PISA (Program for International Student Assessment) and youth financial capability in the United States

cfpb Consumer Financial Protection Bureau

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Executive summary

Building financial capability early in life can give young people a foundation for adult financial well-being. Financial capability is the capacity, based on knowledge, skills, and access, to manage financial resources effectively. To be financially capable, individuals must be able to understand and apply financial knowledge. People face challenging and life-changing financial decisions starting at a relatively early age. Yet many people in the United States lack the personal financial management skills to be successful. To help people to make sound financial decisions, the Consumer Financial Protection Bureau (CFPB or Bureau) provides young people and those who teach them with the tools necessary to help young people improve their financial capability.

The Program for International Student Assessment (PISA), coordinated by the Organization for Economic Cooperation and Development (OECD), is a triennial international assessment that aims to assess 15-year-old students' preparation for the challenges of life as adults and evaluates education systems worldwide. PISA assesses three core subject areas: math, reading, and science, and additional subject areas, like financial literacy. This system of international assessments allows countries to compare outcomes of learning as students near the end of high school. To date, students representing more than 72 countries and economies have participated in the assessment.

In 2012, PISA administered the first large-scale international study of the financial literacy of 15-year-old students. Only 10% of U.S. 15-year-old students scored in the top proficiency level, indicating that they can analyze complex financial products, solve non-routine financial problems, and show an understanding of the wider financial landscape. However, 22% did not demonstrate baseline proficiency in financial literacy as defined by the OECD. Baseline proficiency is defined as students who can recognize the differences between needs and wants, make simple decisions on everyday spending, and explain the purpose of everyday financial documents, such as an invoice. Among the countries and economies that participated, the U.S. scores were not statistically different from OECD average scores. The 2015 PISA financial literacy results showed nearly no change in the U.S. average score performance from 2012.[1]

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[1] In 2015, the U.S average in financial literacy was 487, which was not measurably different from the OECD average of 489. Between 2012 and 2015, there was no measurable change in the U.S average financial literacy score (492 vs. 487), *available at* nces.ed.gov/pubs2017/2017086.pdf.

This CFPB research brief is intended to help stakeholders understand how the 2015 [2] PISA financial literacy data about the United States may be used to identify effective approaches to financial education and better define the metrics for success. The CFPB hopes this analysis will help to identify and address gaps in youth financial literacy. To that end, this brief examines the association between socioeconomic status and financial literacy gaps and how financial socialization and school characteristics may affect financial literacy. It also takes a deeper dive into the data to explore gaps in youth bank account ownership and potential connection to financial literacy scores.

The 2015 PISA financial literacy data exposes a large gap in financial literacy score based on family socioeconomic status, as measured by the PISA's Economic, Social, and Cultural Status metric (ESCS). [3] Students from the families in the highest quarter of the ESCS distribution scored 97 points (more than one proficiency level) higher than students from families in the lowest quarter of the ESCS distribution.

The CFPB explores the degree to which factors may mitigate this gap, including financial conversations with parents, bank account ownership, and school characteristics. Understanding these levers can help financial educators utilize evidence to potentially reduce the socioeconomic status gap in financial literacy.

While roughly 87% of students report having monthly, weekly, or daily conversations with family about money, deeper analysis shows that frequency of parental conversations about money is not correlated with student or family characteristics. Students from different backgrounds exhibit no meaningful differences in how often they discuss money management matters with parents or guardians. In addition, controlling for frequency of parental financial conversations in a formal model does not change the relationship between socioeconomic status and financial literacy as measured in the PISA assessment, suggesting the gap is not driven by *frequency* of parental financial conversations, but perhaps by other factors such as the nature or content of the conversation.

Second, the brief examines the individual impact of the schools who participated in PISA and their Free or Reduced-Price Lunch (FRPL) status on financial literacy scores. In schools where

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[2] This PISA financial literacy brief, developed by CFPB, provides a deeper analysis of the 2015 survey data and offers insights into some of the more nuanced findings that were not released with the initial round of high-level findings in May 2017. To conduct this level of analysis, the CFPB needed access to the unrestricted data, which NCES provided to us in 2018.

[3] The Program for International Student Assessment (PISA) Index of Economic, Social and Cultural Status was created on the basis of the following variables: the International Socio-Economic Index of Occupational Status (ISEI); the highest level of education of the student's parents converted into years of schooling; the PISA index of family wealth; the PISA index of home educational resources; and the PISA index of possessions related to "classical" culture in the family home.

more than half of students receive FRPL, students' financial literacy scores were substantially lower than those who are in schools where less than 25% of students receive FRPL. This is true even after controlling for family ESCS. School FRPL has an independent correlation with financial literacy scores, and including FRPL in the model reduces the correlation between parental socioeconomic status and financial literacy scores. This finding suggests that schools can be one potential avenue to partially mitigate the socioeconomic status gap in financial literacy.

In Section 5, the CFPB looks at the effects of experiential learning through youth bank accounts. The analysis examines the correlation between 15-year-old students' survey reports of having a bank account and their score on the PISA financial literacy assessment. More than half of 15-year-old students surveyed reported having their own bank account. However, the wording of the question may have resulted in over-reporting (for example, if students considered whether the head of household had an account rather than just whether the student had an account). Nevertheless, this analysis is the first to take on the following research question in nationally representative data: How does bank account ownership correlate with financial literacy for youth?

The descriptive statistics reveal gaps in bank account ownership along socioeconomic lines. Students from families with higher socioeconomic status are more likely to have an account than those from families with lower socioeconomic status. Those from schools that are in more affluent areas are more likely to have bank accounts than those from schools in less affluent areas. Interestingly, there are no differences in reported account ownership across gender and no statistically significant difference by family origin, whether or not English is the predominant language spoken at home, and race or ethnicity.

Without controlling for any factors, the 2015 PISA financial literacy data suggests that students reporting they have a bank account scored 41 points higher than those who reported not having a bank account.[4] After controlling for other factors that could explain financial literacy assessment scores (socioeconomic factors, school characteristics, and student characteristics) having a bank account has at best only a weak association with students' financial literacy score.

In addition to issues of student accuracy in reporting bank account ownership, there can be many reasons for which there is no clear effect. For example, students selecting into account ownership may already have higher levels of financial literacy prior to account ownership. This analysis also does not account for other confounding factors--such as parental financial knowledge--that may bias the estimates. Explicit learning, through accompanying financial

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[4] While scores range from 0 to 1,000, the gap between each of the five proficiency level is roughly 75 points. This suggests that the raw difference is approximately half of a proficiency level.

education, and implicit learning, through how the account is used, may be required. Future research using control groups and clearer identification of youth account ownership, type of account, and experiences could shed light on how early experiences with bank accounts can help close gaps in financial literacy.

In sum, these findings are preliminary. The PISA data starkly highlights financial literacy gaps based on economic advantage that emerge early in life, even before most young people become financially active. More analysis is needed to understand how financial socialization between parents and their children and bank account ownership by youth contribute to, and can help to close, these gaps. With recent research pointing to the causal effect of financial education in schools on financial behaviors, providing effective financial education in schools, especially those with a high share of lower income students, may be one key to reducing the gap in financial literacy based on socioeconomic status. [5,6,7,8]

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

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

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

[8] *See* Consumer Financial Protection Bureau, A review of youth financial education: Effects and evidence (April 2019), consumerfinance.gov/data-research/research-reports/review-youth-financial-education-effects-and-evidence/.

1. Background on PISA Financial Literacy Assessment

Every three years since the year 2000, 15-year-old students from randomly selected schools worldwide have been assessed by OECD in three key subjects with a focus on one additional subject in each year of assessment. Financial literacy was first added as an optional assessment in 2012 and was offered again in 2015. The assessments are a mixture of open-ended and multiple-choice questions.

Assessing financial literacy every three years allows countries to have a consistent source of achievement data. To this end, the CFPB partnered with the Department of Education's National Center for Education Statistics, who administers this assessment in the United States to obtain and analyze this important information. [9]

PISA provides the CFPB and other stakeholders with data about gaps in financial skills among young people that can serve to inform the development of more targeted programs and policies, provide the opportunity to learn from other countries' data, and identify what strategies can be used to improve youth financial literacy in the United States. The PISA financial literacy assessment adds to the otherwise very limited data available about the financial capability of young people in this country.

For the 2015 PISA financial literacy assessment, 15 countries and economies[10] participated in the assessment, including 10 OECD countries and economies: Australia, the Flemish Community of Belgium, seven provinces in Canada[11], Chile, Italy, the Netherlands, Poland, the Slovak Republic, Spain and the United States. In addition, five other countries and economies

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[9] Through a partnership with the Department of Education's National Center for Education Statistics, the CFPB conducted an analysis of the 2015 data of the PISA financial literacy results and the supplemental money management questionnaire. The PISA Financial Literacy assessment was conducted in 2018 and will be conducted again in 2021. Organization for Economic Cooperation and Development (OECD), 2015, Program for International Student Assessment, accessed from http://www.oecd.org/pisa/data/2015database/ on September 13, 2018.

[10] An economy may reflect a measurement of only part of a country.

[11] British Columbia, Manitoba, New Brunswick, Newfoundland and Labrador, Nova Scotia, Ontario and Prince Edward Island

are included: Brazil, four provinces/municipalities in China[12], Lithuania, Peru, and the Russian Federation. In the United States, 5,712 students participated in the PISA financial literacy assessment, representing 177 schools.[13]

As shown in Table 1, scores fall into one of five proficiency levels. Each proficiency level represents the capability and understanding of financial concepts, products, and decisions. Students scoring 400 points or below are considered Level 1, which demonstrates an understanding of simple financial terms only. Students scoring between 400 and 474 points are considered Level 2, which is a baseline level of proficiency. These students can identify common financial products and terms and make simple decisions on everyday spending in contexts that they are likely to have experienced personally. Level 3 students score between 475 and 549 points, and Level 4 students score between 550 and 624 points. These students are able to apply financial knowledge to a broader array of financial products and understand the consequences of various financial decisions. Reaching Level 4 requires a higher level of competence to include longer-range decisions and less common financial concepts. Finally, students who score 625 points and above are considered Level 5 and demonstrate a strong understanding of financial concepts that may not be immediately relevant and understand the wider financial landscape.

TABLE 1: PISA FINANCIAL CAPABILITY PROFICIENCY LEVELS

SCORE	PROFICIENCY LEVEL	CAPABILITY
< 400	Level 1	Understanding of simple financial products and terms. Can make simple decisions on everyday spending.
400-474	Level 2	Baseline level of proficiency. Can identify common financial products and terms and make simple decisions on everyday spending in contexts that they are likely to have experienced personally.
475-549	Level 3	Can apply their understanding of commonly used financial concepts, consider the consequences of financial decisions and make financial plans.
550-624	Level 4	Can apply their understanding of less common financial concepts, interpret and evaluate a range of detailed financial documents, and make financial decisions taking into account longer-term consequences.
> 625	Level 5	Highest level of proficiency. Can apply their understanding of a wide range of financial concepts to not immediately relevant contexts, and show an understanding of the wider financial landscape.

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[12] Beijing, Shanghai, Jiangsu, Guangdong

[13] *See* Program for International Student Assessment, Frequently Asked Questions (2015) available at *nces.ed.gov/surveys/pisa/faq.asp*.

In addition to the assessment, students also provide information about their experiences with money, personal backgrounds, schools, and learning experiences. School principals complete a questionnaire about the broader school system and learning environment.

PISA assessments are not directly linked to the school curriculum. They are designed to assess the extent to which students can apply their knowledge to real-life situations and be equipped for full participation in society. The information collected through background questionnaires also provides context that can help interpret the results. Countries participating in successive surveys can compare their students' performance over time and assess the impact of education policy decisions.

The OECD's final report regarding the 2015 PISA financial literacy international results highlights three predominant considerations:[14]

- Parents have traditionally had a major role in transmitting financial values, habits, and skills to their children.[15]

- While having a solid foundation in mathematics and reading is crucial for navigating the financial environment (e.g., computing percentages and reading a bank statement), it is not all that matters.[16]

- While access to financial services at a young age provides students with great opportunities to learn by experience, it also creates new challenges.[17]

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[14] *See* OECD, PISA 2015 Results, Students' Financial Literacy (Volume IV) (2017) at 5-6, *available at* oecd.org/finance/financial-education/pisa-2015-results-volume-iv-9789264270282-en.htm.

[15] PISA 2015 data shows that students who have the chance to talk to their parents about money and savings also tend to have higher financial literacy. But at the same time, the fact that students' financial literacy skills are strongly related to their socio-economic status or whether they, or their parents, are foreign-born, means that not all students have the same opportunities to acquire financial literacy if they rely solely on what they can learn from their family.

[16] PISA 2015 data highlights areas of comprehension unique to financial literacy, such as being aware that "some deals really are too good to be true," understanding the role of income tax, or being vigilant for fraudulent e-mails. Students in top-performing countries and economies such as the Flemish Community of Belgium, Beijing-Shanghai-Guangdong (China), the participating Canadian providences (British Columbia, Manitoba, New Brunswick, Newfoundland and Labrador, Nova Scotia, Ontario and Prince Edward Island) and the Russian Federation, perform better in financial literacy than predicted by the students' performance in mathematics and reading assessments.

[17] As recognized by the G20 members, digital technologies can make financial services accessible to previously excluded segments of the population and young people, but can also give rise to new types of fraud, expose customers to data insecurity, and facilitate access to short-term credit and questionable digital offers. OECD concludes that it is vital that young people have not only the knowledge and skills to start experimenting with the financial marketplace and begin to know its risks, but also that financial products and services—especially those targeted to minors—are safe and regulated.

Students in the United States scored around the average of the 10 OECD countries and economies that participated in the financial literacy assessment in 2015.[18] This was largely unchanged from the 2012 results where the United States also ranked in the middle.[19]

- About 22% of students in the United States do not reach the baseline level of proficiency (Level 2) in financial literacy.[20] At best, these students can identify common financial products and terms, recognize the difference between needs and wants, and make simple decisions on everyday spending in contexts that they are likely to have experienced personally.

- Only 10% of students in the United States are top performers in financial literacy (Level 5).[21] These students can analyze complex financial products, solve non-routine financial problems and show an understanding of the wider financial landscape.

The purpose of this brief is to generate a greater understanding of one more important finding from the PISA data: Across all countries, and particularly prevalent in the United States, a gap in financial literacy is based on socioeconomic status. According to the OECD report, high socioeconomic students scored, on average, 89 points higher than disadvantaged students did across OECD countries.[22] In the United States, the top quarter of households by socioeconomic status scored 97 points higher than those from the lowest quarter of households by socioeconomic status. Given that family background is such an important driver of financial literacy, this brief then explores the roles of three potential forces that may mitigate this gap: financial socialization, schools, and bank accounts.

To begin to explore these questions, the CFPB took a deeper dive into the U.S. assessment results and the data in the money management questionnaire which is a student survey regarding interactions with the financial world that accompanies the financial literacy exam.[23]

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18 *See* OECD, PISA 2015 *Results, Students' Financial Literacy: United States Country Notes (Volume IV)* (2017), *available at* oecd.org/pisa/PISA-2105-Financial-Literacy-USA.pdf.

19 *See* OECD, PISA 2012 Results, *Students' Financial Literacy: United States Country Notes (Volume IV)* (2014), *available at* oecd.org/unitedstates/PISA-2012-results-finlit-usa.pdf.

20 *See* OECD, PISA 2015 Results, *Students' Financial Literacy: United States Country Notes (Volume IV)* (2017), *available at* oecd.org/pisa/PISA-2105-Financial-Literacy-USA.pdf.

21 *See* OECD, PISA 2015 Results, *Students' Financial Literacy: United States Country Notes (Volume IV)* (2017), *available at* oecd.org/pisa/PISA-2105-Financial-Literacy-USA.pdf.

22 *See* OECD, PISA 2015 Results, *Students' Financial Literacy: United States Country Notes* (Volume IV) (2017), *available at* oecd.org/pisa/PISA-2105-Financial-Literacy-USA.pdf.

23 The questions in the money management survey include: whether or not the student has bank accounts; whether the student has prepaid debt cards; students' attitudes towards saving, spending, and working; ways in which the

There were 5,712 students in the United States who participated in the PISA 2015 assessment.[24] All these respondents have financial literacy scores, but only a subset of students responded to questions in the money management questionnaire. The sample for the research question of interest consists of 1,486 students (or 26%) who completed the money management questionnaire.[25]

The mean financial literacy score for the sample of interest is 491.5; this mean is not statistically different from the mean financial literacy score for the full U.S. sample at the 95% level. Thus, there may not be a reason to think that the final sample, those who completed the money management questionnaire, is systematically different from the full U.S. sample.

The fact that the financial literacy of 15-year-old students in the United States remains low highlights the challenge of identifying and improving how youth develop the tools and knowledge necessary to be successful at managing financial challenges later in life. To improve the financial literacy of 15-year-old students in the United States, it is important to first consider the ways in which youth develop financial skills and knowledge at young ages.

The CFPB recognizes the need to understand the childhood origins of financial capability. By identifying these roots, practitioners may find promising practices and strategies to support the development of youth financial capability. To support this development, the CFPB conducted research that identifies the building blocks to help youth achieve financial capability.[26] This research examines how, when, and where youth typically acquire critical attributes, abilities, and opportunities that support the development of adult financial capability and financial well-being. During teen and young adulthood years (ages 13-21), explicit financial knowledge and decision-making skills become more relevant. For example, young people may have more opportunities to begin to make purchases on their own and take on financial responsibilities, such as opening a bank account. Additionally, young adults may begin to engage in experiential

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student obtains money; student/parent discussions about money; and a host of other measures related to youth finance attitudes and behaviors.

24 *See* OECD, PISA 2015 Results, *Students' Financial Literacy* (Volume IV) (2017) at 152, *available at* oecd.org/finance/financial-education/pisa-2015-results-volume-iv-9789264270282-en.htm.

25 *See* OECD, PISA 2015 Results, *Students' Financial Literacy* (Volume IV) (2017) at 160, *available at* oecd.org/finance/financial-education/pisa-2015-results-volume-iv-9789264270282-en.htm. Since there were some students who skipped some items, the full sample varies when the model includes additional independent variables. If all specifications include only the smaller sample that includes no missing values for any independent variables of interest, the results remain unchanged.

26 *See* Consumer Financial Protection Bureau, *Building Blocks to Help Youth Achieve Financial Capability: A new model and recommendations* (2016) *available at* consumerfinance.gov/data-research/research-reports/building-blocks-help-youth-achieve-financial-capability/.

learning[27] and begin to develop firsthand knowledge and skills that they will use to make initial financial decisions. Even before young people become financially active, the development of financial capability is also influenced by a process called "financial socialization," which are attitudes, norms and habits they may learn from family members as well as from sources outside the home, including peers, people at school, community members, and the media.

The PISA data allows us to explore hypotheses about the potential roles of experiential learning (by reporting having a bank account) and financial socialization (in the form of reported frequency of talking with parents about money) in closing financial literacy gaps.

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27 Experiential learning is the process of deriving meaning from direct or hands-on experiences. Experiential learning opportunities encourage children and youth to take initiative, make decisions, experience the results of their choices, and learn through reflection.

2. Association between socioeconomic status and financial literacy

One of the clearest findings from the PISA data is that the differences across financial literacy scores are associated with parental socioeconomic status. Rather than simply using household income, the PISA measure for economic, social, and cultural status (ESCS) includes parental education, highest parental occupation, and home possessions (which includes the number of books in the home).[28] In all models, the ESCS measure is in quartiles. Figure 1 shows that, descriptively, students in families from the top quartile of the ESCS distribution score roughly 86 points higher than students in families from the bottom quartile of the ESCS distribution. The difference in scores represents more than one proficiency level, as each level spans roughly 75 points. Even the difference between the top two quartiles is significant: those in the top quartile score 58 points higher on average than those from families in the third highest quartile. The 95% confidence interval around this estimate is also reported with the error bars in the diagram, showing that the bottom three quartiles are statistically different from the top quartile. However, the lowest two quartiles are not statistically different from each other.

These descriptive trends suggest that parental resources are important in determining the financial literacy of 15-year-old students. To boost the financial literacy of youth in the United States, one strategy would be to focus on the segments with the greatest gaps. The data clearly points to youth from households of lower socioeconomic status as scoring the lowest in financial literacy. The subsequent analysis considers how accounting for additional student, parent, and school characteristics can reduce the importance of the relationship between socioeconomic status and financial literacy for 15-year-old students.

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[28] *See* OECD, *PISA Scaling procedures and construct validation of context questionnaire data* (2015) at 339, *available at* oecd.org/pisa/sitedocument/PISA-2015-Technical-Report-Chapter-16-Procedures-and-Construct-Validation-of-Context-Questionnaire-Data.pdf.

FIGURE 1: PISA FINANCIAL LITERACY SCORES BY ECONOMIC, SOCIAL, AND CULTURAL STATUS
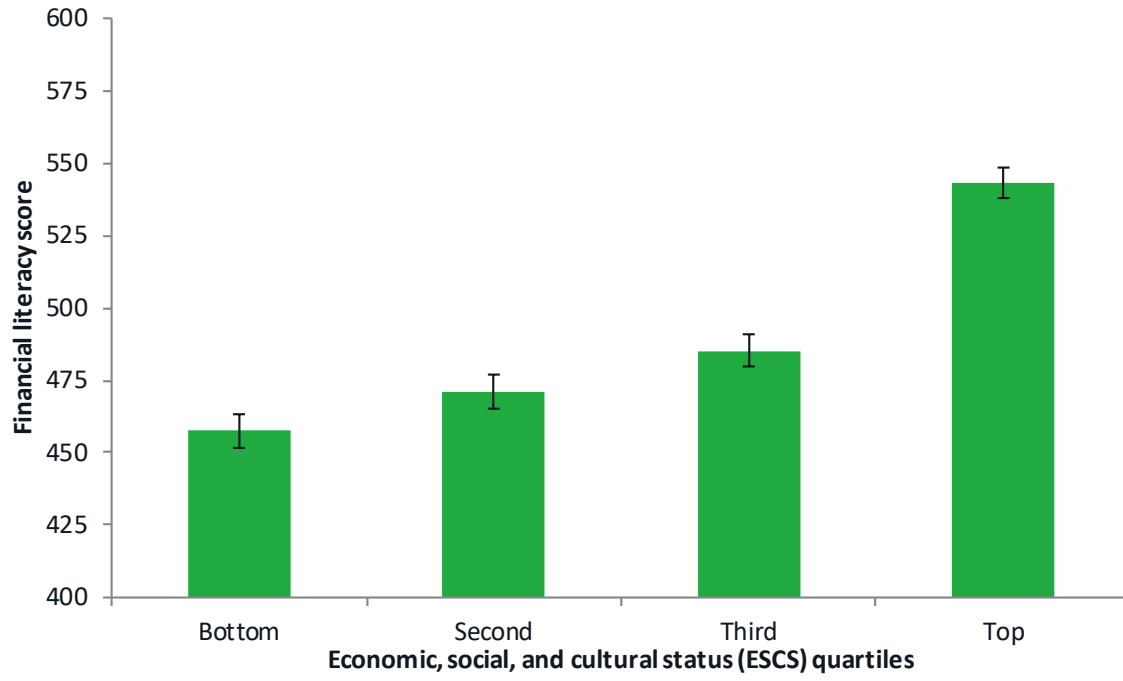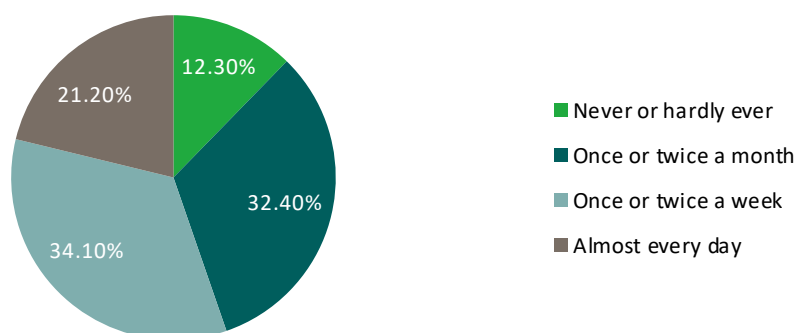
3. Effects of financial socialization

Financial socialization is the process by which people acquire and develop the knowledge, behaviors, and beliefs about money that influence their financial practices and attitudes.[29] Some research suggests that the most influential agents of financial socialization are families and in particular, parents.[30,31] Given the large difference in financial literacy scores based on socioeconomic status, exploring the degree to which families with higher socioeconomic status are more likely to engage in financial socialization with children than those with lower socioeconomic status may help to explain the gap in PISA financial literacy scores.

In the PISA data shown in Figure 2, the financial literacy survey asks how often the student talks with a parent or adult family member about money matters,[32] where 88% of students report having such conversations. The question further asks about the frequency of conversations.

FIGURE 2: DISTRIBUTION OF FREQUENCY OF CONVERSATION WITH ADULTS ABOUT MONEY MATTERS

- Never or hardly ever
- Once or twice a month
- Once or twice a week
- Almost every day

(Pie chart values: 12.30%, 32.40%, 34.10%, 21.20%)

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[29] Kim, J., T. Spangler, and M. Gutter, *Extended families: Support, socialization, and stress.* Family and Consumer Sciences Research Journal, 45.1 (2016): pages 104-118. Danes, S. M., *Parental perceptions of children's financial socialization.* Financial Counseling and Planning, 5 (1994): 127-146.

[30] Kim, J., and S. Chatterjee, *Childhood financial socialization and young adults' financial management.* Journal of Financial Counseling and Planning, *24*.1 (2013): 61–79.

[31] Kim, J., J. LaTaillade, and H. Kim, Family processes and adolescents' financial behaviors. *Journal of Family and Economic Issues*, *32*.4 (2011): 668–679.

[32] Specifically, the survey asks "How often do you discuss money matters with parents/guardians or other adult relatives?"

The data reveals no clear differences in individual- or family-level characteristics with the frequency of parental conversations across a number of dimensions. First, Figure 3 shows there is no difference in frequency of conversations across socioeconomic status or ESCS quartiles.

FIGURE 3: DIFFERENCES ACROSS ESCS QUARTILES IN THE FREQUENCY OF CONVERSATIONS ABOUT MONEY
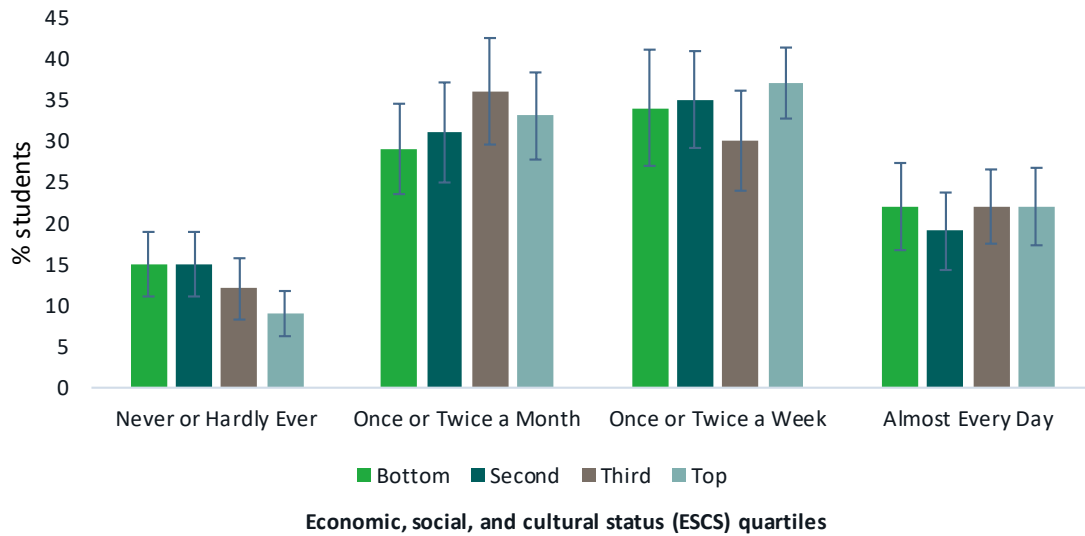
Second, as shown in Figure 4, there are no differences across gender in the frequency of conversations about money. Male and female students report similar patterns in frequency of parental conversations, suggesting that parents do not treat male and female children differently when discussing money matters.

FIGURE 4: DIFFERENCES ACROSS GENDER IN THE FREQUENCY OF CONVERSATIONS ABOUT MONEY
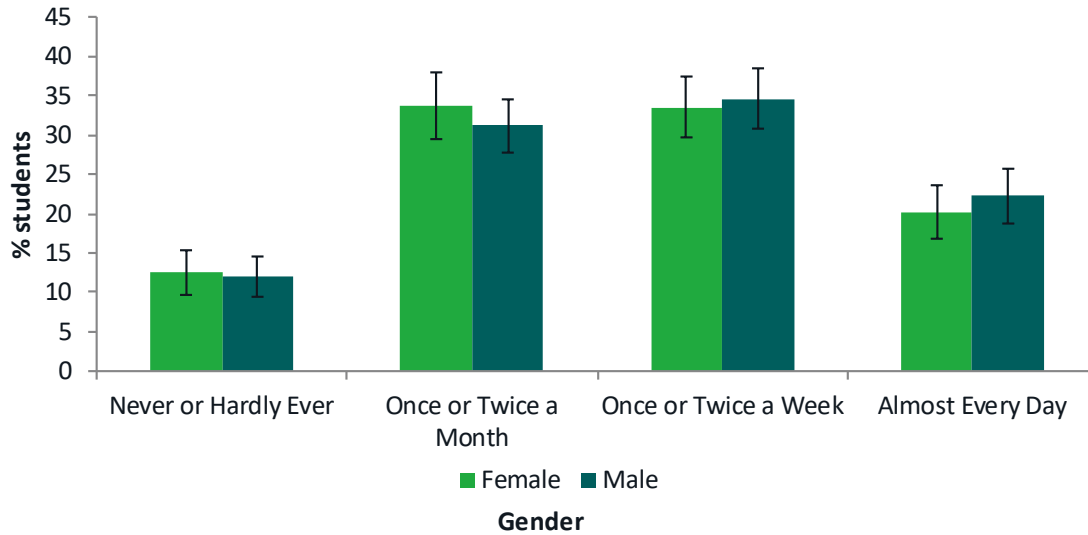
Third, Figure 5 shows there are also no statistical differences across predominant languages spoken at home or whether or not the child is a "native" to the United States (see Figure 6), which in the PISA data means that at least one parent was born in the United States. Non-native students are defined as second-generation immigrant students (those born in the country of assessment but whose parent[s] were born in another country) and first-generation immigrant students (those students born outside the country of assessment and whose parents were also born in another country).

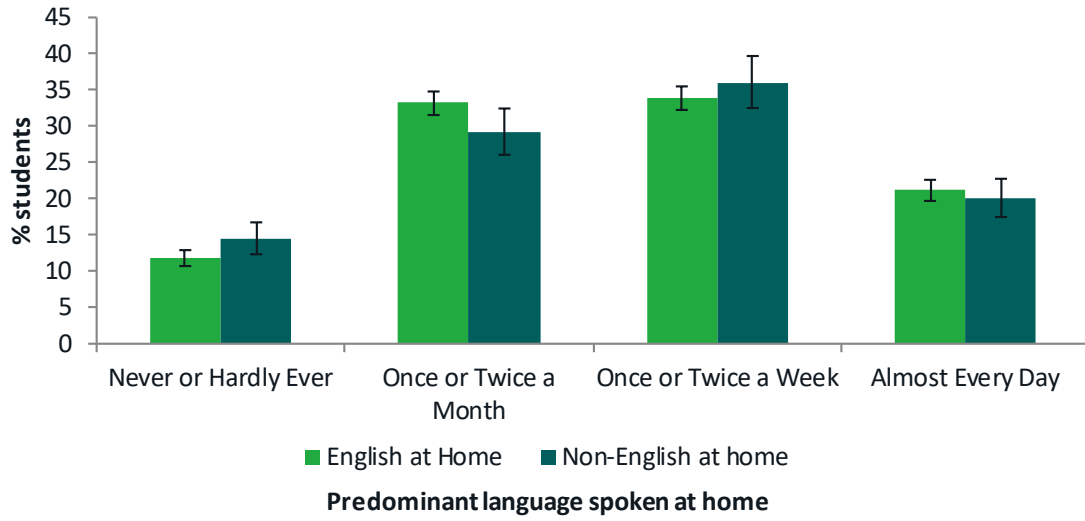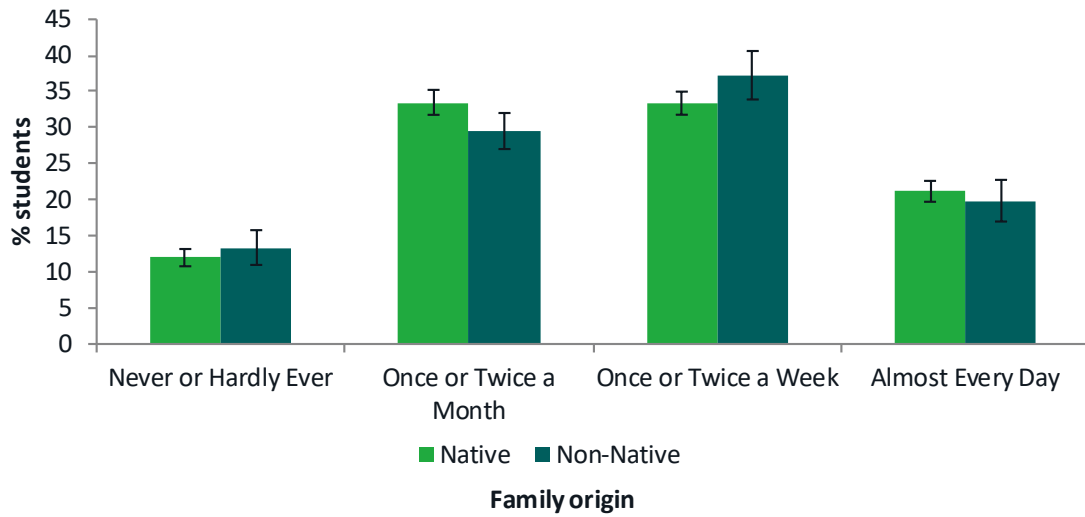**FIGURE 5:** DIFFERENCES ACROSS PREDOMINANT LANGUAGES SPOKEN AT HOME IN THE FREQUENCY OF CONVERSATIONS ABOUT MONEY

Predominant language spoken at home

FIGURE 6: DIFFERENCES ACROSS FAMILY ORIGIN IN THE FREQUENCY OF CONVERSATIONS ABOUT MONEY

Family origin

Fourth, there are few differences in the frequency of money-related conversations across race. One exception is that there is a slightly greater likelihood for non-White students to report having daily conversations with family about money (see Figure 7). When breaking down racial data further, there are no statistical differences across additional race and ethnicity categories, though the samples grow smaller and standard deviations increase. Lastly, there are no differences in the frequency of conversations based on city size (see Figure 8).

FIGURE 7: DIFFERENCES ACROSS NON-WHITE AND WHITE STUDENTS IN THE FREQUENCY OF CONVERSATIONS ABOUT MONEY
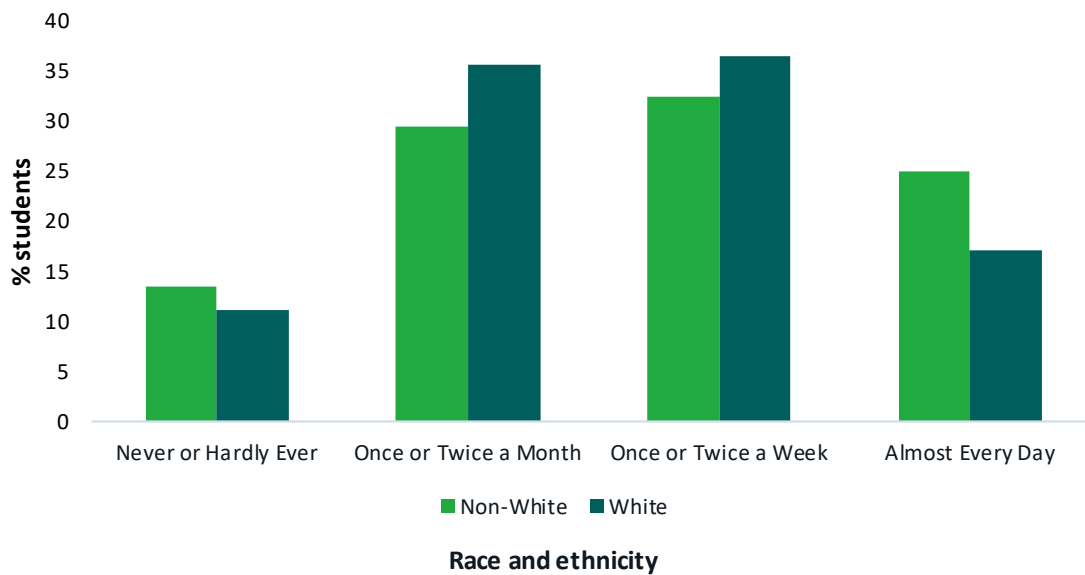
FIGURE 8: DIFFERENCES ACROSS CITY SIZE IN THE FREQUENCY OF CONVERSATIONS ABOUT MONEY

In the next step, a regression model controlling for frequency of money management conversations uses dummy variables to consider the correlation between ESCS in quartiles and financial literacy scores. The differences in socioeconomic status in explaining financial literacy scores persist and remain similar in magnitude to the descriptive trends plotted earlier. In summary, the lack of difference in frequency of money conversations across ESCS, coupled with the lack of measurable effect of having more frequent conversations on financial literacy scores, suggest that frequency of parental conversation is not the prime explanation of differences in scores across the ESCS distribution.

4. School characteristics association with financial literacy

The next analysis explores the degree to which school characteristics are associated with financial literacy.

This analysis uses the full PISA data, including 5,330 observations. To measure school characteristics, the analysis focuses on the fraction of students receiving free and reduced-price lunch (FRPL). In the model, FRPL is in quartiles based on the full sample: 0-25% FRPL, 25-50% FRPL, 50-75% FRPL, and over 75% FRPL. The regression models omit the 25-75% category, which acts as our baseline comparison group. The regression results control for parental socioeconomic status using the ESCS measure. Though the ESCS measure and FRPL measure seem to capture similar attributes, the measures are in fact distinct. For example, of students from the top ESCS quartile, 50.8% are not attending schools with the fewest fraction of students receiving FRPL. Similarly, of students from the bottom ESCS quartile, 52.1% attend schools that do not have the highest rates of students receiving FRPL.

Table 2 shows the correlation between school FRPL and financial literacy scores in the PISA data, controlling for parental ESCS.

- Students in schools with less than 25% of students receiving FRPL score about 20 points *higher* than those with 25-50% students receiving FRPL

- Students in schools with 50-75% of students receiving FRPL score about 34 points *lower* than students in schools with 25-50% of students receiving FRPL

- Students in schools with over 75% of students receiving FRPL score approximately 43 points *lower* than students in schools with 25-50% of students receiving FRPL

Since each proficiency level spans 75 points and the model already accounts for parental socioeconomic status, this difference across schools is quite large: over one-half of a proficiency level. These results are depicted in Figure 9.

FIGURE 9: DIFFERENCES IN SCORES BASED ON SCHOOL FRPL, COMPARED TO SCHOOLS WITH 25-50% FRPL (BASELINE)

Fraction of students receiving free and reduced-price lunch (FRPL)
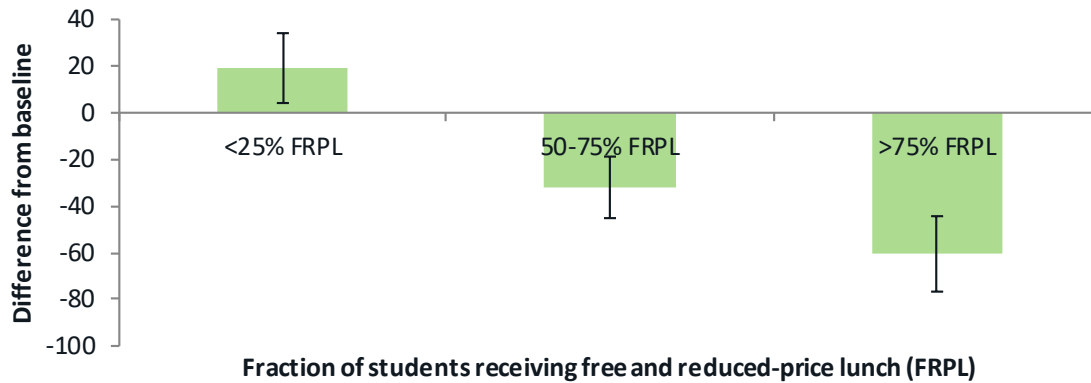
In these formal models (Table 2), ESCS still remains important after accounting for school-level poverty[33] through the FRPL measure. This means that school characteristics cannot fully explain the socioeconomic status gap present in the descriptive Figure 1. However, the effects of ESCS are mitigated when the independent effect of school FRPL is included. The top ESCS quartile scores roughly 70 points higher than the bottom quartile, which is smaller than the 86 point difference in Figure 1.

TABLE 2: ASSOCIATION BETWEEN SCHOOL FRPL AND FINANCIAL LITEARCY SCORES, CONTROLLING FOR ECONOMIC, SOCIAL, AND CULTURAL STATUS (ESCS)

SCHOOL CHARACTERISTIC	FINANCIAL LITERACY SCORE	
ESCS Bottom quarter	-21.44	***
	(4.350)	
ESCS Top quarter	48.50	***
	(4.792)	
Less than 25% FRPL	19.15	*
	(7.642)	
50-74.9% FRPL	-31.99	***
	(6.733)	
75% or more FRPL	-60.53	***
	(8.252)	
Observations	5,330	

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[33] For the purposes of this report, school-level poverty is defined as the percentage of students receiving FRPL.

Recent research has shown that school-based financial education can improve credit scores, reduce delinquencies, improve student postsecondary education financing, and reduce nonstudent debt. [34,35,36] For example, in Brown et al. (2016), the authors used data from the Jump$tart Coalition, the Council on Economic Education, and state law databases to determine when each post-2000 mandate was passed. They studied all mandates requiring financial education be included in some way, looking at the first graduating class affected, and focusing on 19- to 29-year-olds. Research found decreased nonstudent debt, increased student debt, increased likelihood of having a credit file, and decreased likelihood of default.

In Urban et al. (2018), the effect of very specific states' requirements on financial behaviors was isolated. Findings show that financial education improves credit scores and decreases delinquency rates. Notably, the effects suggest that each sequential graduating class subject to the course requirement saw additional benefits.

Stoddard and Urban (2019) estimated the effects of graduation requirement mandates on new outcomes: student loan decisions. Because many states directly include "financing postsecondary education" as part of their graduation standards, evaluating how these standards affect behavior is important yet complex. The results suggest that financial education shifted students from high-cost (such as credit cards and private student loans) to lower-cost borrowing options (such as Stafford loans). The results further show that for less-affluent families, financial education increased the likelihood of having a Stafford loan, while decreasing the probability of working while in school. The education did not affect the decision to attend a public instead of a private school, a two-year vs. a four-year school, or a school in-state vs. out-of-state. In light of these findings, devoting resources to schools with characteristics such as lower socioeconomic status could improve financial literacy and downstream financial outcomes for youth. An additional resource that stakeholders may consider is the CFPB's report, "A review of youth financial education: Effects and evidence," which provides insights about rigorous evidence that has been established regarding youth financial education and a roadmap for exploring what types of financial education hold the most promise.

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

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

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

5. Association between having a bank account and financial literacy

Another approach to potentially improve youth financial literacy is increasing access to bank accounts among younger people. This analysis seeks to determine the correlation between students' self-reports of having a bank account and their financial literacy assessments in the PISA data. While research shows that experiential learning through having bank accounts is a contributor to youth financial literacy, [37] these programs vary widely so opportunities exist to further refine our understanding of what approaches are effective and when. Because the PISA data does not allow for a randomized control trial or a natural experiment setting through which to study this effect, these results represent a correlation, not a causal analysis, of the relationship. As this is the first attempt to analyze these effects, [38] these results contribute to the greater literature but remain a starting point for future work. Starting with the basic correlation, the analysis seeks to understand how adding control variables for parental socioeconomic status, school characteristics, and student demographic characteristics affect the baseline estimates.

5.1   Sample and analysis

This analysis uses the responses to the money management questions (1,486 students). More than half (53.3%) of respondents in the money management questionnaire report having a bank

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[37] See, e.g. Sherraden, Margaret & Johnson, Elizabeth & Guo, Baorong & Elliott, William. (2011). Financial Capability in Children: Effects of Participation in a School-Based Financial Education and Savings Program. Journal of Family & Economic Issues. 32. 385-399 or Vernon Loke & Laura Choi & Margaret Libby, 2015. "Increasing Youth Financial Capability: An Evaluation of the My Path Savings Initiative," Journal of Consumer Affairs, Wiley Blackwell, vol. 49(1), 97-126, March.

[38] Related work by Collins, L'Esperance, and Odders-White studies the effects of banks in school programs on savings and financial knowledge. However, they look at a population of 4th and 5th graders who are less likely to have accounts. Collins, J. M., M. L'Esperance and E. Odders-White *"The Effects of Access to Banking Services on Elementary Student's Financial Learning: A Field Study"* APPAM Conference Paper (2017)

account, while 46.7% report not having an account.[39] We cannot rule out that students are not answering for themselves and are instead considering their entire households' banked status.

The analysis sequentially includes control variables in determining the association between bank accounts and financial literacy scores, where there are three main categories of important controls: parental socioeconomic status (measured by the ESCS measure), school characteristics, and student characteristics. School characteristics include the percent of students in the school using FRPL and the city size.[40] Student characteristics include gender, race or ethnicity (White, Black, Hispanic, and other), whether or not the student met PISA's definition of a U.S. "native" and whether or not a non-English language was predominantly spoken at home.

5.2   Who has a bank account?

A descriptive analysis explains which students completing the money management survey declare that they have a bank account by the independent variables of interest, including parental socioeconomic status, student characteristics, and school characteristics. Each graphic is also presented in a formal model in Appendix Table 5.

5.2.1   Parental socioeconomic status

Beginning with parental socioeconomic status measured by the ESCS metric in PISA, Figure 10 reports a stepwise relationship between parental ESCS and whether or not a student reports having a bank account. Nearly three-quarters (72.8%) of students with parents in the top quartile of the ESCS distribution report having an account, while only 28.6% of students with parents in the bottom quartile of the ESCS distribution report having an account. The two middle quartiles are not statistically different from each other, with 48.8% and 56.4% of the second and third quartile students reporting having an account, respectively. Because parental socioeconomic status is an important predictor of account ownership and shown to be correlated with financial literacy scores, and because youth often learn about money from parents, understanding how controlling for ESCS affects the empirical models is essential.

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39 Thirteen students answered that they did not know what a bank account was and 172 students did not respond; the model omits these respondents.

40 City sizes includes two categories: schools in areas with populations over 100,000 (deemed cities and large cities in the PISA data) and those in areas with populations under 100,000 (deemed towns, small towns, and villages in the PISA data).
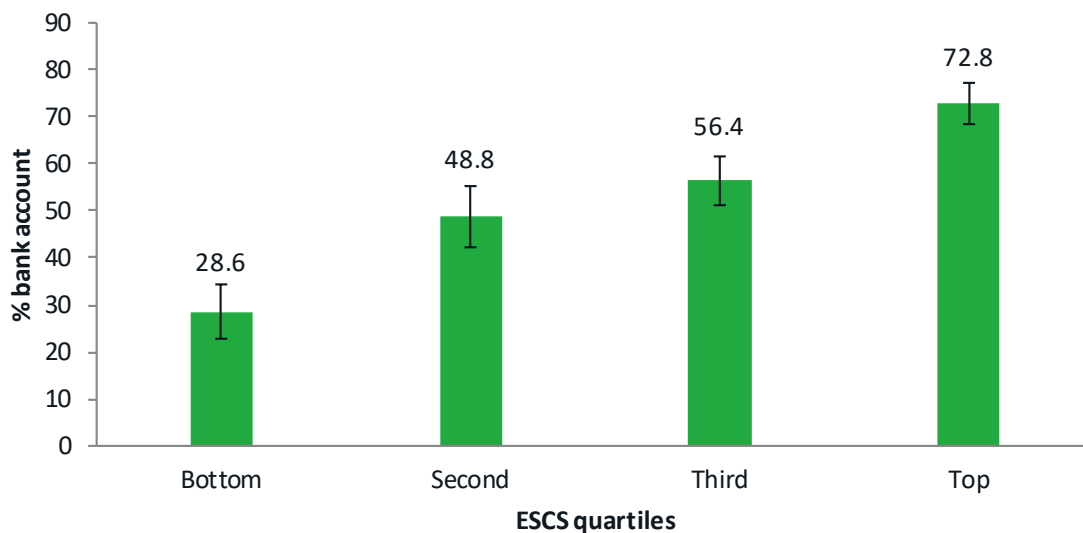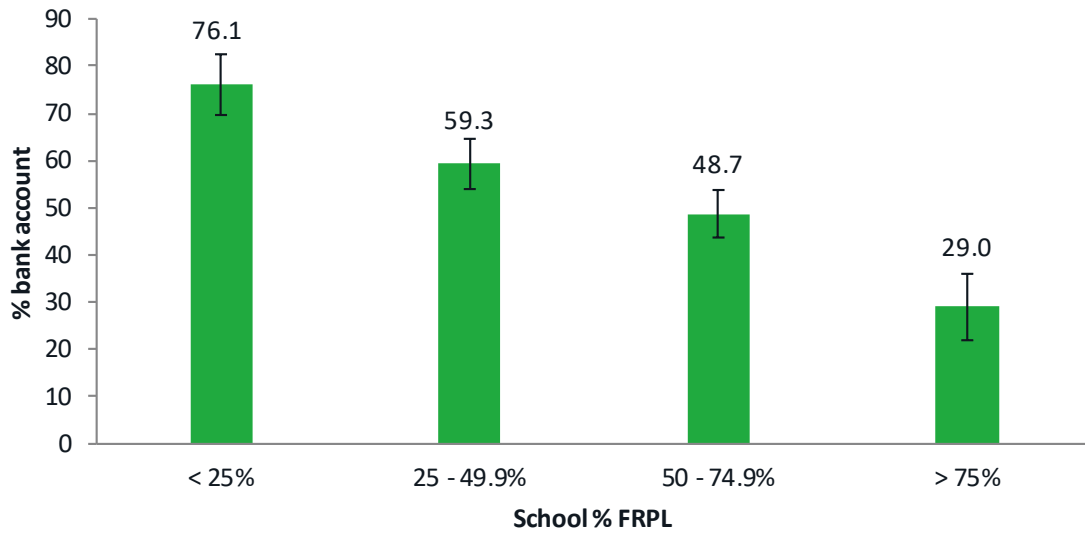
Notes: Data from 2015 U.S. PISA Money Management Questionnaire. The ESCS is a composite score built by the indicators parental education (PARED), highest parental occupation (HISEI), and home possessions (HOMEPOS) including books in the home via principal component analysis. The effect sizes are reported with 95% confidence intervals depicted in the error bars.

5.2.2   Free and reduced-price lunch (FRPL) at school

The differences in school characteristics may correlate with whether or not a student has a bank account. The two measures at the school-level model include the percent of students in the school who receive FRPL and the population of the area the school district it is in.

Figure 10 depicts that the FRPL measure mimics the finding of the ESCS distribution. Seventy-six percent of students in schools with fewer than 25% of students receiving FRPL report having bank accounts, while 29% of students in schools with over 75% of students receiving FRPL report having bank accounts. Further, Figure 11 shows that 59% of students in schools with between 25% and 50% of students receiving FRPL report having bank accounts compared to 48.7% of students in schools with between 50% and 75% of students receiving FRPL. All of these mean account ownership rates are statistically different from each other at the 95% level.

FIGURE 11: SCHOOL FRPL AND PERCENTAGE OF STUDENTS REPORTING OWNING A BANK ACCOUNT

Notes: Data from 2015 U.S. PISA Money Management Questionnaire. School FRPL is the percent of students in the student's attended school that receive free or reduced price lunch. The effect sizes are reported with 95% confidence intervals depicted in the error bars.

Using the PISA measures for city size, the analysis in Figure 12 examines the extent to which schools in areas with populations over 100,000 are different from those with populations under 100,000. While one may posit that access to accounts is greater in large cities, the two groups do not substantially differ when it comes to bank account reports. If anything, those students whose schools are in larger areas are less likely to report having an account (47.4%) than their more rural counterparts (56.7%) are. The data allows a further differentiation of size (village, small town, or town) and (city and large city). Because there are no statistical differences in account ownership among these more defined categories, the analysis proceeds with only two groups.
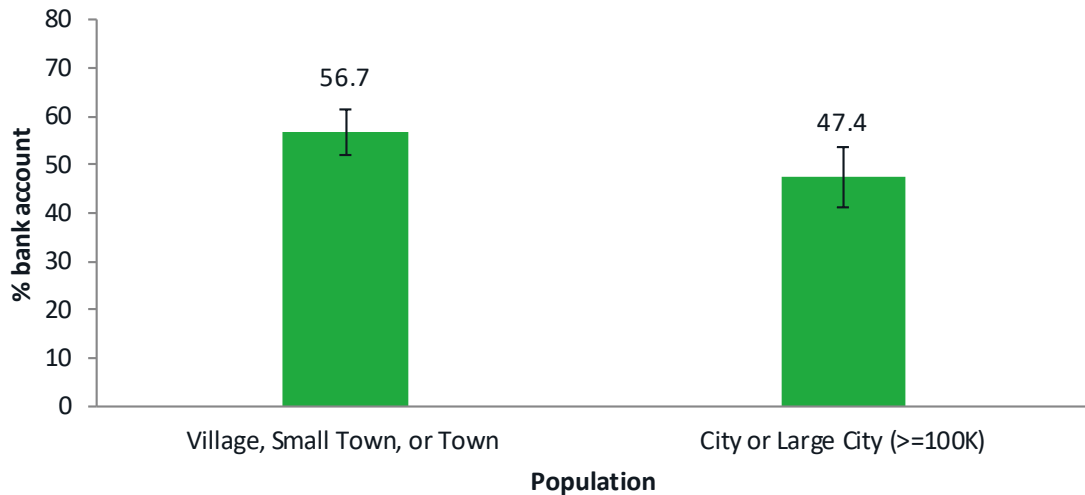
Notes: Data from 2015 U.S. PISA Money Management Questionnaire. Village, Small Town, or Town include areas with populations less than 100,000. City or Large City include areas with populations over 100,000. These are the designations from the PISA data. The effect sizes are reported with 95% confidence intervals depicted in the error bars.

5.2.3 Gender, race, family origin, and primary language spoken at home

Beyond parent and school characteristics, the PISA data includes many individual-level demographics of students. These include gender, race and ethnicity, family origin, and the primary language spoken at home.

First, there are no clear gender differences in students reporting they have a bank account (Figure 13). The percentages are close in magnitude and they are not statistically different from each other.

FIGURE 13: GENDER AND PERCENTAGE OF STUDENTS REPORTING OWNING A BANK ACCOUNT
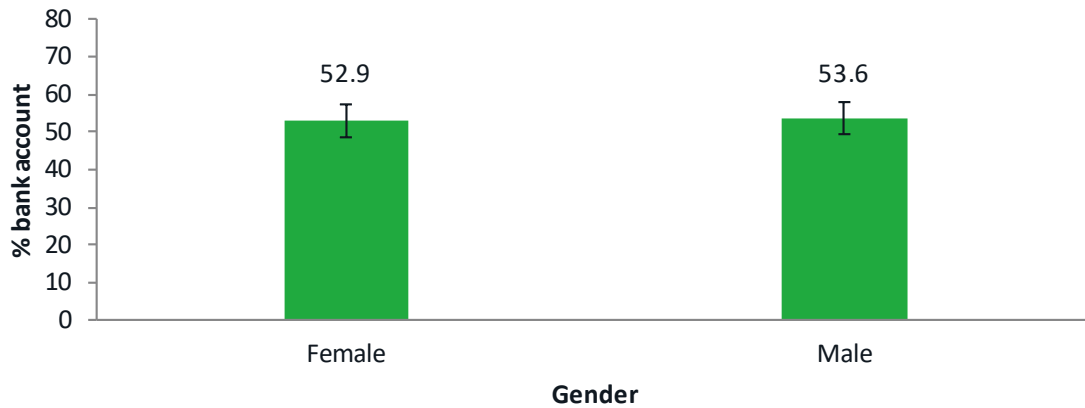
Notes: Data from 2015 U.S. PISA Money Management Questionnaire. The effect sizes are reported with 95% confidence intervals depicted in the error bars.

Secondly, there are differences across race and ethnicity (Figure 14). White, non-Hispanic students report having bank accounts at statistically higher rates (64.3%) than African American, non-Hispanic students (46.5%) and Hispanic or Latino students (35.1%). Those designating multiple races and all other racial and ethnic groups are reclassified as "Others" due to a smaller sample in this group (approximately 10% of the sample).

FIGURE 14: RACE AND PERCENTAGE OF STUDENTS REPORTING OWNING A BANK ACCOUNT

Notes: Data from 2015 U.S. PISA Money Management Questionnaire. African American does not include those who also identify as Hispanic. Others include mixed races. The effect sizes are reported with 95% confidence intervals depicted in the error bars.

Thirdly, only 39% of non-native students (as defined by OECD) report having bank accounts, compared to 57% of native students (Figure 15). This could capture a potential difficulty for non-native students to interface with the formal banking sector. Further, the PISA data shows that 57% of students who primarily speak English at home have accounts, compared to only 33% of students who say that English is not the predominant language spoken at home (Figure 16).
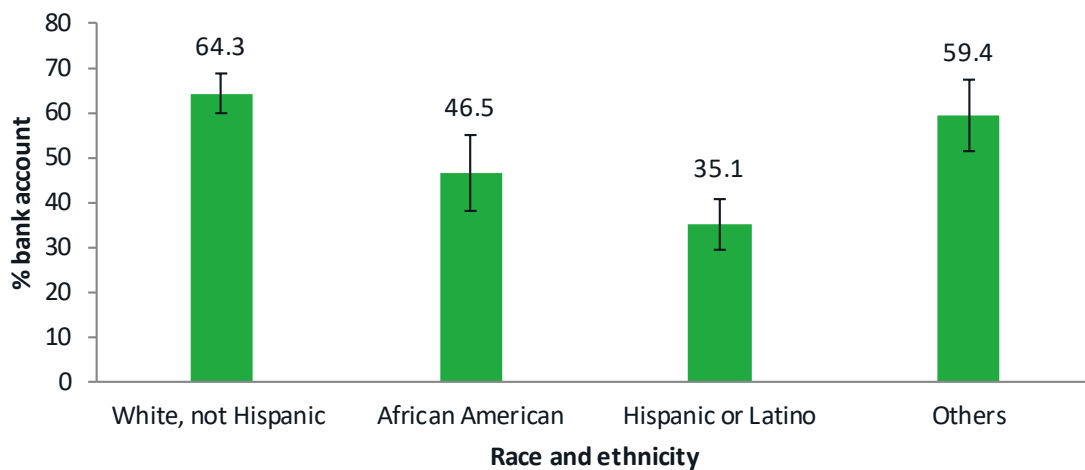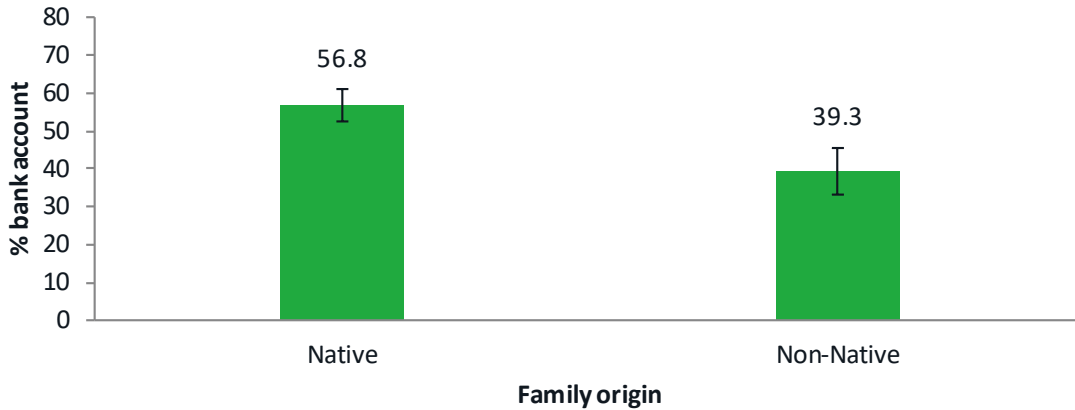
FIGURE 15: FAMILY ORIGIN AND PERCENTAGE OF STUDENTS REPORTING OWNING A BANK ACCOUNT

Notes: Data from 2015 U.S. PISA Money Management Questionnaire. The effect sizes are reported with 95% confidence intervals depicted in the error bars.

FIGURE 16: LANGUAGE SPOKEN AT HOME AND PERCENTAGE OF STUDENTS REPORTING OWNING A BANK ACCOUNT
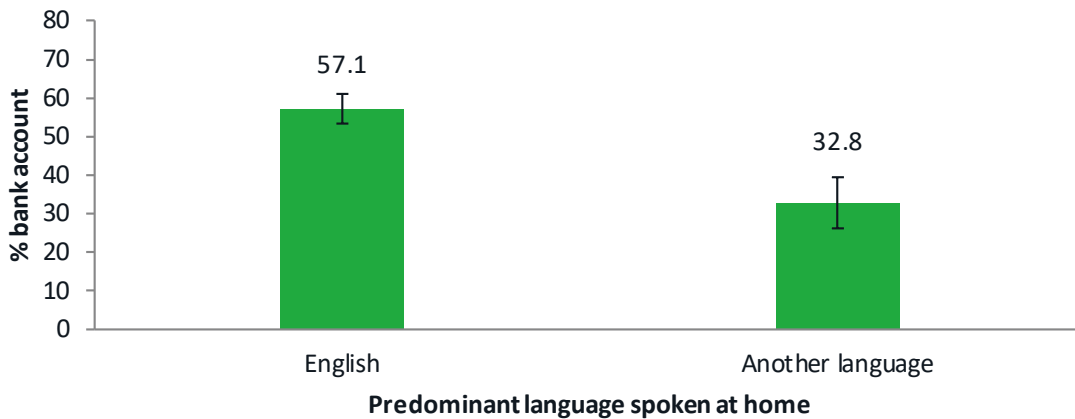
Notes: Data from 2015 U.S. PISA Money Management Questionnaire. English and Another Language are responses to the predominant language spoken at home. The effect sizes are reported with 95% confidence intervals depicted in the error bars.

5.2.4 Regression analysis

Next, to determine which students are most likely to have a bank account, the model controls for all attributes above simultaneously. This method is employed to determine if, for example, some of the differences in student characteristics, such as race, are no longer present when controlling for parental or school characteristics. Reporting odds ratios from a logistic regression, the model includes all of the control variables at the parent, student, and school levels simultaneously. Table 3 displays these odds ratios, where values greater than one indicate that these students are more likely to have an account than those in the omitted (baseline) group, and values less than one mean they are less likely.

In Table 3, some variables seem to emerge as more important in predicting account ownership. ESCS remains an important indicator for account access. Even after controlling for other factors, students with parents in the second, third, and top quarter of the ESCS distribution are substantially more likely to have a bank account than those in the bottom ESCS quarter. Similarly, those in schools with more than 25% of students receiving FRPL are less likely to have a bank account than those in schools with fewer than 25% of students receiving FRPL. The odds ratios for student characteristics tell a similar story as the figures above. For example, African American and Hispanic or Latino students are less likely to have accounts than White students. Also, students in households where English is not the predominant language used at home are less likely to have accounts than those in households where English is predominantly spoken. However, these relationships are not statistically significant. There continue to be no differences across gender. The one coefficient that changes in the multiple regression setting is the coefficient on U.S. native (as defined by PISA). It suggests that after controlling for additional factors, those students born outside the United States or with parents born outside the United States are more likely to have a bank account than native U.S. students. However, this is not statistically significant.

TABLE 3: WHICH CONTROLS ARE ASSOCATED WITH HAVING A BANK ACCOUNT?

CONTROL	HAVE BANK ACCOUNT	
ESCS Second quarter	1.74	**
	(0.316)	
ESCS Third quarter	2.17	***
	(0.404)	
ESCS Top quarter	3.79	***
	(0.683)	
25-49.9% FRPL	0.606	*
	(0.118)	
50-74.9% FRPL	0.47	***
	(0.097)	
75% or more FRPL	0.27	***
	(0.072)	
City or large city	0.97	
	(0.163)	
Female	1.06	
	(0.133)	
Black or African American	0.80	
	(0.146)	
Hispanic or Latino	0.74	
	(0.152)	
Other Races	0.99	
	(0.231)	
U.S. Native	1.20	
	(0.275)	
Another Language at Home	0.625	
	(0.170)	
Observations	1,163	

Notes: Data from 2015 U.S. PISA Money Management Questionnaire. Odds ratios from a logistic regression are reported. The dependent variable equals one of the students reports having a bank account and zero otherwise. Excluded groups are ESCS Bottom quarter; <25% FRPL; Town, Small Town, or Village; Male; White, non-Hispanic; U.S. Native; English is primary language spoken at home. * $p<0.05$, ** $p<0.01$, *** $p<0.001$.

5.3 Correlation between bank accounts and financial literacy scores

Without considering other factors, students who report having a bank account score 41 points higher on the PISA financial literacy section than students who report not having a bank account

(the first bar in Figure 17). [41] This difference corresponds to almost one-third of a standard deviation in the financial literacy score, which is a sizeable effect.

However, when controlling for parental socioeconomic status using PISA's ESCS measure, the effect size is reduced by almost one half (the second bar in Figure 17). After accounting for parental socioeconomic status, students with bank accounts score 21 points higher than those reporting they do not have an account. This suggests that controlling for parental background is essential in determining the importance of financial interactions on financial literacy for youth.

Next, the analysis accounts for two school-level characteristics: FRPL recipients and the size of the city in which the school is located (the third bar in Figure 17). Accounting for these school-level variables makes the association between having a bank account and financial literacy scores no longer statistically different from zero at the 95% level. The size of the correlation also decreases by roughly one half when compared to controlling only for ECSC. Those reporting having a bank account score roughly 11 points higher than those reporting not having a bank account. The difference in assessment scores in the two groups represents roughly one-tenth of one standard deviation. Given the summary statistics in Figure 11, this is not surprising since FRPL rates are highly correlated with whether or not a student reports having a bank account. Since school-level FRPL is correlated with both having a bank account and financial literacy scores, the control is important to include in the analysis.

Finally, student characteristics enter the empirical model (the fourth bar in Figure 17). These include dummy variables for race and ethnicity, gender, whether or not the student was a U.S. native, and predominant non-English language spoken at home. Bank account status did not differ based on gender but there were differences in the likelihood of having an account by race, family origin, and language spoken at home. While none of these were statistically significant, the magnitudes of the correlations suggest that these variables may be important to include in the model. Because these variables are likely to be correlated with financial literacy scores independently as well, they are important variables to include in order to reduce the bias of the estimates. Including these variables further decreases the magnitude of the effect of a bank account on financial literacy performance. After accounting for parental socioeconomic status, school characteristics, and student characteristics, the students with accounts score 9 points higher than those without, though this correlation is not statistically different from zero at the conservative 90% level. With mean assessment scores at roughly 491.5 points for the sample, this represents a very small magnitude (6 percent of one standard deviation) even if it were more precisely estimated. Each proficiency level spans a range of 75 points, thus reports of

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41 Results from the full model including all controls and in table format are in Appendix Table 5.

having a bank account is associated with too small an effect to move students from one proficiency level to the next.

FIGURE 17: ASSOCIATION BETWEEN CONTROLS AND FINANCIAL LITERACY SCORE IMPROVEMENT
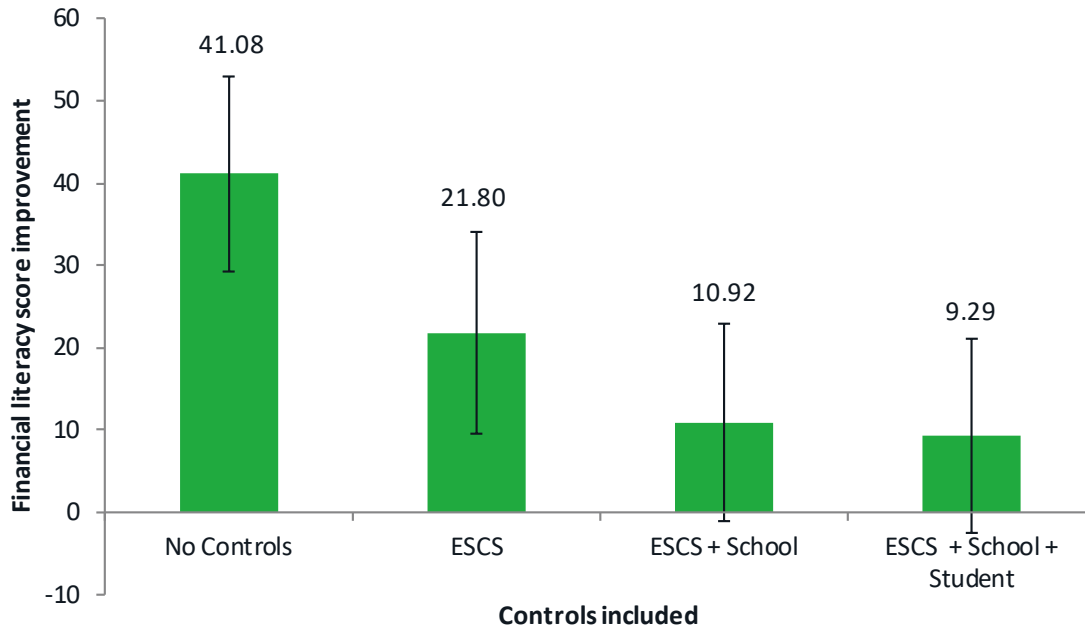
Notes: Data from 2015 U.S. PISA Money Management Questionnaire. The effect sizes are reported with 95% confidence intervals depicted in the error bars. The first bar, "No Controls," estimates the effects of having a bank account on financial literacy scores without including any controls in the regression. The second bar estimates the baseline effect but includes the ESCS measure in the PISA that captures socioeconomic status. The third bar includes school characteristics in addition to ESCS; these include quartiles of the percent of students with free and reduced price lunch (FRPL) and whether or not the school is in a small city or large city (as opposed to a town, small town, or village). The fourth bar includes both ESCS and school characteristics, as well as student characteristics, including race dummies, gender dummies, a family origin dummy, and a dummy for whether or not another language is spoken at home than English.

5.3.1 Why does the analysis find no association after controlling for observable characteristics?

It is important to note that while the results suggest no effect of bank account ownership on financial literacy scores, the results cannot rule out that bank accounts can be important tools in developing the financial capability of youth through experiential learning. Additionally, some Child Savings Account programs see savings as a way to increase expectations of attending

college. [42] In relation to the PISA results, there are several important caveats with respect to these findings.

The first issue is measurement error. The measure for having a bank account is self-reported by 15-year-old students. More than half (53%) report having an account (while 185 students reported either that they did not know or left the question blank). If individuals over-report having an account and accounts are helpful for establishing financial literacy, this would understate the effect of having a bank account on financial literacy. Vague question wording could also lead to under-reporting, so it is difficult to determine in which direction this would affect the results.

The second issue is selection bias. Students who are proactive about getting a bank account may be more interested in financial literacy. For example, the student who enjoys reading a financial newspaper might also be the student who has a bank account. This might cause students with accounts to score higher because they obtain additional information and not because they learn directly from having the account. Since it is not possible to control for student interest in financial matters, this would cause an over-estimate of the findings.

The third issue is confounding factors. In any study that is neither experimental nor quasi-experimental, there are often countless confounding factors that affect estimation. One example of a confounding factor is parental financial knowledge. While the model controls for ESCS, the PISA data does not provide information on parent's financial literacy. Students with savvy parents may both have a bank account and learn more about finances from parents. This would increase the likelihood that the student has the account and the likelihood that he or she performs well on the financial literacy exam. Omitting parental financial knowledge overstates the association between account ownership and financial literacy scores.

While the PISA financial literacy assessment provides us additional insights into the effects of bank account ownership, it is important to note that there may be other benefits from having bank accounts, such as establishing the habit of savings.

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[42] *See* Consumer Financial Protection Bureau, *Child Savings Account: Advancing the Field to Better Serve Traditionally Underserved Consumers* (2018) *available at* consumerfinance.gov/f/documents/bcfp_child-savings-accounts_report.pdf.

6. Conclusions and implications

The PISA data shows that a clear gap in financial literacy based on socioeconomic status emerges by age 15, before most youth have even become full-fledged financial actors. With a mission of educating and empowering consumers to make better informed financial decisions, the CFPB is eager to identify evidence-based strategies and approaches that can address this gap early in life. This brief provides suggestive evidence of the ability of three potential avenues to do so: parental financial socialization, bank accounts, and schools.

An important finding from the PISA data is the fact that all familial backgrounds are equally likely to have conversations about money management. In addition, controlling for frequency of conversation does not change the overall effect of socioeconomic status on financial knowledge. This suggests that having an increased frequency of conversations in and of itself may not be the answer. The data in this research cannot speak to the quality and content of money management conversations with parents.

Parents and caregivers are in a powerful position to introduce and reinforce development of financial skills, habits, and attitudes in their children. The CFPB provides resources for parents and caregivers regarding how to create productive dialogues on money matters with children. Specifically, the CFPB has created the Money as You Grow webpage for parents and caregivers, which offers practical, age-appropriate activities and conversation starters designed for encouraging kids to develop positive financial knowledge, skills, and attitudes. Additionally, the CFPB's Money as You Grow Bookshelf is a family financial education program that uses children's books to help families talk about and build new money skills. These tools are based on the CFPB's building blocks for youth financial capability, a framework that examines the skills and behaviors that support adult financial well-being and considers how these are developed throughout childhood.

Second, the PISA data reveals that financial literacy scores tend to be significantly lower for students who receive free and reduced price lunch (FRPL). In addition, controlling for school FRPL decreases the importance of family socioeconomic status. While school characteristics do not fully explain the socioeconomic gap in financial literacy, they do decrease the magnitude, suggesting that schools can be an important mitigating factor.

To support financial literacy in schools, the CFPB has a number of resources including tools and resources for the classroom. This includes an activity search for educators to access free classroom activities to teach the building blocks of financial capability. Educators can search by grade level, activity duration, and other key filters. Additionally, the Federal Deposit Insurance

Corporation (FDIC) offers Money Smart for Young People [43], which provides materials and information on the importance of saving money, spending and budgeting, understanding financial resources, and many other topics. The Money Smart for Young People program offers educators lesson plans with engaging activities, along with special guides for parents and caregivers that include conversation starters and activities to help young people learn more about money.

Third, there are reasons to think that experiential learning through bank accounts can improve financial outcomes for teens. For example, research suggests that savings account ownership helps young adults avoid higher-cost unsecured debt. [44] However, the 2015 U.S. PISA data does not support a finding that having a bank account affects financial literacy scores once socioeconomic status and other factors that may affect financial literacy are taken into account. While the results cannot rule out that bank accounts can be important tools in developing the financial capability of youth through experiential learning, more research examining the causal effect of bank accounts on financial literacy and financial behaviors is needed in the future. Ideally, this research would use a randomized control, and would capture more information about the type, nature, and setting of the account and the youth's experiences with the account.

Further, holding a bank account may lead to higher financial literacy if it is accompanied by explicit instruction and reflection. The FDIC promotes programs that link financial education with bank initiatives that facilitate youth savings accounts. [45] For example, the FDIC's two-year Youth Savings Pilot was designed to identify and highlight promising approaches to experiential financial education—that is, approaches that combine traditional classroom-based financial education with the opportunity to open a safe, low-cost savings account. During the 2015–16 school year, the 21 banks participating in the pilot created over 4,500 youth savings accounts and provided financial education to thousands more children. A majority of the banks that participated in the pilot expanded their outreach programs to engage even more young people over the course of the school year. [46] In addition, the FDIC's Youth Banking Resource Center shares resources to encourage banks and schools to work together to improve the financial skills

[43] *See* Federal Deposit Insurance Corporation (FDIC), Money Smart for Young People *available at* fdic.gov/consumers/consumer/moneysmart/young.html.

[44] Friedline, T., & Freeman, A. [Should this be A. Freeman for consistency with other notes?] (2015). The potential for savings accounts to protect young adult households from unsecured debt in periods of macroeconomic stability and decline (AEDI Research Brief). Lawrence, KS: University of Kansas, Center on Assets, Education, and Inclusion.

[45] *See* Federal Deposit Insurance Corporation (FDIC), Youth Banking Resource Center *available at* fdic.gov/consumers/assistance/protection/depaccounts/youthsavings/index.html.

[46] *See* Federal Deposit Insurance Corporation (FDIC), *Youth Savings with Financial Education: Lessons from the FDIC Pilot* (2017) *available at* fdic.gov/consumers/assistance/protection/depaccounts/youthsavings/documents/lessons-from-the-fdic-pilot.pdf.

and experiences of youth. Research should explore the effect of a bank account accompanied by financial education, such as FDIC's Money Smart for Young People. This will allow policymakers, researchers, and stakeholders to see the relative effects of experiential learning through bank accounts, financial education, and the two paired together.

In sum, the data found a clear divide based on family background in terms of which types of students use bank accounts, but no clear differences in frequency of money conversations across family backgrounds. The role of school characteristics in improving financial literacy and capability of the young is apparent in the data; there are clear differences in the schools serving the highest and lowest poverty areas. Thus, among the three avenues explored in this brief – frequency of parental conversations, schools, and bank accounts – the CFPB's analysis of the 2015 PISA data finds the clearest evidence that schools provide a potential avenue to mitigate some of the socioeconomic gaps in financial literacy. Providing robust financial education in schools, particularly those with a higher share of low-income students, holds promise to improve financial capability for all students, regardless of background.

APPENDIX A:

TABLE 4: DESCRIPTIVE STATISTICS: WHO HAS A BANK ACCOUNT?

DESCRIPTION	% BANK ACCOUNT	STANDARD ERROR
ESCS (PISA index of economic, social, and cultural status)		
Bottom quarter	28.6	2.95
Second quarter	48.8	3.32
Third quarter	56.4	2.65
Top quarter	72.8	2.24
Gender		
Female	52.9	2.23
Male	53.6	2.17
Student race/ethnicity		
White, not Hispanic	64.3	2.26
African American, not Hispanic	46.5	4.31
Hispanic or Latino	35.1	2.88
Others	59.4	4.06
Student immigration status (the PISA index)		
U.S. Native	56.8	2.18
Non-Native	39.3	3.14
Language spoken at home		
English	57.1	1.96
Another language	32.8	3.38
Percentage of students eligible for FRPL		
< 25%	76.1	3.28
25-49.9%	59.3	2.71
50-74.9%	48.7	2.57
> 75%	29.0	3.59
School location (collapsed as in the OECD report)		
Village, Small Town, or Town	56.7	2.40
City or Large City (>=100K)	47.4	3.18
Observations=1,486		

Notes: Data from 2015 U.S. PISA Money Management Questionnaire.

TABLE 5: ASSOCIATION BETWEEN BANK ACCOUNTS AND PISA FINANCIAL LITERACY SCORES

CONTROLS	NO CONTROLS		ESCS		ESCS + SCHOOL		ESCS + SCHOOL + STUDENT	
Have bank account	41.08	***	21.80	***	10.92		9.29	
	(6.041)		(6.250)		(6.115)		(6.014)	
ESCS Second quarter			14.31		5.22		13.29	
			(7.812)		(8.219)		(7.725)	
ESCS Third quarter			22.42	**	11.23		18.03	*
			(7.760)		(8.043)		(8.423)	
ESCS Top quarter			79.30	***	62.56	***	61.75	***
			(8.141)		(9.883)		(9.388)	
25-49.9% FRPL					-10.69		-5.96	
					(11.537)		(10.588)	
50-74.9% FRPL					-46.19	***	-33.88	**
					(12.315)		(11.501)	
75% or more FRPL					-71.35	***	-43.39	***
					(13.055)		(11.802)	
City or large city					-6.90		3.87	
					(7.285)		(6.702)	
Female							-1.91	
							(5.568)	
Black or African American							-77.85	***
							(9.403)	
Hispanic or Latino							-31.20	**
							(10.036)	
Other races							-6.65	
							(10.562)	
U.S. native							19.37	*
							(9.626)	
Another language at home							-7.83	
							(12.142)	
Observations	1,301		1,291		1,199		1,163	

Notes: Data from 2015 U.S. PISA Money Management Questionnaire. The dependent variable equals the PISA financial literacy score. Excluded groups are ESCS Bottom quarter; <25% FRPL; Town, Small Town, or Village; Male; White, non-Hispanic; U.S. native; English is primary language spoken at home. * p<0.05, ** p<0.01, *** p<0.001.