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TACKLING THE GENDER GAP IN FINANCIAL LITERACY. EVIDENCE FROM A FINANCIAL EDUCATION PROGRAM IN THE WORKPLACE

by Alessio D'Ignazio*, Ludovica Galotto* and Cristiana Rampazzi*

Abstract

This paper evaluates the effectiveness of 'Women matter', a financial education program provided by the Bank of Italy to tackle the gender gap in financial literacy. We exploit data collected during the pilot edition of the initiative, undertaken from May 2022 to April 2024 and aimed at female employees. The sample consists of about 200 workers, including both program participants and non-participants, with the latter being similar to the former across a wide range of observable characteristics. We find that attending the program leads to a sizeable increase in the participants' financial competences, corresponding to about 30 per cent of the financial literacy score measured before the course. Moreover, the program is more effective for younger recipients and for those less familiar with financial instruments. Finally, we show that the teacher's level of financial literacy directly affects the success of the program.

JEL Classification: I21, G5.

Keywords: financial literacy, financial education for adults, gender gap.

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1 Introduction[1]

Numerous studies show that women are less educated in financial matters than men and have less confidence in their financial competencies. The origins of these gaps in financial literacy have been traced back to several causes, such as the fact that men tend to take charge of financial decisions within the household, the persistence of gender roles, and the socio-cultural environment (Bucher-Koenen et al., 2021). The gender gap in financial literacy is large and persists even when we take into account the differences in economic and demographic characteristics between genders, which arguably affect people's relationship with finance (Bucher-Koenen et al., 2017). Importantly, this gap is relevant not only in emerging economies, but also in advanced ones (Klapper and Lusardi, 2020). The above evidence is especially concerning since the lower financial competencies impact the well-being of women, who also have, on average, shorter working lives and lower incomes than men (OECD, 2013).

In order to tackle the gender gap in financial literacy, several countries have introduced financial education programs aimed at women. For instance, Australia, Austria, Bangladesh, Brazil, Canada, Chile, Colombia, the Dominican Republic, India, Indonesia, Mexico, New Zealand, Nigeria, Peru, Spain and the United Kingdom have included women and/or girls as a specific target group in their national strategy for financial education (OECD, 2023a). Some programs are quite broad and address women at large;[2] others refer to subgroups of women, mainly vulnerable ones, female entrepreneurs and

[1]The authors thank Simone Bertasi, Giulia Cantarini, Riccardo De Bonis, Daniela Marconi and Roberto Violi for useful comments and suggestions. The authors are also grateful to Marilisa Guida, Esmeralda Rizzi, Liliana Ocmin, Elisabetta Artusio, Sonia Ostrica and Marco Rotili for supporting the program and to all union delegates who participated: Sonia Bridda, Silvia Cascianelli, Vilma Costa, Dolores Dessì, Roberta Giovannini, Annamaria Ilardo, Anna Letizia, Patricia Lupi, Marcella Magistro, Annarita Mancuso, Anna Masiello, Nicoletta Merlo, Samantha Merlo, Maria Micucci, Clotilde Pagliani, Agnese Palma, Federica Pattini, Elisabetta Pedrazzoli, Frida Pennino, Barbara Peres, Adelaide Ponziani, Giuseppina Puglisi, Laura Svaluto Moreo, Ranali Warnakulasuriya, Mariacristina Zarrella. The usual disclaimer applies. The views expressed in this paper are those of the authors and do not necessarily reflect those of the Bank of Italy.

[2]For instance, in 2018 the Australian Securities and Investments Commission ran a comprehensive campaign, "Women Talk Money", featuring high-profile Australian women who explained their experiences with money to motivate other women. In Poland, the Bank Guarantee Fund targeted women as part of its educational campaign in 2020/21 aimed at raising awareness of deposit guarantee schemes.

otherwise working women.[3] Such initiatives aim, on the one hand, to raise women's awareness of the importance of managing their finances, and on the other, to improve their financial knowledge and behaviour by providing them with appropriate tools.

The presence of a financial literacy gender gap in Italy - from the school years to adulthood - has been extensively documented (D'Alessio et al., 2020; OECD, 2023b).

To fill this gap, in October 2020, the Bank of Italy launched a financial education program called "Le donne contano" (Women matter) which aims to equip them with the basic skills they need to make informed financial decisions.[4]

Since then, the program is available free of charge to non-profit associations and the companies that wish to provide financial education to their members, employees or low-educated women. The project is implemented through a partnership between the Bank of Italy and cooperating institutions, mainly using a "train-the-trainer" approach through which experts from the Bank of Italy train volunteer teachers from the participating organizations, who then lead discussions with women on economic and financial topics. The program was first offered in the workplace in 2021 to nurses, doctors, and administrative staff in a public hospital in Lombardy (see OECD, 2022a), but the uptake was limited due to the Covid pandemic. In 2022, the Bank of Italy signed a partnership with the three main Italian trade union confederations - Italian General Confederation of Labor (CGIL), Italian Confederation of Trade Unions (CISL) and Italian Workers' Union (UIL) - with the aim of offering the course at the national level. From May 2022 to April 2023 the course was attended by more than 300 female employees across Italy (see section 3). In this article, we focus on the latter experience. Since then, the program has also been made available to other organizations, trade unions, and non-profit institution under the same terms.

Despite the significance of the gender gap in financial literacy and the growing number of financial education programs directed at women carried out in several coun-

[3]In Chile, Mexico and Peru different institution run financial educational programs for female micro and small entrepreneurs. In New Zealand, the Te Ara Ahunga Ora Retirement Commission designed a program for women as part of its workplace courses, "Sorted Women".

[4]In Italy, financial education programs aimed at women are also promoted by some public institutions or private associations, banks or foundations (such as Unioncamere, Global Thinking Foundation, Foundation for Financial Education and Savings, Turin's Museum of Savings). Most of these programs are not courses that are offered throughout the year, but rather webinars that take place occasionally and are then made available online, or one-off initiatives.

tries, little is known about their effectiveness. This paper contributes to shed some light on this issue. Our aim is twofold. First, we exploit the pilot edition of the program "Le donne contano" to investigate whether it actually led to an improvement in the financial literacy of the participants. Second, we test whether the effects of the program varied according to either employees' and teachers' characteristics.

In order to assess the impact of the program we adopt a matching approach, where participant employees (i.e., the treatment group) are paired with non-participant women workers (control group) who are very similar in a wide range of observables. The empirical analysis is based on two questionnaires, administered both before and after the program to employees and program teachers. The results show that the treated workers display a greater increase in financial literacy compared to the control group, resulting in a higher post-treatment financial literacy score. Specifically the increase in the score amounts to slightly less than 30 per cent of the average pre-treatment score. These results has survived a battery of robustness and falsification tests. Concerning heterogeneous effects we find that, on average, younger employees and those with less familiarity with financial instruments derive the most substantial benefits from the program. Finally, we detect greater effectiveness of the program if it is delivered by a teacher with a higher financial literacy score (as measured before undertaking program training activities).

The remainder of the paper is organized as follows. Section 2 reviews the related literature and outlines the main contributions of the paper. Section 3 describes the pilot edition of the financial education program "Le donne contano", which was carried out in Italy between May 2022 and April 2023. Section 4 sets out the empirical strategy and the data. Baseline results and robustness checks are outlined in Section 5, while potential heterogeneous effects are investigated in 6. Section 7 concludes.

2 Related literature

We contribute to two streams or research. First and foremost, this paper relates to the literature that investigates the effectiveness of initiatives aimed at empowering women by increasing their financial literacy. Second, it fits within the research that studies the effectiveness of financial education programs carried out in the workplace.

2.1 Financial education programs for women

Notwithstanding the importance of financial education programs for women, rigorous research on the effectiveness of such initiatives is scant, and mostly focusing on programs directed at women that belong to disadvantaged groups, such as immigrants and victims of domestic violence. Among the few existing studies, Postmus et al. (2015) evaluated the impact of "Moving Ahead Through Financial Management", a financial education initiative directed at women victim of domestic violence which covers five topics: understanding financial abuse; learning financial fundamentals; mastering credit basics; building financial foundations; creating budget strategies. The program was delivered by several agencies, whose staff was previously taught by the project organizers, using a "train-the-trainers approach".[5] The evaluation of the program was grounded on a randomized longitudinal trial, lasting 14 months, involving a sample of women from seven US states and Puerto Rico who where victim of violence. Experiment participants were randomly allocated to either a treatment group (*i.e.*, they took part in the program) or a control group. The findings – based on a sample of 195 women who completed both the questionnaires, out of the initial sample of 457 – show that the program leads to a significant improvement in both financial literacy and behaviors.

Bhutoria and Vignoles (2018) examined the impact of a financial education initiative undertaken in India and based on the so-called Rule of Thumb (RoT) approach, *i.e.*, a light teaching method that covers only basic concepts and educates people on how to deepen their knowledge. In order to estimate the impact of the program, they focused on 78 Self Help Groups[6], which were randomly allocated to either a treatment or a control group. The results show a positive impact of the intervention on participants' financial knowledge, on some financial behaviors (such as keeping a personal budget) and, most importantly, on their personal savings attitudes. The course had no effect, instead, on the women's interest in financial matters, nor on other financial behaviors,

[5]The implementation of the program from the agencies was flexible. In particular, each agency could choose how to deliver the financial education contents, based on their clients characteristics and time schedule.

[6]A Self Help Group is a community-based group, usually consisting of a small number of members who pool small amounts of money to increase their financial stability by taking loans out of their collective savings in times of needs. Group members are usually women and are generally characterized by poor social and economic backgrounds.

such as keeping a budget.

We contribute to this literature by evaluating a financial literacy initiative with a broader eligible population compared to the groups targeted by the above-described programs. Especially, we assess the impact of a measure aimed at all female employees, whereas prior studies focused on women with specific vulnerabilities.

2.2 Financial education programs in the workplace

Delivering financial education contents to adult population is not an easy task, since this portion of the population – contrarily to students – is difficult to reach and engage (Bruhn et al., 2014). Undertaking financial education programs in the workplace is deemed a powerful way for policy makers to reach this goal.[7] From a theoretical perspective, workplace financial education programs are beneficial to employees, who might achieve greater financial wealth; as noted by Bayer et al. (2009), such programs may also increase employees' loyalty, improve working relationships and enhance motivation.

Despite such potential advantages, however, many countries reported a low uptake of financial education schemes in the workplace. This outcome is mainly due to myopic behavior from most employers, who consider such activities as time consuming and negatively affecting productivity, or too costly. In addition, very often employers who understand the potentially beneficial effects of such programs lack the capacity to effectively undertake them and to engage their employees (OECD, 2022a).

Evaluating the impact of programs in the workplace is challenging: self-selection is at work, RCTs are more difficult to organize compared to a school setting and there is often no control of the quality of the seminars (Lusardi and Mitchell, 2014). As a consequence, empirical evidence is limited and mostly based on case studies focusing on single companies or institutions, or on non-experimental evidence, which undermines the external validity of the findings. In their seminal paper on this topic, Bernheim and Garrett (2003) gathered data from a survey of US households and found that respondents whose employers offer financial education have larger voluntary pension contributions. Among more recent studies, Agasisti et al. (2023) evaluated the effectiveness of a financial education (12 hours, online) course aimed at the technical and

[7] A different strategy to reach people that would not otherwise seek out financial education involves tv programs (see, for instance, Buratti and D'Ignazio, 2024).

administrative staff of a major Italian public university, who decided whether to attend or not on a voluntary basis. By exploiting a sample of 136 employees, they find that the program leads to an increase in the financial knowledge of about 0.45 SD. Clark et al. (2017) focused instead on Federal Reserve employees. They offered them all a short online course, as they were not being able to randomize it, and found by means of a regression approach that those who completed the course were more likely to contribute to a pension plan. Finally, Prawitz and Cohart (2014) considered a large publishing company, whose employees were invited to take part in a financial education program. They tackle the selection bias caused by the voluntary participation by controlling for a set of observable characteristics, and find that the program is effective in improving some financial behaviors.

We contribute to this stream of research in two directions. First, while most studies refer to financial education programs undertaken in single companies only, we focus on an initiative that was undertaken simultaneously in several different firms. Second, we focus on a novel scheme, based on the train-the-trainers approach, which allows a full scalability of the program while keeping, at the same time, a full control of both the course content and the quality of the seminars.

3 The first (pilot) edition of the program

The pilot edition of the project "Le donne contano" was conducted in collaboration with three main Italian trade union federations: CGIL, CISL and UIL. It took place from May 2022 to April 2023 and followed a train-the-trainers approach, a teaching framework consisting of two phases: a first phase in which a small group of future competent trainers are coached, and a second phase in which the new trainers pass on their knowledge to the intended recipients. This framework was chosen because it is cost-effective and potentially has a very wide reach thanks to its scalability.

In May 2022, 25 trade union delegates took part in a training course led by experts from the Bank of Italy. The course lasted two days and provided delegates with the necessary knowledge on personal finance issues as well as teaching techniques and strategies to improve their didactic skills. On the first day, experts from the Bank of Italy covered the four modules that constitute the course: (i) financial planning, (ii) current account management, home banking and cybersecurity, (iii) digital payment

instruments, and (iv) responsible borrowing. [8] Each module consisted of an introductory part to break the ice and engage with the audience, a short frontal lesson and an interactive exercise to test the acquired knowledge and encourage active participation of the participants. On the second day, participants were invited to simulate a lesson and were advised by an expert from the Bank of Italy. At the end of the course, the participants received the teaching materials that they can employ in their lessons.

The second phase lasted from May 2022 to April 2023. During these 11 months, the delegates organized several lessons that repeated the structure of the course. Of the 25 union delegates who participated in the training, 16 held face-to-face classes that reached more than 300 women workers at their workplace. For organizational reasons, the course was usually held in one day.

The first edition of the program was accompanied by a study to evaluate its effectiveness. With the help of union delegates, we collected data for both a sample of workers who participated in the program and a sample of workers who had similar observable characteristics to the former but did not participate.

4 Empirical strategy and data

Our empirical strategy is to compare the changes in financial literacy of workers who participated in the program with those of very similar workers who did not. In order to collect the necessary data, participants (i.e. the treatment group) were asked to complete a questionnaire before and after the course. The same two questionnaires were also administered to a group of women who did not participate in the program (control group). Although it was not possible, mainly for organizational and budgetary reasons, to combine the first edition of the program with a full-fledged randomized controlled trial, our empirical strategy is based on the assumption that treatment assignment is as good as random, conditionally on covariates (Rosenbaum and Rubin, 1983).

To recruit workers for the control group, we asked union delegates to select employees with similar characteristics to those of program participants. To this aim, the

[8] A fifth module was added in October 2023, covering the basics of investing. The videos of the four modules are also available online on the Bank of Italy's financial education website "L'economia per tutti". The course is available on the following website `https://economiapertutti.bancaditalia.it/progetti-educativi/donne-contano/`.

delegates prioritarily turned to employees of companies that were interested in participating in the program in the future. Employees from participating companies but who did not undergo the program were also included, except those who abstained due to lack of interest. This allowed us to increase comparability between the two groups and limit potential selection bias, as employees in the control group: (i) had similar observable characteristics to program participants in terms of demographic variables and their relationship to finance; (ii) did not participate in the program for reasons other than lack of interest. In addition, our estimates take into account a wide range of observable characteristics that are likely to be associated with the outcome of interest; finally, we also follow a matching approach between workers in the treated and control groups.

4.1 The questionnaires

The questionnaire administered before the course consists of three parts. The first group of questions includes demographic information (age, education level, employment sector, region, marital status) and questions about the respondent's financial habits, e.g. whether they are responsible for managing money in the family, have a payment account and know its cost, use advanced payment methods. The second section contains 14 questions that test respondents' knowledge of the course topics and were used to compute the financial literacy score (see Table 1 and Section 4.3). Finally, 5 questions examine attitudes towards personal finance (i.e. involvement in family money management, financial instruments used, access to digital finance) and the three basic financial literacy questions that are considered the global benchmark for measuring financial literacy (the 'big three' financial literacy questions) (Lusardi and Mitchell, 2008; see Tables 2 and 3). The questionnaire completed at the end of the course contains the 14 questions used to test the participants' knowledge, as well as additional questions to measure the participants' satisfaction with the program. The control groups completed the same two questionnaires as the treated group, with the exception of the last section, which measures satisfaction with the program. In addition, the control group was asked to provide information on the reasons why they had not attended the course (the choices were: lack of time, being unaware of the existence of the course, lack of interest). Given the short time span in which the two questionnaires were completed (one week on average, with a range of one day to one month), we modified the follow-up questionnaire so that its equivalence with the first questionnaire was not immediately

apparent. To this end, we changed both the order of the questions (rearrangement) and the wording of the sentences (rephrasing).

In order to gather information about the union delegates' competencies before and after the course, they were asked to complete the same questionnaires that were presented to the program participants. Thus, the union delegates received the two questionnaires during their training by the Bank of Italy expert. This was important for the analysis in order to investigate possible heterogeneous effects of the program.

4.2 Descriptive statistics

4.2.1 Program participants

Of the employees who took part in the first edition of the "Le donne contano" project, 344 completed at least the first questionnaire. However, only 131 of them completed also the final questionnaire and were therefore included in the program evaluation, while the other 213 women workers were excluded from the analysis. To assess whether such dropout poses an initial selection threat to our study, we tested the balancing properties between the two groups (*i.e.*, not dropped out vs dropped out) across a large number of individual characteristics. The results, reported in Table 4, are reassuring, as the two groups are perfectly balanced, with only the share of employees in the private sector being different. We use this evidence to ground our claim that the two groups are arguably similar across unobservable characteristics too, including their ability to benefit from a financial education program, such as the one at hand.

As shown in Figure 1, around two thirds of the 131 treated employees are between 35 and 64 years old and around 60 per cent of them live in the south and on the islands. In terms of educational attainment, almost 8 out of 10 of the treated women completed only the lower or the upper secondary school. As expected, almost the entire sample consists of either employed or self-employed workers, mainly in the private sector, while a small minority are students or domestic workers.[9] Participant employees mainly work in the education and administration, in agriculture and food, and in trade sectors. A significant proportion of participants are employed by trade unions. (Figure 2).

[9]While the course is intended for employee women, in cases the union delegates opened their classes to students and domestic workers too. The latter account, overall, for 14 per cent of the sample.

4.2.2 Union delegates

As regards as union delegates, 23 of them completed the initial questionnaire. 17 per cent are younger than 45 years; 61 per cent held a bachelor degree or a post-graduate degree. In terms of financial habits, 96 per cent are responsible for their finances by themselves or together with another person, while all of them own a current account; 91 per cent use a debit card, 43 per cent a credit card. The union delegates display a larger-than-average financial literacy measured by means of the Big Three with an average of 2.3 out of 3 questions correctly answered in the initial survey.

Among them, 15 agreed to disclose their name under confidentiality agreement and hence we were able to pair them with participant workers data, in order to investigate potential heterogeneous effects of the program according to the characteristics of the trainers (see Section 6).

4.3 Financial literacy score

To evaluate the effectiveness of the course, we calculate a financial literacy score (hereafter FL) using the 14 knowledge questions listed in Table 1. All questions used to calculate the FL score are true/false type. Following OECD (2022b), we also include an answer option "I don't know", while we don't allow participants to decline a question in order to maximise the number of observations. To compute the score, we award 1 point for each correctly answered question and 0 points for incorrect and "I don't know" answers. Each participant's score can therefore range from 0 to 14.[10]

4.4 Treated and control groups

A total of 75 non-participating employees who were similar to the participating employees and completed both the initial and final questionnaires were included in the control group. Despite the non-random allocation of women employees to the treated and control groups, the two samples are well balanced with respect to a large number

[10] As regards the presence of the "I don't know" option, several research papers demonstrated that women have a higher propensity to choose 'that option with respect to men. In particular, Hospido et al. (2023) showed that about two-thirds of the gender gap in financial literacy is explained by women response bias in choosing such option. This issue, however, is less relevant to our analysis, since both our treated and control groups consist entirely of women.

of observable characteristics (see Table 5), with a few exceptions. First, the type of employer, as the control group is more likely to be employed by a trade union. This result is to some extent to be expected, as it is easier for union delegates to reach workers employed by unions to capture the control group. – More importantly, the control group has a higher FL score in the pretest (measured with the baseline questionnaire) and in the first of the three big questions. We address this imbalance by both controlling for the pretest score in the regression and, in a separate exercise, by an exact matching between the treated and controls based on the pretest FL score. Specifically, we performed one-to-one matching without replacement, which resulted in 56 treated units being discarded. As shown in Table 6, the matched sample consists of 75 treated and 75 control units that are perfectly balanced with respect to all observable variables, with the only exception of the employment sector and prepaid card use.

5 Results

We estimate the following regression model:

$$Post_i = \beta_0 + \beta_1 \cdot Pre_i + \beta_2 \cdot Treat_i + \sum_j \gamma_j X_{ji} + \epsilon_i \tag{1}$$

where $Post_i$ is the post-test FL score of worker i, Pre_i is the pre-test FL score, $Treat_i$ is a dummy equal to one for employees who belongs to the treatment group and zero otherwise; X_j is a vector of individual-level controls.

We consider three different model specifications: a parsimonious one, where we control for the pre-test score only; a less parsimonious one, where we add a vector of individual characteristics such as age, education, and geographical area; a third specification, which also includes marital status, sector of employment and several financial habits: whether the respondent takes financial decisions at home; whether she owns a current account, she knows the cost of a current account, she uses debit cards, prepaid cards, credit cards, bank transfers; whether she does online shopping, online banking, pay bills online, as well as the Big Three scores.

Baseline estimates are reported in Table 7. The results show that treated workers display a greater post-treatment financial literacy score with respect to control units. The result is stable across the three different model specifications, from the more parsimonious one (column 1) to the model including the full set of covariates (column 3). The increase in the score amounts to about 1.6 points. It is a sizeable rise, accounting

to slightly less than 30 per cent of the average pre-treatment score. The effect size is large, as we observe a value of about 0.6 SD.

In accordance with previous research in Italian data (D'Alessio et al., 2020), female employee with higher level of education (i.e. those who hold a bachelor or post-graduate degree) and those living in the central and northern areas of the country achieved a greater FL score, ceteris paribus. On the other hand, no age effects were detected. Results from the matched sample (columns 4-6) provide almost identical results to those of the full sample, with an estimated FL score increase following the financial education program by 1.6 points.

5.1 Robustness and falsification checks

Next, we provide a couple of robustness exercises and a falsification test. As a first robustness exercise, we use the difference in the post-pre score as dependent variable, rather than the post-test score with the pre-test score as a control variable.[11] This exercise confirms the baseline findings (see Table 8). In particular, the matched sample yields an increase of the financial literacy score of 1.4 points.

In a second robustness exercise we focus on the impact of the program at the extensive margin, *i.e.* we employ as alternative dependent variable a binary indicator, taking value one if the worker improves her FL score over the course and 0 otherwise. Baseline findings are again confirmed (see Table 9), as estimates show that the course increases the probability to improve FL knowledge by about 25 percentage points. As expected, the probability to witness an increase in the FL score is inversely related to the pre-test score. Moreover, as shown in the model specification that includes the full set of controls, financial literacy is greater for workers with a bachelor or post-graduate degree, other characteristics being equal.

As a final robustness check we rely on propensity score matching, using as matching variables pre-test score only, age, education, geographical area, marital status, a vector of covariates describing financial habits as well as the Big Three score. We select only observations whose score lie in the region of common support: we exclude only 5 treated subjects out of 131, while control subject are all on support. The estimated

[11] Formally, we estimate: $\Delta score_i = \alpha_0 + \alpha_1 \cdot Treat_i + \sum_j \delta_j X_{ji} + \epsilon_i$. The two alternative approaches do not necessarily lead to the same conclusions, since the score difference model can be re-written as the lagged regression model with $\beta_1 = 1$.

treatment effect is equal to 1.88 - very similar to our baseline estimates - and statistically significant at the 0.01 level.[12]

Finally, we run a falsification test, using as outcome variable the change in the knowledge of risks from obtaining financial investments advice on social networks. In order to perform this test we devise a binary indicator, taking value 1 if the respondent improves her knowledge of such risks over the course, and 0 otherwise. Since this topic was not covered in the course, we expect no impact of the program. Estimation results from both the full sample and the matched sample, provided in Table 10, are reassuring.

6 Heterogeneous effects

In this section we investigate if the impact of the program on financial literacy is heterogeneous across workers' characteristics, in order to gather additional policy implications. For instance, Klapper and Lusardi (2020) show that lower educated and older adults are more likely to suffer from gaps in financial knowledge. To this aim, we investigate whether the impact of the program changes with employees level of education, age and knowledge of financial instruments. Table 11 provides estimates results of models were the treatment dummy is interacted respectively with: a dummy equal to 1 if workers hold a bachelor or post-graduate degree, and 0 otherwise; a dummy equal to 1 for workers aged less than 45; a dummy equal to 1 if workers do not use neither bank transfers of credit cards, and 0 otherwise.

Panel (a) estimates suggest that the financial education course does not have a different impact according to the level of education of employees; on the other hand, panel (b) shows that, on average, younger employees grab a larger benefit from the program, yielding an additional 1.3 FL score increase with respect to the rest of participants. Heterogeneous effects arise also when workers familiarity with financial instruments is taken into account. As shown in panel (c), employees who do not use bank transfers nor credit cards obtain a very sizable increase of their FL score. In both cases, the estimated effects are similar according to both the full sample and matched sample models. All in all, this evidence confirms previous studies' findings, suggesting that a tailored approach to financial education, based on recipients' characteristics, could improve the effectiveness of the programs (Buratti and D'Ignazio, 2024).

[12]Estimates, not reported, are available from the authors upon request.

Finally, we also investigate whether the effects of the program on financial literacy were heterogeneous across the characteristics of the union delegates, who carried out the short financial education course. In this way we contribute to the literature studying the relationship between teacher characteristics and students performance (see, for instance, Sancassani, 2021). To this aim, we exploit the results from the Big-three questions taken by the union delegates before the training activities, and test whether workers who attended a course held by union delegates scoring 3 out of 3 in those questions obtained a return from the course different from that achieved by the workers instructed by union delegates scoring less than 3. Results, displayed in Table 12, suggest indeed that the program is more effective when the course is held by teachers with higher FL.

7 Concluding remarks

Gender gaps in financial literacy are sizeable in many countries, and several programs have been developed and offered to tackle it. Despite these large efforts, however, little is known about the effectiveness of such initiatives. In this paper we investigate the impact of a program launched by the Bank of Italy in 2020. In particular, we focus on a financial education initiative that reached women directly at their workplace, carried out between May 2022 and April 2023. By exploiting a sample of about 200 employees, we show that the program was effective, leading on average to a significant increase in the participants' financial literacy. Moreover, we also find that younger workers and those having less familiarity with financial instruments enjoy greater benefits from the program. Finally, we observe that the employees' improvements were more marked if, *ceteris paribus*, their teachers displayed a higher-than-average financial literacy score.

A couple of caveats should also be discussed. Firstly, in this paper we rely on selection on observables to provide a reliable estimate of the average effect of the treatment. In other words, we claim that conditioning on a vector of observable variables X_i makes the treatment behave as if it were assigned randomly. Moreover, since we are not in an experimental setup (where treated and control units are randomly selected from the population of interest) our paper provides an estimate of the average effect of the treatment on the sub-population of treated people, rather than the average effect of the program on the population of female employees.

A second, relevant aspect involves the time-span considered to investigate the impact of the program. The question whether financial education programs' effects

decay over time has been scantily studied, mostly due to limited data availability, and the empirical evidence available is inconclusive (Kaiser et al., 2022). In our paper we could only estimate the very short-term effects of the program. In particular, the post-test questionnaires were administered on average 7 days after the end of the course. While the effect in such very short run is a necessary condition for program effectiveness, a longer time horizon should be considered as for a full assessment of the program.

In conclusion, our result support the claim that in order to increase the effectiveness of financial education programs, these should be tailored to the recipients' characteristics. In the case at hand, a young age and familiarity to financial topics are crucial for the participants to derive significant benefits. A second key finding outlines the importance of devising effective training activities for those who will deliver financial education contents to program recipients.

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Figures

Figure 1: Demographic characteristics of the treated sample

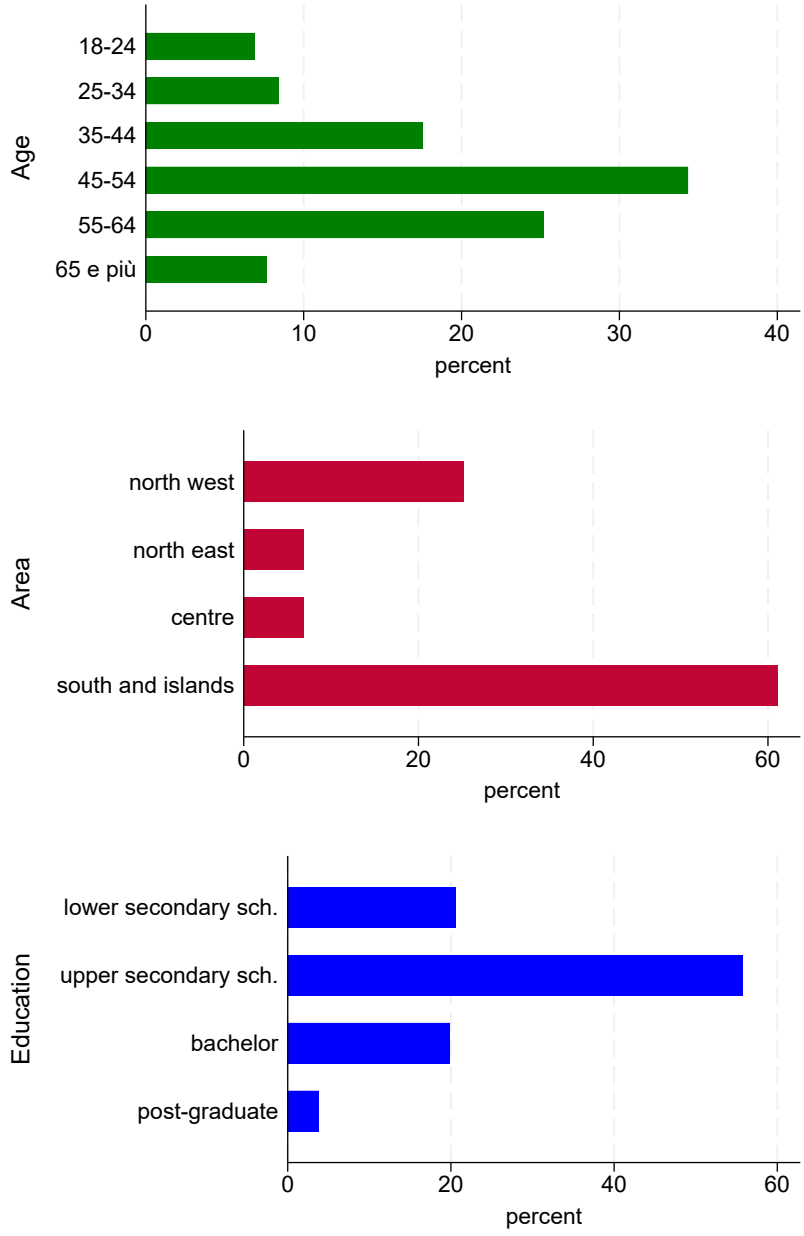
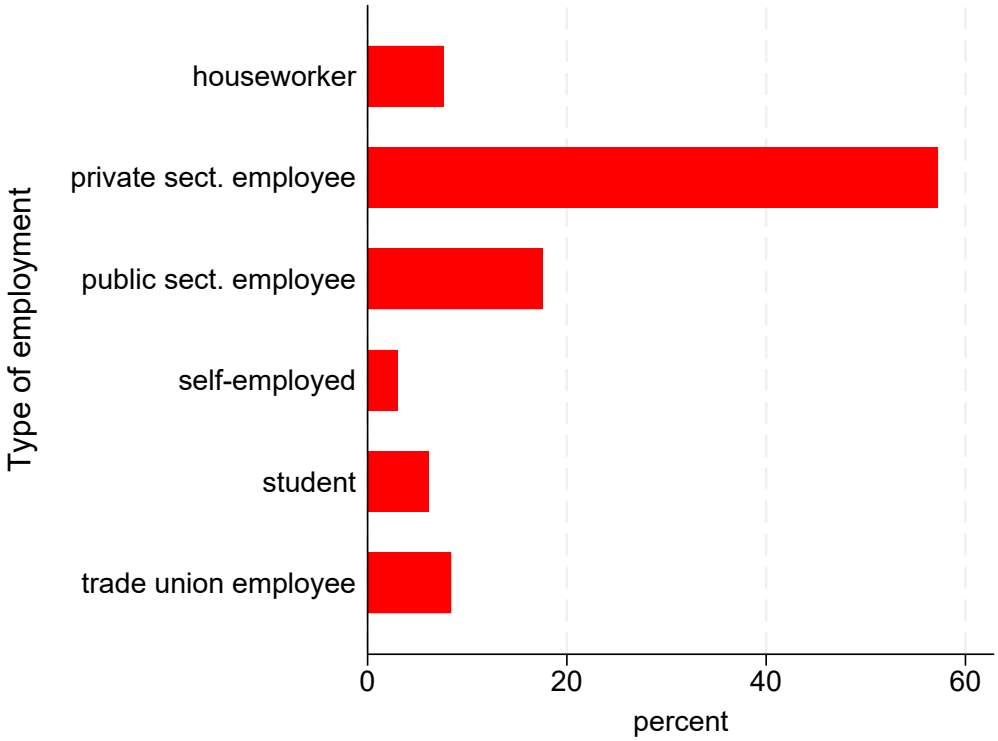
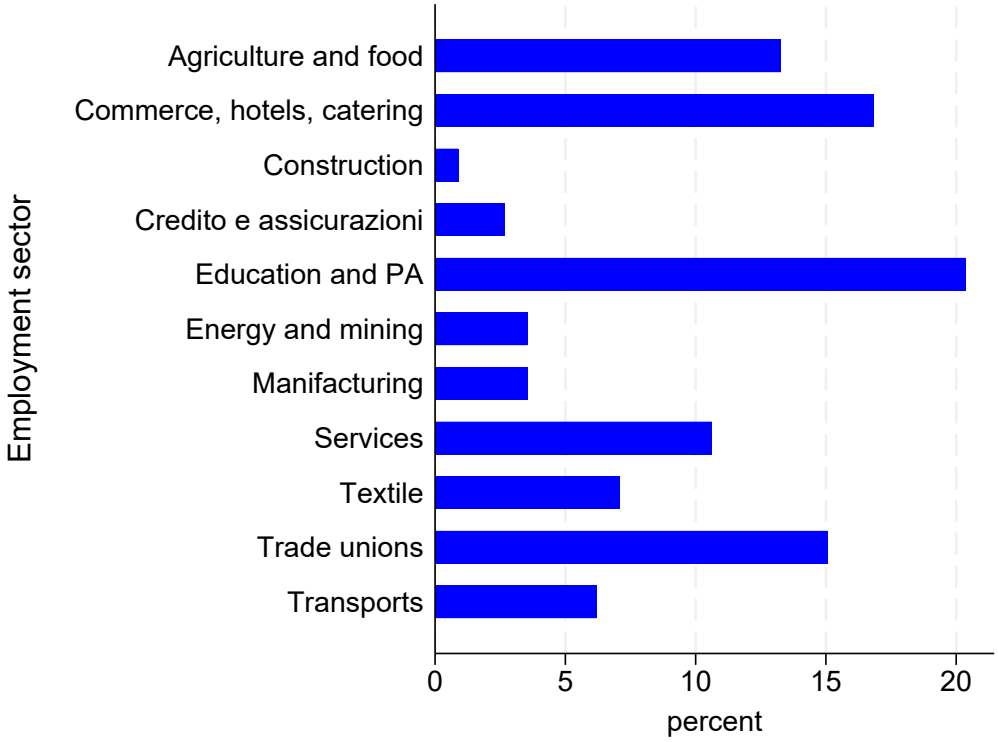


Figure 2: Employment characteristics of the treated sample





Tables

Table 1: Pre course questionnaire - knowledge questions

Question	Answers	
Financial planning mainly serve to plan for old age	TRUE	**FALSE**
Creating a budget means keeping a list of expected income and expenses to understand your ability to save	TRUE	**FALSE**
An instant bank transfer has the same cost as an ordinary bank transfer	TRUE	**FALSE**
If you have no funds in your account at the time of purchase, you can use a credit or debit card (Bancomat)	TRUE	**FALSE**
If you make purchases with a "revolving" credit card, you pay an interest rate	**TRUE**	FALSE
If you lose your credit card or it is stolen and the fraudsters steal your money, the bank will normally give you back the stolen money, unless you have acted carelessly	**TRUE**	FALSE
If you receive an email or message from your bank asking you to open a link to resolve a problem with your account, it's best to open it to act quickly	TRUE	**FALSE**
Never give out passwords or codes to access your account over the phone, even if the caller is an employee of your bank	**TRUE**	FALSE
Bank customers can transfer the services associated with their current account to another intermediary free of charge within 12 working days	**TRUE**	FALSE
The current account at each bank is guaranteed up to 100,000 euros	**TRUE**	FALSE
The annual nominal rate (in italian TAN) is higher than the Annual Percetntage Rate of Charge (APRC, in italian TAEG)	TRUE	**FALSE**
Retrieving your data from the central credit register is a free service	**TRUE**	FALSE
The loan can only be repaid early if at least 15 years have passed since the contract was signed; earlier repayment is not possible	TRUE	**FALSE**
Renegotiating the mortgage allows you to change some elements of the contract, and the banks are obliged to grant it	TRUE	**FALSE**

Notes: Correct answers in bold.

Table 2: Pre course questionnaire - Financial attitudes

N	Statement	Answers
1	When I need to make a big purchase I start saving on time	(1-5)
2	Making a monthly budget of income and expenses is a boring and unhelpful activity	(1-5)
3	Cash is the most practical means of payment	(1-5)
4	I avoid online shopping because I am afraid of becoming a victim of fraud	(1-5)
5	My bank has all the information needed to take out a loan or mortgage, I don't need to ask elsewhere	(1-5)
6	I think you can find some good tips on financial investments on social media	(1-5)

Notes: 1 corresponds to "strongly disagree", 2 corresponds to "somehow disagree", 3 corresponds to "neither agree nor disagree", 4 corresponds to "somehow agree" and 5 corresponds to "strongly agree"

Table 3: Pre course questionnaire - "Big Three" financial literacy questions

Question
1) Suppose you had € 100 in a savings account and the interest rate was 2% per year. After 5 years, how much do you think you would have in the account if you left the money to grow?
More than € 102
Exactly € 102
Less than € 102
Do not know
2) Imagine that the interest rate on your savings account was 1% per year and inflation was 2% per year. After 1 year, how much would you be able to buy with the money in this account?
More than today
Exactly the same
Less than today
Do not know
3) Please tell me whether this statement is true or false:"Buying a single company's stock usually provides a safer return than a stock mutual fund."
True
False
Do not know

Notes: Correct answers in bold.

Table 4: Balancing statistics: treated, dropped out vs not dropped out

	dropped out		*not dropped out*		*diff*	
	mean	sd	mean	sd	b	p-value
less than 45 y.o.	0.329	0.471	0.328	0.471	0	(0.994)
ba or pg degree	0.286	0.453	0.237	0.427	-0.05	(0.313)
south & islands	0.615	0.488	0.611	0.489	-0.004	(0.936)
married or cohab	0.573	0.496	0.466	0.501	-0.107	(0.053)
private sect empl.	0.39	0.489	0.573	0.497	0.183***	(0.001)
public sect empl.	0.225	0.419	0.176	0.382	-0.05	(0.269)
trade union empl.	0.136	0.344	0.084	0.278	-0.052	(0.143)
resp finance	0.859	0.349	0.847	0.361	-0.012	(0.763)
curr. account own	0.887	0.317	0.931	0.254	0.044	(0.180)
curr . account know cost	0.441	0.498	0.466	0.501	0.024	(0.661)
debitcard use	0.737	0.441	0.771	0.422	0.034	(0.482)
prepaidcard use	0.239	0.428	0.298	0.459	0.058	(0.234)
creditcard use	0.296	0.457	0.328	0.471	0.032	(0.528)
banktransfer use	0.394	0.49	0.397	0.491	0.003	(0.962)
online shopping	0.624	0.485	0.603	0.491	-0.021	(0.693)
online banking	0.563	0.497	0.55	0.499	-0.014	(0.804)
online paybills	0.394	0.49	0.45	0.499	0.056	(0.307)
pre-test score	5.437	2.565	5.656	2.48	0.22	(0.435)
agree on statement 1	3.923	1.141	3.762	1.119	-0.162	(0.202)
agree on statement 2	2.354	1.344	2.333	1.289	-0.021	(0.889)
agree on statement 3	2.708	1.347	2.538	1.376	-0.17	(0.264)
agree on statement 4	2.919	1.322	2.769	1.344	-0.149	(0.315)
agree on statement 5	3.043	1.19	2.869	1.19	-0.174	(0.192)
agree on statement 6	1.919	1.1	1.838	1.112	-0.08	(0.516)
big three q1 correct	0.531	0.5	0.557	0.499	0.027	(0.630)
big three q2 correct	0.493	0.501	0.534	0.501	0.041	(0.457)
big three q3 correct	0.423	0.495	0.389	0.489	-0.033	(0.544)
Observations	213		131		344	

Notes: Full sample of treated workers. *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$

Table 5: Balancing statistics: full sample

	treated		*control*		*diff*	
	mean	sd	mean	sd	b	p-value
less than 45 y.o.	0.328	0.471	0.400	0.493	0.072	(0.303)
ba or pg degree	0.237	0.427	0.227	0.421	-0.010	(0.871)
south & islands	0.611	0.489	0.467	0.502	-0.144*	(0.045)
married or cohab	0.466	0.501	0.587	0.496	0.121	(0.095)
private sect empl.	0.573	0.497	0.533	0.502	-0.039	(0.588)
public sect empl.	0.176	0.382	0.147	0.356	-0.029	(0.593)
trade union empl.	0.084	0.278	0.267	0.445	0.183***	(0.001)
resp finance	0.847	0.361	0.920	0.273	0.073	(0.132)
curr. account own	0.931	0.254	0.947	0.226	0.015	(0.664)
curr . account know cost	0.466	0.501	0.573	0.498	0.108	(0.138)
debitcard use	0.771	0.422	0.853	0.356	0.082	(0.156)
prepaidcard use	0.298	0.459	0.213	0.412	-0.084	(0.190)
creditcard use	0.328	0.471	0.320	0.470	-0.008	(0.904)
banktransfer use	0.397	0.491	0.480	0.503	0.083	(0.248)
online shopping	0.603	0.491	0.693	0.464	0.090	(0.197)
online banking	0.550	0.499	0.720	0.452	0.170*	(0.016)
online paybills	0.450	0.499	0.467	0.502	0.016	(0.822)
pre-test score	5.656	2.480	6.520	2.653	0.864*	(0.020)
agree on statement 1	3.762	1.119	3.880	1.139	0.118	(0.469)
agree on statement 2	2.333	1.289	2.053	1.114	-0.280	(0.118)
agree on statement 3	2.538	1.376	2.333	1.288	-0.205	(0.294)
agree on statement 4	2.769	1.344	2.400	1.127	-0.369*	(0.046)
agree on statement 5	2.869	1.190	2.653	1.202	-0.216	(0.214)
agree on statement 6	1.838	1.112	1.707	1.010	-0.132	(0.399)
big three q1 correct	0.557	0.499	0.707	0.458	0.149*	(0.034)
big three q2 correct	0.534	0.501	0.560	0.500	0.026	(0.724)
big three q3 correct	0.389	0.489	0.520	0.503	0.131	(0.069)
Observations	131		75		206	

Notes: Full sample of 131 treated and 75 control workers. *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$

Table 6: Balancing statistics: matched sample

	treated		*control*		*diff*	
	mean	sd	mean	sd	b	p-value
less than 45 y.o.	0.253	0.438	0.400	0.493	0.147	(0.056)
ba or pg degree	0.280	0.452	0.227	0.421	-0.053	(0.456)
south & islands	0.587	0.496	0.467	0.502	-0.120	(0.143)
married or cohab	0.493	0.503	0.587	0.496	0.093	(0.254)
private sect empl.	0.587	0.496	0.533	0.502	-0.053	(0.514)
public sect empl.	0.160	0.369	0.147	0.356	-0.013	(0.822)
trade union empl.	0.120	0.327	0.267	0.445	0.147*	(0.023)
resp finance	0.867	0.342	0.920	0.273	0.053	(0.293)
curr. account own	0.947	0.226	0.947	0.226	0.000	(1.000)
curr . account know cost	0.453	0.501	0.573	0.498	0.120	(0.143)
debitcard use	0.813	0.392	0.853	0.356	0.040	(0.514)
prepaidcard use	0.360	0.483	0.213	0.412	-0.147*	(0.047)
creditcard use	0.427	0.498	0.320	0.470	-0.107	(0.179)
banktransfer use	0.480	0.503	0.480	0.503	0.000	(1.000)
online shopping	0.653	0.479	0.693	0.464	0.040	(0.604)
online banking	0.627	0.487	0.720	0.452	0.093	(0.226)
online paybills	0.533	0.502	0.467	0.502	-0.067	(0.418)
pre-test score	6.307	2.635	6.520	2.653	0.213	(0.622)
agree on statement 1	3.716	1.129	3.880	1.139	0.164	(0.379)
agree on statement 2	2.297	1.213	2.053	1.114	-0.244	(0.203)
agree on statement 3	2.216	1.274	2.333	1.288	0.117	(0.578)
agree on statement 4	2.608	1.301	2.400	1.127	-0.208	(0.298)
agree on statement 5	2.824	1.209	2.653	1.202	-0.171	(0.388)
agree on statement 6	1.730	1.011	1.707	1.010	-0.023	(0.889)
big three q1 correct	0.560	0.500	0.707	0.458	0.147	(0.063)
big three q2 correct	0.560	0.500	0.560	0.500	0.000	(1.000)
big three q3 correct	0.453	0.501	0.520	0.503	0.067	(0.417)
Observations	75		75			150

Notes: Matched sample of 75 treated and 75 control workers. *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$

Table 7: Baseline estimates

	full sample			*matched sample*		
VARIABLES	baseline	ctrl	add. ctrl	baseline	ctrl	add. ctrl
treated	1.599***	1.644***	1.638***	1.600***	1.590***	1.529***
	(0.310)	(0.311)	(0.323)	(0.327)	(0.342)	(0.365)
pre-test score	0.430***	0.394***	0.323***	0.502***	0.471***	0.416***
	(0.0544)	(0.0559)	(0.0677)	(0.0584)	(0.0613)	(0.0741)
less than 45 y.o.		-0.458	-0.328		-0.410	-0.449
		(0.298)	(0.319)		(0.362)	(0.386)
ba degree or pg		0.669*	0.459		0.697*	0.647
		(0.374)	(0.358)		(0.401)	(0.407)
south & islands		-0.808***	-0.576*		-0.782**	-0.571*
		(0.282)	(0.304)		(0.313)	(0.320)
additional ctrls	no	no	yes	no	no	yes
Constant	4.181***	4.826***	3.446***	3.713***	4.285***	3.711***
	(0.446)	(0.484)	(0.772)	(0.473)	(0.500)	(0.866)
Observations	206	206	206	150	150	150
R-squared	0.263	0.311	0.371	0.368	0.410	0.488

Notes: OLS estimates. The dependent variable is the score obtained in the post-test (out of a maximum of 14). Additional controls include: marital status; sector of employment; a dummy indicating whether the respondent takes financial decisions at home; whether she owns a current account, she knows the cost of a current account, she uses debit cards, prepaid cards, credit cards, bank transfers; whether she does online shopping, online banking, pay bills online; big three score. Robust standard errors in parentheses. *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$

Table 8: Robustness estimates: delta scores

	full sample			*matched sample*		
VARIABLES	baseline	ctrl	add. ctrl	baseline	ctrl	add. ctrl
treated	2.091***	2.142***	1.833***	1.707***	1.668***	1.424***
	(0.361)	(0.361)	(0.393)	(0.391)	(0.403)	(0.425)
less than 45 y.o.		-0.486	-0.663*		-0.794*	-1.186***
		(0.359)	(0.377)		(0.414)	(0.422)
ba degree or pg		-0.269	0.140		-0.226	0.323
		(0.443)	(0.449)		(0.454)	(0.516)
south & islands		-0.578	-0.441		-0.545	-0.479
		(0.353)	(0.384)		(0.384)	(0.397)
additional ctrls						
Constant	0.467*	0.992***	1.576	0.467*	1.089***	2.732**
	(0.280)	(0.336)	(0.999)	(0.280)	(0.346)	(1.168)
Observations	206	206	206	150	150	150
R-squared	0.137	0.160	0.256	0.114	0.152	0.291

Notes: OLS estimates. The dependent variable is the score difference between post-test and pre-test. Additional controls include: marital status; sector of employment; a dummy indicating whether the respondent takes financial decisions at home; whether she owns a current account, she knows the cost of a current account, she uses debit cards, prepaid cards, credit cards, bank transfers; whether she does online shopping, online banking, pay bills online; big three score. Robust standard errors in parentheses. *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$

Table 9: Robustness estimates: binary improvement as depvar

	full sample			*matched sample*		
VARIABLES	baseline	ctrl	add. ctrl	baseline	ctrl	add. ctrl
treated	0.198***	0.201***	0.231***	0.223***	0.217***	0.246***
	(0.0646)	(0.0636)	(0.0683)	(0.0697)	(0.0690)	(0.0806)
pre-test score	-0.0773***	-0.0836***	-0.105***	-0.0792***	-0.0879***	-0.100***
	(0.00964)	(0.00969)	(0.0126)	(0.0108)	(0.0109)	(0.0154)
less than 45 y.o.		-0.0778	-0.0609		-0.0656	-0.0712
		(0.0597)	(0.0666)		(0.0749)	(0.0855)
ba degree or pg		0.124*	0.0976		0.191**	0.167*
		(0.0658)	(0.0759)		(0.0745)	(0.0864)
south & islands		-0.109*	-0.102		-0.130*	-0.0910
		(0.0565)	(0.0618)		(0.0677)	(0.0728)
additional ctrls						
Constant	1.011***	1.106***	0.938***	1.023***	1.123***	0.982***
	(0.0810)	(0.0877)	(0.161)	(0.0864)	(0.0930)	(0.190)
Observations	206	206	206	150	150	150
R-squared	0.248	0.279	0.341	0.246	0.292	0.358

Notes: OLS estimates. The dependent variable is a dummy equal to 1 if the post-test score is greater than the pre-test score, and 0 otherwise. Additional controls include: marital status; sector of employment; a dummy indicating whether the respondent takes financial decisions at home; whether she owns a current account, she knows the cost of a current account, she uses debit cards, prepaid cards, credit cards, bank transfers; whether she does online shopping, online banking, pay bills online; big three score. Robust standard errors in parentheses. *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$

Table 10: Falsification test

	full sample			*matched sample*		
VARIABLES	baseline	ctrl	add. ctrl	baseline	ctrl	add. ctrl
treated	0.0567	0.0542	0.0442	0.0247	0.0216	0.00564
	(0.0589)	(0.0611)	(0.0682)	(0.0642)	(0.0678)	(0.0801)
pre-test score	-0.00766	-0.00782	0.00737	-0.00905	-0.00926	0.0144
	(0.0121)	(0.0123)	(0.0147)	(0.0135)	(0.0143)	(0.0173)
less than 45 y.o.		-0.0295	-0.0146		0.00413	0.00626
		(0.0597)	(0.0686)		(0.0721)	(0.0859)
ba degree or pg		0.00487	0.0195		0.00798	0.0622
		(0.0682)	(0.0830)		(0.0763)	(0.0951)
south & islands		0.00157	0.0292		0.0274	0.0744
		(0.0604)	(0.0693)		(0.0677)	(0.0779)
additional ctrls						
Constant	0.223**	0.234**	0.172	0.232**	0.217**	0.251
	(0.0924)	(0.0989)	(0.164)	(0.101)	(0.106)	(0.211)
Observations	206	206	206	150	150	150
R-squared	0.008	0.009	0.059	0.005	0.006	0.104

Notes: OLS estimates. The dependent variable is a dummy equal to 1 if the respondent improves her knowledge of risks from obtaining financial investments advice on social networks after the course. Additional controls include: marital status; sector of employment; a dummy indicating whether the respondent takes financial decisions at home; whether she owns a current account, she knows the cost of a current account, she uses debit cards, prepaid cards, credit cards, bank transfers; whether she does online shopping, online banking, pay bills online; big three score. Robust standard errors in parentheses. *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$

Table 11: Heterogeneous effects

	full sample			*matched sample*		
VARIABLES	baseline	ctrl	add. ctrl	baseline	ctrl	add. ctrl
panel (a): level of education						
treated	1.506***	1.594***	1.690***	1.420***	1.466***	1.485***
	(0.338)	(0.334)	(0.350)	(0.375)	(0.380)	(0.415)
ba degree or pg	0.387	0.534	0.595	0.313	0.443	0.560
	(0.702)	(0.678)	(0.646)	(0.702)	(0.672)	(0.648)
tr*ba or pg deg	0.285	0.211	-0.219	0.558	0.486	0.173
	(0.818)	(0.808)	(0.789)	(0.805)	(0.797)	(0.788)
panel (b): age						
treated	1.260***	1.341***	1.304***	1.029**	1.103***	1.090**
	(0.391)	(0.392)	(0.411)	(0.401)	(0.399)	(0.440)
less than 45 y.o.	-1.078**	-0.988**	-0.912*	-1.205**	-1.109**	-1.110**
	(0.490)	(0.484)	(0.519)	(0.480)	(0.477)	(0.509)
tr * lt 45 y.o.	0.839	0.864	0.940	1.585**	1.554**	1.439**
	(0.620)	(0.614)	(0.623)	(0.684)	(0.691)	(0.692)
panel (c): use of instruments of payment						
treated	1.030**	1.072***	1.051**	0.926**	0.941**	0.758
	(0.397)	(0.398)	(0.416)	(0.407)	(0.417)	(0.459)
low usage	-1.699***	-1.481***	-0.748	-1.561***	-1.367***	-0.681
	(0.506)	(0.505)	(0.754)	(0.510)	(0.517)	(0.718)
tr * low usage	1.226**	1.200**	1.238**	1.500**	1.443**	1.745**
	(0.596)	(0.576)	(0.602)	(0.652)	(0.641)	(0.680)
Observations	206	206	206	150	150	150

Notes: OLS estimates. The dependent variable is the score obtained in the post-test (out of a maximum of 14). All regressions include pre-test score. Columns (2) and (5) include, in addition, age, level of education and area. Additional controls regressions (3) and (6) include: marital status; sector of employment; a dummy indicating whether the respondent takes financial decisions at home; whether she owns a current account, she knows the cost of a current account, she uses debit cards, prepaid cards, credit cards, bank transfers; whether she does online shopping, online banking, pay bills online; big three score. Robust standard errors in parentheses. *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$

Table 12: Heterogeneous effects: teachers' financial literacy

	full sample			*matched sample*		
VARIABLES	baseline	ctrl	add. ctrl	baseline	ctrl	add. ctrl
high FL teachers	1.961***	1.980***	2.011***	1.819***	1.732***	1.581***
	(0.355)	(0.354)	(0.380)	(0.354)	(0.366)	(0.384)
med FL teachers	1.048**	1.152**	0.952*	0.647	0.708	0.546
	(0.457)	(0.449)	(0.508)	(0.477)	(0.474)	(0.520)
pre-test score	0.454***	0.420***	0.370***	0.503***	0.475***	0.435***
	(0.0587)	(0.0610)	(0.0667)	(0.0608)	(0.0635)	(0.0716)
less than 45 y.o.		-0.445	-0.256		-0.575	-0.657*
		(0.309)	(0.331)		(0.367)	(0.367)
ba degree or pg		0.708*	0.523		0.710*	0.724*
		(0.386)	(0.381)		(0.409)	(0.420)
south & islands		-0.646**	-0.497		-0.748**	-0.607*
		(0.299)	(0.314)		(0.318)	(0.320)
additional ctrls						
Constant	3.891***	4.414***	3.638***	3.774***	4.371***	4.429***
	(0.492)	(0.552)	(0.871)	(0.491)	(0.508)	(0.874)
Observations	206	206	206	147	147	147
R-squared	0.272	0.306	0.361	0.370	0.416	0.487

Notes: OLS estimates. The dependent variable is the score obtained in the post-test (out of a maximum of 14). Teacher high-FL is a dummy equal to 1 for treated workers whose teacher scored 3/3 at the big three questions and 0 otherwise; Teacher med-FL is a dummy equal to 1 for treated workers whose teacher scored less than 3/3 at the big three questions and 0 otherwise. Additional controls include: marital status; sector of employment; a dummy indicating whether the respondent takes financial decisions at home; whether she owns a current account, she knows the cost of a current account, she uses debit cards, prepaid cards, credit cards, bank transfers; whether she does online shopping, online banking, pay bills online; big three score. Robust standard errors in parentheses. *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$

Table 13: Variables

Variable name	description
pre-test score	number of correct answers in the pre-test (out of 14)
post-test score	number of correct answers in the post-test (out of 14)
treated	dummy equal to 1 for treated workers
less than 45 y.o.	dummy equal to 1 for workers aged less than 45, 0 otherwise
ba or pg degree	dummy equal to 1 for workers with a bachelor or pg degree, 0 otherwise
south & islands	dummy equal to 1 for workers living in southern regions or islands, 0 otherwise
married or cohab	dummy equal to 1 for workers married or cohabitant, 0 otherwise
private sect empl.	dummy equal to 1 for workers employed in the private sector, 0 otherwise
public sect empl.	dummy equal to 1 for workers employed in the public sector, 0 otherwise
trade union empl.	dummy equal to 1 for workers employed in the trade unions, 0 otherwise
resp finance	dummy equal to 1 for workers managing money directly or with a family member, 0 otherwise
curr. account own	dummy equal to 1 for workers owning a payment account themselves or jointly held, 0 otherwise
curr. account know cost	dummy equal to 1 for workers who knows exactly the cost of their current account, 0 otherwise
debitcard use	dummy equal to 1 for workers who regularly use a debit card, 0 otherwise
prepaidcard use	dummy equal to 1 for workers who regularly use a prepaid card, 0 otherwise
creditcard use	dummy equal to 1 for workers who regularly use a credit card, 0 otherwise
cheque use	dummy equal to 1 for workers who regularly use cheques, 0 otherwise
banktransfer use	dummy equal to 1 for workers who regularly make credit transfers, 0 otherwise
online shopping	dummy equal to 1 for workers who make purchases online, 0 otherwise
online banking	dummy equal to 1 for workers who use online banking, 0 otherwise
online paybills	dummy equal to 1 for workers who pay bills online, 0 otherwise
agree on statement X	degree of agreement (1-5) with the financial attitudes' statement (See Table 2)
big three qX correct	dummy equal to 1 for workers who answered correctly to the Xth Big Three question (See Table 3) , 0 otherwise

Appendix - Questionnaires

In this section we report, for the sake of illustration, the initial questionnaire that was administered to both employees and teachers. The final questionnaire (in Italian) is available upon requests from the authors.

Sezione A: Demografiche

A1. Età

- [ ] Meno di 18
- [ ] 18-24
- [ ] 25-34
- [ ] 35-44
- [ ] 45-54
- [ ] 55-64
- [ ] 65 e più

A2. Titolo di studio

- [ ] Nessun titolo di studio
- [ ] Licenza elementare
- [ ] Licenza di scuola media inferiore
- [ ] Diploma di scuola secondaria superiore
- [ ] Diploma di laurea
- [ ] Specializzazione post laurea (Master o Dottorato)

A3. Regione di residenza

- Abruzzo ☐
- Basilicata ☐
- Calabria ☐
- Campania ☐
- Emilia-Romagna ☐
- Friuli Venezia Giulia ☐
- Lazio ☐
- Liguria ☐
- Lombardia ☐
- Marche ☐
- Molise ☐
- P.A. Bolzano ☐
- P.A. Trento ☐
- Piemonte ☐
- Puglia ☐
- Sardegna ☐
- Sicilia ☐
- Toscana ☐
- Umbria ☐
- Val d'Aosta ☐
- Veneto ☐

A4. Comune di residenza

A5. Occupazione

- [ ] Lavoratrice dipendente del settore privato
- [ ] Lavoratrice dipendente del settore pubblico
- [ ] Lavoratrice dipendente di un sindacato
- [ ] Lavoratore autonomo
- [ ] Casalinga
- [ ] Studentessa

A6. Nome dell'azienda/ente di lavoro

Questa domanda è facoltativa

A7. Settore d'impiego

- [ ] Agricolo e agroalimentare
- [ ] Tessile, abbigliamento, pelli, calzature
- [ ] Metalmeccanica
- [ ] Altre manifatturiere
- [ ] Costruzioni
- [ ] Energetiche ed estrattive
- [ ] Commercio, alberghi e ristorazione
- [ ] Credito e assicurazioni
- [ ] Trasporti e magazzinaggio
- [ ] Scuola, università, ricerca, sanità, pubblica amministrazione e enti locali
- [ ] Altri servizi a imprese e famiglie
- [ ] Pensionati
- [ ] Sindacale (per dipendenti di una organizzazione sindacale)

A8. Stato civile

- [ ] Celibe/nubile/single
- [ ] Coniugata
- [ ] Vedova
- [ ] Divorziata
- [ ] Convivente
- [ ] Separata
- [ ] Non intendo rispondere

A9. Con chi vivi attualmente?

L'opzione "da sola" è autoesclusiva, mentre le altre opzioni possono eventualmente essere combinate per soluzioni miste (es: con partner + genitori, con figli + altri parenti)

- [ ] Da sola
- [ ] Con partner
- [ ] Con figli
- [ ] Con partner e figli
- [ ] Con la famiglia d'origine (genitori, nonni)
- [ ] Con altri conviventi (amici/che, coinquilini, altri parenti)
- [ ] Non intendo rispondere

Sezione B: Sezione 1

B1. Sei tu la responsabile della gestione del denaro in famiglia (ad esempio: bollette, rata del mutuo o di un prestito, affitto, investimenti)?

- [ ] Sì
- [ ] No
- [ ] Sì, insieme al mio compagno/a
- [ ] Sì, insieme ad un altro membro della famiglia
- [ ] Non so / non intendo rispondere

B2. Possiedi un conto corrente?

- [ ] Sì, intestato solo a me
- [ ] Sì, cointestato
- [ ] No
- [ ] Non so / non intendo rispondere

B3. Hai una idea del costo del tuo conto corrente?

- ☐ Si, so esattamente quanto costa
- ☐ Ho una idea di massima dei costi
- ☐ No
- ☐ Non so /Non intendo rispondere

B4. Quali strumenti di pagamento utilizzi abitualmente?

- ☐ carta di debito (bancomat)
- ☐ carta prepagata
- ☐ carta di credito
- ☐ Libretto degli assegni
- ☐ Bonifici
- ☐ Addebiti
- ☐ Portafoglio elettronico (ad esempio Apple Pay, Google Pay, Samsung Pay)
- ☐ App legati a un conto digitale (Paypal, Revolut, Satispay…)
- ☐ Non so/non intendo rispondere

B5. Utilizzi il computer o il cellulare per:

- ☐ fare acquisti online
- ☐ fare bonifici
- ☐ fare trading online
- ☐ comprare e vendere criptoattività
- ☐ controllare il saldo del conto
- ☐ pagare utenze
- ☐ Nessuna delle attività descritte
- ☐ Non so / Non intendo rispondere

Sezione C: Sezione 2

C1. Indica se le seguenti affermazioni sono vere o false.

	Vero	Falso	Non so
La pianificazione finanziaria serve soprattutto per programmare la vecchiaia	☐	☐	☐
Fare un budget significa tenere un elenco delle entrate e delle uscite previste per comprendere la propria capacità di risparmio	☐	☐	☐
Il bonifico istantaneo ha lo stesso costo di un bonifico ordinario	☐	☐	☐
Se al momento di un acquisto non si hanno disponiblità sul conto, è possibile usare una carta di credito o una carta di debito (bancomat)	☐	☐	☐
Fare acquisti con una carta di credito "revolving" prevede il pagamento di un tasso di interesse	☐	☐	☐
Se perdi o ti rubano la carta di credito e fanno delle spese con i tuoi soldi, di norma la Banca ti restituisce le somme rubate, a meno che tu non abbia agito con disattenzione	☐	☐	☐
Se ricevi dalla tua banca una mail o un messaggio che ti invitano ad aprire un link per risolvere un problema sul tuo conto è bene aprirlo per intervenire presto	☐	☐	☐

Sezione D: Sezione 3

D1. Indica se le seguenti affermazioni sono vere o false.

	Vero	Falso	Non so / Non intendo rispondere
Mai dire al telefono le password e i codici per accedere al proprio conto, nemmeno se a chiamarci è un operatore della nostra stessa banca	☐	☐	☐
I clienti bancari possono trasferire i servizi legati al proprio conto corrente presso un altro intermediario entro 12 giorni lavorativi senza spese	☐	☐	☐
Il conto corrente presso ogni banca è garantito fino a 100.000 euro	☐	☐	☐
Il TAN è più alto del TAEG	☐	☐	☐
La consultazione della Centrale dei Rischi è un servizio disponibile gratuitamente	☐	☐	☐
Il mutuo può essere rimborsato prima della scadenza solo se sono trascorsi almeno 15 anni dalla sottoscrizione del contratto, prima di questa data il rimborso non è possibile	☐	☐	☐
La rinegoziazione del mutuo permette di modificare alcuni elementi del contratto e le banche sono obbligate a concederla	☐	☐	☐

Sezione E: Sezione 4

E1. Supponi di avere 100 euro sul conto corrente, che rende un interesse del 2% annuo. Sul tuo conto non ci sono nè tasse nè costi di alcun genere. Se per cinque anni non prelevi mai, quanto pensi si accumulerà sul conto?

- ☐ Più di 102 euro
- ☐ Esattamente 102 euro
- ☐ Meno di 102 euro
- ☐ Non so

E2. Immagina che il tasso d'interesse del tuo conto corrente sia dell'1% e che il tasso d'inflazione per l'anno in corso sia del 2%. Dopo un anno, quanto pensi che sarai in grado di comprare con il denaro accumulato sul conto?

- ☐ Più di oggi
- ☐ Esattamente come oggi
- ☐ Meno di oggi
- ☐ Non so

E3. Acquistare le azioni di una singola azienda di solito garantisce un rendimento più sicuro di un fondo azionario

- ☐ Vero
- ☐ Falso
- ☐ Non so

Sezione F: Sezione 5

F1. Quanto sei d'accordo con le seguenti affermazioni:

(legenda: 1=molto in disaccordo; 2=in disaccordo; 3= né d'accordo né in disaccordo; 4=d'accordo; 5=molto d'accordo)

	1	2	3	4	5
Quando devo fare un acquisto importante inizio in anticipo a mettere da parte i soldi necessari	☐	☐	☐	☐	☐
Fare un budget di entrate e uscite mensili è una attività noiosa e poco utile	☐	☐	☐	☐	☐
Il contante per me resta il mezzo di pagamento più pratico	☐	☐	☐	☐	☐
Sono spaventata all'idea di fare acquisti online per paura di truffe e quindi preferisco evitare	☐	☐	☐	☐	☐
La mia banca ha tutte le informazioni necessarie per prendere un prestito o un mutuo, non ho bisogno di chiedere altrove	☐	☐	☐	☐	☐
Penso che sui social si trovino delle buone dritte su investimenti finanziari	☐	☐	☐	☐	☐

Grazie per aver partecipato!