



# Household Financial Capability and Economic Hardship: An Empirical Examination of the Financial Capability Framework

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## Abstract

This study investigates the components and mechanisms of the financial capability framework using national representative data from the 2015 National Financial Capability Study with the structural equation modeling approach. We find financial socialization and financial education are significantly associated with both financial access and financial literacy, which are associated with positive financial behavior and negatively associated with economic hardship. We further find that financial access plays a more pronounced role in the mediation effects decomposition compared to financial literacy. Our findings demonstrate that financial capability lies in both the opportunity to act and the ability to act—with opportunity relatively more important than ability—and that financial capability is strongly associated with household experiences of economic hardship. Policies and programs should provide accessible and affordable financial products as well as enhance effective financial education and guidance to promote financial inclusion.

**Keywords** Financial access · Financial literacy · Financial behavior · Material hardship · Financial inclusion

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## Introduction

Economic hardship among U.S. households is on the rise. A 2019 national survey showed that 28% of respondents could not cover their current monthly bills in full or would fail to do so should they have a minor emergency, and 25% reported skipping medical care because of inability to afford the cost of care (Canilang et al., 2020). To make matters worse, emerging data show a sharp rise in economic hardship among U.S. households during the COVID-19 pandemic (Canilang et al., 2020; Despard, Frank-Miller, et al., 2020; Despard, Grinstein-Weiss, et al., 2020; Parrott et al., 2020). Increased financial capability can reduce economic hardship through enhanced financial knowledge, access to savings and credit, and optimized financial decisions and behaviors (Huang et al., 2015a, 2015b; Johnson & M. S. Sherraden, 2007; M. S. Sherraden, 2013). The importance of financial capability is supported by the American Academy of Social Work and Social Welfare (AASWSW), which adopted “financial capability and asset building for all” (M.S. Sherraden et al., 2016) as one of 13 grand challenges for social work (Fong et al., 2017).

M.S. Sherraden et al. (2016) point out that two key trends determine financial capability’s significance. The first is that the financialization of daily life requires everyone to have

financial skills and knowledge to deal with daily financial matters, such as purchasing and selling assets or products, as well as organizing and managing their money, such as bank accounts, credit cards, and savings (Martin, 2002). The second is that labor income has grown stagnant and increasingly unstable, and at the same time, has increased the importance of owning assets. Therefore, people need access to policies, products, and services to stabilize and secure their economic well-being.

Researchers have investigated how financial education and socialization contribute to financial capability (e.g., Fernandes et al., 2014; Lusardi, 2011; Stolper & Walter, 2017). Others have highlighted the empirical connections between financial capability and lower risk of economic hardship (e.g., Birkenmaier et al., 2016; Huang et al., 2015a; Huang, Nam, et al., 2016; Huang, M.S. Sherraden, et al., 2016; West & Friedline, 2016). However, to the best of our knowledge, no study has empirically tested the financial capability framework comprehensively using nationally representative data in the US. One study used data to test the full financial capability model (Chowa et al., 2014), but it relied on a nonrepresentative sample from a district in Uganda. Other studies pertinent to this topic lack comprehensive measures of the core components of the financial capability framework (e.g., Lusardi, 2011). Further, the relative importance of financial access and financial literacy in the financial capability framework is unknown in existing empirical studies. Yet, from a practice and policy perspective, knowing the relative importance of these two constructs could inform the appropriate design and targeting of interventions to improve individual and family financial well-being.

Accordingly, this study investigates the underlying mechanisms and components of the financial capability framework using national representative data from the US. We foremost examine the adequacy of the multi-item measures of each of the core components of financial capability—i.e., financial literacy, financial access, and financial behavior. Further, we test the structural relationships among the financial capability core components and their connections to economic hardship. Finally, we examine the relative importance of financial literacy and financial access among these relationships and pathways. We aim to present a comprehensive review and analysis of the financial capability framework. Below, we review research on determinants and components of financial capability—financial socialization, financial education, financial literacy, and financial access—and evidence on the relationship between financial capability and economic hardship.

### Conceptualizing financial capability

Financial capability, which combines people's *ability to act* and *opportunity to act*, emphasizes both individual

knowledge and behavior, as well as the structural environment (i.e., availability of services and products) (M. S. Sherraden, 2013). Financial capability is conceptualized as a combination of financial literacy, financial access, and financial behavior (Huang et al., 2015a, 2015b; M. S. Sherraden, 2013). In the financial capability framework, M.S. Sherraden (2013) makes a compelling case that financial capability should focus on both internal and external factors that intrinsically influence people's ability and external contextual factors such as institutions and policies that enhance the opportunity to access financial services and products. In other words, financial capability is multidimensional as it combines individual internal ability and external conditions (Nussbaum, 2001, 2011). Researchers measure financial capability differently with selected indicators without justifications or consensus. For example, some studies measure financial capability using financial behaviors such as making ends meet, planning ahead, and money management (e.g., Taylor, 2011), whereas other studies use financial literacy (e.g., Lusardi, 2011) as a proxy for financial capability. However, improving one's financial behavior requires possessing knowledge and skills, as well as having access to financial products and services. A more comprehensive measure of financial capability has the potential to inform future research, policy, and practice in this field.

This paper measures financial capability by combining three components: financial literacy, financial access, and financial behavior. Under the financial capability framework (Fig. 1), social and economic structures generate financial socialization opportunities in the family and financial education at school and in the workplace. Financial socialization and education opportunities, in turn, affect people's financial capability. People with greater levels of financial capability are equipped with financial knowledge and skills, and have access to financial services and products, and thus have better financial behavior, which in turn contributes to a wide range of outcomes, including financial stability, well-being, and development (M. S., Sherraden & Huang, 2019).

### Financial Socialization and Financial Education

Financial socialization, as defined by Schuchardt et al. (2009), is values, attitudes, standards, norms, knowledge, and behaviors that guide members, peers, and media (Elder & Giele, 2009; Schuchardt et al., 2009). As they grow up, individuals gain different levels of financial socialization. Parents model and teach their children different things about financial management depending on their financial position and experiences. Wealthier parents, who are more likely to have experience with mainstream financial products, are more likely to share this information and their experiences with their children (Stacey, 1983). In contrast, parents with low incomes may have less (or negative)

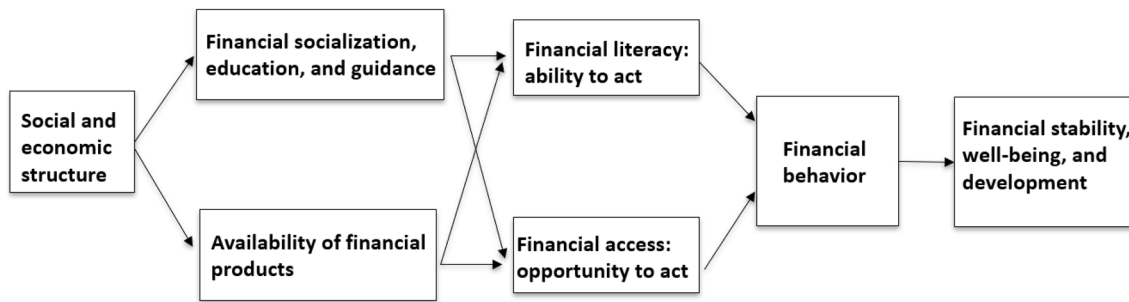


Fig. 1 The financial capability framework, adapted from M. S. Sherraden (2013)

experience with mainstream financial services, and may avoid discussing details of the family’s financial distress with their children (M. S. Sherraden & McBride, 2010). Jorgensen and Savla (2010) found perceived parental influence had a direct and moderately significant influence on financial attitudes, an indirect and moderately significant influence on financial behavior, a mediated effect through financial attitude, and no effect on financial knowledge.

In addition to socialization, people at all life stages may benefit from financial education, guidance, and advice to deal with complex financial matters and achieve financial well-being. A wide range of financial programs offered by schools, employers, and financial institutions have emerged to respond to this need. Existing financial education programs have a wide range of objectives, audiences, timing, contents, and designs. The effectiveness of these programs is positive overall, although there are mixed evidence and variations to consider (Collins & O’Rourke, 2010; Fernandes et al., 2014; Kaiser & Menkhoff, 2019). For example, Collins and O’Rourke (2010) reviewed 41 evaluations of financial education and counseling programs that serve adult populations, including general financial education programs, bankruptcy programs, credit repair programs, prepurchase homeownership counseling, post-purchase mortgage counseling, and workplace-based programs. They point out limitations in most studies, including self-reported evaluations, tracking outcomes over a short period, selection bias in causal inferences, lack of theory-based evaluations, and lack of randomized field experiments (Collins & O’Rourke, 2010).

Notwithstanding the limitations of intervention studies, the conceptual pathway from financial socialization and financial education to financial literacy is compelling and supported by data (Lusardi, 2019; Xiao & O’Neill, 2016). In this study, we leverage a large, nationally representative sample to replicate this relationship but also examine the implications of these relations for financial access, financial behavior, and material hardship.

## Financial Literacy and Financial Access

Researchers and policymakers often use *financial capability* and *financial literacy* interchangeably and make no distinction between the two. However, *financial literacy* is but one crucial component of financial capability. As defined by Danes and Haberman (2007), financial literacy is “the ability to interpret, communicate, compute, develop independent judgments, and take actions resulting from those processes to thrive in our complex financial world” (p. 49). Huston (2010) distinguished between financial knowledge and financial literacy, where in addition to possessing the knowledge acquired through education and experiences about personal finance concepts and products (i.e., the knowledge dimension), there is an application dimension (i.e., the ability and confidence to apply or use the knowledge effectively).

Financial literacy may be measured using both objective and subjective elements. Lusardi and Mitchell (2007, 2008) developed an objective measure of financial literacy, initially designed for the 2004 health and retirement study. This measure has been added to many surveys in the United States and abroad. Allgood and Walstad (2016) examined both objective and subjective measures and found that perceived financial literacy may be as important as actual financial literacy in influencing people’s financial decisions and behavior.

According to Birkenmaier et al. (2019), financial access aims to achieve financial inclusion, where all people in a society can access and be empowered to use safe, affordable, relevant, and convenient financial products and services. Due to historical and current unjust social and economic structures, not everyone has access to products and services such as savings accounts, credit cards, investment accounts, mortgages, small business loans, or small-dollar loans (Birkenmaier et al., 2019). Financially excluded households—who lack appropriate and accessible mainstream banking products and credit services—often turn to alternative

financial services (AFS) with higher costs and predatory practices (Bradley et al., 2009).

Institutions provide opportunities available for people to access financial products and services. Institutional theorists assert that low-income individuals and families have low levels of financial capability primarily because they do not have the same institutional opportunities that higher-income households have (Beverly et al., 2008; Curley, et al., 2009; M. Sherraden, 1991; M. Sherraden, et al., 2003). Institutional-level factors that can expand opportunities include access, information, incentives, facilitation, expectations, restrictions, and security (Barr & M. Sherraden, 2005; Beverly & M. Sherraden, 1999; Beverly et al., 2008; M. Sherraden et al., 2003; M.S., Sherraden et al., 2004; Ssewamala & M. Sherraden, 2004). The construct of *access* refers to institutional mechanisms that make financial services or programs available to everyone.

How do financial literacy and financial access interact? Researchers have found that individual characteristics (e.g., financial knowledge) are correlated with greater financial capability, conditional on appropriate institutional arrangements. Evidence from SEED for Oklahoma Kids (SEED OK), a long-term randomized experiment on child development accounts (CDAs), demonstrates that participants' financial knowledge is positively related to 529 college savings plans account holding in the treatment group but not in the control group (Huang et al., 2013). Another study that examined savings amount and total asset amount as outcomes finds similar patterns (Huang et al., 2015a, 2015b). Significant interactions between treatment status (which represent institutional access, information, incentives) and financial knowledge are also found, indicating that financial capability requires both improved individual financial knowledge and supportive institutional or policy arrangements. A recent study finds that compared to individual-level characteristics (e.g., child poverty, child work, and attitudes towards savings), institutional-level factors (e.g., access and proximity to banks, level of financial education) play a more pronounced role in influencing access and utilization of financial services among poor HIV-impacted children and families (Sun et al., 2020).

### Empirical Evidence on Financial Capability and Economic Hardship

Researchers who have examined the relationship between financial capability and economic hardships emphasize the role of financial access. Huang et al. (2013) analyzed financial capability and economic hardship among low-income older Asian immigrants in a supported employment program. They found that financial access and financial functioning are negatively associated with the risk of experiencing economic hardship, whereas financial literacy is not

significantly associated with economic hardship. Another study using data from SEED OK found that financial capability, particularly the financial access component, is critical for improving financial management and reducing the risk of material hardship (Huang, Nam, et al., 2016; Huang, Sherraden, et al., 2016). Similarly, access to liquid financial assets and tax-time savings enable households to avoid hardship (Despard, Friedline, et al., 2018; Despard, Guo, et al., 2018; Gjertson, 2016; Grinstein-Weiss et al., 2016). The present study adds to this body of empirical evidence with a national representative sample, as well as antecedents of financial capability—financial education and financial socialization—in the model.

### Research Aims and Hypotheses

Our study seeks to build on existing evidence by using national representative data to investigate the financial capability framework's systematic components and underlying mechanisms, adding the role of financial socialization and financial education as antecedents of financial capability. Moreover, we aim to compare the relative importance of financial literacy and financial access in a structural equation model.

Using nationally representative data, this study tests systematic components and underlying mechanisms of the financial capability framework. We hypothesize that both financial education and financial socialization are positively directly associated with two financial capability components: financial literacy and financial access (*Hypothesis 1; Antecedent hypothesis*). Next, we hypothesize that financial access is relatively more predictive of financial behavior than financial literacy (*Hypothesis 2; Comparative hypothesis*). Lastly, we hypothesize that enhanced financial literacy and expanded financial access may reduce the risk of economic hardship via optimal financial behaviors (*Hypothesis 3; Indirect hypothesis*).

### Methods

This study uses data from the 2015 National Financial Capability Study. We measure financial literacy, access, behavior, and economic hardship with latent variables and multiple indicators. Financial education and financial socialization are observed dichotomous variables. To test three hypotheses, we use structural equation modeling approaches.

### Data and Sample

Data used in this study are drawn from the U.S. 2015 National Financial Capability Study (NFCS) State-by-State Survey, funded by the Financial Industry Regulatory

Authority (FINRA) Investor Education Foundation. The NFCS is a triennial cross-sectional survey beginning in 2009. It collected a nationally representative sample of approximately 27,000 individuals aged 18 and older, with about 500 respondents per state and oversampling for New York, Texas, Illinois, and California. The sampling quota was set to approach the Census distribution that mirrors the distribution of age, gender, ethnicity, education level, and income within each state. We examined each study variable's responses and found that a sizable number of respondents reported "don't know" and "prefer not to say" in the financial-related measures. Following prior research (Xiao & O'Neill, 2018), we excluded these respondents, and the final analytical sample for both descriptive and SEM models was 24,154 respondents.

## Measures

Table 1 presents detailed measurements of all constructs. Our study's key independent variables are financial education and financial socialization. Financial education is measured by whether the respondents' institution (e.g., school or workplace) offered financial education and whether the respondent chose to participate in such education.

Respondents had three response options: (1) *Yes, but did not participate in the financial education*; (2) *Yes, and did participate in financial education*; and (3) *No*. We recoded this measure by combining those who reported no with those who reported not participated in financial education to construct a binary measure that reflects whether respondents received financial education. Financial socialization is measured by whether respondents' parents or guardians taught them how to manage finance. Both financial education and financial socialization are dichotomous and are observed measures.

Guided by the building blocks of financial capability developed by M. S. Sherraden (2013), the endogenous variables—financial literacy, financial access, financial behavior, and economic hardship—are modeled as latent constructs. Financial literacy, representing the ability to act, is a latent variable measured both by objective and subjective aspects of financial literacy. Objective financial literacy was measured by the sum of correctly answered six financial literacy questions. The original financial literacy questions were developed by Lusardi and Mitchell (2007, 2008), and now have been added used in more than 20 countries to measure financial knowledge. Regarding subjective financial literacy, we followed Xiao et al. (2015) and utilized

**Table 1** Measurement of constructs

Variable label	Operationalization
Financial capability	
Financial education	One binary measure (1 = <i>received financial education from education settings or workplace</i> ; 0 = <i>no</i> )
Financial socialization	One binary measure (1 = <i>parents or guardians teach me how to manage finance</i> ; 0 = <i>no</i> )
Financial literacy	
Objective financial literacy	Sum of six correct financial literacy questions ( <i>range</i> : 0–6). Questions include interest rates, mortgage, bonds, stock, and inflation. The original literacy questions were coded binary (1 = <i>correct</i> ; 0 = <i>not correct</i> )
Subjective financial literacy	Three ordinal measures (1 = <i>strongly disagree</i> ; 7 = <i>strongly agree</i> ), including good at dealing with day-to-day financial matters, good at math, overall financial knowledge
Financial access	Five binary measures for financial products ownership (1 = <i>yes</i> ; 0 = <i>no</i> ), including whether having a checking account, saving account, investment account, retirement plan, and credit cards
Financial behavior	Two measures with one on whether set aside emergency or rainy-day fund that covers expense for 3 months (1 = <i>yes</i> ; 0 = <i>no</i> ) and another on setting financial goal (1 = <i>strongly disagree</i> ; 7 = <i>strongly agree</i> )
Economic hardship	Two measures with one on any difficulty to cover expense and pay bills (1 = <i>very difficult</i> ; 2 = <i>somewhat difficult</i> ; 3 = <i>not at all</i> ) and another sum score of difficulties (1 = <i>yes</i> ; 0 = <i>no</i> ) in medical-related services (e.g., not seeing a doctor, not filling prescription, and having unpaid bills from health care or medical service providers) due to cost
Covariates	
Gender	Binary measure (1 = <i>male</i> ; 0 = <i>female</i> )
Age	Ordinal measure (1 = 18–24; 2 = 25–34; 3 = 35–44; 4 = 45–54; 5 = 55–64; 6 = 65 or older)
Education level	Ordinal measure (1 = <i>less than high school</i> ; 2 = <i>high school or GED</i> ; 3 = <i>some college</i> ; 4 = <i>associate degree</i> ; 5 = <i>bachelor</i> ; 6 = <i>postgraduate</i> )
Marital status	Binary measure (1 = <i>married</i> ; 0 = <i>not married</i> )
Race	Binary measure (1 = <i>Non-white</i> ; 0 = <i>White</i> )
Working status	Binary measure (1 = <i>currently working</i> ; 0 = <i>not working</i> )
Income	Ordinal measure (1 = <i>less than 15 K</i> ; 2 = 15–25 K; 3 = 25–35 K; 4 = 35–50 K; 5 = 50–75 K; 6 = 75–100 K; 7 = 100–150 K; 8 = 150 K or above)

Italics indicate anchors of a scale per APA

statements regarding their self-perceived overall financial knowledge, and whether they are good at dealing with day-to-day financial matters and good at math. All subjective financial literacy measures are ordinal (1 = *strongly disagree*; 7 = *strongly agree*).

Financial access—a latent variable denoting the opportunity to act—is constructed based on the ownership of five financial products, namely checking, savings, and investment accounts, retirement plan, and credit cards (Birkenmaier & Fu, 2019). We assess latent financial behavior based on respondents' financial management practices and positive behavior in dealing with financial matters (Huang et al., 2015a, 2015b). We use two items to measure the construct: (a) a binary measure of whether respondents set aside enough rainy-day funds to cover expenses for at least 3 months, and (b) an ordinal measure evaluating whether they are setting long-term financial goals (1 = *strongly disagree*; 7 = *strongly agree*). Lastly, we followed Despard, Friedline, et al. (2018), Despard, Guo, et al. (2018), Despard, Taylor, et al. (2018)) to construct our latent economic hardship measure, an indicator of financial stability and well-being. The measure entails two items: a) an ordinal measure on whether respondents had any difficulty covering expenses and paying bills (1 = *very difficult*; 2 = *somewhat difficult*; 3 = *not at all*), and b) a sum score of any difficulties in medical-related services such as not seeing a doctor, not filling a prescription, and having unpaid bills from health care or medical service providers due to cost. Financial literacy, access, and behavior are mediators and economic hardship is an outcome variable in this study.

Covariates related to financial literacy, access, behavior, and economic hardship, including gender, age, education level, marital status, race, working status, and income, are controlled for in the analyses (Birkenmaier & Fu, 2019).

## Statistical Analysis

We examine both the measurement model and a path model using the structural equation modeling (SEM) approach. SEM enables researchers to model complex relationships among observed and latent variables and obtain more precise estimates by accounting for measurement errors appraised by varied model fit index (Kline, 2015). To evaluate the appropriateness of the SEM model, we use multiple model fit indices, including comparative fit index (CFI), Tucker-Lewis index (TLI), and root mean square error of approximation (RMSEA) with a 90% confidence interval (CI). We use these fit indices in addition to model chi-square as they are sensitive and tend to be significant when a larger sample is used (Wang & Wang, 2012). A good model fit for an SEM model is indicated by a non-significant chi-square, CFI and TLI > 0.90, and RMSEA < 0.05 with an upper bound of the 90% CI < 0.08 (Hu & Bentler, 1999).

The analyses are conducted in sequential steps. First, we use confirmatory factor analysis to examine the model fit of the measurement model by including all endogenous variables (i.e., financial literacy, financial access, financial behavior, and economic hardship). We then use a latent structure model to examine all the direct and indirect paths that connect observed variables of financial socialization and financial education (*Hypothesis 1; Antecedent hypothesis*), the three latent constructs for financial capability and economic hardship (*Hypothesis 3; Indirect hypothesis*) (see Fig. 1). The tests of significance of indirect effects are calculated using the delta method (Preacher & Hayes, 2008), which is more appropriate when studies involve multiple mediators and a larger sample. To test *Hypothesis 2 (Comparative hypothesis)*, we further use the effect decomposition method for the indirect paths to examine the relative predictive role of financial education and financial socialization on the financial capability constructs. The weighted least square mean and variance adjusted (WLSMV) estimator is used for both measurement and path models to account for the variables' binary or ordinal nature. We apply weights for the path model so that the estimates can be generalized to the national profile. All the analyses were conducted using Mplus 7.4.

## Results

Table 2 presents the weighted demographic characteristics of the sample ( $n = 24,154$ ). The proportion of males (49.12%) and females (50.88%) are almost equally distributed. Respondents are mostly white (65.09%), married (59.59%), currently at work (55.04%), and with a college degree (including associate degree; 60.41%). Age is nearly equally distributed across all age categories, and about a quarter of the respondents have income less than \$25,000.

## Measurement Model

Although the model chi-square is significant, other indices reflect a satisfactory model fit for the measurement model ( $\chi^2_{(55)} = 2274.332$ ,  $p < 0.001$ ;  $CFI = 0.970$ ;  $TLI = 0.958$ ;  $RMSEA = 0.041$  [90% CI: 0.039–0.042]). All the factor loadings are significant and above the 0.30 threshold (in standardized estimates). Similarly, the correlations across the four latent constructs are significant at the 0.001 level: Financial literacy and financial access are positively correlated ( $r = 0.55$ ,  $p < 0.001$ ), and both latent variables are positively associated with financial behavior, with financial access showing a stronger relationship with financial behavior ( $r = 0.79$ ,  $p < 0.001$ ). Financial literacy ( $r = -0.39$ ,  $p < 0.001$ ), financial access ( $r = -0.48$ ,  $p < 0.001$ ), and

**Table 2** Sample characteristics ( $n=24,154$ )

Variable	<i>N</i> (weighted %)
Gender	
Male	10,924 (49.12)
Female	13,230 (50.88)
Age	
18–24	2609 (12.13)
25–34	4359 (18.09)
35–44	4004 (16.31)
45–54	4399 (17.98)
55–64	4252 (17.42)
65 or older	4531 (18.07)
Race	
White	17,388 (65.09)
Non-White	6766 (34.91)
Marital status	
Married	14,969 (59.59)
Not married (single, separated, divorced)	9185 (40.41)
Education	
Less than high school	490 (2.44)
High school or GED	5376 (26.36)
College	14,906 (60.41)
Post-graduate	3382 (10.79)
Household income	
Less than \$15,000	2650 (12.44)
\$15,000–\$25,000	2569 (11.49)
\$25,000–\$35,000	2597 (11.10)
\$35,000–\$50,000	3511 (14.96)
\$50,000–\$75,000	4998 (20.10)
\$75,000–\$100,000	3332 (12.80)
\$100,000–\$150,000	3024 (11.62)
\$150,000 or more	1473 (5.49)
Working status	
Working (self-employed, work full-time, work part-time)	13,584 (55.04)
Not at work (homemaker, student, employed, retired)	10,570 (44.96)

Percentages were weighted. Weights from the National Financial Capability Study were used to be representative of the national population in terms of age, gender, ethnicity, education, and Census Division according to the American Community Survey from the U.S. Census

financial behavior ( $r = -0.61$ ,  $p < 0.001$ ) are negatively correlated with economic hardship (Table 3).

### Path Model

The latent path model (see Fig. 2) also shows a good model fit ( $\chi^2_{(135)} = 4346.162$ ,  $p < 0.001$ ;  $CFI = 0.930$ ;  $TLI = 0.900$ ;  $RMSEA = 0.036$  [90% CI: 0.035–0.037]), and all the standardized paths are statistically significant. Regarding the effects of control variables on each latent variable (results not shown in Figure), those who were males, older, with higher education, married, white, employed, and with

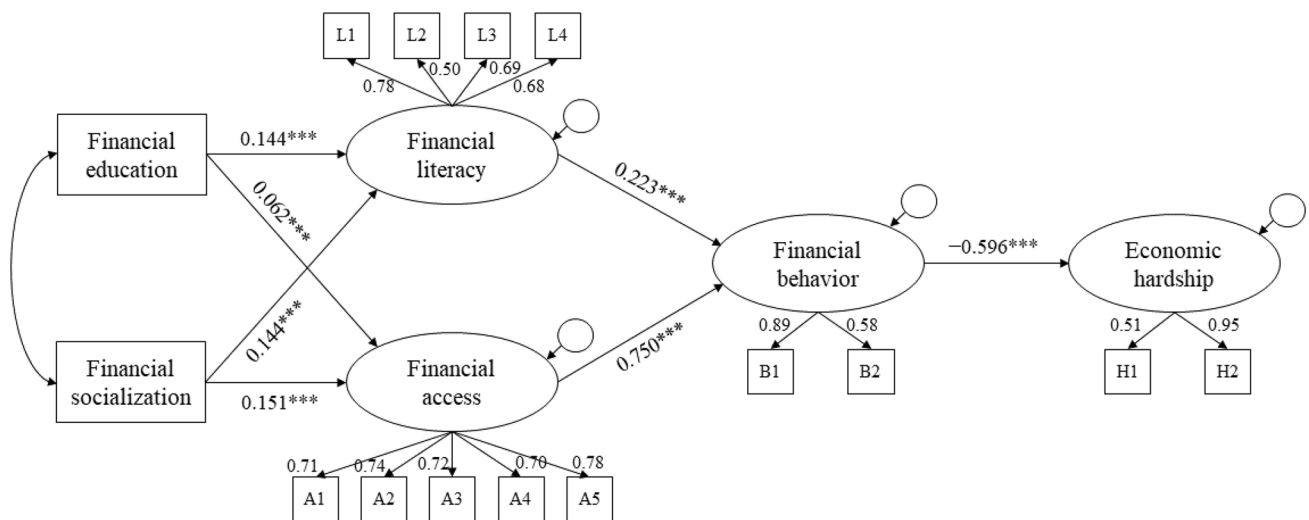
higher income were generally found to have higher levels of financial literacy, better financial access, and lower economic hardship.

For the focal variables of this study, both financial education and financial socialization are positively associated with financial literacy ( $\beta_{\text{education}} = 0.144$  and  $\beta_{\text{socialization}} = 0.144$ ) and financial access ( $b_{\text{education}} = 0.062$  and  $b_{\text{socialization}} = 0.151$ ). The standardized path estimates show that both financial education and socialization have a similar association with financial literacy, but financial socialization has a stronger relationship with financial access than financial education. Financial literacy

**Table 3** Measurement model results

Latent variables	Items	Estimates ( $\lambda$ or $r$ )
Financial literacy (FL)	(L1) Day-to-day financial matters	0.76***
	(L2) Good at math	0.55***
	(L3) Financial knowledge	0.71***
	(L4) Financial literacy questions	0.69***
Financial access (FA)	(A1) Checking account	0.70***
	(A2) Saving account	0.74***
	(A3) Investment account	0.78***
	(A4) Retirement plan	0.68***
	(A5) Having credit card	0.77***
Financial behavior (FB)	(B1) Rainy-day fund	0.89***
	(B2) Set long-term financial goal	0.59***
Economic hardship (EH)	(H1) Difficulties covering expense	0.88***
	(H2) Medical difficulties	0.46***
Correlation		
FL ↔ FA		0.55***
FL ↔ FB		0.56***
FL ↔ EH		−0.39***
FA ↔ FB		0.79***
FA ↔ EH		−0.48***
FB ↔ EH		−0.61***

$\lambda$  = item factor loading (standardized) for latent variables, and all factor loadings were significant;  $r$  = standardized correlation. Results ( $n = 24,154$ ) were estimated using weighted least square to correct the categorical nature of indicators. Model fit:  $\chi^2_{(55)} = 2274.332, p < .001; CFI = 0.970; TLI = 0.958; RMSEA = 0.041$  (90% CI: 0.039–0.042). \*\*\* $p < .001$



**Fig. 2** SEM results showing relationships between financial capability components and outcomes. *Notes.* Factor loadings for each latent construct and path estimates were standardized estimates, and all of the estimates were significant at the 0.001 level All latent variables were controlled for covariates (gender, age, education, marital status,

race, working status, and income). Results ( $n = 24,154$ ) were estimated using weighted least square to correct the categorical nature of indicators. Model fit:  $\chi^2_{(135)} = 4346.162, p < .001; CFI = 0.930; TLI = 0.900; RMSEA = 0.036$  (0.035–0.037). \*\*\* $p < .001$



**Table 4** Significance of paths (total and indirect effect) and relative importance of indirect path

Paths	<i>b</i> (S.E.)
Total effect	
FE → FL + FA → FB → EH	−0.058 (0.005)***
FS → FL + FA → FB → EH	−0.091 (0.005)***
Indirect effect	
FE → FL → FB → EH	−0.023 (0.002)***
FE → FA → FB → EH	−0.034 (0.004)***
FS → FL → FB → EH	−0.020 (0.002)***
FS → FA → FB → EH	−0.071 (0.005)***
Relative importance of indirect path (%)	
FE → FL + FA → FB → EH	100.0
FE → FL → FF → EH	39.6
FE → FA → FF → EH	60.4
FS → FL + FA → FB → EH	100.0
FS → FL → FB → EH	21.9
FS → FA → FB → EH	78.1

FE financial education, FS financial socialization, FL financial literacy, FA financial access, FB financial behavior, EH economic hardship

\*\*\* $p < .001$

( $\beta = 0.223$ ) and financial access ( $\beta = 0.750$ ) have a positive association with financial behavior, which in turn, results in lower economic hardship ( $\beta = -0.596$ ). The standardized path estimates also show that financial access has a stronger predictive influence on financial behavior than financial literacy.

### Relative Magnitude of Indirect Effects

Table 4 presents the indirect effects using the effect decomposition method, and all the indirect effects are statistically significant. We examined the relative magnitude of indirect effects from financial education and financial socialization to economic hardship via financial literacy, access, and behavior. Findings show that financial education and financial socialization are positively associated with financial literacy and financial access, leading to better financial behavior and lower economic hardship. However, financial access may play a more predictive role than financial literacy, as the size of the indirect path accounts for 60 to 78% of the total effect, whereas the proportion of the indirect effect involving financial literacy accounts for 22 to 40%. These findings suggest that financial access plays a relatively more predictive role than financial literacy in shaping household economic hardship.

### Discussion and Direction

Both the multidimensional measure of financial capability with systematic components, and the test of mechanisms of the financial capability framework have a good fit to the data—as confirmed by the structural equation models. We find financial socialization and financial education are significantly associated with both financial access and financial literacy, which are associated with positive financial behavior and negatively associated with economic hardship. We further find that financial access plays a more important role in the mediation effects decomposition than financial literacy. Based on our research findings, below we summarize three key points and discuss directions for future policy and research.

#### Enhance Financial Capability: Provide Effective Financial Guidance and Education

Our results show that both financial socialization and financial education are positively associated with financial literacy and financial education, leading to positive financial behavior, and decreased economic hardship. Thus, it is critical for policies and programs to implement effective financial education and guidance to enhance financial capability. Financial socialization occurs throughout life (Gudmunson & Danes, 2011); thus, people at all life stages could benefit from access to guidance and education if more evidence points in this direction.

For now, evidence on the effectiveness of financial education is mixed. One study found that the effectiveness of financial education decays over time (Fernandes et al., 2014). Further, studies suggest that “just in time” and simplified rule-of-thumb financial education that teaches financial heuristics that are easy to understand, easier to follow, and stick with simple financial calculations are more effective than traditional financial education (Drexler et al., 2014; Fernandes et al., 2014; Mandell & Klein, 2009). Future research and practice should continuously evaluate what, how, when, to whom financial education is effective in improving financial literacy and making people aware of available products and services.

Questions about the length of exposure and mode of delivery remain for future research: how many hours of financial education and financial guidance, offered in what way, can help everyone achieve a basic level of financial literacy to make appropriate financial decisions? Clearly, more randomized experiments and quasi-experiments are needed to answer these questions (Collins & O’Rourke, 2010; Demirgüç-Kunt et al., 2008). The answer to these questions may vary by group, such as people with low incomes, disabilities, racial and ethnic minority groups, immigrants, refugees, and others. Thus, having representative participants or oversampling minority groups is essential.

### Multiple Components of Financial Capability for Policy, Research, and Practice

This study measures financial capability using multiple latent constructs: financial literacy (both subjective and objective), financial access, and financial behavior. Our findings from the measurement model suggest the multidimensional measurements of financial capability fit the data well. Policies and programs that aim to improve financial capability should consider multidimensional and nuanced aspects of financial capability. To build financial security and stability among households, policies and programs should consider individual and household ability to make optimized decisions and focus on opportunities to access and use mainstream financial services and products. Policies and programs should pay particular attention to easing access to financial products, services, and policies among vulnerable households at the bottom of the economic ladder who have been historically excluded from mainstream financial services.

Furthermore, future research should include more comprehensive and multidimensional measures of financial capability. Tradeoffs exist between financial capability measures: subjective versus objective measures, and unidimensional versus multidimensional with subcomponents. We use three latent constructs—financial access, financial

literacy, and financial behavior—to capture the ability to act and the opportunity to act as theorized in the financial capability framework. The current study aims to identify multidimensional measures relevant to the U.S. context, in line with Sherraden and Ansong’s (2016) conceptualization that financial capability is multifaceted and context-specific. In the interest of advancing the broader application of the financial capability framework, more studies are needed to psychometrically validate this study’s multidimensional measures’ adequacy and utility. Future studies can adopt this approach and test the validity and reliability of measures among diverse populations and diverse contexts to inform financial capability measurement development.

### Importance of Financial Access and Financial Inclusion

Our indirect effect decomposition results revealed that financial access plays a relatively more predictive role than financial literacy in testing the pathways from financial socialization (guidance) and financial education to economic hardship. In other words, external institutional factors (i.e., opportunity to act) may be more consequential than individual abilities and traits when aiming to improve economic hardship. This finding confirmed our research hypothesis and is consistent with previous research that supports institutional theories except that we examine actions and behavior that are beyond savings (e.g., Beverly & M. Sherraden, 1999; Beverly et al., 2008; Curley et al., 2009; M. Sherraden, 1991; M. Sherraden et al., 2003; M. S. Sherraden, 2013; Ssewamala & M. Sherraden, 2004; Sun et al., 2020). Further, we extend this body of empirical work that supports the financial capability framework (e.g., Huang et al., 2013, West & Frindline, 2016, Huang et al., 2013) by using a national representative sample of the U.S. population, tests of components and mechanisms of financial capability, as well as tests of both antecedents and outcomes of financial capability.

Practical ways to translate this finding into meaningful financial inclusion and access should start by making sure all individuals and households have ways to deposit money, emergency and long-term savings, investments, and affordable credit and insurance products. Further, these financial products should be appropriate, accessible, affordable, financially attractive, easy to use (with automatic features), flexible, secure, and reliable (Sherraden, 2013). Indeed, financial access and inclusion cannot be addressed once and for all but instead require continued efforts. Birkenmaier et al. (2019) exposition on what it means to have financial access suggests that a holistic approach is needed that addresses challenges when it comes to (a) having the legal right, necessary documentation, and eligibility, (b) ability to open, afford,

and (c) opportunity to continually use financial products and services.

Scholars have made policy recommendations and proposals to expand and improve financial access and inclusion in key areas: emergency savings (Despard, Friedline, et al., 2018; Despard, Guo, et al., 2018; Despard, Taylor, et al., 2018); banking and financial services (Friedline et al., 2018); safe, affordable credit (Birkenmaier et al., 2018); as well as utilizing technology and digital tools to make financial services easy to deliver (e.g., financial gateway and fintech; Huang, Nam, et al., 2016; Huang, M. S. Sherraden, et al., 2016). A critical lesson from these studies and the current study is that achieving financial inclusion requires efforts from *multiple actors* (e.g., banks, credit unions, credit bureaus, loan funds, micro-lenders, and venture capital funds at local, state, and national level), the offering of *multiple products and services* and delivery at *multiple settings* (e.g., family setting, workplace, health care setting; Birkenmaier et al., 2019; Despard, Frank-Miller, et al., 2020; Despard, Grinstein-Weiss, et al., 2020). Discussions have emerged on integrating market finance and social policy to make basic finance as a public good (Huang et al., 2021).

## Limitations and Future Research

Five limitations are worth noting in this study. Below we discuss these limitations and point to directions for future research. First, this study uses cross-sectional, observational data; thus, the relationships it found are not causal. Developing causal evidence requires longitudinal studies. Challenges remain regarding data availability. Second, financial education and socialization measures used in this study are dichotomous self-reported measures. Future research should investigate the nuances of quality and intensity of financial education and socialization, which will require the development of financial education and socialization measurement scales. Third, we measured financial access by ownership of financial products. However, Beverly et al. (2008) discussed two aspects of access: eligibility and practicality. One may have access but not own the product or vice versa; one might own a financial product, but the distance to get to the service is far (i.e., practicality is poor). Future research should measure financial access beyond ownership of products (Demirgüç-Kunt et al., 2008). Moreover, this study does not capture the social and psychological dimensions of financial access, such as perceptions of financial products and services and interactions with the staff of financial institutions (Despard & Chowa, 2014). Fourth, bi-directional relationships between financial behavior and economic hardship may exist; these are not examined in the present study. For example, families may develop coping strategies in response to economic hardship that focus on getting by in

the short-term instead of developing long-term security and well-being. Further, feedback reinforcing loops may exist where well-off families reinforce positive behavior and outcomes, whereas financially vulnerable households are caught in the adverse financial behavior and hardship spiral. Future research should test the potential bi-directional relationships and feedback loops using longitudinal data. This would provide empirical evidence to refine financial capability theory. Finally, data used in this study were collected in 2015 and so may not reflect current financial capability and economic hardship conditions among U.S. households. However, this study aimed to empirically test the financial capability framework rather than descriptively show prevalence or trend, therefore the results are still applicable regarding relationships among constructs and the relative importance of financial access and financial literacy.

## Conclusion

To conclude, this study is among the first to empirically test the financial capability framework using a national representative sample. We find that financial guidance and financial education are positively associated with financial literacy and financial access, which lead to positive financial behaviors. Positive financial behaviors are, in turn, associated with reduced levels of economic hardship. We also find that financial access plays a more pronounced role in these relationships compared to financial literacy. Policies and programs should provide effective financial education and guidance to improve people's financial stability and well-being. More attention should be paid to expanding financial access and promoting financial inclusion for all to have opportunities to achieve financial well-being and development.

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**Code Availability** NA.

## Declarations

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**Ethical Approval** NA.

**Informed Consent** Not applicable. This research utilizes secondary data.

**Consent to Participate** NA.

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