Financial Education in High Schools America*

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1 Introduction

American teens are coming of age during extremely complicated financial times. With three-week unemployment claims reaching 16.8 million from March 20th through April 3, 2020, young adults seeing parents struggle will likely be interested in setting themselves up financially in a way that allows them to more comfortably absorb shocks.

Recent research estimating the causal effects of incorporating financial education into required high school coursework on financial behaviors has shown that this policy lever has promise. Specifically, requiring all high school graduates to complete some amount of financial literacy education increases credit scores and decreases default rates (Urban et al., 2018; Brown et al., 2016), lowers non-student debt (Brown et al., 2016), shifts student loan borrowers from higher to lower interest financing (Stoddard and Urban, 2019), improves student loan repayment (Mangrum, 2019), reduces payday lending (Harvey, 2019), and increases savings for some low-income households (Harvey, 2020).[1] While only 5 states required students to complete stand-alone personal finance courses prior to graduating from high school, additional states require that schools incorporate financial literacy standards into required curricula, others require schools offer a class that covers financial literacy, and other states are silent on financial literacy matters. This means that some schools are left to satisfy state requirements in a variety of ways, and others are completely free to decide which classes to offer and require.

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[1]There is an earlier literature that studies the effects of "personal finance mandates" in the 1950s-1980s did not affect outcomes. These policies were very low-touch, nearly always having very basic requirements, such as mentioning interest rates during any class.

Given the returns to financial education requirements can be quite high, understanding where financial literacy is offered and required across America is important. If only high-income and resource-rich school districts implement requirements, it could be that other lower-income populations are left behind. To the extent that financial education sets young adults on stronger financial footing, unequal access could ultimately result in greater income inequality.

After collecting data from all public school districts across America with online catalogs[2] to determine who has access to financial education, I determine if schools have standalone personal finance course requirements, course requirements where personal finance is embedded into a different subject, standalone personal finance course offerings, and course offerings where personal finance is integrated into another subject. The data collection process included a deep dive into each school's course offerings to consider when schools have no offerings that integrate personal finance concepts. I then categorize each school into its maximum standard in the following order: standalone requirement, embedded requirement, standalone offering, embedded offering, and no offering or requirement. I choose this ordering, since requirements are binding for all students, whereas offerings are available to those who select into them. Further, Stoddard and Urban (2019) find that there is no causal effects of offering personal finance courses on student loan decisions, whereas requiring personal finance, even if it is embedded in another course, improves student loan borrower decisions.

Second, I explore how school characteristics differ across those who require, offer, and do not have any personal finance in their course options. I do this both descriptively and controlling for school-level and local area-level demographic, economic, and policy variables.

Seventeen percent of U.S. schools with online course catalogs require students to complete a course in personal finance prior to receiving a high school diploma. When excluding the five states whose policies mandate the standalone course requirement, that number falls to 12% of schools. An additional 18% of schools in non-mandate states require students to complete a course that includes—but is not entirely focused on—financial literacy concepts. Forty-five percent of schools in non-mandate states offer a standalone personal finance course, and 18% of schools in non-mandate states offer a class that includes–but is not entirely focused on—financial literacy topics. Seven percent of schools have no financial literacy content in their course catalogs.

There are four main takeaways from the report. First, there appear to be some demographic and economic differences across schools' maximum financial literacy standard. For example, schools with standalone requirements tend to serve a population that is

[2]Future iterations of the data will include a random sample of schools without course catalogs that will be available, once schools re-open and respond to data requests.

predominantly non-Hispanic White, has lower house prices, and has lower poverty rates, whereas schools without any requirements tend to serve a population that has a higher fraction of students identifying as Hispanic, has higher house prices, and has higher poverty rates. Once I account for whether or not the school is in an urban, suburban, or rural area, as well as controlling for all of these factors at once, none of them become meaningfully predictive of school financial literacy courses.

Second, school resources matter. In predictive models accounting for demographic and economic variables, school-level student-teacher ratios remain statistically and economically meaningful correlates of course requirements and offerings. Higher student-teacher ratios are associated with lower likelihoods of standalone course requirements and standalone course offerings; higher student-teacher ratios are also associated with higher likelihoods of a school providing no course offerings or requirements.

Third, math standardized test scores are a strong predictor of standalone course requirements and offerings, while English/language arts standardized test scores are not. School districts with higher 8th grade math scores from Spring 2016—so scores for those who are in high school now–are more likely to have standalone course requirements and standalone course offerings. The magnitude is large: a one-tenth of a standard deviation increase in math scores is associated with a 0.6 percentage point (or 5%) increase in the likelihood of having a standalone course requirement. This could suggest that those schools with strong math performance already are most interested in training their students to excel in personal financial management. Since math education and financial literacy education are complementary, this could result in teaching those who are most skilled.

Fourth, state policies matter. While 5 states require the class of 2020 to complete a standalone personal finance course prior to graduation, an additional 17 require students to complete a different required course that incorporates financial literacy topics. States with standalone course requirements result in all high schools with standalone course requirements. However, there is some slippage in state-mandated embedded requirements: a state-mandated embedded requirement is associated with a 12 percentage point (or 70%) increase in the likelihood of embedded course requirements. This means there are some schools that may integrate financial literacy into a required course but financial literacy material is a small part of the course, as to not even make it into the course description. I find no evidence that the slippage occurs because schools within these states have higher maximum standards (standalone course requirements).

2 Data Collection

The main data from this project come from hand-collected data from 7,611 U.S. public high schools, including 14,255 hand-coded specific courses. These data are then supplemented with data on school characteristics, local demographic characteristics, and local economic characteristics. Each of these data sources are described below.

2.1 Process for Hand Collecting Data

This section documents the process for hand collecting financial education class offerings in U.S. public high schools.

The first step in the process was downloading the master list of public schools from the most recent school year at the time of initial data collection (August 2019), which was the 2016-17 dataset from NCES.[3] Next, to ensure that all students had full access to the schools, I 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." I exclude schools where no course catalog can be found.[4]

All school's websites on the master list were then hand searched for a course catalog and graduation requirements. If a catalog was not current (and it was still the only one on the website as of November 2019), I assumed the standards have 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.[5] The course was either specifically required, or classified 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 is also recorded and these schools are classified as having no offerings. At times, there were corse catalogs that did not include financial literacy (or typical classes that include financial literacy) but referenced electives that were not listed. I labeled these schools as missing, not as having "no requirements," as a clear distinction could not be made. If a standalone course in personal finance was listed in the course

[3] These data can be found here: `https://nces.ed.gov/ccd/pubschuniv.asp`.

[4] Future data will include a random sample of 50 schools without online course catalogs for each state. Due to the COVID-19 pandemic and concurrent school closures, responses from school districts has been extremely low. These data will be completed once schools re-open.

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

catalog but there was no further description of requirements, I coded it as an offering but not a requirement.

From this hand collected dataset I create school-level financial education course offering standards. I assign each school it's "maximum" standard using the following sequencing: Standalone requirement, embedded requirement, standalone offering, embedded offering, no requirements or offerings.

2.2 Auxiliary Data Sources

To determine the correlates of school course offerings, I collect supplementary data from three additional sources. I then merge these data to the hand-collected high school-level data.

First, I employ data from the U.S. Department of Education's NCES Non-Fiscal School Survey.[6] Relevant to this study, these school-level data include: student-teacher ratios, the fraction of students eligible for free and reduced-price lunch, and student demographic characteristics (e.g., percentages by race). NCES data also include indicators for the geographic area each school is located in.[7] The data are categorized into 4 major groupings: city, suburban, town, and rural. For the analysis, I group town and rural into one category, as both represent more remote areas. I additionally obtain NCES data on spending per pupil at the Local Education Agency (LEA), which is roughly the school district. [9] This will give a broader picture of the school district, providing a separate measure of resources than student-teacher ratios at the high school-level.

Second, I use data from the Stanford Education Data Archive (SEDA) for information on test scores across schools in America.footnoteThese data were downloaded from: `https://edopportunity.org/get-the-data/seda-archive-downloads/`. The SEDA data carefully re-scale within-state standardized tests to national standardized tests (the NAEP) in order to have a cross-country measure within a year, grade, and subject. These data include math and English/language arts (ELA) test scores from 8th graders in 2016, the most recent available data. The timing actually works out well, as those who were in 8th grade in Spring 2016 will still be in high school during the current 2019-2020 school year. However, the scores are from the years before they entered high school, so it explains who is most likely to have access to financial education, not the effects of financial education.[10]

[6]These data can be found here: `https://nces.ed.gov/ccd/pubschuniv.asp`. The 2017-2018 data are the most current version of the data available at the time of data gathering.

[7]These data are downloaded from the NCES.[8].

[9]These data are from the most currently available NCES Fiscal SY (2016-2017). They can be found here: `https://nces.ed.gov/ccd/f33agency.asp`.

[10]SEDA also provides excellent covariate data from the American Community Survey's 2012-2016 5-

Third, I obtain data from the American Community Survey (ACS) 2013-2017 5-Year Estimates at the ZIP code-level. Specifically, I use these data to account for local area: median household income, median house prices, the fraction of people living below the federal poverty line, homeownership rates, and unemployment rates.

3 The Geography of Financial Education Access

This section maps the fraction of students exposed to the different levels of standards across the country. I assign each high school to the highest level of standard (standalone requirement, embedded requirement, standalone offered, embedded offered, and no requirement or offering) and compute the fraction of students (within schools that have online course catalogs) in the state that are subject to that level of standard. Each category is mutually exclusive.

Figure 1 begins with the fraction of schools with standalone and embedded course requirements. By design, the states requiring standalone personal finance courses for high school graduation (AL, MO, TN, UT, VA) have rates of 100%. The states with the next highest fractions of students in schools with standalone requirements are Nebraska (48%), Wyoming (47%), New Jersey (41%), Oklahoma (41%), and Iowa (37%). Other than New Jersey, states with relatively higher percentages tend to be clustered in the central part of the country. Nine states (AK, DE, FL, GA, HI, LA, MS, NM, WV) and the District of Columbia have no schools with standalone course requirements.[11]

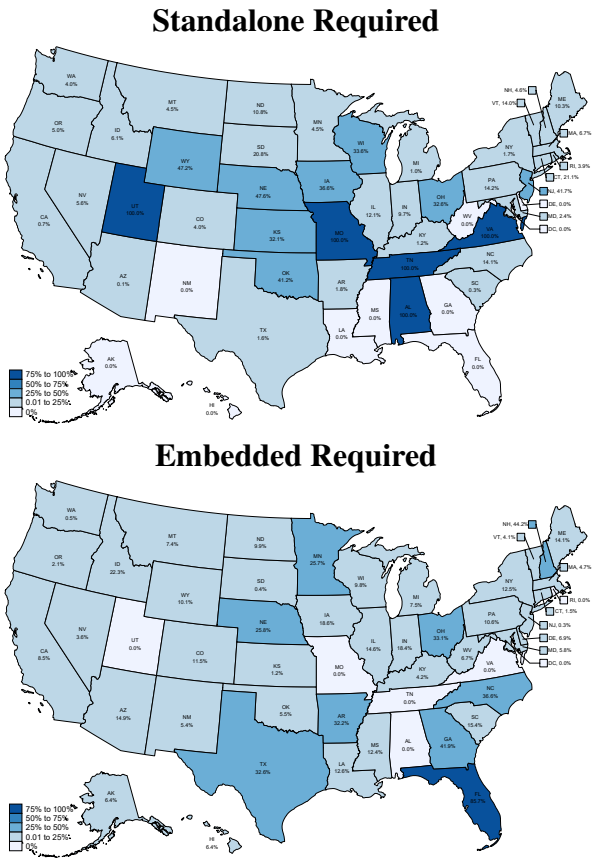
Next, I consider the fraction of students within each state for whom the highest standard in their school is a required class that includes—but is not predominantly focused on—financial literacy topics. Again, each category is mutually exclusive so these fractions do not include schools with standalone course requirements.[12] While 17 states require that schools implement financial literacy education into existing required courses, there could be some slippage in this graduation requirement. For example, schools could include financial literacy in a required course, but their course description may not explicitly mention any financial literacy material. This could mean it is not covered in depth or that it is simply not reflected accurately in the description. Another way these fractions may not reach 100 percent is if schools take it upon themselves to have a more stringent requirement (e.g., standalone course requirements). I do not find evidence in support of

Year Estimates. SEDA takes the individual level ACS data and creates LEA level measures of statistics based on the individuals and households residing in each unit. If I use these measures instead of the ZIP code-level measures from the 2013-2017 ACS, the samples become smaller but the overall findings remain consistent.

[11] Our data from DC only include five schools. Hence, this should be taken with caution.

[12] This is why all the states with standalone course mandates fall to 0%.

Figure 1: Maps of Financial Education Requirements Across America



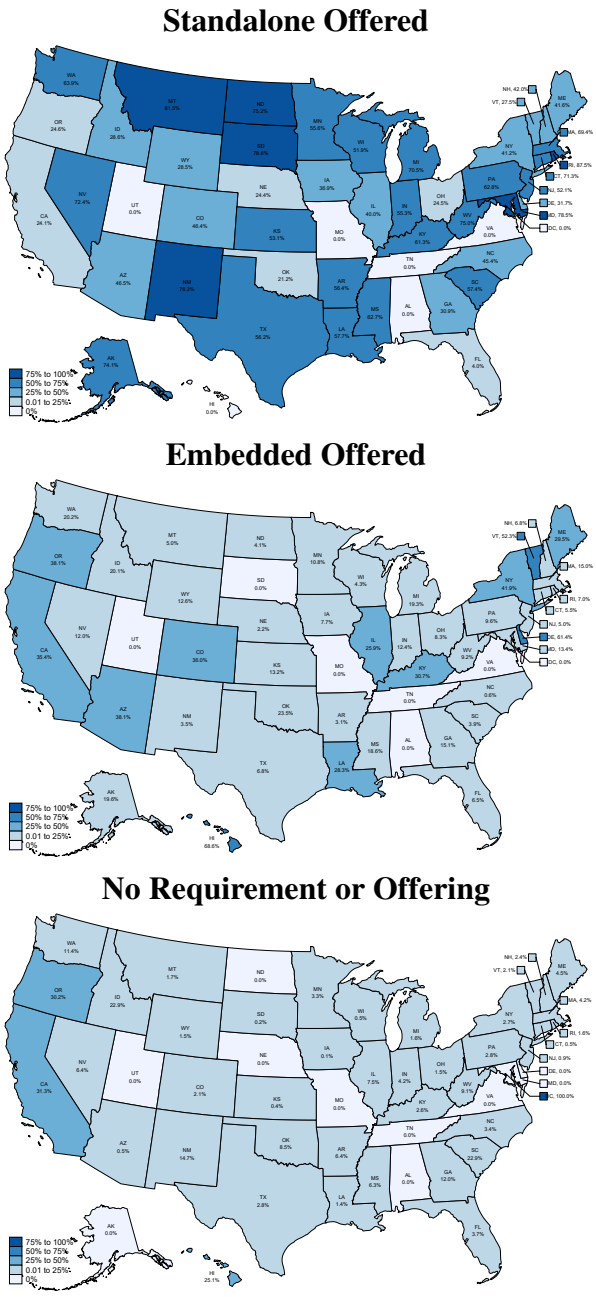
Notes: Each category is the maximum financial literacy standard in the school, making them mutually exclusive.

this possibility, as none of the 17 states with integrated course requirements sum to even close to 100 across these two maps.

In the bottom panel of Figure 1 Florida stands out: 86% of students must complete personal finance as part of a required course. I attribute this to the state policy: the graduating class of 2020 is required to complete an economics course that integrates personal finance topics to earn their high school diplomas. Beginning next year, Florida schools will now require a semester-long economics course that removes financial literacy.[13] Instead, Florida schools will be required to offer an elective in financial literacy. I thus expect the

[13]While the change was intended for the 2019-2020 school year, the policy was passed in May 2019, when course catalogs were likely already printed for the 2019-2020 academic year. Students likely already registered for classes at the time of the passage.

Figure 2: Maps of Financial Education Requirements and Offerings Across America



Notes: Each category is the maximum financial literacy standard in the school, making them mutually exclusive.

Florida fraction of embedded requirements to fall dramatically next year.

Other states where the highest fraction of students are subject to embedded requirements as their highest standards are New Hampshire (44%), Georgia (42%), Ohio (33%), Texas (33%), and Arkansas (32%). With a few exceptions, these are relatively clustered in the Southeast. It is also worth pointing out that Ohio has the highest combined required standalone and embedded course requirements of this group, where 66% of students are required to complete either standalone or embedded financial literacy instruction to obtain diplomas.

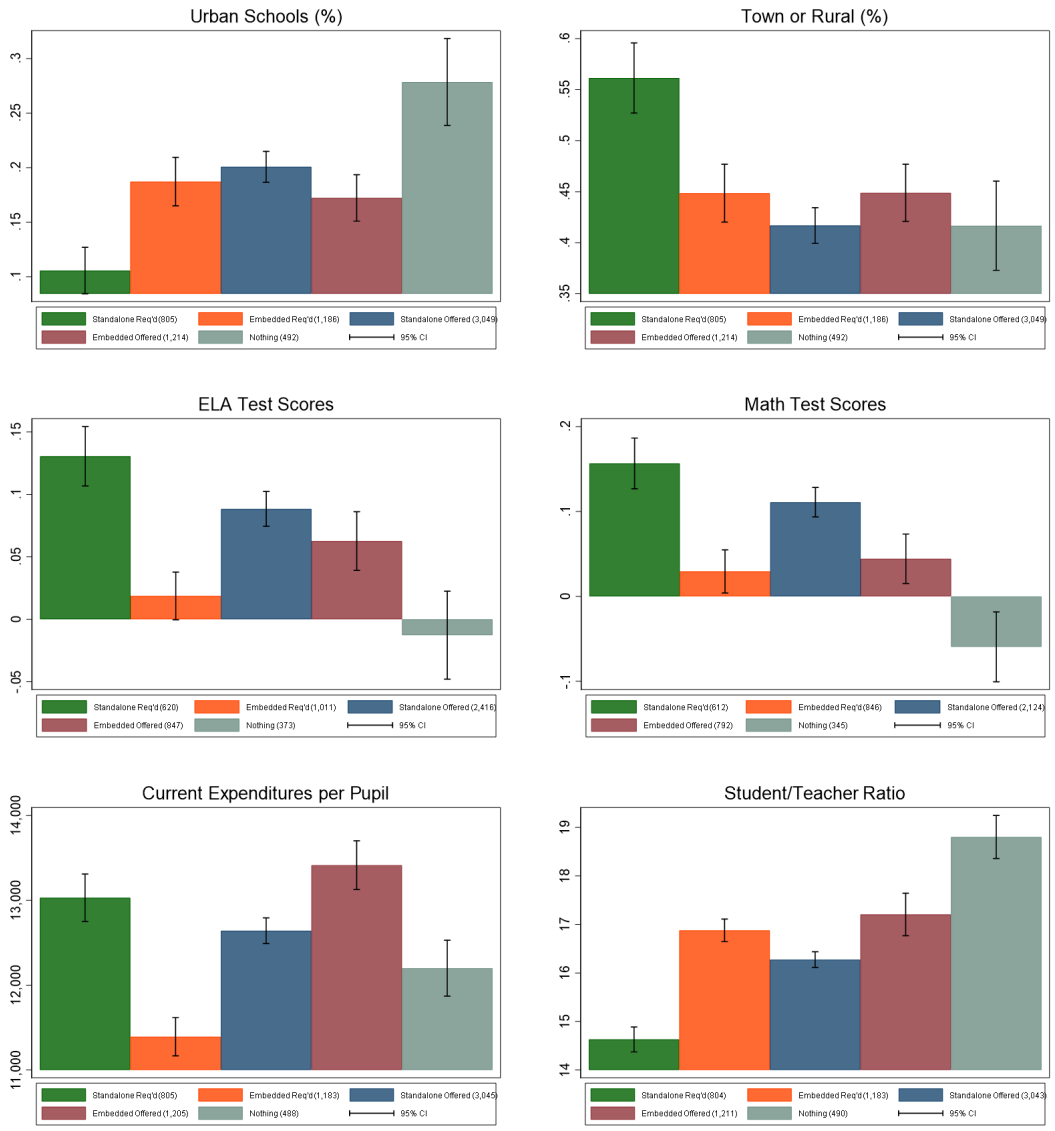
I continue by examining the fraction of students in schools where standalone and integrated offering of financial literacy electives but no requirements are in place in Figure 2. Offering a standalone elective in personal finance is the most common maximum standard, comprising 3,140 school, or 41% of schools within the sample. There are six states where over 75% of students within the state have access to a standalone course but no requirements: Rhode Island (88%), Montana (82%), South Dakota (79%), Maryland (79%), New Mexico (76%), and North Dakota (75%). There are three states where over 50% of students are not required to take financial literacy content and have no access to a standalone personal finance course but do have access to courses that embed financial literacy into another subject: Hawaii (69%), Delaware (61%) and Vermont (52%).

Finally, 31% of students in California schools and 30% of students in Oregon schools have no access to financial literacy courses.[14]

4 Do Local Characteristics Predict Access?

While seeing geographic patterns is indicative of the areas in which financial education access is prevalent, it does not tell us which specific school, demographic, and economic characteristics help predict which schools require or offer financial literacy education. In the following analysis, I exclude all states with mandates, as every school district within the state does not have a choice in adhering to the mandate. I continue with a sample of 6,746 school districts within all 45 non-mandate states and the District of Columbia. Note that sample sizes will change based on data availability for each outcome. These changes are noted in the legends of each figure.

Figure 3: Differences Across Offerings: School Characteristics



Notes: Means of the outcome across each category are reported with 95% confidence interval bars. Each category is the maximum financial literacy standard in the school, making them mutually exclusive. Urban and rural are dummy variables equal to one if the school is in an urban or rural area, respectively (the excluded group is suburban). Test scores are scaled to make national cross ELA test scores and math test scores.

4.1 Descriptive Differences

Beginning with simple descriptive patterns across the five categories, the clearest trend emerges in the first row of Figure 3. Nearly 28% of schools with no financial literacy offerings are located in urban areas, compared to 10% of schools requiring standalone courses. On the opposite end of the spectrum, 56% of schools with standalone requirements are in rural areas. This is substantially higher than all other categories, where only 42% of schools without any offerings are in rural areas.[15] These results should be interpreted with some caution, as rural areas with online course catalogs may be different from those without.[16]

The second row of Figure 3 illuminates an additional pattern: math and English/Language Arts (ELA) test scores are lowest in schools without any access to financial education. The trends are particularly stark for math, where school districts with standalone requirements have the highest scores. Since these are 8th grade test scores, before students enter high schools, I do not attribute the higher test scores to the policy. Instead, this trend indicates that the availability of financial literacy instruction is more likely to be present in areas where math scores are already high, creating a self-fulfilling prophecy. While ELA scores match the pattern of math scores, they have wider standard errors around the estimates, making them noisier. It will be important to make sure other correlates of the school districts are not contributing to these differences. Thus, I run more formal models controlling for school district income, housing values, and racial composition.

The third row of Figure 3 explores the way in which school resources relate to course access. There are not clear patterns in expenditures per pupil, though this could be due to the differences in costs across urban and rural areas, for example. However, lower student-teacher ratios (14.6 on average) are present in schools with standalone course requirements, and higher student-teacher ratios (18.8 on average) are present in schools with no offerings. Schools with embedded requirements or any types of financial literacy offerings have average student-teacher ratios in between the two (16.3-17.2 on average). Again, this could be correlated with the likelihood and cost of being in an urban versus a rural area, making more formal models accounting for additional area characteristics integral.

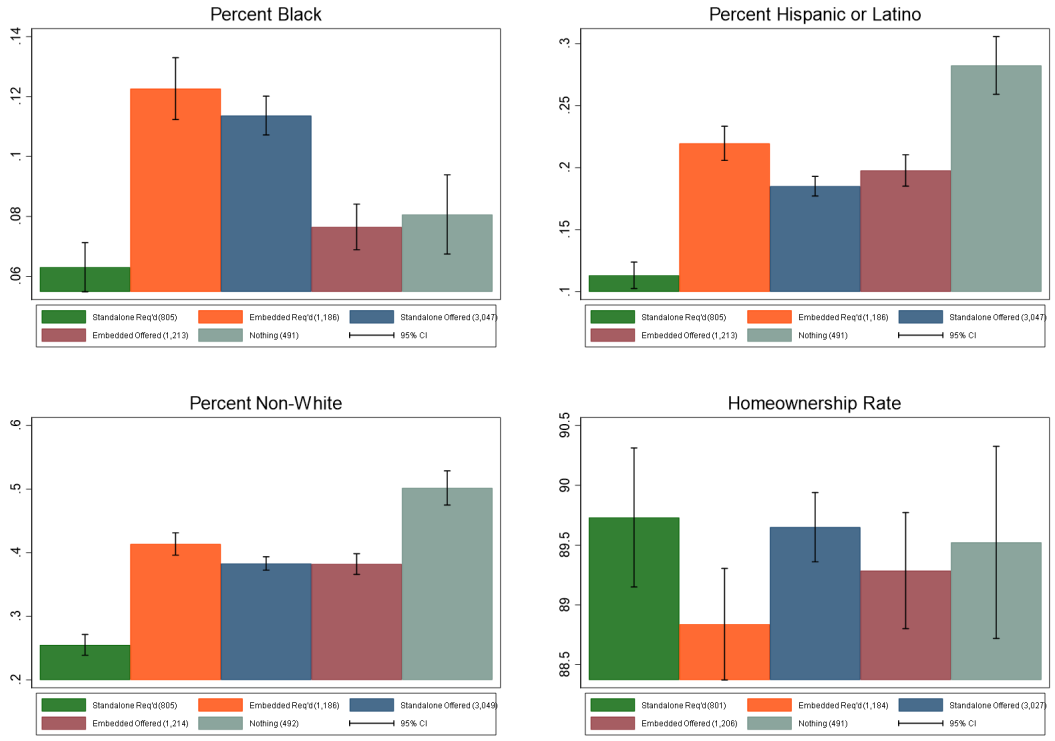
In addition to school-characteristics, I explore the differences across demographic characteristics in the area in Figure 4. There are notable differences across race: schools

[14]No students in the District of Columbia have access to financial literacy instruction in schools, though this only includes five schools for which course catalogs were available.

[15]These do not sum to one because schools can also be located in suburban areas. The fraction in suburban areas is the difference between 100 and the sum of urban and rural.

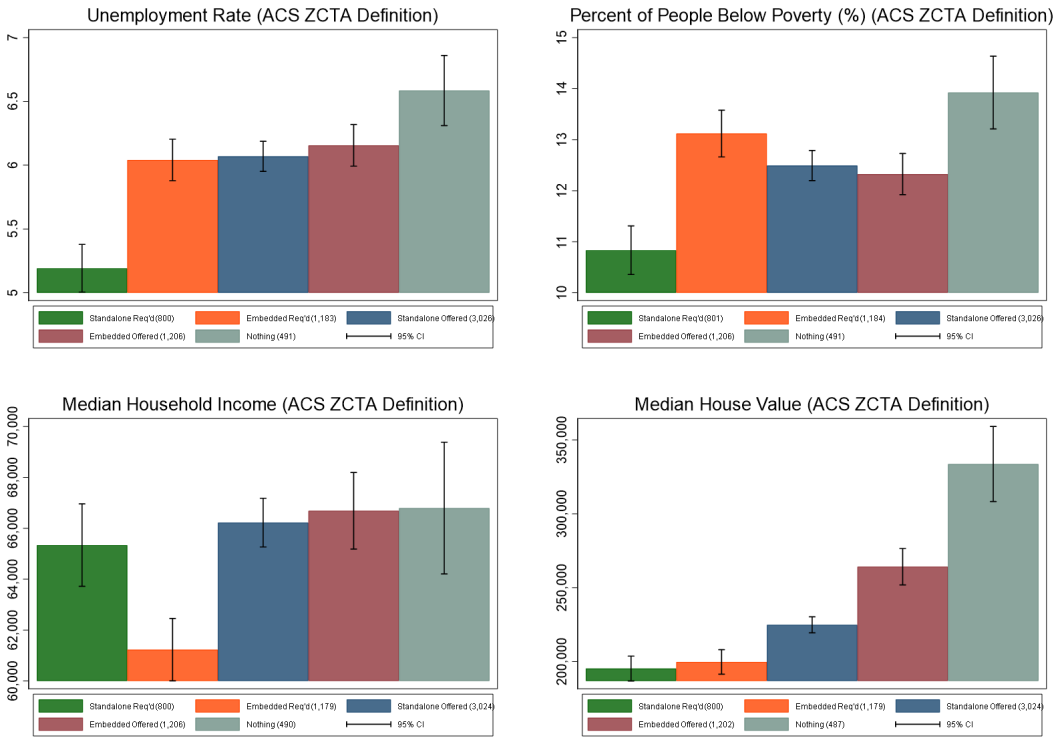
[16]For example, those rural schools that have resources to post online course catalogs may also have resources to require a standalone personal finance course. Rural schools without course catalogs may be missing from the data and not offer any financial education coursework.

Figure 4: Differences Across Offerings: Demographic Characteristics



Notes: Means of the outcome across each category are reported with 95% confidence interval bars. Each category is the maximum financial literacy standard in the school, making them mutually exclusive. Race and ethnicity represent the student population in the high school. Percent Black and Percent non-White are both additionally non-Hispanic (the excluded group is Percent White Non-Hispanic). Homeownership rate is the ACS 2013-2017 average for the ZIP code.

Figure 5: Differences Across Offerings: Economic Characteristics



Notes: Notes: Means of the outcome across each category are reported with 95% confidence interval bars. Each category is the maximum financial literacy standard in the school, making them mutually exclusive. Each measures is from the ACS 2013-2017 average for the ZIP code.

with standalone requirements serve students that are the least racially diverse. The average standalone requirement schools serve 6% Non-Hispanic Blacks, 11% Hispanics, and less than 25% total Non-Whites (including Hispanics), meaning for the average school district with standalone requirements 75% of the student population includes Non-Hispanic Whites. School districts with no offerings have the highest rate of Non-Whites (including Hispanics), nearly 50%, where 28% of students identify as Hispanic. Schools that include financial literacy within a required course and those who have a standalone personal finance elective have the highest representation of Black non-Hispanics (12% and 11%, respectively). There are no statistical difference in homeownership rates across categories.

Finally, I consider the relationship between economic characteristics and school offerings in Figure 5. While these correlates seem puzzling at first given the relationship in Figures 3-4, these highlight the importance of controlling for additional characteristics that are related to differences across urban and rural areas. Schools with standalone course requirements are in areas with lower average unemployment rates (5.2%) and a lower fraction of people below the federal poverty line (10.8%) than schools with no offerings, where average unemployment rates are 6.6% and the fraction of people below the federal poverty line is 13.9%. At the same time, there are no statistical differences in median household income across categories, and schools with standalone requirements are in areas with lower median house values ($195,000) than those with no offerings, where median house values are $333,000. While scholars generally find that better school districts are capitalized into house prices (see Nguyen-Hoang and Yinger (2011) for a review of this literature), this trend could simply be picking up the urban/rural divide across requirements. I dig into this further with formal models.

4.2 Predicted Differences in Course Availability and Requirements

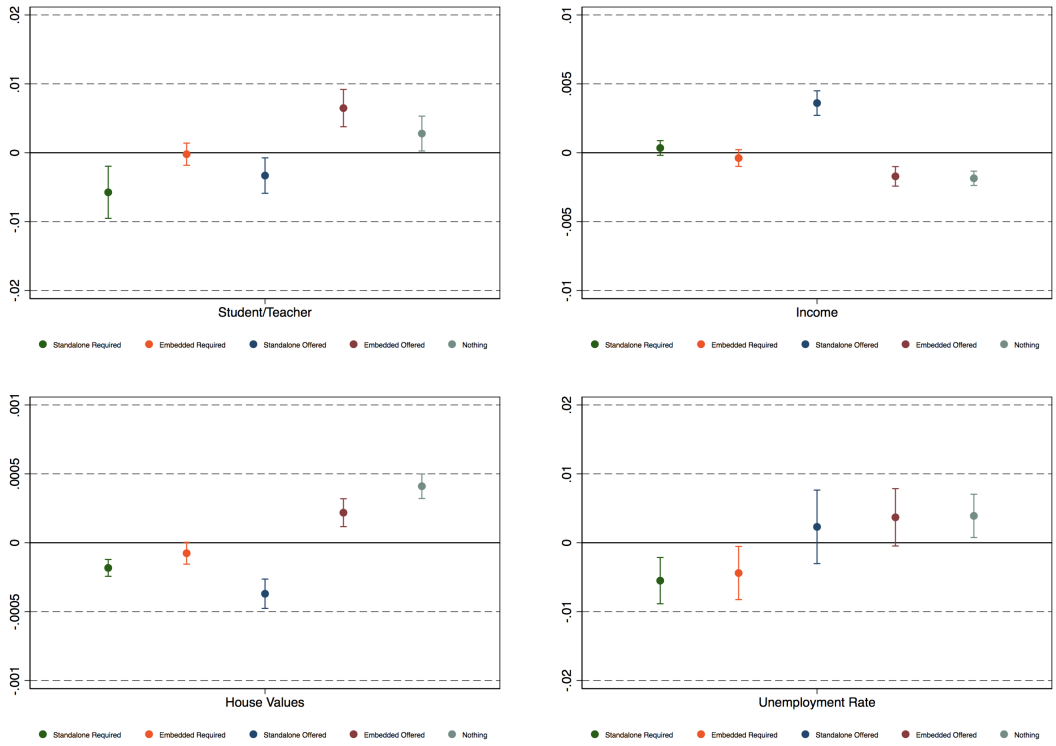
In this section, I estimate predictive models of the highest standard across groups categorized again as five mutually exclusive groups: standalone requirement, embedded requirement, standalone offering, embedded offering, and no offering or requirement (nothing). Since all control variables are not available for all schools and controlling for test scores reduces the sample by 2,504 schools, I begin with a model that retains the maximum number of schools (6,653) and controls for expenditures per pupil (in thousands of dollars), the school's student to teach ratio, an urban dummy, a rural dummy,[17] percent of non-Hispanic White in the area, percent of Hispanics in the area, percent of non-Hispanic Blacks in the area,[18] median household income (in thousands of dollars), percent of area families below the federal poverty line, median area house value (in thousands of dollars), and the

[17]The excluded group is suburban.

[18]The excluded group is the percent of non-White, non-Hispanic, other races in the area.

unemployment rate.

Figure 6: Predictors of Policies



Notes: Each estimate is from a separate regression where the outcome variable equals one if the school's maximum standard is the given category and zero otherwise. Coefficients reported with 95% confidence intervals around the estimates. I highlight only a few effect sizes, but the full model includes: expenditures per pupil, the school's student to teach ratio, an urban dummy, a rural dummy, percent of non-Hispanic White in the area, percent of Hispanics in the area, percent of non-Hispanic Blacks in the area, median household income (in thousands of dollars), percent of area families below the federal poverty line, median area house value (in thousands of dollars), and the unemployment rate. For the full results of every coefficient, along with sample sizes, see Table 1.

While these regressions are not to be interpreted as causal, they provide suggestive evidence of trends across categories. I highlight four key relationships that were present in Figures 3 and 5: student-teacher ratios, median household income, median house values, and unemployment rates. Figure 6 plots the correlation between each of the variables of interest and being in each of the categories, controlling for all the variables described above. The full results for all coefficients are in Table 1.

There are three key takeaways from Figure 6.

First, student-teacher ratios continue to be an important influence in whether or not the school requires or offers financial education. A one unit increase in the student-teacher ratio (or one more student in the average class) decreases the likelihood that a school has a standalone requirement by roughly 0.6 percentage points (or 5%). Student-teacher ratios do not correlate with whether or not a school has financial literacy embedded in a required class. A one unit increase in the student-teacher ratio (or one more student in the average class) is associate with a 0.3 percentage point (or 0.7%) decrease in the likelihood that a school offers a standalone course.[19] Finally, higher student-teacher ratios increase the likelihood that the school either offers an elective that embeds personal finance topics or does not have any offerings. These findings, taken together suggest that school resources, in regards to the teacher time available is an important factor in school's decisions to offer or require standalone personal finance classes.

Second, there is not a strong correlation between median household income and whether or not schools require either standalone or embedded personal finance content. Schools in higher income areas are more likely to offer standalone financial literacy classes, but the magnitude of the effect is small: a $1,000 increase in median household income is associated with a 0.36 percentage point (or 0.8%) increase in the likelihood of offering a standalone course. Similarly, schools in lower income areas are more likely to only offer electives incorporating financial literacy into other courses or not offer any courses, but these effects are again small: a $1,000 increase in median income is associated with roughly a 0.2 percentage point decrease in only offering or not offering any financial literacy courses (or 0.9% and 2%, respectively). Not only does household income play a relatively smaller rule in determining the school policy differences, Table 1 further shows that the local poverty rate is virtually uncorrelated with requirements. Further evidence still shows that the correlations with house values displayed in 6 are the reverse of income, albeit still very small in magnitude.[20]

Third, unemployment rates are correlated with school policies. Controlling for other area characteristics, a one unit increase in the unemployment rate is associated with a 0.5 percentage point (or 4.6%) decrease in requiring a standalone course and a 0.4 percentage point (or 2%) decrease in requiring a different course that includes financial literacy. At the same time, higher unemployment rates are associated with a 0.4 percentage point (or 5.7%) increase of not offering any financial literacy content. Why would schools drop requirements or offerings when local economic conditions are worse? This could suggest

[19] While the magnitude seems relatively similar to that of standalone requirements, 45% of schools have standalone offerings, while only 12% of schools have standalone requirements, making this a much smaller effect size.

[20] For example, a $1,000 increase in median house prices is associated with a 0.04 percentage point (0.6%) increase in the likelihood of having no course offerings.

that when local economic times are more challenging, it could be that schools are shying away from personal finance discussion, perhaps due to sensitivity of family job loss. Since unemployment rates are time varying due to external factors to the school specifics, this is something that will be important to track across years.

In a second model, I include all of the original controls, with three additional variables: math test scores, ELA test scores, and the fraction of students in the school qualifying for Free and Reduced-Price Lunch (FRPL). As a reminder, I lose 2,504 schools in this specification due to the availability of the test score data. While there are no clear patterns in the fraction of students receiving FRPL, test scores paint an interesting picture.

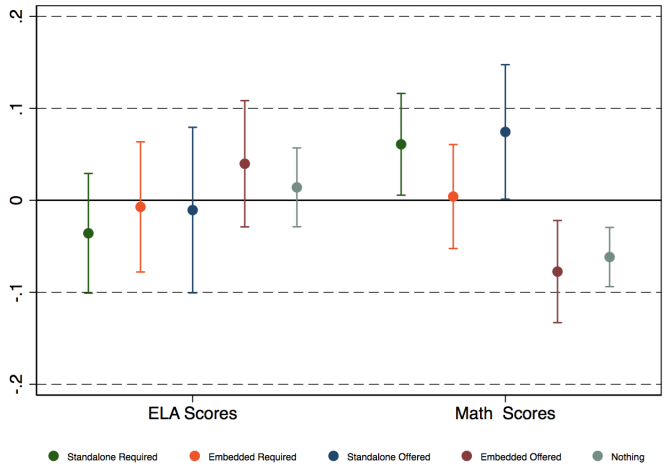
Figure 7 shows that there is virtually no correlation between 8th grade ELA test scores and financial literacy courses. However, 8th grade math scores are highly predictive, and the magnitudes are large. The test scores provided by SEDA are standardized for cross-country comparisons to be interpreted in standard deviation units. A one-tenth of a standard deviation increase in the math scores is associated with a 0.6 percentage point (or 5%) increase in the likelihood of having a standalone requirement, a 2.1 percentage point (or 1.6%) increase in the likelihood of having a standalone course offering. Higher math scores are then also associated with a decrease in the likelihood of only offering an integrated class—a 0.8 percentage point (or 5%) decrease—and a decrease in the likelihood of not offering or requiring any financial literacy content—a 0.6 percentage point (or 9%) decrease.

These results provide some evidence that controlling for other demographic and economic characteristics, schools with strong math programs are most likely to find ways to include extensive personal finance content into high school courses.

5 State Policy

Five states required 2020 high school graduates to complete standalone financial literacy courses (AL, MO, TN, UT, VA) and another two will be added to that list beginning with the graduating class of 2021 (IA, NC). These five mandate states adhered to the policy requirement, meaning that their maximum standard was always equal to the highest possible level (and making them impossible to include in the regression due to perfect collinearity). However, 2020 high school graduates in 17 additional states were required to complete financial literacy material within a specific required course. One could expect there to be some slippage in these requirements in two ways. First, it could be that schools actually go above the requirement, where they additionally require a standalone course. Second, it could be that their course descriptions of each required course does not include financial literacy. I take that to mean there is not enough of a focus on financial literacy to merit

Figure 7: 8th Grade Test Scores as Predictors of Policies



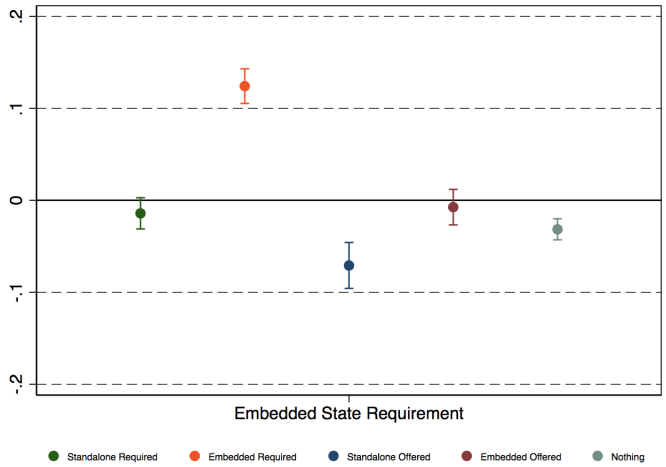
Notes: Each estimate is from a separate regression where the outcome variable equals one if the school's maximum standard is the given category and zero otherwise. Coefficients reported with 95% confidence intervals around the estimates. I highlight only a few effect sizes, but the full model includes: expenditures per pupil, the school's student to teach ratio, an urban dummy, a rural dummy, percent of non-Hispanic White in the area, percent of Hispanics in the area, percent of non-Hispanic Blacks in the area, median household income (in thousands of dollars), percent of area families below the federal poverty line, median area house value (in thousands of dollars), the local unemployment rate, math test scores, ELA test scores, and the fraction of students receiving FRPL. For the full results of every coefficient, along with sample sizes, see Table 2.

description and code that as not having an embedded course.

I re-run the first model previously estimated, additionally including a dummy for whether or not the state had an embedded course requirement in Figure 8. Having a state policy mandating schools require financial literacy within another class is associated with a 12.4 percentage point (or 70%) increase in the likelihood of having an embedded requirement. Not surprisingly, this is also associated with a reduction in the likelihood of the highest standard being a course offering or schools having no offerings or requirements. While state mandates requiring embedded courses are associated with a small decrease in the likelihood of schools requiring a standalone course, this is not statistically different from zero. The full results, in Table 3 show that the correlations between student-teacher ratios and economic conditions remain consistent with the previous models.[21]

[21]While I do not show the results, if I include state policies in the regression with math and ELA test scores, the correlation between math scores and school requirements and offerings remains, as does the correlation with state policy.

Figure 8: State Mandates Requiring Courses that Embed Financial Literacy



Notes: Each estimate is from a separate regression where the outcome variable equals one if the school's maximum standard is the given category and zero otherwise. Coefficients reported with 95% confidence intervals around the estimates. I highlight only one set of effect sizes, but the full model includes: expenditures per pupil, the school's student to teach ratio, an urban dummy, a rural dummy, percent of non-Hispanic White in the area, percent of Hispanics in the area, percent of non-Hispanic Blacks in the area, median household income (in thousands of dollars), percent of area families below the federal poverty line, median area house value (in thousands of dollars), and the local unemployment rate. For the full results of every coefficient, along with sample sizes, see Table 2.

These results suggests that state policies matter in rapidly increasing the level of binding requirements to complete financial education in high school, though it is unlikely that schools will have an incentive to incorporate more rigorous requirements beyond state requirements. Even after controlling for these state policies, school resources continue to be predictive of course requirements and offerings: higher student-teacher ratios still negatively correlate with the likelihood of having a standalone course requirement and positively correlate with having no offerings or requirements. Taken together, these results indicate that both policy and resources remain important.

6 Policy Highlights

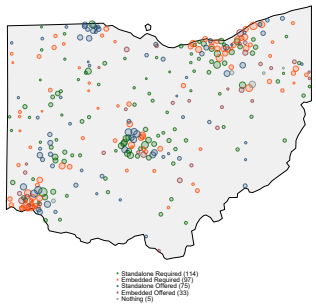
In this section I dig into two states with different financial literacy state policies: one with an embedded requirement (OH) and one with no financial literacy requirements (PA). Each

data point is a high school and the size of dot is scaled by school population.[22]

First, I map Ohio, where students are required to complete an economics/financial literacy unit, but this requirement can be met in a variety of ways. While most schools choose to include financial literacy in a required social studies course, others choose to integrate it within a separate approved course (that can be standalone or embedded). Even so, 33% of students in Ohio are required to complete standalone course requirements. Moreover, standalone course requirements (represented by green dots on the map) are sprinkled across 114 schools within the state. There is no clear geographic pattern in these requirements. The orange dots represent school districts where financial literacy is embedded in a required course, representing 97 schools and again, holding no clear geographic pattern.

Despite the state policy, it seems that there are some schools that do not report standalone or embedded requirements within their course catalogs. This could be because schools are not entirely clear about how to meet the state requirement in their individual standards. For example, 75 schools within Ohio offer a standalone course and another 33 offer an elective that includes personal finance topics, though they are not the main focus of the course. It could be that in practice, nearly all students complete these courses, particularly if electives are limited and a certain number need to be completed for graduation. It could also be that I under-code the number of embedded required classes. For example, if the course descriptions for American Government classes, a year-long class where financial literacy is often included in Ohio, do not include financial literacy but the courses actually do include financial literacy, I under-count embedded requirements.

Figure 9: Financial Education Requirements and Offerings Across Ohio

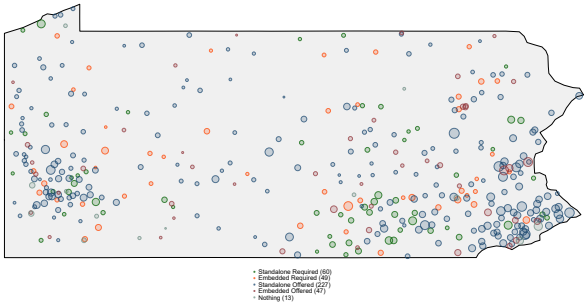


Another interesting state to study is Pennsylvania, where the state legislature has been silent on financial literacy. Even so, 14% of students in Pennsylvania are required to complete a standalone personal finance course, 11% of students are required to complete a

[22] For full information regarding all school district course offerings visit this link: `www.montana.edu/urban/research.html`.

course that incorporates financial literacy, 63% of students have access to a standalone personal finance course, and 10% have access to an embedded course. Again, across the state there are no clear geographic patterns that emerge. The 60 schools with standalone requirements are spread across both urban, rural, and suburban areas, and this is true of schools with embedded requirements as well. Pennsylvania's data show that when state policymakers refuse to mandate financial literacy education, schools can still incorporate financial education into curricula. The prevalence of financial education across Pennsylvania suggests that research using the state as a control group in determining the effectiveness of state mandates likely understates the full effect of education on behavior.

Figure 10: Financial Education Requirements and Offerings Across Pennsylvania



7 Conclusions

This report highlights the geographical, socioeconomic, and policy differences in access to financial education across the U.S. There are three important findings with respect to future policy.

First, school resources are important, where student-teacher ratios, even after accounting for local area incomes, house prices, poverty rates, and the race/ethnic composition of students, are negatively correlated with standalone course requirements and positively correlated with a school having no requirement or offering. It is not surprising that schools with less capacity have fewer opportunities to integrate financial education course requirements or offerings. These schools may also struggle to offer other important courses, and stretching teachers too thin might have consequences for overall academic performance. It is likely that schools presently strapped for resources cannot push financial literacy education without facing potentially consequential opportunity costs. Providing more resources to schools with high student-teacher ratios is one potential avenue forward, but I am not the first to say that some public schools are in dire need for more resources.

Second, high schools where the district had higher 8th grade math test scores, accounting for local area incomes, house prices, poverty rates, ELA test scores, and the race/ethnic composition of students, had a greater likelihood of having a standalone course requirement or a standalone course offering and a lower likelihood of having no requirements or offerings. This suggests that perhaps students with the greatest access to strong math programs in early education also have the greatest access to rigorous financial literacy instruction. One possible explanation is that teachers in these school districts are simply more interested in math or math-related instruction. I see no correlation between course requirements or offerings and ELA scores, meaning it is not necessarily the case that better-performing schools in general have more financial literacy instruction. Policymakers in the future should consider targeting financial education in schools where math performance is ex-ante low, as these students may have the greatest value-added from financial literacy coursework. Perhaps subsidies to recruit teachers in these schools would be necessary to increase access to financial education.

Third, while state policies mandating schools incorporate financial literacy into a required course do not always result in course descriptions that include financial literacy in all schools, they are highly correlated with whether or not schools within these states have an embedded course requirement. It could be that course catalog descriptions do not detail financial literacy instruction in all schools, or it could be that state departments of education have trouble auditing embedded course mandates. Since the majority of research studying the causal effects of financial education graduation requirements on financial behaviors includes these integrated states as having requirements, it is likely that those studies understate the effect of financial education on behaviors due to the slippage within individual schools. However, as there are many legal hurdles to introducing standalone course requirements, embedding personal finance into currently required courses can be one way forward for states with extensive local control.

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8 Appendix

Table 1: Predicting School Financial Literacy Policies

	Standalone Required	Embedded Required	Standalone Offered	Embedded Offered	No Offerings
Spending/Pupil	0.00084	-0.00984***	-0.00112	0.01110***	-0.00098
	(0.00135)	(0.00128)	(0.00168)	(0.00154)	(0.00100)
Student/Teacher	-0.00574**	-0.00021	-0.00334*	0.00649***	0.00278*
	(0.00193)	(0.00082)	(0.00132)	(0.00138)	(0.00129)
Urban	-0.00084	-0.03965**	0.04753*	-0.02178	0.01474
	(0.00990)	(0.01436)	(0.01860)	(0.01425)	(0.01078)
Rural	-0.00021	-0.01554	-0.04665**	0.02142	0.04098***
	(0.01033)	(0.01202)	(0.01583)	(0.01201)	(0.00806)
% White	-0.00025	0.00154***	0.00181**	-0.00163**	-0.00146***
	(0.00039)	(0.00040)	(0.00058)	(0.00056)	(0.00043)
% Black	-0.00159***	0.00343***	0.00302***	-0.00310***	-0.00176***
	(0.00042)	(0.00049)	(0.00068)	(0.00060)	(0.00047)
% Hispanic	-0.00145***	0.00273***	0.00102	-0.00161**	-0.00069
	(0.00038)	(0.00042)	(0.00060)	(0.00057)	(0.00044)
Income	0.00035	-0.00038	0.00360***	-0.00172***	-0.00185***
	(0.00027)	(0.00031)	(0.00045)	(0.00036)	(0.00026)
% Poverty	0.00006	-0.00235	0.00445**	-0.00086	-0.00130
	(0.00104)	(0.00120)	(0.00162)	(0.00122)	(0.00097)
House Values	-0.00018***	-0.00008	-0.00037***	0.00022***	0.00041***
	(0.00003)	(0.00004)	(0.00005)	(0.00005)	(0.00005)
Unemployment Rate	-0.00549**	-0.00439*	0.00231	0.00366	0.00390*
	(0.00171)	(0.00197)	(0.00272)	(0.00212)	(0.00160)
N	6653	6653	6653	6653	6653
% in Category	0.12010	0.17601	0.45288	0.17887	0.07215

Notes: Coefficient estimates reported with robust standard errors in parentheses. * ($p<0.05$), ** ($p<0.01$), *** ($p<0.001$). Each outcome variable equals one if the school's maximum standard is the given category and zero otherwise. Spending per pupil is in thousands of dollars and at the school-district level; student-teacher ratios are at the school-level; urban and rural are dummy variables (the excluded group is suburban); % White and % Black are the % of students at the school who are each race and non-Hispanic (the excluded group is other non-Hispanic excluded races); Income is median household income in thousands of dollars; % Poverty is percent of people under the poverty line; House Values are median house prices in thousands of dollars. All economic characteristics are an average from 2013-2017 from the ACS and at the ZIP code-level.

Table 2: Predicting School Financial Literacy Policies, Including Test Scores

	Standalone Required	Embedded Required	Standalone Offered	Embedded Offered	No Offerings
Spending/Pupil	-0.00041	-0.01113***	0.00731**	0.00776***	-0.00353**
	(0.00249)	(0.00213)	(0.00279)	(0.00228)	(0.00131)
Student/Teacher	-0.00612*	-0.00176	0.00077	0.00587***	0.00123
	(0.00305)	(0.00101)	(0.00182)	(0.00136)	(0.00108)
Urban	0.03354*	-0.03345	0.00320	-0.02234	0.01905
	(0.01391)	(0.01800)	(0.02380)	(0.01799)	(0.01424)
Rural	0.01861	-0.02411	-0.02673	0.00943	0.02279*
	(0.01451)	(0.01547)	(0.02034)	(0.01487)	(0.00998)
% White	-0.00039	0.00243***	0.00101	-0.00199**	-0.00105
	(0.00046)	(0.00051)	(0.00073)	(0.00069)	(0.00054)
% Black	-0.00163**	0.00518***	0.00278**	-0.00439***	-0.00193***
	(0.00050)	(0.00065)	(0.00086)	(0.00075)	(0.00058)
% Hispanic	-0.00099*	0.00431***	-0.00092	-0.00229**	-0.00012
	(0.00044)	(0.00058)	(0.00074)	(0.00074)	(0.00059)
Income	0.00083	-0.00139**	0.00280***	-0.00070	-0.00154***
	(0.00043)	(0.00048)	(0.00069)	(0.00054)	(0.00039)
% Poverty	0.00115	-0.00123	0.00260	-0.00073	-0.00178
	(0.00148)	(0.00166)	(0.00215)	(0.00160)	(0.00136)
House Values	-0.00035***	0.00001	-0.00031***	0.00020**	0.00045***
	(0.00005)	(0.00006)	(0.00008)	(0.00007)	(0.00007)
Unemployment Rate	-0.01069***	-0.00491	0.00711	0.00213	0.00635**
	(0.00256)	(0.00287)	(0.00373)	(0.00295)	(0.00216)
ELA Scores	-0.03588	-0.00723	-0.01065	0.03971	0.01404
	(0.03317)	(0.03608)	(0.04591)	(0.03501)	(0.02186)
Math Scores	0.06086*	0.00406	0.07431*	-0.07753**	-0.06170***
	(0.02821)	(0.02883)	(0.03729)	(0.02832)	(0.01641)
% FRPL	-0.01838	-0.11052*	-0.00398	0.13094**	0.00193
	(0.04079)	(0.04929)	(0.06140)	(0.04457)	(0.03282)
Constant	0.36962***	0.25368***	0.09913	0.12621	0.15136*
	(0.09655)	(0.07493)	(0.10709)	(0.09228)	(0.07097)
N	4228	4228	4228	4228	4228
% in Category	0.13623	0.18212	0.44063	0.16604	0.07498

Notes: Coefficient estimates reported with standard errors in parentheses. * ($p<0.05$), ** ($p<0.01$), *** ($p<0.001$). Each outcome variable equals one if the school's maximum standard is the given category and zero otherwise. Embedded State Reqmt = 1 if the state mandates an embedded course requirement; Spending per pupil is at the school-district level ($000s); student-teacher ratios are at the school-level; urban and rural are dummy variables (the excluded group is suburban); % White and % Black are the % of students at the school who are each race and non-Hispanic (the excluded group is other non-Hispanic excluded races); Income is median household income ($000s); % Poverty is percent of people under the poverty line; House Values are median house prices ($000s); ELA and Math scores are at the school-level and measured in standard deviation units; % FRPL is the fraction of students in the school eligible for free and reduced-price lunch. All economic characteristics are an average from 2013-2017 from the ACS and at the ZIP code-level.

Table 3: Predicting School Financial Literacy Policies, Including State Policy

	Standalone Required	Embedded Required	Standalone Offered	Embedded Offered	No Offerings
Embedded State Reqmt	-0.01428	0.12401***	-0.07094***	-0.00719	-0.03160***
	(0.00865)	(0.00962)	(0.01273)	(0.00985)	(0.00584)
Spending/Pupil	0.00071	-0.00866***	-0.00180	0.01103***	-0.00128
	(0.00137)	(0.00126)	(0.00168)	(0.00155)	(0.00098)
Student/Teacher	-0.00578**	0.00017	-0.00355**	0.00647***	0.00269*
	(0.00196)	(0.00090)	(0.00137)	(0.00137)	(0.00123)
Urban	-0.00195	-0.03009*	0.04206*	-0.02234	0.01231
	(0.00987)	(0.01401)	(0.01859)	(0.01429)	(0.01075)
Rural	-0.00073	-0.01102	-0.04924**	0.02116	0.03983***
	(0.01034)	(0.01189)	(0.01580)	(0.01203)	(0.00804)
% White	-0.00018	0.00088*	0.00219***	-0.00160**	-0.00130**
	(0.00039)	(0.00038)	(0.00058)	(0.00056)	(0.00043)
% Black	-0.00146***	0.00223***	0.00370***	-0.00303***	-0.00145**
	(0.00042)	(0.00047)	(0.00068)	(0.00061)	(0.00047)
% Hispanic	-0.00136***	0.00195***	0.00146*	-0.00156**	-0.00049
	(0.00038)	(0.00041)	(0.00060)	(0.00058)	(0.00045)
Income	0.00044	-0.00114***	0.00403***	-0.00168***	-0.00166***
	(0.00027)	(0.00031)	(0.00046)	(0.00037)	(0.00027)
% Poverty	0.00023	-0.00383**	0.00530**	-0.00077	-0.00093
	(0.00104)	(0.00119)	(0.00163)	(0.00122)	(0.00096)
House Values	-0.00019***	0.00002	-0.00043***	0.00021***	0.00038***
	(0.00003)	(0.00004)	(0.00005)	(0.00005)	(0.00005)
Unemployment Rate	-0.00563**	-0.00320	0.00163	0.00359	0.00359*
	(0.00172)	(0.00194)	(0.00274)	(0.00213)	(0.00158)
N	6653	6653	6653	6653	6653
% in Category	0.12010	0.17601	0.45288	0.17887	0.07215

Notes: Coefficient estimates reported with robust standard errors in parentheses. * ($p<0.05$), ** ($p<0.01$), *** ($p<0.001$). Each outcome variable equals one if the school's maximum standard is the given category and zero otherwise. Embedded State Reqmt = 1 if the state mandates an embedded course requirement; Spending per pupil is at the school-district level ($000s); student-teacher ratios are at the school-level; urban and rural are dummy variables (the excluded group is suburban); % White and % Black are the % of students at the school who are each race and non-Hispanic (the excluded group is other non-Hispanic excluded races); Income is median household income ($000s); % Poverty is percent of people under the poverty line; House Values are median house prices ($000s). All economic characteristics are an average from 2013-2017 from the ACS and at the ZIP code-level.