The Effect of Financial Education on College Education Savings Behavior in U.S. Households

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Abstract

This research examines the contribution of financial education to household decisions regarding saving for postsecondary education, utilizing data from the 2018 U.S. National Financial Capability Study. The analytical approach includes the use of propensity score matching to control for self-selection bias that may be associated with financial education participation. The results reveal that financial education significantly increases the likelihood of households allocating funds for their children's education. Moreover, the source and continuity of financial education play crucial roles, with sustained financial education over time proving particularly influential. The study also emphasizes the importance of financial education quality; higher quality is directly correlated with a greater propensity to save for college. Together, these

insights imply that financial education can play a key role in encouraging households to include education savings in their basket of goods and services. In an era where college education costs are increasing and student loan debts are expanding, along with its negative repercussions, encouraging savings for college is essential for promoting consumer well-being.

Keywords: Financial education, College Education Savings, Propensity Score Matching

1. Introduction

Student-loan debt and its adverse repercussions on individuals and families in the United States have been central topics of recent public discourse and policy interventions. Although the 2022 student debt relief program offered potential forgiveness for qualified U.S. student loan holders, it was not considered a long-term solution to the underlying issue of over reliance on student loans for financing postsecondary education. College education savings represent an important financing method that merits attention, yet, according to Korankye et al. (2023), Lin et al. (2021), and Pearson & Lee (2022), many households lack college savings. The 2018 U.S. National Financial Capability Study reveals that only 38% of Americans have set aside money specifically for their children's college education, despite the existence of tax-advantaged saving plans such as 529 plans that facilitate such savings (Lin et al., 2021).

This paper explores the college-saving decisions of households with a focus on the role of financial education. Leveraging data from the 2018 U.S. National Financial Capability Study and employing propensity score matching techniques, this research seeks to (1) examine the association between participation in financial education and college savings; (2) determine the

effect of various sources of financial education on college savings; (3) assess how the hours of financial education received relate to college savings; and (4) investigate the relationship between the perceived quality of financial education and the likelihood of saving for college education.

This study contributes to existing literature by examining the role of financial education in influencing a household's decision to save for college. Prior studies have investigated various factors that could explain the college-saving behavior of households (Bogan, 2015; Devaney & Chien, 2002; Korankye & Kalenkoski, 2020; Korankye et al., 2023). In their analysis of the 2015 National Financial Capability Study, Korankye and Kalenkoski (2020) found that financial risk preferences and subjective financial knowledge positively correlate with college education savings. They also observed that households facing financial fragility, with low education levels, low income, more children, and without homeownership, are less likely to save for college. Korankye et al. (2023) applied propensity score matching to estimate the impact of financial advice-seeking behavior on college savings, concluding that consulting a financial advisor has a positive effect on college saving decisions. Utilizing data from the Federal Reserve's 2007 to 2009 Survey of Consumer Finances, Bogan (2015) identified that family composition, particularly having an elderly dependent, negatively affects college savings. However, contrary to Bogan (2015), Devaney and Chien (2002) reported a significant relationship between the number of children and college savings.

The literature on the connection between financial education and college savings presents mixed findings (Fernandes et al., 2014). A recent meta-analysis of 76 randomized experiments demonstrated that financial education significantly improves financial knowledge and downstream behaviors, such as budgeting and investing (Kaiser et al., 2021). Exploring racial

differences in financial capability, Kim and Xiao (2021) found that financial education positively correlates with financial capability and suggested it could help narrow the financial capability gap between Whites and Black Americans. Stoddard and Urban (2018) indicated that financial education mandates improve credit behavior among college students, while Wagner and Walstad (2019) highlighted that financial education is more effective in enhancing long-term financial behaviors, such as general savings and retirement planning, than short-term financial behaviors.

Despite links to broader financial behaviors, the specific impact of financial education on college savings has been insufficiently explored. Furthermore, research moving beyond statistical associations to examine causality between financial education and college savings is limited. This study addresses this gap by exploring treatment effects using propensity score matching, thus accounting for self-selection into financial education programs.

Stakeholders, including policymakers, non-governmental organizations, financial educators, and researchers, will find this study of interest as it delves into a critical topic with the potential to alter the dynamics of funding college education in the United States. The study not only highlights the decision to participate in financial education and its effect on college education savings but also examines the relevance of the sources of financial education, the hours spent receiving financial education, and the perceived quality of financial education in understanding college saving behavior. Similar analyses have been conducted by Kim and Xiao (2021) and Kim and Stebbins (2021), albeit focusing on different outcomes.

2. Conceptual framework

The study uses Huston's (2010) conceptual framework on financial literacy to examine the association between financial education and saving for children's education. This framework posits that inputs influencing financial behaviors and well-being include financial education, human capital, financial literacy, behavioral aspects, and socioeconomic factors. Research by Korankye et al. (2022), Henager and Cude (2019), and Henager & Mauldin (2015) has applied this framework to investigate the effect of financial knowledge on various financial behaviors, such as annuity ownership, emergency savings, the establishment of long-term goals, and retirement account ownership.

Within Huston's (2010) framework, financial behavior could represent debt management, retirement savings, and general savings. The current study uses college saving behavior to proxy financial behavior. Additionally, the framework identifies financial education as a critical factor affecting financial literacy, behaviors, and overall well-being. This study delves into financial education from multiple perspectives, including its availability and the decision to participate, the sources from which it is received, the amount of time spent on it, and the perceived quality of the education received.

Given the conceptual framework and findings from prior studies, the current study tests the hypothesis that financial education participation, sources, hours spent, and perceived quality are positively associated with college saving decisions of households.

3. Method:

Data: This study utilized the restricted version of data collected from the 2018 National Financial Capability Study under the auspices of U.S. Financial Industry Regulatory Authority's Investor Education Foundation. Since 2009, this survey has been collecting data on the socioeconomic characteristics, financial behavior, and financial capabilities of American adults aged 18 and over triennially. The current study selects the 2018 wave because it contains detailed financial education information, allowing for extensive college savings analyses. Focusing specifically on households with children, the study performs empirical analyses on a sample of approximately 9,000 observations out of the 27,091 participants of the 2018 survey.

Dependent variable: The dependent variable is college education savings. This variable is measured using the survey question, "Are you setting aside any money for your children's college education?" An affirmative response is coded as "1." A "0" is coded otherwise.

Key explanatory variables: The study uses four key predictor variables to examine the association between financial education and college education savings. The first is participation in financial education, assessed using the survey question, "Was financial education offered by a school or college you attended, or a workplace where you were employed?" A value of 1 is assigned if a respondent provides a yes response for availability and participation, 0 otherwise.

The second primary explanatory variable pertains to the source of financial education. Similar to Kim and Stebbins (2021), the study provides seven categories to examine this variable. The categories include high school only, college only, employer only, high school and college only, high school and employer only, college and employer only, and high school, college, and employer. The reference group is "no financial education."

The third key explanatory variable is the total hours of financial education received. The survey provides three categories (1 to 2 hours, 3 to 10 hours, and more than 10 hours) for measuring the number of hours of financial education received. This study creates a dummy for each category and sets 1 to 2 hours as the reference group.

The fourth is the overall quality of financial education received, measured as continuous. The survey question for assessing this variable is, "Overall, how would you rate the quality of the financial education you received?" The responses range from 1 (very low) to 7 (very high). The study examines the first two primary explanatory variables for the entire sample, while the remaining two key explanatory variables are examined for the subsample of financial education participants.

Other explanatory variables: Based on the conceptual framework (Huston, 2010), the current study includes additional predictor variables to represent human capital, socioeconomic, behavioral, and other influences. These variables include age, race, educational attainment, marital status, number of children, homeownership, health insurance ownership, student-loan debt. medical debt, mortgage loan, household income, employment status, financial risk, objective and subjective financial knowledge, financial fragility, and state of residence fixed effects.

Age is measured first as a continuous variable and second as a second-degree polynomial to account for life-cycle effects. Objective financial knowledge is also measured as a continuous variable by summing the correct responses to five financial literacy questions on interest rates, risk diversification, numeracy, bond pricing, and inflation. Race (White non-Hispanic), marital status (married), homeownership, health insurance ownership, student-loan debt. medical debt, and mortgage loan are measured dichotomously with 1 representing an affirmative response and

0 otherwise. Educational attainment, number of children, household income, employment status, willingness to take financial risks, subjective financial knowledge, and state of residence fixed effects are measured categorically. The state fixed effects variable is included to account for differences in state policies that could affect education-saving decisions.

Test of multicollinearity: The study tests for multicollinearity using variance inflation factors (VIFs). The computed VIF values range from 1.08 to 3.12, falling within the threshold of low multicollinearity. Additional analyses using Pearson correlation also depict the presence of low correlation among the explanatory variables. These results suggest the absence of multicollinearity among the explanatory variables.

Model: This study estimates five logistic regression models to achieve the stated objectives. Model 1 is a restricted model that contains only the variable for participation in financial education. Model 2 examines involvement in financial education, controlling for all other explanatory variables. Model 3 also is a restricted model, containing only the sources of financial education. Model 4 examines the various sources of financial education independent of the control variables. Finally, Model 5 examines college savings as a function of the number of financial education hours and the perceived quality of financial education received, controlling for the other explanatory variables. While Models 1 to 4 are estimated for the full samples, Model 5 pertains only to the recipients of financial education.

The models are stated as follows:

$$\Pr(Y = 1) = \Phi(\beta_0 + \beta_1 \text{fedu}_i) \tag{1}$$

$$\Pr(Y = 1) = \Phi(\beta_0 + \beta_1 \text{fedu}_i + \beta_X X) \tag{2}$$

$$\Pr(Y = 1) = \Phi(\beta_0 + \beta_1 \text{fedusource}_i) \tag{3}$$

$$\Pr(Y = 1) = \Phi(\beta_0 + \beta_1 \text{fedusource}_i + \beta_X X) \qquad (4)$$

$$\Pr(Y = 1) = \Phi(\beta_0 + \beta_1 \text{feduhours}_i + \beta_2 \text{feduquality}_i + \beta_X X) \qquad (5)$$

In these models, Y is the dependent variable representing the college-saving decisions of households. The terms fedu_i, fedusource_i feduhours_i, and feduquality_i represent participation in financial education, source of financial education, hours of financial education, and quality of financial education for each respondent i, respectively. The matrix X represents the control variables, including age, race, educational attainment, marital status, number of children, homeownership, household income, employment status, financial risk, objective and subjective financial knowledge, financial fragility, and state of residence fixed effects. The β's are the odds ratios to be estimated.

Accounting for self-selection: Access to financial education is often non-random, as not all individuals may have the opportunity to participate, and even when available, some may opt not to engage. To address this issue, the current study employs propensity score matching, a method designed to mitigate self-selection bias by simulating a randomized control trial. Specifically, this study utilizes one-to-one matching with replacement, combined with propensity score weighting across all analyses, as recommended by Abadi & Imbens (2016). This approach conditions on a set of covariates to distinguish between the treatment group (those who have received financial education) and the control group (those who have not), thereby estimating the treatment's average effect on college savings across the population. This methodology aligns with previous research efforts, such as those by Korankye et al. (2023) and Kim et al. (2018), which have successfully applied propensity score matching to account for self-selection biases in similar contexts.

4. Results:

Descriptive Statistics:

Table 1 contains the summary statistics and t-test results for those with and without college savings. The table reveals that approximately 40% of U.S. households have college savings. This indicates that many families do not save for their children's college education, as found in other studies (Korankye et al., 2023; Lin et al., 2021). About 24% report participation in financial education. The t-test results show that the percentage of households with college savings who participate in financial education is greater than those who do not (31% versus 18%).

The mean percentage points for the sources of financial education include high school only (3.03%), college only (4.30%), an employer only (1.62%), high school and college only (2.77%), high school and employer only (0.91%), college and employer only (1.68%), and high school, college and employer (3.82%). Among the respondents, Table 1 also shows that about 67% are married, 57% are White non-Hispanic, and 19% have at least a college degree. The average age is approximately 40 years.

For financial education participants, the descriptive statistics (not shown in Table) for hours and quality of financial education are as follows. About 16%, 31%, and 53% of participants report receiving 1 to 2 hours, 3 to 10 hours, and more than 10 hours of financial education, respectively. Only 34% of participants rate the overall quality of financial education they received as very high.

Table 2 contains the propensity score logit coefficient estimates for receiving financial education. The table shows that recipients of financial education may differ from non-recipients in terms of age, race, educational attainment, financial risk preference, and financial knowledge.

Overlap Test and Covariate Balance

Figure 1 shows the overlapping plot, indicating comparisons for every treated individual. The covariate balance checks using standardized mean differences (% bias) for the matched and unmatched sample appear in Table 2, with values falling below the 10% threshold (Benedetto et al., 2018). These results indicate that the propensity score estimates are unbiased (StataCorp, 2015; Start, 2010).

Empirical Results:

Table 3 contains the logistic regression estimates of college savings on financial education through propensity score matching for Models 1 to 4. The restricted model results (Model 1) show that participation in financial education is associated with a 1.45 (P<0.001) higher odds of saving for a college education. After including all the control variables in Model 2, the results show that participation in financial education is associated with a 1.57 (p<0.001) higher odds of having college savings. This result supports the hypothesis that financial education positively relates to college savings behavior and supports existing studies that show that financial education is essential for improving financial behaviors (Kaiser et al., 2022).

Considering the results for the sources of financial education, the restricted model (Model 3) and the full model (Model 4) show that receiving financial education from high school, college, and employer can partly explain the incidence of college savings. Model 3's results show that receiving financial education from employer only, high school and college only, high

school and employer only, college and employer only, and all three sources (high school, college, and employer) is associated with a 1.94 (p<0.01), 1.38 (p<0.0.05), 1.84 (p<0.05), 2.82 (p<0.001), and 3.86 (p<0.001) higher odds of saving for college relative to those without financial education, respectively. The results for Model 4, which includes all the control variables, are similar to those of Model 3. These results suggest that the source of financial education is essential, and that receiving financial education from multiple sources is rewarding to households in terms of their college saving behavior. Kim and Xiao (2021), Kim and Stebbins (2021), and Wagner and Walstad (2019) find similar results in their respective financial education study on financial capability, basic estate planning, and long-term financial behaviors.

In addition to the full sample results, the study shows the sub-sample results for financial education recipients in Table 4 regarding financial education hours and quality. The relationship between the quality of financial education and college savings is statistically significant but financial education hours are not. The results for the perceived quality of financial education show that the higher the quality of financial education, the greater the likelihood of saving for college. More precisely, a one-unit increase in the quality of financial education is associated with approximately 25% higher odds of saving for college. This finding moves in tandem with that of Kim & Stebbins (2021).

Besides the key explanatory variables of interest, the empirical results show that those with higher education are more likely to have college savings. However, White non-Hispanic respondents and those with four or more children are less likely to save for college. The findings for education, White, and children could reflect an increased understanding of the benefits of having a college education, preferences, and the likelihood of experiencing increased financial constraints (lower per unit cost) associated with having more children, respectively. Korankye

and Kalenkoski (2020) find similar results. Other statistically significant results that the study finds include risk preferences (positive), household income (positive), and financial fragility (negative).

Overall, the empirical results support Huston's (2010) conceptual framework, which posits that financial education, human capital, and socioeconomic factors are predictors of financial behavior—in this case, the incidence of college savings.

Sensitivity Analysis: The study performs a sensitivity analysis using alternative specification models, including inverse-probability weighted regression adjustment. The obtained results are similar to those of the propensity score matching.

5. Conclusions:

The study examines the role of financial education in household decisions to save for postsecondary education, utilizing data from the 2018 U.S. National Financial Capability Study. The analytical technique employs propensity score matching to account for self-selection bias associated with financial education participation. Results indicate that financial education participation positively influences the likelihood of households allocating funds for children's college education, suggesting that the provision and involvement in financial education are crucial for motivating families to save for college.

The findings also highlight that the sources of financial education are significant. Specifically, receiving financial education from employers, a combination of colleges and employers, and from all three sources (high school, college, and employer) is vital for college education savings. This underscores the importance of continuously providing and accessing

financial education from high school through to the workplace. The study suggests that more financial education is beneficial for college savings.

Unlike Kim and Stebbins (2021), this study does not find a statistically significant relationship between the number of hours of financial education received and college savings. However, it reveals that the quality of financial education is critical; higher reported quality of financial education increases the likelihood of allocating funds for college education. This finding emphasizes the need to improve the quality of financial education to positively influence financial behaviors, such as saving for postsecondary education. Specifically, the availability of qualified financial educators and relevant educational materials, provided in an appropriate environment, can enhance the quality of financial education.

Cumulatively, this study demonstrates that financial educators and practitioners can encourage households to save for college through quality conversations over time. This is particularly crucial as saving for college is a long-term financial behavior that requires careful planning and navigation through complex investment options. With the costs of college education rising and the burden of student loans growing, motivating households to save for college becomes a paramount consideration for promoting consumer well-being.

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Table 1. Descriptive Statistics of the Dependent and Explanatory Variables

	Overall[a]	Has College Savings[a]		
		Yes	No	
Dependent Variable:				
College education savings (1=Yes)	0.4099	-	-	
Key Explanatory Variables:				
Financial education participation (1=Yes)	0.2359	0.3122	0.1828	***
Financial education source				
High school only	0.0303	0.0309	0.0299	
College only	0.0430	0.0462	0.0408	
Employer only	0.0162	0.0237	0.0110	***
High school and college only	0.0277	0.0371	0.0212	***
High school and employer only	0.0091	0.0127	0.0067	*
College and employer only	0.0168	0.0258	0.0106	***
High school, college, and employer	0.0382	0.0258	0.0106	***
No financial education	0.7641	0.6878	0.8172	***
Other Explanatory Variables:				
Age	40.9419	38.6656	42.5229	
White (Yes=1)	0.5683	0.5424	0.5863	**
Married (Yes=1)	0.6712	0.7209	0.6367	***
Education				
High school or less	0.2810	0.1994	0.3378	***
Some college	0.4085	0.3804	0.4280	***
College	0.1866	0.2323	0.1549	***
Postgraduate	0.1238	0.1879	0.0793	***
Number of children				
One	0.4386	0.4467	0.4330	
Two	0.3415	0.3523	0.3339	
Three	0.1371	0.1309	0.1415	
Four or more	0.0827	0.0701	0.0916	**
Household income				
Less than $50k	0.4049	0.2665	0.5011	***
$50k to < $100k	0.3656	0.3976	0.3434	***
$100k to < $150k	0.1497	0.2061	0.1105	***
$150k or more	0.0797	0.1298	0.0450	***

Table 1. Descriptive Statistics of the Dependent and Explanatory Variables (cont'd)

	Overallª	Has College Savingsª		
		Yes	No	
Employment status				
Self-employed	0.0825	0.1023	0.0688	***
Employed full-time	0.5462	0.6511	0.4734	***
Employed part-time	0.0867	0.0718	0.0970	**
Homemaker	0.1379	0.0957	0.1673	***
Student	0.0170	0.0187	0.0158	
Permanently sick/disabled	0.0390	0.0179	0.0438	***
Retired	0.0575	0.0298	0.0767	***
Unemployed	0.0331	0.0179	0.0438	***
Homeownership (Yes=1)	0.6334	0.7591	0.5460	***
Student-loan debt	0.3214	0.3630	0.2925	***
Mortgage loan	0.4633	0.5780	0.3837	***
Medical debt	0.3480	0.3168	0.3696	***
Health insurance (Yes=1)	0.8856	0.9256	0.8578	***
Financial risk preference				
Low	0.2760	0.1443	0.3674	***
Medium	0.4654	0.4532	0.4738	
High	0.2587	0.4025	0.1587	***
Subjective fin. knowledge				
Low	0.0984	0.0509	0.1314	***
Medium	0.1689	0.1105	0.2095	***
High	0.7327	0.8386	0.6591	***
Objective financial knowledge (0 to 5)	2.9466	3.0876	2.8486	***
Financial fragility				
None	0.2040	0.3068	0.1327	***
One	0.1581	0.2026	0.1272	***
Two	0.1792	0.2064	0.1602	***
Three	0.1934	0.1665	0.2122	***
Four	0.1658	0.0788	0.2261	***
Five	0.0825	0.0264	0.1215	***
N	8,653	2,072	6,581	

Notes: Data source is the restricted version of the 2018 state-by-state data set from NFCS. Survey weights are applied. The t tests are performed for individuals with college savings versus those without college savings. The mean values are shown, but not the standard errors. ªAll values are percents, except indicated otherwise. *$p < 0.05$; **$p < 0.01$; ***$p < 0.001$.

Table 2. Summary Statistics of Matched & Unmatched Samples – Propensity Score Matching

	Unmatched Sample[a]			Propensity Score Logit Coefficients	Matched Sample[a]		
	Received financial education	No financial education	% Bias		Received financial education	No financial education	% Bias
P score	0.2969	0.2213	65.8	-	0.2969	0.2969	0.0
Age (continuous)	39.732	41.551	-15.2	-0.0907***	39.732	39.779	-0.4
Age squared	-	-	-	0.0008***	-	-	-
White race (Yes=1)	0.6593	0.6932	-7.3	-0.1713*	0.6593	0.6602	-0.2
Married (Yes=1)	0.7002	0.6789	4.6	-0.0715	0.7002	0.6935	1.5
Education							
High school or less	0.1453	0.2883	-35.2	-	0.1453	0.1462	-0.2
Some college	0.3987	0.3841	3.0	0.5988***	0.3987	0.4059	-1.5
College	0.2896	0.2027	20.3	0.8467***	0.2896	0.2867	0.7
Postgraduate	0.1665	0.1249	11.8	0.7000***	0.1665	0.1612	1.5
Number of children							
One	0.4295	0.4350	-1.1	-	0.4295	0.4329	-0.7
Two	0.3422	0.3425	-0.1	-0.0054	0.3422	0.3258	3.5
Three	0.1424	0.1410	0.4	0.0450	0.1424	0.1544	-3.5
Four or more	0.0859	0.0815	1.6	0.1341	0.0859	0.0869	-0.3
Household income							
Less than $50k	0.3258	0.4069	-16.9	-	0.3258	0.3311	-1.1
$50k to < $100k	0.3895	0.3709	3.8	0.0045	0.3895	0.3933	-0.8
$100k to < $150k	0.1771	0.1456	8.6	0.0936	0.1771	0.1820	-1.3
$150k or more	0.1076	0.0766	10.7	0.2811*	0.1076	0.0936	4.8
Employment status							
Self-employed	0.0922	0.0766	5.6	0.1413	0.0922	0.0912	0.3
Employed full-time	0.5854	0.5296	11.3	0.0205	0.5854	0.5893	-0.8
Employed part-time	0.0821	0.0877	-2.0	0.0576	0.0821	0.0772	1.7
Homemaker	0.1240	0.1602	-10.4	-	0.1240	0.1260	-0.6
Student	0.0174	0.0119	4.6	0.1926	0.0174	0.0193	-1.6
Permanently sick/disabled	0.0290	0.0415	-6.8	0.1944	0.0290	0.0251	2.1
Retired	0.0463	0.0590	-5.7	-0.0544	0.0463	0.0492	-1.3
Unemployed	0.0237	0.0337	-6.0	0.0188	0.0237	0.0227	0.6
Homeownership (Yes=1)	0.6935	0.6384	11.7	0.0794	0.6935	0.6853	1.7
Student-loan debt (Yes=1)	0.4083	0.30193	22.4	0.2472***	0.4083	0.4083	0.0

Table 2. Summary Statistics of Matched & Unmatched Samples – Propensity Score Matching (cont'd)

	Unmatched Sample[a]			Propensity Score Logit Coefficients	Matched Sample[a]		
	Received financial education	No financial education	% Bias		Received financial education	No financial education	% Bias
Mortgage loan	0.5319	0.4685	12.7	-0.0040	0.5319	.05343	-0.5
Medical debt	0.3692	0.3392	6.3	0.2541	0.3692	0.3697	-0.1
Health insurance (Yes=1)	0.9035	0.8932	3.4	-0.1108	0.9035	0.9001	1.1
Financial risk preference							
Low	0.2133	0.3030	-20.6	-	0.2133	0.2085	1.1
Medium	0.4686	0.4843	-3.1	0.0755	0.4686	0.4831	-2.9
High	0.3181	0.2127	24.0	0.3370***	0.3181	0.3084	2.2
Subjective fin. knowledge							
Low	0.0449	0.1129	-25.4	-	0.0449	0.0391	2.2
Medium	0.1293	0.1884	-16.2	0.4441**	0.1293	0.1236	1.6
High	0.8258	0.6987	30.2	0.8697***	0.8258	0.8374	-2.8
Objective financial knowledge (0 to 5)	3.3388	2.9205	26.6	0.1602***	3.3388	3.3292	0.6
Financial fragility							
None	0.2220	0.2023	4.8	-	0.2095	0.2095	3.1
One	0.1709	0.1539	4.6	0.1129	0.1709	0.1622	2.4
Two	0.1781	0.1749	0.8	-0.0260	0.1781	0.1834	-1.4
Three	0.2013	0.1813	5.1	0.1584	0.2013	0.2061	-1.2
Four	0.1380	0.1766	-10.6	-0.0631	0.1380	0.1433	-1.5
Five	0.0801	0.0942	-5.0	0.0693	0.0801	0.0821	-0.7
N	2,072	6,581		8,653	2,072	1,531	
Notes: [a]All values are precents, except indicated otherwise. The other explanatory variables include state of residence fixed effects but their results are not shown. *$p < 0.05$; **$p < 0.01$; ***$p < 0.001$.							

Table 3. Logistic Regression Estimates of College Savings on Financial Education – Propensity Score Matching

	Model 1 Odds Ratio (S.E.)	Model 2 Odds Ratio (S.E.)	Model 3 Odds Ratio (S.E)	Model 4 Odds Ratio (S.E.)
Main explanatory variables				
Financial education participation (1=Yes)	1.4457*** (0.0903)	1.5694*** (0.1154)	-	-
Financial education source (Ref.: No financial education)	-	-		
High school only	-	-	0.9064 (0.1140)	1.3443+ (0.2029)
College only	-	-	0.9970 (0.1126)	1.0513 (0.1433)
Employer only	-	-	1.9403*** (0.3331)	1.7769** (0.3548)
High school and college only	-	-	1.3870* (0.1818)	1.4440* (0.2277)
High school and employer only	-	-	1.8411* (0.4156)	1.8243* (0.4953)
College and employer only	-	-	2.8220*** (0.5088)	2.4587*** (0.5148)
High school, college, and employer	-	-	3.8641*** (0.5258)	2.5375*** (0.4130)
Other explanatory variables				
Age	-	0.9951 (0.0213)	-	0.9963 (0.0239)
Age squared	-	0.9996 (0.0003)	-	0.9995 (0.0003)
White (versus non-White)	-	0.7315*** (0.0634)	-	0.7251** (0.0682)
Married (versus not married)	-	1.0048 (0.0911)	-	0.9407 (0.0929)
Education (versus High school or less)	-		-	
Some college	-	1.0634 (0.1268)	-	1.1162 (0.1856)
College	-	1.3557* (0.1772)	-	1.4496* (0.2547)
Postgraduate	-	1.6497** (0.2478)	-	1.6888* (0.3243)
Financially dependent children (versus one)	-		-	
Two	-	0.8346* (0.0724)	-	0.8326+ (0.0778)
Three	-	0.9198 (0.1036)	-	0.9176 (0.1101)
Four or more	-	0.6778* (0.0981)	-	0.6681* (0.1062)
Household annual income (versus Less than $50,000)	-		-	
$50,000 to less than $100,000	-	1.3014* (0.1297)	-	1.4747*** (0.1606)
$100,000 to less than $150,000	-	1.8685*** (0.2444)	-	2.1500*** (0.3004)
$150,000 or more	-	1.9876*** (0.3244)	-	2.3045*** (0.4016)
Homeownership	-	1.6968*** (0.2121)	-	1.8659*** (0.2562)
Student-loan debt	-	0.9721 (0.0838)	-	0.9106 (0.0855)
Mortgage loan	-	1.1148 (0.1223)	-	0.9885 (0.1177)
Medical debt		1.2095* (0.1068)		1.2189* (0.1175)
Health insurance ownership		1.4400* (0.1950)		1.4185* (0.2202)

Table 3. Logistic Regression Estimates of College Savings on Financial Education – Propensity Score Matching (cont'd)

	Model 1 Odds Ratio (S.E.)	*Model 2* Odds Ratio (S.E.)	*Model 3* Odds Ratio (S.E)	*Model 4* Odds Ratio (S.E.)
Other explanatory variables (cont'd)			-	
Employment status (versus homemaker)	-		-	
Self-employed	-	1.5591* (0.2598)	-	1.7758** (0.3241)
Employed full-time	-	1.2918* (0.1568)	-	1.3275* (0.1763)
Employed part-time	-	0.9617 (0.1657)	-	1.1145 (0.2098)
Unemployed	-	0.7411 (0.2131)	-	0.9886 (0.3165)
Student	-	1.1703 (0.3387)	-	1.2604 (0.4160)
Permanently sick/disabled	-	0.7056 (0.2124)		0.8435 (0.2766)
Retired	-	1.1134 (0.2695)	-	1.1409 (0.2963)
Financial-risk taking (versus low)	-		-	
Medium	-	1.5652*** (0.1623)	-	1.6904*** (0.1918)
High	-	3.2158*** (0.3728)	-	3.1845*** (0.4033)
Subjective financial knowledge (versus low)			-	
Medium	-	0.6492* (0.1390)	-	0.6567+ (0.1585)
High	-	0.8271 (0.1605)	-	0.7791 (0.1716)
Objective financial knowledge	-	0.9388* (0.0264)	-	0.9378* (0.0284)
Financial fragility (versus none)	-		-	
One	-	0.7266* (0.0854)	-	0.7185* (0.0897)
Two	-	0.5483*** (0.0669)	-	0.5428*** (0.0707)
Three	-	0.4175*** (0.0514)	-	0.4066*** (0.0539)
Four	-	0.1880*** (0.0274)	-	0.1711*** (0.0272)
Five	-	0.1315*** (0.0255)	-	0.1204*** (0.0259)
N	3,603	3,603	3,176	3,176

Notes: The data source is a restricted version of the 2018 NFCS; S.E. represents standard errors; The other explanatory variables include state of residence fixed effects but the results are not shown. +p<0.10 *$p < 0.05$; **$p < 0.01$; ***$p < 0.001$.

Table 4. Logistic Regression Estimates of College Savings on Financial Education Hours and Quality

	Model 5 Odds Ratio (S.E.)
Main explanatory variables	
Financial education hours (Ref.: 1 to 2 hours)	
3 to 10 hours	1.3159 (0.2559)
More than 10 hours	0.9143 (0.1705)
Quality of financial education	1.2469*** (0.0600)
Other explanatory variables	
Age	1.0905* (0.0361)
Age squared	0.9985*** (0.0004)
White (versus non-White)	0.6202*** (0.0828)
Married (versus not married)	1.1602 (0.1640)
Education (versus High school or less)	
Some college	0.6910* (0.1211)
College	1.0073 (0.2033)
Postgraduate	1.2737 (0.2910)
Financially dependent children (versus one)	
Two	0.6834* (0.0946)
Three	0.7606 (0.1385)
Four or more	0.6696+ (0.1445)
Household annual income (versus Less than $50,000)	
$50,000 to less than $100,000	1.1419 (0.1806)
$100,000 to less than $150,000	2.0296** (0.4197)
$150,000 or more	2.0235* (0.5099)
Employment status (versus homemaker)	
Self-employed	2.2325** (0.6015)
Employed full-time	1.3205 (0.2587)
Employed part-time	0.9876 (0.2620)
Unemployed	0.6743 (0.3080)
Student	1.3016 (0.4810)
Permanently sick/disabled	0.4188+ (0.2000)
Retired	1.4229 (0.4957)
Homeownership (Yes=1)	1.4789* (0.2821)
Student-loan debt (Yes=1)	1.0989 (0.1486)
Mortgage loan	1.3456+ (0.2295)
Medical debt	1.1764 (0.1638)
Health insurance (Yes=1)	1.8228** (0.3626)

Table 4. Logistic Regression Estimates of College Savings on Financial
Education Hours and Quality (Cont'd)

	Model 5 Odds Ratio (S.E.)
Other explanatory variables	
Financial-risk taking (versus low)	
Medium	1.3824* (0.2173)
High	3.3855*** (0.6063)
Subjective financial knowledge (versus low)	
Medium	0.8265 (0.2727)
High	0.8524 (0.2629)
Objective financial knowledge	0.8475*** (0.0385)
Financial fragility (versus none)	
One	1.0148 (0.1879)
Two	0.7591 (0.1486)
Three	0.5368** (0.1058)
Four	0.2936*** (0.0649)
Five	0.2204*** (.0658)

Notes: Data source is the restricted version of the 2018 NFCS; S.E. represents standard errors; The other explanatory variables include state of residence fixed effects but the results are not shown.   *$p < 0.05$; **$p < 0.01$; ***$p < 0.001$.
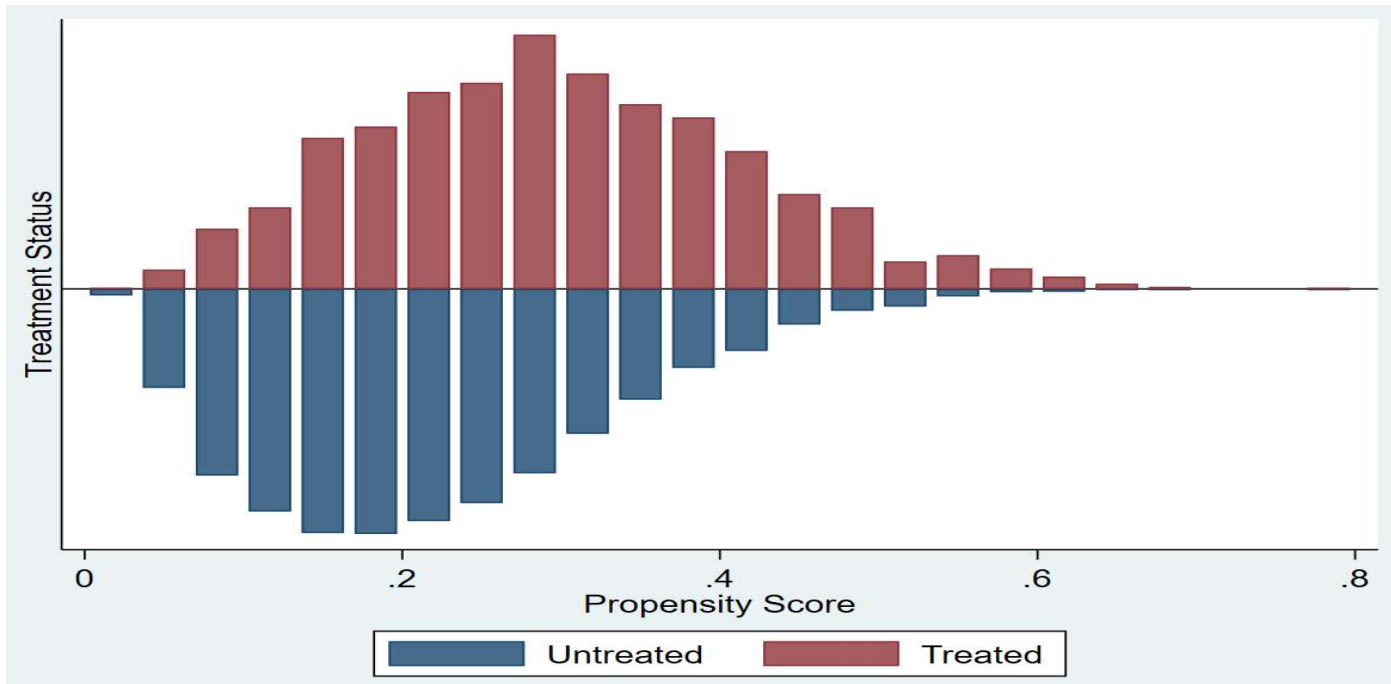N=1,886

Figure 1: Overlap plot. Treated represents those who received financial education, while untreated represents those who did not receive financial education.