Gender Differences in Financial Literacy: Evidence from PISA Data in Italy[1]

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Abstract

In this paper, we use new and unexploited data on financial literacy among high school students in Italy. The Program for International Student Assessment (PISA) provided a unique set of data that allows researchers to analyze financial literacy among this important population group. Italy is an interesting country to study, as Italian students not only score particularly low on the financial literacy assessment but also show a strong and significant gender difference. We are able to document the impact of the family, in particular the mother, on the financial knowledge of girls. The environment in which girls and boys live also plays a role in explaining regional differences in the gender gap. Moreover, history matters: medieval commercial hubs created favorable preconditions for the transformation of the role of women in society, and in those regions today, we see higher financial literacy among youths. Although we cannot completely explain the gender difference in financial literacy, we can certainly show how factors affect boys and girls differently.

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1. Introduction

Financial literacy is an essential skill to participate in today's economy. Wide-ranging developments in the financial marketplace have contributed to growing concerns about the level of financial literacy of citizens of many countries. Moreover, the 2008 financial crisis demonstrated that ill-informed financial decisions—often caused by a lack of financial literacy—can have tremendous negative consequences (OECD, 2009). Financial literacy is particularly important for the young, as they face financial decisions that can have important life-long consequences. One such decision is the investment in education, i.e., whether or not to go to college and how to pay for it.

Previous research has documented very low levels of financial literacy in the population (Lusardi and Mitchell, 2014). Not only is financial illiteracy widespread, but it is particularly low among women. In an analysis of financial literacy in eight countries, Lusardi and Mitchell (2011) show that there are strikingly similar patterns by gender. More recently, data on financial literacy in more than 140 countries show that gender differences are present in all economies, from developing countries to advanced economies (Klapper, Lusardi, and van Oudheusden, 2015).

Bucher-Koenen, Lusardi, Alessie, and van Rooij (2014) examine several of the reasons for differences in financial literacy levels between women and men and conclude that there is no single explanation that can satisfactorily address these differences. They also note that gender differences are present among both old and young respondents.

In this paper, we use new and unexploited data on financial literacy among high school students in Italy. In 2012, the Program for International Student Assessment (PISA) added financial literacy to the competencies it measures among 15-year-olds around the world. In doing so, it provided a unique set of data that allows researchers to analyze financial literacy among this important population group. Italy represents a good case to study as Italian students score particularly low on the financial literacy assessment, with results that rank them second to last among the countries that participated in the assessment. Most importantly, it is the only country that reported gender differences among the young.[2] Given the large number of Italian schools that participated in the assessment, we have a sample that is much larger than those from other countries that participated in the PISA financial literacy assessment. The analysis of these data from Italy can provide new insights on the reasons for the gender differences in financial literacy, starting from a young age.

[2] For detail, see Lusardi (2015b).

2. PISA and the financial literacy assessment

PISA is a triennial international survey. Since its first wave in 2000, PISA has tested 15-year-old students' skills and knowledge in three key domains: mathematics, reading, and science. The most recent wave of PISA, carried out in 2012, assessed about 510,000 students in 65 economies. In addition to student performance data, PISA collects information about student and school backgrounds through questionnaires that are completed by students, heads of school, and, in some countries, parents. These data help identify the factors that may influence student performance. PISA gauges whether students are prepared for future challenges; whether they can analyze, reason, and communicate effectively; and whether they have the capacity to continue learning throughout their lives. These assessments are conducted to understand if students near the end of compulsory education have acquired the knowledge and skills essential for full participation in society.

In 2012, PISA introduced an optional financial literacy assessment, which became the first large-scale international study to assess youths' financial literacy. A sample of students were selected from the schools that completed PISA's core assessments (in mathematics, reading, and science) for the financial literacy assessment, which measures financial knowledge and skills.

The financial literacy assessment was conducted in a total of 18 countries and economies.[3] Thirteen are members of the OECD: Australia, the Flemish Community of Belgium, the Czech Republic, Estonia, France, Israel, Italy, New Zealand, Poland, the Slovak Republic, Slovenia, Spain, and the United States; five are partner countries and economies: Colombia, Croatia, Latvia, the Russian Federation, and Shanghai-China. Around 29,000 students completed the financial literacy assessment, representing about nine million 15-year-olds in the schools of the 18 participating countries and economies. In addition, parents, principals, and system leaders provided data on school policies, practices, resources, and other institutional factors.[4]

A mixture of multiple-choice and constructed-response questions were used to assess financial literacy. The relative difficulty of each test questions was assessed based on the proportion of students answering it correctly; relatively easy questions were answered correctly by a larger proportion of students than more difficult questions (OECD, 2014). Similarly, the relative proficiency of students was estimated using the proportion of test questions that they answered correctly; a highly proficient student answered more questions correctly than his or her less proficient peers (OECD, 2014). The relationship between the difficulty of questions and the

[3] Note that, in some cases, such as China and Belgium, the assessment was performed only in a city or a part of the country.
[4] For more information, see Lusardi (2015b).

proficiency of students was presented on a single continuous scale, which was divided into five levels. Level 2 is the international baseline proficiency level, Level 5 indicates high proficiency, and Level 1 indicates low proficiency (students in Level 1 are considered to be not financially literate). Students at each level are expected to be proficient at the preceding level. These levels allow researchers to investigate the differences in financial literacy not only across countries but also within countries.

2.1 Financial literacy in Italy

How does Italy perform when compared to other countries participating in the PISA financial literacy assessment? Italy's performance in financial literacy is below the average of the 13 OECD countries that participated in the assessment, and is second to last when considering all participating countries and economies. More than one in five students in Italy does not reach the baseline level of proficiency in financial literacy (Level 1) and only 2.1% of students are top performers (Level 5). One striking feature of the Italian data is that regional differences are large; the difference between the best-performing region (Alto Adige) and the worst-performing one (Calabria) is 92 score points, larger than one proficiency level.

To investigate this finding further, we present both regional and gender differences in scores across regions in Table 1. Lowest-performing regions also have the largest performance difference between boys and girls. In regions such as Calabria and Molise, for example, where aggregate financial literacy scores are quite low, boys score, on average, much higher than girls. However, gender differences are also present in top-performing regions, such as Piemonte; in other words, boys are more likely than girls to perform well on financial literacy in most regions in Italy. Table 2 reports financial literacy scores aggregated by four macroeconomic areas (Northeast, Northwest, Center, South and Islands). The largest difference in performance between boys and girls can be found in the South of Italy and the Islands. In these macro regions, the average score of boys and girls is similar to that of Colombia (the country that finished last in the financial literacy assessment), where students score the lowest in the financial literacy assessment.

How much of the variation by gender in performance on the financial assessment literacy is related to students' demographic and socioeconomic differences? We examine this with a simple model that can serve as guidance for our empirical approach.

3. A model of gender differences

We consider a model in which the educational output is a function of many factors:

$$E_{it} = f(B_{it}, P_{it}, S_{it}, A_{i,} L_{it}) \quad (1)$$

where E_{it} is the i_{th} student achievement at time t. We hypothesize that a student's achievement is influenced by many factors: B_{it} measures the influence of family background as of time t, P_{it} is the influence of peers at time t; S_{it} is the vector of school inputs, and A_i is the vector of a student's characteristics and innate ability, L_{it} measure the influence of the local environment. This very simple model, which can be thought of a knowledge production function, provides a framework that allows for discussion of the determinants of the educational process that can be tested empirically.

In measuring output, we focus on levels of educational achievement as reflected by the PISA financial literacy score. Specific measures for each of the inputs come from information provided by the PISA survey combined with data from other sources, as will be explained in more detail in the next section. Family background influences educational achievement by providing a basic set of attitudes, behavior patterns, and relevant educational inputs, all of which are usually highly correlated with a family's socioeconomic status. Peers provide inputs similar to those offered by the family. We can measure peer influence with PISA data that provide rich information on students enrolled in the same school as well as each school's gender composition. A student's innate ability can be affected by his/her peers, not only through knowledge spillovers but also through classroom standards, as will be discussed later. Type and quality of schools can be relevant as well. A strand of the literature has focused on the relationship between school quality and student achievement. School quality has typically been proxied by several observable indicators, such as teacher-pupil ratios, teacher education, teacher experience, teacher salary, or expenditure per pupil. Overall, the link between school resources and test scores appears to be relatively weak (Hanushek, 1997; Hanushek, 2002; Krueger, 2003). The 'school effectiveness' research comes to a similar conclusion: schools type matters, but not as much as do non-school factors such as the home environment (Mortimore, Sammons, Stoll, Lewis, and Ecob, 1988; Stiefel, Schwartz, Rubenstein, and Zabel, 2005; Teddlie and Reynolds, 2000; West and Pennell, 2003). Levacic and Vignoles (2002) find that the impact of school resources is small and very sensitive to misspecification. Dearden, Ferri, and Meghir (2002) suggest that while the pupil-teacher ratio has no significant impact, teacher quality may be relevant but is very difficult to measure.

One of the main issues with estimating peer, family, and school effects is that some of the cross-sectional variations may be the result of self-selection. Families may self-select into schools

based on their income and residential and educational preferences. A family with talented children may decide to live near a school that is considered to be particularly high quality. Families themselves can invest more in the education of their children, if they are talented. Addressing these self-selection issues is hard, and this will be discussed in detail in the empirical section. One advantage of working with Italian data is that the Italian school system is less affected by some of these issues; school quality does not vary dramatically by family income level or location as it does in some countries, such as the United States. Public schools are not considered of lower quality than private schools and the difference between students attending the two types of schools rests mainly on the socioeconomic status of the family, something we can control for. We will discuss these issues in more detail later.

4. Data and variables

In this section, we describe our data sources and variables, which are defined in Table A1, in the Appendix. Table A2 provide descriptive statistics.

4.1 Data sources

Our data come from a variety of sources. The main data are taken from the PISA 2012 financial literacy assessment, which is the first large-scale survey to try to quantify the financial literacy of 15-year-old students enrolled in the compulsory education system in each country. Generally, in each school, eight students were chosen at random among those participating in the core PISA survey to undertake the financial literacy assessment. The assessment consists of 40 math and reading questions as well as questions about students' experiences with money matters. Additional questions were also asked to students to gather information about themselves, their home and school environment, their learning experiences, and their attitudes. School principals answered a questionnaire on school policies, the learning environment, and the school's provision of financial education. Families were asked to fill in questionnaires too.

In Italy, 7,068 students in 1,158 schools completed the financial literacy assessment. The PISA sample from Italy is much larger than the samples from other countries, and by combining PISA data with data from other sources, we have been able to create a unique and rich set of information on the financial literacy of young people in Italy.

We combined the PISA data with other data. From the Italian National Institute of Statistics (ISTAT) we have gathered information on variables that might affect students' accumulation of knowledge at the regional level. We also used data from the Bank of Italy, in particular the Survey of Household Income and Wealth (SHIW). We gathered information from the Excelsior Survey,

developed by the Excelsior Information System,[5] which is one of Italy's main sources of information on labor market forecasts. Finally we used the historic data constructed by Bertocchi and Bozzano (2015a) on provinces whose main cities were on medieval commercial routes or hosted a fair or a bank in the thirteenth and fourteenth centuries as well as data by Bertocchi and Bozzano (2015b) and Duranton, Rodríguez-Pose and Sandall (2007) on provinces where the nuclear family was the prevailing family type in the Middle Ages.[6]

4.2 Independent Variables

Following our specification of the knowledge production function, we describe in more detail below the independent variables which are the inputs of equation (1).

a. Students (A_{it}): Information regarding students includes their age at the time of the survey (AGE); their gender (FEMALE); whether they have ever repeated a grade in school (REPEAT); their immigrant status (IMMI), specifically whether they are a second generation immigrant (born in Italy but with parent(s) born in another country—S.IMMI) or a first-generation immigrant (born outside Italy with parents who were also born in another country—F.IMMI). We also have information on the language spoken at home and if it is not Italian (LANG_other).

   PISA records students' attitude toward money. We have constructed two variables that indicates students' propensity to save. The first variable (PSAVE_A) is equal to 1 if students answer "If you don't have enough money to buy something you really want (e.g. an item of clothing, sports equipment etc.), what are you most likely to do?" with "I save up to buy it" and equal to 0 otherwise. The second variable (PSAVE_B) is equal to 1 if students answer "Which of these statements about saving money best applies to you?" with one of the following: "I save the same amount of money each week or month," "I save some money each week or month, but the amount varies," "I save money only when I have some to spare," or "I save money only when I want to buy something," and it is equal to 0 if the student answers "I do not save any money." As these questions were asked to only half of a non-overlapping sample of students taking the financial literacy survey, we had to construct two variables which are defined for half of the sample.

[5] The Excelsior Information System is promoted and produced by Unioncamere (Italian Association of the Chambers of Commerce) with the participation of the Ministry of Labor and the European Union.

[6] The nuclear family structure is defined as one where there is total emancipation of children in adulthood to form independent families made up of a couple and their children (Todd, 1990).

Students' attitude toward money is also measured by the variable JOB, which is equal to 1 if the student reports that she/he gets money from at least one of the following sources: "Working outside school hours (e.g., a holiday job, part-time work)," "Working in a family business," "Occasional informal jobs (e.g., baby-sitting or gardening)," and is equal to 0 otherwise. The variables BANK_ACC and CREDIT_CARD assume a value of 1 if the student reports that she/he has a bank account or a credit card, respectively.

b. Family (B_{it}): We measure the socioeconomic status of the family (ESCS) using the index developed by PISA that is based on indicators such as the occupational and educational status of parents and an index of home possessions that measures family wealth and the educational resources available at home, such a books, a desk, and a computer. Students are considered socioeconomically advantaged if they are among the 25% of students with the highest PISA index of social, economic, and cultural status in their region or economy. An alternative measure of the economic status of the family has been constructed using the Bank of Italy's SHIW, computing the average net disposable income of each family and matching the two data sets on the basis of the job category of each parent.

PISA provides a rather comprehensive description of the professional status of parents. The variable HOUSEWIFE is equal to 1 if the mother's occupation (as reported by students) is equal to "housewife," 0 otherwise. We define a variable indicating whether the mother has a financial career (M_Finance) if the mother's occupation (as reported by students) is defined as a "managerial or financial career." A similar variable indicating whether the father has a financial career (F_Finance), is defined if the father's occupation (as reported by student) is defined as a "managerial or financial career."

Other variables measure parents' expectations regarding the career of their children. The variable EXP_F in (EXP_Math) is a dummy variable which takes the value of 1 if the parent/guardian who completed the parent questionnaire indicated a "managerial or financial career" (math related career) when asked: "What occupation do you expect your child to have when they are about 30 years old?" The variable MATH measures whether parents think that their child shows an interest in working in a mathematics-related career.

Finally, parents can also help their children acquire knowledge about money management by discussing money matters (e.g., talking about spending, saving, banking, and investments). We construct the variable MM_discuss, which is equal to 1 if the student reports discussing money matters with parents/guardians "Almost every day" or "Once or twice a week" and 0 for the remaining classification: "Once or twice a month," "Never or hardly ever."

c. School (S_{it}): PISA classifies schools into two categories: Private or Public (SC_private, SC_public) and specifies their location as village or town (population of less than 100,000), city (population greater than 100,000 but less than one million), or large city (population of more than one million people).

Schools are also divided into lower secondary schools (i.e., middle school) and upper secondary school. The latter include technical schools, vocational schools, and high schools (lyceum).

The proportion of mathematics teachers (PROPMATH) was computed by PISA by dividing the number of mathematics teachers by the total number of teachers. Principals were asked to report the number of full-time and part-time teachers at their school. The number of part-time teachers contributed 0.5 and the number of full-time teachers 1.0 to the estimated numbers of teachers at school. Learning time for mathematics (MMINS) and science (SMINS) was computed by multiplying the number of minutes on average in math classes by the number of math classes per week. As reported by the school principal, an index of cognitive stimulus (COGACT) in mathematics was performed. The index measures how active the teachers were in teaching math. Nine items are considered: (a) The teacher asks questions that make us reflect on the problem; (b) The teacher gives problems that require us to think for an extended time; (c) The teacher asks us to decide on our own procedures for solving complex problems; (d) The teacher presents problems for which there is no immediately obvious method of solution; (e) The teacher presents problems in different contexts so that students know whether they have understood the concepts; (g) The teacher asks us to explain how we have solved a problem; (f) The teacher helps us to learn from mistakes we have made; (h) The teacher presents problems that require students to apply what they have learned to new contexts; (i) The teacher gives problems that can be solved in several different ways. Response categories were “Always or almost always,” “Often,” “Sometimes,” and “Never or rarely.” The higher difficulty corresponds to the lower frequency of the event in the classroom.

Five items measuring teacher behavior when giving instructions (TCHBEHTD) were used in the main PISA 2012 survey. In particular, we consider two kinds of teacher behavior: (i) whether the teacher asks students to present their own thinking or reasoning at some length (TCH_think); and (ii) whether the teacher asks questions to check whether students have understood what was taught (TCH_undst). Response categories were “Every lesson,” “Most lessons,” “Some lessons,” and “Never or hardly ever.”

As money management can also be acquired at school, we have defined a dummy variable MM_Spec, which is equal to 1 (0) if, when asked "Have you ever learned how to manage your money in a course?" and the answer provided was "At school, in a subject or course specifically about managing your money," the students answered "yes" ("no"). The variable MM_Nospec equals to 1 (0) if, when asked "Have you ever learned how to manage your money in a course?" and the answer provided was "At school as part of another subject or course," the student answered "yes" ("no"). Finally, the variable MM_outschool equals 1 (0) if money management was (not) learned in an activity outside school.

d. Peers (P_{it}): We measure peer effects with the proportion of girls in the school (PROP_girls), which is an index based on the enrollment data provided by the school principal. As financial literacy can be acquired by discussing money with friends, we include a variable (DISCUSS_peer) which equals 1 if, when asked "How often do you discuss money matters (e.g. talk about spending, saving, banking, investment) with friends?," the student chose one of the following answers: "Almost every day" or "Once or twice a week." It is equal to 0 if the student chose one of the following: "Once or twice a month" or "Never or hardly ever." This question was asked to half of the sample.

e. Region (L_{it}): Since the local environment can affect the acquisition of economics and finance knowledge, we have gathered information at the regional and provincial level to be added to our regressions. Regional averages are computed as means of provincial averages within the region. MEDIA_Soph is a variable that measures the percentage of people watching TV, listening to radio, and reading newspapers (higher value=higher sophistication, i.e., more newspaper, more radio, less TV) in 2012. The variable has been created through Principal Component Analysis of the three items above. POL_Inter is the percentage of people who talk about politics every day. ACT_POL is the percentage of people who attended a political meeting, took part in a political parade, or volunteered for a political party. The variable has been created through a Principal Component Analysis of the three items above. ENTR is the number of "Individual entrepreneurs, owners or members of family business, working as shareholders/partners" over the total population. Calculations are based on data from the Bank of Italy's SHIW. BANK_Br is the number of bank branches per 1,000 inhabitants. We also compute FIN_Firms, i.e., the number of firms in the financial sector over the population. We use the GINI index, which measures the degree of income inequality at the regional level calculated for the year 2011. From the Excelsior survey, we derive the projected hiring in the

financial sector (PROJ_Fin) (non-seasonal jobs) over total non-seasonal projected hiring for 2012 and the projected hiring for people with an administrative/ commercial qualification over total projected hiring (PROJ_adm) for 2012. Data on the supply of high schools (lyceums) in each region per 1,000 inhabitants were derived from ISTAT. Gender differences at the regional level are captured by the Gender equality index developed by Amici and Stefani (2013). Four main dimensions compose the index: (1) work (difference between the employment and unemployment rates of men and women); (2) income (computed as the ratio between the gender difference in average gross hourly salary and the male average gross hourly salary); (3) decision-making power (political power and socioeconomic power, with political power measured by the difference between the percentage of seats occupied by men and the percentage of seats occupied by women in national parliaments and socioeconomic power measured by the difference between the number of women and the number of men in highly professional occupations); and (4) use of time (time devoted to work and free time). An alternative index is the Italian Gender Gap Index (IGGI) by Bozzano (2012), which is formulated by taking into account several measures of gender equality, such as access to economic resources, political and public power, educational attainment, and health.

Finally we have used some historical variables that have been found to be related to the gender gap in Italy in other work. Bertocchi and Bozzano (2015a) computed the percentage of provinces in a region (COMM_route) whose main city was on a Medieval commercial route or hosted a fair or a bank in the thirteenth and fourteenth centuries. Bertocchi and Bozzano (2015b) and Duranton, Rodríguez-Pose and Sandall (2007) constructed a new variable: the nuclear family structure variable (NFS), which calculates the percentage of provinces in a given region in which the nuclear family was the prevailing family type during the Middle Ages. The nuclear family structure is defined as one in which children form independent families once they reach adulthood and where there is total emancipation of children in adulthood to form independent families made up of a couple and their children (Todd, 1990). From Bertocchi and Bozzano (2015b), we compute the percentage of provinces per region which were in the first (1stQ) and fourth quantile (4thQ) of female primary school enrollment in 1861.

4.3 Results

Table 3 presents our baseline specification and results. In column (1), we regress the financial literacy score on the gender dummy (FEMALE), controlling for regional fixed effects, as the survey is representative at the regional level. The estimates confirm the descriptive statistics of

Tables 1 and 2; female respondents score worse than their male schoolmates—12 points lower, on average. But what happens if we add controls for school type, student characteristics, family characteristics, and intra-regional school location? Column (2) of Table 3 shows our baseline specification. The gender dummy continues to be negative and highly statistically significant; girls score worse than boys and the gap is, on average, 18 points, roughly 4% less than males. Financial literacy knowledge varies by school type: students enrolled in technical, professional, and vocational schools perform 4% to 15% worse on the financial literacy module than students attending lyceums, and students in private schools score 4% lower than students in public schools. Student in schools with higher proportions of math teachers score better.

The peer effects at school, measured by the proportion of girls in the school, negatively affect the score. Students who have repeated a grade, immigrants, and students who do not speak Italian at home perform worse. Finally, higher socioeconomic family status positively affects the financial literacy score, while having a mother who is housewife is negatively associated with financial literacy.

Columns (3) to (6) show the estimates using the base specification by macro regions. All the results remain roughly unchanged and the gender difference continues to be large; girls have much lower scores than boys, even in the Northeast, which is the macro area where students attain the highest PISA score. The gender difference is largest in the South and the Islands, which is the region where students perform the worst overall. Interestingly, this is the only macro area where the index of socioeconomic status is statistically significant.

One might wonder whether our estimates miss what is crucial for policy purposes, namely, whether these factors affect achievement differently at different points of the test score distribution. For example, while gender matters for average test scores, it would be useful to know if it is relevant at the extremity of the conditional distribution. In short, we not only address the question, *Does gender matter?* but also *For whom does it matter?*

To do so, we perform quantile regressions, which estimate the effect of the explanatory variables on the dependent variable at different points of its distribution. Our regression specification follows the standard specification of column (2) of table 3. The quantile regression results show that there are differences across different points in the distribution of the financial literacy score (Table 4). At the lower end of the distribution, the coefficient for gender is negative and statistically significant. However, it is negative and much larger at the median and the 0.75 and 0.95 quantiles. This suggests that the difference in performance of boys and girls increases at the top of the distribution of financial literacy score." Another important result relates to the coefficient estimate on the index of socioeconomic status. In the quantile regressions, the coefficient is positive

and insignificant at the lower percentiles, but it is relatively large and significant for the upper tail of the distribution, suggesting that this factor may increase financial literacy scores for the upper part of the distribution.

A notable result is the importance of math teachers, as seen in both the OLS and the quantile regressions. The value of the coefficients varies between 1.96 in the OLS regression to 2.98 in the quantile regression. The estimates in the OLS regression implies that a 10% increase in the proportion of math teachers in schools leads to 4% average gain in individual test scores; the results for the quantiles is similar except that the gain is 4.5% for the 0.95 quantile and less for lower quantiles.

4.3.1 Selection

Our findings so far show that girls tend to perform worse than boys, even after controlling for student, family and school characteristics. A possible issue is whether our results are affected by selection on observables. Using an analysis of pairs, matched on a conditional probability of being female (propensity score), we assess the effect of the baseline characteristics on the financial literacy score. A propensity score (for being female) is calculated from the baseline characteristics. One of the most common, and easiest to implement and understand, methods for selection is the k:1 nearest neighbor matching (Rubin, 1973a). Nearest neighbor matching estimates the average treatment on the treated (ATT), as it matches control individuals to the treated group and discards controls who are not selected as matches. In its simplest form, 1:1 nearest neighbor matching selects for each treated individual *i* the control individual with the smallest distance from individual *i*. We use a k:1 matching where k=1,2,5. We perform also a Kernel matching; for each treated subject, a weighted average of the outcome of all non-beneficiaries is derived. The weights are based on the distance of the non-beneficiaries propensity score to that of the treated subjects, with the highest weight given to those with scores closest to the treated unit. The results of the propensity score show that the difference in financial literacy score between girls and boys ranges in the interval 21 to 27 points, roughly a score 5% to 6% lower for girls (Table 5). These results confirm the finding of our previous analysis.

4.3.2 Family influence

In this analysis, we attempt to dig deeper into the inputs of the knowledge production function. In particular we look at how parents and family characteristics affect the financial knowledge of children. We use three types of interactions: (1) whether parents work in the financial sector, in particular if the mother or the father has a career in finance; (2) parents' expectations regarding children's career in finance, and (3) the extent to and frequency with which children and parents discuss money. Information for interactions (2) and (3) was obtained via questions asked to a sub-sample of respondents only. Hence, when we control for these variables, the number of observations drops substantially. Although it is difficult to compare the results in column (1), (4), and (8) of Table 6, we can still infer the importance and influence of the family on the development of children's knowledge.

Table 6, column (1), shows that girls who have a mother who works in finance are much less disadvantaged in their financial knowledge. Fathers' careers are less consequential; neither girls' nor boys' financial knowledge is affected by having a father with a career in finance (columns (2) and (3)).

The effect of parental expectations on children's performance is trickier to evaluate. First of all, there might be reverse causality: children who demonstrate high levels of financial literacy might be expected to enter a career in finance. Alternatively, parental expectations might influence the performance of children. Hence we do not want to claim causality between parents' expectations and children's performance but we want to stress here that we do find an association between the two. In particular, the comparison between columns (5) and (6) shows that the correlation between parents' expectation and children's performance is statistically significant only for girls. The effect vanishes when we control for the children's interest in a math-related career, an outcome that reinforces our hypothesis that the results of column (4) are affected by reverse causality. The effect of the mother's career on girls' financial literacy level remains statistically significant, even when we control for the child's interest in math.

4.3.3 Peer effects

In table 7, we assess whether students' financial literacy is affected by the achievement of schoolmates. We use two variables to capture a peer effect: (1) the proportion of girls in the school, and (2) whether students discuss issues related to money with their friends. In column (1) of table 7 we control for the proportion of girls in the school, the variable FEMALE, and their interaction. The

coefficient is negative and statistically significant: girls who have a higher proportion of girls as peers perform worse on the financial literacy assessment. The interaction effects capture most of the gender effect. We suspect that this result is due to self-selection: girls may self-select into schools with a high proportion of female students. When we restrict our sample to girls only, column (2), our hypothesis seems confirmed: girls in schools with a higher percentage of girls have a financial literacy score which is almost 35 points lower than that of their male schoolmates. This effect does not show up for boys who attend schools with large proportions of girls (column (3)). This result is different from the one found in Hoxby (2000). However, in her study, Hoxby examines the performance of students in grades 3 to 6 and considers gender difference in math knowledge. In her study, girls perform better than boys and positively affect the math knowledge of their male and female peers. In our assessment of financial literacy, girls perform worse and, interestingly, they affect the scores of girls only.

A second measure of the peer effect is the frequency with which students discuss money issues with friends. This positive peer effect on financial literacy is, again, relevant for girls only (Table 7, column 4).

4.3.4 School effects

When looking at school effects, we distinguish between the organization of the school and the teaching method. Our base specification already includes controls for the type of school (lyceum, technical, professional, or vocational) and for private or public designation. As discussed in Section 3, students enrolled in the lyceum perform much better on the financial literacy assessment. However, this result may be due to the best students choosing to go to the lyceum, which is perceived in Italy as one of the best schools for elite students.

To address a possible selection bias on unobservables, we perform a Heckman selection model estimation. In the first stage, we estimate the probability of a student selecting enrollment in a lyceum, controlling for the variables in our base specification but including—as identification variables—the number of lyceums per inhabitants at the regional level. The hypothesis is that the supply of lyceums affects the students who go to that school, as Italian students do not tend to move away from their province and region when attending the high school. Table 8 shows the result of the first and second stages of the Heckman estimation. Girls are more likely to enroll in lyceums as are students from families with high socioeconomic status. The proportion of math teachers in the school affects this probability too, while students who have repeated a grade tend to enroll in professional and technical schools. The estimated coefficients in the second stage are not different from the one shown in Table 3. In short, there is no evidence of selection.

We turn next to the examination of whether school practices affect student performance. One of the findings of the PISA survey is that financial literacy is highly correlated with math literacy.[7] Hence we use the section of the survey related to math knowledge to understand school practices. Table 9a shows whether the average time spent on math per week at school affects financial literacy, in particular, whether it affects girls' financial literacy. As this question is asked only to a sub-sample of respondents, column (1) shows the coefficient for FEMALE in the same sub-sample using the base specification of Table 3, while column (2) reports the interaction between the two variables. We find that girls who attend schools in which more time is devoted to math perform better on the financial literacy assessment.

In table 9b, we look at the effect of teaching practices. First of all, we look at the index of cognitive stimulus in math, which measures the extent to which teaching strategies encourage students to think more deeply in order to find solutions and to focus on the method used for reaching the answer rather than on the answer itself. In PISA, this variable is identified as one of several that measure practices that support the development of mathematical literacy. Girls' financial knowledge is affected positively by the index of cognitive stimulus Students were also asked to report the frequency with which, in mathematics lessons, the teacher asks them to present their thinking or reasoning at some length or how often the teacher asks questions to check whether they understand what is being taught. Interestingly girls who report higher levels of cognitive stimulus in their math lessons perform nearly as well as boys on the financial literacy assessment (Table 9b, columns 2 and 4).

4.3.4 The local environment

To what extent do regional and local factors explain differences in financial literacy across students and by gender? The smallest geographical unit we can identify is the region, and the main regional characteristics we control for are explained in Section 3. We expect that in regions where political interest, political participation, and media sophistication—the latter being an index whose value is higher when people report reading newspapers rather than watching TV as a mean of news acquisition—is higher, students are more active socially and potentially more interested in financial issues. Table 10a columns 1–3 show that our intuition is only partially right. Interestingly most of the effects work through gender. Political participation does not affect boys' financial literacy scores but decreases girls' scores. Media sophistication does not affect boys' performance but does

[7] On average across the 13 OECD countries and economies, the correlation between financial literacy and mathematics is 0.83, which indicates that financial literacy is strongly correlated with math literacy.

positively affect girls' performance. In regions where people actively participate in political life, girls are less knowledgeable of finance, while in regions where the cultural level (as captured by media sophistication) is higher, the gender gap in financial literacy is lower. We further control for regional presence of bank branches, financial firms, and entrepreneurs, as their presence might turn students' attention and interest toward financial topics and incentivize them to seek knowledge of finance. We control for the projected percentage of hiring in the financial sector and for the projected percentage of hiring of people with an administrative/ commercial qualification, and we interact these measures with the female dummy. In all cases, we find that a greater number of financial intermediaries and prospective job opportunities increases financial literacy levels among all students, and more so for girls. However the economic effect of these variables is small. On average, these regional characteristics increase girls' financial knowledge only by few percentage points.

Table 10b examines the financial literacy gender gap in an historical perspective with a focus on the influence of the family structure, following Bertocchi and Bozzano (2015b). We capture the latter channel with an indicator that measures the structure of the family. The nuclear family structure is defined as one in in which children form independent families once they reach adulthood (Todd, 1990). Bertocchi and Bozzano (2015b) find that this family structure is a major driver of the education gender gap, with a higher female to male enrollment ratio in upper primary schools being associated with living in a community with a predominantly nuclear family structure. We also control for the percentage of provinces in a region that were on a medieval commerce route. Bertocchi and Bozzano (2015a) find that medieval commercial hubs created favorable preconditions for the transformation of the role of women in society, evolving into communities with more egalitarian cultural norms and beliefs transmitted through the generations. We complement our analyses with the number of provinces that were in the 1st and 4th quantiles of female primary school enrolment. The findings in Table 10b show a persistent, statistically significant gender gap in financial literacy scores, with girls scoring lower than boys, even when we control for these historical variables. Being from a region that was on a commercial route in the Middle Ages increases the average PISA score but does not affect the correspondent gender difference.

When we control for a Gender Equality Index, an indicator that considers four dimensions: work, income, political and economic representation, and use of time among women, we find evidence that in regions where the index is high, boys' financial literacy is lower, while girls' financial literacy is significantly higher. That is not what we find when we control for the Italian Gender Gap Index (IGGI) developed by Bozzano (2012), an index which focuses more on women's political participation.

4.3.5 Experience with money

We also examine whether experience with money could be a means to acquire financial knowledge. In Table 11a, we show results of our analysis to determine whether students who have a bank account, a credit card, or have worked to earn money have higher financial literacy. Of course, the association between financial literacy and holding a bank account may be related to a student's socioeconomic status. We do not find any relationship between financial literacy and bank accounts, but we do find a relationship with credit cards: students who have a credit card tend to have a financial literacy score which is 17 points higher. As columns (2), (4), and (6) show, there is no difference between girls and boy.

The positive relationship between financial literacy and holding a financial product may be interpreted in different ways, and the causal link can go either way. We could presume that having greater financial knowledge and skills may motivate students to become acquainted with formal financial products and learn about money and use of credit (Sherraden, Johnson, Guo and Elliott, 2011). It might also be the case that using a credit card increases students' financial literacy.

Table 11b looks at saving behavior. In columns (1) and (2) we use definition PSAVE_A while columns (3) and (4) consider definition PSAVE_B, both of which are described in Section 3. The table shows that, notwithstanding the definition of saving, students who have repeated a grade are less likely to save. Interestingly, students with higher financial literacy do tend to save more, but we find no gender differences in saving behavior. Boys, although more financially literate, do not save more than girls.

5. Conclusions

In this paper, we use new and unexploited data on financial literacy among high school students in Italy. Italy is an interesting country to study, as Italian students not only score particularly low on the financial literacy assessment but also show a strong and significant gender difference. We are able to document the impact of the family, in particular the mother, on the financial knowledge of girls. The environment in which girls and boys live also plays a role in explaining regional differences in the gender gap. Moreover, history matters: medieval commercial hubs created favorable preconditions for the transformation of the role of women in society, and in those regions today, we see higher financial literacy among youths. Although we cannot completely explain the gender difference in financial literacy, we can certainly show how factors affect boys and girls differently.

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Table 1: Descriptive statistics, PV in Financial Literacy by region

Region	Plausible Values in Financial Literacy				
	Mean	Standard error	Gender Difference (Females-Male)	Standard error	Obs.
Abruzzo	461,99	8,21	-25.05*	13,08	197
Alto Adige	525,90	5,87	-28.31**	11,67	275
Basilicata	449,53	8,25	-0,45	12,39	229
Calabria	434,16	8,80	-33.79***	9,68	210
Campania	453,95	8,85	-20.88*	12,19	226
Emilia Romagna	491,03	6,48	-6,39	15,31	243
Friuli Venezia Giulia	510,19	5,49	0,93	9,03	224
Lazio	472,80	8,55	-16,86	12,98	232
Liguria	488,56	7,16	-11,56	8,83	233
Lombardia	502,31	7,00	-6,71	11,95	230
Marche	491,63	6,93	-15,18	11,36	243
Molise	449,27	7,49	-35.50***	13,33	147
Piemonte	490,28	7,26	-21.44*	11,08	250
Puglia	475,18	8,04	-26.98**	11,67	266
Sardegna	463,65	10,61	-29,27	19,73	151
Sicilia	436,91	7,04	-2,31	11,94	234
Toscana	488,34	5,78	17.08**	8,59	215
Trentino	516,49	7,19	-8,85	12,67	189
Umbria	478,35	6,06	-15,87	13,41	222
Valle d'Aosta	481,76	8,74	-11,43	16,34	93
Veneto	515,84	5,72	-7,29	10,32	342
Overall	480,04	2,33	-13.64***	3,56	4651

Table 2: Descriptive statistics, PV in Financial Literacy by macroregion

Macroregion	Plausible Values in Financial Literacy				
	Mean	Standard error	Gender Difference (Females-Males)	Standard error	Obs.
North-West	497,32	4,88	-12,14	8,59	806
North-East	507,40	3,62	-7,07	7,73	1273
Center	480,59	4,56	-6,95	7,37	912
South & Islands	453,40	3,97	-18.93***	4,60	1660

Source: PISA OECD.

Table 3

	(1) Only region dummies	(2) Basic student controls	(3) Italy: North-West	(4) Italy: North-East	(5) Italy: Center	(6) Italy: South & Islands
FEMALE	-12.46***	-18.96***	-15.84**	-12.71**	-16.72***	-24.67***
	-3.71	-5.67	-2.06	-2.07	-3.02	-6.13
TECH_S		-21.88***	-14.32	-7.02	-27.20**	-30.38***
		-4.05	-1.34	-0.78	-2.30	-3.06
PROF_S		-62.3***	-73.17***	-50.74***	-55.60***	-65.37***
		-7.26	-4.33	-2.90	-3.52	-4.80
MIDDLE_S		-48.20**	-120.29***	-137.27***	-43.15*	-10.28
		-2.20	-5.88	-3.03	-1.82	-0.33
VOC_S		-71.57***	-95.37***	-62.02***	-54.69***	-177.62***
		-6.51	-6.22	-3.66	-2.99	-10.15
AGE		11.70**	11.39	3.36	4.60	16.45**
		2.03	1.03	0.41	0.39	2.09
REPEAT		-40.38***	-19.47**	-36.29***	-57.64***	-50.47***
		-8.41	-2.07	-4.33	-6.54	-5.67
ESCS		3.92**	0.80	-1.13	2.64	8.85***
		2.27	0.23	-0.35	0.84	3.26
IMMI		-15.43**	6.89	-21.42*	-17.66*	-10.44
		-2.10	0.53	-1.77	-1.80	-0.68
LANG_other		-10.24*	-57.35***	-9.37	-6.37	1.07
		-1.76	-3.34	-1.06	-0.57	0.11
PRIVATE		-20.53**	-14.82	-20.31	-17.18	-0.67
		-2.07	-0.77	-1.38	-0.83	-0.06
CITY		2.43	-1.30	0.18	10.22	1.23
		0.51	-0.10	0.03	1.15	0.15
LARGE_CITY		-2.44	0.09		1.94	-19.61
		-0.24	0.01		0.19	-0.99
PROP_girl		-16.21*	4.85	-12.22	-35.24	-22.26
		-1.71	0.28	-0.75	-1.52	-1.30
PROPMATH		1.96***	0.52	2.16***	2.98***	2.50***
		4.48	0.70	2.59	3.53	3.03
HOUSEWIFE		-18.76***	-20.20**	-20.70**	-18.16**	-13.35**
		-4.39	-2.17	-2.33	-2.26	-2.40
Region dummies	YES	YES	YES	YES	YES	YES
Adjusted_R2	0.09	0.36	0.34	0.30	0.35	0.33
N	4651	4651	806	1273	912	1660
Omitted region			Liguria	Alto Adige	Umbria	Basilicata

NOTE: Dependent variable Plausible Values in Financial Literacy. T-statistics below the coef
*** p<0.01, ** p<0.05, * p<0.1

Table 4: Quantile regressions

	(1) 10th pctl	(2) 25th pctl	(3) 50th pctl	(4) 75 pctl	(5) 90th pctl
FEMALE	-15.81**	-14.48***	-16.04***	-23.42***	-25.99***
	-1,96	-2,62	-2,78	-5,47	-4,22
AGE	10,74	10,99	9,64	13.58*	12,68
	0,81	1,2	1,43	1,9	0,89
REPEAT	-35.77***	-37.91***	-42.97***	-43.71***	-40.79***
	-2,96	-3,89	-6,04	-5,62	-3,71
ESCS	3,98	3,8	3,28	3,92	7.75*
	0,78	1,3	1,23	1,44	1,93
IMMI	-19,26	-17,11	-13,58	-10,58	-9,95
	-1,05	-0,99	-1,15	-0,8	-0,98
LANG_Other	-11,4	-10,39	-12,44	-11,1	-8,68
	-0,97	-0,99	-1,48	-1,4	-0,91
PRIVATE	-33,36	-30,47	-18,67	-19,67	-19,41
	-1,23	-1,2	-1,47	-1,5	-1,31
PROP_girl	-13,1	-4,59	-16,67	-24.91*	-17,68
	-0,66	-0,28	-1,28	-1,88	-0,84
PROPMATH	1.92**	1.97***	1.98***	2.26***	2.12***
	2,56	2,63	3,27	4,11	2,58
HOUSEWIFE	-18.58*	-18.06**	-19.38***	-16.2**	-15.22*
	-1,95	-2,54	-3,21	-2,29	-1,92
Region dummies	YES	YES	YES	YES	YES
School dummies	YES	YES	YES	YES	YES
School location dummies	YES	YES	YES	YES	YES
N	4651	4651	4651	4651	4651

NOTE: Dependent variable Plausible Values in Financial LiteracyT-statistics below
*** p<0.01, ** p<0.05, * p<0.1

Table 5: Propensity Score Matching

female, ATT	Coefficient	z	P>|z|
NNM 1:1	-22.08***	-5,53	0,00
NNM 2:1	-21.05***	-5,99	0,00
NNM 5:1	-21.71***	-6,92	0,00
Kernel (no weights)	-23.02**	-2,63	0,01
Kernel (weights)	-27.13***	-10,16	0,00

NOTE: NNM refers to nearest neighbour matching witjh population weights. Kernel (no weights) is Kernel (Epanechnikov) matching, without common support and without population weights. Kernel (no weights) is Kernel (Epanechnikov) matching, without common

Table 6: The influence of the family

	(1)	(2)	(3)	(4)	(5)	(6)	(8)	(9)	(10)
FEMALE	-20.12***	-20.17***	-19.15***	-19.57***	female=0	female=1	-16.11***	female=0	female=1
	-6.08	-6.10	-5.61	-5,13			-4,19		
M_Finance	-6.51	-5.98							
	-0.74	-0.68							
M_Finance*FEMALE	20.29**	19.97*							
	1.97	1.93							
F_Finance		-3.96	-4.85						
		-0.75	-0.64						
F_Finance*FEMALE			2.02						
			0.18						
EXP_Fin				17.54***	19.49**	9,68	10,93	11,82	5,62
				2.60	2,11	1.20	1,55	1,27	0.65
M_Finance				4,57	12,39	-7,31	5,33	13.86*	-7,54
				0.69	1,48	-0.74	0.80	1.70	-0.79
F_Finance				-9,64	-9,29	-7.54	-8,41	-6,99	-7,21
				-1,51	-1,16	-0.87	-1,33	-0.93	-0.81
MATH							25.32***	25.37***	21.60***
							7,43	5,62	4,42
Region dummies	YES	YES	YES	YES	YES	YES	YES	YES	YES
School dummies	YES	YES	YES	YES	YES	YES	YES	YES	YES
Basic student controls	YES	YES	YES	YES	YES	YES	YES	YES	YES
Adjusted_R2	0.36	0.36	0.36	0.36	0.35	0.37	0.38	0.38	0.38
N	4651	4651	4651	3785	1993	1817	3785	1993	1792

NOTE: Sependent variable Plausible Values in Financial Literacy T-statistics below the coefficients.
*** p<0.01, ** p<0.05, * p<0.1

Table 7: Peer effect

	(1)	(2)	(3)	(4)
FEMALE	-0.77	female=1	female=0	-28.74***
	-0.07			-3.52
PROP_girl	0.37	-34.48**	-10.22	-19.87*
	0.03	-2.00	-0.89	-1.69
PROP_girl*FEMALE	-36.59*			
	-1.94			
DISCUSS_peer				1.01
				0.31
DISCUSS_peer*FEMALE				7.40*
				1.72
Region dummies	YES	YES	YES	YES
School dummies	YES	YES	YES	YES
Basic student controls	YES	YES	YES	YES
Adjusted_R2	0.36	0.35	0.37	0.35
N	4651	2414	2237	2027

NOTE:Dependent Variable Plausible Values in Financial Literacy T-statistics belo
*** p<0.01, ** p<0.05, * p<0.1

ble 8: Linear regression with endogenous treatment effe

	Coefficient	z	P>|z|
Dependent variable: Plausible Values in Financial			
FEMALE	-17.03***	-4,18	0,00
AGE	13.96**	2,26	0,02
REPEAT	-47.78***	-8,24	0,00
ESCS	6.89**	2,52	0,01
IMMI	-18.72**	-2,55	0,01
LANG_other	-13.59**	-2,16	0,03
PRIVATE	-30.81***	-3,22	0,00
CITY	5.95	1,21	0,22
LARGE_CITY	1.00	0,09	0,93
PROP_girl	-11,8	-0,67	0,50
PROPMATH	2.81***	3,39	0,00
HOUSEWIFE	-19.23***	-4,26	0,00
LYCEUM	19,58	0,98	0,33
Region dummies	YES		
First stage: licei (probit model)			
FEMALE	0.48***	3,83	0,00
AGE	0,24	1,3	0,19
REPEAT	-0.49***	-3,37	0,00
ESCS	0.48***	8,21	0,00
IMMI	-0.11	-0,67	0,50
LANG_other	-0.19*	-1,74	0,08
PRIVATE	0,24	0,82	0,41
CITY	-0,23	-1,3	0,20
LARGE_CITY	0,65	1,51	0,13
PROP_girl	3.02***	5,98	0,00
PROPMATH	0.19***	7,3	0,00
HOUSEWIFE	-0,03	-0,27	0,79
LYCEUMS per cap.	0.01*	1,76	0,08
athrho	0,15	0,82	0,41
lnsigma	4,20	225,03	0,00
N	4651		

Table 9a: Teaching practices

	(1)	(2)	(3)	(4)	(5)
FEMALE	-18.63***	-57.26***	female=1	-20.80***	-16.26***
	-4.51	-3.87		-4.12	-3.03
MMINS		0.02	0.17***		
		0.38	4.30		
MMINS*FEMALE		0.16***			
		2.81			
Region dummies	YES	YES	YES	YES	YES
School dummies	YES	YES	YES	YES	YES
Basic student controls	YES	YES	YES	YES	YES
Adjusted_R2	0.35	0.36	0.38	0.35	0.34
N	2941	2941	1552	2027	2027

NOTE:Plausible Values in Financial Literacy T-statistics below the coefficients.
*** p<0.01, ** p<0.05, * p<0.1

Table 9b: Teacher effect

	(1)	(2)	(3)	(4)	(5)	(6)
FEMALE	-17.78***	-25.16***	-17.84***	-28.96***	-18.16***	-16.39***
	-4.38	-5.79	-4.41	-4.66	-4.49	-4.07
TCH_think		-6.12				
		-1.29				
TCH_think*FEMALE		16.26***				
		2.79				
TCH_undst				-1.55		
				-0,27		
TCH_undst*FEMALE				16.13**		
				2.21		
COGACt						2.82
						1.08
COGACT*FEMALE						7.87**
						2.20
Region dummies	YES	YES	YES	YES	YES	YES
School dummies	YES	YES	YES	YES	YES	YES
Basic student dummies	YES	YES	YES	YES	YES	YES
Adjusted_R2	0.35	0.36	0.36	036	0.35	0.36
N	3043	3043	3037	3037	3053	3053

NOTE: Dependent variable Plausible Values in Financial Literacy. T-statistics below the coefficients.
*** p<0.01, ** p<0.05, * p<0.1

Table 10a: Introduction of Regional variables (interaction with female)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
FEMALE	-19.11***	-34.93**	-20.10***	-36.58***	-35.70***	-52.00***	-34.39***	-51.81***
	-5.56	-2.21	-6.09	-3.92	-4.81	-3.63	-4.13	-3.24
MEDIA_Soph	1.17	2.87	2.9	2.92	2.83	2.98	2.65	0.95
	0.47	1.28	1.30	1.31	1.26	1.33	1.29	0.41
POL_int	0.89	0.36	0.88	0.87	0.89	0.82	0.94	2.22
	0.68	0.26	0.67	0.66	0.68	0.63	0.77	1.64
ACT_POL	-5.59***	-5.56***	-3.44	-5.56***	-5.59***	-5.56***	-5.61***	-4.8***
	-3.41	-3.38	-1.62	-3.38	-3.41	-3.39	-3.44	-3.01
GINI2011	-107.76	-107.52	-112.68	-109.38	-108.82	-108.80	-111.92	44.22
	-0.85	-0.84	-0.89	-0.86	-0.86	-0.85	-0.87	0.33
ENTR	51.34	49.97	51.99	-84.45	53.76	55.57	51.28	-163.15
	0.49	0.47	0.49	-0.64	0.51	0.53	0.48	-1.27
BANK_br	0.70***	0.71***	0.71***	0.70***	0.55***	0.69***	0.71***	0.83***
	3.83	3.85	3.84	3.79	3.04	3.77	4.05	4.67
FINAN_firms	-42.48	-46.62	-47.61	-22.49	-46.86	-243.99	-71.82	-108.87
	-0.23	-0.25	-0.26	-0.12	-0.25	-1.12	-0.51	-0.62
MEDIA_Soph*FEMALE	3.32*							
	1.72							
POL_lint*FEMALE		1.03						
		0.99						
ACT_POL*FEMALE			-4.11*					
			-1.86					
ENTR*FEMALE				250.07*				
				1.90				
BANK_br*FEMALE					0.30**			
					2.32			
FINAN_firm*FEMALE						443.47**		
						2.26		
PROJ_Fin							-261.06	
							-0.70	
PROJ_Fin*FEMALE							638.99*	
							1.68	
PROJ_adm								135.14
								1.26
PROJ_adm*FEMALE								223.23*
								1.95
School dummies	YES	YES	YES	YES	YES	YES	YES	YES
Basic student controls	YES	YES	YES	YES	YES	YES	YES	YES
Adjusted_R2	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35
N	4651	4651	4651	4651	4651	4651	4651	4651

NOTE: Dependent variabpe Plausible Values in Financial Literacy . T-statistics below the coefficients.
*** p<0.01, ** p<0.05, * p<0.1

Table 10b: Introduction of Regional variables (interaction with female)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
FEMALE	-19.38***	-23.28***	-19.20***	-19.51***	-19.29***	-15.21**	-19.43***	-18.35***	-19.20***	-33.80***	-19.34***	-58.91
	-5.67	-3.29	-5.68	-4.00	-5.67	-2.51	-5.69	-5.15	-5.63	-3.77	-5.68	-0.85
MEDIA_Soph	0.20	0.23	1.66	1.67	0.99	1.06	1.28	1.29	1.75	1.72	3.07	3.08
	0.07	0.09	0.74	0.75	0.40	0.42	0.49	0.49	0.74	0.73	1.39	1.40
POL_int	1.58	1.57	1.86	1.86	1.50	1.47	1.20	1.20	2.01	1.99	0.69	0.68
	0.91	0.91	1.54	1.54	0.81	0.80	0.68	0.68	1.28	1.27	0.52	0.52
ACT_POL	-6.27***	-6.27***	-4.74***	-4.74***	-5.61***	-5.62***	-7.01***	-7.01***	-5.53***	-5.52***	-5.02***	-5.02***
	-3.54	-3.54	-2.72	-2.71	-2.96	-2.96	-3.55	-3.54	-3.38	-3.37	-3.14	-3.14
GINI2011	-185.66	-186.16	-91.45	-91.53	-130.01	-130.04	-160.76	-160.77	9.12	11.13	-140.99	-141.33
	-1.39	-1.40	-0.74	-0.74	-0.93	-0.93	-1.28	-1.27	0.06	0.08	-1.17	-1.17
ENTR	-4.98	-5.60	75.04	75.16	96.31	98.30	96.25	94.71	-32.90	-30.10	103.62	104.70
	-0.04	-0.05	0.71	0.71	0.80	0.82	0.79	0.78	-0.29	-0.27	0.95	0.96
BANK_br	0.69***	0.68***	0.95***	0.95***	0.74***	0.73***	0.64***	0.64***	1.00***	1.00***	0.68***	0.68***
	3.56	3.51	4.16	4.17	3.62	3.57	3.58	3.58	4.47	4.50	3.57	3.57
FINAN_firms	-123.79	-119.48	-241.85	-241.78	-235.01	-230.24	-118.59	-116.91	34.95	38.47	-100.99	-101.02
	-0.74	-0.70	-1.34	-1.33	-1.32	-1.29	-0.74	-0.73	0.18	0.20	-0.59	-0.59
COMM_route	19.01**	15.82										
	2.51	1.59										
COMM_route*FEMALE		6.17										
		0.53										
NFS			7.92	7.70								
			1.55	1.29								
NFS*FEMALE				0.44								
				0.08								
PPROVSE_1stQ					-7.57	-3.46						
					-1.34	-0.46						
PPROVSE_1stQ*FEMALE						-7.84						
						-1.01						
PPROVSE_4stQ							15.53	22.75				
							0.98	1.32				
PPROVSE_4stQ*FEMALE								-14.16				
								-0.82				
GEI									-62.16*	-84.85**		
									-1.85	-2.36		
GEI*FEMALE										42.69*		
										1.72		
IGGI											64.59	35.32

											0.75	0.33
IGGI*FEMALE												55.22
												0.57
School dummies	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Basic student controls	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Adjusted_R2	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.34
N	4187	4187	4651	4651	4187	4187	4187	4187	4651	4651	4651	4651

NOTE: Dependent Variable Plausible Values in Financial Literacy. In columns 1, 2, 5,6,7,8 the data for Trentino Alto Adige was not available.
T-statistics below the coefficients.
*** p<0.01, ** p<0.05, * p<0.1

Table 11a: Control variables from background questionnaire

	(1)	(2)	(3)
FEMALE	-21.14***	-22.00***	-23.49***
	-3.57	-3.86	-3.76
BANK_ACC	2.62		
	0.42		
BANK_ACC	-2.31		
	-0.25		
CREDIT_CARD		17.46**	
		2.20	
CREDIT_CARD*FEMALE		4.69	
		0.39	
JOB			-11.13
			-1.62
JOB*female			0.75
			0.08
Region dummies	YES	YES	YES
School dummies	YES	YES	YES
Basic student dummies	YES	YES	YES
Adjusted_R2	0.32	0.33	0.33
N	1771	1771	1771

NOTE: Plausible Values in Financial Literacy. T-statistics below the coefficients.
*** p<0.01, ** p<0.05, * p<0.1

Table 11b: Probit model with propensity to save as dependent variable

	Sample A		Sample B	
	(1)	(2)	(3)	(4)
FEMALE	-.029	.023	-.107	-0.599
	-.183	.033	-1.326	-1.246
AGE	-.350	-.349	-.053	-.050
	-1.399	-1.391	-0.389	-0.365
REPEAT	-.408**	-.409**	-.138	-.139
	-2.51	-2.504	-1.014	-1.026
ESCS	-.016	-.016	.030	.030
	-.275	-.278	.630	.629
IMMI	.062	.062	.268	.271
	.227	.228	1.486	.,516
LANG_other	-.188	-.189	-.021	-.026
	-.867	-.868	-.175	-.217
PRIVATE	-.561	-.562	.240	.230
	-1.45	-1.456	.882	.841
PROP_girl	-.462	-.466	-.263	-.248
	-1.128	-1.133	-1.347	-1.27
PROPMATH	-.784	-.791	-.049	-.038
	-.520	-.527	-.062	-.048
HOUSEWIFE	-.029	-.029	.027	.030
	-.168	-.167	.250	.269
PV_FL	.002*	.002	.001*	.001
	1.931	1.518	1.713	.700
PV_FL*FEMALE		.000		.001
		-.079		1.037
Region dummies	YES	YES	YES	YES
School dummies	YES	YES	YES	YES
N	1986	1986	2340	2340

NOTE: Dependent variable Plausible Values in Financial Literacy.T-statistics below the coefficients.
*** p<0.01, ** p<0.05, * p<0.1

Table 11b: Probit model with propensity to save as dependent variable

	Sample A		Sample B	
	(1)	(2)	(3)	(4)
FEMALE	-.029	.023	-.107	-0.599
	-.183	.033	-1.326	-1.246
AGE	-.350	-.349	-.053	-.050
	-1.399	-1.391	-0.389	-0.365
REPEAT	-.408**	-.409**	-.138	-.139
	-2.51	-2.504	-1.014	-1.026
ESCS	-.016	-.016	.030	.030
	-.275	-.278	.630	.629
IMMI	.062	.062	.268	.271
	.227	.228	1.486	.,516
LANG_other	-.188	-.189	-.021	-.026
	-.867	-.868	-.175	-.217
PRIVATE	-.561	-.562	.240	.230
	-1.45	-1.456	.882	.841
PROP_girl	-.462	-.466	-.263	-.248
	-1.128	-1.133	-1.347	-1.27
PROPMATH	-.784	-.791	-.049	-.038
	-.520	-.527	-.062	-.048
HOUSEWIFE	-.029	-.029	.027	.030
	-.168	-.167	.250	.269
PV_FL	.002*	.002	.001*	.001
	1.931	1.518	1.713	.700
PV_FL*FEMALE		.000		.001
		-.079		1.037
Region dummies	YES	YES	YES	YES
School dummies	YES	YES	YES	YES
N	1986	1986	2340	2340

NOTE: T-statistics below the coefficients.
*** p<0.01, ** p<0.05, * p<0.1

Variable	Source	Definition
Female	OECD PISA (2012)	
AltoAdige	OECD PISA (2012), own elaboration.	region=1
Basilicata	OECD PISA (2012), own elaboration.	region=2
Campania	OECD PISA (2012), own elaboration.	region=3
EmiliaRomagna	OECD PISA (2012), own elaboration.	region=4
FriuliVeneziaGiulia	OECD PISA (2012), own elaboration.	region=5
Liguria	OECD PISA (2012), own elaboration.	region=6
Lombardia	OECD PISA (2012), own elaboration.	region=7
Piemonte	OECD PISA (2012), own elaboration.	region=8
Puglia	OECD PISA (2012), own elaboration.	region=9
Sardegna	OECD PISA (2012), own elaboration.	region=10
Sicilia	OECD PISA (2012), own elaboration.	region=11
Trento	OECD PISA (2012), own elaboration.	region=12
Veneto	OECD PISA (2012), own elaboration.	region=13
Abruzzo	OECD PISA (2012), own elaboration.	region=14
Calabria	OECD PISA (2012), own elaboration.	region=15
Lazio	OECD PISA (2012), own elaboration.	region=16
Marche	OECD PISA (2012), own elaboration.	region=17
Molise	OECD PISA (2012), own elaboration.	region=18
Toscana	OECD PISA (2012), own elaboration.	region=19
Umbria	OECD PISA (2012), own elaboration.	region=20
ValdAosta	OECD PISA (2012), own elaboration.	region=21
licei	OECD PISA (2012), own elaboration.	school=1
tecnici	OECD PISA (2012), own elaboration.	school=2
professionali	OECD PISA (2012), own elaboration.	school=3
medie	OECD PISA (2012), own elaboration.	school=4
formazione professionale	OECD PISA (2012), own elaboration.	school=5
Age of student	OECD PISA (2012)	The age of a student (AGE) was calculated as the difference between the year and month of the testing and the year and month of a student's birth. Data on student's age were obtained from both the questionnaire and the student tracking forms. If the month of testing was not known for a particular student, the median month of testing for that country was used in the calculation.
Student repeated a grade	OECD PISA (2012)	Variable equal to 1 if student has repeated a grade in at least one level of schooling and equal to 0 if "No, never" was chosen at least one time, given that none of the repeated grade categories were chosen. The index is assigned a missing value if none of the three categories were ticked in any of three levels.
Index of economic, social and cultural status	OECD PISA (2012)	The PISA index of economic, social and cultural status (ESCS) was derived from the index of highest occupational status of parents (HISEI), the index of highest educational level of parents in years of education according to ISCED (PARED), andthe index of home possessions (HOMEPOS). The index of home possessions (HOMEPOS) comprises all items on the indices of WEALTH, CULT POSS and HEDRES, as well as books in the home recoded into a four-level categorical variable (0-10 books, 11-25 or 26-100 books, 101-200 or 201-500 books, more than 500 books).
Immigration status	OECD PISA (2012)	The student is either a second generation immigrant (born in the country of assessment but whose parent(s) were born in another country) or a first-generation immigrant (born outside the country of assessment and whose parents were also born in another country).
First generation immigrant	OECD PISA (2012), own elaboration.	The student is a first-generation immigrant (born outside the country of assessment and whose parents were also born in another country).
Second generation immigrant	OECD PISA (2012), own elaboration.	The student is a second generation immigrant (born in the country of assessment but whose parent(s) were born in another country).
Other language spoken at home	OECD PISA (2012)	Language spoken at home by the student is different with respect to the language of assessment for that student.
Private school	OECD PISA (2012)	As reported by the school principal.
Village or Town dummy	OECD PISA (2012)	School is located in a village or town of < 100,000 one million people.
City dummy	OECD PISA (2012)	School is located in a city of 100,000 to about one million people.
Large City dummy	OECD PISA (2012)	School is located in a city of > 1,000,000 people
Proportion of girls in the school	OECD PISA (2012)	The index on the proportion of girls at school is based on the enrolment data provided by the school principal, dividing the number of girls by the total number of girls and boys at a school.
Proportion of math teachers in the school	OECD PISA (2012)	The percentage of mathematics teachers was computed by dividing the number of mathematics teachers by the total number of teachers times 100. In the analysis we use the proportion, i.e. we divide such percentage by 100. Principals were asked to report the number of full-time and part-time teachers at their school. The number of parttime teachers contributed 0.5 and the number of full-time teachers 1.0 to the estimated numbers of teachers at school.

Mother housewife	OECD PISA (2012), own elaboration.	This variable is equal to 1 if the mother's occupation (as reported by student) is equal to "housewife" (ISCO classification code 9701), 0 otherwise.
Mother has a financial career (broad definition)	OECD PISA (2012), own elaboration.	This variable is equal to 1 if the mother's occupation (as reported by student) is defined as a "managerial or financial career" (see attached file on definition of financial career).
Father has a financial career (broad definition)	OECD PISA (2012), own elaboration.	This variable is equal to 1 if the father's occupation (as reported by student) is defined as a "managerial or financial career" (see attached file on definition of financial career).
Parent expects financial career (broad definition)	OECD PISA (2012), own elaboration.	This variable is equal to 1 if the parent/guardian who completed the parents' questionnaire indicated a "managerial or financial career" (see attached file on definition of financial career) when asked: "What occupation do you expect your child to have when they are about 30 years old?".
Mother has tertiary education	OECD PISA (2012), own elaboration.	Variable equal to 1 if the students' mother has completed ISCED5A education level as indicated by the parent/guardian of the student who completed the parents' questionnaire .
Media sophistication index	ISTAT, own elaboration	index of % people watching tv, listening to radio, reading newspaper (higher value=higher sophistication, i.e. more new spaper, more radio, less tv). Index created through Principal Component Analysis of the three items above. Data taken for year 2012.
Political Interest	ISTAT	% people who talk about politics every day. Data taken for year 2013.
Active Political Participation	ISTAT, own elaboration	index of % of people who attended a political meeting (comizio); took part in a political parade (corteo); volunteered for a political party. Index created through Principal Component Analysis of the three items above. Data taken for year 2013
GINI	ISTAT	Gini index calculated at the regional level for the year 2011.
Entrepreneur	Bank of Italy, Survey on Household Income and Wealth and Schivardi et al. (2012)	Number of "Individual entrepreneurs, owners or members of family business, working shareholders/partners" over total population. Calculation based on the 2012 wave of Bank of Italy's SHIW. Definition based on Schivardi (2012).
Bank branches	Bank of Italy	Number of bank branches /1000 inhabitants. Regional average computed as means of provincial averages within the region. The data is taken for the year 2012.
Number of firms in the financial sector/population	ISTAT, own elaboration	Firm census (number of active units int he financial sector) and population data for year 2011.
% of provinces which were on a medieval commercial route	Bertocchi et al. (2015)	Calculated as the number of provinces whose main city was on medieval commercial routes or was the seat of a fair or a bank in the thriteen to fourteen century over total number of provinces in the
Nuclear family structure	Bertocchi et al. (2015) and Duranton (2007)	Calculated as the number of provinces where, in the middle ages, the Nuclear family was the prevailing family type over total number of provinces in the region. The nuclear family structure is defined as one where there is total emancipation of children in adulthood to form independent families made simply of a couple and their children. (Todd, 1990)).
% of provinces which were in the 1st quantile of female primary school enrolment	Bertocchi et al. (2015)	Calculated as the number of provinces which were in the 4th quartile of female primary enrolment over total number of provinces in the region. Female primary school enrolment refers to the female to male ratio of the enrolment rates at the upper primary level in 1861.
% of provinces which were in the 4th quantile of female primary school enrolment	Bertocchi et al. (2015)	Calculated as the number of provinces which were in the 4th quartile of female primary enrolment over total number of provinces in the region. Female primary school enrolment refers to the female to male ratio of the enrolment rates at the upper primary level in 1861.
projected % of hirings in the financial sector (non seasonal jobs)	Excelsior survey	% over total non seasonal projected hirings for year 2012
projected % of hirings for people with an administrative/commercial qualification (at any level, from qualifica professionale to laurea degree)	Excelsior survey	% over total projected hirings for year 2012
number of licei per 1,000 inhabitants	ISTAT	Number of licei high school in the region in 2011 over total population in 2011, multiplied by 1,000.
Propensity to save (sample B)	OECD PISA (2012), own elaboration.	Variable equal to 1 if, when asked "If you don't have enough money to buy something you really want (e.g. an item of clothing, sports equipment), what are you most likely to do?" the student ticked the answer "I save up to buy it". It is equal to 0 if the student ticked one of the following answers: "I buy it with money that really should be used for something else", "I try to borrow money from a family member", "I try to borrow money from a friend", "I do not buy it".
Propensity to save (sample A)	OECD PISA (2012), own elaboration.	Variable equal to 1 if, when asked "Which of these statements about saving money best applies to you?" the student ticked one of the following answers: "I save the same amount of money each week or month", "I save some money each week or month, but the amount varies", "I save money only when I have some to spare", "I save money only when I want to buy something". It is equal to 0 if the student ticked the answer "I do not save any money".
Bank account	OECD PISA (2012).	Variable equal to 1 if the student reported in the questionnaire that she/he has a bank account, 0 if she/he reported that they do not have it.
Credit card	OECD PISA (2012).	Variable equal to 1 if the student reported in the questionnaire that she/he has a credit card, 0 if she/he reported that they do not have it.
Job	OECD PISA (2012), own elaboration.	Variable equal to 1 if the student reported in the questionnaire that she/he gets money from at least one of the following sources: "Working outside school hours (e.g. a holiday job, part-time work)", "Working in a family business", "Occasional informal jobs (e.g. baby-sitting or gardening)". It is equal to 0 if the student reported that she/he does not get money from any of these sources.
Money management learnt in school, in a course specifically on money management	OECD PISA (2012).	Variable equal to 1 if, when asked "Have you ever learned how to manage your money in a course?" the student ticked the "yes" box when the answer provided was "At school, in a subject or course specifically about managing your money". It is equal to 0 if the student ticked the "no" box.

Money management learnt in school, as part of another subject or course	OECD PISA (2012).	Variable equal to 1 if, when asked "Have you ever learned how to manage your money in a course?" the student ticked the "yes" box when the answer provided was "At school as part of another subject or course". It is equal to 0 if the student ticked the "no" box.
Discuss money with friends	OECD PISA (2012), own elaboration.	Answer to the question: “How often do you discuss money matters (e.g. talk about spending, saving, banking, investment) with friends?”. Never==1, once or twice a month==2, once or twice a week==3, every day==4.
SHIW parents' income	SHIW, own elaboration	AVERAGE BETWEEN THE PARENTS OF Average net disposable income by job category (matched based on the job category), year 2012.
Gender equality index	Amici and Stefani (2013)	The indicator considers four dimensions: work(counting both employment and unemployment), income, political and economicrepresentation and use of time.
IGGI	Bozzano (2012)	Italian Gender Gap Index. The indicator is based on four dimensions: The health and survival dimension, The educational attainment dimension, The economic participation and opportunity dimension, The political participation dimension.
Child shows interest in a Math-related career	OECD PISA (2012).	Answer to the question: "Does your child show an interest in working in a mathematics-related career?" (PA15Q02 in the OECD PISA dataset, parents' questionnaire). The question was asked to the parent or guardian who completed the qeustionnaire. The response was either "yes" or "no".
Parent expects child to go into a Math-related career	OECD PISA (2012).	Answer to the question " Do you expect your child will go into a mathematics-related career?" (PA15Q03 in the OECD PISA dataset, parents' questionnaire), The question was asked to the parent or guardian who completed the qeustionnaire.The response was either "yes" or "no".
Learn_time_minperweek_Math	OECD PISA (2012).	Learning time in mathematics, as reported by the school principal, was computed by multiplying the number of minutes on average in the test language class by number of test language class periods per week.
INDEX_Cognitive activation in Mathematics lessons	OECD PISA (2012).	Nine items measuring cognitive activation in mathematics lessons (COGACT) were used in the Main Survey of PISA 2012. The list below shows the questions starting from which the index was built. Response categories were “Always or almost always”, “Often”, “Sometimes” and “Never or rarely”. All items were reversed, so the higher difficulty corresponds to the lower frequency of the event in the classroom. a) The teacher asks questions that make us reflect on the problem; b) The teacher gives problems that require us to think for an extended time; c) The teacher asks us to decide on our own procedures for solving complex problems; d) The teacher presents problems for which there is no immediately obvious method of solution; e) The teacher presents problems in different contexts so that students know whether they have understood the concepts; g) The teacher asks us to explain how we have solved a problem; f) The teacher helps us to learn from mistakes we have made; h) The teacher presents problems that require students to apply what they have learned to new contexts; i) The teacher gives problems that can be solved in several different ways.
INDEX mathematics work ethics	OECD PISA (2012).	Nine items were used in the Main Survey of PISA 2012 to create a new scale labeled “Mathematics work ethic” (MATWKETH). Below is the list of the questions used to build the index. The response categories ranged from “Strongly agree” to “Strongly disagree”. All items were reversed, so the higher difficulty corresponds to the higher level of work ethic. a) I finish my homework in time for mathematics class; b) I work hard on my mathematics homework; c) I am prepared for my mathematics exams; d) I study hard for mathematics quizzes; e) I keep studying until I understand mathematics material; f) I pay attention in mathematics class; g) I listen in mathematics class; h) I avoid distractions when I am studying mathematics; i) I keep my mathematics work well organised.
The teacher asks me or my classmates to present our thinking or reasoning at some length	OECD PISA (2012).	The student was asked the following question (ST79b): "How often does it happen in your mathematics class that the teacher asks you or your classmates to present your thinking or reasoning at some length?" The possible answers were "Every lesson"; "Most lessons"; "Some lessons"; "Never or hardly ever". The variable takes value 1 when the student replied "Every lesson" or "Most lessons", 0 when the student replied "Some lessons" or "Never or hardly ever".
The teacher asks questions to check whether we have understood what was taught	OECD PISA (2012).	The student was asked he following question (ST79f): "How often does it happen in your mathematics class that the teacher asks questions to understand whether you understood what was taught?" The possible answers were "Every lesson"; "Most lessons"; "Some lessons"; "Never or hardly ever". The variable takes value 1 when the student replied "Every lesson" or "Most lessons", 0 when the student replied "Some lessons" or "Never or hardly ever".

Table A2: Descriptive Statistics of Individual-level variables, by gender

	Males					Females				
	N	mean	sd	min	max	N	mean	sd	min	max
Viillage	2237	0,04	0,19	0	1	2414	0,02	0,13	0	1
Town_small	2237	0,21	0,40	0	1	2414	0,20	0,40	0	1
Town	2237	0,49	0,50	0	1	2414	0,54	0,50	0	1
City	2237	0,23	0,42	0	1	2414	0,21	0,41	0	1
Large City	2237	0,04	0,19	0	1	2414	0,04	0,20	0	1
AltoAdige	2237	0,06	0,24	0	1	2414	0,06	0,23	0	1
Basilicata	2237	0,05	0,22	0	1	2414	0,05	0,22	0	1
Campania	2237	0,04	0,20	0	1	2414	0,05	0,22	0	1
EmiliaRomagna	2237	0,05	0,22	0	1	2414	0,05	0,22	0	1
Friuli Venezia Giulia	2237	0,04	0,19	0	1	2414	0,06	0,23	0	1
Liguria	2237	0,05	0,21	0	1	2414	0,05	0,22	0	1
Lombardia	2237	0,05	0,23	0	1	2414	0,05	0,21	0	1
Piemonte	2237	0,05	0,22	0	1	2414	0,06	0,23	0	1
Puglia	2237	0,06	0,24	0	1	2414	0,05	0,22	0	1
Sardegna	2237	0,03	0,17	0	1	2414	0,04	0,19	0	1
Sicilia	2237	0,05	0,22	0	1	2414	0,05	0,22	0	1
Trento	2237	0,04	0,20	0	1	2414	0,04	0,19	0	1
Veneto	2237	0,08	0,27	0	1	2414	0,07	0,25	0	1
Abruzzo	2237	0,04	0,19	0	1	2414	0,05	0,21	0	1
Calabria	2237	0,05	0,21	0	1	2414	0,05	0,21	0	1
Lazio	2237	0,05	0,22	0	1	2414	0,05	0,22	0	1
Marche	2237	0,06	0,23	0	1	2414	0,05	0,21	0	1
Molise	2237	0,03	0,18	0	1	2414	0,03	0,17	0	1
Toscana	2237	0,05	0,22	0	1	2414	0,04	0,20	0	1
Umbria	2237	0,04	0,20	0	1	2414	0,05	0,22	0	1
ValdAosta	2237	0,03	0,16	0	1	2414	0,01	0,12	0	1
LICEUM	2237	0,42	0,49	0	1	2414	0,67	0,47	0	1
TECH	2237	0,41	0,49	0	1	2414	0,20	0,40	0	1
PROFESSIONAL	2237	0,11	0,31	0	1	2414	0,10	0,30	0	1
MIDDLE	2237	0,02	0,13	0	1	2414	0,01	0,10	0	1
Vocational	2237	0,05	0,21	0	1	2414	0,02	0,15	0	1
AGE	2237	15,76	0,29	15,25	16,25	2414	15,76	0,29	15,25	16,25
REPEAT	2237	0,14	0,35	0	1	2414	0,08	0,28	0	1
ESCS	2237	0,10	0,92	-2	3	2414	0,05	0,94	-2,44	2,53
IMMI	2237	0,06	0,24	0	1	2414	0,06	0,23	0	1
LANG_other	2237	0,20	0,40	0	1	2414	0,15	0,36	0	1
PRIVATE	2237	0,05	0,22	0	1	2414	0,04	0,19	0	1
PROP_girls	2237	0,39	0,22	0,00	0,98	2414	0,59	0,19	0	1
PTEACH	2237	0,12	0,06	0	0	2414	0,12	0,05	0,01	0,33
HOUSEWIFE	2237	0,18	0,38	0	1	2414	0,19	0,39	0	1
MMINS	2237	0,05	0,21	0	1	2414	0,06	0,24	0	1
M_Finance	2237	0,05	0,21	0	1	2414	0,07	0,25	0	1
F_Finance	2237	0,07	0,26	0	1	2414	0,07	0,25	0	1
EXP_Fin	1817	0,07	0,26	0	1	2013	0,06	0,23	0	1
BANK_ACC	905	0,40	0,49	0	1	1062	0,40	0,49	0	1
CREDIT_CARD	865	0,21	0,41	0	1	1006	0,19	0,39	0	1
JOB	915	0,52	0,50	0	1	1052	0,40	0,49	0	1
PSAVE A	807	0,94	0,23	0	1	940	0,94	0,23	0	1
PSAVE B	1013	0,62	0,49	0	1	1016	0,60	0,49	0	1
MATH	2188	0,57	0,49	0	1	2379	0,38	0,48	0	1
DISCUSS_peer	1057	1,81	0,96	1	4	1059	1,51	0,81	1	4
TCH_think	1497	0,48	0,50	0	1	1546	0,45	0,50	0	1
TCH_undrst	1486	0,71	0,45	0	1	1551	0,67	0,47	0	1
COGACT	1500	-0,08	0,89	-3,88	3,20	1553	-0,19	0,88	-3,88	3,20