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An Analysis of Financial Literacy Among Italian Students

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Introduction

Today's youth live on an economic landscape that requires them to shoulder greater savings and investing responsibilities than past generations while systemic changes in retirement savings, volatile financial markets, and higher costs of education are forcing them to make important financial decisions at early ages. Life expectancy is longer—and continues to increase—meaning young people face the prospect of supporting themselves for many years more than their parents. Thanks to globalization and digital technologies, financial services and products are more widely available but also more complex. As younger generations tackle financial decisions that carry a long-lasting impact, their understanding of the concepts involved in these decisions will be critical.

Growing research shows that financial literacy is an essential skill if young people are to make sound financial decisions for their future. The financially literate among them are more likely to have precautionary savings, plan for retirement, make financial investments, and be current on credit card and loan payments (Lusardi et al., 2017, Lusardi and Tufano, 2015). The first international study of financial literacy and education, published in 2005 by the Organization for Economic Cooperation and Development (OECD), noted both the critical role of financial literacy as well as its paucity across the globe (OECD, 2005).

In 2008, the OECD created the International Network on Financial Education (INFE) to promote awareness of effective financial education, collect data, and facilitate the collaboration of policymakers. The OECD and INFE underscored the importance of financial education for the young and the need for international measurements of financial literacy. This in turn led to the development of an assessment for measuring levels of financial literacy among the young on an international scale. The assessment was folded into the OECD's Programme for International Student Assessment (PISA) in 2012. The assessment provides a unique opportunity to understand the level of financial literacy of the young on an international scale. Results from this assessment showed Italy, in particular, experienced a significant increase in their average financial literacy, since 2012. Further analysis of Italy provides a greater understanding of the factors that influence the financial skills and knowledge of the young.

The Programme for International Student Assessment (PISA)

PISA is a triennial global survey that evaluates education systems worldwide by testing the skills and knowledge of 15-year-old students. The first assessment, conducted in 2000, covered 43 countries and economies. The most recent wave, in 2015, encompasses 72

countries and economies. In the 2015 survey, approximately 540,000 students—representing 29 million 15-year-olds—completed a two-hour test (OECD, 2017). PISA measures the ability of students through three core domains of reading, mathematics, and science. In each wave, one of the core domains is tested in detail using a majority of the testing time. Minor assessments are also made in the remaining domains (reading, mathematics, science or collaborative problem solving) to allow for performance analyses on a three-year frequency. Since 2012, countries have also been given the opportunity to participate in an optional financial literacy assessment.

PISA's objective is to measure how prepared students are to face the challenges of modern society. The forward-looking assessment is timed near completion of mandatory schooling, just before students enter the adult world, and examines how they apply their knowledge to real world situations. This is distinctive from other standardized testing that measures proficiency of specific concepts taught and learned in school. Fifteen-year-olds were singled out for the assessment because while students across countries vary in age when they complete mandatory schooling, 15-year-olds are usually still in school. In addition to collecting student performance data, PISA asks the students and their principals to complete questionnaires about socio-demographic and family background, learning environment, attitudes toward education, and school-specific characteristics. Countries can also choose to survey parents about their participation in their child's learning and schooling activities. This information helps identify factors that may influence student performance.

The Financial Literacy Assessment

The optional financial literacy assessment, which can be added to the assessment of core skills, involves an additional one-hour test for a randomly chosen subset of students in the participating countries and economies. The financial literacy assessment was conducted in 18 countries and economies in 2012. The second wave in 2015 assessed students in 15 countries and economies, 10 of which are OECD members: Australia, Flemish Community of Belgium, Canadian provinces, Chile, Italy, the Netherlands, Poland, Slovak Republic, Spain and the United States. Another five are partner countries and economies: Brazil, the Chinese provinces of Beijing-Shanghai-Jiangsu-Guangdong (B-S-J-G [China]), Lithuania, Peru, and Russia. Seven OECD members participated in both waves—Australia, Belgium (Flemish), Italy, Poland, the Slovak Republic, Spain and the United States—but the only partner country to take part in both was Russia (OECD, 2015).

The financial literacy assessment is based on a framework developed in 2012. It uses a comprehensive definition of financial literacy that takes into consideration both knowledge

of financial concepts and the ability to apply the knowledge to everyday situations relevant for the young:

“Financial literacy is knowledge and understanding of financial concepts and risks, and the skills, motivation and confidence to apply such knowledge and understanding in order to make effective decisions across a range of financial contexts, to improve the financial well-being of individuals and society, and to enable participation in economic life.” (OECD, 2014)

The assessment’s operational measures cover three dimensions of financial literacy: content, process, and context. Content refers to knowledge, what students know about financial products and concepts. This includes an understanding of financial products such as bank cards; the planning and managing of income and wealth over both the short-term and long-term; and students’ interaction with the larger financial marketplace. The second dimension, process, aims to assess how student apply their knowledge and analyze and evaluate solutions. In particular, it looks at how students identify and assess financial information and how they evaluate and take effective actions in a financial setting. The context dimension applies financial knowledge and skills to specific settings, describing general life situations in which students must make financial decisions. A context example would be the post-graduation decision of whether to continue one’s education or enter the labor market.

The financial literacy assessment embeds these three dimensions in various questions that test students’ proficiency. Answering the questions requires a basic level of numeracy, although the questions are framed so as to avoid the need for substantial calculation. The level of difficulty for each question and the student performance are evaluated on a proficiency scale.

Methodology of the Assessment

The individual tests that students take contain only a subset of the overall pool of items in the assessment. They are kept brief to minimize survey fatigue and improve response rates. This setup provides accurate estimations of the student population when results are interpreted at the aggregate level. Comparisons across individual students are difficult, however, as not all students take the same assessment (OECD, 2017b). Students’ proficiency is estimated with a probabilistic model using a distribution based on the level of difficulty of the question and the underlying student trait characteristics that are captured from the student questionnaire. A question’s difficulty is based on the percentage of students who answer the question correctly. The estimated proficiency of students and the level of difficulty of the questions are then placed on a continuous scale (OECD, 2017b). The single

scale summarizes the type of test questions that can be answered by more or less proficient students. The higher a student’s proficiency level above a given question, the higher is the likelihood that this student can answer this specific question correctly. Points of the scale represent differing levels of financial capability. Table A reports the score-points associated with each of the five proficiency levels.

Table A: Levels of Financial Literacy Proficiency

Level 5	625 points and above
Level 4	550 - 624 points
Level 3	475 - 549 points
Level 2	400 - 474 points
Level 1	326 - 399 points

Note: PISA 2015

Each proficiency level represents capability and understanding of financial concepts, products, and decisions at varying complexity. Every level spans 75 points. Students scoring at or below 400 are considered at Level 1; as such, they demonstrate an understanding of simple financial terms, such as needs and wants. Level 2 indicates students who can start to apply their basic financial knowledge, such as understanding how to budget. The OECD considers this the baseline level of financial skills, the proficiency necessary for students to participate in society (OECD, 2017a). Students at Levels 3 and 4 are able to apply financial knowledge to a broader and more complex array of financial products. They are also able to begin to consider the consequences of financial decisions. Finally, Level 5 is the highest proficiency, a level at which students have a strong understanding of financial concepts and can apply that understanding to relevant financial decision-making (OECD, 2017a).

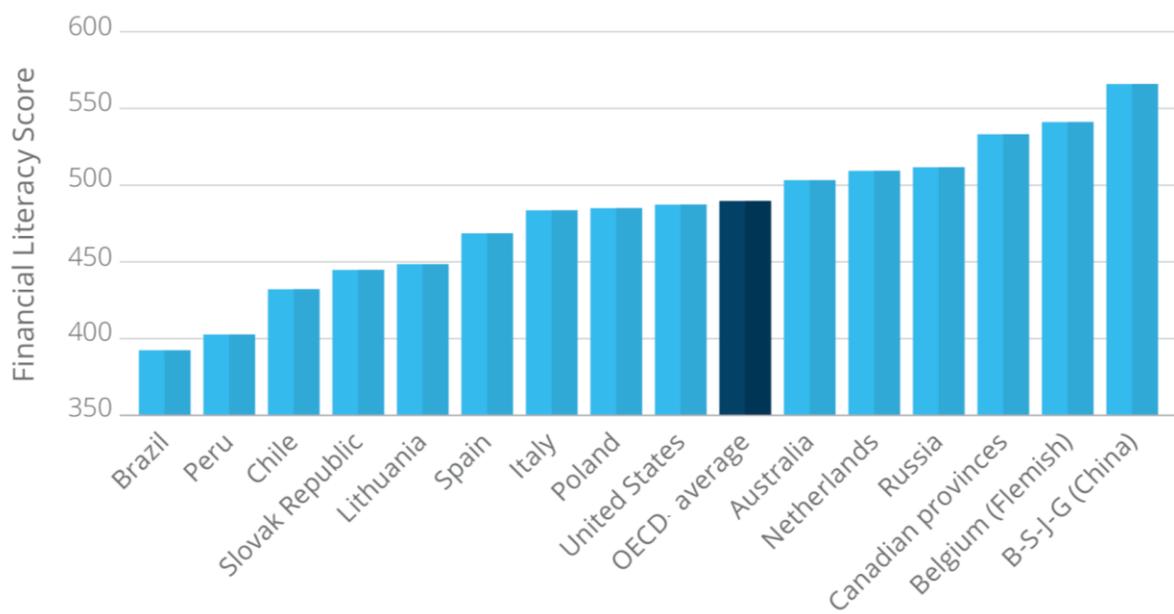
The proficiency levels allow a comparable measure of the current state of financial literacy and the capability of students across participating countries. Countries that participated in both waves gain insight into how their levels have developed from three years prior. PISA may also help inform countries so that they can better promote and improve national strategies for financial literacy.

Global Financial Literacy Levels

In the 2015 financial literacy assessment, the average performance of the 15 participating countries ran along a range, from Brazil at the bottom of the scale with a score of 393 to the four Chinese provinces, Beijing-Shanghai-Jiangsu-Guangdong (B-S-J-G [China]), with a top score of 566. Thus, the difference in average performance between the highest- and lowest-

performing countries and economies is equivalent to more than two levels of proficiency (173 points). The average score of the 10 participating OECD countries was 489. Belgium (Flemish) and the Canadian provinces ranked in the first and second places, respectively, and two other OECD countries, Australia and the Netherlands, performed above the OECD average. Figure 1 shows the average financial literacy scores of all participating countries in the financial literacy assessment.

Figure 1: Average Financial Literacy Performance of Students in 2015



Source: PISA 2015.

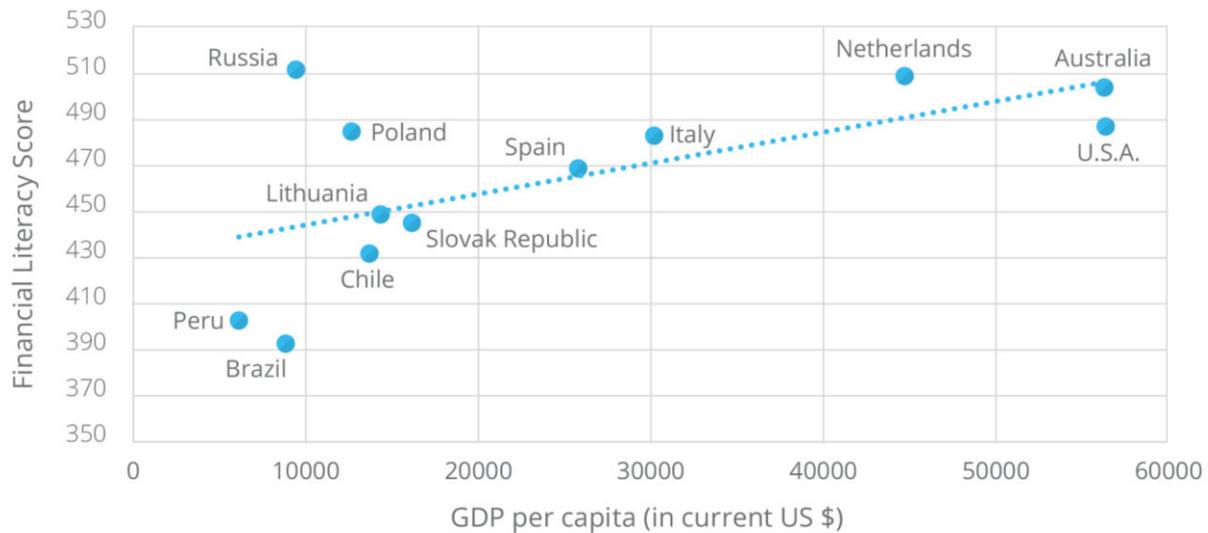
Seven of the 10 OECD countries and one partner country, Russia, participated in the prior financial literacy assessment in 2012. Since PISA is an age-based survey, the students who took the assessment in 2012 are not the same as the ones who took it in 2015. The interpretation of financial literacy performance over time should also be made with caution given that there were modifications in the assessment itself. Nonetheless, insights can be gained from comparing country results in 2012 with those of 2015. Poland, the Slovak Republic, and Australia show significant declines. Their scores fell 22 to 25 points in the second wave. Russia, meanwhile, saw a 26-point improvement in its overall financial literacy performance in 2015. Russia, in collaboration with the World Bank and INFE, launched a major campaign in 2010 to improve financial literacy and boost consumer protection (The World Bank, 2017). The initiative includes the development of a national strategy, education program requirements, and assessments and surveys. The PISA results may reflect the success of this undertaking, especially since performance did not improve to the same

magnitude in the other core domains, mathematics, reading, and science. Belgium (Flemish) and the United States show no significant change in mean performance between 2012 and 2015. Overall, ground was lost for the seven OECD countries that participated in both the 2012 and 2015 waves. In 2012, 15.4% of their students performed below the baseline of financial knowledge. That increased to 21.8% in 2015.

Global trends emerge from the distribution across proficiency levels among the participating countries in 2015. Among the 10 OECD countries, 22% of 15-year-olds lack a basic understanding of financial literacy, performing at Level 1 or below. In other words, these students on average, score below the baseline level of financial literacy proficiency (Level 2). Over all participating countries, the share of low-performing students differs widely. Among the highest shares are 53% of students in Brazil, 48% in Peru, and 38% in Chile. In high-performing countries, just more than one-in-10 students in B-S-J-G (China), Russia, and Belgium (Flemish) perform at or below Level 1. It is important to note that even in high-performing countries, only 12% of students are highly proficient in financial matters, meaning they are able to answer the Level 5 questions correctly. This high-proficiency shortfall persists across all participating countries. The incidence of students at Level 5 ranges from one in three students in B-S-J-G (China) to one in 10 in Peru.

The variability in average financial literacy performance across countries is linked to several factors, including wealth and financial access. Economies with greater wealth, as measured by GDP per capita, generally have more complex financial systems. Figure 2 shows a positive relationship between wealth and financial literacy scores. The graph uses the 2015 GDP per capita, shown in current U.S. dollars. The three participating economies—Belgium (Flemish), B-S-J-G (China), and the Canadian provinces—are excluded from this analysis since they represent sub-regions of their respective countries.

Figure 2: Financial Literacy Score by GDP Per Capita



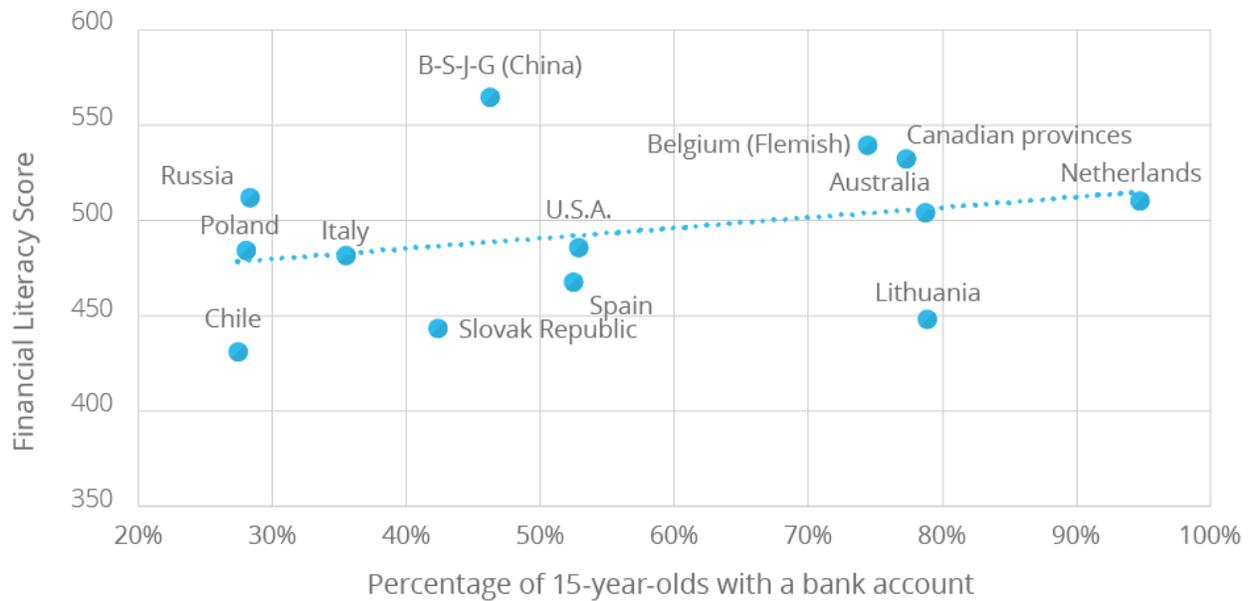
Sources: PISA 2015 and World Bank (2015).

Note: The regions and provinces of China, Canada, and Belgium are not shown.

As Figure 2 shows, the wealth/financial access relationship is weak for some of the participating countries. The United States, for example, has one of the highest GDP per capita but falls right around the OECD average. Russia, meanwhile, has a higher-than-average financial literacy score but is among the lowest GDP per capita countries within PISA. Further, Lithuania, the Slovak Republic, Chile, and Poland have similar per capita GDP, but students in Poland score 40 points higher, on average, than the 15-year-olds in the Slovak Republic and 53 points higher than the students in Chile.

There is a positive relationship between mean financial performance and bank account ownership by students in the participating countries but, as Figure 3 shows, greater access does not necessarily translate to improved financial literacy scores. Russia and the Netherlands differ in bank account ownership among the 15-year-old population by 67 percentage points, but they have a similar average performance in financial literacy.

Figure 3: Financial Literacy Score by Percentage of Students with a Bank Account



Source: PISA 2015.

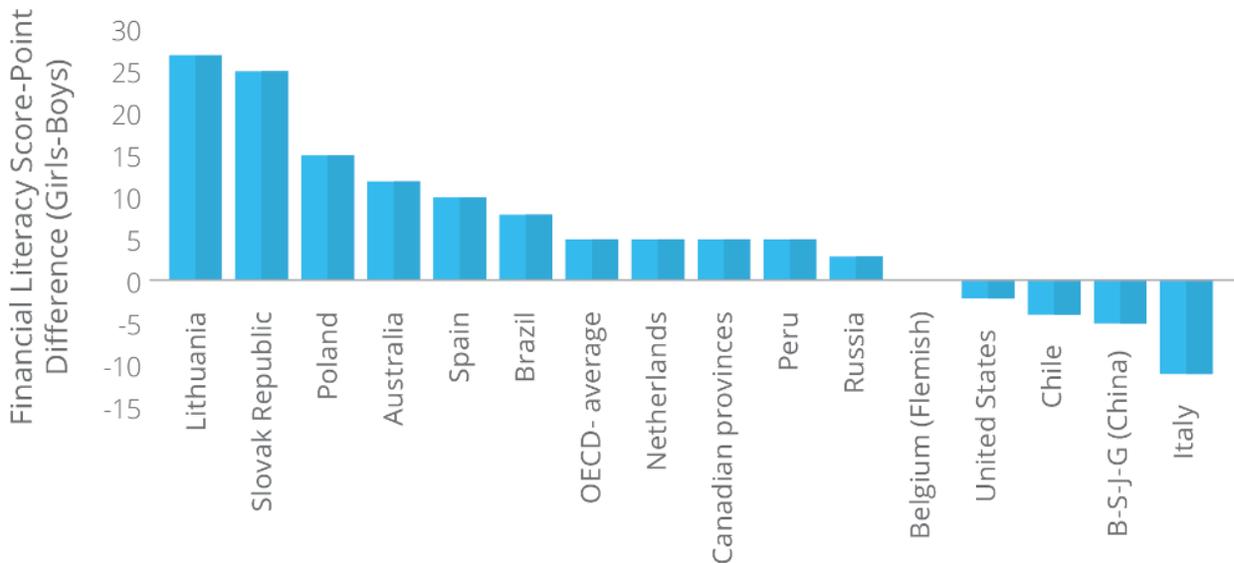
Note: Data for bank account ownership is not available for Brazil and Peru.

Countries with more advanced and complex financial systems generally report higher financial literacy scores, yet multiple considerations and factors influence this relationship. Russia has invested heavily in expanding financial education for the young, which may have influenced the improvement in its scores despite the country's lower bank account ownership and lower GDP per capita.

Gender Gap

Gender is also an important consideration in understanding the influences on financial capability among students. A gender gap emerges for the majority of the countries in the PISA assessment, although the direction and magnitude of these differences vary widely. Figure 4 shows the mean score-point difference between girls and boys, where a positive difference indicates a higher average performance for girls, and a negative score represents a higher performance for boys.

Figure 4: Difference in Average Financial Literacy Score by Gender



Source: PISA 2015.

Lithuania and the Slovak Republic have the largest significant difference, with girls outperforming boys by 27 and 25 mean score-points, respectively. This translates to about one-third of a proficiency level. These differences are large, but they should be interpreted relative to the student performance distribution within these countries. In Lithuania and the Slovak Republic, the mean differences between the financial literacy scores of students in the top 90th percentile and those in the 10th percentile are 266 and 311 score points, respectively. This reflects a high variation across students. In the majority of countries, girls outperform boys but the differences are only significant for Lithuania, the Slovak Republic, Poland, Australia, and Spain. The only country with a significant gender gap in the negative direction is Italy, where boys outperform girls by 11 score points. The next closest economy with a gap that favors boys is B-S-J-G (China), but the magnitude of its difference is about half that of Italy. Table B shows the mean financial literacy scores for boys and girls in Italy and in B-S-J-G (China). In the remaining countries, the performance difference by gender is not statistically significant.

Table B: Financial Literacy Performance by Gender for Italy and B-S-J-G (China)

	Italy	B-S-J-G (China)
Average financial literacy scores of boys	489.1 (3.9)	568.4 (6.1)
Average financial literacy scores of girls	477.9 (4.0)	563.4 (6.7)
Difference (girls – boys)	-11.2** (5.6)	-5 (4.2)

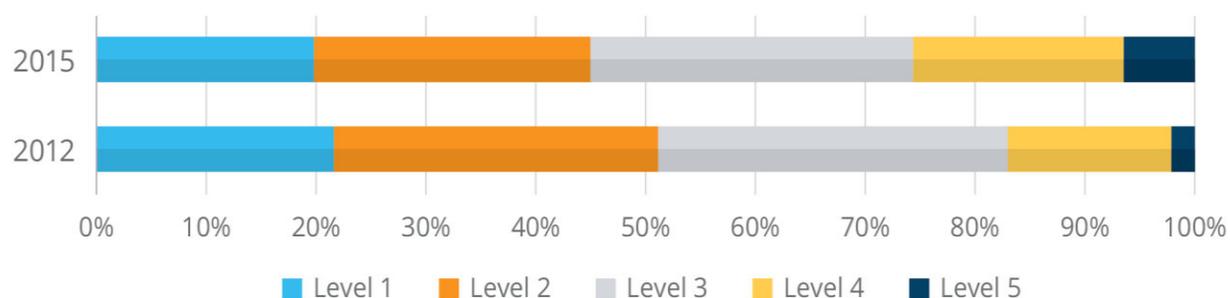
Note: PISA 2015. Standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Gender differences in financial literacy may be traced to a combination of factors, including differences in opportunities for learning, in interest in financial matters, and in socioeconomic backgrounds (Bottazzi and Lusardi, 2016).

In Focus: Italy

Italy is a unique country for analysis. Among OECD countries taking part in both the 2012 and 2015 waves, Italy was the only one to experience a significant uptick in overall financial literacy. In the first wave, Italy ranked second to last. Its average score-point was 466, significantly below the 499 OECD average. The assessment included 7,068 students from 21 distinct regions of Italy (OECD, 2014). In the second wave in 2015, Italy scored 17 points higher—483—putting it closer to the OECD average of 488. The second wave included 3,034 students from five distinct regions of Italy (OECD, 2017a). Figure 5, which looks at both waves, breaks down the percentages of students at each financial literacy proficiency level, offering a more detailed assessment of where the improvement occurred.

Figure 5: Financial Literacy by Proficiency Level of Students in 2012 and 2015 in Italy



Source: PISA 2012 and 2015.

There is a marginal decrease, less than 1.9 percentage points, in the percentage of Italian students at Level 1 or below. The percentage of students performing below the baseline level of proficiency remains around the OECD average: about one-in-five students. However, there is a statistically significant decline of 4.4 percentage points among students scoring at Level 2, the baseline level of proficiency. Further, the higher financial literacy score is driven by a significant jump in the percentage of students performing at Levels 4 and 5, or 4.3 and 4.4 percentage points, respectively. The decline of students scoring at Level 3 was not statistically significant. These changes indicate that, overall, the percentage of Italian students lacking basic financial literacy skills remains constant, although greater numbers of students at higher levels of proficiency are able to grasp the more challenging questions.

The performance variation observed within each participating country or economy is wider than the variation observed between countries and economies. Student characteristics, socioeconomic status, immigration background, and experience with money may influence financial literacy and contribute to the observed heterogeneity between students from the same country or economy. The financial literacy score point difference between students performing at the 90th percentile and those at the 10th percentile is 285 points on average for the OECD countries and economies. Interestingly, the performance gap in Italy is 249 score-points, the smallest along with Russia (232 score-points). The largest gap—312 score-points—occurred with B-S-J-G (China) and the Netherlands. These differences reflect the proficiency disparity between the lowest and the highest achievers within a country which, in Italy, exceeds three proficiency levels. A comparison of Italy's results from 2012 to 2015 shows an upward shift in the upper part of the performance distribution (at the median and above), reaffirming that the average improvement in financial literacy is due to better performance among high-performing students.

Factors Influencing Financial Literacy Performance

Multiple factors may help explain financial literacy performance, among them, social environment, home and family background, and interaction with the financial market. Schools and teachers can also exert an influence. The social and economic environments in which students grow up may affect their perception of education and their educational achievement. Family background provides insight into what educational resources are available to students. Answers to questions about home possessions are taken as proxies for material wealth. Parents, too, may have an effect on students' school performance beyond their economic status. The ways in which parents address money matters and discuss financial decision-making at home can have an influence, as can parents' involvement in their child's education. Financial literacy competency and skill may also depend on a student's learning environment, school resources, and teachers.

Influencing Factor: Family and Socioeconomic Background

Research shows that factors such as parents' education, demographics, and socioeconomic background are strongly related to financial literacy (Lusardi, Mitchell and Curto, 2010). The breadth and depth of the questions included in PISA allow for the development of various indices to measure the impact of wealth and socioeconomic background on student performance, largely through the resources and learning opportunities available to the students.

The family wealth index is a composite within PISA that employs several questions about home possession and access to technology in order to indicate the wealth of the family. Variables within this index include whether the student has a room of his or her own or a link to the internet. The number of smartphones, televisions, electronic tablets, computers, cars, and the number of rooms in a home with a bath or shower are also counted. In Italy, three country-specific possessions were included as proxies for wealth: antique furniture, a security-alarm system, and air conditioning. Since the PISA data do not include a direct income measure, the possession of household items has been used as a proxy for family wealth (OECD, 2017b). Table C shows how this index influences financial literacy performance by quartiles. There is a significant 31-point difference in financial literacy performance between students in the top quarter and those in the bottom quarter of the index. This difference equals about half a proficiency level.

An extended version of the family wealth index is the index of home possessions. It takes into account additional household items to which a student may have access, including a desk, different types of books, educational software, and musical instruments. The score-point difference in financial literacy of 59 points on average shows a wider range of performance for those at the top and bottom quarters. This translates to slightly less than one proficiency level. Students at the top quarter may have higher financial literacy levels than those at the bottom quarter, due to greater material wealth.

Table C: Mean Financial Literacy Score Points by Wealth and Socioeconomic Indices in Italy

	First Quarter	Second Quarter	Third Quarter	Fourth Quarter	Difference in Mean Score Points (Fourth Quarter – First Quarter)
Family Wealth Index	466	487	490	497	31
Home Possessions	450	475	502	510	59
Socio – Economic Index	452	483	494	512	60

Note: PISA 2015.

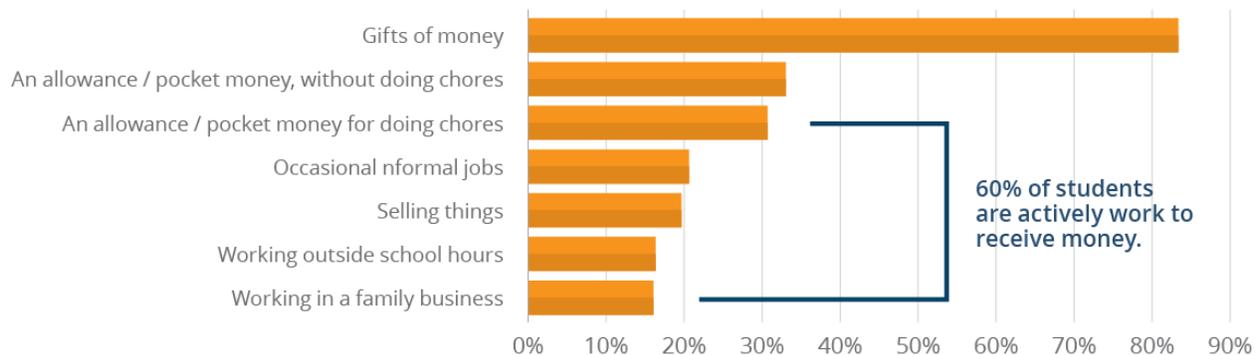
The variation in performance is more pronounced when additional variables are taken into account. The index of economic, social, and cultural status (socioeconomic index) is a compilation of three indicators: the parents' education, the highest parental occupation, and the home possession index discussed previously. The rationale for using these three components was that socioeconomic status has been seen as based on education, occupational status, and income (OECD, 2017b). There is a significant difference—60 score points—between students considered economically disadvantaged by the OECD (bottom quarter) and those considered economically advantaged (top quarter). The average score of students from the bottom quarter fall into the first proficiency level, reflecting a lack of basic financial skills. Those in the top quarter, the economically advantaged students, perform around the third proficiency level.

While this score-point difference in financial literacy performance is significant, it falls below the OECD average of 89 score points, the smallest difference among all 10 OECD countries. Thus, the percentage of the variation in financial literacy performance explained by the socioeconomic index is 5.5%, the lowest among the OECD participating members. On average across the 10 OECD countries and economies, 10% of the variation in student performance within each country and economy is associated with socioeconomic status. Students are generally born into their family background, and their households' socioeconomic status has a significant influence on their financial literacy performance. Besides these factors, students may also choose to interact with the financial market and learn through work, owning a bank account, or other avenues.

Influencing Factor: Financial Access

A basic understanding of financial concepts is essential for students. Many 15-year-olds already make financial decisions related to saving and spending, and these decisions require their understanding of the value of money. Students gain experience by receiving money through an allowance or a gift from friends or family, by selling thing at a local market or online, or by working in a formal or informal job. Informal jobs include occasional tasks such as babysitting or yard work. Figure 6 details the percentage of Italian students who report receiving money from such sources. The majority receive some form of money through gifts (83%). More than a third (35%) of students receive an allowance, which may or may not be tied to chores. In addition to receiving money from their parents and family, every other 15-year-old student earns income from some form of work activity. Specifically, 53% report receiving money from working outside school hours, and/or from working in a family business, and/or from occasional informal jobs.

Figure 6: Percentage of Italian Students who Receive Money in Italy



Source: PISA 2015.

These income sources can be classified into active or passive avenues through which students receive money. Students acquire active income by working either formally or informally, by doing chores for an allowance, or by selling items. In other words, they work in exchange for the money they receive. Students who receive an allowance for doing chores are classified as active since there is a monetary value assigned to their work. In contrast, students classified as receiving money passively are those who get gifts from friends and family or an allowance without doing chores. There is no exchange involved for the money received and, as a result, these students may not assign the same personal value to money.

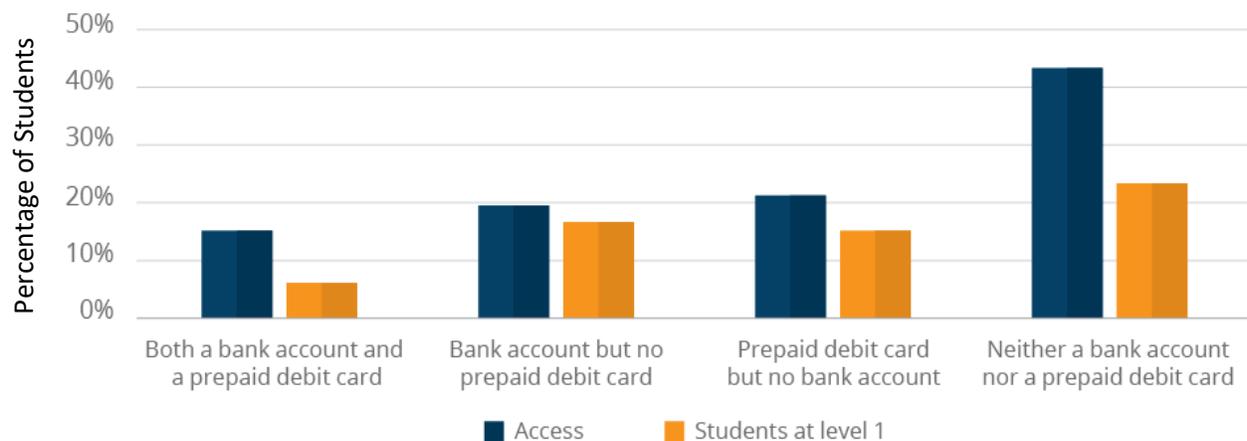
More than half of Italian students (60%) receive money in exchange for work. These students may also receive money passively through gifts or an allowance without doing chores. Students who work may put the same personal value on the money they receive whether it is in exchange for work or received freely. Slightly more than half (57%) receive money only through an allowance (without chores) or gifts. They do not receive money from doing work. Although not available from PISA, the amount of money students receive through gifts, allowances, or work may differ by socioeconomic status. However, the percentage of students who work actively or receive money passively does not significantly vary by socioeconomic status.

To explore the differences in how students value money, the propensity to save is compared across students who receive money actively and those who receive it passively. Students are asked what they would do if they did not have enough money to buy something they really wanted. The options offered were to buy it with money that should be used for something else, to borrow from a family member, to borrow from a friend, to save to buy it, or not buy it. Students who answered that they would save to buy it were deemed to have a propensity to save. Students who receive money have a slightly higher propensity to save as shown in Table A1 of the Appendix, after controlling for student, school, and regional characteristics.

However, the propensity to save for students who work does not diverge greatly from that of students who receive gifts or pocket money. Students who work may assign a greater value to the money they receive, but this does not translate into increased savings behavior. A stronger relationship is found between savings behavior and the level of financial literacy. The scores for students who self-report that they would save money if there was something they wanted were, on average, 10 points higher in the financial literacy assessment than students who do not save, after accounting for regional differences and school and student characteristics. This is reported in Table A2 of the Appendix.

While much of the 15-year-old student population receives and earns money, there are differences among students in terms of access to financial products such as bank accounts and prepaid debit cards. Just more than half the Italian students (57%) have a bank account and/or a prepaid debit card. This aligns with the OECD average of 60%. Students in Italy who use financial products also show higher financial literacy levels. A student with a bank account scores, on average, 26 points higher than a student without a bank account. For a student with a prepaid debit card, the gap is 30 points. Both differences are statistically significant and remain significant even after accounting for socioeconomic differences. Figure 7 shows the percentage of students with bank accounts, prepaid credit cards, or combinations of the two. Moreover, it shows the percentage of students who score at Level 1 proficiency or below for each combination of financial access. The reported percentages of students performing below the baseline level are conditional on the ownership of the specific combination of bank account and prepaid debit card.

Figure 7: Percentage of Students with Financial Access and Who Lack Even Basic Proficiency (Level 1)



Source: PISA 2015.

Overall, 20% of students in Italy score at Level 1 proficiency or below, indicating that they lack the baseline financial skills for successful participation in economic life. Among students without access to a bank account or a prepaid debit card, 24% fall below the baseline of financial literacy capability. The percentage of low performers—students lacking basic financial knowledge—decreases as financial access rises. Among students who own both a bank account and a prepaid debit card, only 6% fall below the baseline of proficiency. Although there is a strong relationship, these findings need to be interpreted with caution as they only show a correlation, not a causal relationship. Moreover, students below or even at the baseline level are using financial products without the knowledge and skills needed to make sound financial decisions associated with these products.

An important consideration for financial access is the role of parents. In Italy, 15-year-old students can only open a bank account and/or use many financial products, such as a prepaid debit card, with their parents' permission (OECD, 2017c). Beyond extending this permission, parents also play an important role in the financial behavior, knowledge, and capability of students.

Influencing Factor: Parents

There are many avenues through which students learn to make financial decisions. Formal education and experiences in their home lives are part of that. Parents can have a deep influence on their child's success in school through their engagement in school activities, through their support of the student, and through their teaching at home. Further, parents can transmit financial knowledge and decision-making skills through example, serving as role models, as well as through talking with their children about money matters.

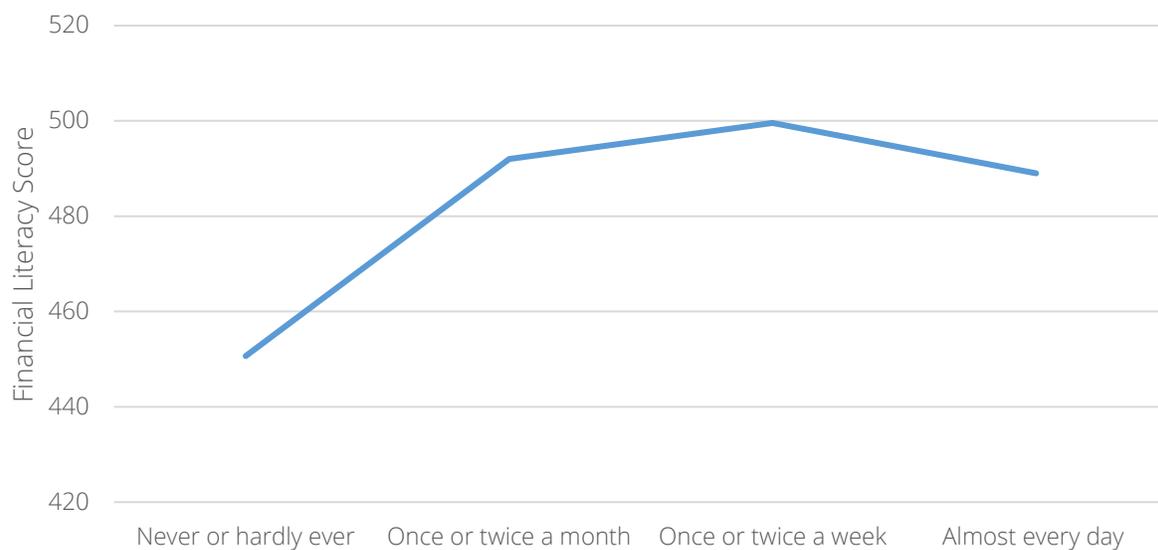
Children who feel supported academically and emotionally by their parents tend to have higher financial literacy scores. Students were asked several questions to gauge their parents' involvement in their education and emotional support. These included questions focused on whether parents were interested in school activities. The students responded by choosing an answer on a four-point scale ranging from "strongly agree" to "strongly disagree." Students who answered "agree" or "strongly agree" performed 28 score points higher on the financial literacy scale than those who answered "disagree" or "strongly disagree" (Table A3 of the Appendix). This difference is significant even after accounting for differences in region and school and student characteristics.

Students who feel that their parents support their educational efforts and achievements also have slightly higher financial literacy outcomes, although the score-point increase is not significant when controlling for student, school, and region characteristics (Tables A3 of the Appendix). Included within the controls for student characteristics is a variable for gender.

Consistent with previous findings of a gender gap in Italy, girls score significantly lower than boys in both previously mentioned regressions testing the relationship between parental involvement and financial literacy performance.

Another way parents influence their students' financial capability is by talking directly with them about spending, saving, banking, investment, and other money matters. The majority of students (60%) report speaking with their parents either once or twice a month or once or twice a week. Within this group, the percentage of students who discuss money matters with their parents more frequently (once or twice a week) is larger with 35%, compared to 25% who speak only once or twice a month. This is comparable to the participating OECD countries and economies, which average 34% (once or twice a week) and 32% (once or twice a month). In looking at gender, the frequency with which parents speak with their children is fairly equal in Italy. Figure 8 shows there is a positive impact on a student's financial literacy score if parents talk directly about money matters on a more regular basis. These findings suggest that the quality of the money-related interactions between parents and children may have a greater impact on young people's financial literacy performance than does allowances, for example.

Figure 8: Financial Literacy Performance by How Often Parents Speak About Money in Italy



Source: PISA 2015.

Student financial literacy rises significantly, from an average of 451 score-points for students who never or hardly ever speak to their parents to 492 for students who speak with their parents once or twice a month. This relationship is consistent, and score-point difference remain statistically significant even after accounting for socioeconomic differences.

Additional gains in financial literacy performance, pushing scores up to an average of 500 points, occur when the frequency of those discussions increases to once or twice a week. Overall, students who speak with their parents about money matters once or twice a month, once or twice a week, or nearly every day score 44 points higher. Even when taking socioeconomic status into consideration, that increase is still 40 points above that of students who never or hardly ever speak with their parents about money matters. This provides evidence that parents can help increase the financial knowledge and skills of their children. However, the data do not allow for determining causality. The positive correlation can be interpreted as students acquiring financial skills by discussing the subject with their parents, or it may be that financially literate students ask questions and seek advice from their parents more often.

Although, the positive relationship is strong, it is not linear. There is an observed decline in financial literacy performance at the “almost every day” frequency, which is consistent across the participating OECD countries and for students at similar levels of socioeconomic status. A possible explanation for this decline is that students of lower financial proficiency may lack confidence and make poor financial decisions more frequently and, as a result, seek advice from their parents more often. Moreover, weekly and monthly discussions might also be of a different nature and importance than daily discussions (e.g., worrying about money versus asking for money).

Girls report speaking with their parents about money matters at the same frequency as boys do, but they consistently score lower than boys in the financial literacy assessment (Table D). Increases are observed for girls who speak once or twice a month with their parents compared with those who never or hardly ever do. This increase is actually slightly higher for girls (39 score-point difference) than it is for boys (33 score-point increase) after adjusting for socioeconomic differences. Slightly greater gains are also seen for girls who speak at least once or twice a month with their parents about money, compared with those who never or hardly do. Overall, however, financial literacy levels remain lower for girls than boys, despite having slightly higher increases between frequency levels of parental discussion than boys.

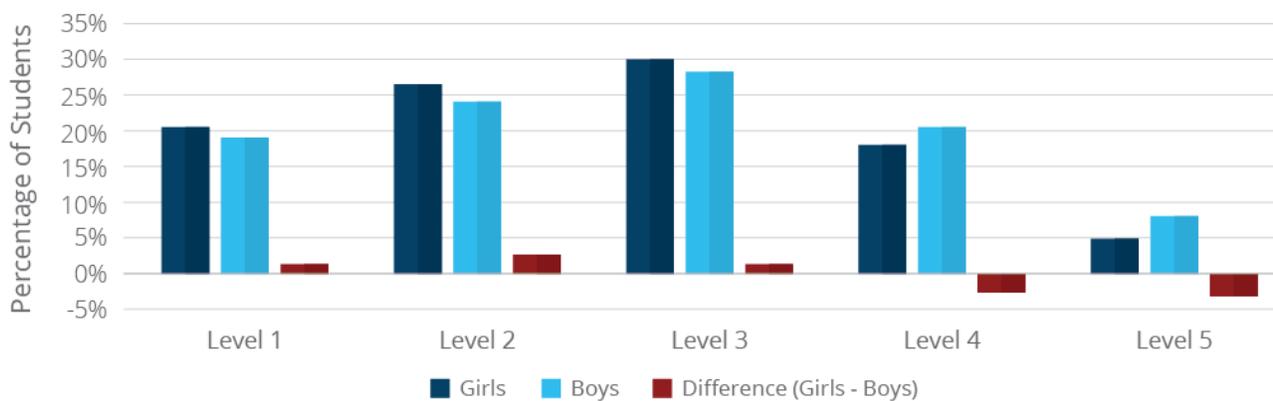
Table D: Financial Literacy Score Points by Frequency of Discussing Money Matters with Parents and Gender in Italy

Financial Literacy Score Points	Girls	Boys
Never or hardly ever	443	460
Once or twice a month	486	498
Once or twice a week	496	503
Almost every day	476	501

Note: PISA 2015.

A gap in financial literacy performance between Italian male and female students is also observed in the overall financial literacy scores and across the five proficiency levels. Italian boys significantly outperform girls by 11 score-points. Figure 9 reports the percentages of boys and girls for each proficiency level as well as the difference. There is a slightly higher percentage of girls below the baseline level of financial literacy. This also holds for the subsequent proficiency levels, Level 2 and Level 3. At proficiency Level 5, boys outnumber girls by a statistically significant 3 percentage points.

Figure 9: Gender Differences Within Proficiency Levels in Italy



Source: PISA 2015.

Parents can wield a large role in how well-prepared students are as they graduate and start making impactful financial decisions. This influence is seen indirectly through general support of students' education and directly through frequent conversations about money. Proficiency in financial literacy may be influenced by parental involvement in education. The quality and learning environment of the school and teachers are also factors that influence student achievement.

Influencing Factor: Teachers and Schools

School-related factors influence not only how students learn in general but also how they acquire the skills necessary for financial proficiency. These factors include teachers' education, the quality of the education provided, school resources, and whether a school fosters a positive learning environment. While it is difficult to quantify some of these intangible factors, information from PISA on specific school characteristics and student expectations allows a greater understanding of how these factors impact financial proficiency.

A school's location, class size, and student-teacher ratio matter for financial literacy. As Table E shows, schools in smaller communities or rural areas report a lower mean financial literacy score. The gap in financial literacy between schools in smaller or rural communities and

those in larger cities is 48 score-points, which is statistically significant. The reasons for this extend beyond school resources. For example, the opportunities for learning outside the schools may also vary by location. More specifically, students in larger communities might receive greater exposure to financial products and services, gaining knowledge through interaction with these products. Or it may be that the availability and access to these products boost students' motivation to learn more about financial topics.

Table E: Financial Literacy Score Points by School Location in Italy

School Location	Financial Literacy Score Points
Village or rural area with fewer than 3,000 people	456
Town with 3,000 to about 100,000 people	483
City with 100,000 people or more	504

Note: PISA 2015.

Class size's impact on financial literacy performance is more difficult to determine. In Italy, participating schools fell into five of only nine class-size options: 15 or fewer students, 16-20 students, 21-25 students, 26-30 students, and more than 50 students. As demonstrated in Columns 1 and 2 of Table A4 of the Appendix, there is no clear linear relationship between class size and financial literacy for Italy. However, students in larger classes tend to have higher financial literacy scores than students in classes with 15 or fewer students. The increase in financial literacy score points is statistically significant for classes with 21-25 students and 26-30 students compared to the smallest class size, even after controlling for student and school characteristics and regional differences.

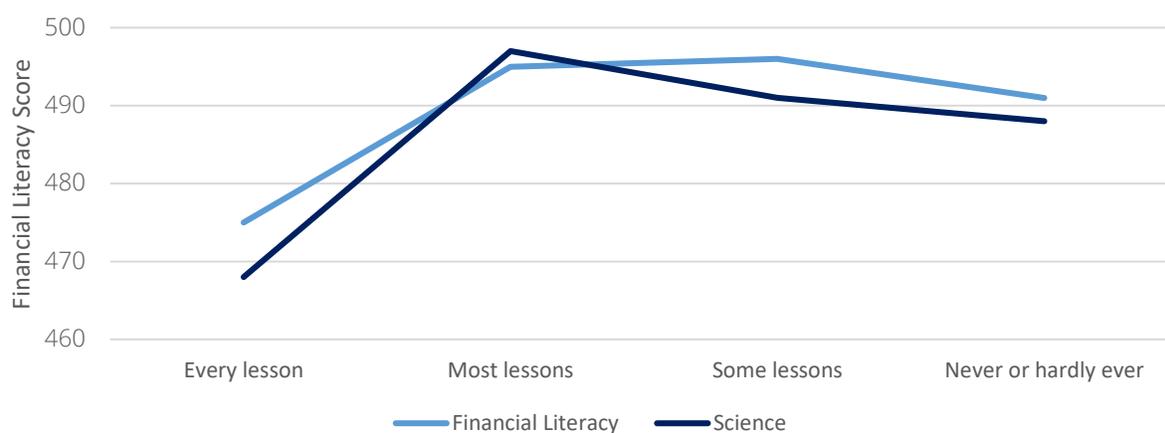
The student-teacher ratio, which measures the total number of students in relation to the total number of teachers, also impacts financial literacy. Students in a class with a larger student-teacher ratio score higher on the financial literacy assessment, even when controlling for student, school, and regional differences. This aligns with the class-size findings discussed previously. The results are reported in Columns 3 and 4 of Table A4 of the Appendix. This is also consistent with findings for science performance (OECD, 2016). Positive peer effects seen in larger classes may help explain these findings, which are also in line with the observation that students score higher in financial literacy when they discuss money matters with their friends.

Class size notwithstanding, a teacher can influence student learning through the quality of his or her teaching and participation in school activities. One possible proxy for the quality of education provided by an educator is his or her educational attainment. PISA measured the qualification of teachers by observing the proportion of fully certified teachers at a specific school relative to the total number of teachers at that school. For every one-unit increase in the proportion of fully certified teachers to total number of teachers, the financial

literacy score for students at the school rises an average of 95 score-points, which is more than one proficiency level. The increase remains at 90 score-points, still significant, even when controlling for student, school, and regional characteristics. Teachers may also influence the quality of the school and curriculum through their participation in decision-making within the school. Teachers engaged in the school may feel a greater sense of responsibility to improving or maintaining a high standard of quality education.

PISA's school questionnaire includes an index of teacher participation based on three questions asked of a school principal. These index questions address whether teachers are offered opportunities to participate in decision-making, whether teachers help work toward continuous improvement of the school, and whether teachers take part in reviewing school management practices. The assumption is that teachers involved with the school and school policy will have a greater commitment to the school and to the overall quality of education. However, the data from Italy find no significant relationship between increased teacher participation and student financial proficiency. Similar results emerge when the quality of education is assessed from a student's perspective. Specifically, students were asked how frequently they felt their teacher showed interest in student learning. The possible answers ranged from every lesson to never or hardly ever. In 2015, this question was focused on science-related lessons but it still provides information on the relationship between teacher interest and student achievement. Figure 10 shows the average financial literacy score for different levels of teacher interest in student learning. For comparison, science proficiency is also shown.

Figure 10: Financial Literacy Performance by Frequency of Teacher Showing Interest in Learning in Italy



Source: PISA 2015.

Both financial literacy and science proficiency follow a similar pattern. Surprisingly, the more students perceive that teachers are engaged in their learning, the lower the financial literacy scores. A possible explanation might be that classes with selected students are homogenous. Therefore, there is less need for a teacher to spend time or “show interest” to individual students as the majority of students are at similar levels of proficiency.

Schools are meant to prepare students to be active members of society once they graduate. However, the relationship between financial literacy performance and school characteristics is not always straightforward, as the case of Italy demonstrates. Larger class size brings a positive relationship with student proficiency, yet increased teacher involvement and participation have negligible effects. More research is needed to understand how teacher behavior may positively influence student achievement in financial literacy.

Conclusion

Youth today confront an economic climate that imposes individual financial responsibility at levels greater than in the past. The financial literacy assessment within the Programme for International Student Assessment (PISA) provides an international measure of students’ preparedness for the financial decisions they will face on a daily basis. This assessment, which includes background questionnaires covering students’ characteristics, home lives, and school environments, was launched in 2012 with 18 participating countries and economies. The most recent wave, in 2015, covers 15 countries and provides an unprecedented opportunity to explore changes in and influences on the financial literacy of young people. The data reveal a persistent lack of financial literacy among 15-year-olds in most of the participating countries and economies. Italy is the only OECD country to show a jump in financial literacy performance between the 2012 assessment and the 2015 wave. Italy’s score of 483 points in 2015 is close to the OECD average of 488.

Many factors influence students’ financial skills and knowledge, among them financial access, family background, the support and participation of parents, and the educational environment of schools. This study shows that in Italy, wealth and socioeconomic background have a significant influence on students’ financial literacy proficiency. Financial literacy performance improves as students have more resources available to them, including the internet, books, and technology. Access to these resources and material wealth in the home serves as a proxy for family wealth. The financial literacy proficiency of students from families with less wealth, with parents who have lower education attainments, and with homes with fewer educational resources is generally lower than students from more affluent families. Additionally, students may choose to interact with the financial marketplace through working to receive money and ownership of financial products; such as a bank account and/or a prepaid debit card. Students who own these financial products score

higher on the financial literacy assessment. While students may learn financial skills through experience, it does not equate to proficiency in financial matters, as some students who own a bank account still fall below the baseline financial literacy proficiency level.

The influence that parents wield is not insignificant. Their support of their children's education and their willingness to discuss money matters with their children can have a significant impact on financial literacy. Students who speak regularly with their parents about money issues and who feel supported by their parents in educational activities tend to have higher financial literacy scores. This indicates that even when parents do not have opportunities to improve their socioeconomic status, they still can play an important role in improving their children's financial literacy.

Girls in Italy consistently underperform on the financial literacy assessment when compared to boys. Interestingly, among all participating countries and economies, Italy is the only country where boys score notably higher than girls. There is a higher percentage of girls at the lower end of proficiency and a higher percentage of boys at the higher end of proficiency. This difference in performance is significant in Italy, and initiatives to improve financial literacy levels of the student population might want to take this gender gap into consideration.

School characteristics, too, impact student's financial literacy. Schools in more populated areas and those with larger class sizes tend to have students with higher levels of proficiency. While fully certified teachers have a positive impact on the financial proficiency of their students, greater exploration is needed on how teacher quality impacts financial literacy. Within this study, one question explored students' perception of their teachers' interest in student learning. The answers did not demonstrate a significant impact on student financial literacy performance, but there are additional questions within PISA on student expectations and perception of teacher quality that can be explored.

Student socioeconomic background, parents, school environment, and teachers all contribute to student financial literacy performance. Today's students face important financial decisions early in life. Actions taken by parents, schools, and teachers can help improve the financial literacy of the student population in Italy, equipping the next generation the knowledge and skills it needs to independently navigate the financial landscape toward a financially sound future.

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Appendix

Table A1

Dependent variable: Propensity to Save	(1)	(2)	(3)	(4)
Active Income	0.029 (0.03)	0.063 (0.04)		
Passive Income			-0.020 (0.03)	-0.041 (0.03)
Student Controls	No	Yes	No	Yes
School Controls	No	Yes	No	Yes
Region Dummies	No	Yes	No	Yes
Constant	0.57 ^{***} (0.02)	1.14 (0.97)	0.60 ^{***} (0.02)	1.26 (0.95)
<i>N</i>	2257	1586	2189	1543

Note: PISA 2015. Standard errors in parentheses and errors clustered at school level. The controls include language spoken at home, repeat, the social, economic and cultural index, type of schooling, and if the mother is a housewife. The region dummies include Bolzano, Campania, Lombardi and Trento.

Table A2

Dependent variable: Financial Literacy	(1)	(2)
Propensity to save	14.6 ^{***} (5.61)	9.93 [*] (5.58)
Student Controls	No	Yes
School Controls	No	Yes
Region Dummies	No	Yes
Constant	478.16 ^{***} (4.96)	278.00 [*] (168.28)
<i>N</i>	2337	1640

Note: PISA 2015. Standard errors in parentheses and errors clustered at school level. The controls include language spoken at home, repeat, the social, economic and cultural index, type of schooling, and if the mother is a housewife. The region dummies include Bolzano, Campania, Lombardi and Trento.

Table A3

Dependent variable: Financial Literacy	(1)	(2)	(3)	(4)
My parents are interested in my school activities.	28.21 ^{***} (8.68)	19.33 ^{**} (8.71)		

My parents support my educational efforts and achievements.			14.64** (6.16)	3.56 (7.38)
Female			-14.47** (5.69)	-14.60** (5.72)
Student Controls	No	Yes	No	Yes
School Controls	No	Yes	No	Yes
Region Dummies	No	Yes	No	Yes
Constant	458.09*** (8.72)	284.99*** (110.54)	471.90*** (6.36)	299.58*** (109.12)
<i>N</i>	11320	8049	11286	8029

Note: PISA 2015. Standard errors in parentheses and errors clustered at school level. The controls include language spoken at home, repeat, the social, economic and cultural index, type of schooling, and if the mother is a housewife. The region dummies include Bolzano, Campania, Lombardi and Trento.

Table A4

Dependent variable: Financial Literacy	(1)	(2)	(3)	(4)
16- 20 students	27.07 (20.53)	22.51 (18.06)		
21-25 students	65.02*** (19.90)	48.86*** (17.70)		
26-30 students	77.72*** (21.61)	56.51*** (19.45)		
Over 50 students	38.52 (30.23)	33.224 (29)		
Student – Teacher ratio			7.72*** (1.46)	5.50*** (1.36)
Student Controls	No	Yes	No	Yes
School Controls	No	Yes	No	Yes
Region Dummies	No	Yes	No	Yes
Constant	431.56*** (18.87)	238.051** (113.81)	410.27*** (16.45)	245.59** (108.71)
<i>N</i>	8400	8043	8086	7841

Note: PISA 2015. Standard errors in parentheses and errors clustered at school level. The controls include language spoken at home, repeat, the social, economic and cultural index, type of schooling, school location, and if the mother is a housewife. The region dummies include Bolzano, Campania, Lombardi and Trento.

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