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ARTICLE

High school financial education courses in the United States.: What is the importance of setting state policies?

Allison Oldham Luedtke[1] and Carly Urban[2,3] (iD)

[1]St. Olaf College, Northfield, MN, USA, [2]Montana State University, Bozeman, MT, USA and [3]The Institute for Labor Economics (IZA), Bonn, Germany
Corresponding author: Carly Urban; Email: carly.urban@montana.edu

Abstract

Access to financial education courses makes a difference in high school students' future financial lives. However, little data have been available to assess the access students have to these classes and what types of financial education are offered throughout the United States. We describe a novel dataset of over 19,000 hand-coded high school personal finance courses for over 7,400 high schools across the United States. These data cover the academic years from 2019–2020 to 2022–2023. The most common type of financial education offered is a semester-long course focused entirely on financial education, rather than, for example, a course on another topic that builds in a section on financial education. Schools that are in rural areas, schools with a higher percentage of Black students and schools that are geographically isolated from peers with high financial education requirements are less likely to require financial education courses for graduation.

Keywords: financial education; financial literacy; networks

1. Introduction

Early financial education is an important tool in accomplishing financial well-being in adulthood. A growing body of literature specifically shows the promise of financial education in high schools. For example, Frisancho (2020, 2023a, 2023b) show in a wide-scale experiment that financial education in secondary schools in Peru improved student knowledge and behavioral outcomes, as well as teachers' outcomes and low-income parents' outcomes. Bruhn et al. (2016) uses an experiment in Brazilian schools to show that high school financial education not only improves outcomes for students but also that it has trickle-up effects on parents. An additional literature considers quasi-experimental variation in graduation requirements by state and year. This research finds overwhelmingly positive effects of financial education on financial outcomes, including credit scores, delinquencies, payday borrowing, methods of financing postsecondary education, and student loan

repayment (Brown et al., 2016; Harvey, 2020; Mangrum, 2022; Urban et al., 2020; Stoddard and Urban, 2020).

More states are including personal finance education as part of required curriculum as a measure to improve the financial capability of constituents. How do state policy changes translate to local high schools in a country where local control is prominent? This paper uses data from all US public high schools with online course catalogs from the 2019–2020 to the 2022–2023 academic years to pull back the curtain on local financial education access.

This paper contributes to the existing literature on financial literacy education by first introducing a new dataset of local access to financial education courses from 2019 to 2023. We begin with summary statistics describing access to financial education cross-sectionally and over time. We then identify which state policies have the least slippage at the local level. In states with no personal finance policies, how do school policies develop locally, and what demographic, economic, and geographic factors predict school-level policies? Using high schools' physical locations, we construct sets of nearby neighbor schools to address these questions. We then consider the timing of changing policies: are state policies implemented prior to the first graduating class that is subject to a requirement? Finally, the paper concludes by explaining how these local-level data can help us to improve our interpretation of effect sizes in the literature.

The data described in this paper span 10,784 public US high schools and include 19,263 hand-coded specific courses containing personal finance content. The data describe the highest level of personal finance course access at each school: a required standalone semester-long personal finance course, personal finance content embedded into another required course, a standalone semester-long personal finance elective, an elective containing – but not entirely focused on – personal finance, or no personal finance content included in the offered classes. There are 7,446 high schools that have data for every academic year from 2018–2019 to 2022–2023.

In the 2022–2023 academic year, 24 percent of students were enrolled in high schools where a full semester of personal finance is required for high school graduation. Holding the set of schools constant over time, the fraction increased from 18 percent in the 2019–2020 academic year. In states where personal finance graduation requirements allow for embedding in another class or content area, only 39 percent of students are in schools with personal finance content required. On the contrary, students in states in which personal finance is required as a standalone class have universal access to personal finance material.

When personal finance is not required at the state level, schools with higher proportions of minority students have less access to personal finance requirements. Rural schools are more likely to adopt requirements than schools in urban or suburban areas. Schools whose geographic neighbors are more likely to have personal finance requirements are more likely to adopt requirements than schools where no neighbors have a requirement. Taken together, these results suggest that in the absence of statewide standalone course requirements, inequities in access exist. These inequities can potentially be overcome by encouraging personal finance requirements in one school in a geographic area, as the policy's popularity can encourage spread to its neighbors.

2. Data collection

The data described in this paper come from hand-collected online course catalogs from 10,784 US public high schools and includes 19,263 hand-coded specific courses. In our panel, 7,446 schools have data describing their financial education courses in each sample year. We pair this hand-collected data with data on school characteristics. Each of these data sources is described below. The dataset can be found at https://osf.io/ksah9/.

2.1. Process for hand-collecting data

Each school's website is unique in the way they document their course catalogs and graduation requirements, and the inclusion of personal finance content in a course is not always straightforward. Thus, the data construction requires hand-coding. While imperfect due to potential human error, hand-collected data allow researchers to pinpoint the information needed. The first step in the process was obtaining a list of all schools in the country.[1]

The construction of hand-collected data requires a rigorous process. Each year's data collection process started with a team of undergraduate research assistants supervised by one full-time research associate. The research associate trained each research assistant on the data collection procedure. Each research assistant chose a small state to start with, and upon completion, went through their data collection and all questions with the research associate (and/or Dr. Urban) to ensure the methodology was consistent. After each state's completion, the research associate went through the data for an additional spot check. Finally, once all states were completed, Dr. Urban compiled all the state data and identified any oddities (e.g., large changes over time, states that did not match their policies). At this point, the research associate re-evaluated these states for a final quality control exercise.

Research assistants searched all school websites on the master list for a course catalog and graduation requirements. They excluded schools where no course catalog could be found or where online course catalogs were locked at the time of access. Appendix Table A1 compares schools that are and are not in our course catalog data. The excluded data are more disadvantaged on some dimensions: they serve students with higher eligibility for free and reduced-price lunch (FRPL), lower median household incomes, lower median home values, and higher fractions of Black and Hispanic students. However, the missing schools have lower student:teacher ratios and similar expenditures per pupil compared to schools in our dataset. Our sample includes fewer city schools and more rural schools.

If a catalog was not current (and it was still the only one on the website as of January 2023), they assumed the standards had not changed and referenced the previous year for classes offered. If a class including financial literacy topics was discovered in the catalog, researchers then recorded the class name, description (when available), duration (when available), whether it was a standalone course or a class that embedded financial literacy topics into another class, and whether or not it was a graduation requirement.[2] The course was either labeled "required" or "as a cluster," meaning it was one of many courses that could be taken to fill a graduation requirement. If a course catalog was found, but a course with financial literacy content was not offered at the school, this was classified as having no offerings. At times, there were course catalogs that did not include financial literacy (or typical classes that included financial literacy) but referenced electives that were not listed. We labeled these schools as "missing," as a clear distinction could not be made. If a standalone course in personal finance was listed in the course catalog, but there was no further description of requirements, we coded it as an offering but not a requirement.

From this hand-collected dataset, we create school-level financial education course offering standards. We assign each school its "maximum" standard using the following sequencing: standalone requirement, embedded requirement, standalone offering,

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[1] The National Center for Education Statistics (NCES) has a master list of public schools and enrollment from the most recent school year at the time of initial data collection at https://nces.ed.gov/ccd/pubschuniv.asp. We excluded all the "charter schools, technical schools, magnet schools, schools for the sensory impaired, alternative schools, online schools, early college schools, performing art schools, etc."

[2] They excluded special education courses and other courses with special requirements to get in. For example, we excluded ROTC courses and classes far along a career pathway with prerequisites not required for graduation.

embedded offering, and no requirements or offerings. We append the data across years, spanning the 2019–2020, 2020–2021, 2021–2022, and 2022–2023 academic years.

2.2. Auxiliary data sources

To determine the correlates of school course offerings, we collect supplementary data. We then merge these data with the hand-collected high school-level data. We employ data from the US Department of Education's NCES Non-Fiscal School Survey.[3] Relevant to this study, these school-level data include the following variables: student:teacher ratios, the fraction of students eligible for FRPL, and student demographic characteristics (e.g., percentages by race). NCES data also include indicators for the geographic area in which each school is located.[4] The data are categorized into four major groupings: city, suburban, town, and rural. In our analysis, we group town and rural into one category, as both represent more remote areas.

2.3. State policies

While state personal finance policies can take many shapes, there are two main policies that exist for financial education in high schools. Most research bundles these two policies together when estimating the causal effects of required financial education on downstream financial outcomes. The policies are as follows:

- eight states require every student to complete a semester of personal finance prior to high school graduation;
- 25 states require every student to complete personal finance content within another required course or content area (e.g., Economics and Social Studies).

The state-specific data on financial education requirements can be found at https://osf.io/ksah9/. Figure 1 shows the evolution of state-level high school personal finance policies by graduation year. No states required the graduating class of 2000 to take a standalone personal finance requirement, and only four states required embedded content for this cohort. Both policies dramatically expanded over the following 23 years. The graduating class of 2007 was the first to have a standalone course requirement, and by the class of 2023, eight states required every student to complete a standalone personal finance class, and 33 states required at least some personal finance content for high school graduation.

The following states require every student to complete a semester of personal finance prior to high school graduation: AL, IA, MO, MS, NC, TN, UT, and VA. According to the course catalog data, nearly every school in these states has standalone personal finance requirements in place. These states are commonly referred to as the "guarantee states," as all students are guaranteed access to personal finance education.

Additional states require students to complete personal finance content within another course or content area.

3. Financial education access

Figure 2 displays student access to financial education coursework for the 2022–2023 academic year across the country. The categories are mutually exclusive for each school,

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[3] These data can be found here: https://nces.ed.gov/ccd/pubschuniv.asp. The 2018-2019 data are the most current version of the data available at the time of data gathering.

[4] These data are downloaded from here: https://nces.ed.gov/programs/edge/Geographic/SchoolLocations (SY 2018-19, Public School File).
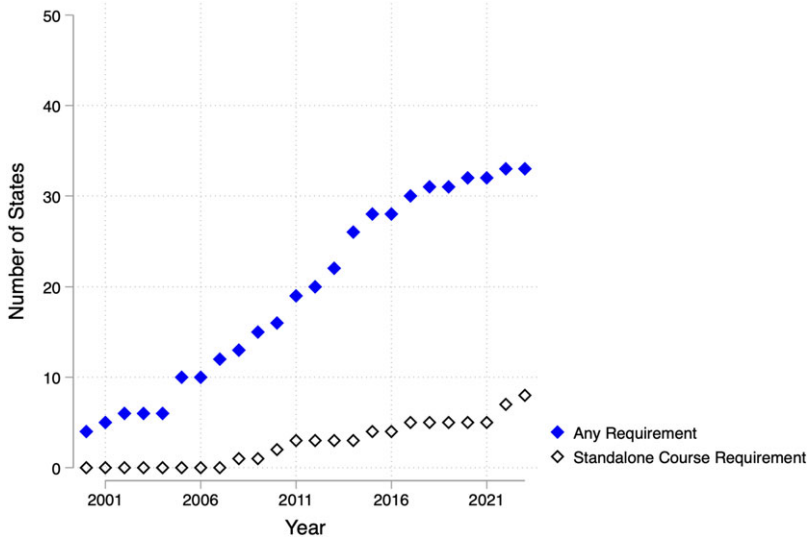
Figure 1. States with financial education requirements over time.
Notes: Any requirement represents states require personal finance content within a standalone course or within another class for high school graduation. Standalone course requirement represents states where a full semester standalone personal finance class is required for high school graduation.
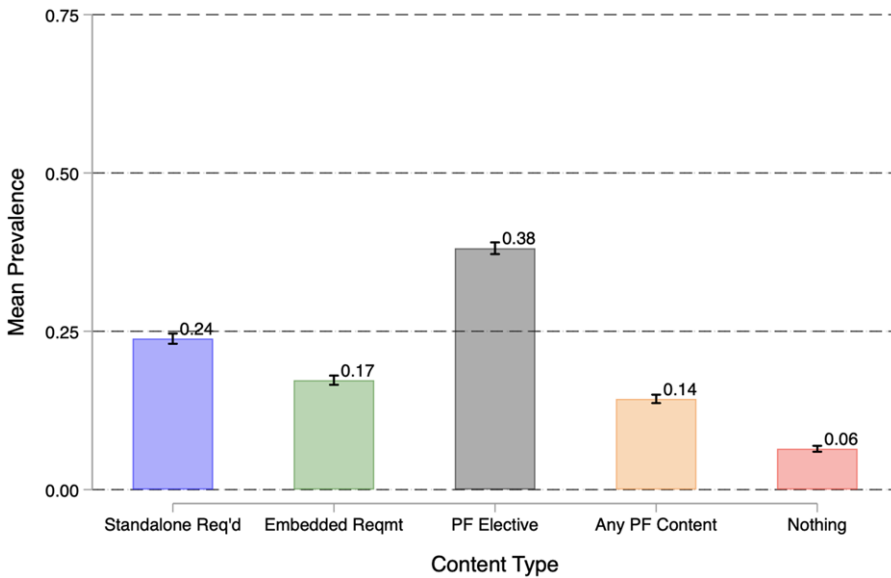

Figure 2. Financial education standards in the 2022–23 academic year.
Notes: Each category is the maximum financial literacy standard in the school, making them mutually exclusive. Means reported with 95% confidence intervals.

where the highest level of school access is recorded. Overall, 24 percent of students are in schools with a standalone personal finance course requirement. Another 17 percent of students are in schools where personal finance content is included in another required course (e.g., economics or social studies). Taken together, 41 percent of students are

guaranteed to be exposed to some personal finance content prior to graduating high school. Many students go to schools without requirements: 38 percent of students are in schools with a standalone personal finance elective, and 14 percent of students are in schools where there is an elective that contains – but is not focused on – personal finance. There are students who have no access to personal finance material in high school: six percent of students are in schools without a single class that contains personal finance content.

How does access vary geographically? We take these school-level data and aggregate them to the state level. Specifically, we document the fraction of students who have access to a standalone course requirement and the fraction of students who have access to any requirement (standalone or embedded). The top and bottom panels of Figure 3 display these measures, respectively. The top panel shows that state policies requiring every student to complete a standalone personal finance course prior to high school graduation have nearly universal compliance (the states in dark red). Eight states (AZ, DC, DE, GA, HI, LA, NM, and WV) do not have a single school where a standalone personal finance course is required.

The second panel of Figure 3 shows the fraction of students in schools with any personal finance content required for high school graduation. Even though some states require personal finance to be embedded within another course, the only states that have over 99 percent compliance are the ones with standalone course requirements. Seven states (AR, FL, NE, OH, OK, SC, and SD) have between 60 and 99 percent of students in schools with personal finance requirements. Another two states (GA and WV) have between 50 and 59 percent of students in schools requiring personal finance in some way. Neither Delaware nor the District of Columbia have a single school with any personal finance coursework required, though these states are small, and not all schools have online course catalog data, making the data less reliable.

Figure 4 shows that within the states with embedded requirements, 11 percent of students are in schools with standalone course requirements, and 28 percent of students are in schools where personal finance is embedded in another required class. In total, only 39 percent of students in these states have to complete personal finance, meaning that schools are not adhering to the state policy.

However, Figure 4 also shows that within states that have no personal finance-related policies, only 16 percent of students are required to complete personal finance content before graduating high school. Thus, embedded requirements do increase access to personal finance content, though not at the same level as standalone course requirements.

3.1. Equity in access

Table 1 next explores which schools are likely to have personal finance required. These models (Equation (1)) account for differences in school poverty levels, measured by the fraction of students receiving FRPL, the fraction of non-White students, and the geographical location of the school. The dependent variable (Req'd) alternatively equals 1 if school s in state j requires a standalone personal finance course or personal finance content at all and 0 otherwise. The independent variables of interest are whether the school has above median students receiving FRPL (AM %FRPL), has above median White students (AM %White), is in an urban area, or is in a rural area. The comparison geography are suburban schools. In some models, we also included state-level fixed effects (γ_j):

$$\text{Req}'d_{sj} = \alpha_0 + \alpha_1 \text{AM\%FRPL}_{sj} + \alpha_2 \text{AM\%White}_{sj} + \alpha_3 \text{Urban}_{sj} + \alpha_4 \text{Rural}_{sj} + (\gamma_j +) \varepsilon_{sj} \quad (1)$$

The first four columns include only states that have no personal finance policies. Columns (1) and (2) show that schools with above median students of color are 13 and 14 percentage points less likely to be in a school with a personal finance standalone course requirement or a school where personal finance is required at all. While there is no
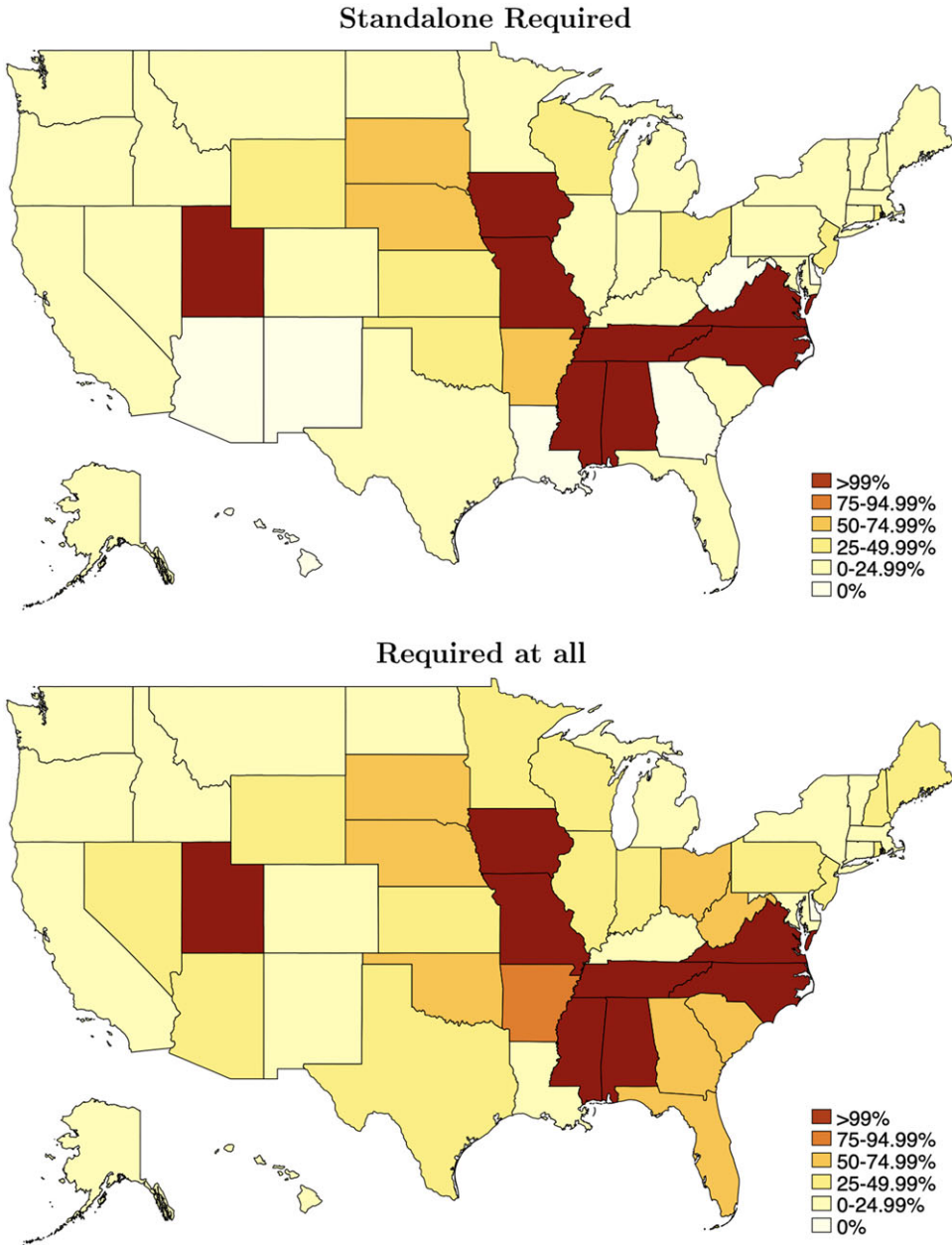
Figure 3. Maps of financial education requirements across America.
Notes: Percent of students in states with standalone personal finance course requirements (top panel) and any personal finance content requirement (bottom panel).

difference in access based on school poverty levels after accounting for racial/ethnic differences, as well as geography, this is likely because rural students are more likely to have access to either school requirement than urban or suburban schools. Gagnon and Mattingly (2016) find that rural schools are less likely to offer advanced placement (AP) courses, which could potentially mean that rural schools are more likely to focus on courses related to life skills than college-level coursework.
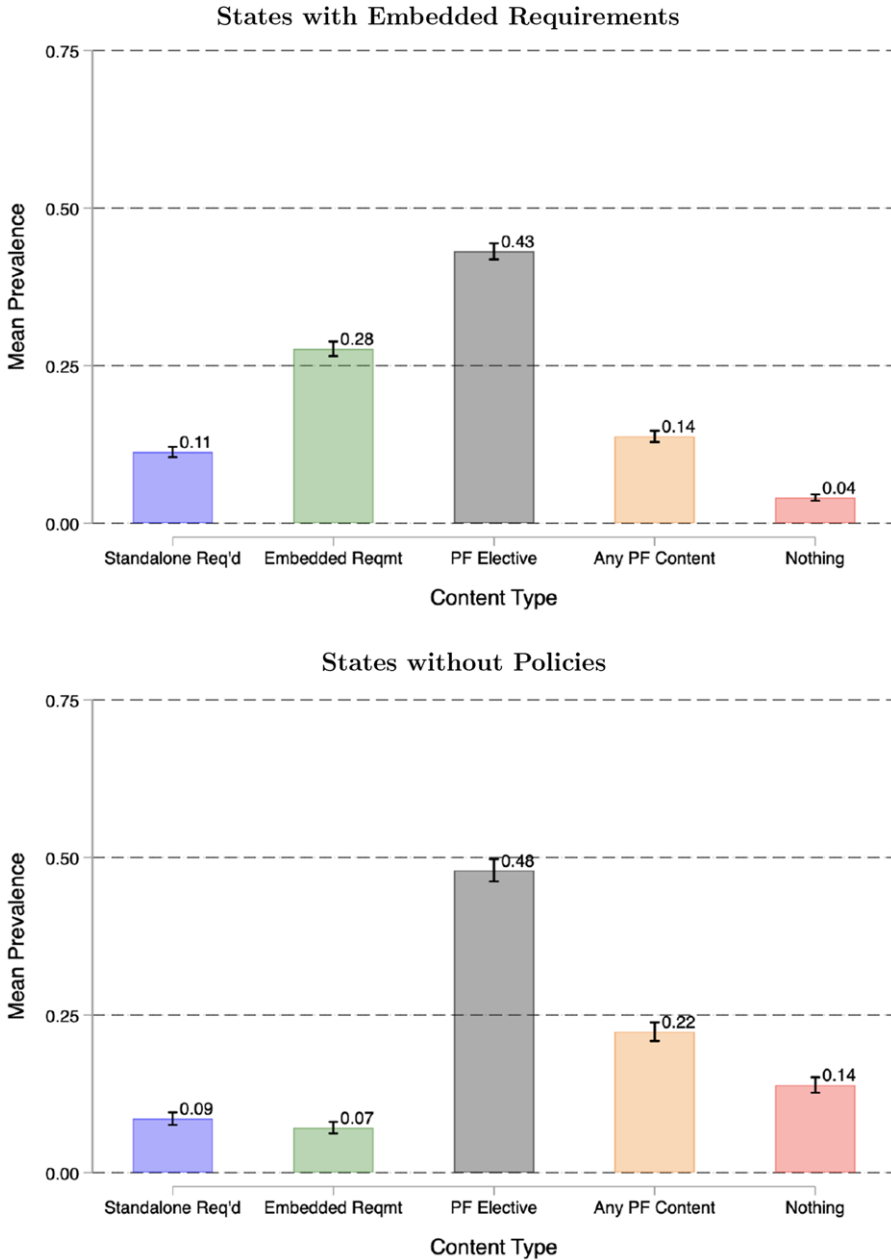
States with Embedded Requirements

States without Policies

Figure 4. Financial education standards by state policy in the 2022–23 academic year.
Notes: Each category is the maximum financial literacy standard in the school, making them mutually exclusive. Means reported with 95% confidence intervals.

We next refine the model to only make within-state comparisons in Columns (3) and (4). This tells us if the differences are more likely to be across states or within states. In these models, the lack of differences across school poverty remains, and the differences across rural and urban schools also remain. While schools with above median non-White populations still have less access, the magnitude of the association falls by a third.

Table 1. Predicting school financial literacy policies

	States without policies				States with embedded requirements			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	PF	Req'd	PF	Req'd	PF	Req'd	PF	Req'd
	Req'd	At All	Req'd	At All	Req'd	At All	Req'd	At All
53	0.011	0.011	0.002	−0.011	−0.025***	*0.023	0.007	0.006
FRPL	(0.011)	(0.014)	(0.011)	(0.015)	(0.009)	(0.014)	(0.009)	(0.016)
69 percent	−0.130***	−0.144***	−0.041***	−0.075***	−0.035***	0.013	−0.001	−0.007
White	(0.012)	(0.016)	(0.015)	(0.020)	(0.010)	(0.015)	(0.010)	(0.016)
Urban	−0.005	0.021	−0.014	0.006	−0.010	−0.060***	0.002	−0.041^******
	(0.012)	(0.016)	(0.012)	(0.015)	(0.011)	(0.016)	(0.010)	(0.016)
Rural	***0.047	***0.069	***0.042	***0.068	**0.022	0.001	**0.020	−0.004
	(0.013)	(0.017)	(0.013)	(0.017)	(0.010)	(0.016)	(0.009)	(0.015)
N	3064	3064	3064	3064	5730	5730	5730	5730
State FE	NO	NO	YES	YES	NO	NO	YES	YES

Notes: Coefficient estimates reported with standard errors in parentheses. *$p0.10$, **$p0.05$, ***$p0.01$. Each outcome variable equals 1 if the school had a standalone personal finance course requirement (odd columns) and any personal finance content required (even columns). Results for states without policies are depicted in the first four columns, and results for states with embedded requirements are in columns 5 through 8. 53 FRPL equals 1 for schools that have over 53 percent of students receiving free or reduced-price lunch; 53 percent is the median. 69 White equals 1 for schools that have fewer than 69 percent of students that are White, non-Hispanic; this is the median level, and the dummy represents schools with greater fractions of non-White populations. Urban and rural are dummy variables (the excluded group is suburban). Data are from the 2022–2023 academic year. Columns (3), (4), (7), and (8) include state-level fixed effects.

Columns (5)–(8) predict access in states that require personal finance content to be integrated into another class or content area. Columns (5) and (6) are the cross-state comparisons. In states with embedded requirements, students in higher-poverty schools have less access to standalone courses but greater access to any requirements. Columns (7) and (8) show that these differences disappear when we only make within-state comparisons. Schools with above median proportions of non-White students are 3.5 percent less likely to have a standalone personal finance course requirement; this does not hold up to within-state comparisons (Column (7)). While students in rural areas are more likely to have access to standalone personal finance guarantees, the magnitude is less than half that in states with no policies.

Overall, embedded state policies reduce the inequities in access that exist when no state policy exists, though some inequities based on geographical area still remain.

4. Networks

The decentralized nature of high schools in America gives local schools flexibility to choose their own courses of study–within state limitations. We next analyze the extent to which schools are influenced by their geographic neighbor schools when choosing personal finance course offerings and requirements.[5,6]

To build our network measures of each high school's peers, we begin with the physical address of each school from the NCES data. We then develop a distance matrix between each school within a given state. That is, for each pair of schools within the same state, we calculate the geodesic distance between the physical addresses of these two schools. We create two measures of "neighbors" based on a 10-mile and 20-mile radius. On average, schools have 12 neighbors within a 10-mile radius. However, not all neighbor schools have online course catalogs. The average school has seven neighbors with online course catalog data in a 10-mile radius. From the course catalog data, we code the maximum requirement/ offering in each school from most to least rigorous as follows: standalone requirement (Category 1), embedded requirement (Category 2), standalone offering (Category 3), embedded offering (Category 4), and no requirements or offerings (Category 5).

In Figure 5, we display an example state for the 20–21 AY: Maryland. Each color represents a different policy, and the size of the circle represents the student enrollment size in the school. There are clear geographic clusters in the policy choices of schools. In Maryland, the colored bunching is clear. The schools with standalone requirements (green) are clustered near the north-central, south-central, and western parts of the state. It is rare to see one standalone course requirement without more schools in the area having the same policy. Schools with embedded requirements (orange) are at the southern tip of the state, and a large cluster of central schools offer but do not require a standalone course in personal finance.

We use our data on school-level policies to see how schools are influenced by peer personal finance course decisions. Our main independent variable is whether or not any school in a 10-mile radius has a Category i policy and 0 otherwise.[7] For robustness, we also use the 20-mile radius measure and a measure that captures the fraction of schools in the given radius with Category i policy. We use 19–20 AY neighbor policies for our main

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[5] For more details on this analysis, see an earlier and more extended explanation in Luedtke and Urban (2021).

[6] A small set of papers that studies the decisions of schools relative to their peers. Acton et al. (2022) show that colleges looked to their peers when deciding how to offer classes in Fall 2020 in the face of the Coronavirus pandemic. We focus on the context of peer influence on high schools rather than on colleges and universities. To the best of our knowledge, only one other paper does this: Anglum and Park (2021) study school district-level decisions in determining 4-day school week policies in Missouri.

[7] We show our baseline results in table format in Table A2.
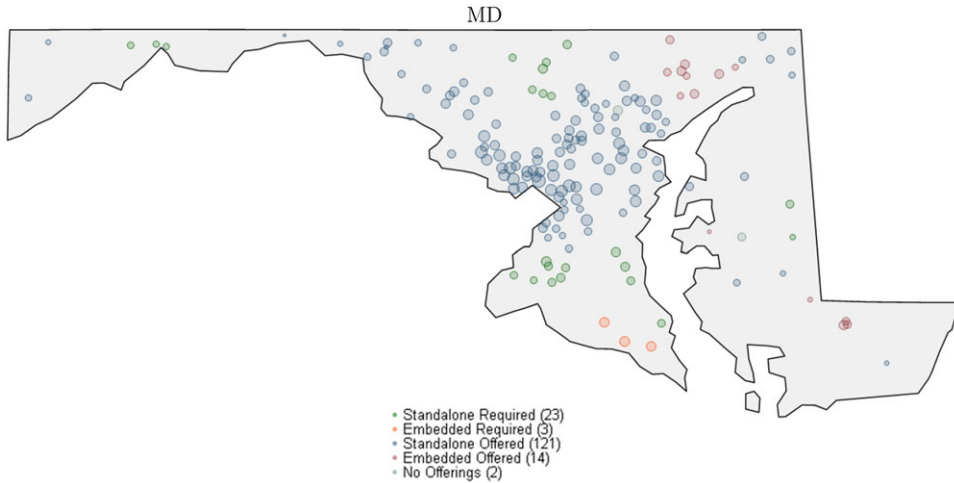
Figure 5. Examples 2020–2021.
Notes: This figure displays one example state: Maryland. The colors represent categories of curriculum, and the size of the dots indicate student enrollment.

independent variable and 20–21 AY own policies for our main dependent variable of interest. This means that intuitively, we are comparing those with neighbors that have no different sets of personal finance policies and those with either no neighbors or no neighbors with a specific personal finance policy. Our baseline model is Equation (2). The dependent variables are each a dummy variable representing whether or not school j in state s and academic year t had maximum standard Pi, where we have five separate dependent variables for all five standards. $C1_{j,s,t-1}$ through $C5_{j,s,t-1}$ are dummy variables equal to 1 if any neighbor school has a category i policy and 0 otherwise. While we report the coefficients on all α_1 through α_5, the coefficients on the categories that match the dependent variable's category are of most interest. For example, when P1 is the dependent variable, we are most interested in the α_1 coefficient:

$$Pi_{j,s,t} = \alpha_0 + \alpha_1 C1_{j,s,t-1} + \alpha_2 C2_{j,s,t-1} + \alpha_3 C3_{j,s,t-1} + \alpha_4 C4_{j,s,t-1} + \alpha_5 C5_{j,s,t-1} + \gamma_s + \varepsilon_{j,s,t}$$

(2)

In a second specification, we include controls, including the number of total neighbors, student:teacher ratios, expenditures per pupil, the fraction of Black students, the fraction of Hispanic students, the fraction of White students, the fraction of students receiving free or reduced-price lunch, median household income, median home values, and dummies for rural and urban areas (where the excluded group is suburban) from NCES' Common Core of Data.

We also replicate all of our measures with a 20-mile radius rather than a 10-mile radius. For our main results, we run a linear probability model for ease of interpretation. We cluster our standard errors at the state level since states have unique educational policies.

In Figure 6, we plot the coefficient that matches the dependent variable. We first plot the baseline from Equation (2) (blue triangle), then a specification with control variables for local demographic and economic characteristics and the number of neighbors (orange diamond), dropping the states transitioning to new mandates (green circle), and instead using neighbors within 20 miles (Black x). Results remain consistent across specifications. It appears at first that the relationship is strongest for Category 3 – having a full-semester personal finance elective. However, as a percentage of the total schools in 19–20 AY with that maximum standard (4), this association represents 35.7 percent of the mean. In
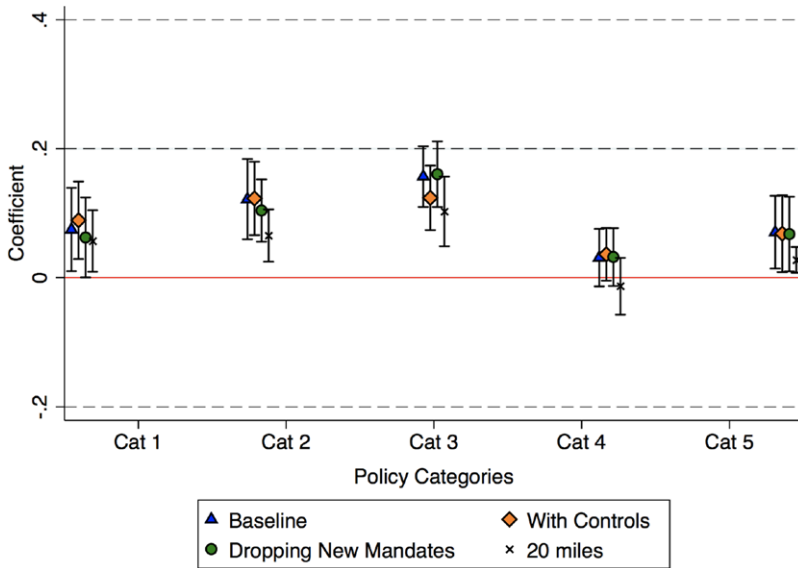
Figure 6. School policy choices based on peer policies.
Notes: Coefficients reported from Equation (2), where each point is coefficient for the same category. Error bars represent 95% confidence intervals. Cat 1 is a standalone required class; Cat 2 is an embedded required class; Cat 3 is a standalone elective; Cat 4 is an embedded elective; Cat 5 is no offerings. Baseline regressions control for all other categories, with the excluded group being whether or not any neighbors within a 10-mile radius have no data observed (e.g., they have no online course catalogs).

contrast, the relationship for Category 1 having a standalone course requirement represents 57.3 percent of the mean level in 19–20 AY.

Throughout all specifications in Figure 6, we see no relationship between having a neighbor with a maximum standard in Category 4 and a school's own choice of Category 4 – an elective embedding personal finance into another course.

The results point to a network effect in personal finance instruction, where neighbors influence peers' decisions. To try to gauge more of where our effect is coming from, we consider the difference between schools in urban areas and rural areas. We suspect that there may be more interaction among schools in more dense areas and perhaps more collaboration than in more rural areas.

Figure 7 shows the effects for what we label as city schools in the top panel and rural schools in the bottom panel. Indeed, the correlation between peer personal finance choices and own personal finance choices is larger in city schools than in rural schools. However, this could be because rural schools are more likely to implement on their own and may be less influenced by their peers.

This research indicates that high schools are influenced by (and potentially working with) their neighboring peers when making important policy decisions. Above and beyond being subject to similar local regulations, schools appear to be influenced by and collaborating with schools that they are connected to. This effect is largest among schools in urban areas, potentially because word of mouth and connections to other local educators may be strongest. These findings suggest that targeted policy interventions can be made more efficient by implementing them in hub high schools, that is, schools that are connected to many other schools. Understanding the extent to which high schools are influenced by their neighbors will allow policymakers to implement more efficient financial education policies.
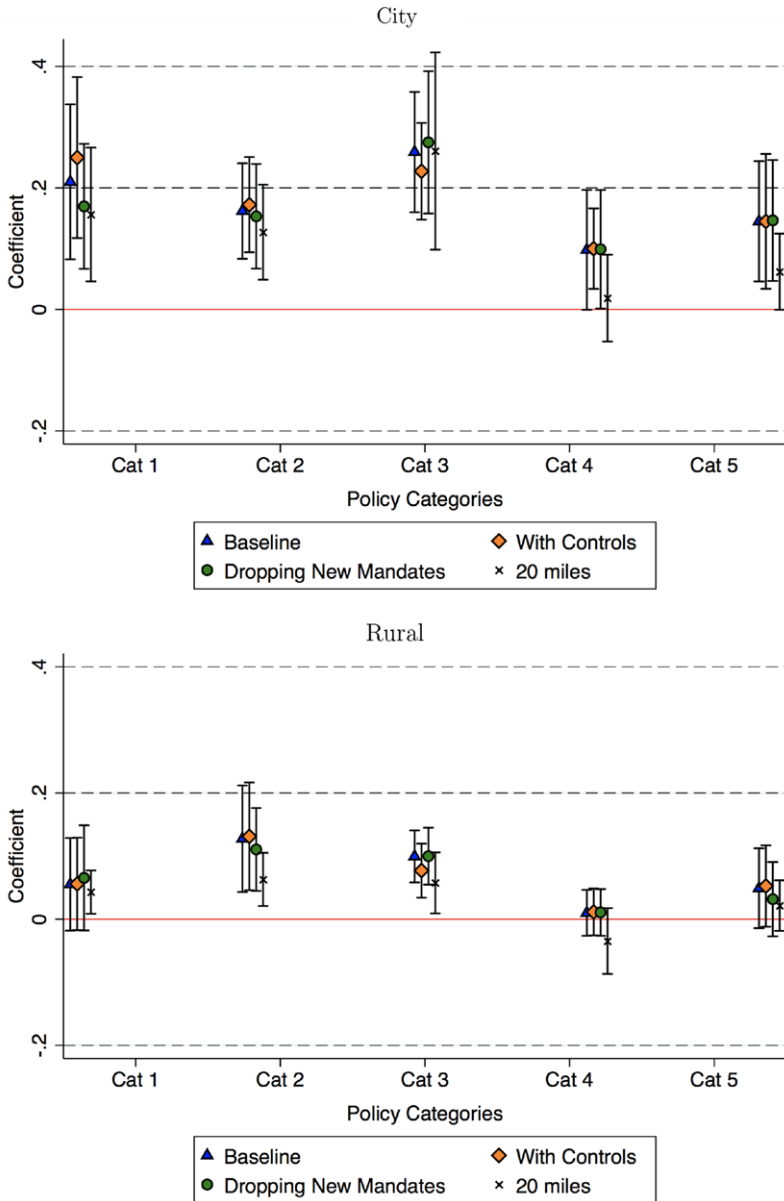
Figure 7. Heterogeneity: City vs. rural schools.
Notes: Coefficients reported from Equation (2), where each point is coefficient for the same category. Error bars represent 95% confidence intervals. Cat 1 is a standalone required class; Cat 2 is an embedded required class; Cat 3 is a standalone elective; Cat 4 is an embedded elective; Cat 5 is no offerings. Baseline regressions control for all other categories, with the excluded group being whether or not any neighbors within a 10-mile radius have no data observed (e.g., they have no online course catalogs).

5. Timing of policy changes

How are statewide personal finance guarantees – requirements that students complete a full semester of personal finance prior to high school graduation – implemented? Understanding implementation is an important component of determining the causal effects of state policies. Rarely do states go from 0 to 100 percent compliance in one year, though it is possible. Similarly, including years just before the requirement went into place
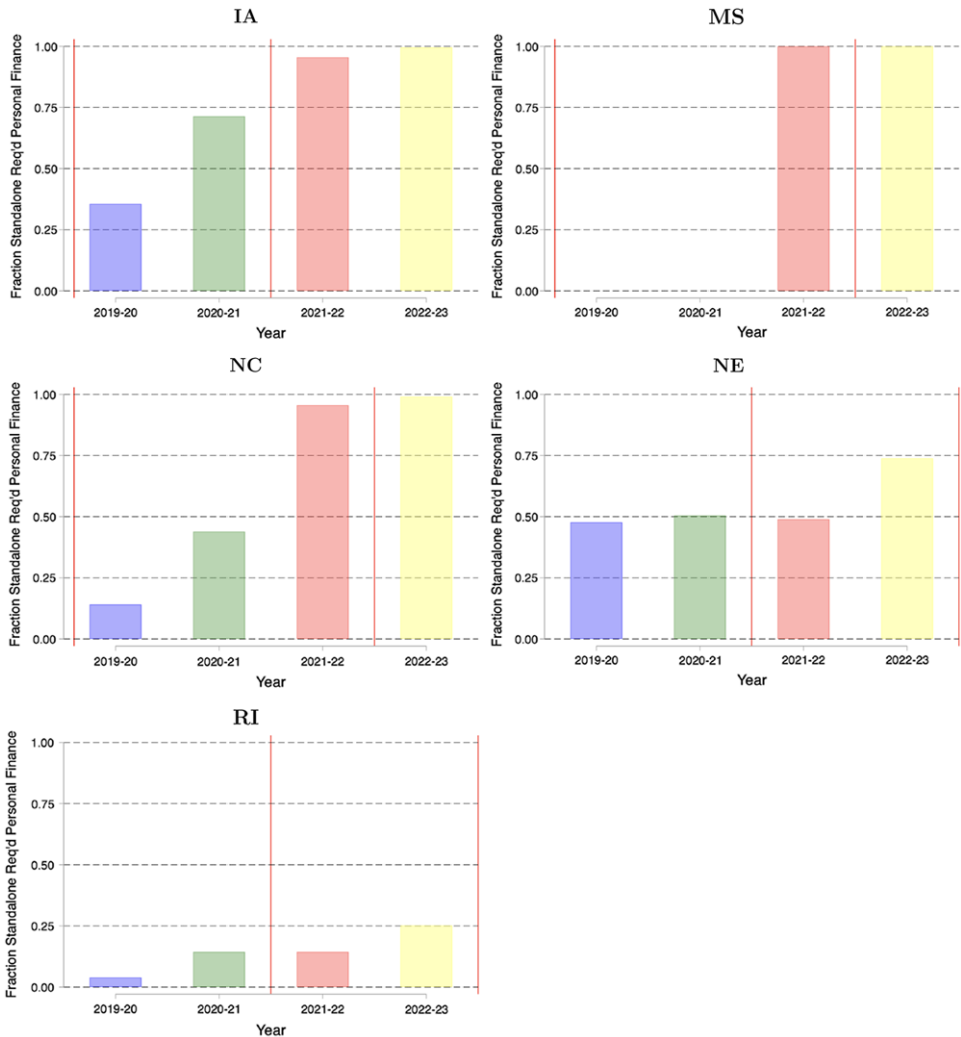
Figure 8. State guarantee policy transition examples.

Notes: The first line represents the year the policy was announced and the second line represents the year the first graduating class was required to complete a standalone personal finance. NE and RI requirements will begin with the graduating class of 2024.

may end up treating the control group in a way that understates effects. We explore five states that passed and began implementing these policies over the sample period. Three of these states fully implemented their guarantees (IA, MS, and NC) by 2023, and two are still in the implementation process (NE and RI).

Figure 8 shows the variation in implementation. In each plot, the first red vertical line represents the year the policy passed, and the second one represents the first graduating class required to complete a full semester of personal finance. In both Iowa and North Carolina, over half of schools implemented the policy in the year preceding the first graduating cohort's requirement. This suggested that the rollout was stepwise. However, Mississippi went from virtually no students to all students being subject to the requirement. The difference is likely because Mississippi did not change its policy through legislative efforts but through administrative rule in the Department of Education. Further, it put personal finance into half of a specific year-long class called College and

Career Readiness. While students had access to this course prior to the requirement, not a single student was required to complete it prior to the state-determined first graduating cohort.

Nebraska and Rhode Island are currently in the process of implementing their recent graduation requirements that will go into effect in the next few years. While Nebraska has reached nearly 75 percent of students in schools with guarantees, Rhode Island has just surpassed 25 percent.

Taken together, these results suggest that there is not one specific model for implementing personal finance guarantees in high school, and there is likely to be heterogeneity across states.

5.1. Implications for research

Many empirical studies in social science – especially economics – rely upon quasi-experimental methods to detect the causal effects of policies. These quasi-experimental methods often hinge on comparing a treatment and control group before and after a policy went into effect, referred to as a difference-in-difference strategy. This method is particularly popular among studies in the United States estimating the effects of required personal finance education state policies on credit, debt, and schooling outcomes. The findings from these studies rest upon several assumptions about the timing of and the actual take-up of policies locally. The local course catalog data can help to inform the relevance of these assumptions and how they may affect the magnitude of effects in causal studies.

The implementation of personal finance coursework is not perfect, which can understate the effectiveness of personal finance education. Because states without personal finance education policies still contain schools that require personal finance coursework locally, researchers may report a dampened effect of the policy on financial outcomes. Recall that in states where personal finance is required within another subject, only 39 percent of students are in schools where personal finance content is required. Since slippage exists in these states, an intent-to-treat (ITT) estimate will accurately state the effect of the policy, while a treatment-on-treated (TOT) estimate will instead produce the effect of financial education on outcomes.

Being explicit about the difference between ITT and TOT estimates remains important for the implications of research. For example, Stoddard and Urban (2020) find that requiring financial education in high school coursework increases the likelihood a first-time four-year student has a grant by 3.3 percentage points. While that is the effect of the policy (the ITT estimate), the education is likely to be 2.5 times more effective (the TOT estimate) once we account for the lack of implementation in some schools – an effect size of 8.25 percentage points. Further, Harvey (2020) finds that requiring personal finance education in high school reduces the use of payday loans by 3.9 percentage points (the ITT estimate). Scaling the ITT estimate up to account for the lack of universal take-up suggests that education could have reduced payday lending by 9.75 percentage points (the TOT effect). These TOT effects are more easily comparable to other large-scale randomized-controlled trials where schools randomized into the treatment group implemented some level of financial education, such as Frisancho (2020, 2023a, 2023b). Being clear about the take-up of policies – and which schools are being left behind – remains a critical part of financial education research.

Further, anticipatory effects, such as those in North Carolina, Iowa, and Nebraska, could also dampen causal estimates by shifting some schools to treatment status before the researcher counts them as "treated." Using a donut approach that omits years between policy announcement and policy execution would help to more cleanly estimate the effects.

An additional potential concern brought to light by recent research on two-way fixed-effects methods is that comparing always-treated to newly treated states or already-treated to newly treated states can bias estimates (Goodman-Bacon, 2021). Recent research in Urban (2023) shows that 95 percent of the variation comes from a comparison of newly treated and never-treated states when looking at guarantee states and never-treated states.[8] Further, early states could have cumulative effects that made them bad comparisons (Callaway and Sant'Anna, 2020; Sun and Abraham, 2020). However, early financial education graduation requirements had fewer resources devoted to them and were likely less effective than more recent graduation requirements. Early states may also be a bad comparison since their personal finance content was in a different form and more likely to be housed within a consumer economics course. For robustness exercises and in an abundance of caution, researchers should drop early implementers or use methods developed by Sun and Abraham (2020); Callaway and Sant'Anna (2020) to make sure results remain consistent.

6. Conclusions

Financial education in US high schools has expanded dramatically in the last four years. In addition to the number of states adding guarantees going from five to over 15 since 2019, schools are acting independently to increase access. In the 2022–2023 academic year, 2,633,919 students were enrolled in schools where a standalone personal finance course was required.

Many factors help to predict access to financial education: rural schools are more likely to have required personal finance; schools with higher fractions of non-White students are less likely to have required personal finance; schools with close geographic neighbors are more likely to adopt the personal finance coursework of their neighbor, particularly in urban areas.

Continued research should use these data to look at how access to school-based financial education affects downstream outcomes. Ideally, pairing these data with state administrative academic data could shed light on who takes personal finance courses when they are offered but not required. Does this selection further disadvantage students from underserved backgrounds?

Researchers now have more information on local-level policy implementation that can inform causal estimates of the effects of financial education graduation requirements on outcomes. The data allow researchers to go beyond ITT measures to calculate TOT.

One other important avenue for future research would be to document access to low-cost financial services, such as banks and credit unions, in conjunction with personal finance courses. Students who have no access to important financial services may be limited in their ability to implement what they learn in financial literacy coursework.

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[8] For more on Bacon decompositions in embedded requirement states, see Urban (2023).

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Appendix

Table A1. Selection into course catalog data

	No online Course catalog	Has online Course catalog	All
Student:teacher ratio	14.0	15.7	15.2
	(17.7)	(7.00)	(11.4)
Expenditures per pupil	15,575	15,501	15,523
	(12,707)	(18,216)	(16,765)
% Black	18.2	10.6	13.0
	(27.5)	(18.1)	(21.8)
% Hispanic	22.5	18.0	19.4
	(27.9)	(21.8)	(24.0)
% White	50.7	62.3	58.7
	(36.2)	(30.1)	(32.6)
% FRPL	56.1	41.1	45.9
	(28.1)	(24.4)	(26.6)
Median HH income	50,695	64,271	59,945
	(18,977)	(25,361)	(24,351)
City	0.236	0.181	0.199
	(0.425)	(0.385)	(0.399)
Rural	0.629	0.660	0.650
	(0.483)	(0.474)	(0.477)
Median home value	192,629	221,087	212,035
	(199,712)	(174,310)	(183,247)
	5,063	10,853	15,916

Notes: Means reported with standard deviations are in parentheses. The first column includes schools where course catalogs were not available online in the 2022–2023 academic year, and the second column includes schools in our dataset.

Table A2. Regressions with full coefficients, baseline

	(1)	(2)	(3)	(4)	(5)
	Cat 1	Cat 2	Cat 3	Cat 4	Cat 5
Lead model					
Any Cat 1 schools in 10 miles	**0.0703	−0.0700***	0.0257	−0.00875	−0.0172**
	(0.0318)	(0.0188)	(0.0319)	(0.00989)	(0.00835)
Any Cat 2 schools in 10 miles	−0.0303*	***0.121	−0.0550***	−0.0114	−0.0241**
	(0.0177)	(0.0307)	(0.0156)	(0.00895)	(0.0101)
Any Cat 3 schools in 10 miles	−0.00687	−0.0707***	***0.156	−0.0535***	−0.0251***
	(0.0176)	(0.0237)	(0.0233)	(0.0118)	(0.00685)
Any Cat 4 schools in 10 miles	−0.0229**	−0.0137	0.00573	0.0318	−0.000828
	(0.0103)	(0.0101)	(0.0184)	(0.0219)	(0.00921)
Any Cat 5 schools in 10 miles	−0.0215***	−0.0432	−0.00362	0.0000352	**0.0683
	(0.00783)	(0.0263)	(0.0460)	(0.0192)	(0.0277)
Observations	7545	7545	7545	7545	7545

Notes: This table presents our main results. The dependent variable in all columns is an indicator variable equal to 1 if a school has the particular personal finance standard and 0 otherwise. Having one more neighbor within 10 miles with that standard is associated with an increase of between 7 and 16 percentage points in the likelihood of having that standard. Robust standard errors clustered at the state-level are in parentheses. *$p0.10$, **$p0.05$, ***$p0.01$.