

# Insights: Financial Capability

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## State Financial Education Mandates: It's All in the Implementation

### Executive Summary

Policymakers have promoted financial education as a means of combating low-levels of financial literacy and negative financial behaviors among the U.S. population. However, previous research on the effectiveness of financial education has found, at best, mixed evidence that it improves financial well-being, often due to data and methodological limitations. We address some of the limitations of previous research. Our analysis uses the Federal Reserve Bank of New York/ Equifax Consumer Credit Panel in combination with detailed information on the mandates passed in three states after the year 2000. We then employ a new statistical approach that compares the changes in credit scores and default in states after implementation of the mandate to the changes in comparable states that did not pass mandates. By focusing our analysis on individual states with intensive mandates where the implementation is well documented, we are able to more accurately assess the effect of financial education on financial outcomes. We find that if a rigorous financial education program is carefully implemented, it can improve the credit scores and lower the probability of delinquency for young adults.

*“We find that if a rigorous financial education program is carefully implemented, it can improve the credit scores and lower the probability of delinquency for young adults.”*

### Introduction

The growing complexity of financial decisions facing American consumers has prompted an increased emphasis by policymakers on promoting financial education at all stages of life. One group of particular concern is young adults, as they have been shown to have particularly low levels of financial literacy (Lusardi et al. 2010) and to be prone to engage in expensive credit behaviors, such as using payday loans, paying interest on credit card balances, and accruing late fees (FINRA Foundation 2013). The 2008 financial crisis further demonstrated the need for broad-based financial education. However, the existing body of research on the effectiveness of financial literacy education has yielded limited evidence that it improves financial outcomes and behaviors (Fernandes et al. 2014; Willis 2011).

Even in the absence of evidence on the effectiveness of financial education, policymakers at the state level have expanded and strengthened personal finance and economic education requirements for K–12 students. Determining which particular financial education programs yield the greatest benefits would allow states to design an effective curriculum.

In order to determine the true effect of state-mandated personal finance education on subsequent credit outcomes, we take advantage of the Federal Reserve Bank of New York/Equifax Consumer Credit Panel (CCP) data, which allow us to observe an individual's credit behavior from when they first apply for credit through the most recent quarter. The CCP is a 5 percent random sample of credit report data for U.S. persons with Social Security numbers drawn from the files of the credit reporting agency Equifax. The 5 percent random sample is then supplemented with the credit report data for all persons who reside at the same address as the primary individual, yielding a total sample of approximately 40 million credit files each quarter. The panel begins in the first quarter of 1999, and data are collected each quarter on an ongoing basis. The panel is regularly updated to include new credit files and remove the files of deceased persons or those with inactive credit files, so as to maintain its representativeness of U.S. persons with credit reports and Social Security numbers.

We analyze the credit behavior of young adults starting at age 18 (or at the time of their first credit report if the file is too thin at age 18) until they reach age 22. We first examine the Equifax Risk Scores (credit scores), and expect that the average credit score for the young people exposed to the mandated financial education would increase due to their having acquired additional knowledge about credit management and positive financial behaviors. However, the effect on one's credit score is likely to be small in magnitude, as credit is just being established during the age range we examine. It is difficult to establish a substantially higher credit score than one's peers with only a brief credit history. Next, we consider the possibility that exposure to financial education could help young individuals reduce negative credit outcomes. Specifically, we consider ever being 30 or 90+ days delinquent on any credit account, and 30 or 90+ days delinquent on an auto loan.

We selected three states that changed financial education mandates after the year 2000, and that previously had not mandated financial education in high schools: Georgia, Idaho, and Texas. Each of these states had well-documented interventions that are considered relatively rigorous by the Council for Economic Education. The three states' mandates share some common features: they all have some form of standardized personal finance curriculum; and each state integrated the personal finance instruction into a required economics course for high school students.

To estimate the effect of financial education mandates on later credit behaviors, we use a difference-in-difference approach that compares the change in credit outcomes for cohorts of young adults pre- and post-implementation of the financial education mandate in the treated states to the change in credit outcomes for cohorts of young adults in an adjacent control state where no state-mandated financial education was implemented.

*“We are able to demonstrate that more rigorous state mandates, such as in Georgia or Texas, have a greater effect on subsequent financial well-being for young adults.”*

Based on our analysis, we conclude that exposure to the types of high school personal financial education mandated by these three states improves credit scores and reduces delinquency rates for young adults. Moreover, by focusing on the effect of the mandate in individual states rather than the effect of an amalgam of mandates across a range of different states, we are able to demonstrate that more rigorous state mandates, such as in Georgia or Texas, have a greater effect on subsequent financial well-being for young adults.

There are three main distinctions between our project and other work on the effects of financial education in high school. First, previous research assumed that all state mandates are implemented the same way. However, in reality there are substantial differences in how state financial education ends up being implemented in the classroom. Some states simply suggest that schools should offer a course, while others require the course for graduation and test students on what they have learned. Given these differences across states, this study examines the effect of financial education on young adults in three specific states separately. Second, understanding the different timing and the political scene surrounding the implementation of a mandate in each state is important. Previous work often assumed that states began implementing the policy as soon as the mandate was passed. However, there are sometimes implementation lags of up to five years. In our work, we determine when each of our three states implementing mandates with varying degrees of intensity required the first set of graduates to take the course. Figure 1 documents the different degrees of intensity of mandates. Third, states often change multiple curricular requirements simultaneously, making it hard to determine the impact of personal finance mandates alone. We ensure that this is not the case in the states we analyze.

**Figure 1: Mandate Categorization**

Types of Mandates	In Contrast to:
<p><b>High Intensity</b></p> <ul style="list-style-type: none"> <li>▶ Course Required for Graduation</li> <li>▶ Testing Required</li> <li>▶ At Least a Half-Year Course</li> <li>▶ Teacher Training Required</li> <li>▶ Standardized/Set Curriculum</li> <li>▶ Example: Georgia</li> </ul>	<p><b>No Intensity</b></p> <ul style="list-style-type: none"> <li>▶ Course Required to Be Offered</li> <li>▶ Require Personal Finance to Be Mentioned within the Context of Another Course</li> </ul>
<p><b>Moderate Intensity</b></p> <ul style="list-style-type: none"> <li>▶ Course Required for Graduation</li> <li>▶ Testing Required</li> <li>▶ At Least a Half-Year Course</li> <li>▶ Standardized/Set Curriculum</li> <li>▶ Example: Texas</li> </ul>	<p><b>No Mandate</b></p> <ul style="list-style-type: none"> <li>▶ State Does Not Pass a Mandate to Include Personal Finance Education in High School</li> <li>▶ Some Schools in the State May Teach it Anyway</li> </ul>
<p><b>Low Intensity</b></p> <ul style="list-style-type: none"> <li>▶ Course Required for Graduation</li> <li>▶ At Least a Half-Year Course</li> <li>▶ Standardized/Set Curriculum</li> <li>▶ Example: Idaho</li> </ul>	<p><b>Resolution</b></p> <ul style="list-style-type: none"> <li>▶ State Decides to Make Personal Finance Education a Priority</li> <li>▶ No Mandate Is Passed</li> </ul>

## Curriculum Mandates

Because we are the first to find consistent evidence of benefits to state-mandated financial education in high school, we find it important to outline the specific curricula in the states that we study. We chose these three states, because each of them passed a mandate after the year 2000, and the Consumer Credit Panel data only exist from 1999 to the present. In addition, each of these states did not pass other education mandates at the same time that would change the requirements for courses that may affect credit behavior (for example, an increase in math requirements). Such simultaneous changes would make it hard to determine if we are actually estimating the effect of personal finance education on outcomes or the effect of some other curriculum change (for example, an increase in math requirements).<sup>1</sup>

**Figure 2: Characteristics of the Mandate in Each Treatment State**

	Georgia	Idaho	Texas
Year Mandate Passed	2004	2003	2004
First Graduating Class Affected by the Mandate	2007	2007	2007
Curriculum Standards Imposed	Yes	Yes	Yes
Model Curriculum Provided	Yes	Yes	Yes
Required Course for Graduation	Yes	Yes	Yes
Duration of Course	Year-long	Semester-long	Year-long
Inserted into Other Course	Yes, Economics	Yes, Economics	Yes, Economics
Sample Curriculum Includes a Stock Market Game Simulation	Yes	Suggested	Suggested
Teacher Training	Minimal	No Formal Training	No Formal Training
Testing Required	Yes	No	Yes
Intensity Ranking	High	Low	Moderate
Control States	Florida	Montana, Wyoming	New Mexico

- Seven additional states passed mandates between 2003 and 2006 but were not included for idiosyncratic reasons. Specifically:
  - Louisiana's mandate took place in conjunction with Hurricane Katrina;
  - New Hampshire's mandate only affected 7th and 8th graders, lagging its effect on young adults;
  - Illinois passed a mandate but still allows county-by-county variation in implementation;
  - South Carolina passed a mandate but never required a class to be taken;
  - North Carolina passed its mandate in 2005, though there is no untreated border state for comparison;
  - West Virginia implemented a financial literacy component in a civics course, combining civics, economics, and geography, but little is known about the breakdown of these courses across the state; and
  - Kansas passed a mandate requiring standards implementation, though most of these are implemented in grades 4 and 8.

## Georgia

The Georgia Board of Education first approved a mandate for incorporating financial education in the K–12 curriculum in 2004. The Georgia Performance Standards included a high school personal finance component beginning in the fall of 2006, and the first class affected by this mandate graduated in the spring of 2007. The required unit was developed by the Georgia Council on Economic Education and is called “Let’s Make It Personal.” It incorporates the fundamentals of microeconomics, macroeconomics, international economics, and personal finance into a year-long course. The personal finance topics mainly focus on financial planning, including savings, insurance, and credit.

Notably, the state mandated a systematic implementation of a standardized set of content areas across schools. Prior to the “Let’s Make It Personal” course, a half-credit course in economics was required to be taught, but was not required to cover personal finance topics. According to the Georgia Council on Economic Education, the goal statement of “Let’s Make It Personal” is: “Students leaving school are prepared for their economic roles as workers, consumers, and citizens.” The student learning objectives of the course include the following: (1) apply rational decision making to personal spending and saving choices; (2) explain that banks and other financial institutions are businesses that channel funds from savers to investors; (3) explain how changes in monetary and fiscal policy can affect an individual’s spending and savings choices; (4) evaluate the costs and benefits of using credit; (5) describe how insurance and other risk-management strategies protect against financial loss; and (6) describe how workers’ earnings are determined.

Georgia’s A Plus Education Reform Act of 2000, O.C.G.A. §20-2-281, mandates that the State Board of Education adopt end-of-course assessments for core subjects, including “Let’s Make It Personal.” Further, teachers across the state were required to attend a training session prior to teaching the course (though to the best of our knowledge, this was not enforced and the training was less than one full day). The curriculum goals and standards were consistent across the state. For example,

“The student will evaluate the costs and benefits of using credit.” These standards are cited as a minimum requirement. The model course involves simulations regarding financial portfolios, personal savings/investment, insurance, and credit. One of the simulations incorporated into the model curriculum is the stock market game, although participation in this simulation is not specifically included in the mandate.<sup>2</sup> This simulation of buying and selling stocks encourages students to engage in applied learning and, in the process, students appear to gain financial knowledge (Hinojosa et al. 2009; Hinojosa et al. 2007; Walstad 2008).

## Idaho

In 2003, the Idaho State Board of Education mandated that schools should “include instruction stressing general financial literacy from basic budgeting to financial investments, including bankruptcy, etc.” (Section 53A-1-402). Beginning with the graduating class of 2007, all students in the state were required to take one semester of economics to graduate as part of a three-credit social studies requirement. The curriculum for this course was developed by family and consumer economics faculty at Idaho State University. The intent of the course is for students to “learn their roles as producers, consumers, and citizens.” The course comprises the following five segments:

1. 20 percent is devoted to microeconomics and macroeconomics topics. Students learn to identify, compare, and explain the government’s role in economic systems. This portion of the course covers the principles of taxes, the business cycle, international trade, the national debt, and unemployment.
2. 15 percent focuses solely on credit and debt. Here students learn how and when to apply for loans and the importance of their credit scores and credit reports.
3. 20 percent of the course is on saving and investing decisions, where the stock market game is given as an example for teaching these concepts and is played in some schools.<sup>3</sup>

2. The Stock Market Game™ is a specific stock market simulation created by the Securities Industry and Financial Markets Association (SIFMA) Foundation. It is unclear from the state legislation and other sources for Georgia, Idaho, and Texas if the stock market game they reference is in fact the SIFMA Foundation simulation or some other generic stock market game.

3. It is unclear if this is The Stock Market Game™ offered by the SIFMA Foundation or a generic stock market game.

4. 20 percent explains money management skills, including how to interpret paystubs, understand taxes, and make cost-benefit decisions when making a purchase.
5. 25 percent covers family finances, designing a resume, and applying for jobs, as well as consumer roles, rights, and responsibilities. Here classrooms teach how to be an informed consumer, how to understand fraud and identity theft, and how to set financial goals. This unit also teaches students to use tools such as *Consumer Reports* magazine to make informed decisions.

## Texas

A 2004 amendment of the Texas Education Code (Section 1A -28-28.0021) required the teaching of personal financial literacy in an economics course required for high school graduation, beginning with the 2006–2007 school year.<sup>4</sup> Specifically, each school district and open-enrollment charter school is to incorporate personal finance material into a year-long economics course required for graduation. Each school must use standardized materials approved by the State Board of Education.<sup>5</sup> Further, the Texas Assessment of Knowledge and Skills, a state-mandated test students are required to take prior to graduation from high school, includes information from this course within the social studies test.

Any school district may include additional approved material, but each school must teach the following topics at a minimum: (1) understanding interest and avoiding and eliminating credit card debt; (2) understanding the rights and responsibilities of renting or buying a home; (3) managing money to make the transition from renting a home to home ownership; (4) starting a small business;

(5) being a prudent investor in the stock market and using other investment options; (6) beginning a savings program and planning for retirement; (7) bankruptcy; (8) the types of bank accounts available to consumers and the benefits of maintaining a bank account; (9) balancing a checkbook; (10) the types of loans available to consumers and becoming a low-risk borrower; (11) understanding insurance; and (12) charitable giving.

In Texas, the stock market game was given as an example of a method for teaching savings and investment, though it was not a requirement of the curriculum.<sup>6</sup>

## States without Mandates

To determine the effects of personal finance education in high school, we require a control group for each state that passed a mandate. In addition to comparing each state to itself before the mandate was passed, we look at each state that never required personal finance to be taught, taken, or offered. These states also did not change any other math, personal finance, or economics curriculum requirements from 2000–2013. Based on demographic factors and homogenous geography, we choose a border state without a mandate for each state with a mandate to create a control group. Our control state selections are outlined in the final row of Figure 2. Georgia is compared to Florida, Idaho is compared to Montana and Wyoming, and Texas is compared to New Mexico. All control states are characterized as “No Mandate” states (see Figure 1) and also did not change other mandates in the time period. In our research paper, we outline a sophisticated statistical model for choosing the control states. Readers interested in further details about our empirical methods or the more complex analysis should see the Federal Reserve Board Working Paper 2014-68.<sup>7</sup>

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4. Some school districts could additionally appeal to the Commissioner of Education to delay the start of financial education in graduation requirements.

5. A list of these can be found at [www.montana.edu/urban/StateFinEd.zip](http://www.montana.edu/urban/StateFinEd.zip).

6. It is unclear if this is The Stock Market Game™ offered by the SIFMA Foundation or a generic stock market game.

7. The working paper version is located here: [www.federalreserve.gov/pubs/feds/2014/201468/201468abs.html](http://www.federalreserve.gov/pubs/feds/2014/201468/201468abs.html).

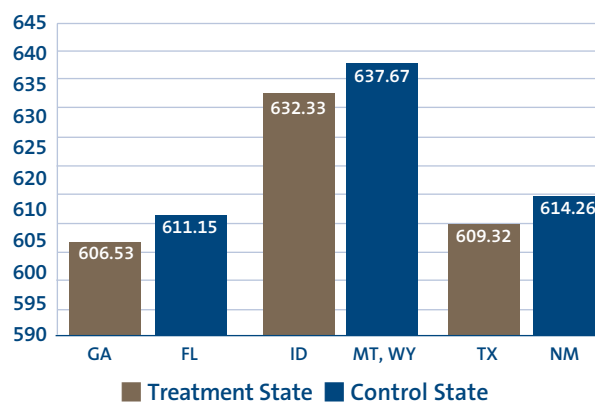


## How Did the Mandate Affect Credit Scores?

Figure 3 shows the average credit score for each of the treatment and control state groupings in the period prior to the implementation of the personal finance mandate (2000–2006). In all three of the states examined, we find a statistically significant increase in credit scores beginning two years following the implementation of the mandate for those individuals in the treatment states relative to those in the control states. As shown in Figure 4, personal finance education does not benefit students exposed to the requirement in the first year of implementation. In Idaho, we even see a drop of 4.3 points in credit scores, which cannot be explained away by any particular program attribute in that first year. However, as the personal finance curriculum becomes more established over time, we begin to see significant effects on subsequent credit outcomes. Students taking the course in the second year following implementation are more likely to benefit from the education, with increased credit scores in all three treatment states. Individuals in school during the third year following the inception of the program have still greater benefits from the education, with credit scores increasing by 10.89 points in Georgia, 16.19 points in Idaho, and 31.71 points in Texas.<sup>8</sup> Comparing these increases in credit scores to the average credit scores in the treatment states prior to mandate implementation gives us increases in credit scores of 1.8 percent in Georgia, 2.6 percent in Idaho, and 5.2 percent in Texas. All of these estimated effects are statistically different from zero with a high degree of confidence (significant at the 5 percent level or less).

*“As the personal finance curriculum becomes more established over time, we begin to see significant effects on subsequent credit outcomes.”*

Figure 3: Average Credit Scores in the Treatment and Control States Prior to Mandate Implementation

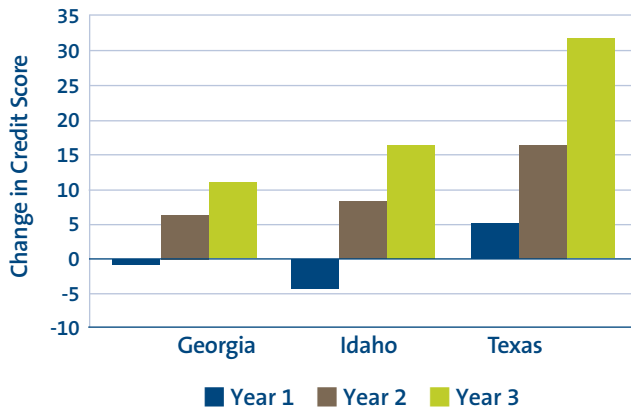


Notes: This figure depicts the average credit scores before the mandate took effect (2000–2006) in treatment states, in brown, and control states, in blue. The data come from the Federal Reserve Bank of New York's Consumer Credit Panel.

While some of the differences in the estimated effect of the personal finance education on credit score may be attributed to the differences in the intensity of the mandate, the implementation of the mandate, and the curriculum taught in each state, it is also the case that the demographic characteristics of the students in each state are different, and that they are starting with slightly different average credit scores. For example, Figure 3 shows that prior to the mandate implementation, the average credit scores for 18–22 year-olds in Georgia were the lowest of the three treatment states at 607, whereas Idaho 18–22 year-olds had an average credit score of 632, and those in Texas had scores of 609. Also, as shown in Figure 5, students in Georgia and Texas had high average rates of 90+ day delinquency on any account, 18 percent, whereas in Idaho average serious delinquency rates for young adults were closer to 12 percent. The differences in effect size might stem from the different populations and starting points in credit behavior in each state and not solely the differences in mandates.

8. The credit score used in our analysis is the Equifax Risk Score, which is similar to the FICO Score, but is based on a different algorithm; however, it predicts the same likelihood of severe delinquency over the next 24 months as a FICO Score. The Equifax Risk Score ranges from 280 to 850, with a higher score indicating the person is of lower credit risk.

**Figure 4: The Effect of Personal Finance Education on Credit Scores, by State and Implementation Year Cohort**

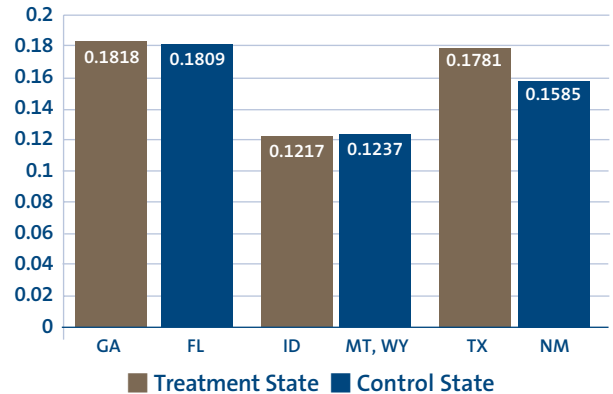


Notes: This figure depicts the effect of the state financial education mandate on credit scores for 18–22 year-olds. We calculate the difference in average credit scores between students exposed to the course in the treatment state and students who graduated in the years just before the mandate was passed in the treatment state. We compare this difference to the difference in credit scores just before and just after the mandate was passed in a control state that did not have a personal finance mandate. For each treatment state, we select a demographically similar state that borders the treatment state but does not have a personal finance education mandate in place. We report the effects in the first, second, and third year of implementation of the program.

### How did the Mandate Affect Severe Delinquency?

In addition to examining the effect of the personal finance education on credit scores, we also examined its effect on the probability that the individual will become 90+ days behind on any credit account. In each of our treatment states, we find a significant reduction in the probability that an individual in high school when his or her state taught financial education would subsequently become 90+ days delinquent, relative to those in our control states. As shown in Figure 6, our estimates of the effect on delinquency follow similar patterns to those for credit score. In the first year following implementation, we see little effect on delinquency rates. However, we find large reductions in delinquency for those students receiving the education in the second and third years following implementation.

**Figure 5: Share of People with Any Account 90+ Days Delinquent in the Treatment and Control States Prior to Mandate Implementation**



Notes: This figure depicts the average rate of 90+ day delinquency before the mandate took effect (2000–2006) in treatment states, in brown, and control states, in blue. The data come from the Federal Reserve Bank of New York’s Consumer Credit Panel.

In Idaho, students exposed to the education in the first year following implementation actually have higher delinquency rates than those in the control states, although the difference is very small. Specifically, we find that students in Idaho receiving the education in the first implementation year have an increase in the probability of 90+ day delinquency of 0.05 percentage points. However, by the second and third years of the program, young adults exposed to the personal finance education had 90+ day delinquency rates 1.9 percentage points lower in young adulthood than those in the control states. When we compare this 1.9 percentage point decrease to the mean rate of 90+ day delinquency in Idaho prior to the implementation—12.2 percent—this represents a decrease of 15.6 percent.

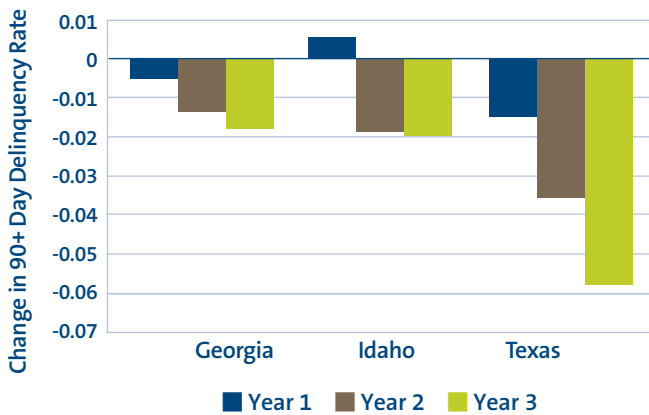
In Georgia, receiving the education in the first year of implementation reduced 90+ day delinquency by a small 0.5 percentage points relative to those in the control state. However, the effect size again increased with each year following implementation. By year three, this effect grew to a 1.8 percentage point decrease in 90+ day delinquency for those receiving the education, equivalent to a 9.9 percent decrease in severe delinquency when compared with the pre-implementation average rate.



In Texas, exposure in the first year of implementation was more effective than in the other two states, with a decrease in severe delinquency of 1.5 percentage points, or 8.4 percent when compared to the pre-implementation average rate. By the third year, individuals who received personal finance education had 90+ day delinquency rates 5.8 percentage points lower than in the control state, or about a 32.6 percent decrease in their rate of severe delinquency.

Our data do not currently allow us to comment on whether this reduction in delinquency continued in subsequent years of exposure to the education, or if the effect size eventually reaches a plateau.

**Figure 6: The Effect of Personal Finance Education on Rates of 90+ Day Delinquency, by State and Implementation Year Cohort**



Notes: This figure depicts the effect of the state financial education mandate on the probability of a severe delinquency (90+ days behind) on any account for 18–22 year-olds. We calculate the difference in average default between students exposed to the course in the treatment state and students who graduated in the years just before the mandate was passed in the treatment state. We compare this difference to the difference in default just before and just after the mandate was passed in a control state that did not have a personal finance mandate. For each treatment state, we select a demographically similar state that borders the treatment state but does not have a personal finance education mandate in place. We report the effects in the first, second, and third year of implementation of the program.

## Conclusions

In this research, we document notable improvements in credit outcomes for young adults who take personal finance courses in high school. These results come from separate analyses of three states with mandates of somewhat varying degrees of intensity, but that all require students to take the course in order to graduate from high school. In addition to the graduation requirement, Georgia and Texas require testing in personal finance, and Georgia required teacher training prior to implementing the course. While we cannot point to particular aspects of the mandate as the definitive components that result in improved credit behavior for young adults, we can outline the details of mandates that raised average credit scores and lowered delinquency rates for this population.

*“We document notable improvements in credit outcomes for young adults who take personal finance courses in high school.”*

The small and sometimes negative effects of the education on those individuals exposed in the first year post implementation emphasize that it takes time for both students and teachers to adjust to changes in a course curriculum. However, by the second year post-implementation, there are consistently positive results for the students. We conclude that if implemented properly, mandatory personal financial education in high school could improve the credit behavior of young adults.

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## About this Publication

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## FINRA Investor Education Foundation

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