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Financial adviser users and financial literacy

Bhanu Balasubramnian[a], Eric R. Brisker[a,*]

[a]*College of Business Administration, The University of Akron, Akron, OH 44325, USA*

Abstract

Using the 2012 National Financial Capability Study we determine what demographic characteristics are associated with individuals that use financial advisers and whether financial advisers have any impact on the financial literacy of their clients. We consider five types of financial advisers: *Debt Counselors*, *Savings or Investment*, *Mortgage or Loan*, *Insurance*, and *Tax Planning*. We find a significant increase in the use of financial advisers over the past decade. We also find that *Savings or Investments* advisers have the largest positive impact on the financial literacy of their clients, followed by *Mortgage or Loan* and *Insurance advisers*, even when controlling for financial education and potential endogeneity issues.

JEL classification: D12; D14; D81

Keywords: Personal financial planning; Financial advisers; Financial planners; Financial literacy; Instrumental variable models; Propensity score matching

1. Introduction

We can argue that financial clients follow the advice from their financial advisers without learning from their interactions or financial experience. On the other hand, it is possible that financial clients do learn from their financial experience and interactions with financial advisers. Thus, financial advisers may play a significant role in disseminating financial knowledge to their clients that positively impacts their financial literacy. In this article, using the survey data from the 2012 National Financial Capability Study (NFCS), conducted by the Financial Industry Regulatory Authority (FINRA) Investor Education Foundation, we first identify demographic characteristics that are associated with individuals that use financial

* Corresponding author. Tel.: +1-850-766-8315; fax: +1-330-972-5970.
E-mail address: ebrisker@uakron.edu (E. R. Brisker)

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advisers in the United States. We then determine if financial advisers have any impact on the financial literacy of their clients.

Over the past few decades financial products have become more complex to the point that making financial decisions has become very challenging for most people. In addition, retirement planning decisions have become more difficult for many people because of a shift in employee retirement plans away from defined benefit plans and towards defined contribution plans where individuals must make their own investment allocation decisions. For example, in recent years there has been a large increase in the number of investment products available that are typically used for retirement savings such as thousands of new mutual funds, exchange traded funds, target date (life-cycle) funds, and international equity funds. There has also been an increase in the number of non-investment products such as mortgage loan products (i.e., adjustable rate mortgages, reverse mortgages, and interest-only mortgages), insurance products (i.e., universal life insurance, annuities), and personal health insurance products. As these more complex financial products become available investors are more likely to make non-optimal financial decisions simply because they do not understand the financial products they are consuming or how to manage risks.

As financial products have grown in complexity the importance of financial literacy in our society has also grown. Several studies have considered how financial literacy impact financial decision making and the well-being of individuals. For example, Campbell (2006), in a study of household finance, finds that poorer and less educated households having lower financial literacy levels are more likely to make investment mistakes when making financial decisions, and the presence of these types of households may inhibit complex financial innovation. Klapper, Lusardi, and Panos (2013) find that financial literacy is positively related to participating in financial markets and negatively related to the use of informal sources of borrowing, and that individuals with higher levels of financial literacy and unspent income are better able to deal with macroeconomic shocks. Other research has shown that financial literacy leads to higher portfolio returns (Calvet, Campbell, and Sodini, 2009), greater wealth and probability of investing in stocks (Van Rooij, Lusardi, and Alessie, 2011), better retirement planning (Lusardi and Mitchell, 2007a, 2007b), and lower cost of borrowing (Huston, 2012). On the other hand, lower financial literacy levels lead to higher mortgage costs (Moore, 2003), excessive financial burden because of debt (Gathergood, 2012), and other debt related problems (Lusardi and Tufano, 2009). In summary, all prior literature agree that improving financial literacy can lead to better outcomes for both individuals, households, and the entire economic system.

To compensate for lower levels of financial literacy, individuals have the option to seek out expert financial advice from professional advisers who will assist them in making complex financial decisions. For example, Winchester and Huston (2014), using the Theory of Planned Behavior, find that low control beliefs are significantly associated with lower financial-goal progress, however, receiving expert financial advice can help reduce this negative effect and actually result in higher levels of goal progress compared with individuals having high control beliefs that receive no expert financial advice. However, we cannot assume that everyone using financial advisers have lower levels of financial literacy. It is certainly possible that many individuals that use financial advisers already have high levels

of education and financial literacy, but are not able to stay informed about new financial products or strategies on their own.

Black, Ciccotello, and Skipper (2002) propose two personal financial advising delivery models that are based on portfolio theory. In the first model, known as the "specialist model," the financial consumer, or household, works directly with multiple types of financial advisers such as a debt counselor, investment adviser, mortgage or loan counselor, insurance agent, and tax planner. In the second model, known as the "planner model," the financial consumer, or household, works directly with a single financial adviser, and this financial adviser acts as the intermediary between the consumer and the relevant financial adviser specialists. The consumer's choice between these two models depends on the amount and type of financial advice they are seeking. As both of these models use financial advisers, it is important to understand not only who uses financial advisers, but also what specific types of financial advisers they are using.

In 2012, FINRA Investor Education Foundation conducted a National Financial Capability Study. This national survey collected data on demographic characteristics of each survey participant regarding gender, age, ethnicity, education level, marital status, income level, employment status, and the region they live in within the continental United States. The survey also asks if the individual has ever received a financial education from high school, college, an employer, or from the military, and if the respondent has used a specific type of financial adviser. The five specific types of financial advisers included were *Debt Counseling*, *Savings or Investments*, *Mortgage or Loan*, *Insurance*, and *Tax Planning*. The survey also asks five questions designed by Annamaria Lusardi and Olivia S. Mitchell to assess the financial literacy of the survey respondents (see Table 1 and Appendix A for a list of these questions).

In determining who uses financial advisers, we find that there has been a significant increase in the number of individuals who use financial advisers over the last 14 years. Elmerick, Montalto, and Fox (2002), using the 1998 Survey of Consumer Finances, found that only 21.20% of those surveyed claimed to have used a financial adviser. Using the more recent 2012 FINRA Survey, we find that over 53% of those surveyed claimed they used a financial adviser indicating the usage of financial advisers has more than doubled since the 1998 survey. Overall, we find that those who have received a financial education, are female, have higher education and income levels, and those that are self-employed are more likely to use a financial adviser. Those in younger age groups and non-married individuals are less likely to use financial advisers.

When considering the specific financial adviser types separately, we find those having received a financial education and those self-employed are more likely to use all of the different adviser types. Females are more likely to use *Insurance* advisers, Black (non-Hispanic) individuals are more (less) likely to use *Debt Counseling* (*Mortgage or Loan*) advisers, and younger individuals are more likely to use *Debt Counseling* and *Mortgage or Loan* advisers. Individuals having higher education levels are more likely to use *Savings or Investments* and *Mortgage or Loan* advisers, those that are married are more likely to use *Mortgage or Loan*, *Insurance*, and *Tax Planning* advisers, and those with higher income levels are more likely to use all of the different types of advisers but *Debt Counselors*.

Table 1 Financial literacy questions

Panel A: Financial literacy questions

Q1	Time value of money	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?
Q2	Inflation	Imaging that the interest rate on your savings account was 1% per year and inflation was 2% per year. After 1 year, how much would you be able to buy with the money in this account?
Q3	Interest rates	If interest rates rise, what will typically happen to bond prices?
Q4	Interest rates	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.
Q5	Diversification	Buying a single company's stock usually provides a safer return than a stock mutual fund.

Panel B: Percentage Answering Financial Literacy Questions Correctly

	Q1	Q2	Q3	Q4	Q5
Overall	78.6%	66.1%	30.9%	79.4%	53.5%
Financial Adviser					
User	82.1	71.4	36.3	84.9	61.7
Non-user	74.7	60.1	24.8	73.0	44.1
t stat	13.28***	17.77***	18.77***	21.88***	26.59***
Debt Counseling					
User	73.0	56.3	28.2	80.0	48.0
Non-user	79.2	67.1	31.2	79.3	54.0
t stat	−5.91***	−9.18***	−2.82***	0.74	−5.12***
Savings or Investments					
User	83.8	74.0	40.5	86.1	67.5
Non-user	76.2	62.5	26.5	76.2	47.0
t stat	13.61***	17.64***	20.36***	18.24***	29.78***
Mortgage or Loan					
User	82.6	71.0	36.5	88.6	63.2
Non-user	77.5	64.8	29.4	76.7	50.7
t stat	8.15***	8.36***	9.25***	21.45***	15.87***
Insurance					
User	81.6	70.5	35.4	85.1	60.7
Non-user	77.2	64.0	28.8	76.5	50.0
t stat	7.69***	9.77***	9.84***	15.76***	15.27***
Tax Planning					
User	82.8	71.7	41.5	85.9	66.2
Non-user	77.6	64.8	28.3	77.7	50.3
t stat	8.04***	9.07***	16.28***	13.35***	19.68***

Panel A identifies the five financial literacy questions asked in the survey. Panel B reports the percentage of individuals who answered each question correctly for financial adviser users vs. non-users. Results are reported for the full sample (*Overall*), for those financial adviser users who used at least one or more of the five types of financial advisers vs. non-users (*Financial Adviser*), and for each financial adviser type user vs. non-users, separately. All values are in percentage. *t* stats are reported indicating the significance in the difference between users vs. non-users.

***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

With a large increase in the use of financial advisers in the United States raises the question if financial clients learn from their interactions with financial advisers. Bucher-Koenen and Lusardi (2011) declare that "those exposed to financially knowledgeable people become more financially knowledgeable themselves." Kolb (1984), in the education literature known as the "Experiential Learning Theory," includes active experimentation, education, observation, and experience as essential components in the general model of learning. Bandura (1977) identifies observational learning as the process of social interaction impacting the knowledge of an individual. Therefore, individuals who use the services of a financial adviser are likely to learn from their interactions, discussions, experience, and financial outcomes. There is similar literature that shows that individual's financial literacy improves when their parents have higher levels of education (Lusardi, Mitchell, and Curto, 2010), when they have financial experience (Johnson and Sherraden, 2007), and when they live in a zip code with higher average education levels (Lachance, 2014). Tang and Peter (2015) also show that financial education, financial experience, and parent's financial experience exert positive influence on young adult's financial knowledge. However, there are no studies that examine whether financial advisers have any impact on the financial literacy of their clients.

We find that those who use financial advisers answer more of the financial literacy questions correctly compared to those who do not use financial advisers, even when controlling for demographic characteristics that are expected to impact financial literacy. We also control for previous financial education received that has already been shown to be positively related to financial literacy by Grimes, Rogers, and Smith (2010), and Walstad, Rebeck, and MacDonald (2010). When considering the different financial adviser types separately, we find that *Savings or Investment* advisers have the largest positive impact on financial literacy, followed by *Mortgage or Loan* and *Insurance* advisers, respectively. Similar to results reported by Robb, Babiarz, and Woodyard (2012) using the 2009 NFCS survey, we also find a negative relationship between using *Debt Counseling*[1] advisers and financial literacy scores. It is possible that people having lower financial literacy get into debt and foreclosure problems and because they are poor learners, they do not learn from their experience or interaction with *Debt Counselors*. It is also possible that *Debt Counseling* services do not offer opportunities to expand their client's financial literacy in the same manner that Savings and Investments advisers can since they advise in multiple areas pertaining to personal financial planning. We also find *Tax Planning* advisers do not have a significant impact on the financial literacy of their clients as they specialize in tax advising that is not necessarily related to financial literacy topics covered in the questions asked. Overall, our results indicate that financial advisers are serving more financial consumers in the United States in recent years, and a positive relationship exists between using certain types of financial advisers and higher financial literacy levels even when controlling for demographic characteristics, such as financial education and education levels, that are known to impact financial literacy.

Robb, Babiarz, and Woodyard, (2012) and Allgood and Walstad (2016) find financial literacy influences the decision to use a financial adviser. Allgood and Walstad (2016) acknowledge that this relationship may reflect reverse causality, but they largely rule this possibility out without actually testing for reverse causality. In this study, we examine if

financial advisers actually do influence the financial literacy of their clients, and up to this point we have attempted to control for demographic characteristics that impact financial literacy, such as age, financial education, and education, and we still find a statistically significant positive relationship between financial literacy and using financial advisers. However, we have not directly dealt with the potential endogeneity issues that may exist between the use of financial advisers and financial literacy.

We address this potential endogeneity issue by using instrumental variable (IV) Generalized Method of Moments (GMM) and IV Probit models where various instruments are used that are correlated with using a specific type of financial adviser but uncorrelated with financial literacy. To correct for the possibility of a confounding variables problem in our base-line model, we also conduct propensity score matching tests where we match financial adviser users with non-users having similar demographic characteristics and then determine how financial advisers impact financial literacy using this matched sample. We continue to find that *Savings or Investments*, *Mortgage or Loan*, and *Insurance* advisers have a positive influence on financial literacy scores, but *Tax Planning* advisers have no significant impact on financial literacy scores. However, we find that *Debt Counseling* advisers have a negative influence on financial literacy scores when using IV GMM estimation, but they have no significant impact on financial literacy scores when using IV Probit estimation. Overall, our results remain robust even when controlling for endogeneity and confounding variables issues indicating a significant positive relationship between financial literacy and using *Savings or Investments*, *Mortgage or Loan*, and *Insurance* advisers.

We contribute to the individual/household financial literacy literature by providing evidence that specific types of financial advisers have a positive influence on financial literacy. This suggests clients learn from their financial experience and interactions with specific types of financial advisers rather than just take advice from them. To the best of our knowledge, this is the first article to consider the impact financial advisers have on the financial literacy of their clients.

The remainder of the article is organized as follows. Section 2 provides details about the FINRA NFCS 2012 survey, and our multivariate analysis empirical results are reported in Section 3. Section 4 presents our IV models and propensity score matching results, and we conclude in Section 5.

2. Data and descriptive analysis

2.1. FINRA 2012 National financial capability study

The FINRA Investor Education Foundation conducted the State-by-State Financial Capability Survey that was developed in consultation with the U.S. Department of Treasury, the President's Advisory Council on Financial Literacy, and multidisciplinary team including academics and practitioners. The data were collected through an online survey of 25,509 adults (18+) across the United States, with approximately 500 respondents per state plus the District of Columbia. The survey was self-administered by respondents on a website from

July to October of 2012 and provides an unprecedented set of information on financial behaviors across the United States.

Survey respondents were asked to identify several demographic characteristics such as their gender, age, ethnicity, education level, marital status, income level, employment status, region of the United States they lived in, and if they have ever received a financial education in the past. They were also asked if they have used a *Debt Counseling*, *Savings and Investments*, *Mortgage or Loan*, *Insurance*, or *Tax Planning* adviser within the past five years. Available responses included *YES, NO, Do Not Know,* and *Prefer not to say*. After limiting our sample to respondents who answered either *YES* or *NO* for each of the financial adviser type use questions we are left with 22,218 out of the 25,509 survey respondents for our analysis. Out of these 22,218 survey respondents, 53.4% used at least one of the five types of financial advisers compared with 46.6% that had not.

The survey respondents are also asked five basic finance questions designed by Annamaria Lusardi and Olivia S. Mitchell to assess their financial literacy. The five questions asked are designed to test the individuals understanding of basic concepts related to the time value of money, interest rates, inflation, and risk diversification. These questions are widely used as a measure of financial literacy in the literature. We will use the survey respondent's answers to these five questions to measure their financial literacy level.

2.2. Descriptive analysis

In Table 2 we report the percentage of each demographic characteristic group that used at least one type of financial adviser in the *FA User* column, and for each specific type of financial adviser in the *Debt Counselor*, *Savings or Investments*, *Mortgage of Loan*, *Insurance*, and *Tax Planning* columns. The demographic characteristics considered are *Financial Education*, *Gender*, *Age Group*, *Ethnicity*, *Education*, *Marital Status*, *Income*, *Employment*, and *Region*. These demographic characteristics have been shown to impact personal financial behavior and the probability of using a financial adviser when making financial decisions (Barber and Odean, 2001; Elmerick, Montalto, and Fox, 2002). We report *t*-stats indicating the significance in the difference between the two identified groups within each demographic characteristic.

We find a large variation in the percentage of individuals using at least one type of financial adviser based on their *Education* and *Income* levels. There is a much larger percentage of individuals using financial advisers who are either a college graduate (62.9%) or have post graduate college (69.7%) compared with those who have either completed High School (44%) or less than High School (30.4%). Not surprisingly, we also find that that there is a monotonic increase in the percentage of financial adviser users across higher income levels. For instance, 75.1% of those earning more than $150,000 used a financial adviser compared with only 40.3% of those earning $15,000 to $24,999.

When considering the specific finance adviser types, we find that a larger percentage of individuals falling in lower income categories and younger age groups reported using *Debt Counselors.* We find a larger percentage of individuals in lower age groups and higher income levels used *Mortgage or Loan* advisers. There are also a larger percentage of individuals falling in higher age groups, higher education levels, and higher income levels

Table 2 Percent of individuals that use financial advisers

	FA User	Debt Counseling	Savings or Investments	Mortgage or Loan	Insurance	Tax Planning
Total % Using	53.4%	8.8%	31.6%	22.1%	32.9%	19.9%
Financial Education						
Taken	65.6	11.5	42.4	29.5	42.9	27.9
Not taken	49.8	8.0	28.4	19.9	29.9	17.5
Taken - Not taken *t* test	20.70***	7.23***	18.15***	13.58***	16.70***	15.01***
Gender						
Male	54.3	8.6	33.8	23.3	33.2	21.5
Female	52.7	8.9	29.9	21.2	32.7	18.6
Male - Female *t* test	2.29**	−0.72	6.16***	3.81***	0.71	5.38***
Age group						
18–24	43.7	9.0	26.1	17.2	26.5	16.3
25–34	52.6	13.9	29.3	28.5	34.9	20.4
35–44	52.4	11.5	26.1	27.0	35.1	18.2
45–54	50.0	8.1	27.1	20.9	32.7	17.8
55–64	55.4	7.1	34.9	19.8	33.3	20.1
65+	62.3	3.9	43.7	18.2	32.3	25.4
(18–24) - (65+) *t* test	−13.90***	7.28***	−14.10***	−0.99	−4.77***	−8.55***
Ethnicity						
White	54.2	7.5	32.6	22.4	32.6	20.2
Black	51.4	12.4	29.0	21.2	33.8	19.0
White - Black *t* test	3.59***	−10.41***	5.15***	1.96**	−1.66*	2.05***
Education						
< High school	30.4	6.6	10.6	8.9	18.9	7.8
High school	44.0	7.2	23.1	16.0	25.2	13.3
GED	38.0	8.3	16.2	14.5	24.6	11.0
Some College	54.1	8.7	30.8	22.3	34.3	18.7
College graduate	62.9	11.6	40.6	28.5	39.5	25.3
Post-graduate	69.7	8.1	50.1	30.8	41.4	34.4
<HS–Post-grad *t* test	−27.33***	−1.92*	−32.70***	−19.71***	−16.76***	−24.07***
Marital status						
Married	59.6	8.6	36.2	26.5	36.7	24.0
Single	43.9	9.2	26.2	16.7	26.7	14.4
Separated	39.4	10.6	18.0	11.9	28.4	14.2
Divorced	47.3	8.7	23.9	16.8	29.4	13.9
Widowed	52.0	7.6	30.3	14.5	30.7	17.3
Married - Widowed *t* test	4.45***	1.13	3.70***	9.72***	3.73***	5.10***
Income						
<$15,000	27.4	6.2	11.5	7.9	16.5	6.4
$15K-$24,999	40.3	10.1	16.8	11.8	26.3	9.5
$25K-$34,999	45.7	9.5	22.4	16.7	28.6	13.1
$35K-$49,999	51.8	11.1	26.7	19.7	32.6	16.3
$50K-$74,999	59.2	9.1	35.1	25.6	36.8	21.3
$75K-$99,999	64.2	9.1	43.1	30.4	38.6	26.5
$100K-$149,000	70.3	7.0	50.0	32.8	42.0	32.8
> $150,000	75.1	6.8	57.6	36.8	45.3	43.4
<$15K - >$150K *t* test	−34.09***	−0.87	−33.07***	−21.83***	−19.92***	−27.55***
Employment						
Self employed	60.1	9.2	36.3	25.7	41.3	28.8
Full-time	59.2	11.0	35.0	29.4	37.5	21.6
Part-time	51.4	9.6	31.8	20.2	32.3	20.0
Homemaker	45.4	8.0	21.3	19.9	28.7	15.9
Student	43.3	9.4	27.8	15.5	25.4	13.9

Table 2 (Continued)

	FA User	Debt Counseling	Savings or Investments	Mortgage or Loan	Insurance	Tax Planning
Disabled	37.0	8.2	12.6	11.3	25.6	6.9
Unemployed	34.4	8.5	15.6	11.4	20.8	10.7
Retired	59.2	4.4	40.8	17.4	31.7	23.6
Self-employed - Retired *t* test	0.63	6.37***	-3.24***	6.97***	7.02***	4.15***
Region						
Northeast	53.6	8.5	34.0	22.1	32.0	21.2
Midwest	53.6	7.7	31.6	21.5	33.8	19.8
South	50.4	9.2	29.5	19.9	31.0	18.7
West	57.1	9.4	32.8	25.5	35.2	20.7
Northeast - West *t* test	−3.33***	-1.50	1.24	−3.79***	−3.28***	0.62

The table shows the Percent of individuals surveyed that used financial advisers. The *FA User* column report results for people that used at least one or more of the five types of financial advisers. The specific financial adviser columns report the percentage of individuals using that specific type of adviser. All values are in percentages. *t* stats are reported indicating the significance in the difference between the two identified groups within each demographic characteristic.

***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

that use *Savings and Investments* advisers. In fact, there is a monotonic increase in the percentage of individuals using a *Savings and Investments*, *Mortgage or Loan*, *Insurance*, or *Tax Planning* adviser across both higher education and income levels. Individuals using *Insurance* or *Tax Planning* financial advisers are mixed across the other demographic groups, and *Gender*, *Ethnicity*, *Marital Status*, *Employment*, and *Region* reveal mixed results for each financial adviser type.

In Table 1, Panel A, we identify the five financial literacy questions used in the survey, and in Table 1, Panel B, we report the percentage of individuals answering each of the five financial literacy questions correctly. The first row in Panel B, *Overall*, reports the percentage of survey respondents answering each question correctly for the entire sample, followed by user versus non-user comparisons for those using one or more of the different financial adviser types (*Financial Advisor*), and for each of the financial adviser types, separately. We also report *t*-stats indicating the significance in the difference between the percentages of financial adviser(s) users versus non-users who answered each question correctly.

Overall, we find that 78.6% of individuals answered the question regarding the Time Value of Money correctly, but only 30.9% answered the question pertaining to the relationship between interest rates and bond prices correctly. Just over 66% answered the question pertaining to Inflation correctly, but nearly 80% answered the question regarding mortgage interest expenses correctly. Surprisingly, only 53.5% answered the question pertaining to diversification using mutual funds correctly.

We find that a greater percentage of those using one or more of the five types of financial advisers, reported under *Financial Adviser*, answered all five questions correctly compared with those not using any of the five types of advisers, and these differences are all highly significant at the 1% level. When considering the five types of financial advisers separately, we find that a higher percentage of individuals using

Savings or Investments, *Mortgage of Loan*, *Insurance*, and *Tax Planning* advisers answered all five questions correctly compared to those not using those types of advisers (with the statistical significance of these differences being highly significant at the 1% level). However, we find that a lower percentage of those using *Debt Counselors* answered all of the questions correctly compared to those not using *Debt Counselors* except for the question regarding mortgage interest expenses (Q4).

3. Multivariate analysis

3.1. Financial adviser users

To determine who is using financial advisers, we use multivariate OLS regressions to relate each demographics characteristic associated with individuals that used one or more of the five types of financial advisers while controlling for all other demographic characteristics. We also estimate a multinomial logit regression model to estimate the effect each demographic characteristic has on the probability of using at least one of the five types of financial advisers while simultaneously controlling for the effects of all other demographic characteristics. The dependent variable in both models, *Financial Adviser Users*, is a dummy variable set equal to 1 if the survey respondent used at least one of the five types of financial advisers, or 0 otherwise. The demographic characteristics included are *Financial Education*, *Female*, *Age Group*, *Black (Non-Hispanic)*, *Education*, *Marital Status*, *Income*, *Employment*, and *Region*. *Financial Education* is a dummy variable set equal to 1 if the respondent had any Financial Education training, or 0 otherwise. *Female* is a dummy variable set equal to 1 for females and 0 for males. *Black* (*Non-Hispanic*) is a dummy variable set equal to 1 if the person is Black (Non-Hispanic), or 0 otherwise. The categories within the *Age Group*, *Education*, *Marital Status*, *Income*, *Employment*, and *Region* demographic characteristic as identified in Table 3 are set equal to 1 if the respondent identifies themselves to be in that categorical group, or 0 otherwise.

The first two columns in Table 3 report coefficient estimates and t-stats from OLS estimation. We find the OLS coefficient estimates for *Financial Education* and *Female* is positive and highly significant indicating people having received financial education in the past and females tend to use financial advisers. We also find there is a highly statistically significant monotonic increase in the use of financial advisers across higher *Education* and *Income* levels. Those in younger age groups and non-married people are less likely to use financial advisers. However, results are mixed for different *Employment* and *Region* categories and not significant for *Black* (*Non-Hispanic*) indicating ethnicity does not appear related to using a financial adviser.

The last three columns in Table 3 report Logit coefficient estimates, *z*-stats, and Odds Ratios from the Logit regression results. Positive (negative) coefficient estimates indicate that demographic characteristic is more (less) likely to use a financial adviser compared with the reference category identified in the table for each demographic characteristic. Consistent with the OLS results, we find that those having a *Financial Education* are 62% more likely, and *Females* 14% more likely, to use a financial adviser. We also find there is a monoton-

Table 3 Financial adviser user OLS and Logit regressions

	Financial adviser users				
	OLS coefficient	*t* stat	Logit coefficient	*z*-stat	Odds Ratio
Constant	0.294***	12.68	−0.921***	−8.47	0.398
Financial education	0.105***	13.79	0.483***	13.49	1.621
Female	0.030***	4.52	0.135***	4.44	1.144
Age group					
25–34	−0.018	−1.25	−0.082	−1.28	0.921
35–44	−0.054***	−3.70	−0.243***	−3.71	0.784
45–54	−0.069***	−4.85	−0.309***	−4.83	0.734
55–64	−0.026*	−1.77	−0.116*	−1.74	0.891
65+	0.024	1.41	0.109	1.44	1.116
Black (Non-Hispanic)	−0.008	−1.02	−0.035	−1.01	0.965
Education (reference category: Did not complete high school)					
High school	0.037***	2.58	0.177***	2.63	1.194
GED	0.005	0.26	0.035	0.43	1.036
Some college	0.100***	7.21	0.443***	6.76	1.558
College graduate	0.147***	9.80	0.649***	9.24	1.913
Post-graduate	0.159***	9.77	0.717***	9.25	2.049
Marital status (reference group: Married)					
Living-with-partner	−0.022*	−1.78	−0.099*	−1.76	0.906
Single	−0.043***	−5.34	−0.194***	−5.44	0.823
Income (reference category: Less than $15,000)					
$15,000 - $24,999	0.102***	7.80	0.481***	7.85	1.618
$25,000 - $34,999	0.134***	9.73	0.610***	9.71	1.840
$35,000 - $49,999	0.177***	13.24	0.787***	12.87	2.196
$50,000 - $74,999	0.230***	17.35	1.004***	16.45	2.729
$75,000 - $99,999	0.262***	17.73	1.142***	16.79	3.134
$100,000 - $149,999	0.305***	20.04	1.349***	18.76	3.853
$150,000 or more	0.339***	20.01	1.532***	18.26	4.628
Employment (reference category: Self employed)					
Employed full-time	−0.038***	−3.05	−0.175***	−3.05	0.839
Employed part-time	−0.039**	−2.50	−0.176**	−2.51	0.839
Homemaker	−0.102***	−6.41	−0.453***	−6.32	0.636
Full-time student	−0.097***	−4.41	−0.426***	−4.36	0.653
Disabled	−0.066***	−3.63	−0.296***	−3.53	0.744
Unemployed	−0.105***	−6.48	−0.481***	−6.38	0.618
Retired	−0.036**	−2.47	−0.169**	−2.49	0.845
Region (reference category: Northeast)					
Midwest	0.021**	2.07	0.093**	2.07	1.098
South	−0.002	−0.18	−0.007	−0.17	0.993
West	0.042***	4.25	0.188***	4.21	1.207
Observations	22,218		22,218		
Adjusted R^2	0.110				

This table reports OLS and Logit regression results where the dependent variable, *Financial Adviser Users*, is set equal to 1 if the person used at least one of the five types of financial advisers, or 0 otherwise. The independent variables include *Financial Education, Female*, *Age Group*, *Black* (*Non-Hispanic*), *Education*, *Marital Status*, *Income*, *Employment*, and *Region*. Positive (negative) coefficient estimates indicate that demographic characteristic is more (less) likely to use a financial adviser compared to the indicated reference category.

***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

ically increasing likelihood of using a financial adviser across higher *Education* and *Income l*evels, but *Age Group* is significantly related to a reduced probability of using a financial adviser for those in younger age groups. Compared with the univariate results presented in Table 2, this shows that it is income rather than age that increases the probability of an individual using a financial adviser. We also see that married people are more likely to use financial advisers than either single or "living-with-partner" couples, and *Black* (*Non-Hispanic*) does not impact the likelihood of using a financial adviser. When considering *Employment*, those that are self-employed are more likely to use financial advisers when compared with all other employment categories. Finally, we find that those from the Midwest (West) are 10% (21%) more likely to use a financial adviser compared with those from the South or Northeast.

In Table 4 we estimate the same OLS and Logit models for each of the five financial adviser types separately. In this case, each financial adviser type to include *Debt Counseling*, *Savings or Investments*, *Mortgage or Loan*, *Insurance*, and *Tax Planning* is set equal to 1 if the person used that type of adviser, and zero otherwise. We use the same demographic characteristics and categories that were used in Table 3. In discussing the OLS estimation results (first two columns for each adviser type), we find that *Financial Education* is both positive and highly statistically significant for all financial adviser types indicating people having received financial education in the past are associated with using all of the five types of financial advisers. However, *Females* are only associated with using *Insurance* advisers with all other coefficient estimates for *Female* being not significant for other adviser types. We also find that *Black* (*Non-Hispanic*) is positively (negatively) related to using *Debt Counseling* (*Mortgage or Loan*) advisers, but not significantly related to using the other three financial adviser types. We find a monotonically decreasing relationship between *Age Groups* and *Debt Counseling* where lower (higher) *Age Groups* are positively (negatively) related to using *Debt Counseling*. We also find that the 65+ age group is positively related to using *Savings or Investment* advisers, the 25 to 34 age group is positively related to using *Mortgage or Loan* advisers. For *Education*, people having a high school education or higher are associated with using *Savings or Investment* and *Mortgage or Loan* advisers, while only those having some college or higher are associated with using *Insurance* and *Tax Planning* advisers. For *Marital Status*, married couples are associated with using *Mortgage or Loan*, *Insurance*, and *Tax Planning* advisers. For *Income*, we find those in lower income levels are associated with using *Debt Counseling* while those in higher income levels are increasingly associated with using *Savings or Investment*, *Mortgage or Loan, Insurance*, and *Tax Planning* advisers. For *Employment*, all coefficient estimates are either significantly negative or not significant, indicating the reference category, Self Employed, is positively related to using all of the financial adviser types compared with the other *Employment* groups. For *Region*, we find those in the West are associated with using *Mortgage or Loan* advisers, and those in the Midwest and West are associated with using *Insurance* advisers.

The logit estimation results (last three columns for each adviser type) are consistent with the OLS results. Those receiving a *Financial Education* are from between 39% to 53% more likely to use all of the financial adviser types compared to those not receiving

Table 4 Specific type of financial adviser user OLS and Logit regressions

	Debt Counseling					Savings or Investments				
	OLS coefficient	*t* stat	Logit coefficient	*z*-stat	Odds Ratio	OLS coefficient	*t* stat	Logit coefficient	*z*-stat	Odds Ratio
Constant	0.050***	3.58	−2.901***	−15.27	0.0550	0.130***	6.58	−2.181***	−16.15	0.113
Financial education	0.030***	6.08	0.355***	6.48	1.426	0.083***	10.86	0.399***	11.03	1.490
Female	0.004	0.92	0.034	0.67	1.034	0.003	0.47	0.019	0.59	1.019
Age group (reference category: 18–24)										
25–34	0.038***	4.11	0.367***	3.70	1.444	−0.043***	−3.42	−0.279***	−3.82	0.757
35–44	0.016*	1.67	0.171	1.62	1.186	−0.106***	−8.36	−0.622***	−8.26	0.537
45–54	−0.014	−1.62	−0.166	−1.55	0.847	−0.088***	−7.09	−0.520***	−7.11	0.594
55–64	−0.019**	−2.05	−0.225**	−1.97	0.799	−0.030**	−2.30	−0.210***	−2.82	0.811
65+	−0.039***	−3.94	−0.675***	−4.52	0.509	0.028*	1.80	0.051	0.62	1.052
Black (Non-Hispanic)	0.030***	5.94	0.325***	6.04	1.384	−0.007	−1.04	−0.037	−0.96	0.964
Education (reference category: Did not complete high school)										
High school	0.005	0.68	0.080	0.64	1.083	0.038***	3.65	0.451***	4.79	1.570
GED	0.009	0.92	0.139	0.95	1.149	−0.000	−0.04	0.154	1.36	1.166
Some college	0.015*	1.95	0.218*	1.83	1.244	0.075***	7.39	0.664***	7.26	1.943
College graduate	0.032***	3.59	0.397***	3.17	1.488	0.142***	12.10	0.979***	10.37	2.663
Post-graduate	0.011	1.17	0.167	1.20	1.181	0.162***	11.76	1.030***	10.41	2.802
Marital status (reference category: Married)										
Living-with-partner	−0.012	−1.53	−0.145	−1.56	0.865	0.004	0.39	0.012	0.19	1.012
Single	−0.009*	−1.78	−0.116*	−1.92	0.890	0.001	0.09	0.010	0.26	1.010
Income (reference category: Less than $15,000)										
$15,000 - $24,999	0.042***	5.42	0.577***	5.39	1.780	0.039***	3.94	0.366***	4.45	1.443
$25,000 - $34,999	0.030***	3.81	0.432***	3.86	1.540	0.083***	7.69	0.665***	8.27	1.944
$35,000 - $49,999	0.045***	5.64	0.588***	5.41	1.801	0.114***	10.56	0.842***	10.93	2.320
$50,000 - $74,999	0.023***	2.95	0.338***	3.02	1.402	0.185***	16.69	1.181***	15.70	3.257
$75,000 - $99,999	0.018**	2.10	0.277**	2.24	1.319	0.252***	19.31	1.473***	18.30	4.361
$100,000 - $149,999	0.001	0.16	0.046	0.34	1.047	0.304***	22.01	1.680***	20.35	5.364
$150,000 or more	−0.001	−0.05	0.016	0.11	1.016	0.364***	22.28	1.923***	21.13	6.840
Employment (reference category: Self employed)										
Employed full-time	0.007	0.84	0.064	0.70	1.066	−0.037***	−3.02	−0.183***	−3.06	0.832
Employed part-time	0.000	0.05	0.007	0.06	1.007	0.007	0.47	0.045	0.61	1.046
Homemaker	−0.023**	−2.40	−0.280**	−2.31	0.756	−0.072***	−5.05	−0.417***	−5.25	0.659
Full-time student	−0.012	−0.84	−0.121	−0.77	0.886	−0.033	−1.64	−0.143	−1.32	0.867
Disabled	−0.000	−0.01	−0.001	−0.01	0.999	−0.077***	−5.15	−0.582***	−5.38	0.559
Unemployed	−0.007	−0.73	−0.077	−0.61	0.926	−0.066***	−4.67	−0.436***	−4.89	0.647
Retired	−0.018**	−2.24	−0.321**	−2.56	0.725	0.005	0.38	0.018	0.26	1.018
Region (reference category: Northeast)										
Midwest	−0.011*	−1.86	−0.142*	−1.81	0.868	0.004	0.44	0.028	0.58	1.028
South	0.000	0.07	0.004	0.06	1.004	−0.010	−1.14	−0.056	−1.22	0.945
West	−0.000	−0.01	0.005	0.07	1.005	0.004	0.47	0.028	0.58	1.028
Observations	22,218		22,218			22,218		22,218		
Adjusted R^2	0.023					0.127				

	Mortgage or Loan					Insurance				
	OLS coefficient	*t* stat	Logit coefficient	*z*-stat	Odds Ratio	OLS coefficient	*t* stat	Logit coefficient	*z*-stat	Odds Ratio
Constant	0.135***	7.37	−2.215***	−14.87	0.109	0.207***	9.53	−1.500***	−12.75	0.223
Financial education	0.060***	8.40	0.336***	8.69	1.399	0.097***	12.26	0.431***	12.52	1.539
Female	0.004	0.77	0.025	0.70	1.025	0.023***	3.58	0.112***	3.60	1.118
Age Group (reference category: 18–24)										
25–34	0.032***	2.76	0.117	1.51	1.125	0.011	0.87	0.044	0.66	1.045
35–44	−0.009	−0.80	−0.134*	−1.68	0.874	−0.008	−0.57	−0.048	−0.70	0.953
45–54	−0.065***	−5.71	−0.458***	−5.73	0.633	−0.026**	−1.97	−0.132*	−1.94	0.876
55–64	−0.076***	−6.39	−0.533***	−6.36	0.587	−0.022	−1.58	−0.114	−1.62	0.892
65+	−0.092***	−6.62	−0.635***	−6.58	0.530	−0.037**	−2.27	−0.184**	−2.28	0.832
Black (Non-Hispanic)	−0.026***	−3.99	−0.163***	−3.95	0.850	0.011	1.50	0.053	1.49	1.054
Education (reference category: Did not complete high school)										
High school	0.030***	3.18	0.353***	3.40	1.423	0.006	0.51	0.079	1.02	1.082
GED	0.022*	1.83	0.282**	2.31	1.325	0.010	0.65	0.093	1.01	1.098
Some college	0.068***	7.19	0.616***	6.17	1.851	0.071***	5.84	0.406***	5.48	1.501

Table 4 (Continued)

	Mortgage or Loan					Insurance				
	OLS coefficient	*t* stat	Logit coefficient	*z*-stat	Odds Ratio	OLS coefficient	*t* stat	Logit coefficient	*z*-stat	Odds Ratio
College graduate	0.086***	7.89	0.700***	6.78	2.015	0.088***	6.49	0.472***	6.05	1.603
Post-graduate	0.087***	6.81	0.706***	6.51	2.026	0.087***	5.67	0.465***	5.55	1.591
Marital status (reference category: Married)										
Living-with-partner	−0.022**	−2.04	−0.123*	−1.84	0.885	−0.026**	−2.13	−0.120**	−2.03	0.887
Single	−0.054***	−8.20	−0.357***	−8.02	0.700	−0.040***	−5.10	−0.188***	−5.01	0.829
Income (reference category: Less than $15,000)										
$15,000 - $24,999	0.023***	2.76	0.336***	3.50	1.400	0.082***	7.07	0.517***	7.32	1.677
$25,000 - $34,999	0.051***	5.34	0.612***	6.57	1.844	0.089***	7.28	0.556***	7.75	1.744
$35,000 - $49,999	0.068***	7.09	0.732***	8.14	2.080	0.118***	9.78	0.695***	10.02	2.004
$50,000 - $74,999	0.113***	11.52	0.997***	11.40	2.709	0.146***	12.13	0.819***	11.98	2.268
$75,000 - $99,999	0.146***	12.40	1.151***	12.42	3.163	0.150***	10.89	0.834***	11.20	2.303
$100,000 - $149,999	0.168***	13.33	1.252***	13.20	3.499	0.175***	12.00	0.938***	12.20	2.556
$150,000 or more	0.202***	13.33	1.404***	13.79	4.071	0.201***	11.82	1.043***	12.30	2.836
Employment (reference category: Self-employed)										
Employed full-time	0.005	0.40	−0.020	−0.32	0.980	−0.064***	−4.98	−0.291***	−5.23	0.747
Employed part-time	−0.025*	−1.85	−0.141*	−1.75	0.868	−0.062***	−4.01	−0.271***	−3.88	0.763
Homemaker	−0.052***	−3.76	−0.319***	−3.86	0.727	−0.111***	−7.09	−0.511***	−7.02	0.600
Full-time student	−0.079***	−4.51	−0.491***	−4.01	0.612	−0.126***	−6.20	−0.581***	−5.65	0.559
Disabled	−0.040***	−2.80	−0.328***	−2.88	0.720	−0.060***	−3.42	−0.261***	−2.97	0.770
Unemployed	−0.064***	−4.87	−0.485***	−4.92	0.615	−0.118***	−7.63	−0.592***	−7.40	0.553
Retired	−0.037***	−2.84	−0.254***	−3.21	0.776	−0.073***	−4.87	−0.331***	−4.91	0.718
Region (reference category: Northeast)										
Midwest	0.005	0.64	0.029	0.54	1.029	0.027***	2.82	0.130***	2.81	1.139
South	−0.002	−0.22	−0.012	−0.24	0.988	0.003	0.31	0.013	0.29	1.013
West	0.037***	4.35	0.223***	4.32	1.250	0.028***	2.93	0.133***	2.92	1.143
Observations	22,218		22,218			22,218		22,218		
Adjusted R^2	0.074					0.051				

	Tax Planning				
	OLS coefficient	*t* stat	Logit coefficient	*z*-stat	Odds Ratio
Constant	0.166***	9.28	−2.110***	−13.34	0.121
Financial education	0.063***	9.11	0.379***	9.46	1.461
Female	−0.005	−0.83	−0.028	−0.75	0.972
Age group (reference category: 18–24)					
25–34	−0.024**	−2.15	−0.250***	−2.93	0.779
35–44	−0.073***	−6.44	−0.595***	−6.76	0.551
45–54	−0.074***	−6.64	−0.599***	−6.95	0.549
55–64	−0.067***	−5.76	−0.552***	−6.27	0.576
65+	−0.036***	−2.61	−0.371***	−3.84	0.690
Black (Non-Hispanic)	0.005	0.80	0.036	0.83	1.037
Education (reference category: Did not complete high school)					
High school	0.007	0.83	0.193*	1.76	1.212
GED	−0.002	−0.20	0.073	0.56	1.076
Some college	0.035***	4.05	0.431***	4.10	1.539
College graduate	0.069***	6.79	0.637***	5.87	1.891
Post-graduate	0.111***	8.94	0.815***	7.24	2.259
Marital status (reference category: Married)					
Living-with-partner	−0.038***	−4.03	−0.300***	−3.89	0.740
Single	−0.020***	−3.19	−0.139***	−3.02	0.870
Income (reference category: Less than $15,000)					
$15,000 - $24,999	0.026***	3.31	0.382***	3.63	1.465
$25,000 - $34,999	0.055***	6.17	0.688***	6.74	1.990
$35,000 - $49,999	0.080***	8.84	0.898***	9.21	2.455

Table 4 (Continued)

	Tax Planning				
	OLS coefficient	*t* stat	Logit coefficient	*z*-stat	Odds Ratio
$50,000 - $74,999	0.120***	12.90	1.164***	12.30	3.202
$75,000 - $99,999	0.163***	14.39	1.401***	14.04	4.060
$100,000 - $149,999	0.214***	17.35	1.650***	16.26	5.205
$150,000 or more	0.307***	20.13	2.041***	19.10	7.698
Employment (reference category: Self-employed)					
Employed full-time	−0.095***	−8.41	−0.583***	−9.15	0.558
Employed part-time	−0.049***	−3.65	−0.264***	−3.25	0.768
Homemaker	−0.084***	−6.28	−0.528***	−6.10	0.590
Full-time student	−0.121***	−7.00	−0.798***	−5.99	0.450
Disabled	−0.098***	−7.55	−0.871***	−6.59	0.419
Unemployed	−0.084***	−6.51	−0.574***	−5.73	0.563
Retired	−0.049***	−3.70	−0.277***	−3.67	0.758
Region (reference category: Northeast)					
Midwest	0.007	0.85	0.051	0.93	1.053
South	−0.003	−0.39	−0.023	−0.44	0.977
West	0.004	0.47	0.031	0.58	1.032
Observations	22,218		22,218		
Adjusted R^2	0.088				

This table reports OLS and Logit regression results where the dependent variable, *Debt Counseling*, *Savings or Investments*, *Mortgage or Loan*, *Insurance*, or *Tax Planning* is set equal to 1 if the person used that type of financial adviser, or 0 otherwise. The independent variables include *Financial Education*, *Female*, *Age Group*, *Black* (*Non-Hispanic*), *Education*, *Marital Status*, *Income*, *Employment*, and *Region*. Positive (negative) coefficient estimates indicate that demographic characteristic is more (less) likely to use a financial adviser compared with the indicated reference category.

***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

a financial education. *Females* are 12% more likely to use *Insurance* advisers, but we find no other significant difference related to gender in using the other financial adviser types. Those that are *Black* (*Non-Hispanic*) are 38% more likely to use *Debt Counseling* advisers, but 15% less likely to use *Mortgage or Loan* advisers. We find a monotonically decreasing probability of using *Debt Counseling* and *Mortgage or Loan* advisers across higher *Age Groups*, but all other results related to *Age Group* are mixed. We find a monotonically increasing probability of using *Savings or Investments* and *Mortgage or Loan* advisers across higher *Education* levels, while those having some college or higher are far more likely to use *Insurance* and *Tax Planning* advisers. For *Marital Status*, we find that those that are married are 12% to 30% more likely to use *Mortgage or Loan* advisers, 11% to 17% more likely to use *Insurance* advisers, and 13% to 26% more likely to use *Tax Planning* advisers compared with those that are single or "living-with-partner." We find a nearly monotonic decreasing probability of using *Debt Counseling* advisers across higher income levels, but a monotonically increasing probability of using *Savings or Investments*, *Mortgage or Loan*, *Insurance*, and *Tax Planning* advisers across higher income levels. For *Employment*, those that are Self-Employed are more likely to use any of the financial adviser types compared with the other *Employment* groups. For

Region, those in the West are 25% more likely to use *Mortgage or Loan* advisers, and those in the Midwest and West are 14% more likely to use *Insurance* advisers.

3.2. Financial literacy

We will now determine if financial advisers have an impact on the financial literacy of individuals that use them versus those that do not. We first estimate a linear OLS regression model to determine if using at least one of the five types of financial advisers impacts the number of correct answers giving for the five financial literacy questions asked in the survey. We then estimate an Ordered Logit regression model to determine if using at least one of the five types of financial advisers impacts the probability of answering more of the financial literacy questions correctly. The dependent variable in both models, *Financial Literacy Score*, is set equal to the number of questions the survey respondent answered correctly ranging from 0 to 5. The independent variable of interest, *FA User*, is a dummy variable set equal to one if the survey respondent used at least one of the five types of financial advisers in the past five years, or 0 otherwise. We then re-estimate both models where we replace the *FA User* independent dummy variable with separate dummy variables for each financial adviser type to include *Debt Counseling*, *Savings or Investments*, *Mortgage or Loan*, *Insurance*, and *Tax Planning* that are set equal to 1 if the survey respondent used that type of financial adviser, or 0 otherwise. It is important for us to include the demographic characteristics *Financial Education*, *Female*, *Age Group*, *Black* (*Non-Hispanic*), *Education*, *Marital Status*, *Income*, *Employment*, and *Region* as control variables in our models since many of them are expected to influence financial literacy.

The first two columns in the left panel of Table 5 report the coefficient and *t*-stat results from the OLS model specification using *FA User* as the main independent variable of interest. We first notice that *Financial Education* is positively related to higher *Financial Literacy Scores* as expected, but *Female* and *Black* (*Non-Hispanic*) are significantly related with lower *Financial Literacy Scores*. We also find a monotonically increasing positive relationship with higher *Financial Literacy Scores* across higher *Age Groups*, *Education* levels, and *Income* levels. Both Married and Self-Employed people scored higher *Financial Literacy Scores* compared with the other categories under *Marital Status* and *Employment*, and those in the Northeast scored lower *Financial Literacy Scores* compared with the other categories under *Region*.

Our main variable of interest, *FA User*, is positive, and highly statistically significant, indicating that those using at least one of the five types of financial advisers answered more of the financial literacy questions correctly compared with those that did not use any financial advisers. This is our first evidence that financial advisers positively influence the financial literacy of their clients, even after controlling for other demographic characteristics that are also positively related to higher financial literacy scores.

The last three columns of the left Panel in Table 5 report the Ordered Logit regression model results. In this model specification, a positive (negative) coefficient estimate indicates that characteristic increases (decreases) the probability of answering more of the financial literacy questions correctly. Consistent with the OLS results, we find that *Financial Education* increases the probability of answering more financial literacy questions correctly by

Table 5 Financial Literacy OLS and Ordered Logit regressions

	Financial Literacy Score: 0 to 5					Financial Literacy Score: 0 to 5				
	OLS coefficient	*t* stat	O-Logit coefficient	z-stat	Odds Ratio	OLS coefficient	*t* stat	O-Logit coefficient	*z*-stat	Odds Ratio
Constant	1.639***	27.63	3.986***	42.39	53.833***	1.667***	28.16	3.952***	42.08	52.044***
FA User	0.202***	11.88	0.289***	11.26	1.335***					
Debt Counseling						−0.277***	−9.38	−0.432***	−9.67	0.649***
Savings or Investments						0.154***	7.30	0.247***	7.73	1.280***
Mortgage or Loan						0.109***	5.05	0.150***	4.59	1.161***
Insurance						0.063***	3.12	0.075**	2.50	1.078**
Tax planning						−0.016	−0.68	−0.023	−0.64	0.978
Financial education	0.265***	13.47	0.414***	13.76	1.512***	0.271***	13.75	0.425***	14.09	1.529***
Female	−0.455***	−26.83	−0.728***	−27.89	0.483***	−0.451***	−26.59	−0.721***	−27.62	0.486***
Age group (reference category: 18–24)										
25–34	0.189***	5.31	0.244***	4.56	1.276***	0.198***	5.56	0.258***	4.83	1.294***
35–44	0.445***	12.21	0.623***	11.32	1.865***	0.455***	12.48	0.642***	11.65	1.901***
45–54	0.637***	17.87	0.897***	16.63	2.452***	0.640***	17.95	0.906***	16.79	2.475***
55–64	0.751***	20.24	1.079***	19.18	2.943***	0.754***	20.31	1.085***	19.25	2.958***
65+	0.881***	20.67	1.289***	19.86	3.630***	0.882***	20.70	1.291***	19.86	3.637***
Black (Non-Hispanic)	−0.294***	−15.16	−0.440***	−14.99	0.644***	−0.284***	−14.63	−0.427***	−14.53	0.652***
Education (reference category: Did not complete high school)										
High school	0.347***	9.45	0.466***	8.45	1.594***	0.346***	9.44	0.469***	8.49	1.598***
GED	0.265***	5.90	0.380***	5.64	1.462***	0.265***	5.91	0.386***	5.73	1.471***
Some college	0.714***	20.00	0.990***	18.35	2.691***	0.716***	20.06	0.995***	18.43	2.705***
College graduate	0.963***	25.05	1.403***	24.00	4.067***	0.966***	25.14	1.410***	24.09	4.098***
Post-graduate	1.111***	26.32	1.700***	26.29	5.474***	1.108***	26.26	1.696***	26.18	5.450***
Marital status (reference category: Married)										
Living-with-partner	−0.072**	−2.26	−0.113**	−2.40	0.893**	−0.077**	−2.42	−0.122***	−2.60	0.885***
Single	−0.016	−0.78	−0.005	−0.15	0.995	−0.019	−0.94	−0.011	−0.34	0.989
Income (reference category: Less than $15,000)										
$15,000 - $24,999	0.135***	4.00	0.187***	3.72	1.206***	0.154***	4.58	0.214***	4.26	1.239***
$25,000 - $34,999	0.231***	6.62	0.342***	6.49	1.407***	0.243***	6.98	0.359***	6.81	1.431***
$35,000 - $49,999	0.368***	10.81	0.513***	10.01	1.670***	0.385***	11.33	0.537***	10.48	1.711***
$50,000 - $74,999	0.531***	15.60	0.742***	14.43	2.100***	0.536***	15.76	0.748***	14.55	2.114***
$75,000 - $99,999	0.644***	16.96	0.941***	16.25	2.561***	0.640***	16.84	0.933***	16.06	2.541***
$100,000 - $149,999	0.755***	19.03	1.146***	18.88	3.144***	0.744***	18.69	1.126***	18.46	3.083***
$150,000 or more	0.835***	18.55	1.372***	19.52	3.942***	0.818***	18.02	1.341***	18.93	3.824***
Employment (reference category: Self-employed)										
Employed full-time	−0.070**	−2.20	−0.127***	−2.61	0.881***	−0.069**	−2.15	−0.125**	−2.57	0.882**
Employed part-time	−0.123***	−3.13	−0.204***	−3.41	0.816***	−0.126***	−3.21	−0.209***	−3.50	0.812***
Homemaker	−0.165***	−4.10	−0.235***	−3.87	0.790***	−0.170***	−4.21	−0.244***	−4.01	0.783***
Full-time student	0.157***	2.91	0.197**	2.40	1.218**	0.154***	2.85	0.187**	2.29	1.206**
Disabled	−0.219***	−4.68	−0.344***	−4.88	0.709***	−0.214***	−4.58	−0.337***	−4.77	0.714***
Unemployed	−0.104**	−2.48	−0.177***	−2.81	0.838***	−0.104**	−2.49	−0.179***	−2.84	0.836***
Retired	−0.095**	−2.53	−0.146**	−2.53	0.864**	−0.101***	−2.67	−0.154***	−2.67	0.857***
Region (reference category: Northeast)										
Midwest	0.064**	2.54	0.098**	2.54	1.103**	0.063**	2.48	0.094**	2.44	1.099**
South	0.041*	1.72	0.045	1.22	1.046	0.042*	1.77	0.046	1.26	1.047
West	0.167***	6.66	0.240***	6.29	1.272***	0.169***	6.75	0.243***	6.37	1.276***
Observations	22,218		22,218			22,218		22,218		
Adjusted R^2	0.296					0.297				

This table reports OLS and Ordered Logit regression results where the dependent variable, *Financial Literacy Score*, is set equal to the number of financial literacy questions answered correctly, ranging from 0 to 5. The independent variables include *Financial Education, Female*, *Age Group*, *Black (Non-Hispanic)*, *Education*, *Marital Status*, *Income*, *Employment*, and *Region*. The independent variable of interest in the left panel, *FA User*, is set equal to 1 if the person used one or more of the five types of financial advisers, or 0 otherwise. The independent variable of interest in the right panel, the five specific financial adviser types, are set equal to 1 if the person used that financial adviser type, or 0 otherwise.

***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

51%. We also find that *Female* is associated with a 52% decline in the probability of answering more financial literacy questions correctly which is consistent with Lusardi and Mitchell (2008) that find females have lower levels of financial literacy. *Black* (*Non-Hispanic*) is associated with a 36% decline in the probability of answering more financial literacy questions correctly. We find a monotonically increasing probability of higher *Financial Literacy Scores* across higher *Age Groups*, *Education* levels, and *Income* levels. For *Marital Status* and *Employment*, those "living-with-partner" are 11% less likely to answer more financial literacy questions correctly compared with those that are married, and self-employed individuals are more likely to answer more questions correctly. For *Region*, those living in the Midwest and West are 10% and 27% more likely to answer more financial literacy questions correctly, respectively.

Our main variable of interest, *FA User*, indicates that those using financial advisers are 33.5% more likely to answer more financial literacy questions correctly compared with those that did not use financial advisers. This estimate is highly statistically significant, and reinforces the OLS results that financial advisers positively influence the financial literacy of their clients, even when controlling for other demographic characteristics that are also positively related to higher financial literacy scores.

In the right panel of Table 5 we re-estimate both the OLS and Ordered Logit models where we replace the *FA User* independent dummy variable with dummy variables for each financial adviser type, separately, to determine the impact each adviser type has on financial literacy. The results for the demographic characteristic control variables are similar to those reported for the original model specification above. In the first two columns using the OLS specification, we find that only *Savings and Investments*, *Mortgage or Loan*, and *Insurance* advisers are positively related to higher *Financial Literacy Scores*, but *Tax Planning* advisers do not significantly impact *Financial Literacy Scores*. The Ordered Logit model reveals that *Savings and Investments* increase the probability of obtaining a higher *Financial Literacy Score* by 28%, while *Mortgage or Loan* and *Insurance* advisers increases this probability by 16% and 8%, respectively, and *Tax Planning* advisers have no significant impact on financial literacy.

We find that *Financial Literacy Scores* are negatively related to *Debt Counseling* advisers, where *Debt Counselors* appear to negatively influence the financial literacy of their clients and reduce the probability of a higher *Financial Literacy Score* by 65%. Robb, Babiarz, and Woodyard (2012), using the 2009 NFCS survey, also find a negative relationship between using *Debt Counselors* and financial literacy scores because those individuals appear to make financial mistakes in the first place and do not learn from their experiences. Gathergood (2012) suggests debt counseling services involves offering solutions to existing debt problems, such as debt-repayment plans, usually to clients that lack self-control, have lower levels of financial literacy, and are considered poor learners. It appears that the *Debt Counselor* results are consistent with this characterization of individuals that use *Debt Counselors*. This is also consistent with our univariate results reported in Table 1, Panel B, where we find that *Debt Counselor* users perform very well on the financial literacy question related to the total interest paid over a 15-year mortgage versus a 30-year mortgage, but underperform on the other financial literacy questions. This suggests that *Debt Counselors* do not influence the financial literacy of their clients in the same manner that other adviser types

do because they focus on topics specifically related to interest rates and interest payments related to debt products.

In summary, using both OLS and Ordered Logit models, we find that financial advisers, in general, have a positive influence on the financial literacy of the individuals that use them suggesting they play a role in helping disseminate financial knowledge to their clients rather than just offering them advice about what they should do in making financial decisions. When considering the five different types of financial advisers separately, we find that it is *Savings or Investment* advisers that have the largest impact on financial literacy, followed by *Mortgage or Loan* and *Insurance* advisers, respectively. This is understandable since the five financial literacy questions asked pertain to the time value of money, interest rates, inflation, and risk diversification which are topics that a *Savings or Investment* adviser should cover with their client. *Tax Planning* advisers, which we find have no influence on *Financial Literacy Scores*, and *Debt Counselors*, which have a negative influence on financial literacy scores, would be less likely to cover these types of topics with their clients.

4. Endogeneity and confounding variables

There is the possibility that our model suffers from endogeneity issues in the choice to use a financial adviser. It is possible that those having higher levels of financial literacy are more likely to use financial advisers. Even though we control for demographic characteristics that we find to be directly related to financial literacy in all of our regression specifications, such as *Financial Education* and *Education*, this may not be enough to control for this endogeneity bias. Lacking longitudinal data that would directly address this problem, we must try to control for endogeneity using econometric techniques given our data limitations. We address these concerns in this section using an Instrumental Variables (IV) model and Propensity Score Matching.

4.1. Instrumental variables model

To address the potential endogeneity issues between financial literacy and the choice to use a financial adviser, we implement a two-stage IV estimation model. We estimate IV models for each of the financial adviser types to include *Debt Counseling*, *Savings or Investments*, *Mortgage or Loan*, *Insurance*, and *Tax Planning* using both the GMM estimator and IV Probit estimation.[2] In the first stage, we use responses to available survey questions that are expected to predict the choice to use a specific type of financial adviser as instruments, but these instruments must be uncorrelated with the second stage dependent variable that is the *Financial Literacy Score*. The same demographic control variables from Table 5 are also used in both the first- and second-stage model specifications.

Table 6, Panel A, identify the instruments (survey questions) used for each of the five financial adviser types. We also report the first-stage coefficient estimates for the instruments used from the GMM estimator and IV Probit estimation, separately.[3] All instruments used are positively related to using each specific type of financial adviser, and they are all highly

Table 6 Instrumental variable regressions

Panel A: First stage instruments for each financial adviser type

Instruments used	Instrument survey question:
Instrumented: *Debt Counseling*	
Home foreclosure	Have you been involved in a foreclosure process on your home?
Declared bankruptcy	Have you declared bankruptcy in the last two years?
Instrumented: *Savings or Investments*	
Employer retirement plan	Do you have any retirement plan through a current or previous employer?
Other retirement plan	Do you have any other retirement accounts not through an employer?
Instrumented: *Mortgage or Loan*	
Own your home	Do you currently own your home?
Home foreclosure	Have you been involved in a foreclosure process on your home?
Instrumented: *Insurance*	
Health insurance	Are you covered by health insurance?
Life insurance	Do you have a life insurance policy?
Instrumented: *Tax Planning*	
Earn salary or wages	Did you receive any income in the form of Salary or Wages?
Social Security benefits	Did you receive any income from Social Security retirement benefits?

	First stage instruments coefficient estimates			
	IV GMM	*t* stat	IV Probit	*z*-stat
Debt Counseling:				
Home foreclosure	0.166***	9.29	0.166***	15.38
Declared bankruptcy	0.381***	18.87	0.381***	34.28
Savings or Investments:				
Employer retirement plan	0.082***	11.33	0.082***	11.41
Other retirement plan	0.285***	34.95	0.285***	39.75
Mortgage or Loan:				
Own your home	0.119***	18.81	0.119***	17.97
Home foreclosure	0.161***	9.25	0.161***	10.65
Insurance:				
Health insurance	0.026***	2.98	0.026***	2.82
Life insurance	0.093***	12.51	0.093***	12.55
Tax Planning:				
Earns or wages	0.035***	5.28	0.035***	5.18
Social Security benefits	0.099***	10.13	0.099***	11.12

Panel B: Second stage dependent variable: *Financial Literacy Score* (0 to 5)

	Financial Literacy Score: 0 to 5				Financial Literacy Score: 0 to 5			
	IV GMM	*t* stat	IV Probit	*z*-stat	IV GMM	*t* stat	IV Probit	*z*-stat
Constant	1.756***	27.24	0.677***	7.02	1.587***	23.04	0.531***	4.99
Debt Counseling	−0.870***	−7.57	−0.071	−0.39				
Savings or Investments					1.174***	16.10	1.248***	7.69
Financial Education	0.313***	16.15	0.366***	7.86	0.189***	8.67	0.303***	5.81
Female	−0.445***	−25.72	−0.212***	−6.40	−0.456***	−24.67	−0.238***	−6.66
Age group (reference category: 18–24)								
25–34	0.221***	5.71	0.203***	3.76	0.195***	4.58	0.173***	2.89
35–44	0.446***	11.20	0.235***	4.17	0.508***	11.56	0.308***	4.75
45–54	0.603***	15.64	0.394***	7.00	0.656***	15.44	0.466***	7.26
55–64	0.725***	18.25	0.505***	8.16	0.714***	16.48	0.490***	7.20
65+	0.850***	19.10	0.590***	7.51	0.785***	16.36	0.523***	6.17
Black (Non-Hispanic)	−0.269***	−13.02	−0.120***	−3.40	−0.278***	−12.69	−0.120***	−3.18

Table 6 (Continued)

	Financial Literacy Score: 0 to 5				Financial Literacy Score: 0 to 5			
	IV GMM	*t* stat	IV Probit	*z*-stat	IV GMM	*t* stat	IV Probit	*z*-stat
Education (reference category: Did not complete high school)								
High school	0.354***	8.81	0.318***	6.32	0.338***	8.15	0.315***	5.74
GED	0.273***	5.57	0.227***	3.64	0.289***	5.72	0.283***	4.16
Some college	0.749***	19.25	0.603***	11.72	0.670***	16.53	0.540***	9.59
College graduate	1.019***	24.57	0.722***	11.68	0.850***	19.22	0.590***	8.52
Post-graduate	1.151***	26.39	0.687***	8.86	0.976***	20.47	0.555***	6.34
Marital status (reference category: Married)								
Living-with-partner	−0.092***	−2.91	−0.032	−0.58	−0.084**	−2.43	−0.036	−0.60
Single	−0.039*	−1.82	−0.119***	−3.20	−0.031	−1.39	−0.126***	−3.15
Income (reference category: Less than $15,000)								
$15,000 - $24,999	0.185***	5.04	0.153***	3.02	0.120***	3.16	0.118**	2.18
$25,000 - $34,999	0.277***	7.16	0.118**	2.22	0.162***	4.00	0.034	0.58
$35,000 - $49,999	0.435***	11.73	0.262***	4.73	0.283***	7.21	0.129**	2.10
$50,000 - $74,999	0.594***	16.35	0.450***	7.59	0.372***	9.10	0.251***	3.59
$75,000 - $99,999	0.705***	17.59	0.362***	5.27	0.420***	8.96	0.107	1.27
$100,000 - $149,999	0.810***	19.98	0.579***	6.97	0.475***	9.55	0.245**	2.40
$150,000 or more	0.899***	19.86	0.580***	5.60	0.506***	8.97	0.197	1.56
Employment (reference category: Self-employed)								
Employed full-time	−0.068**	−2.12	0.029	0.45	−0.033	−0.96	0.081	1.16
Employed part-time	−0.129***	−3.18	−0.013	−0.18	−0.132***	−3.06	−0.008	−0.10
Homemaker	−0.205***	−4.89	−0.043	−0.58	−0.074*	−1.66	0.076	0.95
Full-time student	0.135**	2.34	0.178*	1.88	0.149**	2.39	0.181*	1.76
Disabled	−0.232***	−4.79	−0.074	−0.91	−0.140***	−2.76	0.005	0.06
Unemployed	−0.137***	−3.17	−0.020	−0.27	−0.027	−0.58	0.083	1.04
Retired	−0.119***	−3.21	−0.092	−1.15	−0.099**	−2.52	−0.110	−1.29
Region (reference category: Northeast)								
Midwest	0.054**	2.07	0.050	1.06	0.067**	2.39	0.089*	1.76
South	0.039	1.59	0.085*	1.91	0.049*	1.85	0.110**	2.31
West	0.172***	6.71	0.144***	2.99	0.167***	6.08	0.167***	3.24
Observations	22,069		22,069		21,095		21,095	
Adjusted R^2	0.275				0.199			

	Financial Literacy Score: 0 to 5				Financial Literacy Score: 0 to 5			
	IV GMM	*t stat*	IV Probit	*z*-stat	IV GMM	*t* stat	IV Probit	*z*-stat
Constant	1.669***	24.94	0.552***	5.31	1.657***	21.98	0.405***	3.24
Mortgage or Loan	0.410***	2.61	0.938***	3.59				
Insurance					0.306	1.58	1.383***	3.85
Financial Education	0.260***	12.28	0.293***	5.99	0.249***	9.27	0.206***	3.45
Female	−0.456***	−26.50	−0.225***	−6.71	−0.459***	−25.47	−0.249***	−6.94
Age group (reference category: 18–24)								
25–34	0.183***	4.72	0.172***	3.13	0.172***	4.33	0.183***	3.18
35–44	0.438***	11.06	0.252***	4.40	0.428***	10.52	0.249***	4.13
45–54	0.641***	16.26	0.460***	7.70	0.616***	15.42	0.441***	7.21
55–64	0.768***	18.72	0.581***	8.81	0.743***	18.10	0.545***	8.20
65+	0.911***	19.75	0.676***	8.19	0.884***	19.25	0.653***	7.78
Black (Non-Hispanic)	−0.277***	−13.37	−0.088**	−2.44	−0.298***	−14.49	−0.132***	−3.57
Education (reference category: Did not complete high school)								
High school	0.339***	8.56	0.297***	5.71	0.356***	8.91	0.304***	5.62
GED	0.250***	5.17	0.204***	3.20	0.262***	5.36	0.209***	3.12
Some college	0.708***	17.92	0.535***	9.74	0.717***	17.49	0.502***	8.26
College graduate	0.959***	22.47	0.641***	9.69	0.972***	21.93	0.619***	8.50
Post-graduate	1.119***	24.89	0.605***	7.42	1.121***	23.96	0.574***	6.63
Marital status (reference category: Married)								
Living-with-partner	−0.075**	−2.38	0.001	0.01	−0.068**	−2.15	0.006	0.10
Single	−0.012	−0.55	−0.063	−1.58	−0.012	−0.55	−0.053	−1.30
Income (reference category: Less than $15,000)								
$15,000 - $24,999	0.140***	3.89	0.134***	2.63	0.131***	3.28	0.054	0.89
$25,000 - $34,999	0.226***	5.82	0.071	1.28	0.237***	5.56	0.014	0.22
$35,000 - $49,999	0.369***	9.81	0.204***	3.50	0.379***	8.62	0.115	1.58
$50,000 - $74,999	0.524***	13.09	0.346***	5.24	0.536***	11.27	0.253***	3.06

Table 6 (Continued)

	Financial Literacy Score: 0 to 5				Financial Literacy Score: 0 to 5			
	IV GMM	*t* stat	IV Probit	*z*-stat	IV GMM	*t* stat	IV Probit	*z*-stat
$75,000 - $99,999	0.626***	13.58	0.235***	2.97	0.659***	12.89	0.192**	2.09
$100,000 - $149,999	0.739***	15.28	0.427***	4.51	0.767***	14.04	0.356***	3.27
$150,000 or more	0.827***	14.97	0.401***	3.41	0.842***	13.57	0.268**	2.09
Employment (reference category: Self Employed)								
Employed full-time	−0.081**	−2.53	0.018	0.28	−0.067**	−1.97	0.077	1.07
Employed part-time	−0.120***	−2.99	0.012	0.16	−0.124***	−2.98	0.028	0.35
Homemaker	−0.168***	−3.99	−0.000	−0.00	−0.152***	−3.26	0.088	1.01
Full-time student	0.168***	2.86	0.224**	2.30	0.160**	2.47	0.265**	2.41
Disabled	−0.218***	−4.51	−0.042	−0.50	−0.211***	−4.27	−0.007	−0.08
Unemployed	−0.113***	−2.60	0.032	0.42	−0.093*	−1.92	0.134	1.52
Retired	−0.087**	−2.34	−0.062	−0.77	−0.089**	−2.27	−0.034	−0.40
Region (reference category: Northeast)								
Midwest	0.063**	2.44	0.051	1.06	0.056**	2.10	0.026	0.51
South	0.038	1.56	0.081*	1.80	0.035	1.44	0.083*	1.80
West	0.155***	5.92	0.109**	2.19	0.162***	6.17	0.111**	2.17
Observations	22,020		22,020		21,645		21,645	
Adjusted R^2	0.286				0.288			

	Financial Literacy Score: 0 to 5			
	IV GMM	*t* stat	IV Probit	z-stat
Constant	1.753***	22.38	0.595***	4.75
Tax Planning	−0.162	−0.59	0.591	1.24
Financial Education	0.292***	11.44	0.319***	5.63
Female	−0.455***	−26.52	−0.219***	−6.46
Age group (reference category: 18–24)				
25–34	0.166***	4.24	0.194***	3.45
35–44	0.405***	9.23	0.250***	3.75
45–54	0.583***	13.51	0.429***	6.43
55–64	0.704***	16.22	0.524***	7.48
65+	0.842***	18.68	0.609***	7.44
Black (Non-Hispanic)	−0.294***	−14.55	−0.122***	−3.42
Education (reference category: Did not complete High School)				
High school	0.364***	9.14	0.321***	6.23
GED	0.270***	5.54	0.240***	3.76
Some college	0.742***	18.74	0.576***	10.52
College graduate	1.012***	22.58	0.704***	9.88
Post-graduate	1.174***	22.39	0.657***	6.85
Marital status (reference category: Married)				
Living-with-partner	−0.087***	−2.66	0.004	0.06
Single	−0.027	−1.26	−0.098**	−2.52
Income (reference category: Less than $15,000)				
$15,000 - $24,999	0.161***	4.37	0.132**	2.52
$25,000 - $34,999	0.285***	6.97	0.092	1.54
$35,000 - $49,999	0.437***	10.29	0.215***	3.16
$50,000 - $74,999	0.611***	12.60	0.377***	4.53
$75,000 - $99,999	0.751***	12.52	0.279***	2.66
$100,000 - $149,999	0.868***	12.09	0.438***	3.27
$150,000 or more	0.973***	10.16	0.394**	2.16
Employment (reference category: Self-employed)				
Employed full-time	−0.098**	−2.36	0.065	0.81
Employed part-time	−0.146***	−3.45	−0.002	−0.03
Homemaker	−0.199***	−4.18	−0.005	−0.06

Table 6 (Continued)

	Financial Literacy Score: 0 to 5			
	IV GMM	*t* stat	IV Probit	z-stat
Full-time student	0.116*	1.76	0.209*	1.86
Disabled	−0.236***	−4.24	−0.015	−0.15
Unemployed	−0.131***	−2.69	0.025	0.29
Retired	−0.107***	−2.70	−0.089	−1.06
Region (reference category: Northeast)				
Midwest	0.060**	2.33	0.057	1.19
South	0.036	1.49	0.089**	1.98
West	0.173***	6.77	0.150***	3.06
Observations	21,911		21,911	
Adjusted R^2	0.287			

This table reports Instrumental variable (IV) model results where the first stage dependent variable, *Debt Counseling*, *Savings or Investments*, *Mortgage or Loan*, *Insurance*, or *Tax Planning* is set equal to 1 if the person used that type of adviser, or 0 otherwise. The independent variables used in the first stage model include instruments for each financial adviser type and the demographic control variables *Financial Education*, *Female*, *Age Group*, *Black (Non-Hispanic)*, *Education*, *Marital Status*, *Income*, *Employment*, and *Region*. Panel A report the instruments used for each financial adviser type and *IV GMM* and *IV Probit* coefficient estimates and *t* stats (z-stats) for the instruments from the first stage model results, respectively. The second stage model dependent variable is the *Financial Literacy Score* that is set equal to the number of financial literacy questions answered correctly, ranging from 0 to 5. The independent variables used in the second stage model include the predicted financial adviser user variable from the first stage model and the same demographic control variables used in the first stage model. Panel B report the *IV GMM* and *IV Probit* coefficient estimates and *t* stats (z-stats) for the second stage model results for each financial adviser type separately.

***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

statistically significant at the 1% level. This indicates they are legitimate instruments to use in predicting the probability of using each type of financial adviser.

Table 6, Panel B, report results for the second-stage estimates for each model where *Financial Literacy Score* is the dependent variable, and the predicted financial adviser type user from the first stage model and the demographic characteristics are used as independent variables. Using the GMM estimator we find that *Debt Counseling* remains negatively related to *Financial Literacy Scores*, however, the IV Probit estimates indicate that *Debt Counseling* is not significantly related to *Financial Literacy Scores*. *Savings or Investments* and *Mortgage or Loan* remains positively related to higher *Financial Literacy Scores* using both the GMM estimator and IV Probit estimates. *Insurance* advisers remain positively related with higher *Financial Literacy Scores* only when using the IV Probit estimates, and not significant when using the GMM estimator. *Tax Planning* remains not significantly related to *Financial Literacy Scores* using both the GMM estimator and IV Probit estimates.

Overall, our results in Table 6 are similar to those reported in Table 5 with the exception that *Debt Counseling* is not significant when using the IV Probit estimate, and *Insurance* is not significant when using the IV GMM estimator. *Savings or Investments* and *Mortgage or Loan* advisers appear to have the strongest impact on the financial literacy of their clients, even when controlling for demographic characteristics that are shown to impact financial

literacy and when controlling for potential endogeneity issues between financial literacy and the choice to use a financial adviser.

4.2. Propensity score matching

In an attempt to reduce any confounding variable biases in our results we implement a Propensity Score Matching model to estimate the impact financial advisers have on the financial literacy of their clients. We first estimate the same logit regression used in Table 3 where *FA User*, the dependent variable, is regressed on to the different demographic characteristic control variables to include *Financial Education*, *Female*, *Age Group*, *Black* (*Non-Hispanic*), *Education*, *Marital Status*, *Income*, *Employment*, and *Region.* Using the propensity scores from this logit estimation we perform a nearest neighbor match that ensures that a financial adviser user is paired with a non-user with statistically the same demographic characteristics. We conduct the matching with replacement to achieve the best match for each financial adviser user with a non-user. We separately conduct the matching without replacement to ensure we have a 1:1 match for each financial adviser user with a non-user that maximizes our matched sample size. We then use these matched samples to estimate an OLS univariate regression model where the dependent variable is *Financial Literacy Score* and the independent variable is *FA User*. We repeat this process using the logit model from Table 4 for each of the financial adviser types separately.

Table 7, Panel A, report results using propensity score matching with replacement. Consistent with earlier results, we find there is a positive and statistically significant relationship between *FA User* and *Financial Literacy Scores*. When considering the financial adviser types separately, we find that *Debt Counseling* is negatively related to *Financial Literacy Score*, while *Savings or Investments*, *Mortgage or Loan*, *Insurance*, and *Tax Planning* are all positively related to *Financial Literacy Scores*.

Table 7, Panel B, report results using propensity score matching without replacement. We again find that there is a positive and statistically significant relationship between *FA User* and *Financial Literacy Scores*. When considering the financial adviser types separately, we continue to find that *Debt Counseling* is negatively related to *Financial Literacy Score*, while *Savings or Investments*, *Mortgage or Loan*, and *Insurance* are all positively related to *Financial Literacy Scores*. However, we find that *Insurance* is not significantly related to financial literacy when using matching without replacement.

These results continue to indicate that *Savings or Investments* advisers have the strongest influence on the financial literacy of their clients, followed by *Mortgage or Loan* and *Insurance* advisers. *Debt Counselors* is consistently shown to be negatively related to financial literacy, and *Tax Planning* advisers are only marginally, or not at all, related to the financial literacy of their clients.

5. Conclusions

Using the 2012 FINRA Investor Education Foundation National Financial Capability Study, we determine the demographic characteristics associated with people that use finan-

Table 7 Propensity score matching

OLS Univariate Regression: Financial Literacy Score (0 to 5) = Adviser user dummy						
	FA User	Debt Counseling	Savings or Investments	Mortgage or Loan	Insurance	Tax Planning
Panel A: Propensity score matching with replacement						
Number of users	11,872	1,949	7,025	4,914	7,312	4,422
Matches	4,494	1,660	3,692	3,151	4,142	2,872
Intercept	2.95***	3.06***	3.20***	3.21***	3.14***	3.31***
	(145.09)	(91.52)	(146.47)	(134.12)	(148.88)	(132.08)
Coefficient	0.41***	−0.20***	0.32***	0.21***	0.19***	0.17***
	(17.14)	(−4.47)	(11.79)	(6.95)	(7.27)	(5.37)
Panel B: Propensity score matching without replacement						
Number of users	10,346	1,949	7,025	4,914	7,312	4,422
Matches	10,346	1,949	7,025	4,914	7,312	4,422
Intercept	2.77***	3.06***	3.31***	3.29***	3.25***	3.45***
	(201.72)	(99.02)	(209.72)	(171.76)	(204.81)	(171.76)
Coefficient	0.60***	−0.20***	0.21***	0.13***	0.08***	0.04
	(30.69)	(−4.65)	(9.28)	(4.68)	(3.75)	(1.25)

This table reports Propensity score matching results where we first estimate the Logit regression in Table 3 to match each Financial Adviser user with a non-user having statistically the same *Financial Education*, *Gender*, *Age Group*, *Ethnicity*, *Education*, *Marital Status*, *Income*, *Employment*, and *Region*. We then estimate a Univariate regression using this matched sample where the dependent variable is the *Financial Literacy Score* that is set equal to the number of financial literacy questions answered correctly from 0 to 5, and the independent variable is the *FA User* dummy that is set equal to 1 if the person used one or more of the five types of financial advisers, or 0 otherwise. We repeat this process for each financial adviser type separately to include *Debt Counseling*, *Savings or Investments*, *Mortgage or Loan*, *Insurance*, and *Tax Planning* using the logit regressions from Table 4 to determine the propensity score matches. The dummy variables *Debt Counseling*, *Savings or Investments*, *Mortgage or Loan*, *Insurance*, and *Tax Planning* are set equal to 1 if the person used that type of financial adviser, or 0 otherwise. *Panel A* report results where propensity score matches were created with replacement in order to determine the best match for each observation. *Panel B* report results using matching without replacement in order to increase the sample size used in the Univariate regressions.

***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively, with *t* stats reported in parenthesis.

cial advisers, and the impact financial advisers have on the financial literacy of their clients. We consider five different types of financial advisers: *Debt Counselors*, *Savings or Investments*, *Mortgage or Loan*, *Insurance*, and *Tax Planning*.

We first find that there has been a significant increase over the last decade in the number of individuals who use financial advisers. Elmerick, Montalto, and Fox (2002), using the 1998 Survey of Consumer Finances that is a similar survey to the 2012 FINRA survey we are using, reported that only 21% of those surveyed had used a financial adviser. Using the more recent 2012 FINRA survey, we find that over 53% of those surveyed reported using a financial adviser indicating the usage of financial advisers has more than doubled since the 1998 survey was conducted.

When considering the demographic characteristics associated with those using a financial adviser, we find that females are 13% more likely, and those that have received a financial

education in the past nearly 50% more likely, to use financial advisers. Those that are married, or self-employed, are also more likely to use financial advisers. We find that there is a monotonically increasing probability of using financial advisers across higher education and income levels, but younger age groups are less likely to use financial advisers. Surprisingly, ethnicity, after controlling for all other demographic characteristics, does not appear to significantly impact the likelihood of using a financial adviser. Finally, we find that respondents from the Midwest and West are more likely to use a financial adviser than respondents from the South or Northwest.

When considering the demographic characteristics of those that used a specific type of financial adviser we find that those receiving a financial education in the past are more likely to use all of the five financial adviser types compared with those that did not. Females are more likely to use Insurance advisers compared with males, but not more likely to use any of the other four adviser types. *Black* (*Non-Hispanic*) people are more likely to use *Debt Counselors* but less likely to use *Mortgage or Loan* advisers. We find that older people are more likely to use *Savings and Investments* advisers but younger people are more likely to use *Debt Counselors* and *Mortgage or Loan* advisers. Those having a High School education or higher are more likely to use *Savings or Investment* advisers, but only those having some college or higher are more likely to use *Insurance* or *Tax Planning* advisers. People with higher income levels are less likely to use *Debt Counselors*, but more likely to use all of the other adviser types. Those with lower income levels are more likely to use *Debt Counselors*. Married couples are more likely to use *Mortgage or Loan*, *Insurance*, and *Tax Planning* advisers, and those that are self-employed are more likely to use all of the five financial adviser types. Finally, we find that those living in the West are more likely to use *Mortgage or Loan* advisers, and those in the Midwest and West are more likely to use *Insurance* advisers.

Finally, after controlling for demographic characteristics that are shown to impact financial literacy, we continue to find a positive and statistically significant relationship between financial literacy scores and the use of financial advisers suggesting they have a positive influence on the financial literacy of their clients. When considering the different financial adviser types separately we find that *Savings or* Investments, *Mortgage Loan*, and *Insurance* advisers have the highest positive influence on the financial literacy of their clients. However, *Debt Counselors* appear to have a negative influence on the financial literacy of their clients which is consistent with Robb, Babiarz, and Woodyard (2012) suggesting those individuals appear to make financial mistakes in the first place and do not appear to learn from their experiences. We find that *Tax Planning* advisers do not significantly impact the financial literacy scores of their clients. The relationship between the choice to use a financial adviser and financial literacy may suffer from endogeneity issues and confounding variable biases in the models we use, so we attempt to correct these biases using *Instrument Variables* and *Propensity Score Matching* methodology. Our results remain robust indicating that *Savings or Investment*, *Mortgage or Loan*, and *Insurance* advisers have a positive influence on the financial literacy of their clients.

Even though it is difficult to measure the impact financial advisers have on the financial literacy of their clients with precision, we have established that a positive relationship exists between financial advisers and financial literacy after controlling for demographic characteristics that are shown to impact financial literacy. This relationship also remains robust

when controlling for the possibility of endogeneity and confounding variable problems that may exist in a model relating financial adviser use with financial literacy scores. The positive relationship we find that exists between financial adviser use and financial literacy scores suggest that clients appear to learn from their interactions with financial advisers. These results show that financial advisers do not just offer financial advice, but also play a significant role in disseminating financial knowledge to their clients that has a positive impact on financial literacy. Future research using longitudinal data that measures financial literacy before and after using a financial adviser, or that is able to track the financial adviser-client relationship through time, would be able to measure the impact financial advisers have on the financial literacy of their clients with more precision.

Notes

1 Debt counseling refers to the services provided to individuals who have problems repaying their debt on time. For further details, please see: http://www.consumerfinance.gov/askcfpb/1449/whats-difference-between-credit-counselor-and-debt-settlement-company.html.
2 We also estimated the IV model using two-stage Least Squares (2SLS) with results nearly identical to the reported GMM results.
3 Coefficient estimates for the demographic control variables are nearly identical to what is reported in Table 4.

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Appendix A: Financial literacy questions

Below are the five financial literacy questions asked in the survey that is used to measure the financial literacy of the survey respondent:

1. *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?*
   a. More than $102
   b. Exactly $102
   c. Less than $102
   d. Don't know
   e. Refused

2. *Imagine that the interest rate on your savings account was 1% per year and inflation was 2% per year. After 1 year, how much would you be able to buy with the money in this account?*

a. More than today
b. Exactly the same
c. Less than today
d. Don't know
e. Refused

3. *If interest rates rise, what will typically happen to bond prices?*

a. They will rise
b. They will fall
c. They will stay the same
d. There is no relationship between bond prices and the interest
e. Don't know
f. Refused

4. *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.*

a. True
b. False
c. Don't know
d. Refused

5. *Buying a single company's stock usually provides a safer return than a stock mutual fund.*

a. True
b. False
c. Don't know
d. Refused

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