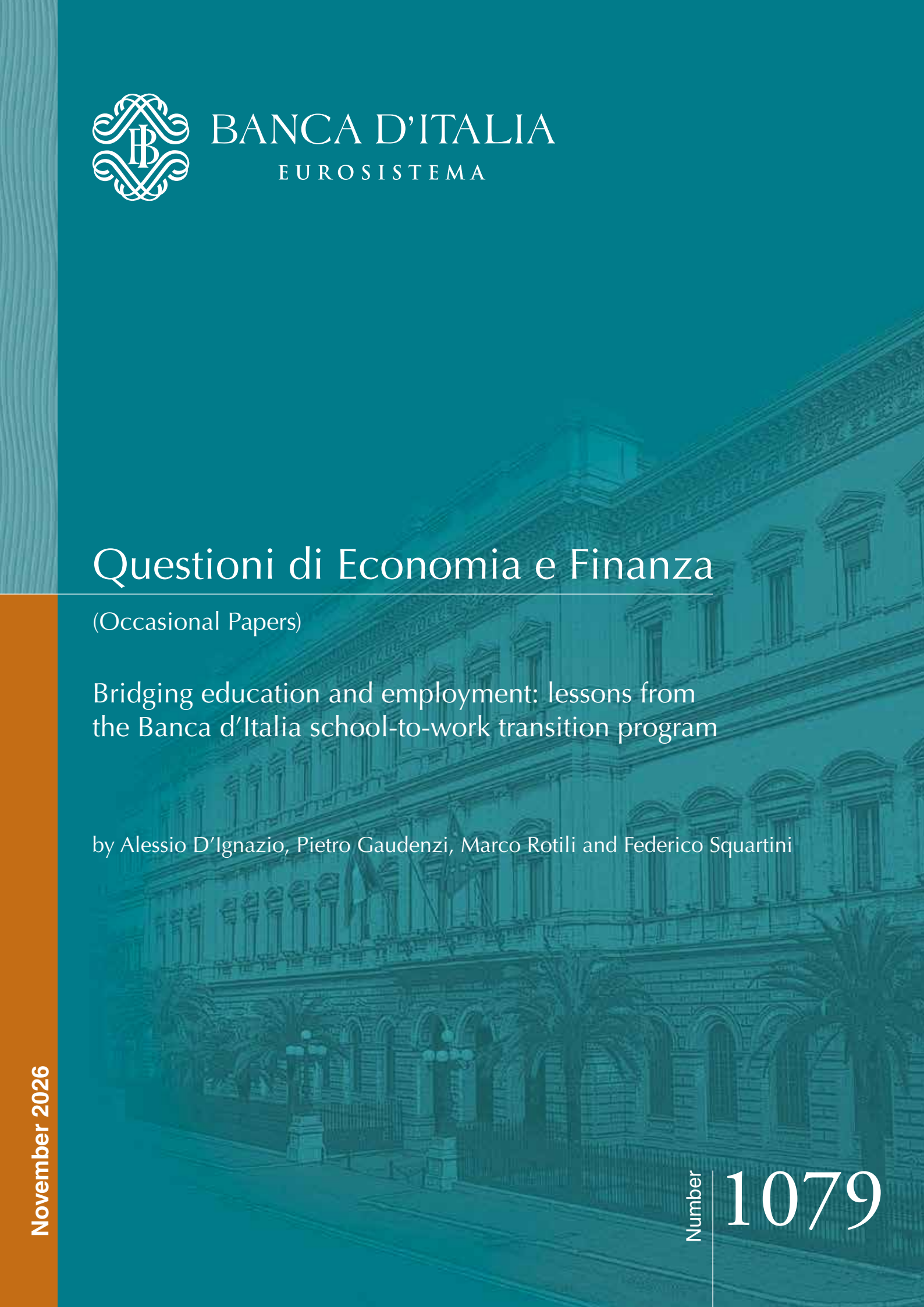
BANCA D'ITALIA
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BRIDGING EDUCATION AND EMPLOYMENT: LESSONS FROM THE BANCA D'ITALIA SCHOOL-TO-WORK TRANSITION PROGRAM

by Alessio D'Ignazio*, Pietro Gaudenzi*†, Marco Rotili* and Federico Squartini*

Abstract

Since the 2016/17 school year, Banca d'Italia has offered school-to-work transition (SWT) programs to students in the final three years of upper secondary education. Over the past decade, more than 16,000 students have participated in these initiatives across Banca d'Italia's offices nationwide, gaining hands-on exposure to the activities of a central bank through experiential and workshop-based learning. Taking the 2024/25 school year as a reference point, this paper presents an impact evaluation aimed at assessing the program's effectiveness in strengthening students' cross-curricular (soft) skills, through exposure to a central bank financial environment. To this end, a randomized experiment involving approximately 1,300 students was conducted. The findings show that participation in Banca d'Italia's program significantly improves students' ability to make their educational and career choices, with an effect size of 0.24 standard deviations, and solidifies their intentions to pursue further studies, with an effect size of 0.10 standard deviations. The program also enriches the students' knowledge of the economic and financial topics relating to the core functions of a central bank, with a stronger impact on female students.

JEL Classification: A20, G53, I28, J20.

Keywords: school-to-work transition, youth education, impact evaluation.

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1. Introduction[1]

School-to-work transition (hereinafter, SWT) is widely implemented across several countries. The institutional presence of this form of learning is supported by a substantial body of research underscoring the importance of combining theoretical knowledge with the non-cognitive skills typically acquired through hands-on experience. In particular, SWT generally demands the development and integration of both cognitive and non-cognitive abilities, including a wide set of soft skills that complement the traditional disciplinary knowledge conveyed by school curricula. From a theoretical perspective, this should facilitate both the transition to higher education levels and entry into the labour market, which increasingly rewards adaptability, continuous learning, and mastery of transversal competencies that extend beyond conventional school-based knowledge (see, for example, Eichhorst et al., 2012).

Across Europe, the prevailing approach to SWT is the so-called "work-based learning (WBL)", which fully integrates school-based instruction with workplace experience (Nicoli and Salatin, 2018; Giancola and Salmieri, 2021). This is the longest-established SWT model and is widely implemented in Germany, Austria, and Denmark. At the opposite end of the spectrum lies the so-called "generalist school model". This model is implemented in France and in Italy, and it combines school-based theoretical instruction delivered in classrooms or laboratories with practical workplace experience in authentic external settings, with a predominance of classroom-based instruction (Pignalberi, 2019). Since 2015, participation in SWT is mandatory for all Italian students enrolled in the upper-secondary education, a stage at which students are cognitively mature enough to benefit from experiential learning while preparing for the transition to higher education and entry into the labour market.

Evidence on the impact of SWT is limited, and the substantial cross-country variation in program design and implementation further limits the policy lessons that can be drawn. A European Parliament study (European Parliament, 2017) analyses the introduction of apprenticeships and internships within WBL frameworks, finding that apprenticeships yield stronger employment outcomes and that these benefits are maximised when high-quality standards and robust protections for apprentices are in place. Evidence from Belgium (Neyt, Verhaest, and Baert, 2019) shows that implementing school-parallel internships improves students' transition into the labour market, though it may reduce the probability of university enrolment. In Australia, Polidano and Tabasso (2014) show that integrating workplace learning

[1] The authors would like to thank Magda Bianco, Michele Carofiglio, Marilisa Guida, Raffaele Loffredo, Daniela Marconi, Angela Romagnoli and Maria Iride Vangelisti for useful comments and suggestions. The authors are also very grateful to the colleagues who delivered the school-to-work transition programs and administered the questionnaires underlying this analysis, and to all schools and students who participated in the experiment. The usual disclaimer applies. The content of this publication reflects solely the views of the authors and therefore does not represent the official positions of Banca d'Italia.

into upper-secondary vocational education and training significantly improves student outcomes, notably increasing school completion rates and easing the transition into the labour market. For Italy, Bernardi et al. (2024) show that female students attending schools with more intensive SWT activities have a lower probability of employment in the year following high-school graduation compared with peers in less exposed schools. This decline is offset by a rise in full-time higher-education enrolment, a pattern likely reflecting the relatively unattractive labour-market conditions faced by Italian high-school graduates.

In Italy, Banca d'Italia has offered SWT programs nationwide (and to Italian schools abroad) since 2016. Since the launch of the initiative, more than 16,000 students have participated in these programs (Gaudenzi and Rotili 2023, 2025; Cantarini et al., 2024). More specifically, Banca d'Italia's training pathways pursue two broad objectives: first, in line with the very nature of SWT, to foster closer integration between the education system and the labour market; second, given their focus on economics and finance topics, they also provide an opportunity to enhance students' economic and financial knowledge and their understanding of Banca d'Italia's institutional mandate.

The aim of this study is twofold. First, it aims to measure, for the first time, whether participation in Banca d'Italia's SWT programs has an impact on students' soft and guidance-related competencies. Second, it assesses whether the program, which predominantly covers economics and finance may also have an ancillary effect on the financial competences of SWT students. To this end, a randomised experiment was conducted involving approximately 3,000 students participating in the school-to-work program during the 2024/25 school year.

The findings indicate that such participation contributes to improve students' clarity regarding their educational and professional aspirations. Specifically, it increases the probability that a student has clear post-school plans by 8 percentage points (16 percent of the pre-treatment share), with an effect size of 0.24 standard deviations. A 4 percentage points increase is also observed in the propensity to pursue further studies (6 percent of the pre-treatment average) corresponding to an effect size of 0.10 standard deviations. As an ancillary effect of exposure to a central bank environment, the program generates an increase of 0.15 points in the financial knowledge score on basic concepts, corresponding to an improvement of about 30 percent relative to the average value observed prior to treatment, with an effect size of 0.58 standard deviations. Although supported by strong internal validity, the results should be interpreted cautiously, as limited sample representativeness may limit external validity, and findings on orientation - based on subjective intentions rather than observed behavior - may be sensitive to transitory factors.

The remainder of the paper is structured as follows. Section 2 outlines the institutional framework of school-to-work transition in Italy and presents the Banca d'Italia program. Section 3 details the empirical strategy, while Section 4 describes the data. Section 5 reports the estimated impacts of the program across a broad set of outcomes. Section 6 concludes.

2. The institutional framework and the program offered by Banca d'Italia

In Italy, the so called school-to-work alternation (SWA) was first introduced as a non-compulsory activity by Law 53/2003 (the so-called Moratti Law). It was subsequently made compulsory for all students in the final three years of upper-secondary education by Law 107/2015, known as the "Buona Scuola" reform. This law also established a requirement of 400 hours for technical and vocational institutes and 200 hours for lyceums. Law 145/2018 later more than halved the originally mandated number of hours – to 90 hours for lyceums, 150 hours for technical institutes, and 210 hours for vocational institutes – and the program was renamed "Percorsi per le Competenze Trasversali e per l'Orientamento (PCTO)". The more recent "School Decree" of 9 September 2025 further renamed PCTO as "Formazione scuola-lavoro" (School-to-work transition, SWT). For the purposes of this paper, we use the terms SWT programs, "work-based programs", "training programs" or simply "program" interchangeably. In Italy, SWT programs may be offered by private firms, public administrations, and other public law entities, including the Banca d'Italia.

The Banca d'Italia offers its SWT programs to small groups of up to twelve students, who participate in the Institution's operational activities under the supervision of a Banca d'Italia employee acting as tutor. The student group is pedagogically conceptualized as a "community of practice" (Wenger and Snyder, 2000; Wenger et al, 2002), learning through immersion in a socially meaningful context, in line with the principles of activity theory (Vygotskij, 2010; Vygotskij and Cole, 1980; Engeström et al., 1999). Hosting students on the Banca d'Italia's premises helps foster a collaborative environment that introduces them to workplace norms, while small-group work strengthens interaction and cooperative problem-solving skills. The model also draws on neuroscientific insights emphasizing the role of emotional engagement in knowledge formation (Dirkx, 2008; Merriam, Caffarella, and Baumgartner, 2007) and the fact that deep, lasting learning emerges when learners connect knowledge across domains (Caine and Caine, 1995, 2006). These dimensions are operationalized through sustained tutor–student interaction in an empathetic, cooperative setting, as well as through concrete application of theoretical concepts to the actual operational tasks. Student groups simulate a real work environment, using tools typical of economic and financial professions and, particularly those relate to central banking. They produce outputs that are a simplified version of those generated by the Banca d'Italia's hosting units.

The content of the programs is diversified, reflecting the Banca's operational activities, and in particular, the expertise of the employees who act as tutors. Approximately 400 tutors and co-tutors contribute their expertise to groups of students hosted in the Banca's branches. The most common programs are those devoted to financial education and consumer protection (72 out of 238 in the 2024/25 school year), followed by programs focusing on the Banca's corporate functions (human resources, organization, communication) and on services related to currency circulation and State treasury operations. All programs include a basic module on the core topics for a central bank: inflation, compound interest, and risk diversification (these three concepts are also known in the literature as the "big three" topics of basic financial literacy; see Mitchell and Lusardi, 2015). For a complete list of the SWT programs offered by Banca d'Italia during school year 2024/25 by topic and region, see Tables A1 and A2.

Each program unfolds through several steps. At the beginning of the school year, secondary schools apply for one of the available programs. Next, a meeting is held with the school's contact person to define the organizational and pedagogical aspects. The program begins with a two-hour introductory "kick-off" session. Within this session, basic financial concepts are provided, together with an overview of the Bank's institutional functions, including supervision, monetary policy, reserve management, and payment systems. About a month later, the core activities begin. These activities take place on the Banca's premises over five consecutive five-hour days. The activities involve hands-on group work in small teams, including practical exercises, case analyses, and operational simulations, often based on official Banca d'Italia or publicly available datasets. During this step, each group also develops a final output such as a report, an informational video, a presentation, or an educational project. The final step is the program conclusion, which consists of an in-person or online event in which students present their work to tutors, school staff, and invited guests.

3. Empirical strategy

The impact evaluation of the Banca d'Italia SWT program was conducted through a randomized experiment. In particular, during the 2024/25 school year, each school participating in the program was asked to adhere to the study. Schools were asked to identify two homogeneous groups of students, preferably drawn from the same class, and to assign them, ideally at random, to two distinct groups: a treatment group, composed of students who would actually participate in the Banca d'Italia's SWT program, and a control group, composed of students who would not take part in it. As detailed in Section 2, the treatment consists of an initial meeting followed

by 25 hours training over consecutive five-hour days and a final event, involving a presentation held by the students.

Both groups of students completed an identical questionnaire[2] at the beginning and at the end of the experiment. In particular, the treatment group students completed the first survey (the "pre-questionnaire") at the beginning of the kickoff meeting, and the second (the "post-questionnaire") during the final event. Students in the control group completed the two questionnaires following the same timing. On average, the interval between the administration of the pre- and post-questionnaires was approximately one month. While this interval helps reduce short-term recall effects, it may not fully eliminate them. To further mitigate recall and response consistency biases, the order of response items within each question was randomized.

The pre- and post-questionnaires consist of three sections. The first section collects basic demographic and educational information (age, gender, school year, and type of school). The second includes items aimed at assessing students' orientation and career-navigation skills. The third measures financial knowledge through questions on inflation, the risk–return trade-off, and interest rates, as well as on the role and institutional functions of Banca d'Italia.

The questionnaires are anonymous and completed on a voluntary basis. To link responses at the individual level between pre- and post-questionnaires an anonymous identification code is generated at the time of completion. This code, unique but not directly traceable to the student's identity, is constructed combining each unique SWT program identifier with the last three digits of the student's mobile-phone number, both of which are entered into the questionnaires by the student.

In the impact evaluation analysis, students' orientation capacity is measured using their response to the question: "How clear is your plan for what you want to do after finishing school?". Two variables are derived from this item. First, a binary (dummy) variable, taking value 1 if the student responds "I am quite certain about what I will do" or "My ideas are fairly clear", and 0 otherwise. Second, an alternative ordinal scoring variable reflecting increasing clarity in students' post-school plans: 3 for "I am quite certain about what I will do"; 2 for "My ideas are fairly clear"; 1 for "I have some vague idea"; 0 for "My ideas are still very unclear". Students' willingness to continue their educational pathway after upper secondary school is measured by means of a binary variable, equal to 1 if the student indicates one of the following options: "I would continue studying by enrolling at university"; "I would attend an ITS Academy program"; "I would take a training course to prepare for entering the labour market.", and 0 otherwise.

[2] The questionnaires are available upon request from the authors.

As already discussed, the SWT pathways promoted by the Banca d'Italia also provide an opportunity to strengthen students' financial competencies. To measure such competencies, two alternative variables are employed. First, a financial knowledge score, normalized on a 0-1 scale, based on the number of correct answers to the questions on inflation, risk diversification, and interest rates. Second, a knowledge score on the functions of the Banca d'Italia, also normalized on a 0-1 scale, calculated from the number of correct answers to eight true/false questions.

4. Data

A total of 238 schools implemented a Banca d'Italia program during the 2024/25 school year, of which 234 agreed to participate in the experimental study and to administer the questionnaires to both treatment and control groups. Of approximately 2,600 students assigned to the treatment group, 2,057 completed both the pre- and post-questionnaires. In the control group, around 2,100 students were initially surveyed, with 1,152 providing complete pre- and post-responses. Overall, this yields 3,209 potentially usable observations.

A first data cleaning step was necessary to assess whether schools had provided data for both groups. After excluding schools that returned questionnaires for only one of the two groups (either treatment or control), the sample was reduced to 2,622 observations (1,511 treated and 1,111 controls), corresponding to 220 schools. A second cleaning step assessed school-level compliance with the experimental protocol, specifically the requirement to form homogeneous treatment and control groups. In this regard, substantial heterogeneity emerged across schools in terms of total number of questionnaires collected (from both treatment and control groups) and treated-to-control ratio. These imbalances likely reflect differing levels of difficulty in implementing the experimental protocol and were used as a proxy for data quality, as greater symmetry between groups generally signals more accurate adherence to the experimental design. Hence, to ensure data quality, we removed data from schools with very few questionnaires and those with highly unbalanced treated-to-control ratio. In particular, only programs with at least five observations per group (i.e., at least five treated and five controls) and with a treated-to-control ratio between 0.75 and its reciprocal (approximately 1.33) were retained. The resulting final sample consists of 1,333 observations (689 treated students and 644 controls) across 70 schools. Analyses based on the full sample, including schools with unbalanced data across the two groups, are reported in the robustness checks (Section 6).

The estimation sample is evenly balanced by gender, with female students accounting for 49.6 percent of participants. In terms of school types, 45 percent of the students attend general secondary schools (lyceums), while an equal share (45 percent) is enrolled in technical-

economic institutes. Additionally, 43 percent of the participating students attend schools located in the South and Islands, and 28 percent of them are in the final year of their educational program.

The main outcome variables were examined prior to treatment across the full sample. With regard to students' intentions after completing school, female students are less likely to report being either quite certain or having very clear ideas about their future plans (Table 1, columns 1 and 2). Students enrolled in technical-economic institutes display lower initial levels of orientation than their peers from other school types, while, as expected, students in their final year report more clearly defined post-school plans. The willingness to continue studying is higher among female students and those attending lyceums (column 3). As for financial competencies, measured through the overall score on the three financial knowledge questions, prior to treatment female students perform worse than male students on average, consistent with national evidence (column 4). Students in technical-economic institutes exhibit higher levels of financial knowledge than their counterparts from other school types. Finally, no significant differences emerge across student or school characteristics with respect to knowledge of the tasks and functions of Banca d'Italia (column 5).

5. Treatment effects estimate

The balancing test suggests that treated and control students are broadly comparable across pre-treatment characteristics (Table 2). While some statistically significant differences emerge, their magnitude is generally small. Importantly, the two groups are well balanced with respect to pre-treatment orientation outcomes and financial knowledge, which constitute the main dimensions of interest in the analysis. A significant difference concerns the higher propensity, observed in the treated group, to express a desire to pursue socially useful occupations in the future. This pattern suggests a potential selection effect. In particular, arguably a SWT program promoted by a public institution such as the Banca d'Italia may attract - either directly or, when selection is mediated by teachers, indirectly - students more oriented toward public-interest or socially beneficial values. This potential endogeneity is addressed in the robustness checks section.

To estimate the impact of the SWT program on students' orientation capacity, the following regression model is employed:

$$orient_{post,i} = \alpha + \beta\ orient_{pre,i} + \gamma\ treated_i + \delta_j X_{ji} + \varepsilon_i \qquad (1)$$

where $orient_{post,i}$ denotes the post-treatment measure of student i's orientation capacity, and $orient_{pre,i}$ is the corresponding baseline measure collected prior to the intervention. The variable $treated_i$ is a dummy equal to 1 if student i belongs to the treatment group and 0 otherwise. The vector X_i contains individual-level controls, including gender, school year, school type, and characteristics of the SWT undertaken (specifically, whether the program covered economic topics). Standard errors are clustered at the student-group (i.e., a single SWT class or control group class) level.

As discussed in Section 3, the impact of the SWT program on students' orientation capacity is estimated using two questionnaire items. First, we analyse responses to the question: "How clear are your ideas about what you want to do after finishing school?" The estimates reported in Table 3 indicate a positive treatment effect: participation in the SWT program increases the probability of providing a positive response by approximately 8 percentage points. This corresponds to an improvement of about 16 percent relative to the pre-intervention average and to an effect size of 0.24 standard deviations. The estimated coefficient is stable to the inclusion of control variables (columns 1 and 2), confirming the strong balance between the treatment and control groups. Building on the same question, an alternative outcome variable is constructed based on a score reflecting the degree of clarity in students' future plans. The results, shown in Table 4, indicate a positive impact of the program, amounting to an increase of 0.12 percentage points, or roughly 8 percent relative to the baseline value. In addition to assessing overall orientation capacity, we also examine whether the SWT program influences students' orientation in terms of their intentions to continue their educational pathway beyond upper secondary school. As reported in Table 5, participation in the SWT increases the probability of expressing a desire to pursue further studies by approximately 4 percentage points, corresponding to an increase of around 6 percent compared with the pre-treatment average and to an effect size of 0.10 standard deviations.

Although the main objective of SWT programs is to support students in their post-school orientation, the pathways promoted by the Banca d'Italia, which largely address topics in economics and finance, also provide an opportunity to strengthen students' financial competencies. The impact of SWT programs on financial competencies is estimated using the same equation (1) adopted for the analysis of orientation outcomes, replacing the variables measuring orientation ability (pre and post) with two alternative measures of financial competencies (described in Section 3). Results are presented in Table 6. The estimates indicate that participation in the program leads to an increase of approximately 0.15 points in the financial knowledge score, corresponding to an improvement of about 30 percent relative to the average value observed prior to treatment. The effect size is large in magnitude, amounting to 0.58 standard deviations, likely reflecting the fact that students have the opportunity to learn in small and quite homogeneous groups and are exposed to a central bank environment for several

consecutive days. Similar results also emerge with respect to students' knowledge of the tasks performed by the Banca d'Italia. As shown in Table 7, the score for this dimension increases by 0.17 points, corresponding to roughly 26 percent of the average level recorded at the beginning of the experiment and an even larger effect size of 0.98 standard deviations.

It is plausible that the effect of SWT programs varies according to certain characteristics of the students, the schools, or the programs themselves. To explore potential heterogeneous treatment effects, the following model is estimated, in which the treatment variable is interacted with a set of observable characteristics (features), such as the student's gender, school year, type of school (lyceum vs. other institutes), and the content of the SWT (economics-related pathways vs. others).

$$y_{post,i} = \alpha + \beta\, y_{pre,i} + \gamma\, treated_i + \lambda\, feature_i + \theta\, treated_i * feature_i + \delta_j X_{ji} + \varepsilon_i \qquad (2)$$

The differential effect of the treatment is captured by the coefficient θ, which measures how the impact of the SWT varies with respect to the specific characteristic (feature) considered. As shown in Tables 3, 4, and 5 (columns 3–6), no significant heterogeneous effects emerge concerning the ability of SWT programs to enhance students' orientation skills. In other words, the treatment appears to be uniformly effective, with no meaningful differences by gender, school year, or type of institution attended.

By contrast, differential effects are observed with respect to the second-round impact, namely on financial knowledge. In particular, the SWT appears to have a stronger effect on the financial knowledge of female students, as measured by the score associated with the three questions on inflation, risk–return, and compound interest (Table 6). This result suggests that hands-on learning activities, such as those included in SWT programs alongside traditional lectures, may help reduce the gender gap in financial literacy, in line with previous research.

Regarding students' knowledge of the functions performed by the Banca d'Italia - a module included in all Banca d'Italia SWT programs - no strong evidence of gender heterogeneity emerges (although the estimated coefficient is positive), nor of heterogeneity depending on the thematic focus of the SWT program (Table 7).

5.1. Robustness

A first potential methodological concern relates to the imbalance between treated and control-group students with respect to their stated intention to pursue socially useful

occupations, which is more prevalent among students in the treatment group. Although this variable should not, in principle, affect the impact of the program on orientation skills, we address this imbalance by re-estimating the model while including, among the control variables, a dummy equal to 1 for students who reports an intention to pursue socially useful occupations and 0 otherwise. As shown in Table A4, the results are fully confirmed.

A second concern relates to potential selection effects induced by the sample-cleaning procedure, implemented to ensure unbiased estimates. In particular, the exclusion of schools with a limited number of observations per group, or with strong imbalances between treated and control units, may have introduced systematic distortions by selecting programs and students whose characteristics are not representative of the full population of schools participating. Specifically, if the schools that adhered more rigorously to the experimental protocol are also those in which the program was implemented more effectively, or where students showed greater interest in the topics covered in the SWT, restricting the analysis to these schools may lead to an overestimation of the impact of the SWT. To assess the presence of such effects, we first compare the means of the main observable variables for students included in the estimation sample (1,333 observations) and those in the initial sample (2,622 observations). The results, reported in Table A5, show that the two groups display broadly similar average characteristics, supporting the absence of significant selection effects. As expected on the basis of these results, the estimates of models (1) and (2) based on the full set of 2,622 observed students reproduce the results derived from the estimation sample (see Table A6).

6. Conclusions

Drawing on evidence from a randomized experiment involving approximately 1,300 students, this paper shows that the Banca d'Italia's school-to-work transition (SWT) programs have a positive impact on students' orientation skills. In particular, the estimated effect on orientation abilities amounts to approximately 0.24 standard deviations. The program also increases the likelihood that students pursue further education, with an effect size of about 0.10 standard deviations.

Concerning the magnitude of the estimated effects on orientation outcomes, the improvement in orientation skills is moderate in size and comparatively larger than the effect on the likelihood of pursuing further education. Nonetheless, both estimates may be subject to downward bias, as students in the control group may have concurrently participated in other SWT programs or similar initiatives.

The pathways promoted by the Banca d'Italia, which predominantly cover economics and finance may also have an ancillary effect on the financial competences of SWT students. Consistent with this, the estimates indicate that the intervention leads to statistically significant improvements in students' economic and financial knowledge, particularly on key topics such as inflation, interest rates, and investment diversification. The program also enhances students' understanding of the institutional roles and functions of the Banca d'Italia. In terms of magnitude, the estimated effects on financial knowledge and knowledge of the Banca d'Italia's functions are substantial, ranging from 0.58 to 0.98 standard deviations.

Regarding heterogeneous effects, no evidence emerges of differential program impacts on students' orientation skills. By contrast, financial knowledge displays heterogeneous effects: participation in the SWT program yields larger gains among female students. A potential explanation for this result is that low-pressure, non-competitive learning environments, such as SWT programs, may be particularly beneficial for girls. Similar evidence is provided by Andreucci et al. (2025), who investigate the effectiveness of a Banca d'Italia museum exhibition recently conducted in Italy. More broadly, Hughes et al. (2020) show that girls engage more effectively in STEM activities when these are framed as social experiences and incorporate hands-on components. Consistent with this intuition, Di Tommaso et al. (2024) empirically confirm these hypotheses through a randomized controlled trial involving approximately 1,200 Italian primary school pupils, finding that such approaches reduce the gender gap in mathematics.

Two caveats warrant consideration. First, although the internal validity of the analysis is supported by a rigorous empirical strategy and extensive robustness checks, its external validity may be more limited. Participating schools are unlikely to be representative of the broader population of Italian schools; if they are disproportionately inclined toward the topics addressed by the Banca d'Italia's SWT programs, our estimates may reflect an upper bound of the true impact for the general population. Second, while financial competencies are measured using objective knowledge questions, orientation is assessed through subjective responses that capture intentions. Consequently, the findings on orientation may be more sensitive to transient factors and may not necessarily translate into actual behavior. Future research should therefore follow students over time to determine whether the intentions they express ultimately shape their educational or professional trajectories.

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Tables

Table 1. Pre-treatment outcomes

	orientation capacity (binary)	orientation capacity (score)	further education (binary)	financial knowledge (score)	Banca d'Italia knowledge (score)
VARIABLES	(1)	(2)	(3)	(4)	(5)
female	-0.0525*	-0.140***	0.0927***	-0.0850***	0.000256
	(0.0296)	(0.0500)	(0.0280)	(0.0217)	(0.0101)
lyceums	-0.0624	-0.121	0.240***	0.0565	-0.00769
	(0.0563)	(0.0850)	(0.0516)	(0.0407)	(0.0296)
tech-econ.	-0.193***	-0.358***	0.0197	0.0696*	-0.00791
	(0.0552)	(0.0815)	(0.0555)	(0.0366)	(0.0277)
last year	0.238***	0.423***	-0.00814	-0.0104	0.0113
	(0.0354)	(0.0640)	(0.0348)	(0.0352)	(0.0195)
constant	0.564***	1.698***	0.505***	0.494***	0.663***
	(0.0485)	(0.0696)	(0.0517)	(0.0360)	(0.0269)
Observations	1,333	1,333	1,333	1,333	1,333
R-squared	0.061	0.069	0.069	0.021	0.001
depvar ave	*0.489*	*1.530*	*0.666*	*0.506*	*0.659*

Notes. Clustered standard errors in parentheses. All variables are observed at the beginning of the experiment (i.e., pre-treatment). For the description of the variables, see Table A3. *** p<0.01, ** p<0.05, * p<0.1.

Table 2. Balancing test

	treated		control		diff	
	mean	std dev	mean	std dev	b	p
female	0.520	0.500	0.470	0.500	0.049*	(0.073)
pre-questionnaire completion time	417.736	192.457	410.566	242.168	7.170	(0.548)
last school year	0.253	0.435	0.298	0.458	-0.046*	(0.062)
orientation capacity (binary)-pre treat.	0.475	0.500	0.505	0.500	-0.030	(0.273)
orientation capacity (score)-pre treat.	1.507	0.870	1.554	0.856	-0.048	(0.312)
view on public authorities-pre treat.	0.360	0.480	0.419	0.494	-0.059**	(0.026)
further education-pre treat.	0.676	0.468	0.655	0.476	0.021	(0.416)
contribute to the community-pre treat.	0.491	0.500	0.399	0.490	0.091***	(0.001)
FK score-pre treat	0.512	0.312	0.499	0.330	0.013	(0.465)
Banca d'Italia knowledge score-pre treat.	0.668	0.177	0.650	0.187	0.017*	(0.081)
Observations	689		644		1,333	

Notes. Standard errors in parentheses. For the description of the variables, see Table A3. *** p<0.01, ** p<0.05, * p<0.10.

Table 3. SWT program impact on orientation (binary)

VARIABLES	baseline (1)	ctrl (2)	female (3)	lyceums (4)	last year (5)	subject econ (6)
orientation capacity (pre)	0.672***	0.652***	0.652***	0.652***	0.652***	0.652***
	(0.0215)	(0.0231)	(0.0231)	(0.0231)	(0.0231)	(0.0231)
treated	0.0819***	0.0884***	0.0737**	0.0909***	0.0806***	0.122**
	(0.0224)	(0.0214)	(0.0304)	(0.0329)	(0.0256)	(0.0567)
female		-0.0282	-0.0436	-0.0284	-0.0285	-0.0280
		(0.0209)	(0.0335)	(0.0210)	(0.0210)	(0.0210)
treated * female			0.0296			
			(0.0420)			
treated * lyceum				-0.00560		
				(0.0420)		
treated * last year					0.0284	
					(0.0448)	
treated * subject econ						-0.0365
						(0.0613)
lyceum		0.00584	0.00694	0.00848	0.00550	0.00641
		(0.0397)	(0.0397)	(0.0447)	(0.0393)	(0.0397)
inst. tech-econ		-0.0352	-0.0349	-0.0356	-0.0360	-0.0346
		(0.0436)	(0.0435)	(0.0436)	(0.0433)	(0.0435)
last year		0.0803***	0.0799***	0.0802***	0.0665*	0.0811***
		(0.0245)	(0.0245)	(0.0245)	(0.0338)	(0.0247)
subject econ		-0.00808	-0.00851	-0.00810	-0.00975	0.0109
		(0.0305)	(0.0305)	(0.0307)	(0.0309)	(0.0438)
constant	0.183***	0.201***	0.208***	0.201***	0.208***	0.183***
	(0.0190)	(0.0513)	(0.0537)	(0.0531)	(0.0524)	(0.0599)
Observations	1,333	1,333	1,333	1,333	1,333	1,333
R-squared	0.460	0.467	0.467	0.467	0.467	0.467

Notes. Clustered standard errors in parentheses. The dependent variable is a dummy equal to 1 if the student displays good orientation capacity and 0 otherwise. For the description of the variables, see Table A3. *** p<0.01, ** p<0.05, * p<0.1.

Table 4. SWT impact on orientation (score)

VARIABLES	baseline (1)	ctrl (2)	female (3)	lyceums (4)	last year (5)	subject econ (6)
orientation capacity score (pre)	0,709***	0,689***	0,690***	0,689***	0,689***	0,689***
	(0,0226)	(0,0232)	(0,0230)	(0,0233)	(0,0232)	(0,0232)
treated	0,116***	0,125***	0,0906*	0,130***	0,133***	0,0930
	(0,0338)	(0,0320)	(0,0459)	(0,0461)	(0,0385)	(0,0957)
female		-0,0308	-0,0665	-0,0311	-0,0305	-0,0310
		(0,0342)	(0,0572)	(0,0343)	(0,0343)	(0,0343)
treated * female			0,0691			
			(0,0693)			
treated * lyceum				-0,0105		
				(0,0648)		
treated * last year					-0,0283	
					(0,0691)	
treated * subject econ						0,0350
						(0,102)
lyceum		0,0479	0,0506	0,0529	0,0483	0,0474
		(0,0560)	(0,0564)	(0,0639)	(0,0563)	(0,0563)
inst. tech-econ		-0,0007	0,000304	-0,0013	4,04e-05	-0,00132
		(0,0578)	(0,0580)	(0,0580)	(0,0582)	(0,0579)
last year		0,155***	0,153***	0,154***	0,168***	0,154***
		(0,0346)	(0,0346)	(0,0347)	(0,0534)	(0,0349)
subject econ		0,0180	0,0171	0,0179	0,0196	-0,000271
		(0,0512)	(0,0509)	(0,0513)	(0,0519)	(0,0688)
constant	0,459***	0,419***	0,435***	0,418***	0,413***	0,437***
	(0,0408)	(0,0819)	(0,0867)	(0,0828)	(0,0845)	(0,0952)
Observations	1.333	1.333	1.333	1.333	1.333	1.333
R-squared	0,517	0,524	0,525	0,524	0,524	0,524

Notes. Clustered standard errors in parentheses. The dependent variable is a score of orientation capacity. For the description of the variables, see Table A3. *** p<0.01, ** p<0.05, * p<0.1.

Table 5. SWT impact on intention to continue studying

VARIABLES	baseline (1)	ctrl (2)	female (3)	lyceums (4)	last year (5)	subject econ (6)
wants to continue stud (pre)	0,540***	0,502***	0,501***	0,502***	0,502***	0,501***
	(0,0238)	(0,0264)	(0,0265)	(0,0265)	(0,0264)	(0,0265)
treated	0,0388*	0,0412**	0,0389	0,0427	0,0418*	0,0682
	(0,0230)	(0,0204)	(0,0290)	(0,0303)	(0,0242)	(0,0486)
female		0,0539***	0,0516*	0,0538***	0,0540***	0,0541***
		(0,0196)	(0,0280)	(0,0197)	(0,0195)	(0,0197)
treated * female			0,00456			
			(0,0390)			
treated * lyceum				-0,00333		
				(0,0384)		
treated * last year					-0,00214	
					(0,0425)	
treated * subject econ						-0,0297
						(0,0536)
lyceum		0,116***	0,117***	0,118***	0,116***	0,117***
		(0,0414)	(0,0417)	(0,0449)	(0,0414)	(0,0416)
inst. tech-econ		-0,00371	-0,00365	-0,00389	-0,00365	-0,00315
		(0,0417)	(0,0418)	(0,0417)	(0,0417)	(0,0418)
last year		0,0395*	0,0394*	0,0395*	0,0405	0,0401*
		(0,0214)	(0,0213)	(0,0214)	(0,0281)	(0,0214)
subject econ		0,0779***	0,0778***	0,0779***	0,0780***	0,0934**
		(0,0276)	(0,0277)	(0,0276)	(0,0279)	(0,0408)
constant	0,300***	0,165***	0,166***	0,164***	0,164***	0,150***
	(0,0244)	(0,0470)	(0,0475)	(0,0476)	(0,0483)	(0,0546)
observations	1.333	1.333	1.333	1.333	1.333	1.333
R-squared	0,301	0,323	0,323	0,323	0,323	0,323

Notes. Clustered standard errors in parentheses. The dependent variable is a dummy equal to 1 if the student claims that he wants to continue her/his studies and 0 otherwise. For the description of the variables, see Table A3. *** p<0.01, ** p<0.05, * p<0.1.

Table 6. SWT impact on financial knowledge

VARIABLES	baseline (1)	ctrl (2)	female (3)	lyceums (4)	last year (5)	subject econ (6)
FK score (pre)	0,452***	0,444***	0,449***	0,445***	0,443***	0,445***
	(0,0347)	(0,0344)	(0,0340)	(0,0344)	(0,0344)	(0,0345)
treated	0,153***	0,157***	0,101***	0,133***	0,159***	0,0721
	(0,0235)	(0,0223)	(0,0284)	(0,0280)	(0,0248)	(0,0494)
female		-0,0282	-0,0866***	-0,0267	-0,0282	-0,0287
		(0,0185)	(0,0265)	(0,0183)	(0,0185)	(0,0184)
treated * female			0,113***			
			(0,0357)			
treated * lyceum				0,0540		
				(0,0422)		
treated * last year					-0,00773	
					(0,0507)	
treated * subject econ						0,0938*
						(0,0535)
lyceum		0,0535	0,0573	0,0279	0,0536	0,0519
		(0,0371)	(0,0361)	(0,0392)	(0,0372)	(0,0368)
inst. tech-econ		0,000580	0,00142	0,00343	0,000805	-0,00128
		(0,0367)	(0,0360)	(0,0371)	(0,0366)	(0,0365)
last year		0,0359	0,0346	0,0363	0,0396	0,0339
		(0,0249)	(0,0246)	(0,0244)	(0,0243)	(0,0250)
subject econ		0,108***	0,106***	0,107***	0,108***	0,0585
		(0,0309)	(0,0295)	(0,0308)	(0,0313)	(0,0354)
constant	0,305***	0,189***	0,213***	0,198***	0,187***	0,235***
	(0,0206)	(0,0478)	(0,0482)	(0,0493)	(0,0489)	(0,0496)
observations	1.333	1.333	1.333	1.333	1.333	1.333
R-squared	0,268	0,288	0,295	0,289	0,288	0,289

Notes. Clustered standard errors in parentheses. The dependent variable is the financial knowledge score. For the description of the variables, see Table A3. *** p<0.01, ** p<0.05, * p<0.1.

Table 7. SWT impact on knowledge of Banca d'Italia functions

VARIABLES	baseline (1)	ctrl (2)	female (3)	lyceums (4)	last year (5)	subject econ (6)
BdI knowledge score (pre)	0,292***	0,287***	0,287***	0,284***	0,286***	0,286***
	(0,0322)	(0,0319)	(0,0320)	(0,0317)	(0,0317)	(0,0318)
treated	0,171***	0,172***	0,168***	0,161***	0,175***	0,200***
	(0,0151)	(0,0150)	(0,0176)	(0,0214)	(0,0162)	(0,0354)
female		-0,0218**	-0,0261*	-0,0211**	-0,0216**	-0,0216**
		(0,0102)	(0,0145)	(0,0102)	(0,0102)	(0,0101)
treated * female			0,00832			
			(0,0201)			
treated * lyceum				0,0240		
				(0,0295)		
treated * last year					-0,0112	
					(0,0344)	
treated * subject econ						-0,0307
						(0,0386)
lyceum		0,0162	0,0165	0,00484	0,0163	0,0167
		(0,0239)	(0,0240)	(0,0232)	(0,0241)	(0,0239)
inst. tech-econ		0,0354	0,0355	0,0367	0,0357	0,0360
		(0,0234)	(0,0235)	(0,0238)	(0,0235)	(0,0235)
last year		0,0243	0,0242	0,0246	0,0298	0,0250
		(0,0169)	(0,0169)	(0,0166)	(0,0236)	(0,0171)
subject econ		0,0303	0,0302	0,0304	0,0310	0,0464**
		(0,0191)	(0,0191)	(0,0199)	(0,0192)	(0,0190)
constant	0,481***	0,437***	0,439***	0,443***	0,435***	0,422***
	(0,0207)	(0,0344)	(0,0344)	(0,0346)	(0,0352)	(0,0348)
observations	1.333	1.333	1.333	1.333	1.333	1.333
R-squared	0,252	0,264	0,264	0,265	0,264	0,265

Notes. Clustered standard errors in parentheses. The dependent variable is the Banca d'Italia knowledge score. For the description of the variables, see Table A3. *** p<0.01, ** p<0.05, * p<0.1.

Appendix

Table A1. SWT Programs offered by Banca d'Italia in school year 2024/25, by topic

TOPICS	No. SWT programs
Supervisory analysis	23
Economic analysis / Monetary policy / Markets	29
Library / Archives / Editorial products / Institutional communication	15
Currency circulation / Payment services and instruments / State Treasury	49
Financial education / Consumer protection	64
The Bank of Italy in the territory / Corporate functions	45
Foreign schools	13

Table A2. SWT Programs offered by Banca d'Italia in school year 2024/25, by region

REGION	No. SWT Programs	%
Piedmont	5	2.1
Valle d'Aosta	0	0.0
Lombardy	7	2.9
Liguria	4	1.7
North West	**16**	**6.7**
Trentino-Alto Adige	7	2.9
Veneto	9	3.8
Friuli-Venezia Giulia	5	2.1
Emilia-Romagna	13	5.5
North East	**34**	**14.3**
Tuscany	16	6.7
Umbria	4	1.7
Marche	6	2.5
Lazio	59	24.8
Centre	**85**	**35.7**
Centre and North	**135**	**56.7**
Abruzzo	12	5.0
Molise	4	1.7
Campania	14	5.9
Puglia	12	5.0
Basilicata	2	0.8
Calabria	12	5.0
Sicily	26	10.9
Sardinia	8	3.4
South and Islands	**90**	**37.8**
Italy	**225**	**94.5**
Foreign schools	13	5.5

Table A3. Variables

VARIABLES	DESCRIPTION
female	dummy variable equal to 1 for female students who self-identified as belonging to the female gender, and 0 otherwise
lyceum	dummy variable equal to 1 for lyceum students and 0 otherwise
inst. tech-econ	dummy variable equal to 1 for students attending technical–economic institutes, and 0 otherwise
last year	dummy variable equal to 1 for students enrolled in the final year, and 0 otherwise
pre-questionnaire completion time	time (expressed in seconds) taken to complete the initial questionnaire
orientation capacity (binary)-post (pre) treat	dummy variable equal to 1 if, in the initial (final) question 'How clear are your ideas about what you want to do after school?', the respondent selected either 'I am rather certain about what I will do' or 'I have fairly clear ideas', and 0 otherwise
orientation capacity (score)-post (pre) treat	score assigned based on the response to the initial (final) question described above: 3 points if the respondent selects 'I am rather certain about what I will do'; 2 points for 'I have fairly clear ideas'; 1 point for 'I have some vague idea'; and 0 points for 'My ideas are still very unclear'
view on public authorities-pre (post) treat	dummy variable equal to 1 if, in response to the initial (final) question 'Do you have a clear idea of the role of public authorities in the economy?', the respondent answered 'yes', and 0 otherwise
further education-pre (post) treat.	dummy variable equal to 1 if, in response to the initial (final) question 'If you had to choose today the path to take after school, which of the following options would you consider?', the respondent selected 'I would continue studying by enrolling at university'; 'I would attend an ITS Academy'; or 'I would take a training course to move closer to the labour market', and 0 otherwise
contribute to the community-pre (post) treat.	dummy variable equal to 1 if, in response to the initial (final) question 'What do you consider most important for your future in the labour market?', the respondent selected 'Carrying out a task that is fulfilling for me but also useful to society', and 0 otherwise
FK score-pre (post) treat	financial knowledge score, normalized on a 0-1 scale, based on the number of correct answers provided in the initial (final) questionnaire to three questions on inflation, the risk–return relationship, and compound interest
Banca d'Italia knowledge score-pre (post) treat.	score measuring knowledge of the functions of the Bank of Italy, normalized on a 0–1 scale, calculated on the basis of the number of correct answers provided in the initial (final) questionnaire to eight true/false questions
subject econ	dummy variable equal to 1 for SWT activities focused on economic and financial topics, and 0 otherwise
treated	dummy variable equal to 1 for students in the treatment group and 0 for those in the control group

Table A4. Robustness controlling for unbalanced covariate

VARIABLES	orientation capacity (dummy) (1)	orientation capacity (score) (2)	wants to continue stud (3)	FK score (4)	BdI knowledge score (5)
pre-treatment Yvar	0.649***	0.686***	0.501***	0.441***	0.286***
	(0.0232)	(0.0230)	(0.0264)	(0.0343)	(0.0319)
treated	0.0855***	0.118***	0.0376*	0.154***	0.170***
	(0.0215)	(0.0321)	(0.0205)	(0.0225)	(0.0149)
female	-0.0321	-0.0403	0.0494**	-0.0329*	-0.0239**
	(0.0214)	(0.0349)	(0.0195)	(0.0184)	(0.0101)
lyceum	0.000731	0.0356	0.110***	0.0478	0.0134
	(0.0393)	(0.0556)	(0.0413)	(0.0371)	(0.0244)
inst. tech-econ	-0.0355	-0.00129	-0.00335	0.00109	0.0356
	(0.0436)	(0.0574)	(0.0417)	(0.0367)	(0.0237)
last year	0.0785***	0.150***	0.0364*	0.0329	0.0229
	(0.0244)	(0.0341)	(0.0210)	(0.0248)	(0.0168)
subject econ	-0.0113	0.0106	0.0746***	0.104***	0.0288
	(0.0307)	(0.0509)	(0.0275)	(0.0305)	(0.0188)
contrib. to the community-pre treat.	0.0312	0.0755**	0.0390**	0.0373**	0.0178*
	(0.0213)	(0.0321)	(0.0193)	(0.0152)	(0.00952)
constant	0.198***	0.413***	0.158***	0.184***	0.434***
	(0.0514)	(0.0812)	(0.0474)	(0.0478)	(0.0346)
Observations	1,333	1,333	1,333	1,333	1,333
R-squared	0.467	0.526	0.325	0.291	0.266

Notes. T he dependent variable is indicated in the columns' headers. In each regression we control for the pre-treatment level of the dependent variable. For the description of the variables, see Table A3. Clustered standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Table A5. Estimation of selection effects induced by sample cleaning

	female	last year	lyceum	inst. tech-econ	orientation capacity (pre)	orientation capacity score (pre)	wants to continue stud (pre)	FK score (pre)	BdI knowledge score (pre)
VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
estimation sample	-0,0171	-0,00041	-0,0133	0,0245	-0,0181	-0,0123	0,00408	-0,0104	-0,00124
	(0,0131)	(0,0256)	(0,0302)	(0,0291)	(0,0131)	(0,0227)	(0,0137)	(0,0111)	(0,00546)
constant	0,513***	0,275***	0,467***	0,422***	0,507***	1,542***	0,662***	0,517***	0,660***
	(0,0133)	(0,0260)	(0,0306)	(0,0295)	(0,0133)	(0,0231)	(0,0139)	(0,0112)	(0,00555)
observations	3.955	3.955	3.955	3.955	3.955	3.955	3.955	3.955	3.955
R-squared	0,000	0,000	0,000	0,001	0,000	0,000	0,000	0,000	0,000

Notes. Clustered standard errors in parentheses. For the description of the variables, see Table A3. *** p<0.01, ** p<0.05, * p<0.1. *** p<0.01, ** p<0.05, * p<0.1

Table A6. Robustness estimates using the full sample

	orientation capacity (dummy)	orientation capacity (score)	wants to continue stud	FK score	BdI knowledge score
VARIABLES	(1)	(2)	(3)	(4)	(5)
pre-treatment Yvar	0.637***	0.673***	0.519***	0.465***	0.292***
	(0.0160)	(0.0160)	(0.0198)	(0.0235)	(0.0215)
treated	0.0766***	0.119***	0.0403***	0.135***	0.155***
	(0.0152)	(0.0245)	(0.0154)	(0.0162)	(0.0108)
female	-0.0446***	-0.0642***	0.0514***	-0.0239*	-0.0172**
	(0.0141)	(0.0234)	(0.0136)	(0.0132)	(0.00746)
lyceum	0.0134	0.0113	0.107***	0.0521**	0.00427
	(0.0268)	(0.0422)	(0.0278)	(0.0260)	(0.0174)
inst. tech-econ	-0.0527*	-0.0765*	-0.00279	0.0133	0.0150
	(0.0287)	(0.0441)	(0.0307)	(0.0268)	(0.0181)
last year	0.0706***	0.141***	0.0403**	0.0260	0.00773
	(0.0173)	(0.0281)	(0.0157)	(0.0194)	(0.0115)
subject econ	0.0339*	0.0461	0.0443**	-0.0100	0.0110
	(0.0192)	(0.0313)	(0.0214)	(0.0234)	(0.0157)
constant	0.200***	0.520***	0.199***	0.283***	0.478***
	(0.0314)	(0.0554)	(0.0289)	(0.0271)	(0.0220)
Observations	2,622	2,622	2,622	2,622	2,622
R-squared	0.448	0.509	0.343	0.283	0.236

Notes. The dependent variable is indicated in the columns' headers. In each regression we control for the pre-treatment level of the dependent variable. For the description of the variables, see Table A3. Clustered standard errors in parentheses. . *** p<0.01, ** p<0.05, * p<0.1.