Financial Knowledge and Past-Due Credit Card, Mortgage, and Student Loan Debt

Breno Braga, Signe-Mary McKernan, and Hannah Hassani

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Many Americans are in financial distress; nearly a third have debt in collections recorded on their credit reports (Braga et al. 2016). Paying credit card, mortgage, or student loan debt late damages a person's financial health. Consumers who stay current on all these types of debt have much better credit health three years later than consumers who are past due on a single form of debt (Braga, McKernan, and Hassani 2019). Though past research shows that people with more financial knowledge are less likely to have delinquent medical debt (Braga, McKernan, and Karas 2017), there is little evidence about how financial knowledge relates to other forms of past-due debt.

This brief uses the 2015 FINRA Foundation National Financial Capability Study (NFCS) data to estimate the relationship between financial knowledge and past-due credit card, mortgage, and student loan debt.[1] We investigate whether consumers with high financial knowledge are less likely than those with low financial knowledge to become past due on these types of debt after controlling for key demographic variables. We also compare financial knowledge as a predictor of past-due debt with other consumer characteristics, including educational attainment, income, age, race or ethnicity, and gender. According to our analysis:

- **Financially knowledgeable adults are less likely to be past due on credit card, mortgage, or student loan payments.** Adults who answered four or five questions correctly on a five-question financial knowledge quiz, compared with similar adults who answered zero or one question correctly, were 8.3 percentage points (45 percent) less likely to have been past due on a credit card payment, 15 percentage points (56 percent) less likely to have been past due on a mortgage payment, and 11 percentage points (41 percent) less likely to have been past due on a student loan payment in the previous 12 months.
- **Financial knowledge is often a more reliable predictor of past-due payment rates than consumer characteristics such as educational attainment, age, race or ethnicity, and gender.**

For example, high-financial-knowledge adults were 8.3 percentage points (45 percent) less likely than low-financial-knowledge adults to have been past due on a credit card payment in the previous 12 months. In comparison, consumers with a college degree were only 1.2 percentage points (8 percent) less likely to have been past due on a credit card payment than similar adults with a high school diploma or less education.

Data and Methodology

For our analysis, we use the 2015 NFCS state-by-state survey, a nationwide online survey of more than 25,000 American adults (roughly 500 per state plus the District of Columbia).[2] Our three outcomes are determined by self-reported indicators for whether a consumer was late on a credit card, mortgage, or student loan payment in the past 12 months (table 1).

TABLE 1

Past-Due Debt Questions

Outcome	**Survey question (*relevant responses*)**
Past-due credit card	In the past 12 months, which of the following describes your experience with credit cards? *(In some months, I was charged a late fee for late payment)*
Past-due mortgage	How many times have you been late with your mortgage payments in the past 12 months? *(Once* or *more than once)*
Past-due student loans	How many times have you been late with a student loan payment in the past 12 months? (*Once* or *more than once*)

Financial knowledge is measured at the time of the survey by the number of questions answered correctly on a five-question quiz (table 2). This summary variable objectively measures individual financial knowledge and has been used in previous research on the effect of financial knowledge on financial outcomes (Allgood and Walstad 2016; Braga, McKernan, and Karas 2017; Lusardi and Mitchell 2009). Adults who answer zero or one question correctly are classified as having low financial knowledge, adults who answer two or three questions correctly are classified as having medium financial knowledge, and adults who answer four or five questions correctly are classified as having high financial knowledge.

The NFCS data also provide detailed information on consumer characteristics including educational attainment, income, age, race or ethnicity, state of residence, and gender. For each outcome, we restrict the sample to adults holding the particular type of debt being examined. For example, to investigate the likelihood of past-due mortgage debt, we restrict the sample to adults holding mortgage debt. The characteristics of adults in each of the three analytical samples are reported in table A.1. We also report the overall share of past-due debt within each sample.

TABLE 2

Financial Knowledge Questions

Variable	Question and responses (correct answer in bold type)
Interest on savings	Suppose you had $100 in a savings account, and the interest rate was 2 percent a year. After five years, how much do you think you would have in the account if you left the money to grow? *(i)* ***More than $102****, (ii) Exactly $102, (iii) Less than $102, (iv) Don't know, (v) Prefer not to say*
Interest offsetting inflation	Imagine that the interest rate on your savings account was 1 percent a year and inflation was 2 percent a year. After one year, how much would you be able to buy with the money in this account? *(i) More than today, (ii) Exactly the same, (iii)* ***Less than today****, (iv) Don't know, (v) Prefer not to say*
Interest rates and bond prices	If the interest rate falls, what should happen to bond prices? *(i)* ***Rise****, (ii) Fall, (iii) Stay the same, (iv) There is no relationship between bond prices and the interest rate, (v) Don't know, (vi) Prefer not to say*
Total costs of mortgages	A 15-year mortgage typically requires higher monthly payments than a 30-year mortgage, but the total interest paid over the life of the loan will be less. *(i)* ***True****, (ii) False, (iii) Don't know, (iv) Prefer not to say*
Stock diversification	Buying a single company's stock usually provides a safer return than a stock mutual fund. *(i) True, (ii)* ***False****, (iii) Don't know, (iv) Prefer not to say*

We estimate the relationship between past-due debt and financial knowledge using a probit model that controls for individual-level characteristics, including educational attainment, age, income, race or ethnicity, state of residence, and gender. This approach considers that financially knowledgeable people often have other characteristics negatively associated with past-due debt. For example, adults with high financial knowledge are more likely to be highly educated and from high-income families. We control for state of residence (i.e., state fixed effects) because debt delinquency is highly concentrated in some regions of the country (Braga et al. 2016). This control assures our model captures the relationship between financial knowledge and past-due debt of consumers regardless of where they live.

Using these probit models, we compare the likelihood of past-due debt for otherwise similar adults with different levels of financial knowledge. Specifically, we use different levels of financial knowledge to predict the likelihood that an adult with average values of observable characteristics, such as age and income, was past due on a credit card, mortgage, or student loan payment in the previous 12 months. We also predict the likelihood of past-due debt payments based on educational attainment, age, income, race or ethnicity, and gender. We report the coefficients from the probit estimations in table A.2. Though we cannot interpret our results as causal, these results describe the characteristics that predict delinquency.

Results

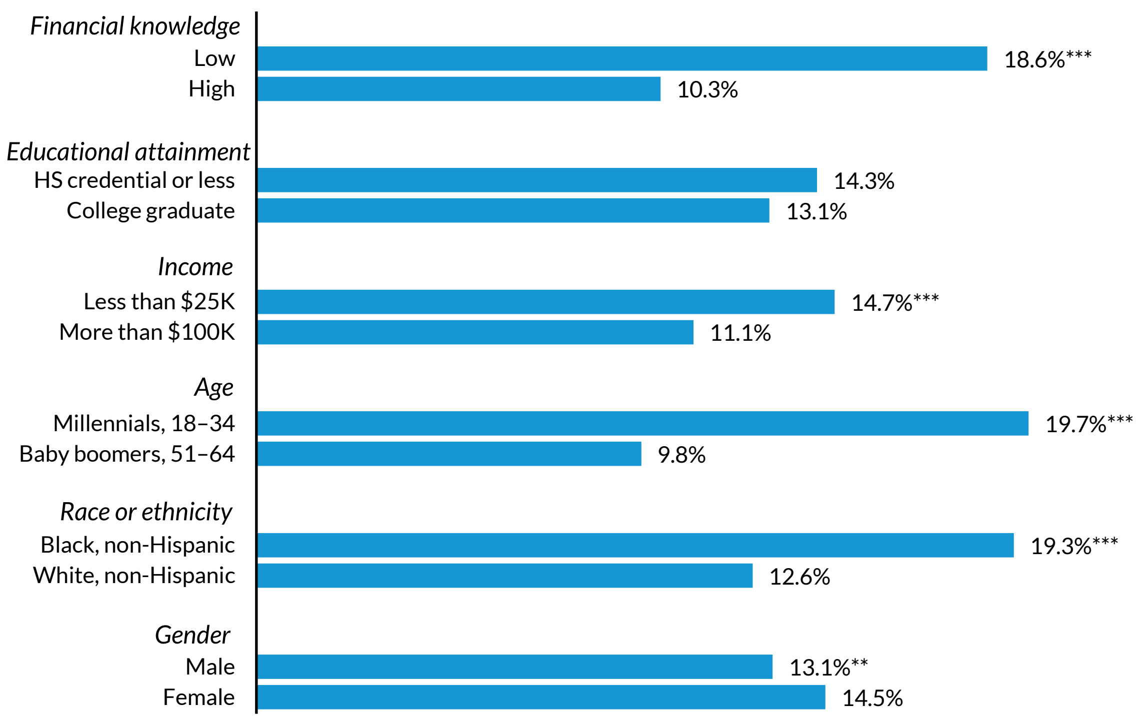
Financially Knowledgeable Adults Are Less Likely to Have Been Late with Credit Card Payments

Consumers with high financial knowledge are less likely to have been past due on a credit card payment in the past 12 months than consumers with low financial knowledge (figure 1). We estimate that an adult with low financial knowledge and average other characteristics has an 18.6 percent chance of reporting past-due credit card debt, whereas a similar adult with high financial knowledge has a 10.3 percent chance of reporting past-due credit card debt. The 8.3 percentage-point difference between these two groups is both statistically significant and economically meaningful. High-financial-knowledge adults are 45 percent (8.3 percentage points over 18.6 percent) less likely to have been past due on a credit card payment in the past 12 months relative to low-financial-knowledge adults.

FIGURE 1

Financial Knowledge Is a Stronger Predictor of a Past-Due Credit Card Payment Than Educational Attainment, Income, Race or Ethnicity, and Gender

Probability of having a past-due credit card payment in the past 12 months by selected characteristics



Source: 2015 FINRA Foundation National Financial Capability Study (NFCS).

Notes: Sample is adults with credit card debt. Probability of delinquency is predicted using a probit model for adults with average observable characteristics. Regressions control for financial knowledge, educational attainment, family income, age, race or ethnicity, gender, and state fixed effects (see table A.2). Data are weighted according to the national population using NFCS individual weights.

/* Probability of credit card delinquency differs from the category below at the 0.05/0.01 level.

In comparison, we estimate that consumers with a high school diploma or less education are only 1.2 percentage points more likely to have been past due on their credit card than similar adults with a college degree (14.3 percent versus 13.1 percent). On a relative basis, those with a high school diploma are only 8 percent less likely than those with a college degree to be late with a credit card payment. Similarly, men are 1.4 percentage points less likely to have been past due on their credit card than women (13.1 percent versus 14.5 percent), which is a relative difference of 11 percent. Consumers from families with low incomes (making less than $25,000) are only 3.6 percentage points more likely to have been past due on their credit card debt than those from families with high incomes (making more than $100,000). When examining consumers with similar characteristics, it appears that financial knowledge is a more important predictor of past-due credit card debt than educational attainment, gender, or income.

Generational differences in credit card delinquency are the most substantial, and age is the strongest predictor of past-due credit card debt. Baby boomers (ages 51–64) are 9.9 percentage points (50 percent) less likely to have been past due on a credit card than millennials (ages 18–34) with similar characteristics.

Financially Knowledgeable Adults Are Less Likely to Have Been Late with Mortgage Payments

We now turn our attention to the relationship between financial knowledge and past-due mortgage debt (figure 2). An adult with low financial knowledge is 14.6 percentage points more likely to have been past due with a mortgage payment in the past 12 months than a similar adult with high financial knowledge (26.1 percent versus 11.5 percent respectively). This means that a high-financial-knowledge adult is about half as likely to have been past due with a mortgage payment as a low-financial-knowledge adult.

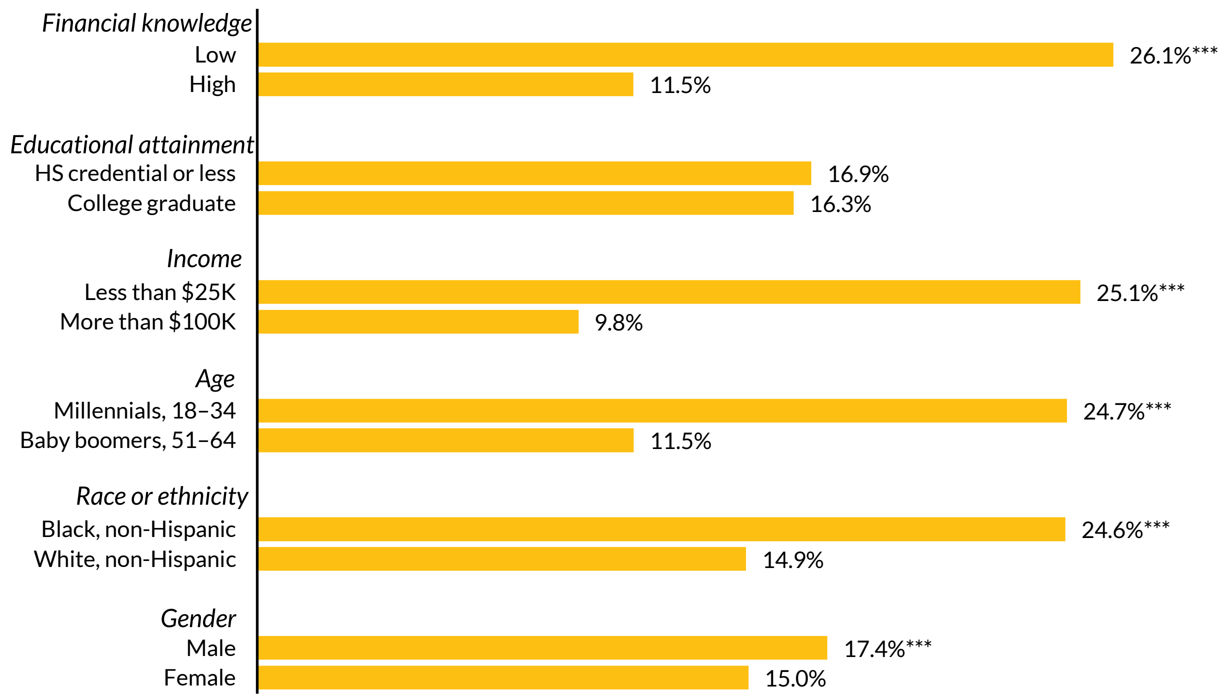
Financial knowledge is a stronger predictor for lower mortgage delinquency than educational attainment. We estimate no statistical difference in mortgage delinquency between adults with a high school diploma or less and those with a college education, when comparing consumers similar in all other characteristics. In addition, adults with high incomes are 15.3 percentage points (61 percent) less likely to have been past due on their mortgage than adults with low incomes.

The difference in the past-due mortgage rate between millennials and baby boomers is also substantial; 18–34-year-old consumers are more than twice as likely to have been be past due on their mortgage as 51–64-year-old consumers. The differences by race or ethnicity and gender are smaller. When looking at consumers with similar characteristics, it appears that financial knowledge is a more important predictor of past-due mortgage debt than race or ethnicity and gender but not more important than income and age.

FIGURE 2

Financial Knowledge Is a Stronger Predictor of Past-Due Mortgage Debt Than Educational Attainment, Race or Ethnicity, and Gender

Probability of having a past-due mortgage payment in the past 12 months by selected characteristics



Source: 2015 FINRA Foundation National Financial Capability Study (NFCS).
Notes: Sample is adults with mortgage debt. Probability of delinquency is predicted using a probit model for adults with average observable characteristics. Regressions control for financial knowledge, educational attainment, family income, age, race or ethnicity, gender, and state fixed effects (see table A.2). Data are weighted to the national population using NFCS individual weights.
*** Probability of mortgage delinquency differs from the category below at the 0.01 level.

Financially Knowledgeable Adults Are Less Likely to Have Been Late with Student Loan Payments

Adults with low financial knowledge are 10.5 percentage points more likely to have been past due on a student loan payment in the past 12 months than adults with high financial knowledge (figure 3). While an adult with average characteristics who answers zero or one financial knowledge question correctly on the five-question quiz (low financial knowledge) has a 26.0 percent chance of being past due on a student loan payment, a similar adult who answers four or five questions correctly has a 15.5 percent chance of being past due. In other words, financially knowledgeable adults are 41 percent less likely to have been late making a student loan payment in the past 12 months than adults with low financial knowledge.

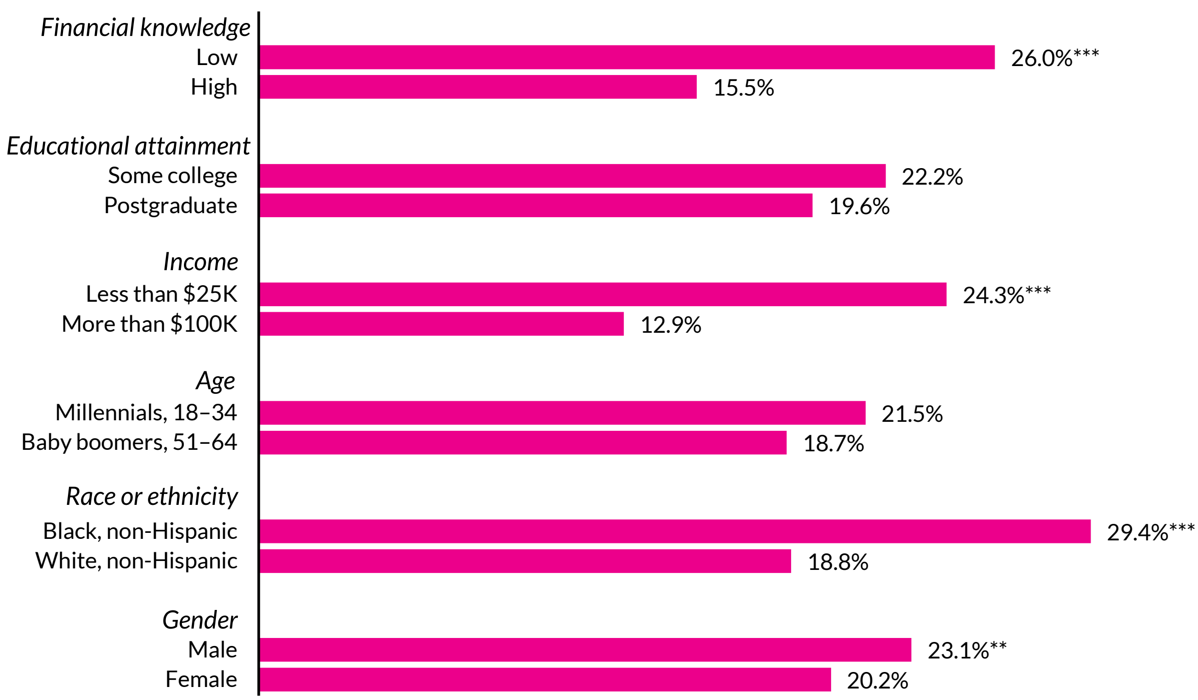
This 10.5 percentage-point difference in having past-due student loan debt between low- and high-financial-knowledge consumers is comparable with differences in student loan debt delinquency by income and by race or ethnicity. Adults with annual incomes above $100,000 are 11.4 percentage points less likely to have been past due on a student loan payment than adults with annual income below $25,000, which means they are a little less than half as likely to have a late student loan payment. White, non-Hispanic consumers are 10.6 percentage points less likely to have been past due on student loan payments than Black, non-Hispanic consumers, which means they are about 36 percent less likely to have late student loan payments. This result is consistent with racial wealth differences from the literature.[3]

We find no statistically significant difference in student loan delinquency between adults with some college education and those with a postgraduate degree when controlling for observable characteristics. There is only a small difference by gender, with men 2.8 percentage points more likely to be delinquent on their student loans than women.

FIGURE 3

Financial Knowledge Is a Stronger Predictor of Past-Due Student Loan Debt Than Educational Attainment, Age, and Gender

Probability of having past-due student loan debt in the past 12 months by selected characteristics



Source: 2015 FINRA Foundation National Financial Capability Study (NFCS).

Notes: Sample is adults with student loan debt. Probability of delinquency is predicted using a probit model for adults with average observable characteristics. Regressions control for financial knowledge, educational attainment, family income, age, race or ethnicity, gender, and state fixed effects (see table A.2). Data are weighted to the national population using NFCS individual weights.

/* Probability of student loan delinquency differs from the category below at the 0.05/0.01 levels.

Discussion

High financial knowledge is strongly associated with a consumer's ability to stay current on credit card, mortgage, and student loan payments, even after accounting for educational attainment, income, age, race or ethnicity, and gender. Given the long-term harm that debt delinquency causes to a consumer's financial health (Braga, McKernan, and Hassani 2019), our findings suggest an important link between financial knowledge and successful financial outcomes.

A possible implication from these findings is that a simple five-question financial knowledge quiz could help identify people at risk of becoming past due in their debt. Further research would be helpful to know how best to help those consumers: What are effective ways to improve financial knowledge and outcomes? What interventions work for which outcomes, when, and for whom?

Field experiments could evaluate whether interventions (e.g., financial education, counseling, or coaching) improve financial knowledge and outcomes, and for whom. For example, a financial coaching provider could administer the financial knowledge quiz at the start of the program and later evaluate whether (1) financial knowledge increased, (2) outcomes such as past-due debt improved, and (3) how the effects differed among participants. Was the financial coaching better at raising financial knowledge and improving outcomes for people who initially had low, medium, or high financial knowledge?

Increasing financial knowledge and improving outcomes are challenges worth solving. Early studies found no measurable effects of financial education on the financial well-being of families with low incomes in subsidized housing programs (Collins 2013). However, more recent research found that financial education requirements in high school are associated with fewer defaults and higher credit scores (Urban et al. 2018), reduced likelihood of payday borrowing (Harvey 2019), and a decreased reliance on non-student debt (Brown et al. 2016). In addition, more behaviorally oriented approaches like financial coaching have demonstrated success (Theodos et al. 2015). Further research could better identify the populations more likely to benefit from financial interventions, the barriers and costs associated with participating in and offering the interventions, and how these interventions compare with other interventions at preventing debt delinquency (e.g., student loan counseling versus enrollment in income-based repayment plans).

Appendix

TABLE A.1

Descriptive Statistics of the Sample

Percent, except where noted

Characteristic	Consumers with credit cards	Consumers with mortgages	Consumers with student loans	All
Financial knowledge				
Low	15.3	12.2	22.2	19.8
Medium	41.8	41.9	46.9	42.7
High	42.9	45.9	30.9	37.5
Educational attainment				
High school credential or less	24.4	22.3	16.8	29.1
Some college	30.5	29.1	33.8	31.3
College graduate	32.3	34.7	36.4	29.2
Postgraduate	12.8	13.9	13.0	10.4
Income				
< $25,000	16.2	8.1	25.0	24.6
$25,000–$49,999	25.7	21.1	26.1	26.3
$50,000–$99,999	37.5	42.5	33.2	32.5
≥ $100,000	20.6	28.3	15.7	16.6
Age (as of 2015)				
Millennials, 18–34	27.5	21.0	52.9	30.5
Generation X, 35–50	26.5	35.5	29.8	26.5
Baby boomers, 51–64	25.5	27.8	14.4	25.1
Silent generation, 65+	20.5	15.7	2.9	17.9
Race or ethnicity				
White, non-Hispanic	66.9	70.4	55.0	65.0
Black, non-Hispanic	10.0	8.8	17.3	11.9
Hispanic	14.9	13.8	19.6	15.2
Other, non-Hispanic	8.2	7.0	8.1	7.9
Gender				
Female	49.7	48.9	52.0	51.4
Male	50.3	51.1	48.0	48.6
Have past-due debt in previous 12 months	13.8	16.1	21.5	
Number of observations	**21,118**	**9,740**	**7,095**	**27,564**

Source: 2015 FINRA Foundation National Financial Capability Study (NFCS).

Note: Data are weighted to the national population using NFCS individual weights.

TABLE A.2

Probit Regression Coefficients

Dependent variable	Credit card delinquency	Mortgage delinquency	Student loan delinquency
Explanatory variables			
Financial knowledge (omitted: low)			
Medium	-0.154***	-0.341***	-0.099*
	(0.037)	(0.055)	(0.053)
High	-0.394***	-0.621***	-0.389***
	(0.042)	(0.061)	(0.063)
Educational attainment (omitted: high school credential or less)			
Some college	-0.002	-0.056	0.146**
	(0.038)	(0.057)	(0.066)
College graduate	-0.060	-0.025	0.183***
	(0.037)	(0.055)	(0.064)
Postgraduate	-0.015	-0.088	0.050
	(0.047)	(0.070)	(0.078)
Income (omitted: < $25,000)			
$25,000–$49,999	0.028	-0.181**	0.036
	(0.041)	(0.076)	(0.057)
$50,000–$99,999	-0.051	-0.348***	-0.146**
	(0.040)	(0.073)	(0.057)
≥ $100,000	-0.184***	-0.696***	-0.453***
	(0.048)	(0.082)	(0.075)
Age (omitted: millennials, 18–34)			
Generation X, 35–50	-0.097***	-0.204***	0.098**
	(0.034)	(0.048)	(0.047)
Baby boomers, 51–64	-0.454***	-0.564***	-0.105
	(0.038)	(0.056)	(0.065)
Silent generation, 65+	-0.774***	-1.085***	-0.660***
	(0.047)	(0.081)	(0.143)
Race or ethnicity (omitted: white, non-Hispanic)			
Black, non-Hispanic	0.296***	0.404***	0.360***
	(0.045)	(0.067)	(0.060)
Hispanic	0.107**	0.048	0.128*
	(0.045)	(0.070)	(0.066)
Other, non-Hispanic	0.040	0.088	0.057
	(0.051)	(0.075)	(0.077)
Gender (omitted: male)			
Female	0.066**	-0.114***	-0.103**
	(0.027)	(0.040)	(0.043)
Number of observations	**21,118**	**9,740**	**7,095**

Source: 2015 FINRA Foundation National Financial Capability Study (NFCS).

Notes: Samples are restricted to adults with the respective debt type. All regressions control for state fixed effects. Robust standard errors are in parentheses. Data are weighted to the national population using NFCS individual weights.

*/**/*** Coefficients are significant at the 0.10/0.05/0.01 levels.

Notes

[1] Throughout this brief, we use "past due" to indicate that a survey respondent indicated making a late payment on his or her credit card, mortgage, or student loan debt in the past 12 months. Our previous brief (Braga, McKernan, and Hassani 2019) used "delinquent" to refer to debt that showed up as past due or derogatory on consumers' credit records.

[2] NFCS respondents were selected from among those who volunteered to participate in online surveys and polls through panels maintained by Survey Sampling International, EMI Online Research Solutions, and Research Now. The data have been weighted to reflect the demographic composition of US adults nationally. Although this brief estimates the prevalence of self-reported past-due debt and the average values of other self-reported characteristics of the US population, some values may be underreported or otherwise subject to recall bias. In addition, the nonprobability sampling design of the NFCS, where each person's probability of selection is unknown, introduces more risk of generating biased estimates than a probability sampling design. Therefore, as stated in the American Association for Public Opinion Research guidelines, we cannot calculate estimates of sampling error when presenting descriptive statistics. In addition, because our sample is potentially nonrepresentative, generalizing our results to draw conclusions about the relationship between financial knowledge and past-due debt across the US population requires us to assume this relationship is homogeneous across demographic groups.

[3] Signe-Mary McKernan, Caroline Ratcliffe, C. Eugene Steuerle, Caleb Quakenbush, and Emma Kalish, "Nine Charts about Wealth Inequality in America (Updated)," Urban Institute, October 5, 2017, http://apps.urban.org/features/wealth-inequality-charts/.

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About the Authors

Breno Braga is a labor economist and a senior research associate in the Center on Labor, Human Services, and Population at the Urban Institute. His research has covered topics such as the effects of high-skilled immigration on labor markets, the role of local conditions in asset accumulation, and the local factors associated with debt in collections. His articles have been published in academic journals including the *Journal of Labor Economics*. Braga received his MA in economics from the Pontifical Catholic University of Rio de Janeiro and his PhD in economics from the University of Michigan.

Signe-Mary McKernan is vice president of the Center on Labor, Human Services, and Population and codirector of the Opportunity and Ownership initiative at the Urban Institute. She is a wealth-building and poverty expert with two decades of experience researching access to assets and credit and the impact of safety net programs. She coedited *Asset Building and Low-Income Families*, coauthored a chapter in the *Oxford Handbook of the Economics of Poverty*, and advised the Consumer Financial Protection Bureau in setting up its research unit. Her research has been published in books, policy briefs, reports, and refereed journals, including the *American Economic Review Papers and Proceedings*, *Demography*, and *Review of Economics and Statistics*. She has testified before Congress, appeared on NBC4 and Al Jazeera, and been cited in the *New York Times*, *Washington Post*, *Forbes*, and *Time*. She has a PhD in economics from Brown University.

Hannah Hassani is a former research assistant in the Center on Labor, Human Services, and Population. Her research interests included asset accumulation and historical economic analysis. Previously, she studied migration and labor force participation, with a special interest in women's employment. Hassani graduated from the George Washington University, where she earned a BS in economics and a BA in international affairs.

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