

# A review of youth financial education: Effects and evidence

# Table of contents

<b>Table of contents</b> .....	<b>1</b>
<b>1. Executive summary</b> .....	<b>2</b>
<b>2. Background</b> .....	<b>3</b>
2.1 How to use this report .....	4
2.2 Considerations for using this report .....	6
<b>3. Evidence</b> .....	<b>11</b>
3.1 A look back on approaches and studies .....	11
3.2 Does state-mandated financial education affect student outcomes? ....	14
3.3 What types of K-12 financial education programs are effective? For whom? .....	20
3.4 Learning from international research.....	27
<b>4. Conclusions and implications</b> .....	<b>36</b>
4.1 Building on this survey of current research.....	37
<b>Appendix A: External data resources</b> .....	<b>39</b>
<b>Appendix B: Bureau resources related to youth financial education</b> .....	<b>41</b>

# 1. Executive summary

Building personal financial capability early in life can give people a foundation for later-life financial well-being. Schools are an important channel to provide the education that can improve financial capability. Financial educators and policymakers face many decisions about whether and how to implement financial education. Strong research can provide some grounding for these decisions. This report, “A review of youth financial education: Effects and evidence” responds to the question: “What evidence has been established that can guide efforts to provide young people with effective financial education?”

This report reviews current research and reporting in the field, and is intended to inform policymakers, practitioners, financial educators, and researchers of the current state of rigorous evidence on financial education in schools.

This report features studies that (1) evaluate youth financial education programs in schools, (2) have a causal interpretation evidenced by a randomized controlled trial, natural experiment setting, or a valid pre-post study design, and (3) have been published in peer-reviewed academic journals or as reviewed working papers. Note that the studies predominately relate to school-based programs, as this is the context in which most youth financial education research has occurred.

There are three clear and consistent takeaways from the rigorous studies featured:

- Well-implemented state financial education mandates led to a clear improvement in financial behaviors.
- Many U.S. financial education programs improve financial knowledge for students, though effect sizes vary based on the population served, amount of instruction time, and topics covered.
- Other countries have used more widespread randomized controlled trials to study the effects of programs as they embed and expand them broadly. Those studies also provide useful information

Across rigorous youth financial education empirical research, findings remain relatively consistent: financial education can improve financial knowledge and financial behaviors. Additional future research would be valuable to further determine what types of programs are most beneficial and for whom.

## 2. Background

Young people who develop the fundamentals of financial capability are more likely to become financially secure adults.<sup>1</sup> There is also evidence that when a rigorous financial education program is carefully implemented, it can improve credit behaviors for young adults.<sup>2</sup>

Yet, many young people transition to adulthood without having developed the basic financial knowledge, skills, and behaviors that are critical for establishing healthy financial futures. According to a recent report, of more than 13 million high school students across 11,000 high schools, only one in six U.S. students receives required financial education.<sup>3</sup> The nonprofit Council on Economic Education reports that only 17 states require personal finance content be included in state K-12 standards.<sup>4</sup> Compared with international peers, 15-year olds in the United States ranked in the middle of the 18 countries and economies that participated in the 2015 Program for International Student Assessment (PISA) financial literacy assessment, administered in the United States through the Department of Education.<sup>5</sup> Nearly one in five U.S. students failed to demonstrate more than a basic level of financial knowledge and skills in 2015, and there was nearly no change in the U.S. average financial literacy score performance for U.S. 15-year-olds between 2012 and 2015.

In the face of this very real need, an array of stakeholders including education policy leaders, financial educators, and others have developed programs to teach young people about their finances. There is enthusiasm for advancing youth financial capability, and the Consumer Financial Protection Bureau's (CFPB or Bureau) financial well-being research includes an in-

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1 Terrie E. Moffitt, Louise Arseneault, Daniel Belsky, Nigel Dickson, Robert J. Hancox, Hona Lee Harrington, Renate Houts, Richie Poulton, Brent W. Roberts, Stephen Ross, Malcolm R. Sears, W. Murray Thomson, and Avshalom Caspi, "A Gradient of Childhood Self-Control Predicts Health, Wealth, and Public Safety." *Proceedings of the National Academy of Sciences*, 108.7 (2011): 2693-2698

2 Urban, Carly, Maximilian Schmeiser, Alexandra Brown, and J. Michael Collins. The Effects of High School Personal Financial Education Policies on Financial Behavior. *Economics of Education Review* Forthcoming (2018).

3 Next Gen Personal Finance "Who has access to financial education in America today?" September 2017, [mbea-ma.org/wp/2017/09/28/report-who-has-access-to-financial-education-in-america-today/](http://mbea-ma.org/wp/2017/09/28/report-who-has-access-to-financial-education-in-america-today/).

4 Council for Economic Education, Survey of the States: The state of K-12 economic and financial education in the U.S. (2018), [councilforeconed.org/wp-content/uploads/2018/02/2018-SOS-Layout-18.pdf](http://councilforeconed.org/wp-content/uploads/2018/02/2018-SOS-Layout-18.pdf).

5 Organisation for Economic Co-operation & Development, Program for International Student Assessment (PISA) Financial Literacy Assessment, (2015), [oecd.org/finance/financial-education/pisa-2015-results-volume-iv-9789264270282-en.htm](http://oecd.org/finance/financial-education/pisa-2015-results-volume-iv-9789264270282-en.htm).

depth report on the building blocks of youth financial capability.<sup>6</sup> However, there is not yet widespread understanding about what financial education approaches are effective at creating and supporting youth financial capability. Time in the educational day is precious, and the relative absence of rigorous program evaluation and research to measure the effectiveness of youth financial education makes it difficult for policymakers and others to determine which strategies to embrace and implement.

Fortunately, there is already an ongoing conversation about promising practices in promoting financial education and capability for children and youth. The Bureau seeks to contribute to this conversation by facilitating a national focus on evidence as a basis to bolster efforts to advance youth financial education and program availability. Many financial education stakeholders have expressed interest in research on effective practices, especially evidence of programs that can be efficiently implemented at scale. Additionally, many financial education stakeholders have called for more evidence to indicate which financial education strategies are most effective under which circumstances.<sup>7</sup>

In consultation with a variety of stakeholders, the Bureau published a report on “Youth Financial Education Research Priorities,” setting forth some of the key questions regarding effective youth financial education practices. This report is a companion to, and forms the basis for, the Bureau’s recommendations for future research.

Taken together, the “Youth Financial Education Research Priorities” and this report offer background as to what rigorous evidence has been established regarding youth financial education and a roadmap for exploring what types of financial education hold the most promise.

## 2.1 How to use this report

This report is designed to help education policymakers, program leaders, financial educators, and academic researchers make evidence-informed policy, programming and resourcing decisions in school-based financial education. This survey of current research is offered as a

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6 Consumer Financial Protection Bureau (June 2018), Building blocks to help youth achieve financial capability: Measurement guide, [consumerfinance.gov/data-research/research-reports/building-blocks-help-youth-achieve-financial-capability-measurement-guide/](https://consumerfinance.gov/data-research/research-reports/building-blocks-help-youth-achieve-financial-capability-measurement-guide/). In this report, the Bureau examines financial capability as it develops from ages 3 to 21.

7 According to a 2011 GAO report on financial literacy, “[r]elatively few evidence-based evaluations of financial literacy programs have been conducted, limiting what is known about which specific methods and strategies are most effective.” See U.S. Government Accountability Office, GAO-11-614, Financial Literacy: A Federal Certification Process for Providers Would Pose Challenges (June 2011) at Highlights, [gao.gov/assets/330/320203.pdf](https://gao.gov/assets/330/320203.pdf).

starting point for stakeholders to refer to youth financial education research that can inform design of a program or study.

In Section 2.2, the Bureau offers considerations that stakeholders will find useful in deciding how to evaluate and interpret various studies. Section 2.2.1 discusses the different study types and their validity. From there, the report goes on to discuss the importance of selecting meaningful measures of success and defining effectiveness in Section 2.2.2. The Bureau encourages stakeholders to select studies based on the most valid scenario and appropriate study type and method for their context.

In Section 3, the report discusses evidence that determines the causal effects of financial education, citing rigorous studies. In addition to brief summaries of each study, the report includes tables of the studies for quick reference. Section 4 offers concluding thoughts and ideas for building on the foundation described in this report.

Finally, the Appendices point to resources readers can explore to determine the potential benefits and needs for financial education in a given area. The resources can help readers weigh the demands for financial education and make a case for such requirements that they deem are beneficial.

This report focuses on existing studies for school-based youth financial education. For a deeper discussion of the implications for future research in youth financial education, please refer to the Bureau's "Youth Financial Education Research Priorities."<sup>8</sup> Those seeking additional resources in order to implement a financial education requirement or program should visit the Bureau's "A guide for advancing K-12 financial education."

This report includes links and references to third-party resources or content that readers may find helpful. The Bureau does not control or guarantee the accuracy of this third-party information. By listing these links and references, the Bureau is not endorsing and has not vetted these third parties, the views they express, or the products or services they offer. Other entities and resources may also meet the reader's needs. This report presents evidence showing which types of financial education are most successful, for which students, under which circumstances. However, it is up to readers of this report to decide how best to use and interpret the evidence presented.

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<sup>8</sup> Consumer Financial Protection Bureau (April 2019). Youth Financial Education Research Priorities, [consumerfinance.gov/data-research/research-reports/youth-financial-education-research-priorities/](https://consumerfinance.gov/data-research/research-reports/youth-financial-education-research-priorities/).

## 2.2 Considerations for using this report

Financial education remains a developing discipline. There is great variety in how financial education is provided. Researchers aim to identify the educational approaches that are most effective and to understand which approaches are best matched to different situations and needs. This variation presents a rich laboratory for research, where various approaches can serve as pilots for all to learn about promising practices.

As the research continues, it can provide guidance to a variety of stakeholders seeking to implement youth financial education. It is up to stakeholders to determine the level of validity and relevance of each study for local context and decisions. In this section, the Bureau highlights two important considerations when using research to inform decisions: (1) understanding the study type and the benefits and disadvantages of each study method, and (2) how to define effectiveness in youth financial education.

### 2.2.1 Study type and method

Stakeholders, educators, and any non-academics looking to research to inform real world decisions need transparency on how reliable that research is and how to interpret it in terms of validity. Below, the Bureau lays out the benefits and drawbacks of four types of studies common in the financial education space.

#### Randomized Controlled Trial (RCT)

An RCT can compare students who receive financial education to students who are similar in all regards except they did not receive financial education. In an RCT, participants are randomly assigned to a treatment or a control group. Ideally, randomization is at the individual level, meaning that some students are exposed to financial education while others within the same school are not. However, this is difficult to implement. It is more feasible to assign schools or school districts randomly to an intervention. For example, in a large school district where there are many high schools, some schools could require financial literacy while other schools will not. Researchers could compare outcomes or changes across the two groups. These types of studies provide causal estimates of the effect of financial education.<sup>9</sup> In addition to the difficulty of doing such research, there are additional drawbacks. First, the results cannot always be applied

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<sup>9</sup> Causal studies seek to answer a specific question by isolating the effect of a single factor. Since it is not possible to control for every other confounding factor observed or unobserved to the researcher, these studies need to use experiments or natural experiments to isolate the effect of the single factor (Angrist and Pischke, 2017). In this case, the single factor of interest is financial education. Angrist, Joshua D. and Jorn-Steffen Pischke. (2017) "Undergraduate Econometrics Instruction: Through Our Classes, Darkly." *Journal of Economic Perspectives*, vol. 31(2), pages 125-144, Spring.

to all settings. For example, a RCT testing the effects of financial education on financial behavior in a rural area may not be generalizable to an urban setting. Readers should carefully study the context of the intervention before assuming the same result would occur in a new setting. This is less of an issue with large-scale randomized controlled trials that are nationally representative. Second, the specifics of the intervention are important. For example, if the intervention provided both teacher training and used specific instructional content, relaxing one of these components may yield a different result.<sup>10</sup>

## Natural experiment

A natural experiment exploits natural policy variation that happens across time and geographical region, where some areas in some time periods are affected by the policy and others are not.<sup>11</sup> One prime example of a study using a natural experiment is Urban et al. (2018).<sup>12</sup> This study considers the fact that only some states implemented rigorous personal finance education for high schools, using a difference-in-differences analysis. The researchers compare the difference in credit scores of those who graduated after the requirements went into effect to credit scores of those graduating before they were in effect in a state where the education was implemented, to the difference in credit scores between those who graduated in the same two years in a similar state that did not implement rigorous financial education. If the researchers instead just compared before and after graduates in the states who implemented the financial education, this would miss other national changes that could drive trends in financial behaviors (such as recessions or other changes in federal policy affecting youth, like the CARD Act). Similarly, if the researchers simply compared graduates in a state with rigorous financial education to those in another state without, they would simultaneously pick up differences across the states that had nothing to do with financial education, such as the overall different education systems in the two states. Comparing the changes in credit scores before and after implementation in implementing states to changes in credit scores in non-implementing states indicates the causal effect of the financial education change on financial behaviors.

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10 The Bureau's 2014 guide "Rigorous evaluation of financial capability strategies: Why, when and how" contains further discussion of the tradeoffs in conducted randomized control trials, [consumerfinance.gov/data-research/research-reports/rigorous-evaluation-of-financial-capability-strategies-why-when-and-how/](https://consumerfinance.gov/data-research/research-reports/rigorous-evaluation-of-financial-capability-strategies-why-when-and-how/).

11 Natural experiments generate causal effects since they allow a setting where it is possible to isolate the effect of a single factor. Instead of the researcher randomly assigning the treatment (in this case, financial education), the assignment either happens randomly or can be isolated by differencing out fixed factors.

12 Urban, Carly, Maximilian Schmeiser, Alexandra Brown, and J. Michael Collins. The Effects of High School Personal Financial Education Policies on Financial Behavior. *Economics of Education Review* Forthcoming (2018). The findings of this study are discussed in Section 3.2.



## Pre-post study

Pre-post studies look at the same students before and after an intervention. These happen in three steps: (1) A pre-test is administered. (2) The intervention (financial education) occurs. (3) A post-test is administered to the same students. Over short time periods, pre-post studies can measure knowledge gains. However, a simple pre-post study may not mean that the financial education caused the change, if any exists. If all students are exposed to the financial education intervention, it assumes that nothing else would have made students in the very specific time period score differently on the post-test. This is why it is better to have a short time-horizon for the study. A full semester course allows students to learn additional content in other subjects (math, for example) or learn from other sources (such as parents) that could also contribute to an improvement in financial knowledge. The differences between the two scores are often interpreted as knowledge gains, though the drawbacks discussed often inhibit drawing conclusions about causation. Note that when studies use pre-post tests on both a treatment group (those who receive the education) and a control group (those who do not receive the education), either in a RCT or natural experiment, they can allow for causal interpretation.

## Correlation

Correlational studies can suggest patterns in the data but not prove causality. Correlational studies can control for important factors, such as income, but still miss many other important confounding factors. For example, if researchers surveyed two groups of students, those who took personal financial management courses and those who did not, results may show that there are financial literacy and savings differences; however, researchers would not be able to say conclusively that it was the course that caused the difference. Perhaps students who chose to take the course started out with more knowledge and savings. It is not feasible to control for all the factors that simultaneously drive students to take the financial education course and develop more financial literacy (interest in the subject, desire to be an entrepreneur, pleasure in following the stock market, desire to take other advanced courses offered at the same time, etc.). For that reason, correlational work can provide descriptive evidence to understand patterns. These studies should not be used to interpret the causal effect of specific policies when other studies exist covering the same topic have more rigorous approaches.

### 2.2.2 How can you tell if a youth financial education program is effective?

Measuring outcomes for youth can be challenging, and determining the appropriate outcome measure should depend upon the population and the specific type of financial education. Financial educators ought to have a clear understanding of the goals and challenges facing

youths in their programs. To determine the effectiveness of financial education, stakeholders should first identify a set of measures that the financial education seeks to improve.<sup>13</sup>

One strand of research focuses on knowledge gains, as measured by test scores. While these are important studies, there are challenges with knowledge gain measures. It is difficult to design a test for youth, at various ages, that reflects all the different elements of knowledge and skill they will one day need to succeed in real-world financial decision-making. For instance, financial education programs may improve basic financial skills and confidence without changing the student's knowledge, as tested with standard financial literacy questions. While the PISA financial literacy assessment has created a test for 15-year-olds, the questions are proprietary and not available for others' use in measuring financial literacy in other populations.<sup>14</sup>

A second strand of research focuses on the effects of financial education on financial behaviors. For some youth, financial behaviors may be years down the road, making it difficult to measure the beneficial effects of financial education on those behaviors. Furthermore, which financial behaviors should financial education change? And for whom? For example, is an increase in student loan debt a negative effect of financial education or a positive one? Stoddard and Urban (2019) point out that it might be positive, because young adults may have been underinvesting in their educations or may have been financing their postsecondary educations through more costly options like credit card debt.<sup>15</sup> For other young consumers, however, it would be a positive effect of financial education to finance their tuition with more grants or scholarships and fewer loans. Thus, it can sometimes be hard to make *a priori* assumptions about what constitutes a positive or negative effect of financial education.

Moreover, measuring financial behaviors for those under 18 is challenging. Since minors do not have credit files, cannot easily make many types of financial transactions, and cannot have their observational data collected without parental disclosures, test scores are generally the most common way researchers measure financial capability of youth. One study in particular goes

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13 This document contains information for readers interested in identifying effective adult financial education programs. See Consumer Financial Protection Bureau, Effective financial education: Five principles and how to use them, [consumerfinance.gov/data-research/research-reports/effective-financial-education-five-principles-and-how-use-them/](https://consumerfinance.gov/data-research/research-reports/effective-financial-education-five-principles-and-how-use-them/).

14 See Organisation for Economic Co-operation & Development, Program for International Student Assessment (PISA) Financial Literacy Assessment, (2015), [oecd.org/pisa/test/](https://oecd.org/pisa/test/).

15 Stoddard, Christiana and Carly Urban. The Effects of Financial Education Graduation Requirements on Postsecondary Financing Decisions. *Journal of Money, Credit, and Banking* Forthcoming (2019).

beyond test scores to measure observational outcomes on students using behavior within the classroom (Batty et al. (2016)).<sup>16</sup>

This report provides evidence on the ability of financial education to affect financial knowledge and financial behaviors. For each study, the document identifies the measures available and the specific outcomes tested, and provides some contextual detail. It is important to note that when using the survey of recent research to inform policy and program decisions, readers should consider the outcome desired and compare that to what is measured in the studies presented. From there, readers can select studies based on the most valid scenario given their context, and understand what type and method of study is appropriate for different types of decisions.

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<sup>16</sup> Batty, Michael, J. Michael Collins, and Elizabeth Odders-White. Experiential Financial Literacy: A Field Study of My Classroom Economy. University of Wisconsin-Madison Center for Financial Security Report. (2016), [centerforfinancialsecurity.files.wordpress.com/2016/10/mce-report-final.pdf](http://centerforfinancialsecurity.files.wordpress.com/2016/10/mce-report-final.pdf).

# 3. Evidence

This section discusses available evidence. First, in Section 3.1, the report examines what is known about general financial education effectiveness based on past reviews and meta-analyses of numerous financial education studies. These comprehensive synopses primarily consider adult financial education research, underscoring the need for rigorous causal studies that explore specific aspects of youth financial education policy and programming.

In response, the report then reviews more recent studies meeting the following criteria:

- Does the study evaluate youth financial education?
- Does the study have a causal interpretation, as is evidenced by a randomized controlled trial, or valid natural experiment setting or pre-post study design?
- Is the study published in a peer-reviewed academic journal or as a reviewed working paper?

In Sections 3.2 through 3.3, this report summarizes the findings of recent studies meeting these criteria in three topic areas: the effects of state mandates (Section 3.2), the effectiveness of individual youth financial education programs with various approaches (Section 3.3), and finally, research done by other countries (Section 3.3).

## 3.1 A look back on approaches and studies

While there have been many studies of financial education, most fall in the realm of adult financial education and few are rigorous and causal. Taken together, the findings paint a somewhat confusing picture of what works. Fernandes, Lynch, and Netemeyer (2014) reviewed 201 studies, and found scant evidence that financial education affects behavior.<sup>17</sup> A review piece by Hastings et al. (2013) came to a similar conclusion.<sup>18</sup> However, a more recent review piece by

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<sup>17</sup> Fernandes, Daniel, John G. Lynch Jr, and Richard G. Netemeyer. Financial literacy, financial education, and downstream financial behaviors. *Management Science* 60.8 (2014): 1861-1883.

<sup>18</sup> Hastings, Justine S., Brigitte C. Madrian, and William L. Skimmyhorn. Financial literacy, financial education, and economic outcomes. *Annual Review of Economics* 5 (2013): 347-373.

Kaiser and Menkhoff (2017) concluded that financial education affects both financial literacy and behavior, but that there is great variation in what works for whom and when.<sup>19</sup>

Analyzing the results of many studies at once (“meta-analysis”) can mask big differences between programs and fail to make full use of the variety of approaches to learn what works for whom, why, and when. As a result, aggregating studies tends to yield weak average effects across a broad set of critical underlying differences, including:

- **Age variation.** Very few of the articles included in the meta-analyses study youth. For example, the review piece by Hastings et al. (2013) discusses the shortcomings of financial education in reducing financial mistakes or improving financial well-being, but only two studies cited in the review cover causal evidence of school-based financial education on financial knowledge or behaviors.<sup>20</sup> The bulk of youth financial education research has evolved in the last six years, yielding new evidence missing from earlier reviews of financial education.
- **Variation in what is taught and how it is taught.** Program intensity can range from an hour to many months and from light touch to high intensity. Likewise, topics vary and are not equally salient for all audiences. For instance, teaching about retirement savings is more actionable, relevant, and timely for employees than it is for high school students.
- **Differences in outcome measures.** Studies use many different ways to measure success. Success can be defined in terms of knowledge gains, skill gains, changes in attitudes, changes in behavior, and changes in actual financial situation or overall financial well-being. Standard adult financial literacy questions such as in Lusardi and Mitchell (2014) focus on financial concepts such as inflation, interest, and risk diversification, whereas targeted financial education programs may focus on other specific topics.<sup>21</sup> Further, many outcome metrics are not suitable for assessing financial capability through different stages of a youth’s development.

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<sup>19</sup> Kaiser, Tim, and Lukas Menkhoff. Does financial education impact financial literacy and financial behavior, and if so, when. *The World Bank Economic Review* 31.3 (2017): 611-630. They also provide more information on the effectiveness of financial education over the life course, as well as specific programs for each age.

<sup>20</sup> Hastings, Justine S., Brigitte C. Madrian, and William L. Skimmyhorn. Financial literacy, financial education, and economic outcomes. *Annual Review of Economics* 5 (2013): 347-373.

<sup>21</sup> Lusardi, Annamaria and Olivia S. Mitchell. The Economic Importance of Financial Literacy: Theory and Evidence. *Journal of Economic Literature*, 51.1 (2014): 5-44.

- **Research methodology approaches vary.** The meta-analyses cited include studies with a variety of methodological approaches. Section 2.2.1, Study type and method, describes different types of studies and explains why some do not prove that outcomes were caused by the financial education (“causal analysis”). In recent years, there has been an increase in studies with causal analysis on the effectiveness of financial education. Focusing on these studies, as well as their validity, is important in detecting the effects of financial education.

In their review, Kaiser and Menkhoff (2017) address several of these differences in the nature of studies.<sup>22</sup> They performed analysis excluding all studies without causal interpretation and further accounted for delivery method and the group targeted by the financial education. The study ends with six principal findings:

- Financial education improves financial literacy, and improved financial literacy is positively correlated with financial behaviors.
- Financial education has measurable effects on financial behaviors.
- The effects of financial education depend on the target group, where relatively low-income participants or those in low- and lower-middle income economies exhibit smaller effect sizes.
- Some financial behaviors are easier to affect than others: borrowing is more challenging to change than saving.
- Programs with greater intensity have a greater effect on outcomes.
- Characteristics of the financial education matters: mandatory programs and programs offered at teachable moments are more likely to affect financial outcomes.

Understanding the differences in the types of studies and the limitations of meta-analysis turns the question from “Does financial education work?” to “What types of financial education work, for whom, and why?”

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<sup>22</sup> Kaiser, Tim, and Lukas Menkhoff. Does financial education impact financial literacy and financial behavior, and if so, when. *The World Bank Economic Review* 31.3 (2017): 611-630.

## 3.2 Does state-mandated financial education affect student outcomes?

The Bureau first considers how the most common policy around youth financial education, which is a state mandate requiring personal finance courses be taken prior to graduation, affects financial outcomes. There exists a high-quality and growing literature on the effects of state-mandated financial education. Understanding the main papers cited in this report will help policymakers and practitioners reference the appropriate studies when determining the measurable benefits of state mandates. Table 1 lists key attributes and summarizes findings of the studies reviewed below for quick reference.

Two seminal studies in 2001 showed some promise of financial education policies. Both studies used the passage of financial literacy mandates as a natural experiment to understand the effects of financial education mandates on financial knowledge and behaviors. As mentioned earlier, this methodology is rigorous and allows for causal interpretation. Bernheim et al. (2001) used survey data to show that financial education mandates increased savings rates and net worth in adulthood.<sup>23</sup> Tennyson and Nguyen (2001) found that state mandates improved knowledge gains, but only when specific financial education coursework was required. Despite the promise of these early findings, both papers studied early consumer education mandates existing from 1957-1987.<sup>24</sup> The mandates studied are less intensive than post-2000 financial education state mandates.<sup>25</sup> Therefore, results from these studies cannot be directly used to assess the effectiveness of more recent rigorous and well-implemented mandates.

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23 Bernheim, B. Douglas, Daniel M. Garrett, and Dean M. Maki. Education and saving: The long-term effects of high school financial curriculum mandates. *Journal of Public Economics* 80.3 (2001): 435-465.

24 Tennyson, Sharon, and Chau Nguyen. State curriculum mandates and student knowledge of personal finance. *Journal of Consumer Affairs* 35.2 (2001): 241-262.

25 Urban and Schmeiser discuss this in their resource that contains information on all state graduation requirements from 1980-2012. The data can be found at [montana.edu/urban/financial-edu-database.html](http://montana.edu/urban/financial-edu-database.html). There is a corresponding policy brief detailing the data. Urban, Carly and Maximilian Schmeiser. State-Mandated Financial Education: A National Database of Graduation Requirements, 1970-2014. FINRA Investor Education Foundation (2015), [montana.edu/urban/FinEd\\_Insights\\_MSU%20Issue%20Brief%202\\_FINAL.pdf](http://montana.edu/urban/FinEd_Insights_MSU%20Issue%20Brief%202_FINAL.pdf).

Cole et al. (2016) found that the early mandates had no effect on financial behavior.<sup>26, 27</sup> They studied the same early mandates in Bernheim et al. (2001) with a similar natural experiment, though they explore long-term outcomes using millions of observations from administrative data from the Federal Reserve Bank of New York/Equifax Consumer Credit Panel (FRBNY - CCP).<sup>28</sup> However, studies of these early mandates did not take into account how these mandates were implemented, counting any cases where schools were required to do some level of personal finance or consumer economics instruction. Some states required a course for graduation while others just required a course be offered. In some cases, the implementation could be as small as mentioning interest rates during one day of social studies class. Such varied degrees of actual implementation can make it hard to detect broad effects of these requirements on long-term financial behaviors.

Three additional studies used similar rigorous natural experiment settings to identify the effect of more recent (post-2000) state-mandated financial education on financial behaviors for young adults. These findings suggest that financial education can indeed lead to such benefits as improved credit scores, reduced default rates, reduced non-student debt, and improved student loan decisions.

Brown et al. (2016) was the first of this newer wave of papers.<sup>29</sup> The authors used data from the Jump\$tart Coalition, the Council on Economic Education, and state law databases to determine when each post-2000 mandate was passed. They studied all mandates requiring financial education be included in some way, looking at the first graduating class affected, and focusing on 19 to 29 year olds. Using the same FRBNY - CCP administrative data as Cole et al. (2016), the authors found that financial literacy mandates increased the likelihood of having a credit file.<sup>30</sup>

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26 The same set of coauthors, have an additional paper saying that additional years of schooling increase financial market participation (investment income and equities ownership) and decrease the likelihood of declaring bankruptcy, experiencing a foreclosure, or being delinquent on a loan. Cole, Shawn, Anna Paulson, and Gauri Kartini Shastry. Smart Money? The Effect of Education on Financial Outcomes. *The Review of Financial Studies*, 27.7 (2014): 2022-2051.

27 Cole, Shawn, Anna Paulson, and Gauri Kartini Shastry. High school curriculum and financial outcomes: The impact of mandated personal finance and mathematics courses. *Journal of Human Resources* 51.3 (2016): 656-698.

28 The FRBNY-CCP data are a 5% random sample of U.S. individuals (along with everyone else in that individual's household) with credit reports from Equifax. The data include all values that would appear on a credit report, such as credit score, number of accounts, missed payments, debts separated by category (auto, mortgage, medical debts, etc.), birth year, and ZIP code. These data do not include any individual-level demographic characteristic outside of age.

29 Brown, Meta, John Grigsb, Wilbur van der Klaauw, Jaya Wen, and Basit Zafar. Financial education and the debt behavior of the young. *The Review of Financial Studies*, 29.9 (2016): 2490-2522.

30 Cole, Shawn, Anna Paulson, and Gauri Kartini Shastry. High school curriculum and financial outcomes: The impact of mandated personal finance and mathematics courses. *Journal of Human Resources* 51.3 (2016): 656-698.



Financial literacy mandates also decreased the likelihood of having any outstanding debt and the likelihood of being delinquent on debt.

While the results from Brown et al. (2016) were encouraging, they still lacked a rigorous understanding of the mechanisms behind successful mandates. In addition, while some of these states mandated that financial education be taught in schools, they did not specify how schools should implement this new requirement. To improve understanding of the changing state requirements and recommendations of school-based financial education over time, Urban and Schmeiser (2015) created a database of financial education graduation requirements.<sup>31</sup> They collected graduation requirement documents by year for each state from 1980 to the present. Seeing precisely which courses students had to complete prior to high school graduation allows researchers to account for quality of implementation of mandates, and not just the passage of those mandates. In some cases mandates were overturned before schools enforced the policy. Further, some states allow local control of school districts, meaning that while states can establish a requirement, localities have the authority to carry out that mandate as they see fit. None of the studies just mentioned consider implementation when local control exists.

Urban et al. (2018) isolated the effect of very specific states' requirements on financial behaviors.<sup>32</sup> The researchers relied upon rigorously implemented state mandates in Georgia, Idaho, and Texas to quantify the effects of financial education on financial behaviors. All three states required personal finance prior to graduation beginning with the graduating class of 2007. Each state provided teacher training and sample curricula as designed by educators in the state, and one of the three states required students to be tested on the material prior to graduation. The study used FRBNY -CCP data. The analysis compared credit scores of Texans graduating in 2007 to Texans graduating in 2006. The authors then identified a control group for each of the three states to account for differences in the national and local economy across the same years by choosing a demographically similar neighboring state where there was no financial education requirement. In the case of Texas, they selected Oklahoma as the control state. They then compared credit scores of Oklahomans graduating in 2007 to those graduating in 2006. Finally, they compare the difference in Texas to the difference in Oklahoma to measure the causal effect of financial education on credit scores in Texas. They repeated this process for Georgia and Idaho.

Findings show that financial education improves credit scores and decreases delinquency rates. Notably, the effects suggest that each sequential graduating class subject to the course

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31 Urban, Carly and Maximilian Schmeiser. State-Mandated Financial Education: A National Database of Graduation Requirements, 1970-2014. *FINRA Investor Education Foundation* (2015), [montana.edu/urban/FinEd\\_Insights\\_MSU%20Issue%20Brief%202\\_FINAL.pdf](http://montana.edu/urban/FinEd_Insights_MSU%20Issue%20Brief%202_FINAL.pdf).

32 Urban, Carly, Maximilian Schmeiser, Alexandra Brown, and J. Michael Collins. The Effects of High School Personal Financial Education Policies on Financial Behavior. *Economics of Education Review* Forthcoming (2018).

requirement saw additional benefits. The third graduating class benefited more from the requirements than the first or second class in all three states. The results also suggest that the degree of effects differ in each state, though each requirement was similar. For example, all three states implemented the personal finance course requirement into an existing economics requirement. The standards covered similar topics including credit scores, interest rates, comparing loans, and shopping for credit cards. However, the effects in Georgia and Texas were largest, where credit scores increased by between 23 and 26 points for the third graduating class, and the effects in Idaho were smaller, where credit scores increased by ten points for the third graduating class exposed to the requirement.

One potential reason for the different effect sizes across states is that each state started with different baseline credit scores for the population of young adults. Since Georgia and Texas youth started with lower credit scores, it is possible that these students had more room for improvement than the young adults in Idaho with relatively higher starting points. Contrary to Brown et al. (2016), the authors found that there is no effect of financial education on whether or not individuals have credit files.<sup>33</sup>

Stoddard and Urban (2019) estimated the effects of graduation requirement mandates on new outcomes: student loan decisions.<sup>34</sup> With the database of graduation requirements compiled by Schmeiser and Urban (2015), Stoddard and Urban used post-2000 requirements and a nationally-representative dataset of the National Postsecondary Aid Study (NPSAS) to determine the causal effect of graduation requirements on student financial aid decisions.<sup>35</sup> Since many states directly include “financing postsecondary education” as part of their graduation standards, evaluating how these standards affect behavior is important yet complex. While improving credit scores is an unambiguously positive effect of financial education, the effects of financial education on student loan decisions are somewhat ambiguous. If young adults invest more in their higher education, they may be more likely to persist throughout college and have higher earnings in the future. However, there is a threshold at which student debt becomes excessive, which is hard to determine across a study population. Instead of addressing whether an increase in student debt is positive or negative, the authors rely on decisions that seem more clearly consistent with improved financial decision-making skills: increased applications for aid, increased use of federal loans, increased grants and scholarships, and decreased likelihood of holding a credit card balance in college. The results suggest that

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<sup>33</sup> Brown, Meta, John Grigsby, Wilbur van der Klaauw, Jaya Wen, and Basit Zafar. Financial education and the debt behavior of the young. *The Review of Financial Studies*, 29.9 (2016): 2490-2522.

<sup>34</sup> Stoddard, Christiana and Carly Urban. The Effects of Financial Education Graduation Requirements on Postsecondary Financing Decisions. *Journal of Money, Credit, and Banking* Forthcoming (2019).

<sup>35</sup> Urban, Carly and Maximilian Schmeiser. State-Mandated Financial Education: A National Database of Graduation Requirements, 1970-2014. *FINRA Investor Education Foundation* (2015), [montana.edu/urban/FinEd\\_Insights\\_MSU%20Issue%20Brief%202\\_FINAL.pdf](http://montana.edu/urban/FinEd_Insights_MSU%20Issue%20Brief%202_FINAL.pdf).

financial education shifted students from high-cost (such as credit cards and private student loans) to lower-cost borrowing options (such as Stafford loans).

The results further show that for less-affluent families, financial education increased the likelihood of having a Stafford loan, while decreasing the probability of working while in school. The education did not affect the decision to attend a public instead of a private school, a two-year vs. a four-year school, or a school in-state vs. out-of-state.

TABLE 1 : SUMMARY OF STATE MANDATE FINDINGS

<b>Bernheim et al (2001)</b>	
<b>Education and saving: The long-term effects of high school financial curriculum mandates</b>	
Age group	30-49
Type of mandate	Financial Curriculum & Consumer Ed. Mandates
Method	Natural experiment
Years studied	1995
Sample	2,000 individuals
Finding	Increased saving and wealth accumulation
<b>Tennyson and Nguyen (2001)</b>	
<b>State curriculum mandates and student knowledge of personal finance</b>	
Age group	High school students (95% are seniors)
Type of mandate	Personal Finances Mandates (Standards, Course, Test, or None)
Method	Differences across students in states with and without mandates
Years studied	1997
Sample	1,643 students in 31 states
Finding	All types of mandates averaged together have no effect on knowledge; course requirements improve knowledge

**Cole et al (2015)**  
**High school curriculum and financial outcomes: The impact of mandated personal finance and mathematics courses**

Age group	35-54 in 2000
Type of mandate	Financial Curriculum and Consumer Education Mandates from 1957-1982
Method	Natural experiment
Years studied	1999-2011
Sample	3.7 million observations per quarter from FRBNY-CCP
Finding	No change in investment or credit management, investment income, credit score, credit card delinquency, bankruptcy, foreclosure, real estate equity, total assets

**Brown et al (2016)**  
**Financial education and the debt behavior of the young**

Age group	19-29
Type of mandate	Financial education mandates from 1998-2012
Method	Natural experiment
Years studied	1999-2014
Sample	7.11 million observations from FRBNY-CCP
Finding	Decreased non-student debt, increased student debt, increase likelihood of having a credit file, decreased likelihood of default

**Urban et al (2018)**  
**The effects of high school personal financial education policies on financial behavior**

Age group	18-22
Type of mandate	Financial education course requirements in GA, ID, and TX in 2007
Method	Natural experiment
Years studied	2001-2011
Sample	3.1 million (GA), 0.5 million (ID), 3.3 million (TX) observations from FRBNY-CCP
Finding	Increased credit scores, decreased delinquencies. The effects are larger for the second and third graduating class affected by the requirement

**Stoddard and Urban (2018)****The effects of financial education graduation requirements on postsecondary financing decisions**

Age group	First semester college students (17-19)
Type of mandate	Financial Education Course Requirements (1999-2012)
Method	Natural experiment
Years studied	1999-2012
Sample	25,354 students
Finding	Increased applications for aid, likelihood of having Stafford loans, and grants or scholarships. Decreased likelihood of having a credit card balance. For private loan borrowers, decrease in private loan amounts.

### 3.3 What types of K-12 financial education programs are effective? For whom?

A second set of research studies looks at the effects of specific financial education programs on student outcomes. Understanding specifically what programs work and for whom is crucial for any instructor or state department of education developing programs and curricula. Most of these studies focus on knowledge-based measures in determining whether or not a program is effective. Table 2 lists key attributes and summarizes findings of the studies reviewed below for quick reference.

Harter and Harter (2009) relied on a sample from Eastern Kentucky in grades 3-12 to test the effects of the Financial Fitness for Life ® (FFFL) program for elementary, middle, and high school students separately.<sup>36</sup> Most of the counties included were among the lowest 10<sup>th</sup> percentile of income nationwide and fewer than 10 percent of residents in these counties held college degrees. Teachers received a \$250 stipend for participating to compensate for the time lost preparing to teach the new material. Because they self-selected into the program, the 40 teachers from 20 counties who participated were likely to be motivated and interested in the material. Thus, these results might provide an upper bound for the potential benefits of the

<sup>36</sup> Harter, Cynthia L. and John F. R. Harter. Assessing the effectiveness of financial fitness for life in eastern Kentucky. *Journal of Applied Economics & Policy*, 28.1 (2009): 20.

FFFL program. Due to a time constraint, the program focused on only three themes: saving, spending and credit, and money management.

The study used a pre-post design (students who received the intervention were tested before and after and their scores compared), and included a control group (students who did not receive the intervention were tested and their scores compared to the students who did receive the intervention). This study design accounts for whatever financial literacy students might have been exposed to elsewhere during the year. Those students involved in the Eastern Kentucky-specific FFFL program saw knowledge improvements that were statistically different from zero for all three age groups: elementary school, middle school, and high school. Even after accounting for the scores in the comparison group classes, the effects remain statistically significant: the FFFL program improved financial knowledge for vulnerable populations in Kentucky.

Batty, Collins, and Odders-White (2015) also tested the effects of the FFFL program for 3<sup>rd</sup> through 5<sup>th</sup> graders in spring 2012 and spring 2013 in Eau Claire, Wisconsin.<sup>37</sup> The five-week program contained 45-minute lessons once per week with a focus on savings, financial decision-making, and money management. Participating teachers were compensated \$100 and attended a three-hour training session. While the program was similar to that in Eastern Kentucky, the Eau Claire study involved a more affluent demographic.

Half of the 71 schools within the Eau Claire School District were randomly assigned to participate in the program (380 students) during the study period; the remainder comprised the control group (320 students). The financial literacy exam included 13 questions that were identical in the pre- and post-test periods, largely developed from FFFL suggestions. Those exposed to the education scored 2.1 points higher on the financial knowledge questions, while those not exposed to the education scored 0.64 points higher in their post-tests. The findings thus suggest that students answer approximately two more questions correctly on average after being exposed to the program. Finally, while the results from Eau Claire may not be generalizable to other school districts, the authors replicated their design in Amarillo, Texas, and obtained results of the same effect size for a different population.

Walstad, Rebeck, and MacDonald (2010) tested the effects of specific high school financial education curricula on test scores using pre-post test score designs.<sup>38</sup> The authors analyzed the test score improvements from the Financing Your Future (FYF) curriculum, a free program the

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37 Batty, Michael, J. Michael Collins, and Elizabeth Odders-White. Experimental evidence on the effects of financial education on elementary school students' knowledge, behavior, and attitudes. *Journal of Consumer Affairs*, 49.1 (2015): 69-96.

38 Walstad, William B., Ken Rebeck, and Richard A. MacDonald. The effects of financial education on the financial knowledge of high school students. *Journal of Consumer Affairs* 44.2 (2010): 336-357.

Council on Economic Education (CEE) provides for high school students. The authors recruited and trained 15 teachers in four states (Maryland, Minnesota, New York, and Texas). In addition to the 40 classes where the FYF video-based six hours of instruction were taught, three teachers (in Minnesota, New York, and Texas) agreed to pre-test and post-test six additional classes that did not receive the instruction, providing an additional control group and enabling a difference-in-difference design. The final design includes 673 students in the treatment group and 127 students in the control group, all with pre- and post-test measures. The findings indicate that FYF improved knowledge scores by 19.7 percentage points. The greatest gains came from the unit on how to use credit. The unit with the smallest gains contained information on banking. At the same time, the change in financial knowledge for the group who did not receive the FYF curriculum (or any other financial education) was one percentage point, which was not statistically different from zero. A final important finding is that the researchers found that the effect size was the same regardless of the class in which the FYF curriculum was taught. One caveat to this study is that the relatively small sample is not nationally - or state-representative.

Go et al. (2012) studied students in the Oakland Unified School District.<sup>39</sup> At the time of the study, 72 to 95 percent of students in the District's schools qualified for free or reduced price lunch. The researchers tested the effects of the Money Savvy Youth (MSY) five-week program, which includes in-school interactive instruction one hour per week for 4<sup>th</sup>- and 5<sup>th</sup>-grade students during the 2011-2012 school year. The instruction included skits, open dialogue, guest speakers, group projects, and grade-specific math. The testing instrument included 15 financial knowledge questions borrowed from the Financial Fitness for Life® (FFFL) program developed by the Council for Economic Education (CEE) and from the MSY program. It also incorporated feedback from local community members and educators related to the cultural relevance of the question wording for the population in Oakland.

Go and coauthors pre- and post-tested both the treatment (those students who were part of the MSY program) and control groups (those not participating in the MSY program) to determine the causal effect of the MSY program on the sample. In the end, 183 and 220 students comprised the control and treatment groups, respectively. Youth involved in the MSY program improved their scores by an average of 4.27 points—almost doubling initial scores—while youth not involved in the MSY program (the control group) improved their scores by an average of 0.76 points over the same period (on a 15-point scale). The researchers also did a follow-up test three months later finding that the effects persisted beyond the immediate conclusion of the instruction. A notable finding in this study is that for 4<sup>th</sup> graders, even the control group saw

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39 Go, Charles G., Karen Varcoe, Tina Eng, Wilson Pho, and Laura Choi. Money savvy youth: Evaluating the effectiveness of financial education for fourth and fifth graders. San Francisco, CA: Federal Reserve Bank of San Francisco Working Paper No. 2 (2012).

improvements from the pre-test scores. This illustrates that studies without control groups may overstate the effects of financial education.

In the study of My Classroom Economy (MCE), Batty et al. (2016) studied the effect of an experiential learning program for elementary school students on financial knowledge and behaviors.<sup>40</sup> The largest randomized controlled trial evaluation in the United States, the study represents a large school district with a homogeneous population while simultaneously representing a diverse set of students. For example, at the time of the study the school district was 41% White (non-Latino) and roughly a third of students had parents who speak English as a second language. MCE is designed to span an entire school year, though the authors studied a 10-week version of the class in the 2015-2016 school year for estimation purposes. The study took place in Palm Beach School District with 1,187 treated students and 785 control students across 115 classrooms in 24 schools. Fourth and 5<sup>th</sup> graders in the MCE study were not taught explicit financial knowledge. Instead, they were exposed to financial situations. These include several core activities to teach budgeting and saving:

- Earning classroom currency for performing assigned tasks
- Managing expenses, including paying rent for or purchasing their desks
- Earning bonuses or incurring fines for particular behaviors
- Making spending decisions at classroom auctions and stores

The program includes activities like getting paid on payday, saving for prizes, keeping track of money, and forming goals. In some cases, students pay fines or receive bonuses for certain behaviors. Teachers were encouraged to attend one of five three-hour training sessions. Teachers can customize the program to make it fit with their specific classrooms.

The authors developed a detailed quiz or scale to measure each outcome of interest.<sup>41</sup> The results indicate that the MCE program improved financial knowledge and academic achievement, as well as students' self-reports of budgeting, talking with family about money matters, and financial experiences (such as whether or not the student received an allowance, received money

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40 Batty, Michael, J. Michael Collins, and Elizabeth Odders-White. Experiential Financial Literacy: A Field Study of My Classroom Economy. University of Wisconsin-Madison Center for Financial Security Report. (2016), [centerforfinancialsecurity.files.wordpress.com/2016/10/mce-report-final.pdf](http://centerforfinancialsecurity.files.wordpress.com/2016/10/mce-report-final.pdf).

41 For more information on these measures, see Appendix A in Batty et al. (2016). Batty, Michael, J. Michael Collins, and Elizabeth Odders-White. Experiential Financial Literacy: A Field Study of My Classroom Economy. University of Wisconsin-Madison Center for Financial Security Report. (2016), [centerforfinancialsecurity.files.wordpress.com/2016/10/mce-report-final.pdf](http://centerforfinancialsecurity.files.wordpress.com/2016/10/mce-report-final.pdf).



from chores, had a bank account in his/her own name, or received spending money as a gift). The knowledge improvements are somewhat surprising, considering the program was not designed to teach knowledge directly. At the same time, MCE did not change students' self-reported abilities to plan or their abilities to exhibit self-control.

A nascent literature provides some evidence of active learning in improving financial knowledge. While many apps, games, and experiential learning techniques have evolved in the last decade, few have been rigorously evaluated or evaluated at all. Hinojosa et al. (2009) marks one exception.<sup>42</sup> The authors rely upon an experimental design in a 2008-2009 evaluation of the Stock Market Game<sup>®</sup> (SMG). The SMG is supported by the Securities Industry and Financial Markets Association (SIFMA) Foundation for Investor Education. The program teaches the importance of saving and investing by building financial literacy. Teams of students manage real-time virtual investments by researching and making investments in a hypothetical \$100,000 portfolio. Students track its performance to simulate how it would fare in a real marketplace. Most programs using the SMG last 10 to 15 weeks and allow students to compete in teams to see whose portfolio has the greatest value. The program simultaneously includes financial literacy lessons specific to investments.

Hinojosa et al. (2009) randomly assigned interested teachers to deliver the program and assigned other interested teachers to be part of the control group.<sup>43</sup> Altogether, 269 treatment and 244 control teachers participated and provided student pre- and post-testing data. The experiment—administered in elementary, middle, and high schools—contained nearly 1,000 students for each grade. Students randomly assigned to the treatment group improved their math scores, though the effects were largest for 4<sup>th</sup> and 5<sup>th</sup> grade classrooms. The SMG improved investor knowledge for all treated students.

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42 Hinojosa, Trisha, Shazia Miller, Andrew Swanlund, Kelly Hallberg, Megan Brown, and Brenna O'Brien. The Stock Market Game<sup>™</sup> Study Final Report. *Learning Point Associates*. (2009)  
[stockmarketgame.org/assets/pdf/2009%20Learning%20Point%20Study%20Full%20Report.pdf](http://stockmarketgame.org/assets/pdf/2009%20Learning%20Point%20Study%20Full%20Report.pdf).

43 Hinojosa, Trisha, Shazia Miller, Andrew Swanlund, Kelly Hallberg, Megan Brown, and Brenna O'Brien. The Stock Market Game<sup>™</sup> Study Final Report. *Learning Point Associates*. (2009)  
[stockmarketgame.org/assets/pdf/2009%20Learning%20Point%20Study%20Full%20Report.pdf](http://stockmarketgame.org/assets/pdf/2009%20Learning%20Point%20Study%20Full%20Report.pdf).

TABLE 2: SUMMARY OF INDIVIDUAL FINANCIAL EDUCATION PROGRAM FINDINGS

<b>Harter and Harter (2009)</b> <b>Assessing the effectiveness of financial fitness for life in eastern Kentucky</b>	
Age group	Grades 3-12
Type of education	Financial Fitness for Life®: saving, spending and credit, money management
Method	Pre- and post-testing, with an additional control group of students from the previous grade scored
Years studied	2005
Sample	335 elementary, 314 middle school, and 433 high school students in Eastern Kentucky
Finding	Improved financial knowledge
<b>Go et al (2012)</b> <b>Money savvy youth: Evaluating the effectiveness of financial education for fourth and fifth graders</b>	
Age group	Grades 4-5
Type of education	Money Savvy Youth: 5-week program, one hour per week
Method	Pre- and post-testing with treatment and control groups
Years studied	2011-2012
Sample	403 students in Oakland, CA
Finding	Knowledge improvements persisted at least 3 months after the course
<b>Batty, Collins, and Odders-White (2015)</b> <b>Experimental evidence on the effects of financial education on elementary school students' knowledge, behavior, and attitudes</b>	
Age group	Grades 3-5
Type of education	Financial Fitness for Life®: 45 minute lessons once per week for five weeks
Method	Randomized treatment based on school district
Years studied	2012-2013
Sample	700 students in Eau Claire, WI; experiment replicated in Amarillo, TX

**Batty, Collins, and Odders-White (2015)**  
**Experimental evidence on the effects of financial education on elementary school students' knowledge, behavior, and attitudes**

Finding Improved financial knowledge

**Batty, Collins, O'Rourke, and Odders-White (2016)**  
**Experiential financial literacy: A field study of My Classroom Economy**

Age group Grades 4-5

Type of education My Classroom Economy® (10-week version): includes financial situations

Method Randomized treatment based on school , all within the same school district

Years studied 2015-2016

Sample 1,972 students in Palm Beach, FL School District

Finding Improved knowledge, saving, budgeting, socialization, and experience. No change in self-control

**Walstad, Rebeck, and MacDonald (2010)**  
**The effects of financial education on the financial knowledge of high school students**

Age group High school

Type of education Financing Your Future--CEE Curriculum (includes videos)

Method Pre- and post-testing with treatment and control groups

Years studied 2006-2007

Sample 800 students in MD, MN, NY, TX

Finding Improved knowledge, with greatest gains in how to use credit

**Hinojosa et al (2009)**  
**The Stock Market Game™ study final report**

Age group Grades 4-10

Type of education Stock Market Game™, 10 or 15 weeks

Method Pre-post- testing with treatment and control groups

Years studied 2008-2009

**Hinojosa et al (2009)**  
**The Stock Market Game™ study final report**

Sample 1,014 elementary, 996 middle school, and 994 high school students

Finding Improved math scores and investor knowledge

## 3.4 Learning from international research

To date, there are no U.S. studies that use a large-scale randomized controlled trial to estimate the effects of high school financial education on knowledge gains. In addition, no such U.S. studies to date use a large-scale natural experiment similar to those used to estimate the effects of financial education graduation requirements on financial knowledge (Section 3.2).

In international contexts, large-scale randomized controlled trials are more common, and results from these studies can be helpful. It should be noted that international studies may not be directly generalizable to all U.S. populations. These randomized controlled trials do illustrate what is possible in large-scale financial education program evaluations.

There are additional rigorous school-based financial education studies in other countries that contribute to the field's understanding of the effectiveness of financial education. Each of these studies uses a randomized controlled trial or natural experiment approach, allowing for causal interpretations of effect sizes. However, the differing institutional contexts, learning materials, and economic conditions across countries makes it more challenging to generalize the results to a U.S. environment. With that caveat, U.S. financial education stakeholders can learn from these studies. In particular, the lack of randomized controlled trials to determine the effects of financial education on financial knowledge in the United States makes these large experiments valuable. This section discusses the international results. Table 3 lists key attributes and summarizes findings of the studies reviewed below for quick reference.

### Brazil

The largest-sample field study determining the effects of school-based financial education on financial outcomes was performed in Brazil. Bruhn et al. (2016) randomly assigned 440 schools to cover financial education and 452 schools to serve as the control group from 2010 to 2011. The study covered approximately 25,000 11<sup>th</sup>- and 12<sup>th</sup>-grade students (between 15 and 17 years of age). The education spanned 17 months, was integrated into existing public school courses (to be chosen by the school district), and included both in-school interactive exercises and take-home exercises. Some of the treated schools were randomly assigned to include parents in the educational process, where parents came to schools at night to participate in a workshop

showing a financial education video. The video emphasized the importance of engaging their children in financial matters to reinforce the value of the in-school financial education.

The findings in the Bruhn et al. (2016) paper show that the intensive financial education program was effective along many dimensions: the education increased student financial proficiency, financial behaviors, and graduation rates, and had significant spillover effects on parents (improved financial literacy, increased budgeting, increased formal saving accounts, and increased savings).<sup>44</sup> Those with financial education increased the likelihood of saving by 12.5 percent and increased saving amounts over the control group. The treated students were more likely to create a budget with a list of monthly expenses and more likely to negotiate consumer product prices. They further scored higher on measures for intentions to save and financial autonomy than the control group, suggesting they were more confident in their capability to make independent financial decisions. The students receiving education were more likely to be employed and earn an income.

However, students who received the financial education were more likely to borrow, more likely to purchase consumer items (like electronics, shoes, and clothing) and more likely to be behind on some credit repayments, despite the program's efforts to engage students in financially responsible behaviors. The authors attribute this to the lack of a direct inclusion of lessons about purchasing items on expensive credit cards or installment plans within the course content. Instead, the course encouraged saving and budgeting.

## Peru

Another large-scale randomized controlled trial began in Peru in 2016. Frisancho (2018) takes advantage of a Peruvian Ministry of Education strategy to include financial education in schools as part of its National Financial Inclusion Strategy launched in 2015.<sup>45</sup> Frisancho piloted a program called *Finanzas en mi Colegio*, developed by the Ministry of Education with assistance from the Superintendency of Banks and Insurance and the Center of Studies from the Peruvian Association of Banks. The program focused on high school students (ages 14 -16). The team developed a 20-hour teacher training program to instruct teachers on financial literacy itself, as well as pedagogical advice.

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44 Bruhn, Miriam, Luciana De Souza Leão, Arianna Legovini, Rogelio Marchetti, and Bilal Zia. The impact of high school financial education: Evidence from a large-scale evaluation in Brazil. *American Economic Journal: Applied Economics*, 8.4 (2016): 256-95.

45 Frisancho, Veronica. The Impact of School-Based Financial Education on High School Students and their Teachers: Experimental Evidence from Peru. *Inter-American Development Bank Working Paper Series No. IDB-WP-871*, March 2018.

The final pilot sample included 150 randomly selected treatment schools and 150 control schools, with a total of 16,443 students (5,654 9<sup>th</sup> graders, 5,415 10<sup>th</sup> graders, and 5,374 11<sup>th</sup> graders). Grade-specific exams consisted of 15 questions based on the National Jump\$tart Coalition Survey for High School Students covering risk, return, and liquidity; intertemporal spending choices; budgeting to save; and the importance of investing in skills and education. Other questions came from each grade-specific workbook given to the teachers. The same exam was administered before and after the program for students who were and were not exposed. In addition to the financial knowledge test, the students completed pre- and post-surveys on their:

- Future aspirations
- Truancy
- Parental supervision
- Hours worked per week
- Personality constructs: conscientiousness, self-control, intertemporal preferences, impulsiveness, and risk aversion
- Financial behaviors: cash flows, formal savings, budgeting, participation in household financial decisions, consumption and savings habits, and financial autonomy

New to this study, the survey asked teachers to complete a similar survey before receiving training and after the instruction concluded. The teacher survey included questions on household income and formal and informal savings. The study then paired the survey data with administrative data for each student to obtain birth date, place of residence, and student grade point average (GPA).

The study showed that *Finanzas en mi Colegio* was effective in improving student financial knowledge. The effect size was slightly smaller to that found in Bruhn et al. (2016) but similar in magnitude to the My Classroom Economy study in the United States. Frisancho's results show that the program did not detract from other learning: exposed students' GPAs improved. However, there was no effect of the program on grade progression. *Finanzas en mi Colegio* improved students' self-control skills, though the effects on the other personality constructs were mixed and varied by grade. The education also affected financial behaviors: exposed students were more likely to compare prices before making a purchase, save instead of borrow to buy something they cannot afford, and talk with parents before making financial decisions.

An important contribution of this study is evidence that the education improved financial knowledge and financial behaviors among teachers. Treated teachers' actual knowledge and self-reported financial knowledge improved when compared to teachers in control schools. Teachers

randomly selected to participate in the program were 14 percentage points more likely to save in a formal channel and eight percentage points more likely to save informally. The researchers did not find improvements in self-reported teaching efficacy, suggesting that the financial education imparted may have been more valuable than the pedagogy training.

Another learning outcome had to do with the potential opportunity cost of providing the training. While teachers were to incorporate financial education into economics, teachers reported replacing history, politics, and world news in order to accommodate the time required to teach financial literacy.

## Spain

Bover et al. (2018) conducted a randomized trial of 3,000 students from 78 high schools nationally representative of Spain during the 2014-2015 academic year.<sup>46</sup> The material was taught to 14- to 15-year-olds in the last year of compulsory education, where there are few if any elective courses. The topics include saving, interest rates and borrowing, budgeting, being a responsible consumer, types of bank accounts, and additional investment vehicles (for example, pensions and insurance). Teachers, however, had the opportunity to determine which topics to focus on in the ten hours of instruction they were to carry out.

The study used pre- and post-tests for treated and untreated students. All schools eventually received the education, though the “control” group schools received the education in the following year, after their post-tests concluded. Students in treated schools, when compared to control schools, improved their financial literacy scores by 14 percent; the findings are consistent with Bruhn et al. (2016). The largest knowledge gains come from the questions on banking relationships. Treated students were more likely to talk with their parents about economic decisions.

## Germany

Lührmann et al. (2015) studied a financial education program in high schools throughout Germany.<sup>47</sup> The 2012 program, targeted at 13- to 15-year-olds, consisted of three 90-minute training modules covering shopping, planning, and saving. These modules were administered within one normal class week by volunteers visiting the class, not by traditional educators. Classes were randomly assigned to receive or not receive the education. All high schools covered

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46 Bover, Olympia, Hospido, Laura, and Ernesto Villaneuva. The Impact of High School Financial Education on Financial Knowledge and Choices: Evidence from a *Randomized Trial in Spain*, IZA Institute of Labor Economics Discussion Paper Series No. 11265, (2018).

47 Lührmann, Melanie, Marta Serra-Garcia, and Joachim Winter. Teaching teenagers in finance: does it work? *Journal of Banking & Finance* 54 (2015): 160-174.

represent a population where most students continue with vocational training after graduation, as opposed to attending college. In the end, 521 students in 27 classes were in the treatment group and 115 students in 15 classes were in the control group.

The results reflect that the program increased interest in financial matters by 20 percent. Further, self-assessed financial knowledge increased by 20 percent. There were also increases in actual financial knowledge. In particular, students were more likely to be able to assess the riskiness of assets. While this study is indicative of improved financial knowledge and interest in finances after a relatively small and short intervention, the sample is very specific and relatively small.

In follow-up work, Lührmann et al. (2018) randomized financial education receipt across 914 students attending 25 high schools in Germany.<sup>48</sup> The students completed a simulation that revealed how they discounted the future and how they prioritized hypothetical bills. The authors found evidence of decreased present bias among students receiving the financial education. The education also improved students' understanding of interest rates. Students exposed to the education, optimally (in the sense of the simulation) changed their payment dates across the two periods in response to changing interest rates.

## The Netherlands

Kalwij et al. (2017) employed a randomized controlled trial among primary school students (aged 9 to 13) in 2016 as part of Money Week, a national event in the Netherlands focusing on financial literacy.<sup>49</sup> The education encompassed a 45-minute program developed by the Dutch Banking Association in the form of a Cash Quiz game, where bank employees acted as quiz masters. The game covers four topics:

- Banks, money, and transactions
- Planning and managing
- Savings, borrowing, risk, and reward
- The financial landscape

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<sup>48</sup> Lührmann, Melanie, Marta Serra-Garcia, and Joachim Winter. The Impact of Financial Education on Adolescents' Intertemporal Choices? *American Economic Journal - Economic Policy*, Forthcoming (2018).

<sup>49</sup> Kalwij, Adriaan S., Rob Alessie, Milena Dinkova, Gea Schonewille, Anna van der Schors, A., Minou van der Werf. The Effects of Financial Education on Financial Literacy and Savings Behavior: Evidence from a Controlled Field Experiment in Dutch Primary Schools. *Utrecht University School of Economics Discussion Paper Series* nr: 17-05 (2017).



Cash Quiz is played among groups of at most five children, where participants can win virtual money for each question. The group with the most virtual currency receives plastic bracelets as a prize.

The researchers randomly assigned schools to participate in Cash Quiz. In total, there were 1,452 children in 31 schools who participated and completed both pre- and post-tests, with 998 in the treatment group and 454 in the control group. The eight-question financial knowledge test used for both pre- and post-testing was developed by Nibud, an institute focused on consumer behavior.

Money Week in itself improved financial literacy scores for both the treatment and control groups. The randomized strategy allowed the researchers to determine that the Cash Quiz program results in an additional 0.32 of eight questions answered correctly. Answers improved the most on topics related to budget diaries.

## Ghana

Berry et al. (2018) completed a randomized controlled trial of two school-based financial literacy programs in Ghana.<sup>50</sup> Aflatoun, a large international nongovernmental organization, developed the program, which has reached over 4.1 million children worldwide. The program focused specifically on savings and financial literacy more broadly, but it also included a social component to teach children of their rights and responsibilities, such as the potential pitfalls of youth labor with risky working conditions. The second program, called the Honest Money Box (HMB) modified the Aflatoun program by omitting the social education component. The study was completed during the 2010-2011 school year, where 45 schools were assigned to the Aflatoun program, 45 schools were assigned to the HMB program, and 45 schools were assigned to the control group. The program focused on 5<sup>th</sup> and 7<sup>th</sup> graders, where the average age for the sample was 13 years.

The paper uses an intent-to-treat model that looks at the effect of being in the treatment group but not on whether or not the individual actually participated in the after-school programs. Both programs increased the likelihood to save at school, though this savings replaced other informal savings or savings through other institutions. The total amount saved did not change. The program did not change savings attitudes, support for saving at home, risk aversion, time preferences, expenditures, confidence, or overall academic performance. School attendance did not change, though the HMB sample was more likely to work. The authors cite that take-up of

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<sup>50</sup> Berry, James, Dean Karlan, and Menno Pradhan. The impact of financial education for youth in Ghana. *World Development*, 102 (2018): 71-89.

the program may be smaller than they expected, resulting in the lack of change in behaviors or knowledge.

TABLE 3: SUMMARY OF INTERNATIONAL STUDIES

<b>Bruhn et al (2016)</b>	
<b>The impact of high school financial education: Evidence from a large-scale evaluation in Brazil</b>	
Age group	Grades 11-12 (ages 15-17)
Type of education	High school, 17-month program, including both in-school and at-home exercises
Method	Randomized across schools
Years studied	2011-2012
Sample	25,000 students in Brazil
Finding	Increased financial proficiency, graduation rates, savings, budgeting, and had positive spillovers on parents. Increased likelihood of borrowing to buy consumer goods.
<b>Frisancho (2018)</b>	
<b>The impact of school-based financial education on high school students and their teachers: Experimental evidence from Peru</b>	
Age group	Grade 11 (ages 14-16)
Type of education	School-based workbooks developed by the Ministry of Education, Superintendency of Banks and Insurance, and the Center of Studies
Method	Randomized across schools
Years studied	2015
Sample	16,443 students in Peru
Finding	Increased financial knowledge, reduced impulsive spending, increased saving instead of borrowing to buy something one cannot afford, increased likelihood of talking to parents before making a big purchase. Improved teacher financial behaviors.
<b>Bover et al (2018)</b>	
<b>The impact of high school financial education on financial knowledge and choices: Evidence from a randomized trial in Spain</b>	
Age group	Grade 9 (ages 14-15)

**Bover et al (2018)**  
**The impact of high school financial education on financial knowledge and choices: Evidence from a randomized trial in Spain**

Type of education	10 hours of school-based instruction on any of the following: saving, interest rates and borrowing, budgeting, being a responsible consumer, types of bank accounts, and additional investment vehicles
Method	Randomized across schools
Years studied	2014-2015
Sample	3,000 students in Spain
Finding	Increased financial knowledge, especially on topics related to banking. Increased likelihood of talking to parents about money matters.

**Lührmann et al (2015)**  
**Teaching teenagers in finance: does it work?**

Age group	Grades 7-8 (ages 13-15)
Type of education	Three 90-minute training modules, focused on shopping, planning, and saving
Method	Randomized across schools
Years studied	2012
Sample	636 vocational-track students in German high schools
Finding	Increased student interest in financial matters, self-assessed financial knowledge, and actual financial knowledge. Improved ability to assess riskiness of assets.

**Lührmann et al (2018)**  
**The impact of financial education on adolescents' intertemporal choices**

Age group	Grades 7-8 (ages 13-15)
Type of education	Three 90-minute training modules, focused on shopping, planning, and saving
Method	Randomized across schools
Years studied	2012
Sample	914 vocational-track students in German high schools
Finding	Increased student knowledge of intertemporal choice and responses of payments to changes in interest rates. Reduced present bias.

**Kalwij et al (2017)****The effects of financial education on financial literacy and savings behavior: Evidence from a controlled field experiment in Dutch primary schools**

Age group	Grades 5-6 (ages 9-13)
Type of education	45-minute program, Cash Quiz, where students are quizzed on financial topics
Method	Randomized across schools
Years studied	2016
Sample	1,452 students in the Netherlands
Finding	Improved financial knowledge, especially on budgeting

**Berry et al (2018)****The impact of financial education for youth in Ghana**

Age group	Grades 5 and 7 (age 13)
Type of education	Aflatoun (financial education) and Honest Money Box (social education) as 8-week after-school program, one hour per week
Method	Randomized across schools
Years studied	2010-2011
Sample	5,291 students in Ghana
Finding	Increased savings in school, but did not affect total savings, savings attitudes, spending patterns, academic performance.

# 4. Conclusions and implications

Starting early with age-appropriate and relevant financial education and consistently reinforcing those lessons can pay dividends over the course of a lifetime. Many financial education leaders want to know specifically what programs work and for whom. There is a lot of variety in how financial education is provided to youths. This type of variation presents an opportunity for research, where a diversity of approaches can serve as means for stakeholders to learn about promising practices.

This report examines rigorous studies that show that since 2000, state-mandated financial education in high school in the United States improves outcomes (Brown et al. (2016), Stoddard and Urban (2018), Urban et al. (2018)). These mandates improve credit scores, decrease default rates, reduce non-student debt, and shift student borrowing from high-interest (credit cards) to low-interest (Stafford loans) methods.

Additionally, research examining individual interventions in a variety of U.S. classrooms ranging in socioeconomic status and across rural and urban areas finds that the field experiments studied improve financial knowledge (Batty, Collins, and Odders-White (2015), Batty et al. (2016), Go et al. (2012), Harter and Harter (2009), Hinojosa et al. (2009), Walstad, Rebeck, and MacDonald (2010)). All but one of these studies, whose focus is solely on high school students, finds improvements for younger students, as early as grade 3. Two studies show the promise of simulation exercises in classrooms: Batty et al. (2016) and Hinojosa et al. (2009) show in different contexts that experience with financial situations improves knowledge. Batty et al. (2016) can further say that elementary school students exposed to the experiential learning were more likely to save and budget (for rewards in their classroom economy) and were more likely to engage in financial socialization with parents or guardians.

Many international studies complete large-scale randomized controlled trials to pilot their programs before putting them into practice. While the results are not always directly comparable to the U.S. education system, they shed light on the importance of financial education. This report covers analyses of programs in Brazil, Peru, Germany, Spain, the Netherlands, and Ghana. Six of the seven studies evaluated financial education in school, and all six found that financial education improved financial knowledge. Two of the six studies, Bruhn et al. (2016, Brazil) and Frisancho (2018, Peru), found that financial education changed behaviors.

When creating programs each of these factors seems to matter: content, teacher training, and implementation. Urban et al. (2018) suggests that the first graduating class exposed to a new financial education program is not the greatest beneficiary of the mandate, likely because it

usually takes a couple of years for full development and implementation. Keeping topics focused on age-relevant material is also important.

## 4.1 Building on this survey of current research

This report offers answers to some key questions to school-based youth financial education. Some of this rigorous literature remains nascent, but the findings can still shed light on program effectiveness in financial education.

The Bureau urges readers to visit the “Youth Financial Education Research Priorities” (Research Priorities) to see what is still unknown. While this report looks at existing research on school-based financial education, the Research Priorities explores emerging and unanswered empirical questions in how best to provide financial education to youth in schools, households, and community settings. By developing a set of Research Priorities along with offering this report Review, the Bureau hopes to support researchers as well as program leaders, parents, caregivers, financial educators, education policy leaders, and others involved in testing and advancing the effectiveness of financial education efforts for youth.

Future research efforts can benefit from a more coordinated and consistent approach to measuring effectiveness. Drever et al. (2015) argues that there are specific developmental benchmarks youth can achieve at different age ranges to improve financial well-being later in life.<sup>51</sup> The Bureau researched the childhood origins of financial capability and well-being. The resulting report, “Building blocks to help youth achieve financial capability: A new model and recommendations,” examines when, where, and how youth typically acquire critical attributes, abilities, and opportunities—the building blocks that support the development of financial capability and later-life financial well-being. To aid researchers, the Bureau released a follow up report, “Building blocks to help youth achieve financial capability: Measurement guide” which catalogs means of assessing young people’s progress toward each building block. The Building Block framework and Measurement Guide will make it easier for stakeholders to document short-term outcomes, by measuring progress toward achievement of the building block milestones, and long-run positive steps towards financial well-being.

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<sup>51</sup> Drever, Anita I., Elizabeth Odders-White, Charles W. Kalish, Nicole M. Else-Quest, Emily M. Hoagland, and Emory N. Nelms. Foundations of financial well-being: Insights into the role of executive function, financial socialization, and experience-based learning in childhood and youth. *Journal of Consumer Affairs*, 49.1 (2015): 13-38.

Those designing financial education programs can benefit from a translation of academic research and assessment of programs. It is up to stakeholders to evaluate the studies cited in this report and determine its validity and relevance for different types of context and decisions. For example, if financial education improves outcomes in one state or school district, this does not automatically mean that a similar program will be equally effective somewhere else. In deciding how to design or implement a mandate, state and local policymakers can carefully consider the most comparable state educational and demographic context to best forecast the potential strides financial education may make. Additionally, a school district in a major metropolitan area may not benefit from the same type of financial education program that may benefit another school district in rural Wyoming. Further, educational content can be state-specific, focusing on issues that are relevant to the population. For example, Oklahoma's state standards include a unit on understanding the financial implications of gambling, which was identified in that state as a potential pitfall for young Oklahomans. Other states might make other choices for areas of emphasis. Many successful state programs solicit current educators in the state to help design the state standards and sample curricula.

Finally, this report also points to resources where policymakers and others can explore existing data to determine the potential benefits and needs for financial education in a given area. The Appendices contains information on additional resources. Appendix A contains information on resources and state-specific data to determine the areas of financial education that particular states may need to focus on. Appendix B provides information on the Bureau's broader priorities to provide research that enhances youth financial education and youth financial capability.

## APPENDIX A: EXTERNAL DATA RESOURCES

Financial education involves decisions at all levels, from the classroom to the state education office, and all have many different factors to consider. Each locality can benefit from using its own data to understand how financial education may affect its youth and its next generation of financial decision-makers.

Publicly available datasets can help to identify the demand for specific types of financial education across states. States can use these datasets to help build a case for financial education state and local policies, where these metrics point to a need. To note, these are links and references to third-party resources and content that readers may find helpful. The Bureau does not control or guarantee the accuracy of this third-party information. By listing these links and references, the Bureau is not endorsing and has not vetted these third parties, the views they express, or the products or services they offer. Other entities and resources may also meet your needs.

- **How many school districts already have financial education requirements?** Next Gen Personal Finance<sup>52</sup> has a tool to determine whether or not each school district has personal finance coursework available and whether or not each school district requires it be completed prior to graduation from high school.
- **What is the state of financial capability in the state?** The FINRA Investor Education foundation compiles the National Financial Capability Study (NFCS)<sup>53</sup>. These data give benchmarks for measuring the financial capability of Americans across states every three years beginning in 2009. The data also include a map of each state with more information on each individual state. They provide a way to determine where a state stacks up on a specific economic or financial indicator. For example, what fraction of respondents within a state say they spend more than their income? These data provide resources for states to track progress on indicators of financial capability. Beginning with the 2018 data, the data will also include the scores to the Bureau's Financial Well-Being Scale questionnaire. They also break out information by age so one could look at financial capability for only young adults.
- **What fraction of individuals in a state are unbanked?** The FDIC Survey of Unbanked/Underbanked<sup>54</sup> includes reports on their household survey of Underbanked

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52 See Next Gen Personal Finance, [ngpf.org/finhero](http://ngpf.org/finhero).

53 See FINRA Investor Education Foundation, National Financial Capability Study, [usfinancialcapability.org](http://usfinancialcapability.org).

54 See Federal Deposit Insurance Corporation, *2017 FDIC National Survey of Unbanked and Underbanked Households* (2018), [fdic.gov/householdsurvey/2017/2017report.pdf](http://fdic.gov/householdsurvey/2017/2017report.pdf).



and Unbanked Households. The survey has a variety of statistics that are broken down by state and also includes measures such as the fraction of individuals who report having emergency savings. While the data include age, some additional data analysis would need to be performed in order to glean the fraction of young adults who are unbanked, as they are not included in the basic reports.

- **How has credit within the state changed over time?** The New York Federal Reserve Bank Microeconomic Data<sup>55</sup> provides state-by-state data on a variety of financial behaviors including credit cards, student loan debt, auto loans, the housing market, saving and spending, and delinquencies. Some of these statistics are further separated by age, allowing stakeholders to focus specifically on young adults.
- **How do U.S. 15-year-olds compare with their peers in other countries?** The Program for International Student Assessment (PISA) Financial Literacy<sup>56</sup> assessments look at students' experience with and knowledge about money and provides an overall picture of 15-year-olds' ability to apply their accumulated knowledge and skills to real-life situations involving financial issues and decisions. The triennial PISA financial literacy assessment was first administered in 2012 and the fourth and final assessment is slated for 2021.

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<sup>55</sup> See Federal Reserve Bank of New York, Center for Microeconomic Data, [newyorkfed.org/microeconomics/databank](https://www.newyorkfed.org/microeconomics/databank).

<sup>56</sup> See Organisation for Economic Co-operation & Development, Program for International Student Assessment (PISA) Financial Literacy Assessment, [oecd.org/finance/financial-education/oecd-pisa-financial-literacy-assessment.htm](https://www.oecd.org/finance/financial-education/oecd-pisa-financial-literacy-assessment.htm).

# APPENDIX B: BUREAU RESOURCES RELATED TO YOUTH FINANCIAL EDUCATION

In addition to this report, the Bureau provides a variety of foundational research related to youth financial education. The list of resources below indicates the name of the resource, a brief description, and a web link.

## **YOUTH FINANCIAL EDUCATION RESEARCH PRIORITIES (APRIL 2019)**

This report outlines current key research questions in the youth financial education in schools, households, and communities. The Research Priorities is intended to guide the work of researchers who have an interest in youth financial education.

[consumerfinance.gov/data-research/research-reports/youth-financial-education-research-priorities/](https://consumerfinance.gov/data-research/research-reports/youth-financial-education-research-priorities/)

## **BUILDING BLOCKS TO HELP YOUTH ACHIEVE FINANCIAL CAPABILITY: MEASUREMENT GUIDE (JUNE 2018)**

This report provides a means of assessing young people's progress toward each building block. It presents age-appropriate questions that program leaders, researchers, and others can use to evaluate a child's progress toward each of the youth financial capability building blocks.

[consumerfinance.gov/data-research/research-reports/building-blocks-help-youth-achieve-financial-capability-measurement-guide/](https://consumerfinance.gov/data-research/research-reports/building-blocks-help-youth-achieve-financial-capability-measurement-guide/)

## **A GUIDE FOR ADVANCING K-12 FINANCIAL EDUCATION (MARCH 2017)**

This resource guide is designed to help connect policymakers with tools, information, and insights to enhance K-12 financial education efforts. The guide's framework for advancing K-12 financial education has three main sections: laying the groundwork, building the initiative and extending the impact. It includes case studies which feature promising practices and provides links and references to third-party resources that users may find helpful.

[consumerfinance.gov/data-research/research-reports/guide-advancing-k-12-financial-education/](https://consumerfinance.gov/data-research/research-reports/guide-advancing-k-12-financial-education/)

## **BUILDING BLOCKS TO HELP YOUTH ACHIEVE FINANCIAL CAPABILITY: A NEW MODEL AND RECOMMENDATIONS (AUGUST 2016)**

This report shares research findings exploring how young people can acquire three building blocks of financial capability: executive function, financial habits and norms, and financial knowledge and decision-making skills, at various stages of development.

[consumerfinance.gov/data-research/research-reports/building-blocks-help-youth-achieve-financial-capability/](https://consumerfinance.gov/data-research/research-reports/building-blocks-help-youth-achieve-financial-capability/)

**EFFECTIVE FINANCIAL EDUCATION: FIVE PRINCIPLES AND HOW TO USE THEM (JUNE 2017)**

This report describes five principles for effective financial education for adults, along with an explanation of their basis in the Bureau's financial well-being research and evidence-based strategies and practitioner tips for putting them into practice.

[consumerfinance.gov/data-research/research-reports/effective-financial-education-five-principles-and-how-use-them/](https://consumerfinance.gov/data-research/research-reports/effective-financial-education-five-principles-and-how-use-them/)

**FINANCIAL WELL-BEING: THE GOAL OF FINANCIAL EDUCATION (JANUARY 2015)**

This report provides a conceptual framework for defining and measuring success in financial education by delivering a proposed definition of financial well-being and insight into the factors that contribute to it.

[consumerfinance.gov/data-research/research-reports/financial-well-being/](https://consumerfinance.gov/data-research/research-reports/financial-well-being/)

**TRANSFORMING THE FINANCIAL LIVES OF A GENERATION OF YOUNG AMERICANS (APRIL 2013)**

The Bureau developed policy recommendations for supporting the financial education and capability of youth in America. This white paper articulates these policy recommendations, provides an overview of the financial decision-making context that consumers navigate, surveys some existing efforts in the K-12 financial education field, and outlines a comprehensive approach to youth financial education.

[consumerfinance.gov/data-research/research-reports/transforming-the-financial-lives-of-a-generation-of-young-americans/](https://consumerfinance.gov/data-research/research-reports/transforming-the-financial-lives-of-a-generation-of-young-americans/)