)
Medicaid					-0.153 (0.264)
Employer Insurance					0.103 (0.075)
Other Health Insurance					0.226** (0.091)
Long-Term Care Insurance					0.069 (0.100)
Year FE	Yes	Yes	Yes	Yes	Yes
Residence Region FE	No	Yes	Yes	Yes	Yes
Mean of Dependent Variable	2.498	2.497	2.497	2.497	2.515
R-squared	0.098	0.201	0.207	0.211	0.223
Observations	599	595	595	595	585

Notes: The variable “Finance Search Index” captures the extent to which individuals acquired financial information online. Sample sizes are slightly different as we exclude observations with missing value in the control variables. Robust standard errors are in parentheses. Observations are weighted at the respondent level.

* $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$.

Data source: HRS, 2003–2013.

TABLE 3
OLS Estimates of the Impact of Health Search Index on Health Literacy

	(1)	(2)	(3)	(4)	(5)
Health Search Index	0.144*** (0.016)	0.102*** (0.015)	0.101*** (0.015)	0.102*** (0.015)	0.097*** (0.015)
Demographics					
Age		0.004 (0.007)	0.006 (0.007)	0.005 (0.007)	0.003 (0.007)
Age squared		-0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)
Years of Education		0.010 (0.023)	0.014 (0.023)	0.017 (0.022)	0.018 (0.022)
Years of Education squared		0.000 (0.001)	0.000 (0.001)	-0.000 (0.001)	-0.000 (0.001)
Female		0.039*** (0.009)	0.040*** (0.009)	0.034*** (0.009)	0.034*** (0.009)
Married or Partnered		-0.020** (0.010)	-0.023** (0.010)	-0.030*** (0.010)	-0.032*** (0.010)
Black		-0.013 (0.016)	-0.010 (0.016)	-0.001 (0.016)	-0.000 (0.016)
Other Race		-0.045* (0.025)	-0.040* (0.024)	-0.035 (0.022)	-0.033 (0.022)
Economic and Health Status					
Wealth (MN)			0.011*** (0.004)	0.006* (0.004)	0.006 (0.004)
Working			0.028*** (0.010)	0.012 (0.010)	0.007 (0.010)
Bad Health				-0.040*** (0.004)	-0.039*** (0.004)
Medical Exp (10k)				0.004 (0.009)	0.003 (0.009)
Pension and Insurance					
Any Pension					-0.006 (0.013)
Medicaid					-0.053 (0.037)
Employer Insurance					0.017* (0.010)
Other Health Insurance					-0.001 (0.013)
Long-Term Care Insurance					0.012 (0.011)
Year FE	Yes	Yes	Yes	Yes	Yes
Residence Region FE	No	Yes	Yes	Yes	Yes
Mean of Dependent Variable	0.804	0.804	0.804	0.804	0.805
R-squared	0.035	0.099	0.103	0.127	0.126
Observations	4,096	4,074	4,072	4,070	3,987

Notes: The variable “Health Search Index” captures the extent to which individuals acquire health/medical information online. Sample sizes are slightly different as we exclude observations with missing value in the control variables. Robust standard errors are in parentheses. Observations are weighted at the respondent level.

* $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$.

Data source: HRS, 2003–2013.

from 0.603 in column (1) to 0.400 in column (5) as more covariates are included. The coefficient of 0.400 indicates that a change in the frequency of searching for financial information online from “never” to “often” corresponds to an increase in the financial literacy of 0.400. Since the mean level of financial literacy is 2.515, this estimate corresponds to an effect size of 16%.

Moving to the other covariates, we find that the impact of education on financial literacy is positive with decreasing marginal effects. Women and minorities exhibit lower financial literacy than their counterparts. We also find that household wealth is associated with higher financial literacy, though the effects are small, as in Monticone (2010). Having health insurance other than government, employer-provided, or long-term care insurance is positively related to financial literacy. We do not find statistically significant relationships between financial literacy and working status or health indicators.

We next examine health literacy in Table 3. Searching for health information online is statistically significant across all specifications, and it remains stable across columns (1) through (5). The coefficient on “Health Search Index” implies that if the frequency of searching for health information online changes from “never” to “often,” health literacy increases by 0.097 (a 12% effect size). There are no statistically significant effects of age, education, or ethnicity, though being female is associated with higher levels of health literacy.

The coefficient on having a partner or spouse in column (5) of Table 3 suggests a negative relationship with one’s own health literacy. We do not have a clear explanation for this result, though it could be that individuals with a partner may feel more confident filling out medical forms together as opposed to alone. Self-reported general health status is also statistically significant: if a respondent’s reported score increases by one (1 = best and 5 = worst), health literacy falls by 0.04 from a base of 0.805, which is an effect size of 5%. As mentioned, this may be because individuals with poor health may have more complex needs that make their health information more difficult to convey on a medical form. Having health insurance from the current or previous employer is positively associated with health literacy, and we interpret it as this indicator is correlated with higher socio-economic status and therefore higher health literacy.

IV Analysis on Financial and Health Literacy

Table 4 shows the IV estimates for both outcomes, with columns (1) and (3) showing the first-stage results and columns (2) and (4) showing

TABLE 4
2SLS Estimates of the Impact of Online Information on Financial and Health Literacy

Dependent Variable	First-Stage Financial Search Index (1)	2SLS Financial Literacy (2)	First-Stage Health Search Index (3)	2SLS Health Literacy (4)
Financial Search Index		0.579** (0.285)		
Health Search Index				0.282*** (0.038)
Email	0.101 (0.095)		0.192*** (0.029)	
Online Purchase	0.162*** (0.061)		0.261*** (0.019)	
Webpage	0.238*** (0.087)		0.170*** (0.026)	
Demographics				
Age	-0.038 (0.030)	0.073 (0.057)	-0.009 (0.008)	0.003 (0.007)
Age squared	0.000 (0.000)	-0.001 (0.000)	0.000 (0.000)	-0.000 (0.000)
Years of Education	-0.022 (0.085)	0.296* (0.163)	-0.023 (0.016)	0.024 (0.020)
Years of Education squared	0.002 (0.003)	-0.009 (0.006)	0.001* (0.001)	-0.000 (0.001)
Female	-0.194*** (0.034)	-0.114 (0.084)	0.041*** (0.010)	0.024*** (0.009)
Married or Partnered	-0.076* (0.043)	0.018 (0.066)	0.013 (0.012)	-0.034*** (0.010)
Black	-0.052 (0.051)	-0.369*** (0.124)	0.027 (0.019)	0.003 (0.017)
Other Race	0.024 (0.083)	-0.553*** (0.165)	0.051** (0.024)	-0.036 (0.023)
Economic and Health Status				
Wealth (MN)	0.007 (0.017)	0.039** (0.018)	-0.000 (0.006)	0.005 (0.004)
Working	0.043 (0.037)	0.009 (0.078)	0.006 (0.011)	0.008 (0.010)
Bad Health	-0.016 (0.017)	-0.027 (0.032)	0.013** (0.006)	-0.040*** (0.005)
Medical Exp (10k)	-0.036 (0.027)	-0.079 (0.063)	0.013 (0.011)	-0.001 (0.010)
Pension and Insurance				
Any Pension	-0.030 (0.042)	-0.042 (0.067)	-0.012 (0.014)	-0.002 (0.013)
Medicaid	-0.066 (0.104)	-0.149 (0.252)	-0.050 (0.048)	-0.037 (0.039)
Employer Insurance	0.055 (0.037)	0.091 (0.077)	0.003 (0.011)	0.013 (0.010)

TABLE 4
Continued

Dependent Variable	First-Stage Financial Search Index (1)	2SLS Financial Literacy (2)	First-Stage Health Search Index (3)	2SLS Health Literacy (4)
Other Health Insurance	0.046 (0.055)	0.217** (0.090)	0.029** (0.014)	-0.006 (0.013)
Long-Term Care Insurance	-0.031 (0.045)	0.075 (0.098)	0.002 (0.013)	0.011 (0.011)
Year FE	Yes	Yes	Yes	Yes
Residence Region FE	Yes	Yes	Yes	Yes
Mean of Dependent Variable	0.373	2.515	0.566	0.805
Observations	583	583	3,972	3,972
R-squared	0.238	-	0.236	-
F-statistic (weak identification)		16.673		216.964
Hansen J-statistic (overidentification of all instruments)		0.511		0.016
Hansen J p-value		0.775		0.992

Notes: The variable "Financial Search Index" captures the extent to which individuals acquire financial information online. "Health Search Index" captures the extent to which individuals acquire health/medical information online. The three instruments, "Email," "Online Purchase," and "Web-page," measure an individual's frequency of using the internet for email, general shopping, and general web browsing, respectively. Sample sizes are slightly different from Tables 2 and 3 as we exclude observations with missing value in the instrumental variables. Robust standard errors are in parentheses. Observations are weighted at the respondent level.

* $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$.

Data source: HRS, 2003–2013.

the 2SLS estimates. We have significantly fewer data to study financial literacy compared to health literacy, but in both cases, the F -statistic for the first stage is sufficiently high: it is 16.67 in column (1) and 216.96 in column (3), well above the commonly-used threshold of 10 for instrument relevance.

We begin with the analysis of financial literacy. In column (1) we observe that email alone is not a statistically significant predictor of web search behavior pertaining to financial information. This may be due to our smaller sample size; so we retain the variable in our regression as it is strongly predictive when entered alone. None of the other covariates in column (1) emerge as statistically significant, apart from female and marital status.

Column (2) shows the 2SLS estimate for the impact of online financial searches on financial literacy: the estimated coefficient of 0.579

(an effect size of 23%), which while much larger than the OLS estimate of 0.400, falls within the same confidence interval. Thus, we conclude that the OLS estimate is in the right ballpark, though it may be downward biased. The Hansen J -test for the overidentifying restrictions cannot reject the null hypothesis that all instruments are valid ($p > 0.5$).

First-stage results on health literacy appear in column (3), where all three instruments exhibit strong statistical significance ($p < 0.01$). Several other variables are also statistically significant. In particular, females, individuals in bad health, and individuals with other health insurance appear to search online for health information at higher rates than their counterparts. Column (4) shows the 2SLS results; here we observe a coefficient of 0.282 on the variable of interest (an effect size of 35%), larger than the OLS estimate of 0.097, and the confidence intervals of these estimates do not overlap. Accordingly, we conclude that the OLS estimate is downward biased regarding the causal impact of online searches about health information on health literacy. Again, the Hansen J -test reported in column (4) is not statistically significant ($p > 0.5$).

ROBUSTNESS

In some ways, our instrumental variable analysis in the previous section provides a robustness check for the OLS estimates on the variables of interest. In this section, we conduct three sets of analyses to address potential concerns with our empirical design and explore further the role of age in the analysis.

Alternative Samples

There is a concern that the financial or health literacy is sometimes measured prior to the measurement of online searching for financial or health information, which makes it harder to provide causal interpretations. To deal with this, we show the robustness of our main analyses to the alternative samples in which “Financial Search Index” and “Health Search Index” are measured before financial and health literacy, respectively.

Specifically, we re-estimate the OLS and IV regressions using the sample with “Financial Search Index” measured in 2009 and financial literacy measured in 2010, and the sample with “Health Search Index” measured in 2009 or 2011 and health literacy measured in 2013. The additional OLS results are shown in Tables A3 and A4. For financial

literacy, we find that “Financial Search Index” is still positively related with financial literacy ($p < 0.10$). The magnitude of the coefficient is smaller, however, at 0.181 (compared to 0.400 in the main analysis); this corresponds to an effect size of 7%. For health literacy, we find that the coefficient of “Health Search Index,” 0.091, is very close to our previous estimate of 0.097. The estimate is statistically significant ($p < 0.01$) and corresponds to an effect size of 11%.

We also redid the IV analysis on these subsamples, and the results are shown in column (2) of Tables A5 and A6. We observe that the coefficient on “Financial Search Index” is 0.406; although it is not statistically significant (we are likely underpowered due to smaller sample size), it is close to the coefficient of 0.400 in the main OLS analysis and within the 95% confidence interval around the coefficient of 0.579 in the main IV analysis. For health literacy, we find the coefficient on “Health Search Index” is 0.299 and statistically significant ($p < 0.01$). This is similar to the main IV analysis which estimates the coefficient to be 0.282.

Considering that the sample sizes are smaller in these additional tests (especially for financial literacy for which the sample size reduces from 585 to 372 for the OLS sample), we conclude that our results are robust to these alternative samples.

Alternative Measures of Financial Literacy

Financial literacy might be perceived as a broad concept that includes many aspects of personal finance such as saving for retirement, investment and mortgage loans. To examine the sensitivity of our results to alternate definitions of financial literacy, we explore alternative measures of financial literacy and re-estimate our OLS and IV models using these measures. Because these measures are from the 2010 survey, we were also able to constrain the sample to reflect information collected *after* the online search variable (to the extent that the issue addressed in the first robustness check remains a concern.)

Specifically, we look at two different outcomes, *Financial Sophistication 1* and *Financial Sophistication 2*. For *Financial Sophistication 1*, we use 12 financial literacy questions from the HRS special module “Financial Sophistication and Investment Decision Making” administered in 2010, three of which are used to construct our main financial literacy measure. These nine newly included questions focus on the respondent’s understanding of capital markets, risk diversification, and attitudes toward

investing.⁸ Lusardi, Mitchell, and Curto (2014) provides a detailed discussion on most of these questions. We construct *Financial Sophistication 1* by counting the number of correct answers to all 12 questions.

The metric *Financial Sophistication 2* is based on a subset of nine questions included in *Financial Sophistication 1*. Since attitudes toward investing and risk may be affected by factors other than financial literacy (e.g., personal risk preferences), we construct this second metric by excluding the three questions on attitudes and counting the number of correct answers to the remaining nine questions.

We estimate OLS and IV regressions using the sample with “Financial Search Index” measured in 2009 and *Financial Sophistication 1* and 2 measured in 2010. We report the OLS results in Tables A7 and A8. Looking at *Financial Sophistication 1* (Table A7), we find the coefficient on the “Financial Search Index” variable is stable from columns (1) to (5), reducing slightly as more controls are included. In the most saturated model (column (5), the coefficient of 1.051 indicates that a change in the frequency of searching for financial information online from “never” to “often” corresponds to an increase in *Financial Sophistication 1* of 1.051. Since the mean level of the outcome is 8.701, this estimate corresponds to an effect size of 12%. The magnitudes and directions of the included covariates are broadly similar to our prior results.

8. Specifically, the other nine questions are (correct answers are bolded):

Capital markets:

(1) Which asset do you think historically has paid the highest returns over a long time period, say 20 years or more -- savings accounts, bonds, or stocks? [savings accounts; **bonds**; **stocks**; do not know; refuse to answer.];

(2) (True or False) An employee of a company with publicly traded stock should have a lot of his or her retirement savings in the company’s stock. [true; **false**; do not know; refuse to answer.];

(3) (True or False) If the interest rate falls, bond prices will rise. [**true**; false; do not know; refuse to answer.];

(4) (True or False) If one is smart, it is easy to pick individual company stocks that will have better than average returns. [true; **false**; do not know; refuse to answer.];

Risk diversification:

(5) (True or False) It is best to avoid owning stocks of foreign companies. [true; **false**; do not know; refuse to answer.];

(6) (True or False) You should invest most of your money in a few good stocks that you select rather than in lots of stocks or in mutual funds. [true; **false**; do not know; refuse to answer.];

Attitudes:

(7) (True or False) You should put all your money into the safest investment you can find and accept whatever return it pays. [true; **false**; do not know; refuse to answer.];

(8) (True or False) Even older retired people should hold some stocks. [**true**; false; do not know; refuse to answer.];

(9) (True or False) There is no way to avoid people taking advantage of you, if you invest in the stock market. [true; **false**; do not know; refuse to answer.].

Our estimates for the second outcome, *Financial Sophistication 2*, are in Table A8. Here, we find the coefficient on the “Financial Search Index” variable is stable from columns (1) to (5) and statistically significant across all specifications. In the most saturated model (column (5), the coefficient of 0.823 indicates that a change in the frequency of searching for financial information online from “never” to “often” corresponds to an increase in *Financial Sophistication 2* of 0.823. Since the mean level of *Financial Sophistication 2* is 6.460, this estimate corresponds to an effect size of 13%.

We report the IV analysis using these alternative measures in columns (3) and (4) of Table A5. For *Financial Sophistication 1*, the bias-corrected estimate of the coefficient on the variable “Financial Search Index” is 2.526, which is much larger than the OLS estimate of 1.051. For *Financial Sophistication 2*, the IV coefficient on the variable “Financial Search Index” is 1.443, also larger than the OLS estimate of 0.823. Since the confidence intervals of these estimates overlap for both measures, we conclude that the OLS estimates are acceptable for interpretation, provided some caution that they may be downward biased. The Hansen *J*-test results are reported in columns (3) and (4), and they are not statistically significant ($p > 0.5$).

In summary, we find our main conclusions with respect to the impact of online search on financial literacy to be robust to these alternative and broader measures.

Heterogeneity by Age

As our sample includes individuals aged 51 or older due to the HRS survey design, a natural question is whether the effects of online search behaviors that we study are heterogeneous among this group. To investigate this question, we repeated our OLS and IV (2SLS) estimation with one change: we interacted the “Financial Search Index” (or “Health Search Index,” respectively) with age. (In the IV analysis, we interacted the previously used instruments with age and used them as additional instruments.)

The results of these regressions are in Table A9. Columns (1) and (2) show the OLS and IV (2SLS) estimates on financial literacy. These estimates suggest that the return to improving one’s “Financial Search Index” is decreasing with age: the coefficients in column (1) indicate that a change in the frequency of searching for financial information online from “never” to “often” corresponds to an increase in financial literacy of 0.442 for someone aged 60, compared to an increase of 0.302 for someone aged 70. We do not have a clear hypothesis for why this would be the case, but

possibly online behaviors are complemented by other forms of unobserved savviness with technology or learning that are correlated with age.

Note, however, that interpretation of these results necessitates some caution: the estimates on the age interaction are statistically significant only on the margin ($p < 0.10$) in both the OLS and IV specifications. Additionally, the F -statistic associated with the first stage of the IV is 5.066, suggesting that the instruments are likely too weak to provide meaningful inference.

Columns (3) and (4) of Table A9 show the results of this analysis for health literacy. Here, we do not uncover any statistically significant associations between age interactions with “Health Search Index” and health literacy, though the coefficients are in the same direction as the results on financial literacy. Also, because the sample is much larger for this analysis, the instruments are stronger: the F -statistic associated with the first stage of the IV is 80.726.

CONCLUSION

Our study documents that older people’s online search behaviors pertaining to financial and health information are linked to their measured levels of financial and health literacy. We also find evidence supporting the causality of this linkage through an instrumental variable analysis that proxied for online information-seeking about finance and health with more general online behaviors such as email use, shopping, and web browsing.

We recognize that our measure of financial literacy is closely linked to factual knowledge about certain financial products, and that the health literacy measure is closely linked to (and perhaps conflated by) the respondent’s overall level of self-confidence. Similarly, our measure of online search behaviors does not distinguish whether people know how to search for trustworthy information online. As a point of reassurance, recall however that both the financial and health literacy outcomes have been studied and validated extensively in prior literature: specifically, Lusardi, Mitchell, and Curto (2014) shows that the three core financial literacy questions we study are correlated with a broad suite of other financial knowledge. We hope that the present analyses can be used to further extend and innovate on the current literature.

The accumulation of financial and health literacy has important implications for economic well-being. For example, recent research shows that the inability to compare health insurance plans effectively is widespread and costly (Bhargava, Loewenstein, and Sydnor 2017; Liu and Sydnor 2018). There is significant effort to try and help individuals overcome

these information gaps—which are often complemented with psychological biases—by building innovative financial and health education tools (e.g., Lusardi et al. 2017; Samek and Sydnor 2018). To the extent that such interventions move towards online settings, as the FLEC has already done, individuals who are unable to do so proficiently may be left out.

Already, the ability to use online tools enables individuals to engage in services such as e-visits and telemedicine, which are increasingly popular in medicine (Bavafa, Hitt, and Terwiesch 2018; Mackert et al. 2016). Similarly, financial and health education are now being delivered in a variety of modes including in-person (traditional), by phone, online, and via other computer-based applications. One reason for this is that even people who may be suspect to digital disparities report feeling comfortable receiving services via this channel (Duan-Porter et al. 2018). One takeaway of our study is that interventions that help individuals access financial and health information online may be a fruitful way to improve their literacy in these domains. These types of programs are already the focus of many community-driven library efforts and national organizations such as SeniorNet (based in Fort Meyers, FL) and Oasis Connections (based in St. Louis, MO), and future research identifying the return to these interventions would be valuable.

Recent trends also indicate that internet use and savviness are becoming more prevalent throughout the population, including among those aged 65 or more. For example, 67% of those aged 65 or older use the internet today, compared to 12% in 2000; yet 34% of these older internet users report little or no confidence in their capability of using electronic devices to complete online tasks (Pew Research Center 2017). These trends suggest that interventions aimed at improving internet capabilities in searches for financial and health information can have broad appeal.

Hung, Parker, and Yoong (2009) states that financial education is the “process by which people improve their understanding of financial products, services and concepts, so they are empowered to make informed choices, avoid pitfalls, know where to go for help and take other actions to improve their present and long-term financial well-being.” In current times, enabling economically vulnerable people, especially older individuals, to improve their knowledge using the internet is likely one of the most significant forms of empowerment that can enhance their well-being.

APPENDIX

TABLE A1

Correlations Between Key Outcome and Explanatory Variables in the Financial Literacy Sample

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	
1. Financial Literacy	1.00																									
2. Financial Sophistication 1	0.69	1.00																								
3. Financial Sophistication 2	0.73	0.92	1.00																							
4. Stock	0.72	0.55	0.57	1.00																						
5. Compound	0.60	0.38	0.43	0.09	1.00																					
6. Inflation	0.61	0.39	0.40	0.19	0.09	1.00																				
7. Email	0.12	0.12	0.13	0.12	0.05	0.07	1.00																			
8. Online Purchase	0.09	0.16	0.18	0.08	0.04	0.05	0.30	1.00																		
9. Webpage	0.09	0.13	0.10	0.12	0.07	-0.02	0.39	0.22	1.00																	
10. Financial Search Index	0.24	0.28	0.28	0.18	0.15	0.13	0.21	0.24	0.23	1.00																
11. Age	-0.02	-0.06	-0.03	0.02	-0.07	0.02	-0.01	-0.20	-0.11	-0.02	1.00															
12. Years of Education	0.24	0.29	0.30	0.18	0.17	0.12	0.21	0.21	0.17	0.21	-0.00	1.00														
13. Female	-0.16	-0.18	-0.18	-0.13	-0.08	-0.10	0.12	0.02	-0.10	-0.22	-0.13	-0.10	1.00													
14. Married or Partnered	0.08	0.09	0.09	0.01	0.12	0.02	0.00	0.03	0.03	0.04	-0.04	0.00	-0.24	1.00												
15. Black	-0.09	-0.09	-0.12	0.01	-0.09	-0.12	-0.17	-0.07	-0.04	-0.09	-0.11	-0.01	0.04	-0.19	1.00											
16. Other Race	-0.07	-0.07	-0.07	-0.07	-0.04	-0.02	-0.10	-0.07	0.02	0.07	-0.12	0.01	-0.08	0.00	-0.07	1.00										
17. Wealth (M\$)	0.13	0.16	0.18	0.11	0.08	0.06	0.06	0.04	0.08	0.10	0.14	0.22	-0.10	0.13	-0.13	-0.06	1.00									
18. Working	0.07	0.04	0.01	0.03	0.10	-0.00	0.06	0.13	0.22	0.11	-0.41	0.16	-0.04	-0.02	0.10	0.15	-0.04	1.00								
19. Bad health	-0.11	-0.11	-0.09	-0.06	-0.07	-0.07	-0.11	-0.17	-0.03	-0.12	0.02	-0.17	-0.01	-0.12	0.12	-0.01	-0.15	-0.14	1.00							

TABLE A1
Continued

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	
20. Medical Exp (10k)	-0.04	0.02	0.04	-0.03	-0.07	0.03	-0.06	-0.01	-0.03	-0.05	-0.00	0.05	-0.02	-0.07	-0.03	-0.04	0.01	-0.00	0.10	1.00						
21. Any Pension	-0.02	-0.03	-0.02	-0.02	0.01	-0.02	0.00	-0.03	-0.01	-0.01	0.37	-0.02	-0.08	-0.03	-0.02	-0.07	0.00	-0.28	0.04	-0.04	1.00					
22. Medicaid	-0.09	-0.10	-0.09	-0.09	-0.11	0.03	-0.08	-0.06	-0.06	-0.07	-0.04	-0.14	0.06	-0.14	0.05	0.02	-0.08	-0.08	0.16	-0.07	-0.01	1.00				
23. Employer Insurance	0.15	0.11	0.09	0.11	0.13	0.05	0.06	0.12	0.13	0.16	-0.23	0.24	-0.10	-0.03	0.06	0.09	0.02	0.36	-0.05	0.05	-0.05	-0.10	1.00			
24. Other Health Insurance	0.06	0.08	0.08	0.07	0.04	0.00	0.00	-0.05	-0.04	-0.01	0.23	-0.08	0.00	-0.03	-0.11	-0.05	0.04	-0.16	-0.06	-0.03	0.07	-0.03	-0.30	1.00		
25. Long-Term Care Insurance	0.07	0.08	0.09	0.03	0.02	0.09	-0.04	0.00	-0.10	-0.07	0.07	0.11	0.01	-0.08	0.02	-0.01	0.01	-0.03	-0.00	0.02	0.03	0.02	0.02	-0.02	1.00	

Notes: This table reports correlations between key outcome and explanatory variables for the financial literacy sample.

Data source: HRS, 2003–2013.

TABLE A2
Correlations Between Key Outcome and Explanatory Variables in the Health Literacy Sample

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1. Health Literacy	1.00																			
2. Email	0.17	1.00																		
3. Online Purchase	0.19	0.33	1.00																	
4. Webpage	0.11	0.29	0.25	1.00																
5. Health Search Index	0.17	0.32	0.41	0.25	1.00															
6. Age	-0.14	-0.01	-0.20	-0.11	-0.08	1.00														
7. Years of Education	0.19	0.17	0.16	0.11	0.14	-0.01	1.00													
8. Female	0.09	0.07	0.03	-0.05	0.07	-0.12	-0.12	1.00												
9. Married or Partnered	-0.04	-0.03	0.05	-0.01	0.00	-0.12	0.02	-0.21	1.00											
10. Black	0.01	-0.09	-0.03	-0.04	0.00	-0.14	0.01	0.05	-0.12	1.00										
11. Other Race	0.02	-0.03	0.01	-0.03	0.03	-0.14	0.05	0.01	0.01	-0.06	1.00									
12. Wealth (MN)	0.05	0.04	0.05	0.00	0.03	0.14	0.22	-0.07	0.15	-0.13	-0.03	1.00								
13. Working	0.13	0.03	0.10	0.10	0.05	-0.47	0.12	-0.04	0.04	0.08	0.05	-0.05	1.00							
14. Bad health	-0.21	-0.12	-0.10	-0.05	-0.02	0.05	-0.16	-0.02	-0.06	0.05	0.00	-0.13	-0.19	1.00						
15. Medical Exp (10k)	-0.03	0.03	0.00	0.00	0.04	0.03	0.04	0.01	-0.01	-0.05	-0.04	0.04	-0.04	0.17	1.00					
16. Any Pension	-0.05	-0.05	-0.08	-0.06	-0.07	0.30	0.03	-0.06	-0.09	0.01	-0.05	0.02	-0.17	0.04	-0.01	1.00				
17. Medicaid	-0.07	-0.08	-0.05	-0.04	-0.03	-0.06	-0.08	0.02	-0.08	0.07	0.04	-0.08	-0.08	0.15	-0.03	-0.06	1.00			
18. Employer Insurance	0.11	0.07	0.11	0.07	0.06	-0.26	0.16	-0.09	-0.00	0.06	0.03	-0.00	0.32	-0.09	0.00	0.01	-0.12	1.00		
19. Other Health Insurance	-0.03	0.00	-0.06	-0.05	0.01	0.21	-0.04	0.03	-0.03	-0.09	-0.06	0.10	-0.13	0.01	0.03	0.02	-0.05	-0.31	1.00	
20. Long-Term Care Insurance	0.04	0.05	0.01	-0.03	0.02	0.12	0.15	0.00	0.03	-0.06	-0.01	0.12	-0.04	-0.06	0.05	0.06	-0.04	-0.00	0.05	1.00

Notes: This table reports correlations between key outcome and explanatory variables for the health literacy sample.

Data source: HRS, 2003–2013.

TABLE A3

Sample Robustness: OLS Estimates of the Impact of Financial Search Index on Financial Literacy

	(1)	(2)	(3)	(4)	(5)
Financial Search Index (2009)	0.470*** (0.105)	0.282** (0.119)	0.274** (0.117)	0.273** (0.121)	0.181* (0.106)
Demographics					
Age		0.011 (0.073)	0.022 (0.072)	0.025 (0.072)	-0.008 (0.075)
Age squared		-0.000 (0.001)	-0.000 (0.001)	-0.000 (0.001)	-0.000 (0.001)
Years of Education		0.433** (0.176)	0.438** (0.172)	0.434** (0.171)	0.460** (0.231)
Years of Education squared		-0.014** (0.007)	-0.014** (0.006)	-0.014** (0.006)	-0.014* (0.008)
Female		-0.228*** (0.086)	-0.234*** (0.087)	-0.235*** (0.089)	-0.213** (0.083)
Married or Partnered		0.062 (0.125)	0.043 (0.126)	0.042 (0.127)	-0.042 (0.086)
Black		-0.445*** (0.119)	-0.415*** (0.120)	-0.419*** (0.121)	-0.427*** (0.126)
Other Race		-0.723*** (0.207)	-0.689*** (0.200)	-0.696*** (0.201)	-0.719*** (0.205)
Economic and Health Status					
Wealth (MN)			0.056*** (0.021)	0.055** (0.022)	0.038* (0.021)
Working			-0.110 (0.079)	-0.109 (0.081)	-0.144* (0.083)
Bad Health				0.000 (0.043)	-0.010 (0.037)
Medical Exp (10k)				-0.029 (0.067)	-0.036 (0.063)
Pension and Insurance					
Any Pension					-0.102 (0.081)
Medicaid					-0.525** (0.253)
Employer Insurance					0.171* (0.093)
Other Health Insurance					0.336*** (0.115)
Long-Term Care Insurance					0.251*** (0.091)
Year FE	Yes	Yes	Yes	Yes	Yes
Residence Region FE	No	Yes	Yes	Yes	Yes
Mean of Dependent Variable	2.519	2.521	2.521	2.521	2.542
R-squared	0.054	0.197	0.208	0.208	0.246
Observations	380	379	379	379	372

Notes: Sample includes respondents for whom financial literacy is observed after the measurement of their financial search indices. The variable “Finance Search Index (2009)” captures the extent to which individuals acquired financial information online in 2009. “Financial Literacy (2010)” is the number of correct answers to three questions on financial literacy in 2010. Sample sizes are slightly different as we exclude observations with missing value in the control variables. Robust standard errors are in parentheses. Observations are weighted at the respondent level.

* $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$.

Data source: HRS, 2003–2013.

TABLE A4
Sample Robustness: OLS Estimates of the Impact of Health Search Index on Health Literacy

	(1)	(2)	(3)	(4)	(5)
Health Search Index	0.137*** (0.017)	0.097*** (0.017)	0.096*** (0.017)	0.098*** (0.017)	0.091*** (0.017)
Demographics					
Age		0.000 (0.008)	0.002 (0.008)	0.002 (0.008)	-0.000 (0.008)
Age squared		-0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)
Years of Education		0.019 (0.028)	0.023 (0.028)	0.024 (0.027)	0.025 (0.028)
Years of Education squared		-0.000 (0.001)	-0.000 (0.001)	-0.000 (0.001)	-0.000 (0.001)
Female		0.035*** (0.010)	0.037*** (0.010)	0.031*** (0.010)	0.030*** (0.010)
Married or Partnered		-0.022** (0.011)	-0.024** (0.011)	-0.030*** (0.011)	-0.031*** (0.011)
Black		-0.007 (0.016)	-0.005 (0.016)	0.004 (0.016)	0.007 (0.016)
Other Race		-0.048* (0.028)	-0.043 (0.027)	-0.040 (0.025)	-0.041* (0.025)
Economic and Health Status					
Wealth (MN)			0.010** (0.004)	0.005 (0.004)	0.004 (0.004)
Working			0.032*** (0.011)	0.017 (0.011)	0.010 (0.011)
Bad Health				-0.039*** (0.005)	-0.038*** (0.005)
Medical Exp (10k)				0.006 (0.010)	0.004 (0.010)
Pension and Insurance					
Any Pension					-0.014 (0.015)
Medicaid					-0.058 (0.042)
Employer Insurance					0.024** (0.011)
Other Health Insurance					-0.003 (0.015)
Long-Term Care Insurance					0.025** (0.011)
Residence Region FE	No	Yes	Yes	Yes	Yes
Mean of Dependent Variable	0.811	0.812	0.812	0.812	0.812
R-squared	0.028	0.090	0.095	0.120	0.122
Observations	3,273	3,256	3,254	3,252	3,189

Notes: Sample includes respondents for whom health literacy is observed after the measurement of their health search indices. The variable “Health Search Index” captures the extent to which individuals acquire health/medical information online in 2009 or 2011. “Health Literacy” is measured in 2013. Sample sizes are slightly different as we exclude observations with missing value in the control variables. Robust standard errors are in parentheses. Observations are weighted at the respondent level.

* $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$.

Data source: HRS, 2003–2013.

TABLE A5

Sample and Variable Definition Robustness: 2SLS Estimates on Financial Literacy

Dependent Variable	First-Stage	2SLS	2SLS	2SLS
	Financial Search Index (1)	Financial Literacy (2010) (2)	Financial Sophistication 1 (2010) (3)	Financial Sophistication 2 (2010) (4)
Financial Search Index (2009)		0.406 (0.321)	2.526*** (0.978)	1.443** (0.709)
Email	0.015 (0.106)			
Online Purchase	0.139** (0.066)			
Webpage	0.364*** (0.086)			
Demographics				
Age	0.005 (0.041)	-0.018 (0.073)	0.062 (0.232)	0.145 (0.176)
Age squared	-0.000 (0.000)	-0.000 (0.001)	-0.001 (0.002)	-0.001 (0.001)
Years of Education	0.166* (0.100)	0.420* (0.236)	-0.729 (0.619)	-0.389 (0.528)
Years of Education squared	-0.005 (0.004)	-0.013 (0.008)	0.031 (0.022)	0.020 (0.019)
Female	-0.192*** (0.041)	-0.167* (0.095)	-0.375 (0.296)	-0.335 (0.227)
Married or Partnered	-0.075 (0.055)	-0.024 (0.089)	0.056 (0.225)	0.118 (0.191)
Black	-0.064 (0.088)	-0.413*** (0.129)	-0.652* (0.389)	-0.735*** (0.256)
Other Race	0.061 (0.082)	-0.724*** (0.195)	-1.778*** (0.668)	-1.448** (0.568)
Economic and Health Status				
Wealth (MN)	0.000 (0.021)	0.036* (0.021)	0.154 (0.094)	0.144** (0.072)
Working	-0.049 (0.041)	-0.141* (0.080)	-0.374 (0.261)	-0.353* (0.209)
Bad Health	-0.019 (0.019)	-0.002 (0.036)	-0.066 (0.097)	-0.029 (0.081)
Medical Exp (10k)	-0.010 (0.036)	-0.034 (0.061)	0.191 (0.161)	0.197* (0.117)

TABLE A5
Continued

Dependent Variable	First-Stage	2SLS	2SLS	2SLS
	Financial Search Index (1)	Financial Literacy (2010) (2)	Financial Sophistication 1 (2010) (3)	Financial Sophistication 2 (2010) (4)
Pension and Insurance				
Any Pension	-0.051 (0.044)	-0.101 (0.078)	-0.047 (0.247)	-0.093 (0.219)
Medicaid	-0.165*** (0.059)	-0.486* (0.263)	-0.181 (0.962)	0.179 (0.745)
Employer Insurance	0.112** (0.045)	0.142 (0.093)	0.282 (0.279)	0.261 (0.215)
Other Health Insurance	0.088 (0.060)	0.318*** (0.113)	1.140*** (0.349)	0.938*** (0.266)
Long-Term Care Insurance	-0.085 (0.057)	0.272*** (0.096)	1.070*** (0.302)	0.728*** (0.251)
Residence Region FE	Yes	Yes	Yes	Yes
Mean of Dependent Variable	0.376	2.544	8.713	6.467
Observations	371	371	371	371
R-squared	0.281	-	-	-
F-statistic (weak identification)		13.345	13.345	13.345
Hansen J-statistic (overidentification of all instruments)		0.266	0.988	1.220
Hansen J p-value		0.876	0.610	0.543

Notes: Sample includes respondents for whom financial literacy is observed after the measurement of their financial search indices. Column (3) and (4) show robustness to alternative measures of financial literacy. The variable “Financial Search Index (2009)” captures the extent to which individuals acquired financial information online in 2009. “Financial Literacy (2010)” is the number of correct answers to three questions on financial literacy in 2010. “Financial Sophistication 1 (2010)” is the number of correct answers to 12 questions on financial sophistication in 2010. “Financial Sophistication 2 (2010)” is the number of correct answers to nine questions on financial sophistication in 2010. The sample size is slightly different from the OLS sample as we exclude observations with missing value in the instrumental variables. Robust standard errors are in parentheses. Observations are weighted at the respondent level.

* $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$.

Data source: HRS, 2003–2013.

TABLE A6
Sample Robustness: 2SLS Estimates on Health Literacy

Dependent Variable	First-Stage Health Search Index (1)	2SLS Health Literacy (2013) (2)
Health Search Index		0.299*** (0.043)
Email	0.226*** (0.034)	
Online Purchase	0.260*** (0.020)	
Webpage	0.156*** (0.030)	
Demographics		
Age	-0.007 (0.009)	-0.002 (0.008)
Age squared	0.000 (0.000)	-0.000 (0.000)
Years of Education	-0.015 (0.020)	0.029 (0.025)
Years of Education squared	0.001 (0.001)	-0.001 (0.001)
Female	0.044*** (0.011)	0.018* (0.010)
Married or Partnered	0.023* (0.014)	-0.036*** (0.011)
Black	0.036 (0.022)	0.007 (0.017)
Other Race	0.059** (0.024)	-0.045* (0.026)
Economic and Health Status		
Wealth (MN)	0.002 (0.007)	0.003 (0.005)
Working	0.010 (0.013)	0.009 (0.011)
Bad Health	0.013** (0.006)	-0.040*** (0.005)
Medical Exp (10k)	0.005 (0.013)	0.001 (0.011)

TABLE A6
Continued

Dependent Variable	First-Stage Health Search Index (1)	2SLS Health Literacy (2013) (2)
Pension and Insurance		
Any Pension	−0.002 (0.016)	−0.010 (0.016)
Medicaid	−0.061 (0.055)	−0.037 (0.046)
Employer Insurance	−0.001 (0.012)	0.021* (0.011)
Other Health Insurance	0.018 (0.015)	−0.006 (0.015)
Long-Term Care Insurance	−0.001 (0.015)	0.023** (0.011)
Residence Region FE	Yes	Yes
Mean of Dependent Variable	0.579	0.812
Observations	3,176	3,176
R-squared	0.213	–
F-statistic (weak identification)		164.117
Hansen J-statistic (overidentification of all instruments)		0.938
Hansen J p-value		0.623

Notes: Sample includes respondents for whom health literacy is observed after the measurement of their health search indices. The variable “Health Search Index” captures the extent to which individuals acquire health/medical information online in 2009 or 2011. “Health Literacy” is measured in 2013. The sample size is slightly different from the OLS sample as we exclude observations with missing value in the instrumental variables. Robust standard errors are in parentheses. Observations are weighted at the respondent level.

* $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$.

Data source: HRS, 2003–2013.

TABLE A7
Variable Definition Robustness: OLS Estimates on Financial Literacy (Financial Sophistication 1)

	(1)	(2)	(3)	(4)	(5)
Financial Search Index (2009)	1.819*** (0.301)	1.167*** (0.314)	1.136*** (0.311)	1.114*** (0.314)	1.051*** (0.298)
Demographics					
Age		0.205 (0.235)	0.245 (0.232)	0.212 (0.233)	0.092 (0.230)
Age squared		-0.002 (0.002)	-0.002 (0.002)	-0.002 (0.002)	-0.001 (0.002)
Years of Education		0.007 (0.482)	0.031 (0.489)	0.107 (0.472)	-0.483 (0.548)
Years of Education squared		0.009 (0.018)	0.007 (0.018)	0.004 (0.018)	0.025 (0.020)
Female		-0.709*** (0.270)	-0.726*** (0.272)	-0.745*** (0.276)	-0.670*** (0.241)
Married or Partnered		0.038 (0.244)	-0.042 (0.250)	-0.036 (0.245)	-0.053 (0.191)
Black		-0.976*** (0.350)	-0.872** (0.347)	-0.790** (0.347)	-0.768** (0.363)
Other Race		-1.849** (0.715)	-1.735** (0.699)	-1.701** (0.703)	-1.762** (0.732)
Economic and Health Status					
Wealth (MN)			0.219** (0.092)	0.205** (0.096)	0.163* (0.089)
Working			-0.260 (0.252)	-0.305 (0.257)	-0.412 (0.270)
Bad Health				-0.123 (0.098)	-0.111 (0.093)
Medical Exp (10k)				0.225 (0.159)	0.172 (0.160)
Pension and Insurance					
Any Pension					-0.069 (0.244)
Medicaid					-0.473 (0.939)
Employer Insurance					0.460* (0.269)
Other Health Insurance					1.260*** (0.327)
Long-Term Care Insurance					0.935*** (0.287)
Year FE	Yes	Yes	Yes	Yes	Yes
Residence Region FE	No	Yes	Yes	Yes	Yes
Mean of Dependent Variable	8.653	8.665	8.665	8.665	8.701
R-squared	0.096	0.288	0.303	0.308	0.350
Observations	380	379	379	379	372

Notes: The variable “Finance Search Index (2009)” captures the extent to which individuals acquired financial information online in 2009. “Financial Sophistication 1” is the number of correct answers to 12 questions on financial sophistication in 2010. Sample sizes are slightly different as we exclude observations with missing value in the control variables. Robust standard errors are in parentheses. Robust standard errors are in parentheses. Observations are weighted at the respondent level.

* $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$.

Data source: HRS, 2003–2013.

TABLE A8

Variable Definition Robustness: OLS Estimates on Financial Literacy (Financial Sophistication 2)

	(1)	(2)	(3)	(4)	(5)
Financial Search Index (2009)	1.447*** (0.242)	0.931*** (0.258)	0.904*** (0.256)	0.898*** (0.260)	0.823*** (0.247)
Demographics					
Age		0.243 (0.174)	0.279 (0.174)	0.254 (0.175)	0.157 (0.178)
Age squared		-0.002 (0.001)	-0.002* (0.001)	-0.002* (0.001)	-0.002 (0.001)
Years of Education		-0.020 (0.391)	0.000 (0.388)	0.046 (0.375)	-0.286 (0.502)
Years of Education squared		0.008 (0.014)	0.007 (0.014)	0.005 (0.014)	0.017 (0.018)
Female		-0.504** (0.221)	-0.520** (0.222)	-0.521** (0.225)	-0.459** (0.202)
Married or Partnered		0.143 (0.215)	0.075 (0.218)	0.084 (0.216)	0.072 (0.180)
Black		-0.926*** (0.258)	-0.831*** (0.252)	-0.781*** (0.251)	-0.783*** (0.251)
Other Race		-1.526*** (0.534)	-1.421*** (0.537)	-1.378** (0.539)	-1.441** (0.599)
Economic and Health Status					
Wealth (MN)			0.189** (0.079)	0.184** (0.080)	0.148** (0.074)
Working			-0.274 (0.204)	-0.296 (0.208)	-0.369* (0.219)
Bad Health				-0.048 (0.087)	-0.048 (0.081)
Medical Exp (10k)				0.210* (0.120)	0.189 (0.120)
Pension and Insurance					
Any Pension					-0.102 (0.223)
Medicaid					0.056 (0.737)
Employer Insurance					0.335 (0.220)
Other Health Insurance					0.988*** (0.261)
Long-Term Care Insurance					0.671*** (0.249)
Year FE	Yes	Yes	Yes	Yes	Yes
Residence Region FE	No	Yes	Yes	Yes	Yes
Mean of Dependent Variable	6.418	6.426	6.426	6.426	6.460
R-squared	0.092	0.260	0.278	0.281	0.322
Observations	380	379	379	379	372

Notes: The variable “Finance Search Index (2009)” captures the extent to which individuals acquired financial information online in 2009. “Financial Sophistication 2” is the number of correct answers to nine questions on financial sophistication in 2010. Sample sizes are slightly different as we exclude observations with missing value in the control variables. Robust standard errors are in parentheses. Robust standard errors are in parentheses. Observations are weighted at the respondent level.

* $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$.

Data source: HRS, 2003–2013.

TABLE A9
Heterogeneity by Age: OLS and 2SLS Estimates on Financial and Health Literacy

Dependent Variable	OLS	2SLS	OLS	2SLS
	Financial Literacy (1)	Financial Literacy (2)	Health Literacy (3)	Health Literacy (4)
Financial Search Index	1.282*** (0.492)	3.326* (1.719)		
Financial Search Index × Age	-0.014* (0.008)	-0.043* (0.025)		
Health Search Index			0.200* (0.121)	0.675** (0.280)
Health Search Index × Age			-0.002 (0.002)	-0.006 (0.004)
Demographics				
Age	-0.002 (0.006)	0.009 (0.011)	-0.002* (0.001)	0.001 (0.002)
Years of Education	0.315** (0.159)	0.315* (0.161)	0.017 (0.022)	0.023 (0.020)
Years of Education squared	-0.010* (0.006)	-0.010* (0.006)	-0.000 (0.001)	-0.000 (0.001)
Female	-0.144** (0.062)	-0.097 (0.091)	0.033*** (0.009)	0.023** (0.009)
Married or Partnered	0.009 (0.063)	0.031 (0.068)	-0.031*** (0.010)	-0.032*** (0.010)
Black	-0.379*** (0.119)	-0.352*** (0.128)	-0.000 (0.016)	0.003 (0.017)
Other Race	-0.559*** (0.165)	-0.525*** (0.161)	-0.034 (0.022)	-0.037 (0.023)
Economic and Health Status				
Wealth (MN)	0.037** (0.017)	0.031 (0.020)	0.006 (0.004)	0.005 (0.004)
Working	0.025 (0.078)	0.002 (0.080)	0.007 (0.010)	0.008 (0.010)
Bad Health	-0.032 (0.031)	-0.023 (0.032)	-0.039*** (0.004)	-0.039*** (0.005)
Medical Exp (10k)	-0.080 (0.064)	-0.068 (0.063)	0.003 (0.009)	-0.001 (0.010)
Pension and Insurance				
Any Pension	-0.046 (0.067)	-0.054 (0.067)	-0.007 (0.012)	-0.004 (0.013)
Medicaid	-0.158 (0.253)	-0.181 (0.231)	-0.053 (0.037)	-0.035 (0.040)
Employer Insurance	0.097 (0.073)	0.072 (0.081)	0.017* (0.010)	0.013 (0.010)

TABLE A9
Continued

Dependent Variable	OLS Financial Literacy (1)	2SLS Financial Literacy (2)	OLS Health Literacy (3)	2SLS Health Literacy (4)
Other Health Insurance	0.235*** (0.087)	0.229*** (0.088)	-0.001 (0.013)	-0.006 (0.013)
Long-Term Care Insurance	0.069 (0.098)	0.060 (0.103)	0.013 (0.011)	0.012 (0.011)
Year FE	Yes	Yes	Yes	Yes
Residence Region FE	Yes	Yes	Yes	Yes
Mean of Dependent Variable	2.515	2.515	0.805	0.805
Observations	585	583	3,987	3,972
R-squared	0.223	-	0.126	-
F-statistic (weak identification)		5.066		80.726
Hansen J-statistic (overidentification of all instruments)		5.781		2.440
Hansen J p-value		0.216		0.655

Notes: The variable “Financial Search Index” captures the extent to which individuals acquire financial information online. “Health Search Index” captures the extent to which individuals acquire health/medical information online. Sample sizes are slightly different from the OLS samples as we exclude observations with missing value in the control variables. Robust standard errors are in parentheses. Observations are weighted at the respondent level.

* $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$.

Data source: HRS, 2003–2013.

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