



Financial Education is Not Enough: Millennials May Need Financial Capability for Healthy Financial Behaviors



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Terri Friedline, PhD, University of Kansas, School of Social Welfare
1545 Lilac Lane, 307 Twente Hall, Lawrence, KS 66045
Email: tfriedline@ku.edu; Phone: (785) 864-2267; Fax: (785) 864-5277

Stacia West, MSW, University of Kansas, School of Social Welfare
1545 Lilac Lane, 306 Twente Hall, Lawrence, KS 66045
Email: west.stacia@gmail.com; Phone: (785) 864-2267; Fax: (785) 864-5277

Abstract

Financial education sans opportunities for hands-on experience and knowledge operationalization may be insufficient for promoting healthy financial behaviors. Financial capability combines financial education with financial inclusion via a savings account, thereby giving an opportunity translate knowledge into practice. This study used data from the 2012 National Financial Capability Study to examine relationships between financial capability and financial behaviors of United States Millennials ($N = 6,865$). Compared to their financially excluded peers, Millennials who were financially capable were 176% more likely to afford unexpected expenses, 224% more likely to save for emergencies, 21% less likely to use alternative financial services, and 30% less likely to carry burdensome debt. Interventions that focus solely on financial education or inclusion may be insufficient for facilitating Millennials' healthy financial behaviors; interventions should instead develop financial capability.

Center on Assets, Education, and Inclusion
The University of Kansas
www.aedi.ku.edu



Young adulthood is a period of the life course commonly characterized by financial fragility. Today's young adults, referred to as Millennials born between the early 1980's and 2000's (Taylor et al. 2014), earn the lowest incomes of their careers while making financial decisions about attending postsecondary education, living independently from families of origin, finding employment, repaying educational debt, purchasing a home, and saving for retirement (Bell et al. 2007; Hall and Willoughby 2014; Mishel et al. 2012). These decisions require a level of financial knowledge and access to financial products with which Millennials may have limited experience (Lusardi et al. 2010), particularly given their early stage in the life course. Thus, it is unsurprising that Millennials struggle with these decisions and in some cases resort to high-stakes financial behaviors like lacking emergency savings and using alternative financial services (e.g., payday and tax refund lenders). For example, over one third of Millennials report high-cost borrowing from alternative financial service providers and almost one third lack emergency savings (de Basa Scheresberg 2013). The average Millennial has about \$1,000¹ in savings (Friedline and Song 2013), suggesting that many may not be able to afford on their own costly and unexpected expenses like a medical emergency or car repair. The inability to afford unexpected expenses has been defined by Lusardi et al. (2011) as financial fragility. Debt burdens may further constrain their finances. About 85% of Millennials hold some type of debt and their average debt is \$60,000 (Hodson and Dwyer 2014), with the most common debts stemming from credit cards, auto loans, and installment loans (Chiteji 2007). Millennials' engagement in such high-stakes financial behaviors may have implications for their abilities to achieve financial stability and to accumulate wealth for years to come.

Teaching financial education has been the primary intervention for helping generations of young adults (and the population generally) to become financially knowledgeable so that they can avoid high-stakes financial behaviors (Council for Economic Education 2014; Lusardi and Mitchell 2014). Financial education refers to the passing on of financial knowledge that takes place either individually or in groups through workshops, seminars, trainings, and counseling and planning sessions (Council for Economic Education 2014). From this perspective, high-stakes financial

¹ All monetary values throughout this paper are reported in US dollars.

behaviors and financial fragility can be avoided if individuals gain sufficient knowledge. In other words, knowledge is power (Garbinsky et al. 2014) and Millennials make healthier financial decisions when they are better educated.

However, financial education in and of itself may be insufficient for shaping financial behaviors, particularly for Millennials who are making these decisions during a volatile macroeconomic era that has limited their options and further complicated their decision-making. Emerging evidence on the effectiveness of financial education suggests that any measureable effects on behaviors may be the result of how information is presented and what individuals believe about that information, rather than the actual content (Bernheim 2014). Any positive effects of this education on financial behaviors are negligible and disintegrate over time (Fernandes et al. 2014). Moreover, during and after the Great Recession from approximately 2008 to 2011, Millennials entered a labor market with limited opportunities (Rubin 2014), saw higher unemployment rates than the rest of the population (Mishel et al. 2012), experienced greater losses in wealth compared to previous generations (Taylor et al. 2011), and delayed making investments in home ownership (Fry 2013). They also saw mainstream financial institutions take much of the blame for inciting one of the worst economic recessions in recent history as a result of irresponsible lending practices (Mian and Sufi 2014), potentially fostering Millennials' distrust in mainstream banks and credit unions (Afandi and Habibov 2013). In other words, Millennials make healthier financial decisions when their macroeconomic conditions and institutional arrangements are more favorable.

In order to generate better financial decision-making that produces measurable effects on financial behaviors, researchers recommend pairing financial knowledge with financial inclusion (M.S. Sherraden 2013). This pairing means teaching financial education and shaping institutional arrangements by opening savings accounts or similar financial products that provide opportunities for experiential learning. The combination of financial education and financial inclusion is the definition of financial capability (M.S. Sherraden 2013). From this perspective, people behave in optimally financial ways when they have both the knowledge and opportunity to act (M.S. Sherraden 2013). Here, financial education is considered insufficient for helping Millennials make good financial

choices without also providing them with opportunities to do so via financial inclusion; they need institutional arrangements that provide them with opportunities to operationalize their knowledge. Millennials who receive financial education and financial inclusion via a savings account may demonstrate healthier financial behaviors compared to being either financially educated or financially included alone. Millennials with neither financial education nor inclusion are essentially considered to be financially excluded—having neither the knowledge to make informed financial decisions nor the opportunities to do so. Research is needed to determine whether Millennials' financial capability is associated with their healthy financial behaviors at a time in the life course when these behaviors are essential. Interventions that combine financial education with financial inclusion may be validated if empirical research confirms the existence of the relationship between financial capability and healthy financial behaviors.

This paper asks whether being financially capable—the combination of financial education and financial inclusion via a savings account—is associated with significantly healthier financial behaviors compared to being financially included (having a savings account only), being financially educated (having received financial education only), or being financial excluded (neither having a savings account nor having received financial education) among US Millennials? Five financial behaviors are examined that together are believed to provide an overall picture of Millennials' financial health and range from emergency savings, debt burden, and financial satisfaction (Emmons and Noeth 2014; Lusardi et al. 2010). Alternative definitions for financial capability and their relationships to Millennials' financial behaviors are also tested in order to refine how financial capability is operationalized and to drive theoretical development (Taylor 2011). That is, Millennials might be financially capable when they have a credit card or a checking account, suggesting that financial capability can be operationalized in other ways aside from having received formal financial education or being financially included by having a savings account. This paper builds on existing literature and leverages a relevant dataset—the 2012 National Financial Capability Study—to evaluate the potential effects of financial capability for US Millennials who ranged in age from 18 to 34. The paper begins with a brief literature review on financial capability and its relationship to financial

behaviors, followed by a presentation of the methods and results. The paper concludes by discussing the findings and considerations for policy.

Literature Review: Does Financial Capability Help Shape Behavior?

Research has begun to test the relationship between financial capability and financial behaviors, most of which evaluates behaviors like saving and accumulating assets. Much of this research has come from savings programs that typically require financial education and automatically open savings accounts for participants, incentivizing accounts with initial deposits or matches on any additional monies deposited (Schreiner and Sherraden 2007). For example, financial capability has been found to relate to participants' total savings accumulation in a program that opened tax-benefitted accounts with initial deposits and match incentives and simultaneously required participation in financial education (Mason et al. 2010). In another savings program, up to 10 hours of financial education have been associated with participants' greater savings accumulation (Schreiner and Sherraden 2007). International evidence has suggested that the combination of financial education and inclusion was not necessary for improving knowledge and behavior (Jamison, Karlan, and Zinman 2014); instead, similar outcomes could have been achieved by replacing education with inclusion or vice versa. Qualitative studies with participants in savings programs have indicated that the combination of financial education and savings accounts helped with the development of healthier financial behaviors like developing a saving habit and accumulating savings (Scanlon et al. 2009; M.S. Sherraden and McBride 2010; Wheeler-Brooks and Scanlon 2009); although, it is unclear whether participants' positive perceptions of their behaviors have always been directly attributable to the simultaneous offering of financial education and savings accounts (M.S. Sherraden 2013). Despite emerging evidence for a relationship between financial capability and financial behaviors, the majority of research has explored the independent effects of having received financial education or owning savings accounts—that is, separately measuring the effects of being financially educated or financially included. The following research reviews these independent effects.

Financial Education

Financial education that is delivered through workshops, seminars, trainings, and counseling and planning sessions has encompassed a range of efforts, including financial education in public school curriculum and in workplace counseling (Bernheim and Garrett 2003; Bernheim et al. 2001; Totenhagen et al. 2014; Urban et al. 2015). The evidence has been mixed regarding the effects of financial education on financial behaviors, independent of opportunities for experiential learning (Fox et al. 2005; Xiao et al. 2014). Surveys involving nationally representative samples of young adults have indicated that financial knowledge scores remained relatively stable over the last 10 years despite growing state and national efforts to incorporate financial education into public school curriculum (Mandell 2008). This suggests that little progress has been made in improving young adults' financial knowledge via financial education—Millennials may be no better off in terms of their financial knowledge or, at the very least, these efforts have not yet been descriptively reflected in annual scores on these surveys. Taking an instrumental variable approach to evaluate the effects of state financial education mandates, one study has found that those who grew up in states with mandated financial education in high school exhibited healthier saving behaviors in adulthood than those who grew up in states without such a mandate (Bernheim et al. 2001). Similarly, young adults have reported better credit scores and lower delinquency rates when they lived in states whose mandated high school financial education followed standardized and required curriculum (Urban et al. 2015). Though, an analysis exploiting several nationally representative, longitudinal datasets has found no significant effect of state mandates on credit scores, credit card delinquency, bankruptcy, or foreclosure (Cole, Paulson, and Shastry 2014); instead, math proficiency was a determinant of these financial behaviors. A recent meta-analysis of 201 studies that employed and tested financial education has suggested that any positive effects on financial behaviors were negligible and disintegrated over time (Fernandes et al. 2014); however, the authors have contended that ‘just-in-time’ financial education—education delivered immediately preceding or concurrently with a related and specific financial decision or behavior—proved worthy of investigation. The recommendation for ‘just-in-time’ education that is tied to financial decisions or behaviors substantiates financial capability, where young adults have opportunities to act on the knowledge they have learned.

Financial Inclusion

A savings account is one example of a financial product that provides opportunities to act on financial knowledge and is often an indicator of financial inclusion; that is, whether or not institutional arrangements provide young adults with access to mainstream financial products and services (Federal Deposit Insurance Corporation [FDIC] 2014). Savings accounts can be held at mainstream financial institutions or opened within the context of savings programs where participants receive incentives and supports to save (Friedline and Elliott 2013; Mason et al. 2010; Schreiner and Sherraden 2007). Research has consistently found significant relationships between savings accounts and healthy financial behaviors, particularly with saving and asset accumulation (Friedline, Johnson, and Hughes 2014; Friedline and Rauktis 2014; Grinstein-Weiss et al. 2013; Schreiner and Sherraden 2007; Wiedrich et al. 2014). Research from a randomized evaluation of a savings program sans financial education has found that participants who received accounts accumulated significantly more savings compared to those who did not receive accounts (Nam et al. 2013). Outside the context of savings programs, research has found that young adults were more likely to maintain relationships with mainstream banking institutions, accumulate savings, and diversify their asset portfolios when they had savings accounts in mainstream financial institutions earlier in life compared to those who did not have accounts (Friedline and Elliott 2013; Friedline, Elliott, and Nam 2011; Friedline, Johnson, and Hughes 2014; Friedline and Song 2013). While savings accounts at mainstream financial institutions are not necessarily accessible or affordable to young adults given average initial deposits of \$25 or \$50, minimum balance requirements of \$300, and monthly service and withdrawal limit fees ranging from \$1 to \$15 (Friedline 2013), ownership of these accounts has appeared to be associated with healthy financial behaviors. From this perspective, being financially included may contribute to healthy financial behavior.

The Roles of Individuals and Institutions within Financial Capability

Financial capability goes beyond explaining Millennials' financial behaviors—and their subsequent financial states of fragility or stability—as purely the result of individual decision making or being better educated. M. S. Sherraden (2013) writes, "...financial capability does not reside solely

within the individual. Instead, it captures a relationship between individuals and their social reality; financial capability depends on what is possible for people living in a particular society" (p. 4). From this perspective, the institutional arrangements under which Millennials operate shape their financial capability and their behaviors. Part of shaping Millennials' financial capability and behaviors, then, includes shaping their institutional arrangements.

Take for example the Millennial who was raised in a family that did not own a savings account nor discuss finances, simultaneously growing up in a community with scant access to mainstream financial institutions like banks or credit unions. Similarly, consider the Millennial who came of age during an economic recession that questioned the sovereignty and legitimacy of mainstream financial institutions for achieving their desired financial outcomes (Mills and Monson 2013; Owens and Cook 2013). These institutional arrangements undoubtedly play roles in the financial capability and behaviors exhibited in young adulthood (Grinstein-Weiss et al. 2011). In fact, despite theoretical support for the importance of financial knowledge transmission within the family (Gudmunson and Danes 2011; John 1999; Kim et al. 2011; Shim et al. 2010), the family remains an inadequate institution for transferring financial capability to subsequent generations because families are so unequally capacitated in terms of their own knowledge and opportunities (Friedline and Rautkis 2014). Likewise, communities without geographic access to mainstream banks and credit unions (and even other, basic institutions like quality public education, health care, or public transportation)—or an economic recession that engenders distrust of mainstream banks and credit unions—may lack the institutional arrangements to provide Millennials with opportunities for healthy financial behaviors (Friedline and Rautkis 2014). Even still, mainstream financial institutions whose financial products are not affordable and easily accessible due to hidden and high initial deposits, minimum balances, and maintenance fees may discourage Millennials from owning savings accounts in these institutions (Chan 2011).

Simply educating Millennials about the potential pitfalls of using alternative financial services does little good if they do not have any other financial products to use instead, they do not qualify for opening financial products like savings accounts at mainstream banks or credit unions

(perhaps due to inadequate funds to afford minimum balances or poor credit histories), they do not have geographic access to mainstream banks or credit unions in their community, or the macroeconomic context causes skepticism about the use of financial products at the mainstream banks and credit unions that are available to them. Despite individual Millennials' best intentions to avoid using alternative financial services and opting for healthier financial behaviors, their institutional arrangements may not provide them with opportunities to do so. Financial education may do little good without also being financially included—having affordable and accessible savings accounts to put that knowledge into practice. Thus, while this paper explores individual Millennials' financial behaviors, financial capability is as much of an institutional approach to improving these behaviors as it is an individual one.

Research Question

Additional research is needed to test the emerging yet positive effects of financial capability on financial behaviors, particularly among Millennials who are in the midst of complex financial decisions and uncertain macroeconomic times. Moreover, additional research can extend previous findings by moving from testing financial capability's effects on behaviors like saving and accumulating assets to testing the effects on a range of behaviors like using alternative financial services or saving for emergencies. Along these lines, this paper asks whether being financially capable—having a combination of a savings account and financial education—is associated with Millennials' financial behaviors including being financially fragile, saving for emergencies, using alternative financial services, carrying too much debt, and being satisfied with their financial condition. Financial capability is compared to financial inclusion, financial education, and financial exclusion. This paper also asks whether alternative definitions for financial capability similarly relate to Millennials' financial behaviors. Financial products like having a checking account, credit card, or ever having a bank account are proxies for financial inclusion and are tested as alternatives to a savings account in the operationalization of financial capability. These financial products are chosen as proxies because they are similar to a savings account in terms how they are accessed and used (Xiao and Anderson 1997). Being financially literate—demonstrating competency on questions

about interest rates and savings—is a proxy for financial knowledge gained through means other than having received formal financial education.

Methods

Data

The 2012 National Financial Capability Study was commissioned by the FINRA Investor Education Foundation and was completed online by a sample of 25,509 adults in the United States between July and October 2012, which was nationally representative when population weights were applied. Lusardi (2011) has provided a detailed description of the NFCS and the data can be freely downloaded from the FINRA Investor Education website. Although the NFCS was cross-sectional and causal interpretations of findings produced from the observational data would be ill-advised, the NFCS was one of the few data sets asking detailed questions about financial capability. The NFCS was designed for the express purpose of studying various aspects of financial capability within the population, asking questions that explored financial knowledge, use of financial products and services, and perceptions of financial fragility. Specific questions explored savings, financial education, and financial behaviors. In fact, the NFCS was one of the few datasets to ask questions about both savings *and* financial education. Thus, the NFCS was ideal for testing this study's research question.

Variables

Financial behavior outcome variables. Five self-reported outcomes served as proxies for Millennials' financial behavior. These outcomes included financial fragility defined as Millennials' certainty regarding their ability to acquire \$2,000 in an emergency (probably or certain = 1 / probably not or certainly not = 0), emergency savings defined as Millennials' use of emergency savings to prepare for unexpected expenses (yes = 1 / no = 0), alternative finances defined as Millennials' use of title loans, payday lenders, tax refund advances, pawn shops, or rent-to-own stores (yes = 1 / no = 0), debt burden defined as Millennials' indication of carrying too much debt (yes = 1 / no = 0)², and financial satisfaction defined as Millennials' satisfaction with their current financial condition (ranged from 1 to 10, with higher scores indicating greater satisfaction).

² The original question in the 2012 NFCS asked the extent to which respondents agreed that they carried too much debt on a scale of 1 (strongly disagree) to 7 (strongly agree). Young adults were deemed to carry too much debt when they reported a 5 or higher on the scale.

Variable of interest. *Financial capability* was the variable of interest and was created by combining measures of savings account ownership and financial education. Millennials were asked whether their households had a savings account, money market, or certificate of deposit—interest-bearing savings accounts held in mainstream financial institutions. They were also asked whether or not financial education was ever offered by their school, college, or workplace and whether or not they ever participated in that financial education.³ Responses from these questions were combined to create the four-level financial capability variable (neither savings account nor financial education [financially excluded] = 0; financial education only = 1 [financially educated]; savings account only = 2 [financially included]; savings account and financial education [financially capable] = 3).

Additional questions in the NFCS were used to conduct sensitivity analyses for alternative financial capability definitions. Millennials were asked whether their households had a credit card, checking account, and ever had a savings account. Millennials were also asked a series of questions about interest rates and inflation related to savings accounts and investments in stocks, which measured basic and important concepts related to their financial literacy (Lusardi et al. 2010). These additional questions were leveraged to test and refine variations of financial capability. Financial capability could be operationalized by replacing current savings account ownership with having a checking account or ever having a savings account. Similarly, having received financial education does not guarantee financial knowledge, and financial knowledge may be operationalized by Millennials' scores on financial literacy questions.

In addition to the four-level financial capability variable described above, the following four-level variables were created and tested as sensitivity analyses: savings account and financial literacy (neither savings account nor financially literate = 0; financial literacy only = 1; savings account only = 2; savings account and financial literacy = 3), ever having a bank account and financial education (neither bank account nor financial education = 0; financial education only = 1; ever had a bank account only = 2; ever had a bank account and financial education = 3), checking account and

³ The correlation between financial education and a savings account, while significant at $p < .05$, was .13. From this perspective 87% of the relationship between the variables was explained by other factors.

financial education (neither checking account nor financial education = 0; financial education only = 1; checking account only = 2; checking account and financial education = 3), credit card and financial education (neither credit card nor financial education = 0; financial education only = 1; credit card only = 2; credit card and financial education = 3).

Demographic control variables. Demographic variables previously found to have associations with savings, financial education, or financial behaviors were controlled for in the study (Fernandes et al. 2014; M.S. Sherraden 2013). These variables were recoded from the original questions and included race (white = 1 / nonwhite = 0), gender (male = 1 / female = 0), number of dependents (children; ranged from 0 to 4 or more), marital status (married = 1 / not married = 0), employment status (employed = 2 / full-time student = 1 / unemployed = 0), education level (college degree or more = 2 / some college = 1 / high school diploma or less = 0), household income (ranged in eight categories from < \$15,000 to ≥ \$150,000), welfare receipt (received government assistance = 1 / did not receive government assistance = 0), geographic region (west = 3 / south = 2 / midwest = 1 / northeast = 0), and home ownership (owns home = 1 / does not own home = 0).

Sample

The study sample included 6,865 Millennials ages 18 to 34. Approximately 53% of Millennials were white, with the remainder representing nonwhite Millennials. While the 2012 NFCS data was intended to represent a national sample, the racial composition indicated that the data may not have been representative in this way. Almost equal percentages of Millennials were male (49%) and female (51%) and just over one third reported being married (36%). A majority of Millennials were employed (57%) and over one quarter (28%) were unemployed. The remainder (15%) reported full-time college student status that superseded any potential reporting of being employed or unemployed. Their average household income ranged somewhere between \$15,000 and \$35,000. Nineteen percent reported being financially capable by owning a savings account and having received financial education. Almost half reported being financially included by owning a savings account only and 6% reported being financially educated by having received financial education only. Just over one

quarter (27%) of Millennials reported being financially excluded—neither owning a savings account nor having received financial education. Additional sample characteristics are available in Table 1.

[Insert Table 1 about here]

Analysis Plan

Missing data. The first step was to complete missing data. Multiple imputation has been recognized as a preferred method for estimating and completing missing data (Little and Rubin 2002). After determining that each variable had less than 20% missing data (thus, the extent of missing data was suitable for imputation) and meeting the assumption that data was missing at random, the Markov Chain Monte Carlo (MCMC) method was used to create five completed, or imputed, data sets with no missingness (Saunders et al. 2006; Schafer and Graham 2002). Using STATA code *xi mim*., the results were then pooled across the five imputed data sets to reduce bias in the estimations of parametric statistics (Saunders et al. 2006).

Propensity score dosages. In the second step, propensity score weighting was conducted with multi-treatments/dosages. Dosages were useful because they all allowed for testing degrees of exposure to different aspects of financial capability and their relationships to Millennials' financial behaviors. Dosages balanced selection bias between those Millennials, for example, who were exposed to having savings accounts and those who were not based on known covariates (Guo and Fraser 2010; Imbens 2000). Specifically, the sample was checked for covariate balance on the four-level financial capability variable. Next, a multinomial logit regression was estimated predicting multi-group membership using the independent variables found to be significant in the covariate balance checks (Guo and Fraser, 2010). The resulting coefficient estimates were used to calculate propensity scores for each group. The inverse of that probability was used to create the propensity score weight to test the effects of the dosages (the average treatment-effect-for-the-treated weight [ATT weight]). This process was repeated for each financial capability variable that was tested (i.e., savings account and financial education, savings account and financial literacy, ever had a bank account and financial education, checking account and financial education, credit card and financial education). The effectiveness of the propensity score weight was evaluated by visually checking the distributions of the propensity scores across the four-level financial capability variable before and

after weighting, what is referred to as the area of common support (Guo & Fraser, 2010). This evaluation determined that there was sufficient overlap of propensity scores, the results of which are available from the first author upon request.

Covariate balance checks. In the third step, covariate balance was tested after applying the propensity score weight. Multinomial logit regression was used to check for covariate balance with financial capability as the dependent variable (Guo and Fraser 2010). The reference group for balance checks was being financially excluded, since this was the primary comparison with which the research question was concerned. This process was also repeated for each financial capability variable that was tested. Results from covariate balance checks indicated that data was better balanced and observed bias was reduced when propensity score weighted; however, education level and employment status remained significant. These variables were only significant among Millennials who were financially included and financially educated. Thus, any significant associations between Millennials' education level and employment status and their financial behaviors should be interpreted with caution. To conserve space, results from covariate balance checks are not reported in the text and are available from the authors upon request.

Regression. The final step was to use regression as the primary analytic tool to assess statistical significance for the overall relationship between financial capability and Millennials' financial behaviors. Logistic regression was used to predict Millennials' financial fragility, emergency savings, alternative financial services, and debt burden. STATA calculated the maximum likelihood estimates necessary for conducting logistic regression (Kutner, Nachtsheim, Neter, & Li, 2005; Long, 1997). Measures of predictive accuracy for logistic regression results are provided through the McFadden's pseudo R^2 (not equivalent to the variance explained in multiple regression model, but closer to 1 is also positive). Odds ratios (OR) are reported for easier interpretation and as a measure of effect size. Multiple regression was used to predict Millennials' financial satisfaction, a continuous outcome where higher numbers represented greater satisfaction. The R^2 is used to provide a measure of predictive accuracy. Regression analyses were repeated for each financial capability variable that was tested. In the results Tables 3 through 5, the comparison group for financial capability is being

financially excluded; however, comparison groups were rotated to compare financial capability to financial inclusion and financial education. These results are reported in the tables' footnotes.

Results

The results from testing the associations between Millennials' financial capability and their financial behaviors are presented first, followed by a summary of the results from testing alternative definitions to financial capability. Descriptive information is available in Table 2 and regression results are available in Tables 3 through 5. Results from the alternative definitions of financial capability are reported within the sections for each behavior and are presented in Table 6. A summary of these results is reported in Table 7.

Associations between Financial Capability and Financial Behaviors

Financial fragility. Descriptively speaking (Table 2), roughly half of Millennials (48%) reported being certain or probably certain that they could come up with \$2,000 if faced with an unexpected expense. Those who earned a high school diploma or less, lived in households with incomes below \$35,000, did not own homes, and who only received financial education were the least certain about their ability to locate \$2,000, suggesting that they were the most financially fragile.

Logistic regression results for financial fragility can be found in Table 3, Model 1. Compared to their counterparts, Millennials who were male, married, had a college degree or more, and owned their homes were significantly more likely to report being certain or probably certain they could find \$2,000 should an unexpected expense arise. Having more dependents was associated with being significantly less likely ($p < .10$) to report being certain or probably certain they could find \$2,000, indicating having more dependents was associated with greater financial fragility.

Being financially capable was associated with a 176% increase in the likelihood of affording \$2,000 for unexpected expenses. Being financially included was associated with a 123% increase and being financially educated was associated with a 40% increase in the likelihood of affording \$2,000 for unexpected expenses, compared to being financially excluded. The relationship between financial capability and financial fragility remained significant even when the reference group was changed for comparison to financial inclusion or financial education.

Alternative definitions for financial capability were also tested (Table 6, Model 6). The combinations of a savings account and financial literacy and a credit card and financial education mirrored the aforementioned relationships between financial capability and Millennials' financial fragility. A checking account and financial education was also consistently related to Millennials' financial fragility; however, financial education only did not emerge as significantly related to financial fragility in this alternative definition as it did with the others. Financial capability defined as ever having a bank account and financial education were not significantly related to financial fragility.

Emergency savings. Only about 35% of all Millennials reported saving for emergencies (Table 2). Among Millennials with a college degree or more, 52% reported saving for emergencies compared to 34% and 24% respectively among Millennials with some college or a high school diploma or less. Among Millennials who were unemployed and who had household incomes below \$35,000, 20% and 23% saved for emergencies respectively.

Logistic regression results for emergency savings can be found in Table 3, Model 2. Compared to their counterparts, Millennials were more likely to save for emergencies when they were male, had a college degree or more, were either a full-time student or employed, had higher levels of household income, and owned their homes. Being white was associated with a decreased likelihood of having emergency savings compared to being nonwhite, as was having more dependents (children).

Being financially capable was associated with a 224% increase in the likelihood of saving for emergencies. Being financially included was associated with a 159% increase and being financially educated was associated with a 44% increase in the likelihood of saving for emergencies, compared to being financially excluded. The relationship between financial capability and emergency savings remained significant even when the reference group was changed to be compared to financial inclusion or financial education.

Alternative definitions for financial capability were tested as they related to Millennials' emergency savings (Table 6, Model 7). The combinations of a savings account and financial literacy, a checking account and financial education, and a credit card and financial education were mostly consistent with the aforementioned relationships between financial capability and emergency savings.

Financial capability defined as ever having a bank account and financial education was not related to Millennials' emergency savings.

[Insert Table 2 about here]

[Insert Table 3 about here]

Alternative financial services. Almost half (44%) of Millennials reported using alternative financial services, defined as services like title loans, payday loans, and tax refund advances (Table 2). Among Millennials with at least one dependent (child), 57% reported using alternative financial services whereas only 33% of Millennials without any dependents reported using these services. Among Millennials with a high school diploma or less, 52% reported using alternative financial services. The highest percentage of alternative financial services use was among Millennials receiving government assistance—67% reported using alternative financial services compared to only 38% among Millennials not receiving government assistance.

Logistic regression results for Millennials' alternative financial services use can be found in Table 4, Model 3. Millennials' use of alternative financial services was positively associated with being male, having more dependents, being employed, receiving government assistance and living in the south ($p < .10$) compared to their counterparts. Being white, having some college education or a college degree or more, being a full-time student, and having higher household incomes were negatively associated with Millennials' use of alternative financial services.

Millennials' financial capability was negatively associated with using alternative financial services, as was their financial inclusion. Millennials' financial capability was associated with a 21% decrease in the likelihood of using alternative financial services. Millennials' financial inclusion was associated with a 26% decrease in the likelihood of using alternative financial services. Financial education was not significantly different from financial exclusion. The relationship between financial capability and alternative financial services use remained significant even when the reference group was changed to be compared to financial education; however, the comparison to financial inclusion was not significant. This suggested that Millennials' alternative financial services use was not significantly different when the financial capability was compared to financial inclusion.

Alternative definitions were tested as they related to Millennials' use of alternative financial services (Table 6, Model 8). The combinations of a savings account and financial literacy and a checking account and financial education were consistent with the aforementioned relationships between financial capability and alternative financial services use. The relationship of financial capability defined as the combination of a credit card and financial education to alternative financial services was not significant; however, having a credit card only was related to a reduced likelihood of alternative financial services use. Financial capability defined as ever having a bank account and financial education was not significantly related to alternative financial services use.

Debt burden. One third of Millennials (33%) reported that they carried too much debt (Table 2). Among Millennials with at least one dependent, 41% reported carrying too much debt compared to 25% among Millennials without any dependents. Among Millennials receiving government assistance, 46% reported carrying too much debt, compared to only 29% among those not receiving government assistance.

Logistic regression results for Millennials' debt burden can be found in Table 4, Model 4. Having more dependents, having some college and a college degree or more, being employed and receiving government assistance were associated with a greater likelihood of reporting carrying too much debt. Higher household incomes were associated with a decreased likelihood of reporting carrying too much debt.

Millennials' financial capability was negatively associated with carrying too much debt, as was having only a savings account. Millennials' financial capability was associated with a 30% decrease in the likelihood of carrying too much debt, compared to financial exclusion. Millennials' financial inclusion was associated with a 14% decrease in the likelihood of carrying too much debt, compared to financial exclusion. Financial education was not significantly different from financial exclusion. The relationship between financial capability and debt burden remained significant even when the reference group was changed to be compared to financial inclusion or financial education.

Alternative definitions for financial capability were tested as they related to Millennials' debt burden (Table 6, Model 9); however, no results from the alternative definitions mirrored those

described above. Most definitions were non-significant; however, financial capability defined as ever having a bank account and financial education was related to an increased likelihood of carrying too much debt.

[Insert Table 4 about here]

Financial satisfaction. On a scale ranging from 1 (not at all satisfied) to 10 (extremely satisfied), Millennials on average reported being satisfied with their financial condition at about a 5 (neither satisfied nor dissatisfied; Table 2). Millennials who were married ($M = 5.555$), had a college degree or more ($M = 5.997$), lived in households with incomes at or above \$35,000 ($M = 5.909$), and who owned their homes ($M = 6.316$) reported higher than average financial satisfaction. Those with incomes below \$35,000 ($M = 4.325$) and who were unemployed ($M = 4.209$) reported some of the lowest average financial satisfaction scores.

Multiple regression results for Millennials' financial satisfaction can be found in Table 5, Model 5. Compared to their counterparts, being male, being married, being a full-time student or employed, having higher levels of household income, and owning their homes were associated with significantly higher financial satisfaction scores. Millennials who were white versus nonwhite, had more dependents, had some college education compared to a high school diploma or less, and were living in the west compared to northeast ($p < .10$) had significantly lower financial satisfaction scores.

Compared to financial exclusion, Millennials' financial capability was associated with significantly higher financial satisfaction scores, as was their financial inclusion. The relationship between financial capability and financial satisfaction remained significant even when the reference group was changed to be compared to financial inclusion or financial education.

Alternative definitions were tested as they related to Millennials' financial satisfaction (Table 6, Model 10). The combination of a credit card and financial education were consistent with the aforementioned relationships between financial capability and financial satisfaction. The relationship of financial capability defined as the combination of a savings and financial literacy indicated that a savings account only was related to increased satisfaction, while being only financially literate was

related to decreased financial satisfaction. Ever having a bank account and having received financial education was negatively related to financial satisfaction.

[Insert Table 5 about here]

Alternative Definitions of Financial Capability

There may be other ways of being financially capable via financial knowledge and experiential opportunities beyond simply having received financial education or owning a savings account. Having a checking account, credit card, and ever having a bank account were tested as proxies for access to financial products aside from having a savings account. Being financially literate—demonstrating competency on questions about interest rates and savings—was tested as a proxy for financial knowledge gained through means other than having received formal financial education. Across all the models (Tables 6 and 7), having a checking account or credit card related similarly to young adults' financial fragility, emergency savings, and financial satisfaction when compared to operationalizing experiential opportunities as having a savings account. Ever having a bank account was inconsistently related to young adults' financial behaviors compared to these alternative definitions. Having received financial education and being financially literate had similar relationships to young adults' financial behaviors.

[Insert Table 6 about here]

[Insert Table 7 about here]

Discussion

Despite enthusiasm for interventions that promote financial capability and aim to improve financial behaviors, a limited number of studies test whether the combination of a savings account and financial education relates to the desired outcomes. This paper examines a key question of inquiry: whether or not Millennials' financial capability relates to significantly healthier financial behaviors. In addition, given the fairly nascent theoretical development, alternative definitions for financial capability are tested. These alternative definitions shed light on whether financial capability can be operationalized in ways other than a savings account and financial education to produce similar effects on young adults' financial behaviors. If confirmed empirically by future research, findings that are

supportive of financial capability may mean that access to a savings account combined with financial education can improve the chances of exhibiting healthier financial behaviors.

Associations between Financial Capability and Financial Behaviors

Consistently, financial capability is significantly associated with Millennials' financial behaviors and the strength of these relationships is stronger than either the independent relationships of financial inclusion or financial education. In other words, the combination of a savings account and financial education holds promise for promoting young adults' healthy financial behaviors and improving stability at this financially precarious stage in their lives. Financially capable Millennials are almost 200% or three times more likely to report being able to come up with \$2,000 for an unexpected expense, suggesting that financial capability serves as a protective factor against financial fragility. These Millennials are also over 200% or three times more likely to be saving for emergencies. Financially capable Millennials are less likely to use alternative financial services and report carrying too much debt. Given these healthy financial behaviors, financially capable Millennials are also significantly more satisfied with their financial condition compared to those who are financially excluded.

Millennials who are financially educated are also 40% more likely to come up with \$2,000 for an unexpected expense and 44% more likely ($p < .10$) to save for emergencies. However, Millennials who are financially educated are no better off in terms of using alternative financial services, carrying too much debt, or reporting being financially satisfied. In fact, compared to being financially included, Millennials demonstrate riskier financial behaviors when they have only received financial education. It appears that Millennials may be better off when they are financially capable or financially included—being educated on these matters does not appear to make any significant difference.

Alternative Definitions of Financial Capability

Financial capability has similar relationships to Millennials' financial behaviors, whether it is defined by having received financial education or being financially literate. Financially capable Millennials are more likely to report being able to come up with \$2,000 in a pinch and saving for emergencies and are less likely to report using alternative financial services. This suggests that

financial education and financial literacy may be interchangeable depending on the outcome that is to be affected; however, there are some differences. Financial capability defined by having received financial education is related to a reduced likelihood of carrying too much debt and being more satisfied with one's financial condition, whereas being financially literate does not. In other words, demonstrating competency on key financial concepts has no bearing on Millennials' debt burden or their financial satisfaction. These differences could be explained a few ways. The first explanation is one of measurement. The questions gauging Millennials' financial literacy do not ask about debt or financial satisfaction; rather, questions ask about interest rates and saving. From this perspective, it is of no surprise that this measure of financial literacy is unrelated to outcomes about debt and financial satisfaction. The second and related interpretation is that demonstrated competency in the areas of interest rates and saving are nontransferable to making decisions about debt or being satisfied with one's finances. Instead, Millennials are less likely to carry debt and are more financially satisfied when they receive general financial education that may have covered these broad topics.

Having a checking account or credit card relates similarly to Millennials' financial fragility, emergency savings, and financial satisfaction when compared to a savings account. This suggests that having a checking account or a credit card provided Millennials with opportunities for experiential learning and access to financial products that may have been similar to a savings account. Though, while a checking account and a credit card perform consistently with a savings account across most financial behaviors, these operationalizations are unrelated to debt burden. That is, Millennials are no more or less likely to report carrying too much debt when financial capability is defined as having a checking account or a credit card in tandem with having received formal financial education. This suggests that a checking account and a credit card may have protected Millennials from being financially fragile, allowed them to saving for emergencies, provided substitutes to alternative financial services, and increased their financial satisfaction. However, in contrast to a savings account that is related to the reduced likelihood of carrying burdensome debt, a checking account and a credit card hold no bearing on Millennials' debt accumulation. As such, a savings account may be a more

desirable financial product on the whole for establishing financial capability and promoting healthy financial behaviors.

Compared to other alternate definitions of financial capability, ever having a bank account fails to consistently explain Millennials' financial behaviors. Millennials also report significantly higher debt burden and lower financial satisfaction when experiential opportunities are defined as ever having a bank account. This suggests that ever having a bank account may not provide the same financial inclusion and experiential opportunities as a savings account, checking account, or even a credit card for young adults. Moreover, ever having a bank account insinuates that Millennials may not currently have a bank account, but that they may have had one in the past. Previous financial inclusion may do little to help Millennials demonstrate healthy financial behaviors in the present or the future.

Demographic Controls: Differences by Socio-Economic Opportunity

There is evidence to suggest some Millennials may have healthier financial behaviors than others, over and above the effects of financial capability. The models control for demographics that are commonly associated with financial behaviors such as education, employment, and income (Friedline and Rauktis 2014; Lusardi et al. 2012); significant differences on these demographic controls represent differences by young adults' socio-economic opportunity. For instance, having earned a college degree or more is associated with being more likely to report an ability to find \$2,000 for an unexpected expense and to save for emergencies and less likely to use alternative financial services; though, the positive relationship with carrying too much debt suggests the cost of their college degree may have placed undue strain on their finances (Assets and Education Initiative 2013). Similar findings for Millennials who report having some college education suggest that even a few years of post-secondary education without receiving a degree may have benefits for financial behaviors; however, the costs of leaving college before completing a degree such as limited opportunities in the labor market, stagnated socioeconomic mobility, and higher debt burdens likely outweigh any immediate benefits to financial behaviors (Mishel et al 2012).

There are also differences by labor market participation. Being employed or a full-time student is associated with being less financially fragile, saving for emergencies, and being satisfied with their financial condition; however, employment is also associated with an increased likelihood of using alternative financial services and carrying too much debt. While employment can be a source of financial resources and is assumed to translate into healthy financial behaviors, Millennials are disproportionately affected by the recent economic recession that left them with higher unemployment rates and lower incomes (Mishel et al 2012). Thus, Millennials in the labor market may have resorted to alternative financial services and debt to meet basic needs. Macroeconomic trends may help explain these findings given that the 2012 NFCS is conducted toward the end of a recession that disproportionately affected Millennials (Bell and Blanchflower 2011).

Not surprisingly, having higher household incomes is associated with healthy financial behaviors and is significant across all models. Millennials with higher incomes come up with \$2,000 for unexpected expenses and save for emergencies; they avoid using alternative financial services and carrying too much debt. Having higher incomes is also associated with higher financial satisfaction. Likewise, home ownership is associated with being more likely to report an ability to find \$2,000 for an unexpected expense, saving for emergencies, and being satisfied with their overall financial condition. Previous research indicates that home ownership is a vehicle for accumulating assets and equity (Grinstein-Weiss et al. 2013), suggesting that Millennials who own their own homes may be able to leverage this asset for establishing financial stability and healthy behaviors.

Notably, the relationships between education level, employment, income, and home ownership to Millennials' financial behaviors suggests that opportunity—broadly defined—helps to shape financial behaviors. For instance, while the receipt of a college degree could be characterized as an individual decision, institutional arrangements like the family, the quality of primary and secondary education, and the availability of college financing all play a role in opportunities to enroll in college and acquire a degree (Assets and Education Initiative, 2013; Currie and Moretti 2003; Yeung and Conley 2008). These arrangements are beyond individual control, yet shape individual decisions and behaviors (M. Sherraden 1991). Thus, while financial capability holds promise as an intervention for

shaping Millennials' financial behaviors, interventions are also needed to readjust the broader institutional arrangements in society that perpetuate opportunity and advantage for some Millennials, and disadvantage for others.

Policy Considerations

Five policy considerations emerge from this research. These considerations continue to need rigorous empirical testing before adoption or implementation; however, given that this research aligns with existing empirical support for financial capability (M.S. Sherraden 2013), these considerations hold promise for expanding financial capability and improving Millennials' financial health. In other words, these considerations are based on the mounting empirical support for financial capability across multiple studies, not solely on the findings from the research presented here. A first consideration is with regard to financial education interventions that intend to produce positive effects on financial behaviors. Financial education is often a 'go-to' intervention for improving financial behaviors and concerns about the financial literacy of the populous have prompted efforts to mandate financial education in high schools (OECD 2014). For instance, only 9% of 15-year-olds in the United States demonstrate the type of competency on advanced financial knowledge questions that would be necessary for making informed decisions for taking out student loans, interpreting mortgage agreements, or comparing investment portfolios (OECD 2014). Today, more states require high schools to offer a course in financial education than in the past: 19 states had financial education requirements in 2014 (Council for Economic Education 2014). Indeed, research suggests that young people have benefitted from the financial education offered in their high schools as a result of state educational mandates (Bernheim et al. 2001; Urban et al. 2015). Such efforts may be less effective for influencing a range of financial behaviors without also providing financial inclusion that offers a real financial product for hands-on experience. While financial capability interventions need to undergo rigorous evaluation to provide evidence of their effects on Millennials' financial behaviors, educational systems may need to rethink how financial education is offered and whether existing courses sans financial inclusion have the intended effects.

Second, given that financially capable Millennials also exhibit the healthiest or least risky financial behaviors (M.S. Sherraden 2013), interventions may be most effective when financial education is combined with financial inclusion. This affirms existing policy and program efforts that support financial capability. A number of policies and programs are geared toward financial inclusion by opening savings accounts for young people that would be paired with financial education. Child Savings Accounts (CSAs; also known as Child Development Accounts [CDAs]) have been proposed as a vehicle for providing savings accounts and financial education directly to young people with emphasis on access for those from lower-income households. The America Saving for Personal Investment, Retirement, and Education (ASPIRE) Act was first introduced into Congress in 2004 and most recently in 2013. The ASPIRE Act proposes to roll out CSAs universally at birth with a \$500 initial deposit and additional subsidies for those whose households' incomes fall below certain thresholds. Accounts would be paired with financial education and the accumulated savings could be used toward expenses like education, home ownership, or retirement (Cramer 2010). The USAccounts: Investing in America's Future Act was introduced into Congress in 2014 to establish USAccounts, which are similar in design to the CSAs proposed in the ASIPRE Act.

A third consideration—based on the potential ineffectiveness of financial education taught in absence of financial inclusion and policy and program efforts that support financial capability—is that multiple institutions may need to join forces to make financial capability both scale-able and effective. For example, a national, universal policy such as the ASPIRE Act or USAccounts might be more effective at supporting financial capability if teaching financial education was mandatory in school systems across the United States. In this example, educational institutions serve as the delivery system for financial education while, separately, political and financial institutions serve as the delivery system for financial inclusion; however, these separate efforts can be developed intentionally so that they parallel and complement one another to increase each other's effectiveness. Moreover, if political and financial institutions sought to teach financial education without the cooperation of educational institutions—or likewise if educational institutions sought to improve financial inclusion and capability without the cooperation of political and financial institutions—these efforts undertaken in

isolation of one another would be more costly, less scale-able, and potentially ineffective. The promotion of financial capability via CSAs may require the coordination of multiple delivery systems that work in tandem to achieve effectiveness.

A fourth consideration is that mainstream financial institutions may need to develop responsibility for becoming more inclusive. That is, the onus cannot solely be on Millennials to seek out financial inclusion from these institutions; rather, financial institutions themselves need a wider reach. According to the Federal Deposit Insurance Corporation's (FDIC) 2012 survey of financial institutions' efforts to serve those on the financial margins, only about 40% of institutions report developing products and services for this population. Only 20% of financial institutions offer 'second chance' accounts to consumers whose credit histories might otherwise exclude them from the financial mainstream. While not all Millennials may find themselves on the financial margins and in need of 'second chance' products, these examples suggest that financial institutions may not be in the business of inclusion. However, in part as a way to recover the trust that was lost during the economic recession (Afandi and Habibov 2013) and as a way to evolve their service provision to Millennials and future generations, financial institutions may need to be in the business of inclusion.

A final consideration is that financial capability may relate to Millennials' healthy financial behaviors in ways other than by providing financial inclusion via a savings account. It appears that a checking account or a credit card may also provide Millennials with access to the financial mainstream and develop their financial capability. This is consistent with how financial products including checking and savings accounts and credit cards are accessed and used (Xiao and Anderson 1997). These are often the first financial products acquired and therefore may be somewhat interchangeable. Likewise, demonstrated competency on financial knowledge questions—which may indicate Millennials' financial literacy—may be substituted for having received formal financial education. Thus, interventions may be able to choose from a range of options for defining and operationalizing financial capability. Though, the results here suggest that financial capability defined as the combination of a savings account and financial education is the most consistent operationalization for relating to Millennials' healthy financial behaviors.

Limitations

The findings from this paper should be considered in light of several limitations. First, the 2012 NFCS data is cross-sectional, therefore time order between Millennials' financial capability and their financial behaviors cannot be established. While there is reason to believe financial capability can precede financial behaviors (Birkenmaier et al. 2013), the data is limited in that it did not allow for modeling this time order. Therefore, findings only indicate an association between financial capability and financial behaviors. Second, the savings account question in the 2012 NFCS is asked in reference to the household and not necessarily the individual. This means that young adults' households could have owned a savings account, but not young adults themselves. This survey design limitation does not necessarily change the spirit of the research questions or their findings, though, because young adults may still benefit when their household has access to a bank account. Third, non-randomized observational data like the 2012 NFCS does not allow for causal testing of relationships and this likely introduced bias into the results. While dosages are created and observed bias accounted for using propensity score analyses (Guo and Fraser 2010), unobserved bias could still have been introduced. Fourth, this paper makes the assumption that alternative definitions of financial capability may exist when the variables used in the sensitivity analyses perform consistently with a savings account and financial education. However, consistency across the models does not necessarily mean that these variables are exact substitutes for a savings account and financial education, nor does this mean that a savings account and financial education are the ideal or only definitions of financial capability. These sensitivity analyses are predicated on the accuracy of the original definition of financial capability as a savings account and financial education, which needs to undergo further research and theoretical development. Despite these limitations, this paper is one of the first to test Millennials' financial capability defined as the combined effects of a savings account and financial education on an array of financial behaviors.

Conclusion

Attention to financial capability and financial behaviors is especially relevant in an era in which Millennials are making increasingly complex financial decisions. The behaviors that flow from

these decisions and their results may have long-term implications for Millennials' abilities to achieve financial stability and to accumulate wealth. Millennials who save for emergencies, steer clear of high-cost alternative financial services like payday loans and tax advances, and avoid carrying too much debt may find themselves in more stable financial positions upon which they can leverage to their benefit. Millennials who are more financially stable may also be able to achieve economic mobility across the life course. Millennials who are financially fragile, lack emergency savings, use high-cost alternative financial services, and carry too much debt may likely struggle to save and to be financially stable in the future. These Millennials may struggle to hold on to their financial stability, let alone achieve economic mobility. While these may appear to be purely individual behaviors over which Millennials have ultimate control, they may behave accordingly based on the knowledge and opportunities available to them via institutional arrangements embedded into education, labor market participation, and home ownership. Financial capability recognizes that Millennials' financial behavior is not purely based on individual knowledge; they also need to be included in the financial mainstream where they have opportunities to carry out healthy financial behaviors (M.S. Sherraden 2013). Thus, interventions that provide Millennials with a combination of financial inclusion and financial education may be useful for promoting healthy financial behaviors.

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Table 1
Sample characteristics of Millennials ages 18 to 34 ($N = 6,865$)

Covariates	Full Sample
<i>Demographic Control Variables</i>	
Race	
White	53
Nonwhite	47
Gender	
Male	49
Female	51
Number of dependents (children)	.846 (1.143)
Marital status	
Married	36
Not married	64
Employment status	
Employed	57
Full-time student	15
Unemployed	28
Education level	
College degree or more	25
Some college	35
High school diploma or less	41
Household income ^a	2.567 (2.055)
Welfare receipt	
Receives government assistance	20
Does not receive government assistance	80
Geographic region	
Northeast	18
Midwest	21
South	38
West	24
Home ownership	
Owns home	36
Does not own home	64
<i>Variable of Interest</i>	
Financial Capability	
Financially capable (savings account + financial education)	19
Financially included (savings account only)	48
Financially educated (financial education only)	6
Financially excluded (neither savings account nor financial education)	27

Source: Markov Chain Monte Carlo (MCMC) completed data from the 2012 National Financial Capability Study (NFCS).

Notes: Percentages reported for categorical variables and means and standard deviations reported for continuous variables. All sample characteristics are for samples prior to applying the ATT weight.

^a Household income level was comprised of eight categories: Category 1: < \$15,000 (23%); Category 2: \$15,000 to < \$25,000 (14%); Category 3: \$25,000 to < \$35,000 (13%); Category 4: \$35,000 to < \$50,000 (15%); Category 5: \$50,000 to < \$75,000 (17%); Category 6: \$75,000 to < \$100,000 (9%); Category 7: \$100,000 to \$150,000 (6%); and Category 8: ≥ \$150,000 (4%).

Table 2Financial behaviors of Millennials ages 18 to 34 ($N = 6,865$)

	Financial Fragility	Emergency Savings	Alternative Financial Services	Debt Burden	Mean Financial Satisfaction
Full Sample	48	35	44	33	5.115
<i>Demographic Control Variables</i>					
White	48	32	43	32	4.993
Nonwhite	48	37	45	34	5.252
Male	55	39	45	32	5.533
Female	41	30	42	33	4.686
1 dependent (child) or more	48	32	57	41	5.023
No dependents (children)	48	37	33	25	5.190
Married	56	38	46	38	5.555
Not married	44	33	42	30	4.870
College degree or more	71	52	32	34	5.997
Some college	49	34	42	34	5.109
High school diploma or less	34	24	52	30	4.586
Employed	58	42	44	35	5.538
Full-time student	46	36	33	23	5.220
Unemployed	30	20	49	34	4.209
Household income < \$35,000	64	23	49	33	4.325
Household income \geq \$35,000	33	46	39	32	5.909
Receives government assistance	45	34	67	46	5.187
Does not receive government assistance	49	35	38	29	5.098
Lives in the northeast	51	40	39	35	5.500
Lives in the midwest	46	33	43	35	5.039
Lives in the south	46	33	48	31	5.023
Lives in the west	52	34	41	32	5.042
Owns home	66	51	44	33	6.316
Does not own home	38	26	43	32	4.446
<i>Variable of Interest</i>					
Financial Capability					
Financially capable (savings account + financial education)	63	49	41	29	5.877
Financially included (savings account only)	56	41	40	33	5.395

Source: Markov Chain Monte Carlo (MCMC) completed data from the 2012 National Financial Capability Study (NFCS).

Notes: Row percentages are reported. Characteristics presented prior to applying the average treatment-effect-for-the-treated (ATT) weight. Financial fragility measured whether or not Millennials could come up with \$2,000 in a pinch (yes = 1). Emergency savings measured whether or not Millennials set aside any rainy day funds for emergencies (yes = 1). Alternative financial services measured whether or not Millennials had ever used title loans, payday loans, tax refund advances, pawn shops, or rent-to-own stores (yes = 1). Debt burden measured whether or not Millennials reported carrying too much debt (yes = 1). Financial satisfaction measured Millennials' reported satisfaction with their current personal financial condition on a scale ranging from 1 (not at all satisfied) to 10 (extremely satisfied).

Table 3Logistic regression results: Financial fragility and emergency savings of Millennials ages 18 to 34 ($N = 6,865$; ATT weighted)

Covariates	Financial Fragility			Emergency Savings		
	(Model 1)			(Model 2)		
	β	SE	OR	β	SE	OR
<i>Demographic Control Variables</i>						
White	.114	(.094)	--	-.298**	(.101)	.742
Male	.459***	(.093)	1.582	.289**	(.100)	1.335
Number of dependents (children)	-.081†	(.049)	.922	-.201***	(.049)	.818
Married	.263*	(.126)	1.301	-.004	(.129)	--
Education level (Reference: \leq High school)						
Some college	.173†	(.101)	1.189	-.072	(.118)	--
College degree or more	.612***	(.130)	1.844	.295*	(.132)	1.343
Employment status (Reference: Unemployed)						
Full-time student	.321*	(.143)	1.379	.719***	(.153)	2.052
Employed	.261*	(.103)	1.298	.398***	(.110)	1.489
Household income	.216***	(.029)	1.241	.185***	(.027)	1.203
Receives government assistance	-.186	(.125)	--	.108	(.117)	--
Geographic region (Reference: Northeast)						
Midwest	-.098	(.139)	--	-.200	(.153)	--
South	-.112	(.135)	--	.025	(.143)	--
West	.004	(.146)	--	.023	(.148)	--
Owns home	.568***	(.101)	1.765	.767***	(.115)	2.153
<i>Variable of Interest</i>						
Financial capability (Reference: Financially excluded)						
Financially capable (savings account + financial education)	1.016***	(.121)	2.762	1.176***	(.133)	3.241
Financially included (savings account only)	.804***	(.098)	2.234	.952***	(.124)	2.591
Financially educated (financial education only)	.339*	(.168)	1.404	.364†	(.203)	1.439
Constant	-2.120	(.177)	$p < .001$	-2.508	(.217)	$p < .001$
Psuedo (McFadden's) R^2		.139				.126

Source: Markov Chain Monte Carlo (MCMC) completed data from the 2012 National Financial Capability Study (NFCS), weighted using the average treatment-effect-for-the-treated (ATT).

Notes: β = regression coefficients. Robust SE = robust standard error. OR = Odds ratio. * $p < .05$; ** $p < .01$; *** $p < .001$; † $p < .10$

Financial Fragility: Financial fragility measured whether or not Millennials could come up with \$2,000 in a pinch (yes = 1). The reference group for financial capability was rotated to test financial capability against financial inclusion or financial education. With financial inclusion as the reference group, Millennials were more likely to report being able to come up with \$2,000 in a pinch when they were financially capable ($\beta = .211$, $SE = .094$, OR

= 1.235). They were less likely to report being able to come up with \$2,000 when they were financially educated ($\beta = -.466$, $SE = .149$, $OR = .628$) or financially excluded ($\beta = -.804$, $SE = .098$, $OR = .448$). With financial education as the reference group, Millennials were more likely to come up with \$2,000 in a pinch when they were financially capable ($\beta = .677$, $SE = .156$, $OR = 1.968$) or financially included ($\beta = .466$, $SE = .149$, $OR = 1.594$). They were less likely to report being able to come up with \$2,000 in a pinch when they were financially excluded ($\beta = -.339$, $SE = .168$, $OR = .712$).

Emergency Savings: Emergency savings measured whether or not Millennials set aside any rainy day funds for emergencies (yes = 1). With financial inclusion as the reference group, Millennials were more likely to report saving for emergencies when they were financially capable ($\beta = .224$, $SE = .076$, $OR = 1.251$). They were less likely to report saving for emergencies when they were financially educated ($\beta = -.587$, $SE = .164$, $OR = .556$) or financially excluded ($\beta = -.952$, $SE = .124$, $OR = .386$). With financial education as the reference group, they were more likely to save for emergencies when they were financially capable ($\beta = .812$, $SE = .174$, $OR = 2.252$) or financially included ($\beta = .587$, $SE = .164$, $OR = 1.799$). They were less likely to report saving for emergencies when they were financially excluded ($\beta = -.364$, $SE = .203$, $OR = .695$).

Table 4Logistic regression results: Alternative financial services use and debt burden of Millennials ages 18 to 34 ($N = 6,865$; ATT weighted)

Covariates	Alternative Financial Services			Debt Burden		
	(Model 3)			(Model 4)		
	β	SE	OR	β	SE	OR
<i>Demographic Control Variables</i>						
White	-.277**	(.092)	.758	.034	(.094)	--
Male	.372***	(.092)	1.451	-.090	(.090)	--
Number of dependents (children)	.411***	(.043)	1.508	.229***	(.039)	1.257
Married	.054	(.112)	--	.076	(.115)	--
Education level (Reference: \leq High school)						
Some college	-.259*	(.100)	.772	.403***	(.097)	1.496
College degree or more	-.679***	(.129)	.507	.617***	(.114)	1.853
Employment status (Reference: Unemployed)						
Full-time student	-.302*	(.145)	.739	-.231	(.140)	--
Employed	.214*	(.108)	1.239	.215*	(.105)	1.240
Household income	-.067*	(.027)	.935	-.058*	(.028)	.944
Receives government assistance	.968***	(.104)	2.633	.640***	(.101)	1.896
Geographic region (Reference: Northeast)						
Midwest	.109	(.140)	--	.059	(.130)	--
South	.246†	(.142)	1.279	.036	(.129)	--
West	.066	(.146)	--	-.004	(.133)	--
Owns home	-.119	(.102)	--	-.117	(.105)	--
<i>Variable of Interest</i>						
Financial capability (Reference: Financially excluded)						
Financially capable (savings account + financial education)	-.238*	(.109)	.788	-.352**	(.109)	.703
Financially included (savings account only)	-.299**	(.102)	.742	-.151*	(.090)	.860
Financially educated (financial education only)	.228	(.150)	--	.107	(.151)	--
Constant	-.389	(.182)	$p = .034$	-1.128	(.167)	$p < .001$
Psuedo (McFadden's) R^2			.101			.043

Source: Markov Chain Monte Carlo (MCMC) completed data from the 2012 National Financial Capability Study (NFCS), weighted using the average treatment-effect-for-the-treated (ATT).

Notes: β = regression coefficients. Robust SE = robust standard error. OR = Odds ratio. * $p < .05$; ** $p < .01$; *** $p < .001$; † $p < .10$

Alternative Financial Services: Alternative financial services measured whether or not Millennials had ever used title loans, payday loans, tax refund advances, pawn shops, or rent-to-own stores (yes = 1). With financial inclusion as the reference group, Millennials were more likely to report using alternative financial services when they were financially educated ($\beta = .527$, $SE = .142$, $OR = 1.694$) or were financially excluded ($\beta = .299$, $SE = .102$, $OR = 1.349$). With financial education as the reference group, they were less likely to use alternative financial services when they were financially capable ($\beta = -.466$, $SE = .144$, $OR = .628$) and financially included ($\beta = -.527$, $SE = .142$, $OR = .590$). *Debt Burden:* Debt burden measured whether or not Millennials reported carrying too much debt (yes = 1). With financial inclusion as the reference group, Millennials were less likely to report carrying too much debt when they were financially capable ($\beta = -.201$, $SE = .081$, $OR = .818$). They were more likely to report carrying too much debt when they were financially educated ($\beta = .258$, $SE = .133$, $OR = 1.294$) or financially excluded ($\beta = .151$, $SE = .099$, $OR = 1.163$). With financial education as the reference group, they were less likely to report carrying too much debt when they were financially capable ($\beta = -.459$, $SE = .144$, $OR = .632$) and financially included ($\beta = -.258$, $SE = .133$, $OR = .773$).

Table 5Multiple regression results: Financial satisfaction of Millennials ages 18 to 34 ($N = 6,865$; ATT w

Covariates	Financial Satisfaction		
	(Model 5)		
	β	(SE)	
<i>Demographic Control Variables</i>			
White	-.320**	(.111)	
Male	.648***	(.105)	
Number of dependents (children)	-.143**	(.054)	
Married	.395**	(.134)	
Education level (Reference: \leq High school)			
Some college	-.287*	(.117)	
College degree or more	.166	(.142)	
Employment status (Reference: Unemployed)			
Full-time student	.842***	(.171)	
Employed	.376**	(.129)	
Household income	.270***	(.031)	
Receives government assistance	.074	(.136)	
Geographic region (Reference: Northeast)			
Midwest	-.179	(.157)	
South	-.168	(.146)	
West	-.251†	(.151)	
Owens home	.998***	(.122)	
<i>Variable of Interest</i>			
Financial capability (Reference: Financially excluded)			
Financially capable (savings account + financial education)	.818***	(.124)	
Financially included (savings account only)	.480***	(.099)	
Financially educated (financial education only)	.239	(.187)	
Constant	3.278	.217	$p < .001$
R^2			.177

Source: Markov Chain Monte Carlo (MCMC) completed data from the 2012 National Financial Capab Study (NFCS), weighted using the average treatment-effect-for-the-treated (ATT).

Notes: β = regression coefficients. Robust SE = robust standard error. * $p < .05$; ** $p < .01$; *** $p < .001$.

Financial satisfaction measured Millennials' reported satisfaction with their current personal financial condition on a scale ranging from 1 (not at all satisfied) to 10 (extremely satisfied). With financial incl the reference group, being financially capable was related to significantly higher financial satisfaction ($\beta = .338$, $SE = .099$). Being financially excluded was related to significantly lower financial satisfaction ($\beta = -.480$, $SE = .099$). With financial education as the reference group, being financially capable was relat significantly higher financial satisfaction ($\beta = .579$, $SE = .197$).

Table 6Multiple regression results: Sensitivity tests of financial capability on financial behaviors of Millennials ages 18 to 34 ($N = 6,865$; ATT weighted)

Covariates	Financial Fragility		Emergency Savings		Alternative Financial Services		Debt Burden		Financial Satisfaction	
	(Model 6)		(Model 7)		(Model 8)		(Model 9)		(Model 10)	
	β	(SE)	β	(SE)	β	(SE)	β	(SE)	β	(SE)
<i>Savings Account + Financial Literacy</i> ^a										
Financial capability (Reference: Financially excluded)										
Financially capable (savings account + financial literacy)	1.125***	(.121)	.775***	(.159)	-.896***	(.113)	-.177	(.112)	-.004	(.139)
Financially included (savings account only)	.915***	(.122)	.953***	(.159)	-.358**	(.113)	-.187†	(.110)	.602***	(.139)
Financially educated (financial literacy only)	.345*	(.150)	-.119	(.201)	-.484**	(.140)	.074	(.138)	-.456**	(.167)
R^2		.206		.203		.131		.075		.251
<i>Ever Bank Account + Financial Education</i> ^b										
Financial capability (Reference: Financially excluded)										
Financially capable (ever bank account + financial education)	.135	(.248)	.008	(.427)	-.277	(.273)	.821**	(.263)	-.727**	(.233)
Financially included (ever bank account only)	.336	(.239)	.267	(.304)	-.162	(.281)	.529†	(.272)	-.170	(.267)
Financially educated (financial education only)	.017	(.456)	-.024	(.777)	.480	(.566)	1.055*	(.476)	-.076	(.399)
R^2		.163		.125		.138		.061		.253
<i>Checking Account + Financial Education</i> ^c										
Financial capability (Reference: Financially excluded)										
Financially capable (checking account + financial education)	.608**	(.181)	.371†	(.204)	-.599***	(.161)	-.059	(.170)	.219	(.183)
Financially included (checking account only)	.360*	(.169)	.113	(.205)	-.677***	(.154)	.090	(.179)	-.162	(.167)

R^2	.143	.107	.101	.044	.181					
<i>Credit Card + Financial Education</i> ^d										
Financial capability (Reference: Financially excluded)										
Financially capable (credit card + financial education)	1.077***	(.129)	.937***	(.131)	-.039	(.113)	-.136	(.108)	1.062***	(.129)
Financially included (credit card only)	.792***	(.099)	.669***	(.115)	-.245**	(.093)	.037	(.095)	.626***	(.103)
Financially educated (financial education only)	.341*	(.159)	.261	(.212)	-.067	(.164)	.021	(.179)	.011	(.185)
R^2	.123		.121		.105		.042		.195	

Source: Markov Chain Monte Carlo (MCMC) completed data from the 2012 National Financial Capability Study (NFCS), weighted using the average treatment-effect-for-the-treated (ATT).

Notes: β = regression coefficients. Robust SE = robust standard error. Odds ratios for significant variables in Models 6 through 9 can be calculated by exponentiating the regression coefficient. * $p < .05$; ** $p < .01$; *** $p < .001$; † $p < .10$

Sensitivity tests were performed to test whether variables representing financial literacy or other financial products could be substituted for financial education and financial inclusion that represented knowledge and opportunity in the common definition of financial capability (M.S. Sherraden, 2013). To conserve space, only the results from the financial capability variables are reported. The same analyses were performed with each of this alternative definitions of financial capability as were performed in the preceding models. That is, to produce the results for each of the separate sensitivity tests, the sample was imputed, dosages created, balance checks performed, and regression analyses used. The results were produced in this way because, for example, the sample that was balanced on the original financial capability dosage variable that combined savings accounts and financial education; however, the sample could be unbalanced based on the financial capability dosage variable that combined savings accounts and financial literacy. Thus, the steps for the analyses were undertaken for each sensitivity test and followed by regression.^a In the first sensitivity test of financial capability, financial literacy replaced whether or not Millennials received financial education with their scores on financial literacy tests based on research by Lusardi, Mitchell, and Curto (2010). Millennials were considered financially literate if they correctly answered two out of the three financial literacy questions. The sample was completely balanced based on observed covariates. The remaining sensitivity tests replaced savings accounts with other types of financial products to determine whether or not different financial inclusion experiences could be substituted for and produce similar effects as savings accounts. The financial education variable was used to construct financial capability in the remaining sensitivity tests.^b In the second sensitivity test, savings accounts were replaced with ever having a bank account. After testing for covariate balance, education level, employment, and marital status remained significant.^c In the third sensitivity test, savings accounts were replaced with having a checking account. Employment status and region remained significant after testing for covariate balance in this sensitivity test.^d In the fourth sensitivity test, savings accounts were replaced with having a credit card. In the fourth sensitivity test, employment status and region remained significant after testing for covariate balance.

Table 7

Multiple regression results: Summary of tests of financial capability on financial behaviors of Millennials ages 18 to 34 ($N = 6,865$; ATT weighted)

	Financial Fragility	Emergency Savings	Alternative Financial Services	Debt Burden	Financial Satisfaction
<i>Savings Account + Financial Education</i>					
Financial capability (Reference: Financially excluded)					
Financially capable (savings account + financial education)	+	+	–	–	+
Financially included (savings account only)	+	+	–	–	+
Financially educated (financial education only)	+	+			
<i>Savings Account + Financial Literacy</i>					
Financial capability (Reference: Financially excluded)					
Financially capable (Savings account + financial literacy)	+	+	–		
Financially included (savings account only)	+	+	–	–	+
Financially educated (financial literacy only)	+		–		–
<i>Ever Bank Account + Financial Education</i>					
Financial capability (Reference: Financially excluded)					
Financially capable (ever bank account + financial education)				+	–
Financially included (ever bank account only)				+	
Financially educated (financial education only)				+	
<i>Checking Account + Financial Education</i>					
Financial capability (Reference: Financially excluded)					
Financially capable (checking account + financial education)	+	+	–		
Financially included (checking account only)	+		–		
Financially educated (financial education only)					
<i>Credit Card + Financial Education</i>					
Financial capability (Reference: Financially excluded)					
Financially capable (credit card + financial education)	+	+			+
Financially included (credit card only)	+	+	–		+
Financially educated (financial education only)	+				

Source: Markov Chain Monte Carlo (MCMC) completed data from the 2012 National Financial Capability Study (NFCS), weighted using the average treatment-effect-for-the-treated (ATT).