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Reducing the digital divide for marginalized households

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Abstract

Digital skills are increasingly essential for full participation in modern life. Yet many low-income families face a dual digital divide: limited access to technology and limited ability to use it effectively. These gaps can undermine adults' ability to support their children's education, restrict access to public services, and reduce their own employability. Despite growing policy attention, rigorous evidence on how to close these gaps—especially among disadvantaged adults in high-income countries—remains scarce. We evaluate the impact of a comprehensive digital inclusion program in Turin, Italy, targeting 859 low-income families with school-aged children. Participants were randomly assigned to a control group or one of two treatment arms, each combining a free tablet with internet access and digital literacy training of different durations. One year later, treated participants reported large improvements in digital skills and daily technology use. Parents also became more confident in guiding their children's online activities, more engaged in digital parenting, and more likely to access public services digitally. We find no short-run effects on employment or job search behavior, but treated participants expressed greater optimism about future training prospects. Effects are statistically similar across the two training intensities, suggesting that once basic barriers are removed, digital engagement can become self-sustaining. Mediation analysis confirms that digital skills—not just access—are key drivers of these outcomes. Sequential effects are particularly strong in the domains of social inclusion and parenting. The findings underscore the importance of addressing both financial and learning constraints and suggest that bundled interventions can foster inclusive digital participation.

JEL Codes: I24, J24, O33, C93

Keywords: Digital divide, Digital literacy, Low-income families, Labor market outcomes, Digital parenting.

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Non Technical Summary

Over the past thirty years, digital technologies—ranging from the advent of the internet in the mid-1990s to the rise of artificial intelligence today—have profoundly reshaped the way people engage in society, work, interact with one another, and, more broadly, live. While technological innovation continues to evolve rapidly—particularly following the acceleration of digital transformation during the COVID-19 pandemic—the risk of digital inequality has emerged as a new and pressing form of social disparity. Access to technology and the capabilities required to use it effectively remain unevenly distributed, with vulnerable populations often left behind. In Italy—the country this paper focuses on—only 53% of adults possess basic digital skills, with rates significantly lower among foreign-born and less-educated individuals. Unsurprisingly, digital upskilling has become a central focus of policy agendas. The European Commission, for instance, launched the "Digital Decade" policy program, which sets an ambitious target: by 2030, at least 80% of adults in each EU country should possess at least basic digital skills. As part of the Next Generation EU program, each Member State is required to allocate at least 20% of its national recovery plan to digital objectives. On average, 16% of these digital funds are dedicated to "human capital in digitalization". Italy, in particular, is investing €200 million to enhance basic digital skills through initiatives such as the "Digital Civil Service" and the expansion of a nationwide network of "Digital Facilitation Centers." Despite this growing policy momentum, however, causal evidence on how to effectively invest in digital skills development remains scarce.

This paper evaluates the "DigitALL program", an intervention designed to reduce the digital divide among low-income families in Italy. The program combined three components: a free digital device (a tablet), one year of free internet access, and digital skills training. It was implemented in Turin in collaboration with Fondazione Ufficio Pio and targeted families with limited income and at least one school-aged child between 6 and 17 years old. The intervention aimed to address both financial barriers and learning costs associated with digital access. Using a randomized controlled trial (RCT), the study compares outcomes across three groups: a control group, and two treatment groups—one receiving a short-course training (T1) and the other a long-course training (T2). Training sessions were delivered in small groups with dedicated tutors and covered practical topics such as internet browsing, using Google Docs, CV writing, digital safety, and supporting children's use of online tools.

One year after the intervention, results show that participants in both treatment groups significantly improved their digital skills: the share of individuals scoring below the basic threshold dropped from over 80% to around 40%, with many reaching or surpassing the national average. Households also experienced greater adoption of digital tools, both among adults and children. Parents became more confident in supporting their children's education online and more actively engaged with school-related apps. The intervention further promoted social inclusion: treated individuals were more likely to use digital identity systems (SPID), access healthcare services, and pay taxes online. Although short-term employment outcomes did not change significantly, participants expressed greater optimism about their job prospects and showed a higher willingness to pursue further training.

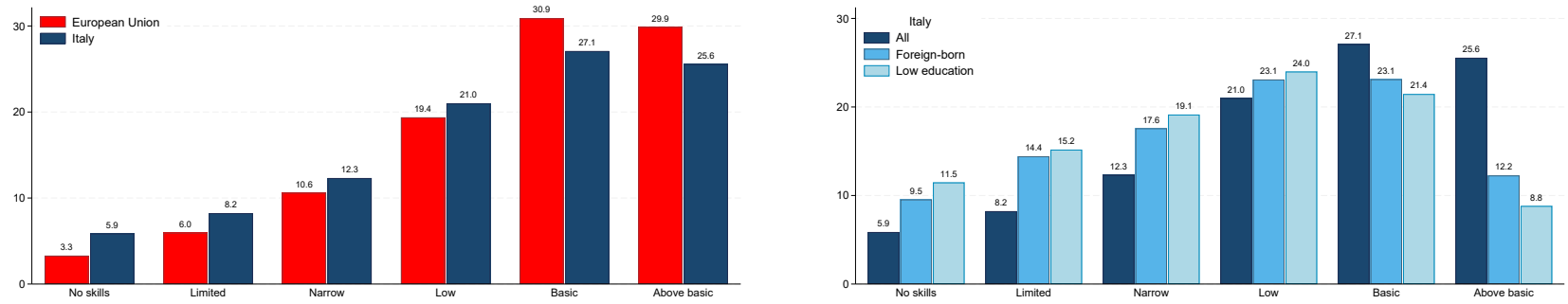
A key insight from the study is that training intensity appears to matter less than overcoming economic and

learning barriers. Indeed, both the short and long courses delivered similar outcomes, suggesting that once individuals are provided with access and basic training, they are able to continue learning independently. This finding carries important policy implications: even light-touch interventions can be effective if they are comprehensive—addressing both financial and educational barriers. That said, we cannot rule out the possibility that the lack of difference between the two treatment groups reflects diminishing returns to training intensity.

1 Introduction

In today's digital society, access to technology and the skills to use it are increasingly necessary—not only for employment, but also for supporting children's education, navigating public services, and exercising full citizenship. Whether applying for income support, communicating with teachers, or managing basic healthcare tasks, individuals without digital proficiency face growing disadvantages. Yet more than 40% of the European population still lacks these essential skills (Eurostat, 2024), and only 60% of EU adults demonstrate at least basic digital competencies. In Italy, where this study is based, only 52% of adults reach basic proficiency, placing the country below the EU average. Panel (a) of Figure 1 shows that Italian adults underperform relative to the EU average across all skill levels. Panel (b) disaggregates Italian data by subgroups, showing that skills are even lower among vulnerable populations, foreign-born and less-educated individuals. These gaps point to the urgency of reducing the digital divide for marginalized households—especially as the European Commission's "Digital Decade" targets aim to ensure that at least 80% of adults in every EU country attain basic digital skills by 2030.

Figure 1: Digital Skill Levels: International and Subgroup Comparisons



(a) EU vs Italy (Adults aged 16–74) **(b)** National average vs Foreign-born or Low-educated

Notes: Panel (a) compares the distribution of digital skill levels between Italy and the EU average, showing that Italy lags significantly behind in the share of adults reaching "Basic" and "Above basic" proficiency. Panel (b) adds to the national average the distribution of skills among foreign-born and low-educated individuals in Italy. Among those subgroups the share of adults who fall below the "Basic" threshold is even larger.

Despite the growing policy focus, relatively little causal evidence exists on how to reduce the digital divide among disadvantaged adults. The economic literature has long documented substantial returns to early childhood and youth education (e.g., Heckman and Mosso, 2014), while programs targeting adults—particularly in high-income countries—remain under-researched (Aker et al., 2023). The few existing randomized evaluations have focused mostly on adult literacy and numeracy in developing countries (e.g., Aker et al., 2012; Banerji et al., 2017; Deshpande et al., 2023), with only limited attention to digital skills. Moreover, acquiring digital proficiency poses distinct barriers: not only financial constraints (e.g., lack of devices or internet access), but also steep learning costs that discourage adoption (e.g., Mukherjee, 2023).[1] Even when financial barriers are removed, adoption may not occur if users lack the confidence or knowledge to engage with technology. At the extreme, providing a free technological device, such as a tablet or a personal computer, is futile if recipients do not know how to turn it on. Conversely, digital literacy can be self-reinforcing: once initial barriers are overcome, individuals may continue to learn autonomously.

This paper provides the first randomized controlled trial to evaluate the joint impact of technology access

[1] These challenges echo those faced in technology adoption by small firms in low- and middle-income countries (e.g., Suri, 2011).

and digital skills training on the economic and social outcomes of low-income households in a high-income setting. We carried out the intervention in Turin, Italy, in collaboration with Fondazione Ufficio Pio, under a program titled "DigitAll."[2] The intervention targeted 859 disadvantaged families with school-age children. The experimental design features stratified randomization at the individual level and includes three arms: a control group and two treatment groups assigned to either a short (9-session) or a long (15-session) digital literacy course, both delivered in small classes and accompanied by a tablet with free internet access and a tutor to support engagement. The program simultaneously addressed monetary constraints and learning costs. The two treatment arms allow us to explore the returns to learning support at different levels of intensity. All participants completed a baseline survey prior to randomization, and outcomes were measured approximately one year later via an endline survey. To ensure comparability with international standards, we use the official "Digital Skills Indicator 2.0" (DSI) developed by Eurostat (Eurostat, 2022). Beyond digital skills, we examine effects on parenting practices, access to digital public services, and labor market engagement.

We find that the intervention produced large and sustained improvements across the immediate outcomes outlined in our conceptual framework. First, both treatment arms experienced significant increases in technology adoption. Participants reported greater use of digital devices—both for themselves and their children—and the number of devices available in the household rose markedly. Second, the program led to substantial gains in digital skills. At baseline, over 80% of participants scored below the "Basic" digital proficiency threshold. One year later, 40% of participants in the shorter course (T1) and 46% in the longer course (T2) reached at least basic proficiency, with 9% and 13%, respectively, achieving "Above basic" levels. These gains are particularly notable because they brought treated individuals up to the Italian national average in terms of DSI proficiency, effectively closing a substantial baseline gap.

The intervention also produced meaningful changes in digital parenting and public service use. Treated individuals became more confident in guiding their children's online activities, reported more frequent use of school-related apps, and demonstrated greater awareness of age-appropriate content and online safety. They also engaged more regularly with digital platforms used for healthcare, taxation, and social welfare services. In terms of labor market engagement, while immediate behaviors such as job search and employment status did not change significantly, treated participants expressed greater optimism about their employment prospects and were more likely to anticipate enrolling in further training.

Finally, we test for differences across training formats. Across nearly all domains, the effects of the shorter and longer training courses are statistically indistinguishable. This suggests that once initial barriers to digital engagement are removed—through access to devices and basic structured instruction—participants are able to continue learning independently. The self-reinforcing nature of digital literacy is a key takeaway: modest interventions can generate long-term improvements even in the absence of intensive training.

To better understand the mechanisms behind these effects, we conduct a detailed mediation analysis, following the framework of Imai et al. (2010), Heckman and Pinto (2015), and Daniel et al. (2015). This approach allows us to disentangle the relative importance of different causal channels—specifically, whether the intervention

[2]Fondazione Ufficio Pio, founded in 1595 under the Compagnia di San Paolo, one of Italy's leading philanthropic foundations, focuses on social assistance for economically vulnerable individuals in Piedmont, especially Turin. It offers targeted programs to address educational inequality, promoting social inclusion and economic empowerment. The evaluation of the DigitAll program is also aligned with the European Commission's "Digital Decade Policy Programme 2030," which emphasizes digital inclusion and skill acquisition as central pillars of EU strategy.

operates primarily by expanding access to technology, by improving digital skills, or through a sequential process in which access enables skill development. Across multiple domains, we find that both access and skills play important roles, with digital skills emerging as a central mediator of downstream outcomes. Sequential mediation effects are particularly salient for parenting behaviors and social inclusion, suggesting that the combination of hardware provision and structured instruction is more effective than either component alone. These findings confirm the two-stage logic of the intervention and underscore the importance of tackling both financial and learning barriers to digital engagement.

Our paper contributes primarily to the growing literature on adult digital inclusion by applying a comprehensive intervention in a high-income setting. We extend prior work on ICT interventions—mostly conducted in low- and middle-income countries (e.g., Aker et al., 2012; Banerji et al., 2017; Mukherjee, 2023)—by testing a bundled approach that combines device access and structured training in a European welfare-state context. Unlike earlier studies that often focused narrowly on educational or financial outcomes, we examine a broad array of domains including digital skills, parenting behaviors, children's technology use, and labor market engagement. This scope connects with interdisciplinary findings showing that digital proficiency among adults can generate spillovers to children and household functioning more broadly (e.g., Huang et al., 2018). At the same time, our findings are highly policy-relevant. Despite near-universal internet access in Europe, digital proficiency remains limited: as of 2023, fewer than 60% of adults possessed basic digital skills, reflecting only modest progress since 2017 (Eurostat, 2024; European Commission and Media, 2017). Given that digital proficiency is now a prerequisite for nearly all jobs and for full participation in civic life, the digital divide remains a serious policy concern. By providing new causal evidence on the effectiveness of joint hardware-and-training interventions, our study offers actionable insights for national and EU-level strategies aiming to close this gap and achieve the digital targets set by the European Commission's "Digital Decade" agenda.

More broadly, our study contributes to the literature on the economic impacts of digital access and training by showing that combining the two can yield inclusive and multidimensional improvements for disadvantaged adults. Prior evidence from high-income countries often isolates access interventions and finds mixed effects. For instance, Malamud and Pop-Eleches (2011) document that subsidized home computers in Romania improved computer skills but reduced academic performance, likely due to unsupervised usage. Fairlie and London (2012) find no impact of free laptops on academic or labor market outcomes among U.S. community college students, despite greater computer access. Similarly, quasi-experimental evidence on broadband rollout shows skill-biased effects: Akerman et al. (2015) find broadband increased productivity and wages for high-skilled workers in Norway but had adverse effects on the low-skilled, while Billari et al. (2019) show fertility benefits from broadband were concentrated among highly educated women in Germany. These studies underscore that access alone may reinforce pre-existing inequalities if not accompanied by opportunities to build relevant skills. Our findings add to this literature by demonstrating that a thoughtfully designed, bundled intervention can close digital gaps and support broader outcomes—from digital parenting to civic service use—offering a pathway for inclusive digital policy in advanced economies.

The remainder of the paper is structured as follows. Section 2 describes the experimental design, treatment arms, implementation timeline, and presents baseline characteristics of the sample. Section 3 outlines the conceptual framework and details the main hypotheses. Section 4 reports the primary results, including robustness

checks and heterogeneous effects. Section 5 explores the mechanisms underlying these effects through a detailed mediation analysis. Section 6 concludes.

2 Field Experiment

Our experiment targets low-income families with school-age children in Turin, Italy, to evaluate the impact of technology access and digital skills enhancement on their lives. Through the "DigitAll" program, we provide each qualifying family with a tablet, one year of free internet access, and a digital skills training for one adult. To be eligible, applicants had to meet strict low-income criteria, have at least one school-age child, and complete a baseline questionnaire assessing digital literacy, parental involvement in education, social inclusion, and employment status. During the application process, participants also selected up to two preferred training locations and times. Applicants could complete the baseline survey either independently online or with assistance at designated Ufficio Pio centers across Turin.[3] In the following section, we provide a detailed overview of the study design, including the randomization procedure and intervention components, as well as summary statistics of our sample at baseline. Additionally, we present information on program participation, participant satisfaction, and barriers to adoption collected after the training was completed.

2.1 Design and Treatments

We received 859 valid applications and assigned participants to one control group (C) and two treatment groups (T1 and T2). The experimental design employs block randomization (stratification) at the individual level, ensuring balance across key participant characteristics. Stratification variables were selected for their predictive relevance and our interest in studying heterogeneous effects. They include (i) a digital literacy score (above/below median at the baseline), (ii) high school graduation, (iii) foreign background, (iv) presence of children under 6, and (iv) residence in the northeast of the city.[4] Each variable is dichotomous, forming 30 strata.[5] The digital literacy score was derived from the "Digital Skills Indicator 2.0" (DSI) (Eurostat, 2022), focusing on items that proved most predictive in our pilot to streamline the baseline questionnaire. More details about this variable are provided below.

Following randomization, participants in T1 and T2 were grouped into classes of 7 to 13 individuals (with a median of 10), based on their preferences and assigned treatment type. There were 25 classes for the shorter training (T1) and 26 classes for the longer training (T2). The allocation to these classes was done through random sorting, prioritizing participants' preferences. If a preferred class was oversubscribed, participants were placed in the next available option to ensure fair and balanced distribution. The control group did not receive any device or training. However, to ensure comparability, control participants were organized into 51 "shadow" clusters, each containing 5 to 9 individuals (with a median of 7), using the same algorithm that matched T1 and T2 participants by time and location preferences. This ensured that structural characteristics were consistent across groups. In total, the experiment comprised 102 clusters, with 337 participants in C,

[3] 576 participants (67%) submitted their applications at one of the centers. Of the 283 participants who completed the application independently, 109 (39%) reported in the survey that they received help from a relative or acquaintance.

[4] More than half of the sample lives in a neighborhood in the northeast, where 30 classes were activated. These neighborhoods have lower per capita income and a higher immigrant population than the rest of the city.

[5] Two strata were excluded as they did not contain any observations.

262 in T1, and 260 in T2.[6]

All treated participants received a tablet with one year of internet access and attended a weekly two-hour digital literacy course. The course content differed by treatment arm. T1 consisted of an 18-hour course (9 sessions, 2-hour each) covering basic digital skills such as web browsing, Google tools, and internet safety. T2, on the other hand, was a 30-hour course (15 sessions, 2-hour each), incorporating all T1 content plus additional topics like Google Sheets, e-commerce, guiding children on social media use, and using the internet for job searches.[7] Both types of courses were led by a teacher and a tutor. The teacher delivered standardized instructional material, prepared in advance to ensure consistency across all classes. During sessions, they guided participants through practical exercises and monitored their progress. The tutor provided additional support outside class hours, assisting participants who fell behind or missed a session. If a participant was absent for more than one session in a row, the tutor followed up to check on their well-being and provide the missed material. At the end of the course, participants who attended at least 60% of sessions received a diploma. The diploma includes the participant's name, the course name, its scope, and its duration.

2.2 Timeline

The project spanned approximately 12 months. Figure 2 provides an overview of the project timeline. Applications were accepted from September to early November 2023.[8] Application outcomes were disclosed in November 2023. Treated individuals were allocated to classes based on location preferences and treatment type and were invited to information sessions in December. Courses commenced in January 2024 and concluded in March (for T1) or May (for T2). Participation was monitored throughout the program, and a midline questionnaire was administered at the end of each course for T1 and T2 participants only. This survey aimed to evaluate the quality of the training received, assess participants' engagement with the course material, and measure their compliance with instructions on using the device. The endline survey was conducted in October and November 2024, approximately one year after baseline data collection. All participants were contacted for a phone interview (CATI) and received a 20-euro voucher for their participation.

2.3 Pre-Intervention Summary Statistics

Table 1 summarizes the baseline characteristics of the sample.[9] The vast majority of participants are women (92%) and of foreign origin (70%), with only 33% having completed high school. The average age of participants is 39.6 years, ranging from 18 to 70. Households have an average of 4.51 members, with 2.08 children born between 2006 and 2020.[10] The average ISEE ("Equivalent Economic Situation Indicator") is €3,838,

[6]The initial randomization at the individual level assigned 261 participants to T1 and 261 participants to T2. However, in two locations that were relatively far from other sites, there were not enough participants to open both a T1 and a T2 class, so only one class was created. As a result, 4 participants initially assigned to T1 were placed in a T2 class, and 5 participants initially assigned to T2 were placed in a T1 class. We define their treatment status based on the final allocation, either to a short (T1) or long (T2) course.

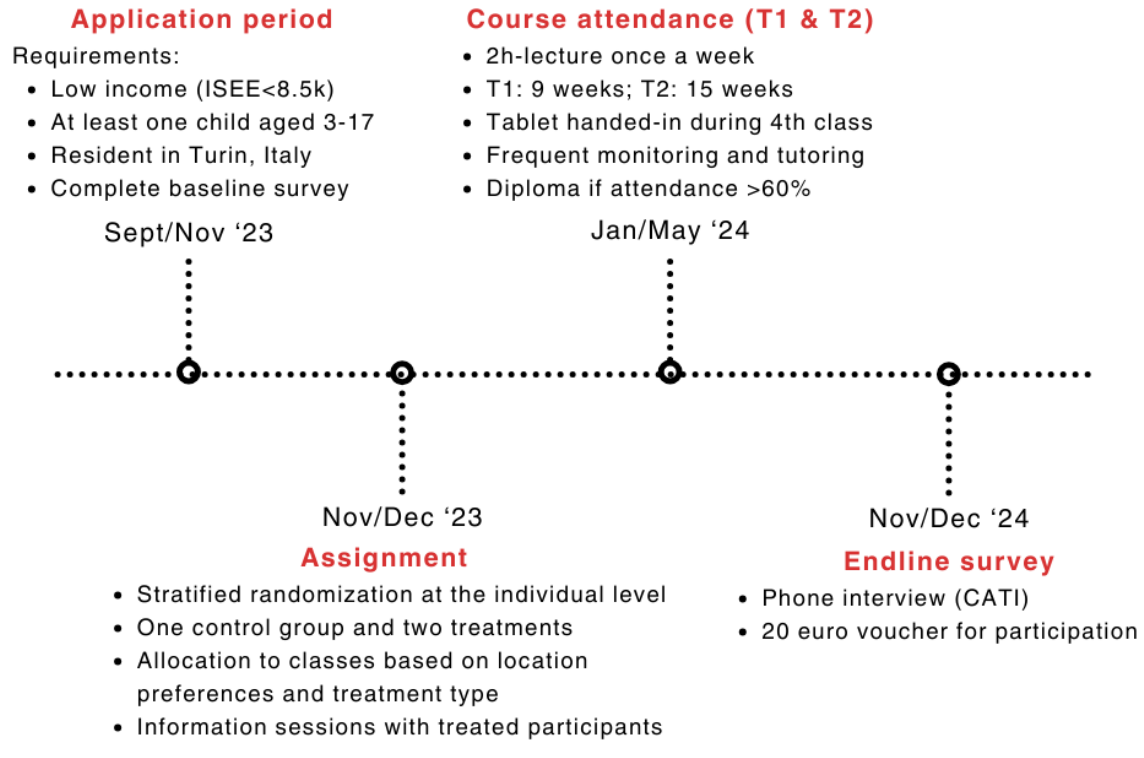
[7]A detailed overview of the course content and curricula for both T1 and T2 is provided in Tables A1 and A2 of Appendix A.

[8]Table A3 in Appendix B.1 summarizes the main reasons participants applied to the DigitAll program. The most common motivations included helping their children with school or protecting them online (51%) and improving their own digital skills (50%). Other reasons included accessing rights and assistance (24%), enhancing their work situation (23%), receiving free internet for one year (18%), and enriching family relationships and leisure (13%).

[9]Extended summary statistics are reported in Tables A6, A7, and A8 of Appendix B.1.

[10]Furthermore, 70% of families have at least one child aged 6-10, 80% have a child aged 6-12, and 35% have a teenager aged 13-17.

Figure 2: Timeline of the project (2023-2024)



placing this group within the lowest 5% of the ISEE distribution in Italy.[11] Given the high proportion of foreign, low-income, and less-educated women in the sample, it is unsurprising that 51% of participants identify as housepersons. In terms of technology access, nearly all participants own a mobile phone. However, only 21% own a tablet, and only 40% own either a PC or a tablet. Furthermore, just 37% have a dedicated internet connection (Wi-Fi) at home.

Regarding digital literacy, we measure it at baseline using a subset of questions from the Eurostat Digital Skills Indicator (DSI) (Eurostat, 2022). The full DSI synthesizes digital skills across five domains: (i) *Information and data literacy*, (ii) *Communication and collaboration*, (iii) *Digital content creation*, (iv) *Safety*, and (v) *Problem solving*.[12] Responses to individual questions are grouped into domain-level scores; for each area, skills are classified into three levels: *none*, *basic*, and *above basic*. These results are then aggregated into a six-level overall indicator: *no skills*, *limited*, *arrow*, *low*, *basic*, and *above basic*[13] Due to time constraints, we administered a shortened version of the Eurostat module, selecting 12 questions most predictive of the full index using data from our pilot study.[14,15] At baseline, the predicted DSI score averaged 3.78 out of 6,

[11] ISEE (Indicatore della Situazione Economica Equivalente) is an indicator of the economic situation of households in Italy. It is used to assess eligibility for various social benefits and services and takes into account income, assets, and household composition. For further reference on ISEE distribution, see INPS data: https://servizi2.inps.it/servizi/osservatoristatistici/api/getAllegato/?idAllegato=1114.

[12] Specifically, (i) *Information and data literacy* captures the ability to effectively search for, assess, and manage online information (DSI questions I1 to I4); (ii) *Communication and collaboration* captures the ability to use digital tools to communicate and collaborate (DSI questions C1 to C6); (iii) *Digital content creation* captures skills related to creating, editing, and managing digital content (DSI questions D1 to D7); (iv) *Safety* captures the ability to manage privacy, security, and other risks in the digital environment (DSI questions S1 to S6); (v) *Problem solving* captures the ability to use digital tools to solve problems and optimize task performance (DSI questions P1 to P7).

[13] An individual is considered to have *no skills* if they have no skills in five or four areas, *limited* skills if they score basic or above basic in two areas and no skills in three, *narrow* skills if they demonstrate basic or above basic in three areas and no skills in two, *low* if they have basic or above basic in four areas and no skill in one, *basic* skills if they score at least basic in all areas, *above basic* if they demonstrate above basic in all five areas., which provides a more granular classification of below basic skills.

[14] Specifically, we applied bagging – a machine learning algorithm particularly suitable for categorical dependent variables – which allowed us to both select the best explanatory variables and combine their information to predict the index. The out-of-sample performance of the prediction in the "pilot" dataset was very good: almost 90% of the observations were placed in the correct category. The pilot is the DigitAll program previous edition, it was implemented between 2021 and 2022 in Turin. It targeted low-income families with children aged 6 to 17, residing in public housing and lacking access to high-speed internet connection at home.

[15] Figure A1 in Appendix B.1 illustrates how predicted digital skill levels vary by baseline characteristics. It shows that ownership of digital devices, higher education, employment, and internet access are modestly associated with higher digital proficiency, though most participants still fall below the "Basic"

Table 1: Demographics, Technological Endowment, and Digital Skills

	(1) Mean	(2) Median	(3) S.D.	(4) Min	(5) Max
Individual and household characteristics:					
Female	0.92	1.00	0.28	0	1
Foreign background	0.70	1.00	0.46	0	1
Age	39.60	39.00	7.89	18	70
High school graduate	0.33	0.00	0.47	0	1
Houseold size	4.51	5.00	1.30	2	10
N children born 2006-2020	2.08	2.00	0.94	1	6
Houseperson	0.51	1.00	0.50	0	1
ISEE (€)	3838	3916	2421	0	8390
Technologial endowment:					
Own phone	1.00	1.00	0.05	0	1
Own tablet	0.21	0.00	0.41	0	1
Own PC or tablet	0.40	0.00	0.49	0	1
Internet used at home	0.62	1.00	0.49	0	1
Wi-fi at home	0.37	0.00	0.48	0	1
Digital skills:					
Index of digital skills (DSI) [1, 6]	3.78	4.00	1.41	2	6
N digital activities [1, 12]	3.95	3.00	3.29	0	12
Classrooms	102				
Observations	859				

Notes: The table displays the mean, median, standard deviation, minimum, and maximum values for the variables listed on the left. These variables encompass demographics, household characteristics, socio-economic indicators, technological access, and digital skills level (measured through the DSI index) and by the number of digital activities performed. There is a total of 102 classrooms and 859 participants in our baseline sample.

classifying participants between "Narrow" and "Low" digital skill levels. This is significantly lower than the EU average, where 60% of adults reach at least "Basic" proficiency. The average number of digital activities performed was 3.95 out of 12.[16] These results underscore the digital divide faced by this population and the importance of interventions targeting digital inclusion.

Table 2 presents summary statistics on parental involvement in children's education, social inclusion, and labor market engagement. The top panel reports parental engagement along a 1–5 ordinal scale, where 1 is "Never or almost never" and 5 is "Every day or almost every day." Verbal interaction is particularly frequent: on average, parents report discussing school with their children almost daily (mean = 4.55), and communicating with teachers more than monthly (mean = 3.40). In contrast, digitally mediated activities are somewhat less frequent. Parents check the school app between weekly and monthly on average (mean = 3.77), though the high standard deviation suggests many do so only sporadically. Similarly, help with homework averages 3.47 (just under weekly), but with substantial variation: a non-trivial share of participants reports minimal involvement—highlighting uneven support for digitally supported learning.

threshold across all subgroups.

[16] Table A4 in Appendix B.1 presents self-reported digital activities among participants over the past three months at baseline. The most common activities include sending or receiving emails (74%) and downloading or installing software or apps (53%). Less frequent activities involve using spreadsheets for calculations (11%) and changing browser settings (8%).

Table 2: Children's Education, Social Inclusion, and Labor Market Engagement

	(1) Mean	(2) Median	(3) S.D.	(4) Min	(5) Max
Parental involvement in children's education:					
Help with homework	3.47	4.00	1.53	1	5
Check school app	3.77	4.00	1.51	1	5
Talk about school day	4.55	5.00	0.87	1	5
Communicate with teachers	3.40	3.00	1.10	1	5
Anti-poverty measures received (past 12 months):					
At least one welfare measure	0.53	1.00	0.50	0	1
N. measures received	0.88	1.00	1.05	0	5
Employment status and willingness to work:					
Employed	0.21	0.00	0.41	0	1
Looking for a job (past 4 weeks)	0.46	0.00	0.50	0	1
Looking for a job (past 4 weeks) (if not employed)	0.50	0.00	0.50	0	1
Would like to work (if not employed and not looking)	0.33	0.00	0.47	0	1
Never looked for a job	0.16	0.00	0.37	0	1
Open to work (if employed, looking or willing to work)	0.73	1.00	0.44	0	1
Perceptions of labor market outcomes (next 12 months):					
Finding a job (if not employed)	40.79	40.00	30.39	0	100
Loosing current job (if employed)	33.32	30.00	29.41	0	100
Training to acquire further qualifications	47.72	50.00	31.45	0	100
Classrooms	102				
Observations	859				

Notes: The table displays the mean, median, standard deviation, minimum, and maximum values for the listed variables. The top panel refers to parental involvement in children's education, measured on a 1–5 ordinal scale with the following categories: 1 = Never or almost never, 2 = Once or more per year, 3 = Once or more per month, 4 = Once or more per week, 5 = Every day or almost every day. The middle and bottom panels report binary or continuous indicators of access to social support programs, labor market participation, willingness to work, and perceived future outcomes. All variables are measured at baseline.

The remaining sections summarize social vulnerability and labor market engagement. Over half of participants (53%) report receiving at least one anti-poverty measure in the past year, with an average of 0.88 programs accessed per person.[17] Employment remains low at just 21%, but broader labor market engagement appears more promising: 73% are either employed, actively searching, or willing to work. Among the unemployed, 50% have recently looked for a job, and an additional 33% express a desire to work even if not currently searching. Future expectations, however, are modest: non-employed individuals rate their chances of finding work at just 41%, 33% of employed respondents fear losing their job, and 48% anticipate pursuing further training.

2.4 Balance and Power Calculations

We ensure balance between each treatment group and the control, as well as among the different treatment groups. Results for a wide range of variables are presented in Tables A9–A11 of Appendix B.2. Balance is assessed using F-statistics across all groups and normalized differences between pairs of groups. All normal-

[17] Table A5 in Appendix B.1 provides a breakdown of anti-poverty measures received by participants over the past 12 months at baseline. The most common measures include the social utility bill bonus for electricity, gas, or water (28%), the citizenship income (16%), healthcare ticket exemptions (14%), and unemployment benefits (5%). A small percentage of participants reported receiving rent bonuses, nursery school bonuses, or telephone fee reductions.

ized differences are well below 0.25, as recommended by Imbens and Rubin (2015). Furthermore, out of 61 variables, joint significance tests indicate that differences between groups are statistically significant at the 5% level for only three variables and at the 10% level for three additional variables, confirming the overall success of randomization. For statistical power, we conducted power calculations only for the primary outcome "Digital literacy skills", as it is the only one for which we had data for the specific population from our pilot. Based on the parameters outlined in our pre-analysis plan, our study is powered to detect a minimum detectable effect (MDE) of 0.25 standard deviations (SD), in line with standard benchmarks in the literature. Given that effect sizes from our pilot study ranged between 0.60 and 0.70 SD, our design is well-positioned to detect at least half of the effects observed in the pilot.

2.5 Program Participation, Satisfaction, and Barriers to Adoption

To assess program engagement and identify barriers to participation, we conducted a midline survey with T1 and T2 participants only after course completion.[18] Results of the midline are reported in Appendix C. The survey collected data on attendance, satisfaction, pre-intervention constraints, and early outcomes. Take-up of the program was high overall: 83% of T1 and 85% of T2 participants attended at least one session (Table A12).[19] Most participants completed the course and earned a diploma—81% in T1 and 79% in T2.[20] Attendance remained strong throughout. In T1, rates exceeded 90% for the first four sessions (97% in session 4, when tablets were distributed), then stabilized around 80%. T2 saw a similar pattern.[21] Satisfaction was high across both groups (Table A15). Participants gave mean ratings of 4.7/5 for tablets, internet, and course content, 4.5 for tablet skills, and 4.6 for smartphone skills. Teachers and tutors received 4.8 on average. Most respondents found the course length appropriate (77% in T1, 87% in T2). Finally, during the midline assessment, we also explored why participants had not previously acquired a tablet or upgraded their internet connection. Table A16 outlines key barriers. Cost was the most frequently cited reason (60%), followed by lack of digital knowledge (24%) and perceived lack of necessity (22%). Similarly, among those without home internet, financial constraints were the primary obstacle (56%), followed by low perceived need (29%) and lack of technical knowledge (18%). These findings underscore the economic and informational barriers to digital inclusion that the intervention sought to address.

3 Conceptual Framework

To evaluate the impact of our intervention, we articulate a conceptual framework that outlines the mechanisms through which access to digital technology and training can improve the well-being of marginalized households. This framework guides our analysis by organizing outcomes into two main categories: immediate results, such as increased device usage and improved digital skills, and broader economic outcomes,

[18] The survey was completed by 64% of T1 and 67% of T2.

[19] In T1, 11% withdrew after being selected, and 6% dropped before the first session. In T2, these rates were 7% and 8%, respectively. Post-tablet dropout was rare (0.4% in T1, 3% in T2).

[20] Diplomas were awarded to those attending at least 5 (T1) or 9 (T2) sessions. A few who missed one session but reviewed the material were also certified. Furthermore, in Table A13, we explore the correlation between individual or household characteristics and the likelihood of enrolling in the intervention or obtaining a diploma. For instance, high school graduates were slightly more likely to enroll (6%) and earn a diploma (6%) compared to less-educated participants. Having more children increased the probability of enrolling (5%) but did not show a significant difference in obtaining the diploma. Interestingly, employed participants were less likely to enroll and graduate compared to their unemployed counterparts, particularly in T2, where the effect is stronger.

[21] Figure A2 in Appendix C shows full attendance trends. In T1, 40% attended all nine sessions; in T2, attendance was more dispersed. See Table A14 for full session-by-session data.

including parental involvement, social inclusion and enhanced labor market engagement. We also compare the relative effectiveness of the two training formats.

We begin with hypotheses related to direct, short-term effects of the intervention. **H1** posits that providing access to digital devices and internet connectivity increases participants' adoption and use of technology in their daily lives. This hypothesis rests on the assumption that economic constraints are a key barrier to technology use, and that removing these constraints will enable greater digital participation. While other barriers may limit uptake—including steep learning curves, low perceived relevance, or social norms discouraging technology use—our midline findings suggest these factors are less salient in this context. Hence, if at endline we observe an increase in technology adoption and usage among both treatment groups compared to the control, we interpret this as evidence that access and basic support are sufficient to promote digital uptake.

H2 focuses on the core component of the program—digital skills training. We hypothesize that participation in training improves participants' digital literacy, as measured by the DSI index. Although learning differences, limited formal education, or low attendance could plausibly weaken impacts, the midline results indicate strong engagement and minimal barriers to participation. Therefore, we expect to find substantial gains in digital skills among both T1 and T2 participants at endline, confirming that accessible training can meaningfully enhance digital proficiency.

We then turn to hypotheses about broader behavioral and economic outcomes. **H3a** hypothesizes that improved digital skills enable parents to better support their children's learning and online safety, fostering more active and informed digital parenting. **H3b** considers the role of digital inclusion in facilitating access to public services and social support measures—especially those that require navigating digital platforms. Finally, **H3c** posits that enhanced digital skills and technology access improve labor market engagement, as reflected in participants' current job-seeking behavior and expectations about employment or training. If these outcomes improve, it would indicate that digital exclusion was a binding constraint. If not, it may suggest the need for complementary interventions.

Finally, **H4** concerns the relative effectiveness of the two treatment arms. We hypothesize that participants in T2—who received a longer, more advanced training—will exhibit stronger impacts on digital skills and downstream outcomes, especially in domains requiring higher-level competencies such as content creation, problem-solving, job search strategies, and digital parenting. However, if effects are comparable across T1 and T2, this would imply that even basic training, when paired with device access, is sufficient to unlock many of the benefits associated with digital inclusion.

4 Estimation Strategy and Results

To rigorously evaluate the impact of the intervention, we structure this section around three key components. First, we define the primary outcomes to capture both immediate and broader effects of digital inclusion. Second, we outline our estimation strategy, leveraging the experimental design to identify causal effects while accounting for potential biases, including multiple hypothesis testing adjustments to control for false discoveries. Finally, we present the main results. We also explore heterogeneity in impacts, discuss potential

confounding factors that may influence our findings, and examine issues of compliance and attendance.

4.1 Primary Outcomes

To address our research questions, we classify our primary outcomes into five categories: *technology adoption*, *digital skills*, *digital parenting*, *social inclusion*, and *labor market engagement*. Each category comprises multiple outcomes.[22] For certain outcomes, we construct summary indexes that aggregate multiple variables. In these cases, the index is calculated by averaging the z-scores of the underlying variables, adjusting their direction so that higher scores indicate more favorable outcomes.[23] The following sections detail each variable within its respective category.

Technology adoption. This category examines participants' ownership and usage of digital devices in their daily life, including the provided tablet and any other computers or tablets available at home.[24] We are interested in both the frequency of device usage by participants and their children. The primary outcomes of interest for this category are four. (i) *Tablet*: this variable takes value 1 if the participant has a tablet available at home, 0 otherwise. (ii) *Device ownership*: this variables sums the total number of devices (tablets and computers) available at home. (iii) *Participant's device usage*: this variable measures how often a respondent uses a tablet or computer at home, with responses ranging from 0 (never) to 6 (several times a day). Participants without any device at home are assigned a value of 0. (iv) *Children's device usage*: respondents report how often up to two of their children use a tablet or computer at home.[25] Responses range from 0 (never) to 5 (every day). For participants without any device at home, the variable is set to 0. If responses are provided for two children, the final value is the average of the two responses.

Digital Literacy Skills. This category evaluates the effectiveness of the training program in enhancing participants' digital literacy skills. As discussed in Section 2.3, digital skills were initially assessed at baseline using a predictive model derived from a subset of the Eurostat DSI index. At endline, we expand this measurement by administering the full battery of Eurostat questions, which comprehensively assesses digital competencies across five domains: information and data literacy, communication and collaboration, digital content creation, safety, and problem-solving (Eurostat, 2022). This allows us to capture a more detailed and precise measure of digital proficiency.

Digital Parenting. This category evaluates participants' ability to support their children online and use digital tools to contribute to their personal and academic development. We focus on three domains, constructing an index for each one of them. (i) *Engagement* in digital activities beneficial for children. Respondents are asked how often, for up to two children: (a) they use the school app to monitor the child's performance and attendance; (b) they use digital tools together for recreational activities; (c) they use digital tools together for

[22] In Tables A17–A21 of Appendix D.1, we provide detailed documentation of each primary outcome variable, including exact survey question wording, construction method, coding, and possible answer categories.

[23] The z-scores are computed by subtracting the control group mean and dividing by the control group standard deviation, ensuring that each component of the index has a mean of 0 and a standard deviation of 1 within the control group. The use of summary indexes follows established practices in the literature; see, for example, Kling et al. (2007), Anderson (2008), Heller et al. (2016).

[24] We do not focus solely on tablets because computers and tablets are often interchangeable. Conversely, we exclude smartphones from this analysis, as the baseline survey showed that nearly all participants already own one.

[25] For respondents with more than two children, two are randomly selected, prioritizing those in primary or lower secondary education.

educational purposes.[26] (ii) *Self-efficacy* as a digital parent. Respondents rate their agreement with statements regarding their ability to guide their children in the digital world. Specifically, they report whether: (a) they know how ensure that their children access age-appropriate contents online; (b) they are able to manage the time that their children spend online; (c) they know how to find online resources to support their children's schooling or other activities.[27] (iii) Factual *knowledge* about rules and recommendations regarding children and the digital world. Respondents are asked: (a) the minimum age for creating a social media profile; (b) the maximum recommended daily screen time for children aged 5-8. We will use the absolute difference between the correct answer and the respondent's answer, imputing the maximum value among respondents for those who stated that they "don't know".[28]

Social inclusion. This category measures whether participants use technology to enhances their access to public services and income support measures, making the process easier and more efficient for themselves and their families. The primary outcomes of interest are three. (i) *Use of digital identity*: this dummy variable takes a value 1 if the respondent has an Italian public digital identity and used it at least once autonomously in the past five months.[29] (ii) *Digital inclusion*: this variable captures whether in the past five months the respondent utilized public digital resources for tasks that would otherwise be more complex or time-consuming to complete in person. Specifically, they are asked if they: (a) logged into the National institute for Social Security (INPS) portal; (b) made a payment using the public administration's dedicated portal (e.g., for taxes or fines); (c) used the regional health portal for medical services (e.g. to book a medical appointment or download a prescription); (d) enrolled their children in a summer camp through a dedicated website.[30] The variable ranges from 0 to 4, with 1 point assigned for each activity done.[31] (iv) *Application to income support measures*: this dummy variable takes value 1 if the participant submitted at least one new application for a public income measure aimed at poverty alleviation in the past five months.[32] These applications are typically submitted online, furthermore internet resources can help users discover less-known support measures and understand eligibility requirements.

Labor Market Engagement. This category aims to capture participants' eagerness to secure employment and improve their labor market prospects. The primary outcomes of interest are four. (i) *Openness to work*: this dummy variable equals 1 if the respondent is either employed, actively seeking employment, or willing to work even if not currently looking. (ii) *Active effort*: this dummy variable takes value 1 if the respondent actively pursued an improvement in their labor market status by preparing or updating their CV, consulting an employment service, or enrolling in a training program. (iii) *Employment prospects*: respondents reported their perceived probability of being employed 12 months from the the survey date. (iv) *Training prospects*: respondents reported their perceived probability of attending a training program to improve their skills or qualifications within the next 12 months.[33]

[26] Items (b) and (c) are loosely inspired by the LSE Parenting for a digital future survey (items 28.1,2,6 and 33.4).

[27] Huang et al. (2018) show that digital skills are positively correlated with digital parenting self-efficacy. Our items were inspired by their battery of questions, the 2023 Pew Research Center's teens survey (items PAR4 a-c), and the 2021 OFCOM's Children's media literacy survey (item QP48B).

[28] Both topics were briefly introduced in T1 and covered in detail in T2. Item (a) is similar to questions QP14 and QP15 of the 2021 OFCOM's Children's media literacy survey (Online behaviours and attitudes module).

[29] The Public Digital Identity System (SPID) provides access to all digital services of the Italian public administration and selected private companies.

[30] All these activities were covered in the T2 course, with some also introduced in T1.

[31] Respondents could specify if they completed the activity independently or with the help of someone else.

[32] Respondents could list all the measures they applied for.

[33] Questions about perceived probability of being employed and gaining additional training are often asked standard in labor employment surveys, such as the

4.2 Estimation Strategy

To estimate the causal effects of our intervention on the primary outcomes, we leverage the random assignment design of our experiment. Where available, we include baseline measures of the outcome variables, following an ANCOVA specification. We also control for strata fixed effects based on the variables used in the randomization process. In all specifications, standard errors are clustered at the classroom level to account for intra-classroom correlations. We estimate the following equations, for participant i enrolled in class c, using OLS regressions:

$$Y_{ic}^{j} = \alpha^{j} + \beta_1^{j} T1_{ic} + \beta_2^{j} T2_{ic} + \gamma^{j} Y_{ic}^{j,0} + \delta_s^{j} + \varepsilon_{ic}^{j},$$

where Y_{ic}^{j} denotes the j-th outcome variable as introduced in the previous section, $T1_{ic}$ and $T2_{ic}$ are treatment indicators, $Y_{ic}^{j,0}$ is a baseline measure of the outcome (when available),[34] δ_s^{j} represents strata s fixed effects, and ε_{ic}^{j} is the error term.

Given the multiple outcomes and statistical tests in our study, we apply adjustments for multiple hypothesis testing (MHT) to control the risk of Type I errors (false positives). To address this, we organize our primary outcomes into five distinct families: *(1) Technology Adoption*, *(2) Digital Literacy*, *(3) Digital Parenting*, *(4) Social Inclusion*, and *(5) Labor Market Engagement*. Within each family, we control the false discovery rate (FDR) using Benjamini et al. (2006) procedure, which balances the detection of true effects while limiting the likelihood of false positives. In our results, we report both unadjusted and adjusted p-values to provide a comprehensive view of statistical significance.

4.3 Main Results

We begin by examining the impact of the intervention on digital skills—the primary outcome identified by our implementing partner and the core objective of the DigitAll program. Enhancing digital competencies was the necessary first step toward achieving improvements in parenting, public service use, and labor market engagement.[35] As shown in Figure 3, the intervention led to substantial improvements in digital skills. At baseline, over 80% of participants scored below the "Basic" proficiency threshold. After the intervention, this share declined sharply: 40% of T1 participants and 46% of T2 participants reached at least "Basic" proficiency, with 9% and 13% respectively attaining "Above basic" skills. These improvements bring treated individuals significantly closer to the national average—according to Eurostat, 56% of Italian adults demonstrate at least "Basic" proficiency, and 30% reach "Above basic" levels.

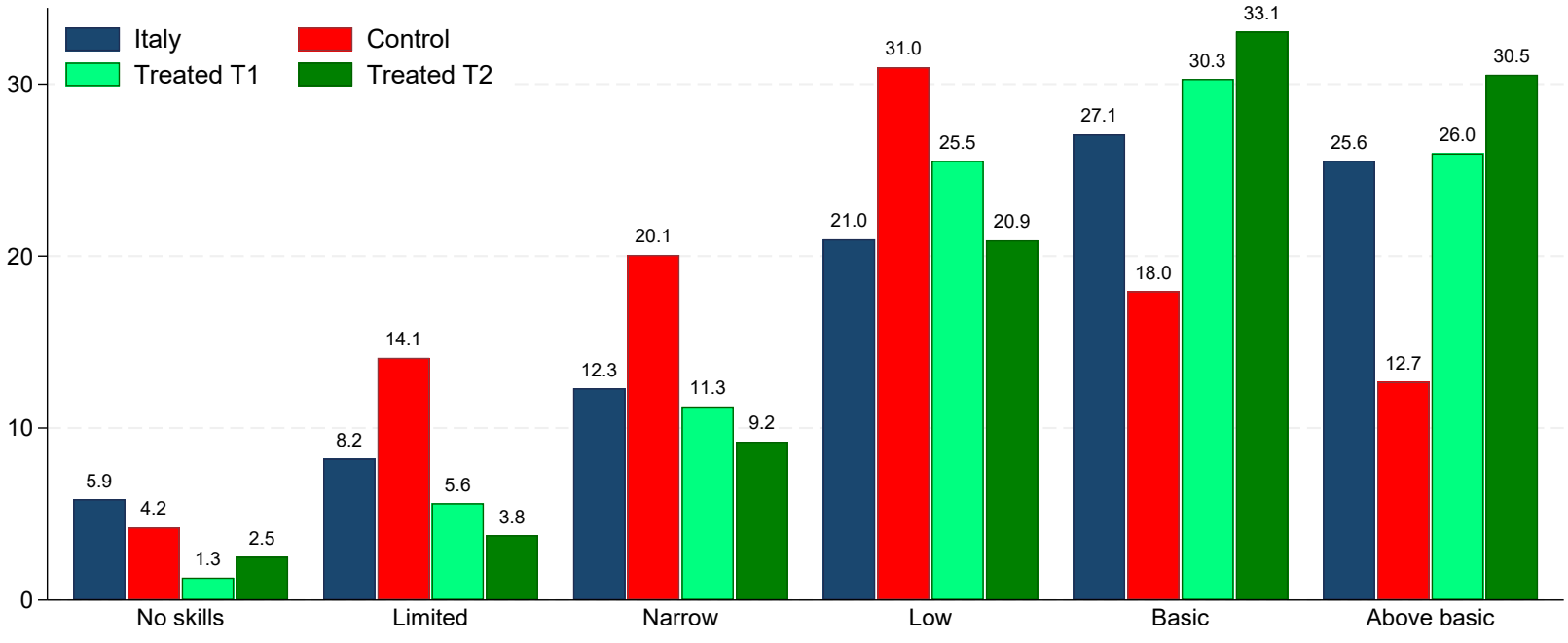
Technology adoption and digital literacy. Table 3 presents the regression results of the intervention on technology adoption and digital literacy. Columns (1) to (4) assess the extent to which participants expanded their technological endowments and increased their device usage. Column (1) shows that assignment to either T1 or T2 increased the likelihood of tablet ownership by about 63-65 percentage points. Since only 26%

German Socio-Economic Panel study (SOEP).

[34] We observe baseline measures of the outcomes for device ownership, the predicted DSI indicator, labor market status, and expectations regarding employment and training. For other outcomes without exact baseline measures, we use proxies when available. For example, for "Engagement with children" we only observe the frequency of usage of the school app at baseline.

[35] Moreover, the DSI index was also the only outcome for which we could conduct ex-ante power calculations, and thus provides the most rigorous test of program effectiveness.

Figure 3: Digital Literacy: Comparison with the Italian Population



Notes: The figure compares digital skill levels among treated participants with the national averages reported by Eurostat for the Italian adult population. While the control group remains concentrated at the lowest proficiency levels, treated participants show marked improvements, especially in the share reaching at least "Basic" and "Above basic" proficiency.

of households in the control group owned a tablet, these large effects were expected, as treated participants received tablets as part of the program. Column (2) indicates that T1 increased the number of devices at home by 0.69, while T2 led to an increase of 0.81, more than doubling the control group average of 0.57. Column (3) measures participants' frequency of device usage on a 0-6 scale. T1 increased usage by 2.62 points, and T2 by 2.71 points. With a control mean of 1.27, these results reflect a shift from occasional to more regular device usage. Column (4) measures children's device usage on a 0–5 scale. Both T1 and T2 increased usage by approximately 1.88 points, nearly doubling the control group average of 1.45. This indicates a substantial rise in children's digital engagement. Differences between T1 and T2 in Columns (1), (3) and (4) are small and not statistically significant.

Regarding digital skills, Column (5) reports the effects of the intervention on the overall DSI, the same composite index underlying the distribution shown in Figure 3. As described earlier (Section 2.3), this index captures competencies across five domains on a 0–6 scale. T1 improved DSI scores by 0.71 points and T2 by 0.81 points—an 18–21% increase relative to the control group mean of 3.82. These estimates corroborate the descriptive patterns seen in the figure, where treated participants show a clear shift toward higher proficiency levels. The T2 effect is slightly larger, but the difference between T1 and T2 is not statistically significant.[36,37]

Overall, these results support our primary hypotheses H1 and H2. The provision of digital devices and connec-

[36] Table A22 in Appendix D.2 provides a breakdown of these results across the individual domains of the DSI. The strongest effects are observed in *Content Creation* and *Safety*, where both T1 and T2 significantly increased the share of participants reaching at least basic proficiency (by 20-28 percentage points) and above-basic proficiency (by 16-24 percentage points). Significant gains are also seen in *Problem-Solving*, particularly at the above-basic level. Improvements in *Information* are more modest, with a significant increase only in the share reaching basic proficiency. Results for *Communication* are not reported, as nearly all participants already had above-basic skills in this domain at baseline.

[37] Table A23 in Appendix D.2 presents an alternative specification of digital literacy outcomes, focusing on two aggregate measures: (i) achieving at least basic proficiency on the overall DSI index and (ii) attaining above-basic proficiency. T1 and T2 significantly increased the likelihood of reaching basic proficiency by 25 and 31 percentage points, respectively, and above-basic proficiency by 13 and 16 percentage points, with no significant differences between the two groups. Column (3) reports the total number of digital activities performed independently (out of 20). Both T1 and T2 significantly increased this measure by about 3.5 to 3.8 tasks, relative to a control mean of 12.1.

Table 3: Technology Adoption & Digital Skills

	(1)	(2)	(3)	(4)	(5)
	Technology adoption				Digital skills
	Tablet [0,1]	Devices [N]	Participant [0,6]	Children [0,5]	DSI [0,6]
Assigned T1	0.630**	0.693**	2.624**	1.875**	0.714**
	(0.034)	(0.069)	(0.216)	(0.172)	(0.124)
	[0.001]	[0.001]	[0.001]	[0.001]	[0.001]
Assigned T2	0.650**	0.814**	2.714**	1.874**	0.813**
	(0.033)	(0.085)	(0.232)	(0.168)	(0.120)
	[0.001]	[0.001]	[0.001]	[0.001]	[0.001]
Strata FE	✓	✓	✓	✓	✓
Lag Dep. Var.	✓	✓			✓
N	754	754	754	754	754
adjR^2	0.447	0.305	0.282	0.247	0.203
p-val(T2-T1)	0.482	0.078	0.712	0.992	0.482
Mean C	0.257	0.574	1.271	1.454	3.824
Sd C	0.438	0.805	2.087	1.942	1.344

Notes: Each regression includes strata fixed effects and, where available, the lag of the dependent variable (*Tablet*, *Devices*, and *DSI*). Standard errors are clustered at the class level. The variable *Tablet* is a binary indicator equal to 1 if the participant reports owning a tablet, and 0 otherwise. *Devices* is the total number of tablets and computers available at home. *Participant* measures the frequency of computer or tablet use by the participant, ranging from 0 (never) to 6 (several times a day). *Children* captures the average frequency with which up to two children use a computer or tablet at home, measured on a scale from 0 (never) to 5 (every day). *DSI* represents the Digital Skills Indicator, a composite index ranging from 1 (no skills) to 6 (above basic skills). The numbers in square brackets are sharpened False Discovery Rate (FDR) q-values computed using Benjamini et al. (2006) method for Multiple Hypothesis Testing (MHT). $^{+}$ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$.

tivity, coupled with training, successfully increased technology adoption and improved digital literacy. This suggests that barriers related to learning or relevance were effectively mitigated.

Digital parenting and social inclusion. Table 4 examines whether the intervention influenced digital parenting and social inclusion. Column (1) measures the frequency of parents using digital tools with their children for learning and monitoring school performance. T1 increased engagement by 0.43 standard deviations (SD), and T2 by 0.29 SD. Column (2) evaluates parents' confidence in guiding their children's online behavior. T1 increased self-efficacy by 0.56 SD, and T2 by 0.64 SD. In both cases, the difference between T1 and T2 is not significant, indicating that both training durations were similarly effective. Together, these results align with hypothesis H3a, suggesting that improved digital literacy enhances parental involvement and competence in supporting children's digital learning.

Columns (3) to (5) address social inclusion outcomes. Column (3) assesses "digital identity," defined as holding and using SPID (Italy's public digital identity). T1 increased the likelihood of SPID use by 15.8 percentage points, and T2 by 22.6 percentage points. Column (4) measures the access to online platforms for social security, health, tax, and child-related services. T1 increased usage by 0.65 points and T2 by 0.76 points. Column (5) measures whether participants submitted at least one application for benefits and income support in the past five months.[38] T1 increased applications by 12.5 percentage points, while T2 had a smaller, non-significant effect of 4.9 percentage points. These results support hypothesis H3b: digital literacy reduced barriers to public service access and income support.

[38] In this case, the lag of "New Application" captures the stock of past applications (1 if the participant previously applied for any measure), while the dependent variable reflects a change. Results remain consistent when excluding the lag.

Table 4: Digital Parenting & Social Inclusion

	(1)	(2)	(3)	(4)	(5)
	Digital Parenting		Social Inclusion		
	Engagement [Z-score]	Self Efficacy [Z-score]	Digital Identity [0,1]	Public Tools [0,4]	New Application [0,1]
Assigned T1	0.426**	0.563**	0.158**	0.650**	0.124**
	(0.120)	(0.107)	(0.049)	(0.197)	(0.038)
	[0.001]	[0.001]	[0.002]	[0.002]	[0.002]
Assigned T2	0.292**	0.644**	0.226**	0.758**	0.054
	(0.089)	(0.097)	(0.040)	(0.157)	(0.034)
	[0.002]	[0.001]	[0.001]	[0.001]	[0.012]
Strata FE	✓	✓	✓	✓	✓
Lag Dep. Var.					✓
N	754	754	754	754	754
adjR^2	0.083	0.171	0.151	0.150	0.076
p-val(T2-T1)	0.301	0.480	0.169	0.618	0.088
Mean C	0.000	0.000	0.356	0.891	0.137
Sd C	1.000	1.000	0.480	1.506	0.345

Notes: Each regression includes strata fixed effects and, where available, the lag of the dependent variable (*New Application*). Standard errors are clustered at the class level. The variable *Engagement* measures how frequently participants use digital tools with their children for education and entertainment and monitor their school performance via apps. It is standardized to have a mean of 0 and standard deviation of 1 in the control group. *Self-Efficacy* captures participants' confidence in guiding their children's digital behavior, including ensuring age-appropriate content, managing screen time, and finding online educational resources. This variable is standardized similarly to Engagement. *Digital Identity* is a binary indicator equal to 1 if the participant has an Italian public digital identity (SPID) and has used it autonomously in the past five months. *Public Tools* measures the number of public digital services the participant has accessed in the past five months, including social security, tax payments, health services, and child-related services. The variable ranges from 0 to 4. *New Application* is a binary indicator equal to 1 if the participant submitted at least one new application for an income support measure in the past five months. The numbers in square brackets are sharpened False Discovery Rate (FDR) q-values computed using Benjamini et al. (2006) method for Multiple Hypothesis Testing (MHT). $^{+}$ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$.

Labor market engagement. Table 5 evaluates labor market engagement. Columns (1) and (2) examine current behavior. Column (1) measures "openness to work"; neither T1 nor T2 had significant effects. Column (2) captures effort in job search; both effects are also insignificant. Column (3) measures the perceived probability of employment in the next 12 months (0-100 scale).[39] T1 increased this probability by 6.43 percentage points, and T2 by 6.58 points, both marginally significant. Column (4) captures the perceived probability of training. T1 increased this by 22.1 percentage points and T2 by 14.5 points. These findings partially support hypothesis H3c: training increased future labor market optimism but did not prompt immediate behavior changes, likely reflecting structural constraints.

Finally, regarding hypothesis H4, the comparison between T1 and T2 across all three tables provides no consistent evidence that the longer training produced stronger outcomes. While T2 had a slightly larger effect on device accumulation and digital identity, these differences are not statistically significant. Across other outcomes, both training formats led to similarly positive results. These findings suggest that providing basic digital skills training alongside device access is sufficient to improve technology adoption, digital literacy, parenting practices, social inclusion, and, to a lesser extent, labor market expectations—with limited additional benefits from the longer course.

[39] In this case, the lag of employment prospects is constructed from two baseline questions: one for employed participants (expectation of job loss, inverted) and one for non-employed participants (expectation of finding a job). Results without the lag do not change.

Table 5: Labor Market Engagement

	(1)	(2)	(3)	(4)
	Current Behavior		Future Expectations	
	Openness [0,1]	Effort [0,1]	Pr. Employment [0,100]	Pr. Training [0,100]
Assigned T1	-0.047	-0.001	6.431^{+}	22.106**
	(0.035)	(0.039)	(3.379)	(4.775)
	[0.308]	[0.574]	[0.121]	[0.001]
Assigned T2	-0.011	-0.043	6.575^{+}	14.514**
	(0.030)	(0.043)	(3.578)	(4.998)
	[0.348]	[0.177]	[0.187]	[0.016]
Strata FE	✓	✓	✓	✓
Lag Dep. Var.	✓		✓	✓
N	754	754	754	754
adjR^2	0.192	0.030	0.091	0.086
p-val(T2-T1)	0.309	0.129	0.971	0.221
Mean C	0.750	0.511	50.771	31.697
Sd C	0.434	0.501	32.659	29.868

Notes: Each regression includes strata fixed effects and, where available, the lag of the dependent variable (*Openness*, *Pr. Employment*, *Pr. Training*). Standard errors are clustered at the class level. The variable *Openness to Work* is a binary indicator equal to 1 if the participant is employed, actively seeking employment, or willing to work despite not currently looking. *Effort in Job Search* is a binary indicator equal to 1 if the participant engaged in activities to improve their labor market status, including updating their CV, consulting an employment service, or enrolling in a training program. *Perceived Probability of Employment* measures participants' self-reported likelihood (0-100) of being employed in 12 months. *Perceived Probability of Training* captures participants' self-reported likelihood (0-100) of enrolling in a skills development or training program in the next 12 months. The numbers in square brackets are sharpened False Discovery Rate (FDR) q-values computed using Benjamini et al. (2006) method for Multiple Hypothesis Testing (MHT). $^{+}$ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$.

4.4 Robustness checks

To assess the reliability of our findings, we conduct a comprehensive set of robustness checks, organized into six main categories. Except for the first analysis on interviewer effects, all robustness checks were specified in the pre-analysis plan. Full results are reported in Appendices D.3 and D.4.

First, to account for potential interviewer effects, we include fixed effects for the five enumerators who conducted the endline survey. Results are reported in Tables A24–A26. Coefficient estimates remain broadly consistent. The only notable exception appears in Table A26, where the estimates for labor market expectations decrease in magnitude and lose statistical significance, indicating that responses related to future employment may have been more influenced by differences in how enumerators conducted the interviews.[40] Second, we assess the potential for attrition bias by comparing baseline characteristics of respondents and non-respondents at endline. As shown in Tables A30–A32, attrition is not systematically correlated with treatment status or baseline covariates, suggesting that it is unlikely to bias our results.[41] Third, we restrict the analysis to specific subsamples. In Tables A33–A35, we focus exclusively on female participants, and in Table A36–A38, we restrict the sample to respondents who were rated by the enumerator as highly engaged with the interview. The results in both cases are consistent with those from the full sample. Fourth, we examine the sensitivity of results to course location. Tables A39–A41 control for whether participants were assigned to a course dif-

[40] We also control for participants' subjective evaluations of their enumerator (e.g., "Extremely engaged and sincere") in Tables A27–A29. The results are broadly similar.

[41] Across all outcomes—demographics, technological endowment, digital skills, parenting, labor market engagement, and social inclusion—differences are small in magnitude, and few are statistically significant. Based on these results, while the pre-analysis plan proposed applying Lee (2009) bounds to address potential attrition bias, the analysis shows that such corrections are unnecessary.

ferent from their stated preference. Tables A42–A44 control for variation across course locations. The results are again robust. Fifth, for two key outcomes that are important to understand spillovers to children—"Device usage" and "Engagement"—which are measured at the child level and averaged at the household level, we also re-estimate the effects using child-level data. Results (Tables A45 and A46) are fully consistent. Finally, to improve estimation precision, we apply Post-Double Selection Lasso (Belloni et al., 2013) to select relevant baseline covariates that are most predictive of each outcome. As reported in Tables A47–A49, the main results remain robust across domains, with the exception that all labor market effects become statistically insignificant, suggesting that these outcomes are more sensitive to model specification.

Overall, across these exercises, the main findings remain generally stable, with only minor variations in magnitude or statistical significance.

4.5 Possible Confounds

We now consider three potential sources of bias that could offer alternative explanations for our results: (i) spillover effects from treated participants to the control group, (ii) placebo effects from receiving a device, and (iii) non-compliance or heterogeneous take-up of the intervention. All three were specified in our pre-analysis plan.[42] Results from robustness checks addressing each concern are presented below and reported in Appendix D.5 and D.6.

Spillover Effects. A primary concern is that control participants might have indirectly benefited from the intervention by interacting with treated individuals—for example, through information sharing among peers or neighbors. Although randomization was conducted at the individual level, we took several steps to minimize the risk of contamination. Participants were geographically dispersed across Turin, and course scheduling and location preferences were used to form distinct clusters. Still, some participants may have applied together with friends and been assigned to different treatment arms. If spillovers occurred, they would likely bias estimates downward, attenuating the true treatment effects.

Because control participants did not attend training sessions, we cannot directly test for spillovers to the control group. However, we conduct a plausibly related robustness check by excluding participants assigned to course locations where T1 and T2 sessions were held consecutively on the same day (e.g., a T1 class from 9–11 AM followed immediately by a T2 class from 11 AM–1 PM). This restriction minimizes the risk of interaction between treated groups, reducing the potential for information diffusion or behavioral convergence between T1 and T2 participants. Although this check does not involve controls, it serves as an indirect test of whether close physical and temporal proximity among participants generates spillovers. Results are presented in Tables A50–A52. This restriction, which reduces the sample to 73% of its original size, leaves results largely unchanged.[43]

[42] We also pre-specified the possibility of Hawthorne effects—that participants may have altered their behavior simply because they knew they were being observed. However, this concern is unlikely to explain treatment-control differences, as all participants—regardless of assignment—were subject to the same data collection protocols and aware they were enrolled in a study. Any behavioral response due to observation should thus affect both groups equally.

[43] One notable change is observed in Table A52, where the estimated effects on perceived employment prospects increase in magnitude and become statistically significant. We do not have a clear explanation for this shift, and it may reflect random variation rather than a systematic pattern.

Placebo Effects from Device Provision. A second potential confound is that the positive outcomes observed may not reflect the impact of digital skills training per se, but rather the psychological or motivational effects of receiving a valuable good. If such effects influence reported or actual behaviors, they could inflate estimates of the causal effect of training.[44] While we cannot directly test this channel, we conduct a plausibly informative check by examining whether treatment effects vary according to participants' baseline access to digital technology. The rationale is that if placebo effects from receiving a device are driving the results, they should be *smaller* among those who already owned a device (i.e., for whom the novelty is reduced).

Tables A53–A58 report results from two specifications: one using a binary indicator for any pre-existing device ownership, and another using the total number of devices at baseline. Across most outcomes, the interaction terms are negative, indicating that participants with lower initial access experienced larger treatment effects. However, these interactions are statistically significant in only a small number of cases.[45] These results provide limited support for the idea that novelty or signaling effects alone explain the observed outcomes.

Non-Compliance and Heterogeneity of Attendance. A third potential confound arises from imperfect compliance with the assigned treatment. Participants may have failed to fully engage with the intervention—either by not enrolling, missing training sessions, or underusing the provided tablet. If low engagement is systematically related to unobserved characteristics (e.g., motivation, time constraints, or baseline skills), treatment estimates could be biased, especially if more motivated individuals are also more likely to attend and benefit. In practice, however, administrative data show high take-up across both treatment arms, suggesting that selective participation is unlikely to pose a major threat to internal validity.[46]

Following this reasoning, we use detailed attendance data to adjust for varying levels of program engagement and verify whether the intensity of participation affects outcomes. Specifically, we estimate treatment effects as a function of hours of attendance and its square, allowing for a non-linear (dose-response) relationship. As shown in Tables A62–A64, we find that the coefficient on attendance is consistently positive and significant, while the squared term is negative and significant—indicating diminishing returns to program intensity. Across most domains, the estimated optimal exposure ranges between 15 and 22 hours—just below the maximum dosage offered in T1 (18 hours) and well within the cap of T2 (30 hours)—suggesting that the majority of participants were exposed to a sufficiently effective intensity. Together, these patterns support the view that DigitALL's effectiveness is driven by active learning and meaningful engagement—not merely device receipt or assignment to treatment.

[44] This matters for external validity: if tablets alone could generate similar effects, the additional cost and effort of providing training might be unwarranted. Moreover, placebo responses may be especially salient for self-reported outcomes (e.g., perceived employment prospects or self-efficacy), if participants view device receipt as a signal of being valued or selected. This could upwardly bias reported improvements even in the absence of actual behavioral change.

[45] In Table A53, the T1 interactions for *Tablet* and *Children* are negative and significant. In Table A56, most interactions are negative but not statistically significant. In Table A57, only the interaction for *Self-efficacy* (T1) is significant. In Table A58, the interaction for *Openness* (T2) reaches significance.

[46] We also estimate treatment-on-the-treated (TOT) effects using random assignment as an instrument for actual enrollment. Results, presented in Tables A59–A61, show that TOT estimates are consistently larger than the ITT effects, reflecting an average take-up rate of about 80%. These findings confirm that meaningful improvements occurred among those who actually enrolled in the program—reinforcing that DigitALL's effectiveness depends on participation, not just assignment or access.

4.6 Heterogeneous Treatment Effects

To examine whether the effects of the intervention vary across key baseline characteristics, we explore heterogeneous treatment effects along five pre-specified dimensions by interacting the treatment indicators with the relevant baseline variables. The full set of results is reported in Appendix D.7.

First, we examine whether baseline digital proficiency moderates treatment effects (Tables A65–A67).[47] For most outcomes, the interaction terms are not significant, indicating that participants benefit similarly from the intervention regardless of initial skill levels. Second, we assess heterogeneity by age, education, and migration background (Tables A68–A76).[48] Notably, younger and non-Italian participants appear to benefit more in terms of technology adoption and employment-related outcomes. Third, we analyze whether employment status at baseline modifies treatment effects (Tables A77–A79).[49] While no significant interactions are observed in the adoption or parenting domains, labor market expectations show larger effects among those unemployed at baseline. Fourth, we explore whether pre-existing engagement in children's schooling moderates treatment effects (Tables A80–A82).[50] Although overall differences are modest, there is some indication that participants already active in school engagement may respond more strongly in labor market behavior. Finally, we test whether the presence of young children influences treatment impacts (Tables A83–A85). The presence of a child under six is associated with significantly larger effects on tablet and device ownership and participant usage.[51]

Taken together, these findings indicate that while the intervention was broadly effective, gains were larger among younger participants, those with a migration background, and those with young children—consistent with the intervention easing key constraints among more disadvantaged groups.

5 Mediation analysis

To deepen our understanding of how the intervention affects outcomes, we conduct a mediation analysis following the framework of Imai et al. (2010), Heckman and Pinto (2015) and Daniel et al. (2015). This approach allows us to identify and quantify the mechanisms through which access to technology and digital skills training influence behavioral and economic changes. Guided by the conceptual framework illustrated in Figure 4, we examine three distinct mediation pathways. All mediation pathways and estimation steps were specified in our pre-analysis plan. Panel 4a depicts two simple mediation models: one in which the treatment affects outcomes through technology adoption alone (M1), and another in which it operates through digital

[47] The heterogeneity variable is a binary indicator equal to 1 if the respondent's baseline digital skills index (predicted) is at least 4. The interaction term with *Tablet* (T1) is significant and negative in Table A65, while in Table A66 only *Self-efficacy* (T2) shows a significant negative interaction. In Table A67, the interaction for *Pr. employment* (T1) is large but not statistically significant.

[48] The age threshold is the sample median (39 years); education is measured as completing at least high school; migration status equals 1 for non-Italian participants. In Table A68, treatment effects on device accumulation and children's usage are stronger among younger participants (T1). Table A70 shows no significant differences, though coefficients are more often negative for older participants. Table A71–A73 report no significant interactions by education. In Table A74, treatment effects are significantly larger for non-Italians (T1) on *Tablet*, *Devices*, and *Participant*. Table A76 finds that T2 effects on *Effort* and *Pr. employment* are significantly stronger for non-Italians.

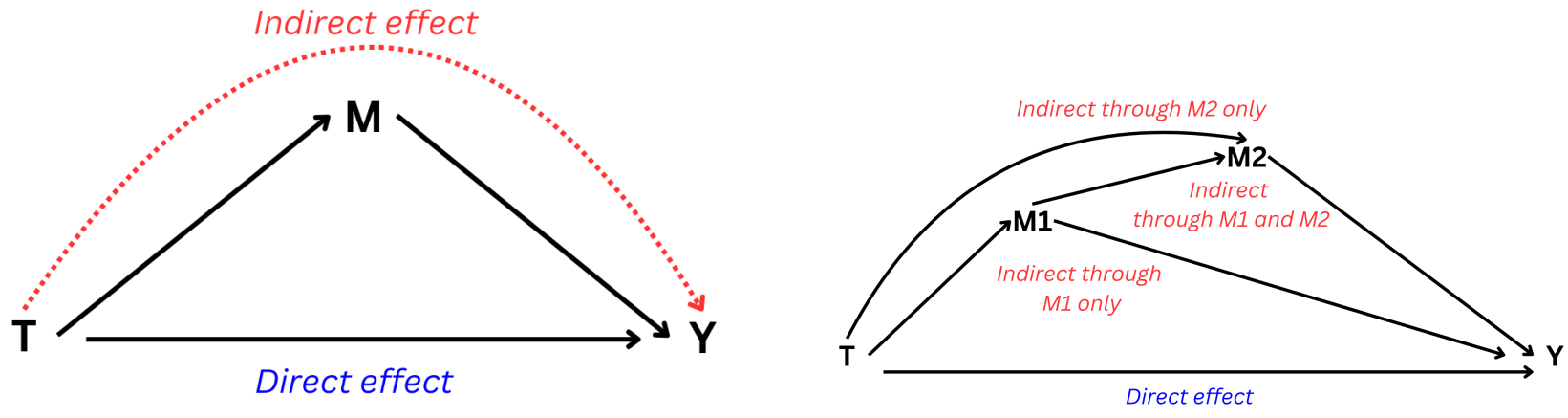
[49] The heterogeneity variable equals 1 if the respondent was employed at baseline. Results in Table A79 show a significant negative interaction for *Pr. training* (T2), indicating greater improvements in training prospects among those initially unemployed.

[50] The variable equals 1 if the respondent reported school-related engagement at baseline. While no interaction term is statistically significant, coefficients for *Effort* and *Pr. employment* (T1) in Table A82 are relatively large and positive.

[51] In Table A84, interaction terms are not significant, though T1 effects on *Digital Identity* and *Public Tools* are notably larger among households with young children. No significant heterogeneity is observed in Table A85.

skills (M2). Panel 4b illustrates the sequential model, where the treatment first enhances technology access (M1), which in turn enables the development of digital skills (M2), ultimately influencing broader outcomes. These models provide a roadmap for the empirical analysis that follows.

Figure 4: Mediation Pathways



(a) Simple Mediation Paths: M1 and M2

(b) Sequential Mediation Path: M1 → M2

Notes: Panel (a) illustrates the two simple mediation mechanisms: one where treatment influences outcomes via technology adoption (M1), and another where it operates via digital skills (M2). Panel (b) depicts the sequential mediation logic, in which the treatment first affects technology access (M1), which in turn enables improvements in digital skills (M2), ultimately affecting broader outcomes.

5.1 Simple Mediation Paths

Table 6 examines the extent to which technology adoption mediates the effect of the intervention on digital literacy. The mediation analysis decomposes the total treatment effect into direct effects (independent of technology adoption) and indirect effects (operating through increased technology use). The table reports the proportion of the treatment effect on digital literacy outcomes that is mediated through one of two measures of technology adoption: either tablet ownership or the number of devices at home.[52]

Overall, mediated effects range from modest to substantial depending on the outcome and the mediator. Tablet ownership accounts for a relatively large share of the effect on total skills (42%) and on reaching basic proficiency (43%), while its contribution to improving the overall DSI index is more limited (17%). In contrast, the number of devices at home mediates a smaller share of the effect, with point estimates ranging from 8% to 18% and weaker statistical significance. These patterns suggest that expanding access to technology is a relevant channel for improving digital skills—particularly through tablet provision—but also indicate that non-technological mechanisms, such as structured training, play an important complementary role.

Table 7 investigates to what extent digital literacy mediates the effect of the intervention on broader economic and parenting outcomes. To focus the analysis, we restrict attention to outcomes for which the total treatment effect was significant at the 10% level or better. Mediation effects are reported for one of two measures of digital proficiency: either the overall DSI index or the total number of digital skills acquired.[53] Results

[52] Mediation estimates are calculated following the procedure detailed in Appendix D.8. Specifically, we first estimate the total effect of treatment on digital skills (DSI_{ic}), then the effect of treatment on the mediator (A_{ic}), and finally the effect of the mediator on the outcome, controlling for treatment and allowing for interactions. Indirect effects are computed via simulation-based techniques, following Imai et al. (2010). In practice, we use the `mediate` command in Stata developed by Hicks and Tingley (2011), which implements the potential outcomes framework for causal mediation analysis. Interaction terms allow for heterogeneous returns to technology adoption across treatment groups.

[53] We estimate these effects using the approach described in Appendix D.8. As before, we first regress each outcome on treatment to obtain total effects, then model digital literacy as a mediator and include it in the outcome regression alongside treatment, allowing for interactions.

Table 6: Technology Adoption as a Mediator Between Treatment and Digital Literacy

	(1)	(2)	(3)	(4)
	Mediated Effect (%)			
Mediator ↓ *Outcome* →	DSI	Total Skills	DSI ≥ Basic	DSI = Above Basic
M1a: Tablet	17.0	42.0	42.8	17.6
p-value	0.21	0.00	0.00	0.45
M1b: Devices	7.8	17.6	8.4	13.6
p-value	0.24	0.02	0.29	0.33

Notes: Each row shows the percentage of the treatment effect on the listed outcome that is mediated through technology adoption. P-values indicate significance. Mediation effects are estimated via regressions detailed in Appendix D.8, controlling for one treatment assignment (T1 or T2) and strata fixed effects, with standard errors clustered at the class level. We examine different measures of digital skills as outcomes: *DSI* (overall digital skills index), *Total Skills* (total digital skills acquired), *DSI* ≥ *Basic* (proportion reaching at least basic proficiency), and *DSI* = *Above Basic* (proportion attaining above-basic proficiency). Similarly, we consider two measures of technology adoption as mediators: *Tablet* (tablet ownership) and *Devices* (total number of tablets and computers at home).

show that digital skills explain a substantial portion of the treatment effect on training participation (45–47%), suggesting that higher proficiency encourages further educational engagement. Social inclusion outcomes exhibit the strongest mediation, with 52–63% of the effect on digital identity and 55–70% on public service use operating through digital skills. For digital parenting, 31–43% of the effect on digital engagement and 27–34% on self-efficacy is mediated, underscoring the importance of digital capability in supporting children's learning. In contrast, mediation for welfare applications is limited (3–13%) and statistically insignificant, indicating that other constraints may play a larger role. Overall, these findings highlight digital literacy as a key mechanism behind the program's effects in multiple domains.

Table 7: Digital Literacy as a Mediator Between Treatment and Economic Outcomes

	(1)	(2)	(3)	(4)	(5)	(6)
	Mediated Effect (%)					
Mediator ↓ *Outcome* →	Pr. Training	Digital Identity	Public Tools	New Application	Engagement	Self-Efficacy
M1a: DSI	46.7	51.8	55.1	13.3	30.5	27.4
p-value	0.00	0.00	0.00	0.22	0.02	0.00
M1b: Total Skills	45.3	63.2	70.2	3.4	42.8	33.6
p-value	0.00	0.00	0.00	0.77	0.00	0.00

Notes: Each row represents the percentage of the treatment effect on the listed outcome that is mediated through digital literacy measures. P-values indicate the significance of mediation effects. Mediation effects are estimated via regressions detailed in Appendix D.8, controlling for one treatment assignment (T1 or T2) and strata fixed effects, with standard errors clustered at the class level. We examine different economic outcomes: *Pr. Training* captures participants' perceived probability of enrolling in a training program within the next 12 months. *Digital Identity* is a binary indicator equal to 1 if the participant possesses and has used an Italian public digital identity (SPID) in the past five months. *Public Tools* measures the number of online public services accessed, including social security, tax payments, and health services. *New Application* is a binary indicator equal to 1 if the participant submitted at least one application for a public income support measure in the past five months. *Engagement* captures how frequently parents use digital tools with their children for education and entertainment and monitor school performance via apps. *Self-Efficacy* reflects participants' confidence in guiding their children's digital behavior, including managing screen time and ensuring age-appropriate content. Similarly, we consider different measures of digital skills as mediators: *DSI* represents the overall digital skills index. *Total Skills* captures the total number of digital skills acquired.

5.2 Sequential Mediation Path

Table 8 decomposes the treatment effects into direct and indirect components, illustrating how the intervention operates through sequential mediation—first via improved access to technology (M1), then through enhanced digital skills (M2). This framework enables us to distinguish among four channels: (i) a direct component; (ii) indirect effects through technology access only; (iii) indirect effects through digital skills only; and (iv)

the sequential path from access to skills to outcomes.[54] The approach provides a structured way to quantify and differentiate these causal mechanisms, aligning with the core logic of the intervention: digital skills can only develop once participants gain access to technology, and skill acquisition subsequently enables broader economic and social behaviors. Compared to simpler mediation analyses, this strategy imposes stronger identifying assumptions but offers greater clarity in mapping multi-stage pathways.

Table 8: Sequential Mediation Analysis

	(1)	(2)	(3)	(4)	(5)	(6)
	Mediated Effect (%)					
Mediators ↓ *Outcome* →	Pr. Training	Digital Identity	Public Tools	New Application	Engagement	Self-Efficacy
Indirect Effect	28.8	84.2	63.8	32.9	76.2	38.0
p-value	0.03	0.00	0.00	0.17	0.00	0.00
M1 only (Tablet)	-15.1	34.5	16.3	17.5	33.5	6.8
p-value	0.18	0.05	0.27	0.44	0.06	0.46
M2 only (DSI)	35.9	40.7	38.9	12.6	34.9	25.5
p-value	0.00	0.00	0.00	0.09	0.00	0.00
M1 → M2	8.0	9.0	8.6	2.8	7.8	5.7
p-value	0.04	0.05	0.04	0.16	0.05	0.03
Direct Effect	71.2	15.8	36.2	67.1	23.8	62.0
p-value	0.00	0.50	0.06	0.01	0.33	0.00

Notes: The table decomposes the total treatment effect into mediated and direct components for six key outcomes. The total indirect effect is further disaggregated into three paths: (i) *M1 only* (tablet ownership only); (ii) *M2 only* (digital skills—DSI—only); and (iii) *M1 → M2* (sequential path via technology access followed by digital skills). Each row represents the percentage of the treatment effect on each outcome that is mediated through these paths. P-values indicate the statistical significance of each mediation component. Estimates are obtained using regressions described in Appendix D.8, controlling for treatment assignment (T1 or T2), with strata fixed effects and standard errors clustered at the class level. The six outcomes are the same as in Table 7.

The sequential mediation analysis reveals substantial heterogeneity across outcome domains in both the magnitude and composition of indirect effects. Social inclusion outcomes show the highest overall mediation: 84% of the treatment effect on digital identity and 64% of the effect on public tool usage are mediated. In both cases, approximately 9% of the effect follows the full sequential path—technology access leading to skill acquisition, which then influences the outcome. These findings suggest that access and skills work in tandem to facilitate online identification and interaction with digital public services. Parenting-related outcomes also display strong mediation: 76% of the effect on digital engagement with children and 38% on parental self-efficacy are mediated, with 8% and 6% respectively attributed to the sequential mechanism. These patterns highlight that both device access and skill development are important—neither is sufficient on its own—for enabling parents to support their children's digital learning.

Labor market expectations show more moderate mediated effects: 29% of the total effect is mediated, with 8% operating through the full sequence from access to skills to employment optimism. This suggests that perceived employability responds more to gains in digital capability than to access alone. In contrast, welfare-related outcomes (new benefit applications) exhibit weaker overall mediation (33%, of which only 3% is sequential), likely reflecting additional institutional or informational barriers that limit the extent to which improved digital inclusion translates into concrete administrative actions. Overall, these results reinforce the

[54] Sequential mediation effects are estimated following the methodology described in Appendix D.8. Letting T denote treatment assignment, A_{ic} technology adoption (M1), DSI_{ic} digital skills (M2), and Y_{ic} the outcome, we estimate four linked regressions: (1) a reduced-form model of Y_{ic} on T; (2) the effect of T on A_{ic}; (3) the effect of T and A_{ic} on DSI_{ic}, allowing for interactions; and (4) the full outcome model with T, A_{ic}, DSI_{ic}, and their interactions. The decomposition isolates the indirect effects through M1, M2, and the sequential M1→M2 path.

logic of the intervention: meaningful digital engagement depends not only on closing access gaps, but also on enabling skill development, with the combination proving most powerful across multiple domains.

6 Conclusion

This paper presents the first randomized controlled trial to jointly evaluate the effects of digital device access and digital skills training on the lives of low-income families in a high-income setting. Implemented in Turin, Italy, the DigitALL program provided disadvantaged households with a tablet, free internet access, and digital training of varying intensity. The intervention targeted both economic constraints—by providing equipment and connectivity—and learning barriers—through structured, tutor-led instruction. Our goal was to assess whether addressing both access and knowledge gaps could produce meaningful improvements in digital engagement, parental support, social inclusion, and labor market outlook.

The results demonstrate that basic digital inclusion policies can produce sizable and broad-based gains. One year after the intervention, participants in both training groups exhibited substantial improvements in digital proficiency and technology use. Many shifted from near-total exclusion to proficiency levels approaching the national average. Digital literacy also translated into more frequent and confident use of digital tools to support children's education and navigate public services. While employment outcomes did not improve in the short run, treated participants reported greater optimism about future training and employment opportunities. Notably, both the short and long courses produced similar impacts, suggesting that once foundational barriers are overcome, digital skills may improve autonomously.

Our mediation analysis confirms that these improvements occurred through both direct and sequential pathways: access to technology enabled skill acquisition, which in turn fostered behavioral change. Training enhanced parenting self-efficacy and public service use largely through gains in digital proficiency. However, the limited effects on welfare access and employment behavior indicate that digital skills alone may not be sufficient when institutional barriers or broader labor market constraints remain binding. These findings suggest that digital inclusion can be a powerful tool for promoting agency and inclusion, particularly when paired with user-friendly public infrastructure and complementary social policies.

Taken together, our findings provide strong support for integrating basic digital inclusion measures into anti-poverty strategies, especially in contexts where digital gaps mirror existing social inequalities. Future work should explore the long-term returns to such interventions and assess whether digital empowerment can catalyze more structural improvements in well-being. In particular, combining digital access programs with active labor market policies or public service reforms may help unlock their full potential. More generally, this study underscores the value of combining financial support with human capital investments to reduce persistent forms of exclusion in an increasingly digital world.

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Appendix

- **Appendix A:** The appendix also includes full curricula for both treatment arms.
- **Appendix B.1:** Summarizes the characteristics and motivations of enrolled participants before treatment. Provides aggregate statistics for the full baseline sample across domains of demographics, technology access, digital skills, children's education, and employment.
- **Appendix B.2:** Presents balance statistics across experimental groups to assess whether baseline characteristics were comparable before treatment began.
- **Appendix C:** Covers implementation metrics, attendance patterns, survey completion rates, and participant feedback.
- **Appendix D.1:** Contains a detailed documentation of each outcome domain.
- **Appendix D.2:** Presents a breakdown of digital literacy skills by domain and proficiency level.
- **Appendix D.3:** Presents a battery of robustness checks for the main endline results.
- **Appendix D.4:** Reports child-level regressions on device usage and parental engagement in digital activities.
- **Appendix D.5:** Presents robustness check to avoid spillover effects and heterogeneity by baseline technological endowment.
- **Appendix D.6:** Reports the results of 2 stage least square analysis.
- **Appendix D.7:** Reports the results of our heterogeneous treatment effects analysis.
- **Appendix D.8:** Presents the mediation analysis to decompose treatment effects on digital literacy and welfare outcomes through technology adoption and digital literacy.

A DigitALL: Content and Details

Table A1: Content Digitall T1

BASIC COURSE	MODE	CONTENT DESCRIPTION
LESSON 1: Smartphone and Wi-Fi router connection	In person	Definition of what a smartphone is, its operating system and components (screen, battery, SIM...), with particular focus on managing basic settings. Then, the focus shifts to connectivity between the smartphone and mobile Wi-Fi, learning how to handle some simple basic settings.
LESSON 2: Internet browsing and Play Store	In person	This module explains what the web is and how to browse it (searching with keywords, how to search for words, images, videos, and data), and how to manage browsing history. Then, it covers the app portal, the Play Store, and how to download an app while paying attention to reviews and PEGI ratings.
LESSON 3: Communicating with the school	In person	This lesson focuses on how to communicate effectively with your children's school using the online school register and how to navigate the school website. It covers the main features of the register: how to log in with the school account, how to monitor your child's academic progress, and how to stay updated via the message board.
LESSON 4: Tablet and Google Meet	In person	In this lesson, tablets are handed out, followed by a practical session on how to set up and manage basic settings. Then, it focuses on downloading the Google Meet app from the Play Store to learn how to join meetings for online lessons and manage webcam, microphone, and screen sharing.
LESSON 5: Meet and medical prescriptions	In person	A detailed review of Google Meet's function buttons to show how to switch between Meet and another application. Then, it covers Gmail: how email works and what makes up an email (recipient, sender, subject, body, signature, attachments, etc.). A practical exercise follows, where participants send a medical prescription request email with an attachment.
LESSON 6: Google Docs	In person	Introduction to Google Docs and its most important features: writing, text size, alignment, color, font, inserting images, and naming documents.
LESSON 7: Cloud and CV	Online	Explanation of what the cloud is ("cloud" of data and services accessible via the internet). A practical example with Google Drive is used to understand its purpose. Then, it explains how to back up the device, WhatsApp, and Google contacts (e.g., how saving contacts in Google makes them available across devices). It continues with an introduction to Europass for creating a CV and gives tips on how to job search.
LESSON 8: Security	Online	This lesson is dedicated to online security: explanation of cookies, their purpose, when it is useful to accept them and when not. It briefly discusses data regulations and privacy management on the device, and how to authorize consent for data processing on the tablet.
LESSON 9: Conclusion, certificate delivery and assessment	In person (grouped)	The final lesson focuses on verifying acquired skills through a jointly completed questionnaire and the distribution of participation certificates.

Notes: The table summarizes the content of the nine-module digital literacy course for T1 participants. Lessons focused on foundational skills in connectivity, communication, document creation, online safety, and use of public services.

Table A2: Content Digitall T2

INTERMEDIATE COURSE	MODE	CONTENT DESCRIPTION
LESSON 1: Smartphone and Wi-Fi router connection	In person	Identical to T1.
LESSON 2: Internet browsing and Play Store	In person	Identical to T1.
LESSON 3: Communicating with the school	In person	Identical to T1.
LESSON 4: Tablet and Google Meet	In person	Identical to T1.
LESSON 5: Meet and medical prescriptions	In person	Identical to T1.
LESSON 6: Google Docs	In person	Identical to T1.
LESSON 7: Advanced Google Docs	In person	Google Docs is explored in more depth through a more complex document-writing exercise: inserting titles, tables, and images.
LESSON 8: Cloud and CV	In person	Identical to T1.
LESSON 9: Security	In person	Identical to T1.
LESSON 10: Spreadsheet with Google Sheets	In person	Introduction to tables and basic functions (sum, multiplication) and managing the contents of a cell, including related references.
LESSON 11: Public administration	Online	How to make online applications and requests, access the digital health record, use PagoPA, and manage digital identity (with some topics introduced in person), such as summer camp applications and social services.
LESSON 12: Meeting with the employment center	Online	A session with employment service staff to explore digital skills and tools necessary for job searching.
LESSON 13: Social networks and safety for our children	Online	Social networks from a safety perspective, including an introduction to popular platforms used by children (such as Twitch and TikTok) and online gaming.
LESSON 14: Digital payments	Online	E-commerce, credit cards, online payments, online tickets, and online bill payments.
LESSON 15: Conclusion, certificate delivery and assessment	In person (grouped)	The final session is dedicated to reviewing the skills acquired through a questionnaire completed together and handing out certificates of participation.

Notes: The table summarizes the content of the fifteen-module digital literacy course for T2 participants. It expands on the basic course by adding in-depth modules on document editing, spreadsheets, online public services, job search, digital safety, and online transactions.

B Baseline Analysis

B.1 Details

Table A3: Reasons to Apply to DigitAll

	(1) Mean	(2) S.D.	(3) Min	(4) Max
To help my child with school and/or protect them online	0.51	0.50	0	1
To improve my digital skills	0.50	0.50	0	1
To access my rights and available assistance	0.24	0.43	0	1
To enhance my work situation	0.23	0.42	0	1
To have free internet for one year	0.18	0.39	0	1
To enrich family relationships and leisure	0.13	0.34	0	1
Number of reasons cited [1, 6]	1.79	1.02	1	6
Classrooms	102			
Observations	859			

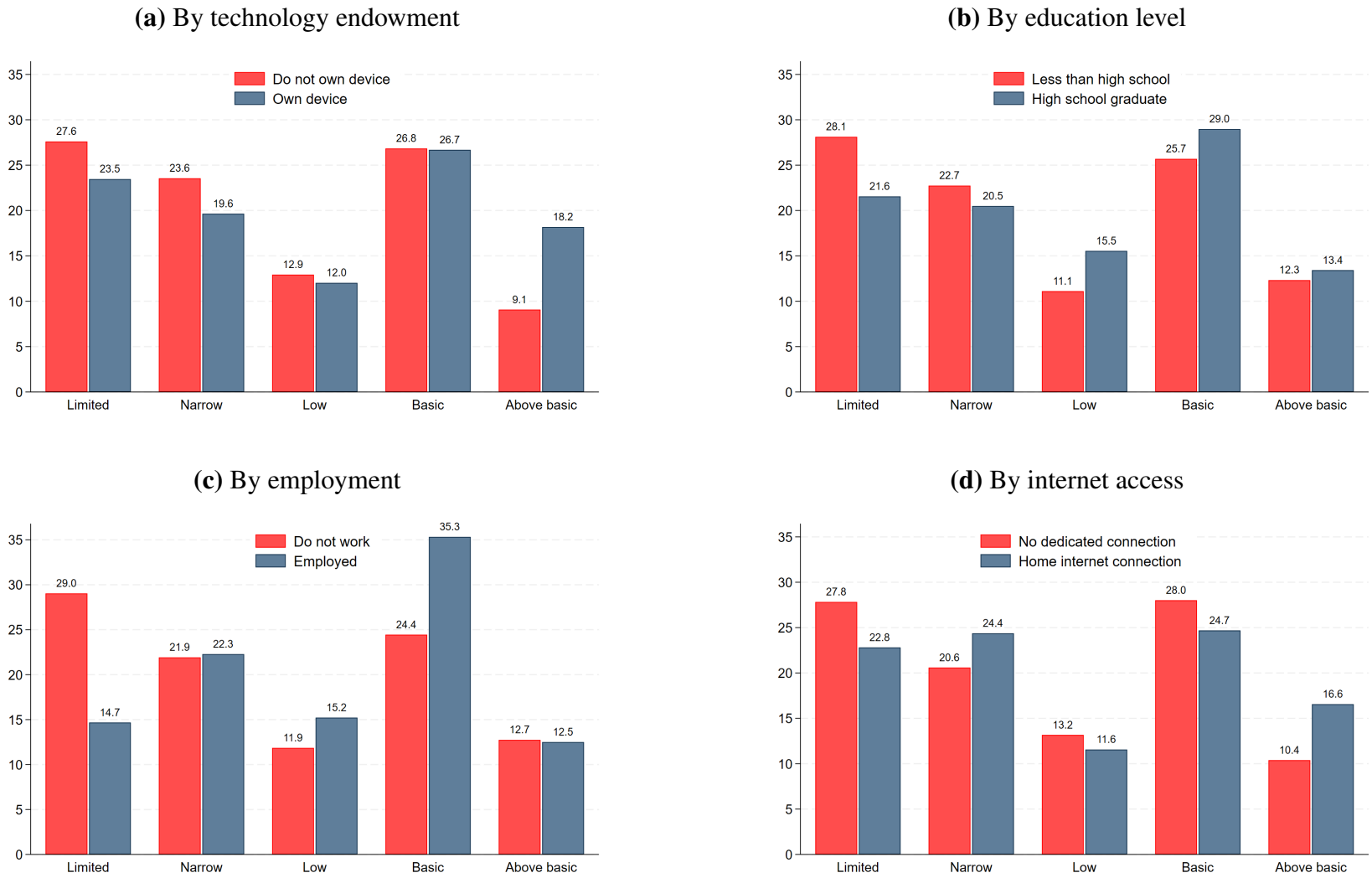
Notes: The Table reports the mean, standard deviation, minimum, and maximum values of some variables used in the paper. There is a total of 102 classrooms and 859 participants in our sample, living in Turin, Italy.

Table A4: Self-Reported Digital Activities

	(1) Mean	(2) S.D.	(3) Min	(4) Max
Used internet to send/receive emails (last 3 months)	0.74	0.44	0	1
Downloaded/installed software or apps (last 3 months)	0.53	0.50	0	1
Changed settings on software/apps/devices	0.37	0.48	0	1
Ordered goods/services online (last 3 months)	0.35	0.48	0	1
Restricted access to location data	0.34	0.48	0	1
Used internet to job search (last 3 months)	0.33	0.47	0	1
Copied/moved files between folders/devices	0.33	0.47	0	1
Denied use of personal data for ads	0.33	0.47	0	1
Used writing software on PC/tablet (last 3 months)	0.23	0.42	0	1
Edited photos, videos, or audio (last 3 months)	0.21	0.41	0	1
Used spreadsheets for calculations (last 3 months)	0.11	0.32	0	1
Changed browser settings (last 12 months)	0.08	0.27	0	1
Classrooms	102			
Observations	859			

Notes: The Table reports the mean, standard deviation, minimum, and maximum values of some variables used in the paper. There is a total of 102 classrooms and 859 participants in our sample, living in Turin, Italy.

Figure A1: (Predicted) Digital Skill Index (DSI)



Notes: The figure shows the distribution of predicted digital skill levels among applicants. To obtain these predictions, we applied bagging – a machine learning algorithm particularly suitable for categorical dependent variables – which allowed us to both select the best explanatory variables and combine their information to predict the DSI index. The out-of-sample performance of the prediction in the "pilot" dataset was very good: almost 90% of the observations were placed in the correct category. The results highlight that most fall below basic skills, with ownership of digital devices, higher education, employment, and internet access modestly associated with improved, but not advanced, skill levels.

Table A5: Anti-Poverty Measures Received (Past 12 Months): Drill Down

	(1) Mean	(2) S.D.	(3) Min	(4) Max
Social utility bill bonus (electricity, gas, water)	0.28	0.45	0	1
Citizenship income (RdC)	0.16	0.37	0	1
Healthcare ticket exemption	0.14	0.35	0	1
Shopping card (social card)	0.14	0.35	0	1
Unemployment benefit (NASpI)	0.05	0.23	0	1
Rent bonus	0.05	0.21	0	1
Nursery school bonus	0.02	0.14	0	1
Disabled child parent bonus	0.01	0.10	0	1
Telephone fee reduction	0.01	0.08	0	1
Other measures	0.03	0.16	0	1
Classrooms	102			
Observations	859			

Notes: The Table reports the mean, standard deviation, minimum and maximum values of some variables used in the paper. There is a total of 102 classrooms and 859 participants in our sample, living in Turin, Italy.

Table A6: Demographics, Technological Endowment, and Digital Skills

	(1) Mean	(2) Median	(3) S.D.	(4) Min	(5) Max
Individual and household characteristics:					
Female	0.92	1.00	0.28	0	1
Foreign background	0.70	1.00	0.46	0	1
Age	39.60	39.00	7.89	18	70
High school graduate	0.33	0.00	0.47	0	1
Houseold size	4.51	5.00	1.30	2	10
N adults (18+)	2.17	2.00	0.84	1	6
N children (0-17)	2.34	2.00	0.97	1	6
N children born 2006-2020	2.08	2.00	0.94	1	6
Houseperson	0.51	1.00	0.50	0	1
ISEE (€)	3838	3916	2421	0	8390
Technologial endowment:					
Own phone	1.00	1.00	0.05	0	1
N phone	2.30	2.00	0.97	0	11
Own tablet	0.21	0.00	0.41	0	1
N tablet	0.22	0.00	0.45	0	2
Own PC	0.28	0.00	0.45	0	1
N PC	0.32	0.00	0.61	0	5
Own PC or tablet	0.40	0.00	0.49	0	1
Internet used at home	0.62	1.00	0.49	0	1
Wi-fi at home	0.37	0.00	0.48	0	1
Digital skills:					
Index of digital skills (DSI) [1, 6]	3.78	4.00	1.41	2	6
N digital activities [1, 12]	3.95	3.00	3.29	0	12
Classrooms	102				
Observations	859				

Notes: The table displays the mean, median, standard deviation, minimum, and maximum values for the variables listed on the left. These variables encompass demographics, household characteristics, socio-economic indicators, technological access, and digital skills level (measured through the DSI index) and by the number of digital activities performed. There is a total of 102 classrooms and 859 participants in our baseline sample.

Table A7: Parental Involvement in Children's Education

	(1) Number	(2) Percentage	(3) Cumulative (%)
Help with homework:			
Never	176	23.37	23.37
Yearly	22	2.92	26.29
Monthly	67	8.90	35.19
Weekly	246	32.67	67.86
Daily	242	32.14	100.00
Total	753	100.00	
Check school app ("Registro elettronico"):			
Never	140	18.59	18.59
Yearly	19	2.52	21.12
Monthly	69	9.16	30.28
Weekly	172	22.84	53.12
Daily	353	46.88	100.00
Total	753	100.00	
Talk about school day:			
Never	20	2.35	2.35
Yearly	15	1.76	4.12
Monthly	50	5.88	10.00
Weekly	157	18.47	28.47
Daily	608	71.53	100.00
Total	850	100.00	
Communicate with teachers:			
Never	46	5.41	5.41
Yearly	113	13.29	18.71
Monthly	303	35.65	54.35
Weekly	228	26.82	81.18
Daily	160	18.82	100.00
Total	850	100.00	
Classrooms	102		
Observations	859		

Notes: The table reports frequencies of parental engagement in various educational activities, categorized by frequency of involvement: Never, Yearly, Monthly, Weekly, and Daily. Questions "Help with homework" and "Check school app" are asked to all applicants with children enrolled in compulsory education (from primary school on). Questions "Talk about school day" and "Communicate with teachers" are asked to all applicants with children in school (from preschool on). Percentages reflect the proportion of parents participating at each frequency level, illustrating overall engagement patterns in different aspects of their children's schooling. Items are originally categorized in Italian as "Mai o quasi mai," "Una o più volte all'anno," "Una o più volte al mese," "Una o più volte alla settimana," and "Tutti i giorni o quasi." There is a total of 102 classrooms and 859 participants in our baseline sample.

Table A8: Social Inclusion and Labor Market Engagement

	(1) Mean	(2) Median	(3) S.D.	(4) Min	(5) Max
Anti-poverty measures received (past 12 months):					
At least one welfare measure	0.53	1.00	0.50	0	1
N. measures received	0.88	1.00	1.05	0	5
Employment status and willingness to work:					
Employed	0.21	0.00	0.41	0	1
Looking for a job (past 4 weeks)	0.46	0.00	0.50	0	1
Looking for a job (past 4 weeks) (if not employed)	0.50	0.00	0.50	0	1
Would like to work (if not employed and not looking)	0.33	0.00	0.47	0	1
Never looked for a job	0.16	0.00	0.37	0	1
Open to work (if employed, looking or willing to work)	0.73	1.00	0.44	0	1
Perceptions of labor market outcomes (next 12 months):					
Finding a job (if not employed)	40.79	40.00	30.39	0	100
Loosing current job (if employed)	33.32	30.00	29.41	0	100
Training to acquire further qualifications	47.72	50.00	31.45	0	100
Main job search methods adopted (if ever searched):					
Friends, relatives, acquaintances	0.55	1.00	0.50	0	1
Private employment agency	0.29	0.00	0.46	0	1
Job advertisements	0.23	0.00	0.42	0	1
Public employment service	0.22	0.00	0.41	0	1
I contacted the employer directly	0.07	0.00	0.26	0	1
Training course, internship, or previous work experience	0.07	0.00	0.26	0	1
The employer contacted me directly	0.03	0.00	0.17	0	1
Other method	0.07	0.00	0.26	0	1
Classrooms	102				
Observations	859				

Notes: The table displays the mean, median, standard deviation, minimum, and maximum values for the variables listed on the left. These variables reflect participants' labor market engagement, job search methods, and dependence on anti-poverty measures. There is a total of 102 classrooms and 859 participants in our baseline sample.

B.2 Balancing Tables

Table A9: Demographics, Technological Endowment, and Digital Skills

	(1) C	(2) T1	(3) T2	(4) F-stat	(1)-(2) Normalized Difference	(1)-(3) Normalized Difference	(2)-(3) Normalized Difference
Individual and household characteristics:							
Female	0.92	0.92	0.92	0.02	0.01	0.01	0.00
	(0.02)	(0.02)	(0.02)	0.98			
Age	39.66	39.91	39.22	0.47	-0.01	0.02	0.03
	(0.47)	(0.54)	(0.63)	0.63			
High school graduate	0.32	0.33	0.34	0.11	-0.01	-0.01	-0.00
	(0.02)	(0.03)	(0.04)	0.89			
Employed	0.21	0.23	0.20	0.19	-0.02	0.00	0.02
	(0.03)	(0.04)	(0.04)	0.82			
Unemployed	0.27	0.25	0.25	0.18	0.01	0.02	0.00
	(0.03)	(0.03)	(0.02)	0.84			
Houseperson	0.51	0.49	0.52	0.09	0.01	-0.01	-0.01
	(0.03)	(0.05)	(0.05)	0.92			
Household size	4.50	4.45	4.59	0.72	0.01	-0.02	-0.03
	(0.07)	(0.09)	(0.10)	0.49			
N adults (18+)	2.15	2.14	2.22	1.02	0.00	-0.03	-0.03
	(0.05)	(0.04)	(0.06)	0.37			
N children (0-17)	2.35	2.32	2.36	0.14	0.01	-0.00	-0.01
	(0.06)	(0.08)	(0.07)	0.87			
N children born 2006-2020	2.08	2.08	2.08	0.01	-0.00	0.00	0.00
	(0.06)	(0.07)	(0.07)	0.99			
ISEE (€)	3825	3718	3974	1.23	0.01	-0.02	-0.03
	(135)	(126)	(135)	0.30			
Technological endowment:							
Own phone	1.00	0.99	1.00	1.09	0.04	.	-0.04
	(0.00)	(0.01)	(0.00)	0.34			
N phone	2.30	2.26	2.29	0.19	0.02	0.01	-0.01
	(0.05)	(0.07)	(0.06)	0.83			
Own tablet	0.21	0.21	0.21	0.01	-0.00	-0.00	-0.00
	(0.03)	(0.02)	(0.03)	0.99			
N tablet	0.22	0.23	0.22	0.09	-0.01	0.00	0.01
	(0.03)	(0.02)	(0.03)	0.91			
Own PC	0.26	0.31	0.28	1.18	-0.04	-0.01	0.02
	(0.03)	(0.03)	(0.03)	0.32			
N PC	0.28	0.37	0.34	2.23	-0.05*	-0.03	0.02
	(0.03)	(0.04)	(0.05)	0.12			
Own PC or tablet	0.38	0.41	0.42	0.37	-0.02	-0.02	-0.01
	(0.03)	(0.03)	(0.04)	0.69			
Internet used at home	0.61	0.62	0.63	0.21	-0.01	-0.01	-0.00
	(0.03)	(0.04)	(0.03)	0.81			
Wi-Fi at home	0.37	0.39	0.37	0.14	-0.01	-0.00	0.01
	(0.03)	(0.03)	(0.03)	0.87			
Digital skills:							
Index of digital skills (DSI) [1, 6]	3.78	3.76	3.81	0.08	0.01	-0.01	-0.01
	(0.09)	(0.11)	(0.10)	0.92			
N digital activities [1, 12]	3.97	3.87	4.00	0.01	0.01	-0.00	-0.01
	(0.18)	(0.28)	(0.21)	0.99			
Classrooms	337	262	260				
Observations	51	25	26				

Notes: The table presents balance statistics for key variables across three groups: C, T1, and T2. It reports mean values and clustered standard errors (at the classroom level) for each group. Column (4) displays the results of an F-test across all groups, along with the associated p-values for joint significance. Normalized differences are shown for the group comparisons in columns (1)-(2), (1)-(3), and (2)-(3). Observations are at the participant level, and each specification includes strata fixed effects. Significance levels are marked: $^{+}$ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$.

Table A10: Parental Involvement in Children's Education

	(1) C	(2) T1	(3) T2	(4) F-stat	(1)-(2)	(1)-(3)	(2)-(3)
					Normalized Difference		
Help with homework:							
Never	0.22	0.17	0.21	1.05	0.04	0.01	-0.03
	(0.02)	(0.04)	(0.03)	0.36			
Yearly	0.02	0.03	0.02	0.53	-0.02	0.01	0.03
	(0.01)	(0.01)	(0.01)	0.59			
Monthly	0.10	0.07	0.06	1.99	0.05*	0.05*	0.00
	(0.02)	(0.02)	(0.01)	0.15			
Weekly	0.27	0.28	0.31	0.38	-0.01	-0.03	-0.02
	(0.03)	(0.03)	(0.03)	0.69			
Daily	0.23	0.34	0.29	4.71*	-0.08**	-0.04	0.04
	(0.03)	(0.04)	(0.03)	0.01			
Talk about school:							
Never	0.02	0.03	0.01	1.10	-0.02	0.03	0.05
	(0.01)	(0.02)	(0.01)	0.34			
Yearly	0.03	0.00	0.02	3.84**	0.07*	0.02	-0.05
	(0.01)	(0.00)	(0.01)	0.03			
Monthly	0.08	0.04	0.05	1.79	0.07^{+}	0.05	-0.01
	(0.02)	(0.01)	(0.02)	0.18			
Weekly	0.18	0.18	0.19	0.07	0.00	-0.01	-0.01
	(0.02)	(0.03)	(0.03)	0.94			
Daily	0.67	0.73	0.73	1.81	-0.05^{+}	-0.05	0.00
	(0.03)	(0.04)	(0.04)	0.17			
Check school app ("Registro elettronico"):							
Never	0.17	0.17	0.15	0.35	-0.00	0.02	0.02
	(0.02)	(0.03)	(0.03)	0.71			
Yearly	0.03	0.02	0.02	0.34	0.02	0.02	-0.00
	(0.01)	(0.01)	(0.01)	0.71			
Monthly	0.06	0.08	0.10	1.18	-0.02	-0.05	-0.03
	(0.01)	(0.02)	(0.02)	0.32			
Weekly	0.21	0.19	0.20	0.34	0.02	0.00	-0.01
	(0.02)	(0.02)	(0.03)	0.72			
Daily	0.39	0.44	0.42	2.00	-0.04^{+}	-0.02	0.02
	(0.03)	(0.04)	(0.04)	0.15			
Communicate with teachers:							
Never	0.06	0.05	0.05	0.38	0.02	0.03	0.01
	(0.02)	(0.01)	(0.02)	0.68			
Yearly	0.14	0.13	0.13	0.13	0.01	0.01	-0.00
	(0.02)	(0.02)	(0.02)	0.88			
Monthly	0.36	0.34	0.36	0.19	0.02	0.00	-0.01
	(0.03)	(0.04)	(0.03)	0.82			
Weekly	0.27	0.27	0.25	0.43	0.00	0.02	0.02
	(0.03)	(0.03)	(0.02)	0.65			
Daily	0.15	0.21	0.21	2.60^{+}	-0.05	-0.05^{+}	-0.00
	(0.02)	(0.04)	(0.03)	0.09			
Classrooms	337	262	260				
Observations	51	25	26				

Notes: The table presents balance statistics for key variables across three groups: C, T1, and T2. It reports mean values and clustered standard errors (at the classroom level) for each group. Column (4) displays the results of an F-test across all groups, along with the associated p-values for joint significance. Normalized differences are shown for the group comparisons in columns (1)-(2), (1)-(3), and (2)-(3). Observations are at the participant level, and each specification includes strata fixed effects. Significance levels are marked: $^{+}$ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$.

Table A11: Social Inclusion and Labor Market Engagement

	(1) C	(2) T1	(3) T2	(4) F-stat	(1)-(2)	(1)-(3)	(2)-(3)
					Normalized Difference		
Anti-poverty measures received (past 12 months):							
At least one welfare measure	0.51	0.51	0.58	1.70	-0.00	-0.05^{+}	-0.05
	(0.03)	(0.04)	(0.04)	0.19			
N. measures received	0.87	0.77	0.99	2.33	0.04	-0.04	-0.07*
	(0.07)	(0.08)	(0.08)	0.11			
Employment status and willingness to work:							
Employed	0.21	0.23	0.20	0.19	-0.02	0.00	0.02
	(0.03)	(0.04)	(0.04)	0.82			
Looking for a job (past 4 weeks)	0.45	0.45	0.47	0.14	-0.00	-0.01	-0.01
	(0.02)	(0.03)	(0.04)	0.87			
Looking for a job (if not employed)	0.49	0.51	0.50	0.38	-0.02	-0.01	0.01
	(0.03)	(0.04)	(0.04)	0.68			
Would like to work (if not employed and not looking)	0.35	0.33	0.30	0.40	0.03	0.06	0.03
	(0.05)	(0.05)	(0.06)	0.68			
Never looked for a job	0.15	0.16	0.16	0.13	0.01	0.00	-0.01
	(0.02)	(0.03)	(0.03)	0.88			
Open to work (if employed, looking, or willing to work)	0.74	0.74	0.72	0.15	-0.01	0.01	0.02
	(0.03)	(0.03)	(0.04)	0.87			
Perceptions of labor market outcomes (next 12 months):							
Finding a job (if not employed)	39.48	45.52	37.87	4.02*	-0.08*	0.02	0.09*
	(1.98)	(3.00)	(2.35)	0.02			
Losing current job (if employed)	29.86	36.72	33.96	0.79	-0.14	-0.09	0.06
	(3.88)	(3.50)	(4.27)	0.46			
Training to acquire further qualifications	48.10	46.60	48.35	0.18	0.02	-0.00	-0.02
	(1.67)	(2.50)	(2.23)	0.83			
Main job search methods adopted (if ever searched):							
Friends, relatives, acquaintances	0.53	0.56	0.56	0.30	-0.02	-0.02	0.00
	(0.03)	(0.03)	(0.03)	0.74			
Private employment agency	0.29	0.26	0.33	1.32	0.03	-0.03	-0.05^{+}
	(0.03)	(0.03)	(0.04)	0.28			
Public employment service	0.19	0.24	0.24	1.82	-0.05	-0.05	0.00
	(0.03)	(0.03)	(0.03)	0.17			
Job advertisements	0.25	0.18	0.26	2.63^{+}	0.06	-0.01	-0.06^{+}
	(0.03)	(0.03)	(0.04)	0.08			
I contacted the employer directly	0.08	0.08	0.06	0.35	0.00	0.03	0.02
	(0.02)	(0.03)	(0.02)	0.70			
Training course, internship, or previous experience	0.06	0.09	0.07	0.37	-0.04	-0.02	0.02
	(0.02)	(0.03)	(0.02)	0.69			
The employer contacted me directly	0.04	0.04	0.03	0.48	-0.03	-0.02	0.01
	(0.01)	(0.01)	(0.01)	0.62			
Other method	0.08	0.09	0.05	1.63	-0.02	0.04	0.05^{+}
	(0.01)	(0.02)	(0.01)	0.21			
Classrooms	337	262	260				
Observations	51	25	26				

Notes: The table presents balance statistics for key variables across three groups: C, T1, and T2. It reports mean values and clustered standard errors (at the classroom level) for each group. Column (4) displays the results of an F-test across all groups, along with the associated p-values for joint significance. Normalized differences are shown for the group comparisons in columns (1)-(2), (1)-(3), and (2)-(3). Observations are at the participant level, and each specification includes strata fixed effects. Significance levels are marked: $^{+}$ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$.

C Midline Analysis

Table A12: Take-up of the assigned treatment and dropout

	Treatment 1		Treatment 2		Total	
	Participants	%	Participants	%	Participants	%
Dropout immediately	29	11.07	19	7.31	48	9.20
Dropout before session 1	16	6.11	21	8.08	37	7.09
Dropout after tablet	1	0.38	8	3.08	9	1.72
Finish w/o diploma	3	1.15	7	2.69	10	1.92
Diploma	213	81.30	205	78.85	418	80.08
Total	262	100.00	260	100.00	522	100.00

Notes: The table details the number and percentage of participants who dropped out immediately after being notified the assignment, those who dropped out before the first session, and those who dropped out after receiving the tablet. The table also shows the number of participants who completed the course without earning a diploma and the majority who successfully earned the diploma by attending the required number of sessions.

Table A13: Takeup on Individual and Household Characteristics

	Enrollment			Diploma		
	All	T1	T2	All	T1	T2
Female	0.07	0.14	-0.06	0.12	0.19^{+}	-0.03
	(0.07)	(0.10)	(0.11)	(0.08)	(0.11)	(0.12)
Foreign background	0.03	0.08	-0.04	0.00	0.09	-0.11^{+}
	(0.04)	(0.06)	(0.05)	(0.04)	(0.06)	(0.06)
Age	0.00	0.00	-0.00	0.00	0.01	-0.00
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
High school graduate	0.06^{+}	0.11*	0.01	0.06^{+}	0.12*	0.01
	(0.03)	(0.04)	(0.05)	(0.04)	(0.05)	(0.05)
N adults (18+)	-0.01	0.00	-0.02	-0.02	0.00	-0.03
	(0.02)	(0.03)	(0.03)	(0.02)	(0.03)	(0.03)
N children (0-17)	0.05*	0.06*	0.03	0.03	0.05^{+}	-0.00
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.03)
ISEE (€)	0.01^{+}	0.02^{+}	0.01	0.01	0.02^{+}	0.01
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Unemployed	-0.01	-0.01	-0.02	0.01	-0.03	0.02
	(0.04)	(0.06)	(0.05)	(0.04)	(0.06)	(0.06)
Employed	-0.12^{+}	-0.09	-0.18^{+}	-0.12^{+}	-0.07	-0.21^{+}
	(0.05)	(0.07)	(0.08)	(0.05)	(0.07)	(0.08)
Own PC or tablet	0.00	-0.03	0.04	0.02	-0.06	0.10*
	(0.03)	(0.05)	(0.05)	(0.04)	(0.05)	(0.05)
Wi-Fi at home	-0.06	-0.00	-0.12^{+}	-0.06	0.03	-0.16*
	(0.04)	(0.05)	(0.05)	(0.04)	(0.05)	(0.06)
Mean Dep. Var.	0.84	0.83	0.85	0.80	0.81	0.79
Adjusted R^2	0.04	0.05	0.03	0.03	0.05	0.06
Observations	522	262	260	522	262	260

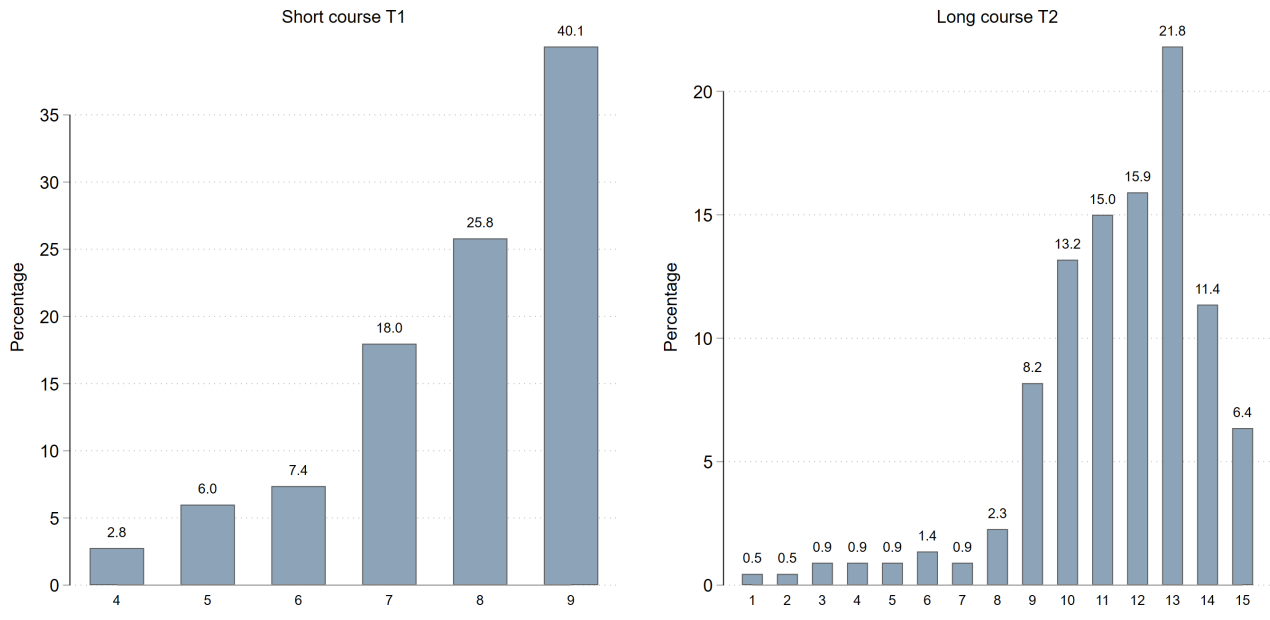
Notes: OLS regressions of "Enrollment" (yes or no) and "Diploma" (yes or no) on the variables reported on the left hand side. The table provides information about the relationship between various individual or household characteristics and the likelihood of enrolling in the program or obtaining a diploma. $^{+}$ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$.

Table A14: Attendance among applicants who enrolled

	T1		T2	
	Mean Attendance	Participants	Mean Attendance	Participants
Attend session 1	0.92	199	0.85	186
Attend session 2	0.92	200	0.87	192
Attend session 3	0.86	186	0.87	191
Attend session 4	0.97	211	0.86	190
Attend session 5	0.90	195	0.89	195
Attend session 6	0.81	175	0.74	162
Attend session 7	0.81	175	0.72	158
Attend session 8	0.76	164	0.74	163
Attend session 9	0.85	184	0.66	144
Attend session 10	.	.	0.66	145
Attend session 11	.	.	0.67	147
Attend session 12	.	.	0.64	141
Attend session 13	.	.	0.72	158
Attend session 14	.	.	0.78	171
Attend session 15	.	.	0.80	175
Observations	217		220	

Notes: The table reports attendance rates and the number of participants for T1 and T2.

Figure A2: Number of Sessions Attended



Notes: The figure shows the percentage of sessions attended by participants in T1 and T2. The maximum number of sessions T1 can attend is 9. The maximum number of sessions T2 can attend is 15.

Table A15: Feedback on the Program

	T1			T2		
	Mean	Median	SD	Mean	Median	SD
Satisfaction with each component [1, 5] :						
Appreciation for tablet	4.74	5	0.72	4.68	5	0.73
Appreciation for internet connection	4.67	5	0.82	4.64	5	0.83
Appreciation for course	4.70	5	0.70	4.76	5	0.60
Would recommend to a friend [1, 10]	9.03	10	1.92	9.38	10	1.27
How much do you agree [1, 5]						
Thanks to the course, I learned how to use the tablet	4.49	5	0.79	4.58	5	0.73
The course has improved the way I use my smartphone	4.55	5	0.69	4.62	5	0.62
The teacher explained in a clear way	4.81	5	0.60	4.87	5	0.40
The tutor helped me follow the course well	4.79	5	0.56	4.79	5	0.58
I made friends with classmates	4.05	4	1.14	4.47	5	0.90
The classrooms were comfortable	4.62	5	0.75	4.66	5	0.54
Observations	172			176		

Notes: The table displays the mean, and standard deviation for the variables listed on the left, for both T1 and T2 treatment groups.

Table A16: Reasons to avoid purchase

	Mean	Median	SD	Sum
Tablet:				
It was too expensive	0.60	1	0.49	143
I did not know how to use it	0.24	0	0.43	57
I did not need it	0.22	0	0.42	53
I did not know what it was	0.05	0	0.22	12
We had one, but it was broken	0.03	0	0.18	8
My partner did not agree with the purchase	0.02	0	0.13	4
Observations	238			
Better internet connection:				
It was too expensive	0.56	1	0.50	76
Until recently, I did not need it that much	0.29	0	0.46	40
I did not know how to do it	0.18	0	0.38	24
My partner did not agree with the purchase	0.04	0	0.19	5
Observations	136			

Notes: The table displays the mean, median, and standard deviation for the variables listed on the left, for both T1 and T2 treatment groups.

D Endline Analysis

D.1 Primary Outcomes: details

Table A17: Technology Adoption

Survey Question	Answer Options
Device Ownership	
Do you have a tablet?	No / Yes
How many smartphones, tablets, and PCs does your family use?	Actual number
Participant's Device Usage	
How often do you use the computer and/or tablet you have at home?	Never (0) Less than once a month (1) Once or more a month (2) Once a week (3) Several times a week (4) Every day (5) Several times a day (6)
Children's Device Usage	
How often does [Name], who is [Number] years old, use the computer and/or tablet you have at home?	Never (0) Less than once a month (1) Once or more a month (2) Once a week (3) Several times a week (4) Every day (5)

Notes: The table summarizes the questions used to construct the technology adoption outcomes reported in the main analysis. Children's device usage was recorded for up to two children per household, with a focus on those in primary and lower secondary school.

Table A18: Digital Literacy Skills (DSI)

Survey Question	Answer Options
In the past 3 months, have you used Internet for the following communication activities?	
Send or receive emails	No / Yes
Make voice or video calls over the internet	No / Yes
Use instant messaging services	No / Yes
Participate in social networks	No / Yes
Express opinions on social or political issues through websites or social media	No / Yes
Participate in online consultations or voting on social (civic) or political issues	No / Yes
In the past 3 months, have you used the Internet (via smartphone, computer, etc.) to:	
Read newspapers, magazines	No / Yes
Search for health-related information	No / Yes
Look for a job or send a job application	No / Yes
Use banking services	No / Yes
Sell goods or services through websites or apps	No / Yes
Search for information about goods or services	No / Yes
Have you ever bought goods/services for personal use on websites or through apps?	Yes, in last 3 months Yes, from 3 months to 1 year ago Yes, more than a year ago Never
In the last 3 months, have you performed online training for educational, professional or personal reasons?	
Take an online course	No / Yes
Use online educational material, excluding full courses (video tutorials, webinars)	No / Yes
In the last 3 months, have you carried out the following actions?	
Copy or move files between folders, devices or on cloud services	No / Yes
Download or install software or apps	No / Yes
Modify software, app, or device settings (e.g., brightness, colors, font size)	No / Yes
In the last 3 months, have you performed the following actions?	
Use word processing software	No / Yes
Create files that contain different elements, such as text, images, tables	No / Yes
Use software to edit photos, videos, or audio	No / Yes
Use spreadsheets for calculations	No / Yes
Use advanced spreadsheet functions to analyze and modify data	No / Yes
Write a program using a programming language (coding)	No / Yes
Have you come across false or doubtful info online in the last 3 months?	No / Yes
Have you verified the authenticity of the information?	No / Yes
How did you verify the authenticity of such information?	
Verifying the sources or consulting other online content (e.g., news sites, Wikipedia)	No / Yes
Participating in online discussions on the topic	No / Yes
Discussing offline with others or using non-internet sources	No / Yes
Why didn't you verify the authenticity of the information you believed to be false or doubtful?	Already aware of its unreliability Other reasons
In the last 3 months, which of the following actions have you taken to manage access to your personal data?	
Read privacy policies before providing personal data	No / Yes
Limit or deny access to your geographic location	No / Yes
Limit access to your profile or content on social networks or cloud services	No / Yes
Deny the use of personal data for advertising purposes	No / Yes
Verify the security of websites before providing personal data	No / Yes
Have you ever changed your browser settings to limit or prevent cookies?	No / Yes

Notes: This table reports the questions used to construct the Digital Skills Indicator (DSI), following the structure of the Eurostat digital skills module. Answers are coded as binary unless otherwise specified. Only actions performed in the last 3 months are included in the main index, in line with Eurostat standards.

Table A19: Digital Parenting

Survey Question	Answer Options
Engagement	
Think about [Name] who is [Number] years old. How often...	
Do you check their electronic register (or the kindergarten app)?	Never (0) Less than once a month (1) Once or more a month (2) Once a week (3) Several times a week (4) Every day (5) Not applicable (99)
Do you use computers, tablets, or smartphones together to play games, watch movies/videos, or do other recreational activities?	Never (0) Less than once a month (1) Once or more a month (2) Once a week (3) Several times a week (4) Every day (5) Not applicable (99)
Do you use computers, tablets, or smartphones together to learn new things (for school or personal curiosity)?	Never (0) Less than once a month (1) Once or more a month (2) Once a week (3) Several times a week (4) Every day (5) Not applicable (99)
Self-Efficacy	
Accompanying your children in the digital world is often a difficult task. Think about all your children. How much do you agree with the following statements?	
I supervise my children online to ensure they access age-appropriate content (e.g., using parental controls).	Strongly disagree (1) Disagree (2) Neither agree nor disagree (3) Agree (4) Strongly agree (5)
I am able to manage the time my children spend online and limit it if necessary.	Strongly disagree (1) Disagree (2) Neither agree nor disagree (3) Agree (4) Strongly agree (5)
I know how to search the internet for useful information to help my children with school or other activities.	Strongly disagree (1) Disagree (2) Neither agree nor disagree (3) Agree (4) Strongly agree (5)
Knowledge	
Do you know if there is a minimum age to have a profile on major social networks (e.g., TikTok, Twitch, Instagram, Facebook)?	Yes, it is [Number] I'm not sure, but I think it's [Number] There is no minimum age, just register on the site I have no idea
What is the maximum recommended daily screen time by Italian pediatricians for children aged 5 to 8?	Yes, it is [Number] I'm not sure, but I think it's [Number] I have no idea

Notes: The table summarizes the survey questions used to construct digital parenting outcomes. *Engagement* captures digital interaction with children. *Self-Efficacy* measures confidence in guiding children online. *Knowledge* checks factual awareness of digital rules and recommendations.

Table A20: Social Inclusion

Survey Question	Answer Options
Use of Digital Identity	
Do you have the SPID (digital identity for accessing public administration services)?	No / Yes
Have you used it in the last 5 months, starting from June 2024?	No Yes, with help (family member, friend, CAF) Yes, by myself
Digital Inclusion (Use of Online Public Services)	
In the last 5 months (since June 2024), have you done any of these things online, either by yourself or with someone else's help?	
Visit the INPS website (e.g., to download a certificate)	No Yes, with help Yes, by myself
Make a payment on pagoPA (e.g., tax or fine)	No Yes, with help Yes, by myself
Use the "Salute Piemonte" portal (e.g., to book medical appointments)	No Yes, with help Yes, by myself
Enroll children in a summer camp online (e.g., "Estate Ragazzi" of Turin)	No Yes, with help Yes, by myself
Application to Income Support Measures	
In the last 5 months (since June 2024), have you applied for any public economic support measure? Please answer yes even if you have not yet received it.	Unemployment benefit (NASpI) Inclusion allowance (Adi) Universal Family Allowance (AUU) Purchase card (social card) Social bill bonuses (electricity, gas, water) Nursery school bonus Bonus for parents of disabled children Bonus rent Reduction of telephone bills Health ticket exemption Other measures I don't know / I don't remember I haven't applied for any measure

Notes: The table summarizes the survey items used to measure social inclusion outcomes. These include digital identity possession and use, access to online public services (e.g., INPS, healthcare, payments, and summer programs), and applications for economic support measures. Responses distinguish between independent use and use with assistance.

Table A21: Labor Market Engagement

Survey Question	Answer Options
Openness to Work	
Currently, what is your main occupation?	Employed – Part-time Employed – Full-time Not Employed – Homemaker Not Employed – Unemployed, Inactive, Recipient of Active Policies Not Employed – Student Retired – Old-age Retired – Invalid
Have you looked for work in the last 4 weeks?	No / Yes
Would you like to work even if you are not looking for a job?	No / Yes
Active Effort	
In the last 5 months, since June 2024, have you written or updated your CV?	No / Yes
In the last 5 months, since June 2024, have you been to a job agency (APL) or employment center (CPI)?	No / Yes
Employment Prospects	
Think about your life over the next 12 months and the changes in your employment situation that could occur. How likely do you think it is that you will have paid work in one year? Please respond with a number from 0 to 100 to indicate how likely you think it is that you will have a job in one year. Remember that values close to 0 mean that you do not expect to have a job, while values close to 100 mean that you expect to have a job. Values close to 50 mean that you could either have one or not, and you are very uncertain between the two possibilities.	0 (not at all likely) to 100 (certain)
Training Prospects	
Keep thinking about your life over the next 12 months. How likely do you think it is that you will attend one or more courses or seminars in the next year to gain further training or a new qualification? Please respond with a number from 0 to 100 to indicate how likely you think it is.	0 (not at all likely) to 100 (certain)

Notes: The table summarizes the survey questions used to construct the labor market engagement outcomes. *Openness to Work* combines employment status and willingness to work. *Active Effort* includes actions taken to improve job prospects.

D.2 Breakdown of digital literacy

Table A22: Digital Literacy Skills by Domains

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Information		Content Creation		Safety		Problem Solving	
	≥Basic [0,1]	Above Basic [0,1]	≥Basic [0,1]	Above Basic [0,1]	≥Basic [0,1]	Above Basic [0,1]	≥Basic [0,1]	Above Basic [0,1]
Assigned T1	0.054*	-0.006	0.206**	0.166**	0.265**	0.201**	0.069*	0.189**
	(0.023)	(0.031)	(0.046)	(0.046)	(0.047)	(0.049)	(0.028)	(0.055)
Assigned T2	0.053*	0.053+	0.248**	0.191**	0.283**	0.199**	0.071**	0.239**
	(0.025)	(0.031)	(0.047)	(0.041)	(0.044)	(0.043)	(0.026)	(0.044)
Strata FE	✓	✓	✓	✓	✓	✓	✓	✓
Lag Dep. Var.								
N	754	754	754	754	754	754	754	754
adjR^2	0.010	0.035	0.134	0.098	0.110	0.101	0.081	0.119
T2-T1	-0.001	0.059	0.042	0.025	0.018	-0.002	0.002	0.050
p-val(T2-T1)	0.975	0.081	0.430	0.639	0.695	0.975	0.933	0.342
Mean C	0.894	0.845	0.437	0.169	0.525	0.384	0.842	0.500
Sd C	0.308	0.362	0.497	0.375	0.500	0.487	0.366	0.501

Notes: Each regression includes strata fixed effects. Standard errors are clustered at the class level. The table breaks down the impact of the intervention across four key domains of digital literacy: "Information Management," "Content Creation," "Safety," and "Problem-Solving." Results for *Communication* are not reported, as nearly all participants already had above-basic skills in this domain at baseline. Each domain is evaluated based on whether participants reached at least basic proficiency (≥ Basic) or advanced proficiency (Above Basic), following the classification of the Digital Skills Indicator (DSI). The *Information* domain captures the ability to search for, assess, and manage online information. *Content Creation* measures participants' capacity to produce, edit, and manage digital content. *Safety* reflects their ability to protect personal data, manage cybersecurity risks, and navigate privacy settings. *Problem-Solving* assesses their ability to use digital tools efficiently to complete tasks and troubleshoot issues. $^{+}$ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$.

Table A23: Digital Literacy Skills: Alternative Outcomes

	(1)	(2)	(3)
	Skills Index		Activities Performed
	DSI ≥ Basic [0,1]	DSI = Above Basic [0,1]	Count [N]
Assigned T1	0.253**	0.130**	3.449**
	(0.045)	(0.042)	(0.697)
Assigned T2	0.311**	0.163**	3.770**
	(0.044)	(0.039)	(0.614)
Strata FE	✓	✓	✓
Lag Dep. Var.			
N	754	754	754
adjR^2	0.152	0.107	0.220
T2-T1	0.059	0.034	0.321
p-val(T2-T1)	0.220	0.492	0.683
Mean C	0.306	0.127	12.085
Sd C	0.462	0.333	5.846

Notes: Each regression includes strata fixed effects. Standard errors are clustered at the class level. The variable *DSI ≥ Basic* is a binary indicator equal to 1 if the participant achieved at least basic proficiency on the Digital Skills Indicator (DSI), and 0 otherwise. *DSI = Above Basic* is a binary indicator equal to 1 if the participant attained above-basic proficiency on the DSI. *Activities Performed* represents the number of digital tasks the participant reported completing independently, with a possible range of 0 to 20. This measure captures practical engagement with digital tools, complementing the proficiency-based indicators. $^{+}$ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$.

D.3 Robustness checks

D.3.1 Interviewer dummies

Table A24: Technology Adoption & Digital Skills

	(1)	(2)	(3)	(4)	(5)
	Technology adoption				Digital skills
	Tablet [0,1]	Devices [N]	Participant [0,6]	Children [0,5]	DSI [0,6]
Assigned T1	0.677**	0.696**	2.809**	2.023**	0.570**
	(0.034)	(0.071)	(0.214)	(0.160)	(0.137)
Assigned T2	0.688**	0.816**	2.852**	1.974**	0.723**
	(0.033)	(0.084)	(0.215)	(0.156)	(0.125)
Strata FE	✓	✓	✓	✓	✓
Lag Dep. Var.	✓	✓			✓
Interviewer FE	✓	✓	✓	✓	✓
N	753	753	753	753	753
adjR^2	0.453	0.306	0.329	0.270	0.263
T2-T1	0.011	0.120	0.043	-0.050	0.153
p-val(T2-T1)	0.673	0.101	0.842	0.713	0.239
Mean C	0.258	0.576	1.276	1.459	3.823
Sd C	0.438	0.806	2.089	1.944	1.346

Notes: Robustness check including interviewer fixed effects. Each regression includes strata fixed effects and, where available, the lag of the dependent variable (*Tablet*, *Devices*, and *DSI*). Standard errors are clustered at the class level. The variable *Tablet* is a binary indicator equal to 1 if the participant reports owning a tablet, and 0 otherwise. *Devices* is the total number of tablets and computers available at home. *Participant* measures the frequency of computer or tablet use by the participant, ranging from 0 (never) to 6 (several times a day). *Children* captures the average frequency with which up to two children use a computer or tablet at home, measured on a scale from 0 (never) to 5 (every day). *DSI* represents the Digital Skills Indicator, a composite index ranging from 1 (no skills) to 6 (above basic skills). $^{+}$ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$.

Table A25: Digital Parenting & Social Inclusion

	(1)	(2)	(3)	(4)	(5)
	Digital Parenting		Social Inclusion		
	Engagement [Z-score]	Self Efficacy [Z-score]	Digital Identity [0,1]	Public Tools [0,4]	New Application [0,1]
Assigned T1	0.561**	0.312**	0.064	0.362*	0.132**
	(0.092)	(0.085)	(0.059)	(0.181)	(0.040)
Assigned T2	0.378**	0.373**	0.124*	0.404**	0.067^{+}
	(0.087)	(0.096)	(0.050)	(0.142)	(0.038)
Strata FE	✓	✓	✓	✓	✓
Lag Dep. Var.					✓
Interviewer FE	✓	✓	✓	✓	✓
N	753	753	753	753	753
adjR^2	0.196	0.273	0.182	0.264	0.098
T2-T1	-0.183	0.061	0.060	0.043	-0.064
p-val(T2-T1)	0.062	0.363	0.162	0.763	0.108
Mean C	-0.002	0.002	0.357	0.894	0.138
Sd C	1.001	1.001	0.480	1.507	0.345

Notes: Robustness check including interviewer fixed effects. Each regression includes strata fixed effects and, where available, the lag of the dependent variable (*New Application*). Standard errors are clustered at the class level. The variable *Engagement* measures how frequently participants use digital tools with their children for education and entertainment and monitor their school performance via apps. It is standardized to have a mean of 0 and standard deviation of 1 in the control group. *Self-Efficacy* captures participants' confidence in guiding their children's digital behavior, including ensuring age-appropriate content, managing screen time, and finding online educational resources. This variable is standardized similarly to Engagement. *Digital Identity* is a binary indicator equal to 1 if the participant has an Italian public digital identity (SPID) and has used it autonomously in the past five months. *Public Tools* measures the number of public digital services the participant has accessed in the past five months, including social security, tax payments, health services, and child-related services. The variable ranges from 0 to 4. *New Application* is a binary indicator equal to 1 if the participant submitted at least one new application for an income support measure in the past five months. $^{+}$ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$.

Table A26: Labor Market Engagement

	(1)	(2)	(3)	(4)
	Current Behavior		Future Expectations	
	Openness [0,1]	Effort [0,1]	Pr. Employment [0,100]	Pr. Training [0,100]
Assigned T1	-0.026	0.004	-0.454	3.488
	(0.037)	(0.043)	(3.474)	(3.454)
Assigned T2	0.008	-0.062	0.294	0.357
	(0.036)	(0.047)	(3.706)	(3.269)
Strata FE	✓	✓	✓	✓
Lag Dep. Var.	✓		✓	✓
Interviewer FE	✓	✓	✓	✓
N	753	753	753	753
adjR^2	0.210	0.045	0.149	0.433
T2-T1	0.034	-0.066	0.748	-3.131
p-val(T2-T1)	0.329	0.115	0.821	0.336
Mean C	0.749	0.509	50.813	31.802
Sd C	0.434	0.501	32.709	29.869

Notes: Robustness check including interviewer fixed effects. Each regression includes strata fixed effects and, where available, the lag of the dependent variable (*Openness*, *Pr. Employment*, *Pr. Training*). Standard errors are clustered at the class level. The variable *Openness* is a binary indicator equal to 1 if the participant is employed, actively seeking employment, or willing to work despite not currently looking. *Effort* is a binary indicator equal to 1 if the participant engaged in activities to improve their labor market status, including updating their CV, consulting an employment service, or enrolling in a training program. *Perceived Probability of Employment* measures participants' self-reported likelihood (0-100) of being employed in 12 months. *Perceived Probability of Training* captures participants' self-reported likelihood (0-100) of enrolling in a skills development or training program in the next 12 months. $^{+}$ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$.

D.3.2 Interviewer Score

Table A27: Technology Adoption & Digital Skills

	(1)	(2)	(3)	(4)	(5)
	Technology adoption				Digital skills
	Tablet [0,1]	Devices [N]	Participant [0,6]	Children [0,5]	DSI [0,6]
Assigned T1	0.633**	0.655**	2.721**	1.965**	0.648**
	(0.036)	(0.070)	(0.211)	(0.166)	(0.130)
Assigned T2	0.652**	0.793**	2.812**	1.964**	0.765**
	(0.034)	(0.081)	(0.217)	(0.159)	(0.122)
Strata FE	✓	✓	✓	✓	✓
Lag Dep. Var.	✓	✓			✓
Interviewer Score FE	✓	✓	✓	✓	✓
N	754	754	754	754	754
adjR^2	0.446	0.302	0.284	0.249	0.209
T2-T1	0.020	0.137	0.091	-0.001	0.117
p-val(T2-T1)	0.494	0.077	0.698	0.993	0.410
Mean C	0.257	0.574	1.271	1.454	3.824
Sd C	0.438	0.805	2.087	1.942	1.344

Notes: Robustness check including controls that account for the score assigned to respondents by interviewers at the end of the interview. These are dummy variables created based on the four categories "Extremely engaged and sincere," "Moderately engaged and sincere," "Very engaged and sincere" and "Slightly engaged and sincere." Each regression includes strata fixed effects and, where available, the lag of the dependent variable (*Tablet*, *Devices*, and *DSI*). Standard errors are clustered at the class level. The variable *Tablet* is a binary indicator equal to 1 if the participant reports owning a tablet, and 0 otherwise. *Devices* is the total number of tablets and computers available at home. *Participant* measures the frequency of computer or tablet use by the participant, ranging from 0 (never) to 6 (several times a day). *Children* captures the average frequency with which up to two children use a computer or tablet at home, measured on a scale from 0 (never) to 5 (every day). *DSI* represents the Digital Skills Indicator, a composite index ranging from 1 (no skills) to 6 (above basic skills). $^{+}$ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$.

Table A28: Digital Parenting & Social Inclusion

	(1)	(2)	(3)	(4)	(5)
	Digital Parenting		Social Inclusion		
	Engagement [Z-score]	Self Efficacy [Z-score]	Digital Identity [0,1]	Public Tools [0,4]	New Application [0,1]
Assigned T1	0.493**	0.479**	0.130*	0.502*	0.116**
	(0.110)	(0.104)	(0.052)	(0.204)	(0.038)
Assigned T2	0.369**	0.562**	0.200**	0.621**	0.042
	(0.085)	(0.099)	(0.042)	(0.158)	(0.033)
Strata FE	✓	✓	✓	✓	✓
Lag Dep. Var.					✓
Interviewer Score FE	✓	✓	✓	✓	✓
N	754	754	754	754	754
adjR^2	0.118	0.188	0.160	0.169	0.074
T2-T1	-0.123	0.083	0.071	0.120	-0.074
p-val(T2-T1)	0.284	0.448	0.161	0.584	0.092
Mean C	0.000	0.000	0.356	0.891	0.137
Sd C	1.000	1.000	0.480	1.506	0.345

Notes: Robustness check including controls that account for the score assigned to respondents by interviewers at the end of the interview. These are dummy variables created based on the four categories "Extremely engaged and sincere," "Moderately engaged and sincere," "Very engaged and sincere" and "Slightly engaged and sincere." Each regression includes strata fixed effects and, where available, the lag of the dependent variable (*New Application*). Standard errors are clustered at the class level. The variable *Engagement* measures how frequently participants use digital tools with their children for education and entertainment and monitor their school performance via apps. It is standardized to have a mean of 0 and standard deviation of 1 in the control group. *Self-Efficacy* captures participants' confidence in guiding their children's digital behavior, including ensuring age-appropriate content, managing screen time, and finding online educational resources. This variable is standardized similarly to Engagement. *Digital Identity* is a binary indicator equal to 1 if the participant has an Italian public digital identity (SPID) and has used it autonomously in the past five months. *Public Tools* measures the number of public digital services the participant has accessed in the past five months, including social security, tax payments, health services, and child-related services. The variable ranges from 0 to 4. *New Application* is a binary indicator equal to 1 if the participant submitted at least one new application for an income support measure in the past five months. $^{+}$ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$.

Table A29: Labor Market Engagement

	(1)	(2)	(3)	(4)
	Current Behavior		Future Expectations	
	Openness [0,1]	Effort [0,1]	Pr. Employment [0,100]	Pr. Training [0,100]
Assigned T1	-0.034	-0.013	6.101^{+}	18.212**
	(0.036)	(0.041)	(3.615)	(4.707)
Assigned T2	0.003	-0.075^{+}	6.581^{+}	11.070*
	(0.032)	(0.044)	(3.723)	(4.751)
Strata FE	✓	✓	✓	✓
Lag Dep. Var.	✓		✓	✓
Interviewer Score FE	✓	✓	✓	✓
N	754	754	754	754
adjR^2	0.193	0.029	0.092	0.113
T2-T1	0.037	-0.061	0.480	-7.142
p-val(T2-T1)	0.293	0.150	0.904	0.232
Mean C	0.750	0.511	50.771	31.697
Sd C	0.434	0.501	32.659	29.868

Notes: Robustness check including controls that account for the score assigned to respondents by interviewers at the end of the interview. These are dummy variables created based on the four categories "Extremely engaged and sincere," "Moderately engaged and sincere," "Very engaged and sincere" and "Slightly engaged and sincere." Each regression includes strata fixed effects and, where available, the lag of the dependent variable (*Openness*, *Pr. Employment*, *Pr. Training*). Standard errors are clustered at the class level. The variable *Openness* is a binary indicator equal to 1 if the participant is employed, actively seeking employment, or willing to work despite not currently looking. *Effort* is a binary indicator equal to 1 if the participant engaged in activities to improve their labor market status, including updating their CV, consulting an employment service, or enrolling in a training program. *Perceived Probability of Employment* measures participants' self-reported likelihood (0-100) of being employed in 12 months. *Perceived Probability of Training* captures participants' self-reported likelihood (0-100) of enrolling in a skills development or training program in the next 12 months. $^{+}$ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$.

D.3.3 Balancing Tables at Endline

Table A30: Demographics, Technological Endowment, and Digital Skills - Endline

	(1) Dropout	(2) No-Dropout	(3) F-stat	(1)-(2) Normalized Difference
Individual and household characteristics:				
Female	0.867	0.924	2.238	-0.071
	(0.035)	(0.008)	0.141	
Age	39.667	39.594	0.210	0.003
	(0.963)	(0.348)	0.648	
High school graduate	0.352	0.326	0.194	0.019
	(0.047)	(0.018)	0.661	
Employed	0.238	0.211	0.061	0.023
	(0.050)	(0.026)	0.806	
Unemployed	0.276	0.255	0.055	0.017
	(0.047)	(0.014)	0.816	
Houseperson	0.476	0.509	0.043	-0.022
	(0.049)	(0.028)	0.837	
Houseold size	4.562	4.503	0.494	0.015
	(0.135)	(0.057)	0.486	
N adults (18+)	2.429	2.428	0.017	0.000
	(0.104)	(0.040)	0.896	
N children (0-17)	2.324	2.346	0.037	-0.008
	(0.097)	(0.047)	0.848	
N children born 2006-2020	2.133	2.074	0.642	0.021
	(0.096)	(0.042)	0.427	
ISEE (€)	3733.552	3852.090	0.230	-0.017
	(217.668)	(93.250)	0.634	
Technological endowment:				
Own phone	1.000	0.997	1.860	0.019
	(0.000)	(0.002)	0.179	
N phone	2.476	2.257	3.283^{+}	0.081^{+}
	(0.112)	(0.035)	0.076	
Own tablet	0.219	0.208	0.019	0.009
	(0.043)	(0.016)	0.891	
N tablet	0.229	0.224	0.135	0.003
	(0.046)	(0.018)	0.715	
Own PC	0.419	0.260	5.940*	0.121*
	(0.047)	(0.020)	0.018	
N PC	0.457	0.304	4.655*	0.085*
	(0.055)	(0.025)	0.036	
Own PC or tablet	0.524	0.381	3.623^{+}	0.100^{+}
	(0.053)	(0.021)	0.063	
Internet used at home	0.686	0.607	2.348	0.055
	(0.042)	(0.019)	0.132	
Wi-Fi at home	0.467	0.359	5.401*	0.075*
	(0.043)	(0.018)	0.024	
Digital skills:				
Index of digital skills [1,6]	4.019	3.749	2.533	0.065
	(0.164)	(0.062)	0.118	
N digital activities [0,12]	4.410	3.882	0.589	0.054
	(0.411)	(0.125)	0.446	
Classrooms	47	51		
Observations	105	754		

Notes: The table presents balance statistics for key variables across two groups: Dropout and No-dropout. It reports mean values and clustered standard errors (at the classroom level) for each group. Column (3) displays the results of an F-test across all groups, along with the associated p-values for joint significance. The normalized difference is shown for the group comparisons in column (1)-(2). Observations are at the participant level, and each specification includes strata fixed effects. Significance levels are marked: $^{+}$ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$.

Table A31: Parental Involvement in Children's Education - Endline

	(1) Dropout	(2) No-Dropout	(3) F-stat	(1)-(2) Normalized Difference
Help with homework:				
Never	0.162	0.211	0.661	-0.041
	(0.040)	(0.020)	0.420	
Yearly	0.038	0.024	0.452	0.030
	(0.023)	(0.005)	0.504	
Monthly	0.086	0.077	0.047	0.011
	(0.026)	(0.010)	0.829	
Weekly	0.286	0.286	0.000	-0.001
	(0.045)	(0.018)	0.994	
Daily	0.314	0.277	0.099	0.028
	(0.043)	(0.022)	0.754	
Talk about school:				
Never	0.048	0.020	1.734	0.062
	(0.024)	(0.006)	0.194	
Yearly	0.029	0.016	1.194	0.033
	(0.015)	(0.004)	0.280	
Monthly	0.048	0.060	0.186	-0.018
	(0.021)	(0.008)	0.668	
Weekly	0.181	0.183	0.025	-0.002
	(0.040)	(0.018)	0.874	
Daily	0.676	0.712	1.352	-0.027
	(0.052)	(0.022)	0.250	
Check school app ("Registro elettronico"):				
Never	0.114	0.170	0.958	-0.051
	(0.043)	(0.018)	0.332	
Yearly	0.019	0.023	0.027	-0.008
	(0.014)	(0.007)	0.870	
Monthly	0.076	0.081	0.000	-0.006
	(0.024)	(0.012)	0.984	
Weekly	0.276	0.190	2.660	0.073
	(0.048)	(0.016)	0.109	
Daily	0.400	0.412	0.790	-0.009
	(0.047)	(0.023)	0.378	
Communicate with teachers:				
Never	0.029	0.057	1.430	-0.043
	(0.020)	(0.011)	0.237	
Yearly	0.133	0.131	0.000	0.002
	(0.033)	(0.011)	0.992	
Monthly	0.419	0.344	1.671	0.054
	(0.049)	(0.017)	0.202	
Weekly	0.257	0.267	0.005	-0.007
	(0.048)	(0.015)	0.942	
Daily	0.143	0.192	1.823	-0.043
	(0.031)	(0.020)	0.183	
Classrooms	47	51		
Observations	105	754		

Notes: The table presents balance statistics for key variables across three groups: Dropout and No-Dropout. It reports mean values and clustered standard errors (at the classroom level) for each group. Column (3) displays the results of an F-test across all groups, along with the associated p-values for joint significance. The normalized difference is shown for the group comparisons in columns (1)-(2). Observations are at the participant level, and each specification includes strata fixed effects. Significance levels are marked: $^{+}$ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$.

Table A32: Labor Market Engagement and Social Inclusion - Endline

	(1) Dropout	(2) No-Dropout	(3) F-stat	(1)-(2) Normalized Difference
Employment status and willingness to work:				
Employed	0.238	0.211	0.061	0.023
	(0.050)	(0.026)	0.806	
Looking for a job (past 4 week)	0.514	0.450	0.985	0.044
	(0.050)	(0.020)	0.326	
Looking for a job (past 4 week) (if not employed)	0.525	0.492	0.188	0.025
	(0.062)	(0.023)	0.666	
Would like to work (not employed and not looking)	0.263	0.334	0.248	-0.078
	(0.083)	(0.028)	0.621	
Never looked for a job	0.171	0.159	0.110	0.011
	(0.038)	(0.017)	0.742	
Perceptions of labor market outcomes (next 12 months):				
Finding a job (not employed)	36.625	41.345	0.674	-0.059
	(3.706)	(1.771)	0.416	
Loosing current job (employed)	38.800	32.453	0.810	0.136
	(6.144)	(2.282)	0.373	
Training to acquire further qualifications	46.286	47.918	0.629	-0.018
	(3.303)	(1.485)	0.431	
Main job search methods adopted (if ever searched):				
Friends, relatives, acquaintances	0.448	0.562	1.884	-0.084
	(0.060)	(0.021)	0.176	
Private employment agency	0.230	0.303	3.321^{+}	-0.059^{+}
	(0.038)	(0.018)	0.074	
Public employment service	0.218	0.219	0.010	-0.001
	(0.048)	(0.018)	0.922	
Job advertisements	0.218	0.235	1.250	-0.014
	(0.046)	(0.021)	0.269	
I contacted the employer directly	0.103	0.068	0.613	0.051
	(0.043)	(0.014)	0.437	
Training course, internship, or previous experience	0.080	0.071	0.063	0.013
	(0.032)	(0.011)	0.803	
The employer contacted me directly	0.023	0.030	0.223	-0.015
	(0.015)	(0.006)	0.639	
Other method	0.092	0.069	0.100	0.032
	(0.034)	(0.010)	0.753	
Anti-poverty measures received (past 12 months):				
At least one welfare measure	0.390	0.549	14.394**	-0.108**
	(0.053)	(0.024)	0.000	
N. measures received	0.657	0.908	6.095*	-0.082*
	(0.125)	(0.054)	0.017	
Classrooms	47	51		
Observations	105	754		

Notes: The table presents balance statistics for key variables across three groups: Dropout and No-Dropout. It reports mean values and clustered standard errors (at the classroom level) for each group. Column (3) displays the results of an F-test across all groups, along with the associated p-values for joint significance. The normalized difference is shown for the group comparisons in columns (1)-(2). Observations are at the participant level, and each specification includes strata fixed effects. For "Finding a job (not employed)" and "Looking for a job (past 4 week) (if not employed)" there are 38 classrooms in Dropout, 80 Observations in Dropout and 595 observations in No-Dropout. For "Loosing current job (employed)" there are 19 classrooms in Dropout, 45 classrooms in No-Dropout, 25 Observations in Dropout and 159 observations in No-Dropout. For "Main job search methods adopted (if ever searched)" there are 43 classrooms in Dropout, 87 Observations in Dropout and 634 observations in No-Dropout. For "Would like to work (not employed and not looking)" there are there are 38 classrooms in Dropout, 38 Observations in Dropout and 293 observations in No-Dropout. The variable *Open to work* contains only values for individuals who did not drop out, and therefore cannot be included in this balancing test. Significance levels are marked: $^{+}$ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$.

D.3.4 Only women sample

Table A33: Technology Adoption & Digital Skills

	(1)	(2)	(3)	(4)	(5)
	Technology adoption				Digital skills
	Tablet [0,1]	Devices [N]	Participant [0,6]	Children [0,5]	DSI [0,6]
Assigned T1	0.621**	0.647**	2.611**	1.854**	0.737**
	(0.036)	(0.064)	(0.216)	(0.175)	(0.125)
Assigned T2	0.637**	0.758**	2.715**	1.804**	0.856**
	(0.034)	(0.083)	(0.219)	(0.172)	(0.124)
Strata FE	✓	✓	✓	✓	✓
Lag Dep. Var.	✓	✓			✓
N	697	697	697	697	697
adjR^2	0.440	0.309	0.285	0.233	0.202
T2-T1	0.016	0.112	0.104	-0.050	0.119
p-val(T2-T1)	0.604	0.167	0.646	0.756	0.414
Mean C	0.270	0.593	1.304	1.487	3.795
Sd C	0.445	0.818	2.106	1.953	1.338

Notes: Robustness check in which the sample size is reduced to include only women. Each regression includes strata fixed effects and, where available, the lag of the dependent variable (*Tablet*, *Devices*, and *DSI*). Standard errors are clustered at the class level. The variable *Tablet* is a binary indicator equal to 1 if the participant reports owning a tablet, and 0 otherwise. *Devices* is the total number of tablets and computers available at home. *Participant* measures the frequency of computer or tablet use by the participant, ranging from 0 (never) to 6 (several times a day). *Children* captures the average frequency with which up to two children use a computer or tablet at home, measured on a scale from 0 (never) to 5 (every day). *DSI* represents the Digital Skills Indicator, a composite index ranging from 1 (no skills) to 6 (above basic skills). $^{+}$ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$.

Table A34: Digital Parenting & Social Inclusion

	(1)	(2)	(3)	(4)	(5)
	Digital Parenting		Social Inclusion		
	Engagement [Z-score]	Self Efficacy [Z-score]	Digital Identity [0,1]	Public Tools [0,4]	New Application [0,1]
Assigned T1	0.433**	0.555**	0.161**	0.682**	0.140**
	(0.120)	(0.107)	(0.050)	(0.195)	(0.042)
Assigned T2	0.232*	0.632**	0.236**	0.831**	0.045
	(0.094)	(0.095)	(0.040)	(0.169)	(0.033)
Strata FE	✓	✓	✓	✓	✓
Lag Dep. Var.					✓
N	697	697	697	697	697
adjR^2	0.091	0.177	0.159	0.168	0.083
T2-T1	-0.201	0.077	0.075	0.149	-0.095
p-val(T2-T1)	0.114	0.500	0.137	0.499	0.049
Mean C	0.018	0.003	0.346	0.852	0.129
Sd C	0.996	0.988	0.477	1.482	0.336

Notes: Robustness check in which the sample size is reduced to include only women. Each regression includes strata fixed effects and, where available, the lag of the dependent variable (*New Application*). Standard errors are clustered at the class level. The variable *Engagement* measures how frequently participants use digital tools with their children for education and entertainment and monitor their school performance via apps. It is standardized to have a mean of 0 and standard deviation of 1 in the control group. *Self-Efficacy* captures participants' confidence in guiding their children's digital behavior, including ensuring age-appropriate content, managing screen time, and finding online educational resources. This variable is standardized similarly to Engagement. *Digital Identity* is a binary indicator equal to 1 if the participant has an Italian public digital identity (SPID) and has used it autonomously in the past five months. *Public Tools* measures the number of public digital services the participant has accessed in the past five months, including social security, tax payments, health services, and child-related services. The variable ranges from 0 to 4. *New Application* is a binary indicator equal to 1 if the participant submitted at least one new application for an income support measure in the past five months. $^{+}$ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$.

Table A35: Labor Market Engagement

	(1)	(2)	(3)	(4)
	Current Behavior		Future Expectations	
	Openness [0,1]	Effort [0,1]	Pr. Employment [0,100]	Pr. Training [0,100]
Assigned T1	-0.035	-0.006	7.654*	22.852**
	(0.037)	(0.042)	(3.505)	(4.905)
Assigned T2	-0.009	-0.079+	7.009+	14.826**
	(0.032)	(0.045)	(3.833)	(5.046)
Strata FE	✓	✓	✓	✓
Lag Dep. Var.	✓		✓	✓
N	697	697	697	697
adjR^2	0.192	0.022	0.093	0.085
T2-T1	0.026	-0.074	-0.645	-8.026
p-val(T2-T1)	0.470	0.113	0.877	0.203
Mean C	0.738	0.521	48.973	31.331
Sd C	0.441	0.501	32.091	30.002

Notes: Robustness check in which the sample size is reduced to include only women. Each regression includes strata fixed effects and, where available, the lag of the dependent variable (*Openness*, *Pr. Employment*, *Pr. Training*). Standard errors are clustered at the class level. The variable *Openness* is a binary indicator equal to 1 if the participant is employed, actively seeking employment, or willing to work despite not currently looking. *Effort* is a binary indicator equal to 1 if the participant engaged in activities to improve their labor market status, including updating their CV, consulting an employment service, or enrolling in a training program. *Perceived Probability of Employment* measures participants' self-reported likelihood (0-100) of being employed in 12 months. *Perceived Probability of Training* captures participants' self-reported likelihood (0-100) of enrolling in a skills development or training program in the next 12 months. $^{+}$ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$.

D.3.5 Only highly engaged interviewed

Table A36: Technology Adoption & Digital Skills

	(1)	(2)	(3)	(4)	(5)
	Technology adoption				Digital skills
	Tablet [0,1]	Devices [N]	Participant [0,6]	Children [0,5]	DSI [0,6]
Assigned T1	0.625**	0.626**	2.581**	1.856**	0.773**
	(0.035)	(0.062)	(0.212)	(0.169)	(0.125)
Assigned T2	0.652**	0.819**	2.789**	1.893**	0.836**
	(0.034)	(0.079)	(0.236)	(0.165)	(0.129)
Strata FE	✓	✓	✓	✓	✓
Lag Dep. Var.	✓	✓			✓
N	693	693	693	693	693
adjR^2	0.443	0.324	0.298	0.256	0.202
T2-T1	0.027	0.193	0.208	0.037	0.063
p-val(T2-T1)	0.368	0.015	0.402	0.812	0.673
Mean C	0.257	0.585	1.272	1.464	3.815
Sd C	0.438	0.817	2.098	1.952	1.354

Notes: Robustness check in which the sample size is reduced by including only those respondents who, at the end of the interview, were rated as either "Extremely engaged and sincere" or "Very engaged and sincere". Each regression includes strata fixed effects and, where available, the lag of the dependent variable (*Tablet*, *Devices*, and *DSI*). Standard errors are clustered at the class level. The variable *Tablet* is a binary indicator equal to 1 if the participant reports owning a tablet, and 0 otherwise. *Devices* is the total number of tablets and computers available at home. *Participant* measures the frequency of computer or tablet use by the participant, ranging from 0 (never) to 6 (several times a day). *Children* captures the average frequency with which up to two children use a computer or tablet at home, measured on a scale from 0 (never) to 5 (every day). *DSI* represents the Digital Skills Indicator, a composite index ranging from 1 (no skills) to 6 (above basic skills). $^{+}$ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$.

Table A37: Digital Parenting & Social Inclusion

	(1)	(2)	(3)	(4)	(5)
	Digital Parenting		Social Inclusion		
	Engagement [Z-score]	Self Efficacy [Z-score]	Digital Identity [0,1]	Public Tools [0,4]	New Application [0,1]
Assigned T1	0.415**	0.575**	0.169**	0.671**	0.118**
	(0.117)	(0.110)	(0.054)	(0.212)	(0.039)
Assigned T2	0.314**	0.632**	0.235**	0.754**	0.051
	(0.095)	(0.102)	(0.044)	(0.168)	(0.036)
Strata FE	✓	✓	✓	✓	✓
Lag Dep. Var.					✓
N	693	693	693	693	693
adjR^2	0.096	0.164	0.160	0.158	0.078
T2-T1	-0.101	0.057	0.066	0.083	-0.066
p-val(T2-T1)	0.430	0.623	0.233	0.718	0.155
Mean C	-0.015	0.012	0.362	0.928	0.140
Sd C	1.014	1.027	0.482	1.530	0.347

Notes: Robustness check in which the sample size is reduced by including only those respondents who, at the end of the interview, were rated as either "Extremely engaged and sincere" or "Very engaged and sincere". Each regression includes strata fixed effects and, where available, the lag of the dependent variable (*New Application*). Standard errors are clustered at the class level. The variable *Engagement* measures how frequently participants use digital tools with their children for education and entertainment and monitor their school performance via apps. It is standardized to have a mean of 0 and standard deviation of 1 in the control group. *Self-Efficacy* captures participants' confidence in guiding their children's digital behavior, including ensuring age-appropriate content, managing screen time, and finding online educational resources. This variable is standardized similarly to Engagement. *Digital Identity* is a binary indicator equal to 1 if the participant has an Italian public digital identity (SPID) and has used it autonomously in the past five months. *Public Tools* measures the number of public digital services the participant has accessed in the past five months, including social security, tax payments, health services, and child-related services. The variable ranges from 0 to 4. *New Application* is a binary indicator equal to 1 if the participant submitted at least one new application for an income support measure in the past five months. $^{+}$ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$.

Table A38: Labor Market Engagement

	(1)	(2)	(3)	(4)
	Current Behavior		Future Expectations	
	Openness [0,1]	Effort [0,1]	Pr. Employment [0,100]	Pr. Training [0,100]
Assigned T1	-0.044	-0.008	8.146*	24.064**
	(0.036)	(0.041)	(3.545)	(4.797)
Assigned T2	-0.003	-0.051	7.861*	15.572**
	(0.031)	(0.045)	(3.633)	(5.140)
Strata FE	✓	✓	✓	✓
Lag Dep. Var.	✓		✓	✓
N	693	693	693	693
adjR^2	0.208	0.036	0.106	0.092
T2-T1	0.042	-0.043	-0.285	-8.492
p-val(T2-T1)	0.259	0.347	0.944	0.183
Mean C	0.747	0.506	50.147	31.064
Sd C	0.435	0.501	33.053	30.463

Notes: Robustness check in which the sample size is reduced by including only those respondents who, at the end of the interview, were rated as either "Extremely engaged and sincere" or "Very engaged and sincere". Each regression includes strata fixed effects and, where available, the lag of the dependent variable (*Openness*, *Pr. Employment*, *Pr. Training*). Standard errors are clustered at the class level. The variable *Openness* is a binary indicator equal to 1 if the participant is employed, actively seeking employment, or willing to work despite not currently looking. *Effort* is a binary indicator equal to 1 if the participant engaged in activities to improve their labor market status, including updating their CV, consulting an employment service, or enrolling in a training program. *Perceived Probability of Employment* measures participants' self-reported likelihood (0-100) of being employed in 12 months. *Perceived Probability of Training* captures participants' self-reported likelihood (0-100) of enrolling in a skills development or training program in the next 12 months. $^{+}$ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$.

D.3.6 Not assigned to preferred class

Table A39: Technology Adoption & Digital Skills

	(1)	(2)	(3)	(4)	(5)
	Technology adoption				Digital skills
	Tablet [0,1]	Devices [N]	Participant [0,6]	Children [0,5]	DSI [0,6]
Assigned T1	0.628**	0.660**	2.643**	1.887**	0.715**
	(0.034)	(0.068)	(0.216)	(0.172)	(0.122)
Assigned T2	0.648**	0.800**	2.742**	1.891**	0.816**
	(0.033)	(0.077)	(0.233)	(0.168)	(0.121)
Strata FE	✓	✓	✓	✓	✓
Lag Dep. Var.	✓	✓			✓
Preferred Class	✓	✓	✓	✓	✓
N	754	754	754	754	754
adjR^2	0.447	0.304	0.283	0.247	0.201
T2-T1	0.019	0.140	0.099	0.004	0.100
p-val(T2-T1)	0.499	0.075	0.681	0.977	0.478
Mean C	0.257	0.574	1.271	1.454	3.824
Sd C	0.438	0.805	2.087	1.942	1.344

Notes: Robustness check including two controls that identify whether the respondent was assigned to a class different from their first preference for attending the basic digital skills course. Each regression includes strata fixed effects and, where available, the lag of the dependent variable (*Tablet*, *Devices*, and *DSI*). Standard errors are clustered at the class level. The variable *Tablet* is a binary indicator equal to 1 if the participant reports owning a tablet, and 0 otherwise. *Devices* is the total number of tablets and computers available at home. *Participant* measures the frequency of computer or tablet use by the participant, ranging from 0 (never) to 6 (several times a day). *Children* captures the average frequency with which up to two children use a computer or tablet at home, measured on a scale from 0 (never) to 5 (every day). *DSI* represents the Digital Skills Indicator, a composite index ranging from 1 (no skills) to 6 (above basic skills). $^{+}$ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$.

Table A40: Digital Parenting & Social Inclusion

	(1)	(2)	(3)	(4)	(5)
	Digital Parenting		Social Inclusion		
	Engagement [Z-score]	Self Efficacy [Z-score]	Digital Identity [0,1]	Public Tools [0,4]	New Application [0,1]
Assigned T1	0.408**	0.552**	0.156**	0.645**	0.126**
	(0.117)	(0.103)	(0.049)	(0.195)	(0.038)
Assigned T2	0.283**	0.629**	0.223**	0.751**	0.051
	(0.088)	(0.097)	(0.039)	(0.158)	(0.033)
Strata FE	✓	✓	✓	✓	✓
Lag Dep. Var.					✓
Preferred Class	✓	✓	✓	✓	✓
N	754	754	754	754	754
adjR^2	0.093	0.181	0.153	0.150	0.074
T2-T1	-0.125	0.076	0.067	0.106	-0.075
p-val(T2-T1)	0.318	0.498	0.165	0.622	0.094
Mean C	0.000	0.000	0.356	0.891	0.137
Sd C	1.000	1.000	0.480	1.506	0.345

Notes: Robustness check including two controls that identify whether the respondent was assigned to a class different from their first preference for attending the basic digital skills course. Each regression includes strata fixed effects and, where available, the lag of the dependent variable (*New Application*). Standard errors are clustered at the class level. The variable *Engagement* measures how frequently participants use digital tools with their children for education and entertainment and monitor their school performance via apps. It is standardized to have a mean of 0 and standard deviation of 1 in the control group. *Self-Efficacy* captures participants' confidence in guiding their children's digital behavior, including ensuring age-appropriate content, managing screen time, and finding online educational resources. This variable is standardized similarly to Engagement. *Digital Identity* is a binary indicator equal to 1 if the participant has an Italian public digital identity (SPID) and has used it autonomously in the past five months. *Public Tools* measures the number of public digital services the participant has accessed in the past five months, including social security, tax payments, health services, and child-related services. The variable ranges from 0 to 4. *New Application* is a binary indicator equal to 1 if the participant submitted at least one new application for an income support measure in the past five months. $^{+}$ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$.

Table A41: Labor Market Engagement

	(1)	(2)	(3)	(4)
	Current Behavior		Future Expectations	
	Openness [0,1]	Effort [0,1]	Pr. Employment [0,100]	Pr. Training [0,100]
Assigned T1	-0.044	0.002	6.821*	22.176**
	(0.035)	(0.040)	(3.406)	(4.701)
Assigned T2	-0.006	-0.062	7.067*	14.655**
	(0.030)	(0.042)	(3.551)	(4.960)
Strata FE	✓	✓	✓	✓
Lag Dep. Var.	✓		✓	✓
Preferred Class	✓	✓	✓	✓
N	754	754	754	754
adjR^2	0.193	0.030	0.098	0.090
T2-T1	0.037	-0.064	0.246	-7.521
p-val(T2-T1)	0.281	0.137	0.949	0.221
Mean C	0.750	0.511	50.771	31.697
Sd C	0.434	0.501	32.659	29.868

Notes: Robustness check including two controls that identify whether the respondent was assigned to a class different from their first preference for attending the basic digital skills course. Each regression includes strata fixed effects and, where available, the lag of the dependent variable (*Openness*, *Pr. Employment*, *Pr. Training*). Standard errors are clustered at the class level. The variable *Openness* is a binary indicator equal to 1 if the participant is employed, actively seeking employment, or willing to work despite not currently looking. *Effort* is a binary indicator equal to 1 if the participant engaged in activities to improve their labor market status, including updating their CV, consulting an employment service, or enrolling in a training program. *Perceived Probability of Employment* measures participants' self-reported likelihood (0-100) of being employed in 12 months. *Perceived Probability of Training* captures participants' self-reported likelihood (0-100) of enrolling in a skills development or training program in the next 12 months. $^{+}$ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$.

D.3.7 Class location dummies

Table A42: Technology Adoption & Digital Skills

	(1)	(2)	(3)	(4)	(5)
	Technology adoption				Digital skills
	Tablet [0,1]	Devices [N]	Participant [0,6]	Children [0,5]	DSI [0,6]
Assigned T1	0.627**	0.651**	2.642**	1.870**	0.682**
	(0.032)	(0.057)	(0.203)	(0.164)	(0.109)
Assigned T2	0.649**	0.786**	2.694**	1.869**	0.816**
	(0.031)	(0.069)	(0.218)	(0.158)	(0.109)
Strata FE	✓	✓	✓	✓	✓
Lag Dep. Var.	✓	✓			✓
Class Location FE	✓	✓	✓	✓	✓
N	754	754	754	754	754
adjR^2	0.455	0.316	0.287	0.245	0.208
T2-T1	0.022	0.135	0.053	-0.001	0.133
p-val(T2-T1)	0.436	0.057	0.802	0.995	0.247
Mean C	0.257	0.574	1.271	1.454	3.824
Sd C	0.438	0.805	2.087	1.942	1.344

Notes: Robustness check including class location fixed effects. Each regression includes strata fixed effects and, where available, the lag of the dependent variable (*Tablet*, *Devices*, and *DSI*). Standard errors are clustered at the class level. The variable *Tablet* is a binary indicator equal to 1 if the participant reports owning a tablet, and 0 otherwise. *Devices* is the total number of tablets and computers available at home. *Participant* measures the frequency of computer or tablet use by the participant, ranging from 0 (never) to 6 (several times a day). *Children* captures the average frequency with which up to two children use a computer or tablet at home, measured on a scale from 0 (never) to 5 (every day). *DSI* represents the Digital Skills Indicator, a composite index ranging from 1 (no skills) to 6 (above basic skills). $^{+}$ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$.

Table A43: Digital Parenting & Social Inclusion

	(1)	(2)	(3)	(4)	(5)
	Digital Parenting		Social Inclusion		
	Engagement [Z-score]	Self Efficacy [Z-score]	Digital Identity [0,1]	Public Tools [0,4]	New Application [0,1]
Assigned T1	0.397**	0.537**	0.153**	0.655**	0.129**
	(0.094)	(0.084)	(0.041)	(0.154)	(0.035)
Assigned T2	0.274**	0.633**	0.227**	0.761**	0.050^{+}
	(0.072)	(0.088)	(0.036)	(0.138)	(0.029)
Strata FE	✓	✓	✓	✓	✓
Lag Dep. Var.					✓
Class Location FE	✓	✓	✓	✓	✓
N	754	754	754	754	754
adjR^2	0.138	0.209	0.166	0.190	0.089
T2-T1	-0.123	0.097	0.074	0.106	-0.079
p-val(T2-T1)	0.144	0.268	0.066	0.475	0.028
Mean C	0.000	0.000	0.356	0.891	0.137
Sd C	1.000	1.000	0.480	1.506	0.345

Notes: Robustness check including class location fixed effects. Each regression includes strata fixed effects and, where available, the lag of the dependent variable (*New Application*). Standard errors are clustered at the class level. The variable *Engagement* measures how frequently participants use digital tools with their children for education and entertainment and monitor their school performance via apps. It is standardized to have a mean of 0 and standard deviation of 1 in the control group. *Self-Efficacy* captures participants' confidence in guiding their children's digital behavior, including ensuring age-appropriate content, managing screen time, and finding online educational resources. This variable is standardized similarly to Engagement. *Digital Identity* is a binary indicator equal to 1 if the participant has an Italian public digital identity (SPID) and has used it autonomously in the past five months. *Public Tools* measures the number of public digital services the participant has accessed in the past five months, including social security, tax payments, health services, and child-related services. The variable ranges from 0 to 4. *New Application* is a binary indicator equal to 1 if the participant submitted at least one new application for an income support measure in the past five months. $^{+}$ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$.

Table A44: Labor Market Engagement

	(1)	(2)	(3)	(4)
	Current Behavior		Future Expectations	
	Openness [0,1]	Effort [0,1]	Pr. Employment [0,100]	Pr. Training [0,100]
Assigned T1	-0.054^{+}	0.004	6.168^{+}	20.600**
	(0.032)	(0.038)	(3.238)	(3.625)
Assigned T2	-0.013	-0.072^{+}	5.879^{+}	15.244**
	(0.029)	(0.040)	(3.080)	(3.857)
Strata FE	✓	✓	✓	✓
Lag Dep. Var.	✓		✓	✓
Class Location FE	✓	✓	✓	✓
N	754	754	754	754
adjR^2	0.190	0.027	0.105	0.197
T2-T1	0.042	-0.076	-0.290	-5.356
p-val(T2-T1)	0.213	0.069	0.930	0.144
Mean C	0.750	0.511	50.771	31.697
Sd C	0.434	0.501	32.659	29.868

Notes: Robustness check including class location fixed effects. Each regression includes strata fixed effects and, where available, the lag of the dependent variable (*Openness*, *Pr. Employment*, *Pr. Training*). Standard errors are clustered at the class level. The variable *Openness* is a binary indicator equal to 1 if the participant is employed, actively seeking employment, or willing to work despite not currently looking. *Effort* is a binary indicator equal to 1 if the participant engaged in activities to improve their labor market status, including updating their CV, consulting an employment service, or enrolling in a training program. *Perceived Probability of Employment* measures participants' self-reported likelihood (0-100) of being employed in 12 months. *Perceived Probability of Training* captures participants' self-reported likelihood (0-100) of enrolling in a skills development or training program in the next 12 months. $^{+}$ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$.

D.4 Regressions at child level

Table A45: Children's Device Usage & Engagement in Digital Activities With Children

	(1)	(2)	(3)	(4)
	Device usage		Engagement	
	Baseline [0-5]	Child covariate [0-5]	Baseline [N]	Child covariate [N]
Assigned T1	1.922**	1.920**	0.403**	0.455**
	(0.165)	(0.161)	(0.112)	(0.107)
Assigned T2	1.856**	1.877**	0.289**	0.327**
	(0.164)	(0.153)	(0.085)	(0.081)
Preschool		-1.463**		-0.979**
		(0.174)		(0.106)
Middle school		0.467**		-0.103+
		(0.132)		(0.054)
High school		0.811**		-0.672**
		(0.168)		(0.081)
Female		0.038		0.022
		(0.107)		(0.054)
N	1313	1313	1313	1313
adjR^2	0.236	0.316	0.074	0.207
T2-T1	-0.066	-0.042	-0.113	-0.128
p-val(T2-T1)	0.651	0.762	0.351	0.290
Mean C	1.439	1.439	-0.000	-0.000
Sd C	2.003	2.003	1.000	1.000

Notes: The dataset is at the child level, up to two children per household. Standard errors are clustered at the class level. The variable *Device usage* is a categorical variable that takes the value 0 if the child never uses electronic devices, and the value 5 if the child uses them every day. *Engagement* is an index that measures how engaged children are with their parents in digital activities that are beneficial for them. The *Child Covariate* column adds to the baseline regression a set of dummies for the type of school the child attends, based on the variable *child school* (i.e., *Preschool*, *Middle School*, and *High School*), with *Primary School* used as the reference category. $^{+}$ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$.

Table A46: Engagement With Children's Components

	(1)	(2)	(3)	(4)	(5)	(6)
	School app usage		Digital tools recreation		Digital tools education	
	Baseline [0-5]	Child covariate [0-5]	Baseline [0-5]	Child covariate [0-5]	Baseline [0-5]	Child covariate [0-5]
Assigned T1	0.256	0.384*	0.580**	0.645**	0.756**	0.840**
	(0.158)	(0.147)	(0.177)	(0.170)	(0.177)	(0.169)
Assigned T2	0.167	0.311*	0.410**	0.447**	0.580**	0.631**
	(0.141)	(0.121)	(0.138)	(0.134)	(0.140)	(0.134)
Preschool		-3.008**		-0.578**		-1.273**
		(0.221)		(0.140)		(0.165)
Middle school		0.069		-0.237*		-0.184*
		(0.099)		(0.092)		(0.085)
High school		-0.398**		-1.067**		-1.171**
		(0.108)		(0.132)		(0.143)
Female		0.005		0.048		0.040
		(0.089)		(0.087)		(0.088)
N	1287	1287	1313	1313	1310	1310
adjR^2	0.069	0.336	0.045	0.102	0.075	0.175
T2-T1	-0.088	-0.073	-0.170	-0.198	-0.175	-0.208
p-val(T2-T1)	0.547	0.619	0.393	0.309	0.375	0.287
Mean C	3.742	3.742	2.720	2.720	2.521	2.521
Sd C	2.027	2.027	1.388	1.388	1.575	1.575

Notes: The dataset is at the child level, up to two children per household. Standard errors are clustered at the class level. The variable *School app usage* is a categorical variable that takes the value 0 if the child's parent never uses the school app to monitor performance and attendance, and the value 5 if they use them every day. *Digital tools recreations* is a categorical variable that takes the value 0 if the child's parent never uses digital tools for recreation activities with their child, and the value 5 if they use them every day. *Digital tools education* is a categorical variable that takes the value 0 if the child's parent never uses digital tools for education activities with their child, and the value 5 if they use them every day. The *Child Covariate* column adds to the baseline regression a set of dummies for the type of school the child attends, based on the variable *child school* (i.e., *Preschool*, *Middle School*, and *High School*), with *Primary School* used as the reference category. $^{+}$ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$.

D.4.1 Post-Double Selection Lasso

Table A47: Technology Adoption & Digital Skills

	(1)	(2)	(3)	(4)	(5)
	Technology adoption				Digital skills
	Tablet [0,1]	Devices [N]	Participant [0,6]	Children [0,5]	DSI [0,6]
Assigned T1	0.659 **	0.737**	2.622**	1.976**	0.495**
	(0.034)	(0.065)	(0.212)	(0.166)	(0.134)
Assigned T2	0.679**	0.860**	2.702**	1.996**	0.592**
	(0.036)	(0.089)	(0.226)	(0.170)	(0.121)
Strata FE	✓	✓	✓	✓	✓
Lag Dep. Var.	✓	✓			✓
Class Location FE	✓	✓	✓	✓	✓

Notes: Robustness check employing the post-double selection Lasso method for control variable selection. Each regression includes strata fixed effects and, where available, the lag of the dependent variable (*Tablet*, *Devices*, and *DSI*). Standard errors are clustered at the class level. The variable *Tablet* is a binary indicator equal to 1 if the participant reports owning a tablet, and 0 otherwise. *Devices* is the total number of tablets and computers available at home. *Participant* measures the frequency of computer or tablet use by the participant, ranging from 0 (never) to 6 (several times a day). *Children* captures the average frequency with which up to two children use a computer or tablet at home, measured on a scale from 0 (never) to 5 (every day). *DSI* represents the Digital Skills Indicator, a composite index ranging from 1 (no skills) to 6 (above basic skills). $^{+}$ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$.

Table A48: Digital Parenting & Social Inclusion

	(1)	(2)	(3)	(4)	(5)
	Digital Parenting		Social Inclusion		
	Engagement [Z-score]	Self Efficacy [Z-score]	Digital Identity [0,1]	Public Tools [0,4]	New Application [0,1]
Assigned T1	0.441**	0.322**	0.063	0.352*	0.109**
	(0.084)	(0.081)	(0.049)	(0.167)	(0.035)
Assigned T2	0.267**	0.376**	0.127**	0.352**	0.049
	(0.073)	(0.091)	(0.045)	(0.122)	(0.031)
Strata FE	✓	✓	✓	✓	✓
Lag Dep. Var.					✓
Class Location FE	✓	✓	✓	✓	✓

Notes: Robustness check employing the post-double selection Lasso method for control variable selection. Each regression includes strata fixed effects and, where available, the lag of the dependent variable (*New Application*). Standard errors are clustered at the class level. The variable *Engagement* measures how frequently participants use digital tools with their children for education and entertainment and monitor their school performance via apps. It is standardized to have a mean of 0 and standard deviation of 1 in the control group. *Self-Efficacy* captures participants' confidence in guiding their children's digital behavior, including ensuring age-appropriate content, managing screen time, and finding online educational resources. This variable is standardized similarly to Engagement. *Digital Identity* is a binary indicator equal to 1 if the participant has an Italian public digital identity (SPID) and has used it autonomously in the past five months. *Public Tools* measures the number of public digital services the participant has accessed in the past five months, including social security, tax payments, health services, and child-related services. The variable ranges from 0 to 4. *New Application* is a binary indicator equal to 1 if the participant submitted at least one new application for an income support measure in the past five months. $^{+}$ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$.

Table A49: Labor Market Engagement

	(1)	(2)	(3)	(4)
	Current Behavior		Future Expectations	
	Openness [0,1]	Effort [0,1]	Pr. Employment [0,100]	Pr. Training [0,100]
Assigned T1	-0.044	0.001	-1.862	3.791
	(0.036)	(0.037)	(2.864)	(3.354)
Assigned T2	-0.012	-0.070^{+}	-2.634	-0.066
	(0.032)	(0.041)	(2.947)	(3.184)
Strata FE	✓	✓	✓	✓
Lag Dep. Var.	✓		✓	✓
Class Location FE	✓	✓	✓	✓

Notes: Robustness check employing the post-double selection Lasso method for control variable selection. Each regression includes strata fixed effects and, where available, the lag of the dependent variable (*Openness*, *Pr. Employment*, *Pr. Training*). Standard errors are clustered at the class level. The variable *Openness* is a binary indicator equal to 1 if the participant is employed, actively seeking employment, or willing to work despite not currently looking. *Effort* is a binary indicator equal to 1 if the participant engaged in activities to improve their labor market status, including updating their CV, consulting an employment service, or enrolling in a training program. *Perceived Probability of Employment* measures participants' self-reported likelihood (0-100) of being employed in 12 months. *Perceived Probability of Training* captures participants' self-reported likelihood (0-100) of enrolling in a skills development or training program in the next 12 months. $^{+}$ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$.

D.5 Possible Confounds

D.5.1 No consecutive classes

Table A50: Technology Adoption & Digital Skills

	(1)	(2)	(3)	(4)	(5)
	Technology adoption				Digital skills
	Tablet [0,1]	Devices [N]	Participant [0,6]	Children [0,5]	DSI [0,6]
Assigned T1	0.623**	0.642**	2.670**	1.800**	0.847**
	(0.043)	(0.067)	(0.297)	(0.220)	(0.139)
Assigned T2	0.631**	0.817**	2.689**	1.906**	0.903**
	(0.040)	(0.105)	(0.274)	(0.180)	(0.136)
Strata FE	✓	✓	✓	✓	✓
Lag Dep. Var.	✓	✓			✓
N	548	548	548	548	548
adjR^2	0.416	0.333	0.292	0.250	0.247
T2-T1	0.008	0.175	0.019	0.106	0.056
p-val(T2-T1)	0.866	0.111	0.956	0.633	0.732
Mean C	0.257	0.574	1.271	1.454	3.824
Sd C	0.438	0.805	2.087	1.942	1.344

Notes: Robustness check that excludes households assigned to locations where T1 and T2 courses were held consecutively on the same day (e.g., at a given center, a T1 class runs from 9–11 AM followed immediately by a T2 class from 11 AM–1 PM). This restriction minimizes the risk of cross-group interaction or spillovers due to close scheduling. Each regression includes strata fixed effects and, where available, the lag of the dependent variable (*Tablet*, *Devices*, and *DSI*). Standard errors are clustered at the class level. The variable *Tablet* is a binary indicator equal to 1 if the participant reports owning a tablet, and 0 otherwise. *Devices* is the total number of tablets and computers available at home. *Participant* measures the frequency of computer or tablet use by the participant, ranging from 0 (never) to 6 (several times a day). *Children* captures the average frequency with which up to two children use a computer or tablet at home, measured on a scale from 0 (never) to 5 (every day). *DSI* represents the Digital Skills Indicator, a composite index ranging from 1 (no skills) to 6 (above basic skills). $^{+}$ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$.

Table A51: Digital Parenting & Social Inclusion

	(1)	(2)	(3)	(4)	(5)
	Digital Parenting		Social Inclusion		
	Engagement [Z-score]	Self Efficacy [Z-score]	Digital Identity [0,1]	Public Tools [0,4]	New Application [0,1]
Assigned T1	0.342^{+}	0.601**	0.234**	0.852**	0.145*
	(0.174)	(0.144)	(0.060)	(0.255)	(0.058)
Assigned T2	0.245*	0.617**	0.280**	0.790**	0.074^{+}
	(0.105)	(0.118)	(0.043)	(0.194)	(0.040)
Strata FE	✓	✓	✓	✓	✓
Lag Dep. Var.					✓
N	548	548	548	548	548
adjR^2	0.091	0.174	0.198	0.186	0.094
T2-T1	-0.097	0.016	0.046	-0.062	-0.071
p-val(T2-T1)	0.603	0.923	0.446	0.833	0.282
Mean C	0.000	0.000	0.356	0.891	0.137
Sd C	1.000	1.000	0.480	1.506	0.345

Notes: Robustness check that excludes households assigned to locations where T1 and T2 courses were held consecutively on the same day (e.g., at a given center, a T1 class runs from 9–11 AM followed immediately by a T2 class from 11 AM–1 PM). This restriction minimizes the risk of cross-group interaction or spillovers due to close scheduling. Each regression includes strata fixed effects and, where available, the lag of the dependent variable (*New Application*). Standard errors are clustered at the class level. The variable *Engagement* measures how frequently participants use digital tools with their children for education and entertainment and monitor their school performance via apps. It is standardized to have a mean of 0 and standard deviation of 1 in the control group. *Self-Efficacy* captures participants' confidence in guiding their children's digital behavior, including ensuring age-appropriate content, managing screen time, and finding online educational resources. This variable is standardized similarly to Engagement. *Digital Identity* is a binary indicator equal to 1 if the participant has an Italian public digital identity (SPID) and has used it autonomously in the past five months. *Public Tools* measures the number of public digital services the participant has accessed in the past five months, including social security, tax payments, health services, and child-related services. The variable ranges from 0 to 4. *New Application* is a binary indicator equal to 1 if the participant submitted at least one new application for an income support measure in the past five months. $^{+}$ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$.

Table A52: Labor Market Engagement

	(1)	(2)	(3)	(4)
	Current Behavior		Future Expectations	
	Openness [0,1]	Effort [0,1]	Pr. Employment [0,100]	Pr. Training [0,100]
Assigned T1	-0.035	0.031	13.819**	31.607**
	(0.043)	(0.045)	(3.727)	(4.610)
Assigned T2	-0.006	-0.032	10.516*	17.453**
	(0.035)	(0.049)	(4.682)	(6.349)
Strata FE	✓	✓	✓	✓
Lag Dep. Var.	✓		✓	✓
N	548	548	548	548
adjR^2	0.176	0.040	0.145	0.144
T2-T1	0.029	-0.063	-3.302	-14.154
p-val(T2-T1)	0.529	0.238	0.518	0.054
Mean C	0.750	0.511	50.771	31.697
Sd C	0.434	0.501	32.659	29.868

Notes: Robustness check that excludes households assigned to locations where T1 and T2 courses were held consecutively on the same day (e.g., at a given center, a T1 class runs from 9–11 AM followed immediately by a T2 class from 11 AM–1 PM). This restriction minimizes the risk of cross-group interaction or spillovers due to close scheduling. Each regression includes strata fixed effects and, where available, the lag of the dependent variable (*Openness*, *Pr. Employment*, *Pr. Training*). Standard errors are clustered at the class level. The variable *Openness* is a binary indicator equal to 1 if the participant is employed, actively seeking employment, or willing to work despite not currently looking. *Effort* is a binary indicator equal to 1 if the participant engaged in activities to improve their labor market status, including updating their CV, consulting an employment service, or enrolling in a training program. *Perceived Probability of Employment* measures participants' self-reported likelihood (0-100) of being employed in 12 months. *Perceived Probability of Training* captures participants' self-reported likelihood (0-100) of enrolling in a skills development or training program in the next 12 months. $^{+}$ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$.

D.5.2 Heterogeneity by technological endowment (dummy)

Table A53: Technology Adoption & Digital Skills

	(1)	(2)	(3)	(4)	(5)
	Technology adoption				Digital skills
	Tablet [0,1]	Devices [N]	Participant [0,6]	Children [0,5]	DSI [0,6]
Assigned T1	0.669**	0.745**	2.653**	2.035**	0.685**
	(0.039)	(0.069)	(0.229)	(0.188)	(0.138)
Assigned T2	0.677**	0.781**	2.656**	1.996**	0.881**
	(0.039)	(0.080)	(0.259)	(0.186)	(0.136)
Baseline Tablet	0.229**	0.370**	0.333	1.012**	0.150
	(0.072)	(0.119)	(0.309)	(0.300)	(0.200)
Assigned T1 × Baseline Tablet	-0.191*	-0.246	-0.133	-0.761*	0.162
	(0.082)	(0.174)	(0.430)	(0.367)	(0.269)
Assigned T2 × Baseline Tablet	-0.129	0.153	0.276	-0.583	-0.293
	(0.080)	(0.194)	(0.440)	(0.434)	(0.264)
Strata FE	✓	✓	✓	✓	✓
Lag Dep. Var.	✓	✓			✓
N	754	754	754	754	754
adjR^2	0.451	0.270	0.284	0.262	0.195
T2-T1	0.008	0.036	0.003	-0.040	0.196
p-val(T2-T1)	0.824	0.615	0.992	0.827	0.235
T1 + Interaction	0.479	0.499	2.520	1.274	0.847
p-val(T1 + Interaction)	0.000	0.003	0.000	0.000	0.001
T2 +Interaction	0.548	0.934	2.932	1.413	0.588
p-val(T2 + Interaction)	0.000	0.000	0.000	0.000	0.017
Mean C	0.257	0.574	1.271	1.454	3.824
Sd C	0.438	0.805	2.087	1.942	1.344

Notes: The heterogeneity analysis explores the effects of owning a tablet at baseline based on treatment groups. The interaction terms, "Assigned T1 × Baseline Tablet" and "Assigned T2 × Baseline Tablet", show how the treatment effect varies depending on the technological endowment. The variable "Baseline Tablet" takes value 1 if the respondent own a tablet at baseline. Each regression includes strata fixed effects and, where available, the lag of the dependent variable (*Tablet*, *Devices*, and *DSI*). Standard errors are clustered at the class level. The variable *Tablet* is a cathegorical variable . *Devices* is the total number of tablets and computers available at home. *Participant* measures the frequency of computer or tablet use by the participant, ranging from 0 (never) to 6 (several times a day). *Children* captures the average frequency with which up to two children use a computer or tablet at home, measured on a scale from 0 (never) to 5 (every day). *DSI* represents the Digital Skills Indicator, a composite index ranging from 1 (no skills) to 6 (above basic skills). $^{+}$ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$.

Table A54: Digital Parenting & Social Inclusion

	(1)	(2)	(3)	(4)	(5)
	Digital Parenting		Social Inclusion		
	Engagement [Z-score]	Self Efficacy [Z-score]	Digital Identity [0,1]	Public Tools [0,4]	New Application [0,1]
Assigned T1	0.453**	0.515**	0.164**	0.632**	0.141**
	(0.135)	(0.115)	(0.056)	(0.217)	(0.040)
Assigned T2	0.309**	0.656**	0.228**	0.740**	0.062
	(0.096)	(0.109)	(0.047)	(0.192)	(0.039)
Baseline Tablet	0.121	-0.008	0.037	-0.055	0.054
	(0.130)	(0.160)	(0.077)	(0.226)	(0.054)
Assigned T1 × Baseline Tablet	-0.132	0.235	-0.029	0.089	-0.083
	(0.190)	(0.204)	(0.116)	(0.382)	(0.080)
Assigned T2 × Baseline Tablet	-0.082	-0.052	-0.008	0.087	-0.037
	(0.223)	(0.199)	(0.101)	(0.388)	(0.081)
Strata FE	✓	✓	✓	✓	✓
Lag Dep. Var.					✓
N	754	754	754	754	754
adjR^2	0.080	0.171	0.148	0.146	0.067
T2-T1	-0.144	0.141	0.063	0.108	-0.080
p-val(T2-T1)	0.307	0.264	0.263	0.663	0.096
T1 + Interaction	0.322	0.750	0.136	0.720	0.058
p-val(T1 + Interaction)	0.063	0.000	0.189	0.043	0.451
T2 +Interaction	0.227	0.603	0.220	0.827	0.025
p-val(T2 + Interaction)	0.272	0.001	0.012	0.010	0.722
Mean C	0.000	0.000	0.356	0.891	0.137
Sd C	1.000	1.000	0.480	1.506	0.345

Notes: The heterogeneity analysis explores the effects of owning a tablet at baseline based on treatment groups. The interaction terms, "Assigned T1 × Baseline Tablet" and "Assigned T2 × Baseline Tablet", show how the treatment effect varies depending on the technological endowment. The variable "Baseline Tablet" takes value 1 if the respondent own a tablet at baseline. Each regression includes strata fixed effects and, where available, the lag of the dependent variable (*New Application*). Standard errors are clustered at the class level. The variable *Engagement* measures how frequently participants use digital tools with their children for education and entertainment and monitor their school performance via apps. It is standardized to have a mean of 0 and standard deviation of 1 in the control group. *Self-Efficacy* captures participants' confidence in guiding their children's digital behavior, including ensuring age-appropriate content, managing screen time, and finding online educational resources. This variable is standardized similarly to Engagement. *Digital Identity* is a binary indicator equal to 1 if the participant has an Italian public digital identity (SPID) and has used it autonomously in the past five months. *Public Tools* measures the number of public digital services the participant has accessed in the past five months, including social security, tax payments, health services, and child-related services. The variable ranges from 0 to 4. *New Application* is a binary indicator equal to 1 if the participant submitted at least one new application for an income support measure in the past five months. $^{+}$ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$.

Table A55: Labor Market Engagement

	(1)	(2)	(3)	(4)
	Current Behavior		Future Expectations	
	Openness [0,1]	Effort [0,1]	Pr. Employment [0,100]	Pr. Training [0,100]
Assigned T1	-0.029	-0.029	7.112	22.887**
	(0.047)	(0.048)	(4.400)	(5.353)
Assigned T2	0.021	-0.069	7.674*	14.733**
	(0.038)	(0.046)	(3.759)	(5.291)
Baseline Tablet	0.061	-0.056	-0.127	4.184
	(0.059)	(0.080)	(5.142)	(4.632)
Assigned T1 × Baseline Tablet	-0.074	0.134	-0.120	-3.764
	(0.094)	(0.111)	(8.908)	(7.178)
Assigned T2 × Baseline Tablet	-0.189*	0.012	-10.920	-0.920
	(0.088)	(0.104)	(7.595)	(7.747)
Strata FE	✓	✓	✓	✓
Lag Dep. Var.	✓		✓	✓
N	754	754	754	754
adjR^2	0.025	0.029	0.036	0.085
T2-T1	0.050	-0.040	0.562	-8.154
p-val(T2-T1)	0.253	0.429	0.903	0.239
T1 + Interaction	-0.103	0.104	6.992	19.124
p-val(T1 + Interaction)	0.210	0.250	0.339	0.004
T2 +Interaction	-0.168	-0.057	-3.246	13.813
p-val(T2 + Interaction)	0.044	0.552	0.672	0.083
Mean C	0.750	0.511	50.771	31.697
Sd C	0.434	0.501	32.659	29.868

Notes: The heterogeneity analysis explores the effects of owning a tablet at baseline based on treatment groups. The interaction terms, "Assigned T1 × Baseline Tablet" and "Assigned T2 × Baseline Tablet", show how the treatment effect varies depending on the technological endowment. The variable "Baseline Tablet" takes value 1 if the respondent own a tablet at baseline. Each regression includes strata fixed effects and, where available, the lag of the dependent variable (*Openness*, *Pr. Employment*, *Pr. Training*). Standard errors are clustered at the class level. The variable *Openness* is a binary indicator equal to 1 if the participant is employed, actively seeking employment, or willing to work despite not currently looking. *Effort* is a binary indicator equal to 1 if the participant engaged in activities to improve their labor market status, including updating their CV, consulting an employment service, or enrolling in a training program. *Perceived Probability of Employment* measures participants' self-reported likelihood (0-100) of being employed in 12 months. *Perceived Probability of Training* captures participants' self-reported likelihood (0-100) of enrolling in a skills development or training program in the next 12 months. $^{+}$ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$.

D.5.3 Heterogeneity by technological endowment (N devices)

Table A56: Technology Adoption & Digital Skills

	(1)	(2)	(3)	(4)	(5)
	Technology adoption				Digital skills
	Tablet [0,1]	Devices [N]	Participant [0,6]	Children [0,5]	DSI [0,6]
Assigned T1	0.693**	0.750**	3.038**	2.317**	0.603**
	(0.043)	(0.070)	(0.239)	(0.190)	(0.157)
Assigned T2	0.694**	0.759**	3.090**	2.265**	0.933**
	(0.045)	(0.065)	(0.261)	(0.215)	(0.162)
Baseline Devices	0.201**	0.651**	1.278**	1.510**	0.213
	(0.063)	(0.113)	(0.299)	(0.263)	(0.165)
Assigned T1 × Baseline Devices	-0.182*	-0.211	-1.186**	-1.280**	0.268
	(0.074)	(0.157)	(0.385)	(0.352)	(0.224)
Assigned T2 × Baseline Devices	-0.135+	0.059	-1.093**	-1.158**	-0.307
	(0.071)	(0.153)	(0.390)	(0.360)	(0.234)
Strata FE	✓	✓	✓	✓	✓
Lag Dep. Var.	✓	✓			✓
N	754	754	754	754	754
adjR^2	0.450	0.347	0.302	0.292	0.203
T2-T1	0.001	0.008	0.052	-0.052	0.329
p-val(T2-T1)	0.972	0.894	0.851	0.796	0.088
T1 + Interaction	0.511	0.539	1.852	1.036	0.871
p-val(T1 + Interaction)	0.000	0.000	0.000	0.001	0.000
T2 +Interaction	0.559	0.818	1.998	1.107	0.626
p-val(T2 + Interaction)	0.000	0.000	0.000	0.000	0.001
Mean C	0.257	0.574	1.271	1.454	3.824
Sd C	0.438	0.805	2.087	1.942	1.344

Notes: The heterogeneity analysis explores the effects of owning at least a device (tablet or PC) at baseline based on treatment groups. The interaction terms, "Assigned T1 × Baseline Devices" and "Assigned T2 × Baseline Devices", show how the treatment effect varies depending on the technological endowment. The variable "Baseline Devices" takes value 1 if the respondent own at least a device (tablet or PC) at baseline. Each regression includes strata fixed effects and, where available, the lag of the dependent variable (*Tablet*, *Devices*, and *DSI*). Standard errors are clustered at the class level. The variable *Tablet* is a cathegorical variable . *Devices* is the total number of tablets and computers available at home. *Participant* measures the frequency of computer or tablet use by the participant, ranging from 0 (never) to 6 (several times a day). *Children* captures the average frequency with which up to two children use a computer or tablet at home, measured on a scale from 0 (never) to 5 (every day). *DSI* represents the Digital Skills Indicator, a composite index ranging from 1 (no skills) to 6 (above basic skills). $^{+}$ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$.

Table A57: Digital Parenting & Social Inclusion

	(1)	(2)	(3)	(4)	(5)
	Digital Parenting		Social Inclusion		
	Engagement [Z-score]	Self Efficacy [Z-score]	Digital Identity [0,1]	Public Tools [0,4]	New Application [0,1]
Assigned T1	0.365*	0.460**	0.130*	0.538*	0.180**
	(0.141)	(0.124)	(0.060)	(0.223)	(0.045)
Assigned T2	0.336**	0.712**	0.258**	0.773**	0.086*
	(0.107)	(0.119)	(0.047)	(0.189)	(0.043)
Baseline Devices	-0.086	-0.038	0.010	-0.116	0.072+
	(0.103)	(0.123)	(0.056)	(0.159)	(0.041)
Assigned T1 × Baseline Devices	0.161	0.264+	0.071	0.296	-0.150**
	(0.154)	(0.159)	(0.080)	(0.260)	(0.056)
Assigned T2 × Baseline Devices	-0.096	-0.162	-0.079	-0.022	-0.089
	(0.164)	(0.155)	(0.075)	(0.241)	(0.066)
Strata FE	✓	✓	✓	✓	✓
Lag Dep. Var.					✓
N	754	754	754	754	754
adjR^2	0.083	0.175	0.151	0.148	0.071
T2-T1	-0.030	0.252	0.128	0.235	-0.094
p-val(T2-T1)	0.842	0.054	0.042	0.367	0.071
T1 + Interaction	0.527	0.724	0.201	0.834	0.030
p-val(T1 + Interaction)	0.000	0.000	0.003	0.001	0.540
T2 +Interaction	0.239	0.550	0.179	0.751	-0.003
p-val(T2 + Interaction)	0.086	0.000	0.007	0.001	0.960
Mean C	0.000	0.000	0.356	0.891	0.137
Sd C	1.000	1.000	0.480	1.506	0.345

Notes: The heterogeneity analysis explores the effects of owning at least a device (tablet or PC) at baseline based on treatment groups. The interaction terms, "Assigned T1 × Baseline Devices" and "Assigned T2 × Baseline Devices", show how the treatment effect varies depending on the technological endowment. The variable "Baseline Devices" takes value 1 if the respondent own at least a device (tablet or PC) at baseline. Each regression includes strata fixed effects and, where available, the lag of the dependent variable (*New Application*). Standard errors are clustered at the class level. The variable *Engagement* measures how frequently participants use digital tools with their children for education and entertainment and monitor their school performance via apps. It is standardized to have a mean of 0 and standard deviation of 1 in the control group. *Self-Efficacy* captures participants' confidence in guiding their children's digital behavior, including ensuring age-appropriate content, managing screen time, and finding online educational resources. This variable is standardized similarly to Engagement. *Digital Identity* is a binary indicator equal to 1 if the participant has an Italian public digital identity (SPID) and has used it autonomously in the past five months. *Public Tools* measures the number of public digital services the participant has accessed in the past five months, including social security, tax payments, health services, and child-related services. The variable ranges from 0 to 4. *New Application* is a binary indicator equal to 1 if the participant submitted at least one new application for an income support measure in the past five months. $^{+}$ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$.

Table A58: Labor Market Engagement

	(1)	(2)	(3)	(4)
	Current Behavior		Future Expectations	
	Openness [0,1]	Effort [0,1]	Pr. Employment [0,100]	Pr. Training [0,100]
Assigned T1	-0.015	-0.034	5.202	20.568**
	(0.054)	(0.058)	(4.646)	(5.772)
Assigned T2	0.038	-0.032	8.122+	18.425**
	(0.047)	(0.056)	(4.143)	(5.740)
Baseline Devices	0.086+	-0.047	-0.021	3.729
	(0.044)	(0.069)	(3.691)	(3.692)
Assigned T1 × Baseline Devices	-0.084	0.087	4.769	3.441
	(0.073)	(0.097)	(6.262)	(6.038)
Assigned T2 × Baseline Devices	-0.152*	-0.081	-6.824	-10.064
	(0.067)	(0.095)	(6.702)	(7.142)
Strata FE	✓	✓	✓	✓
Lag Dep. Var.	✓		✓	✓
N	754	754	754	754
adjR^2	0.025	0.033	0.035	0.090
T2-T1	0.053	0.002	2.920	-2.143
p-val(T2-T1)	0.318	0.969	0.560	0.775
T1 + Interaction	-0.099	0.053	9.970	24.009
p-val(T1 + Interaction)	0.068	0.423	0.042	0.000
T2 +Interaction	-0.114	-0.113	1.298	8.361
p-val(T2 + Interaction)	0.025	0.129	0.831	0.203
Mean C	0.750	0.511	50.771	31.697
Sd C	0.434	0.501	32.659	29.868

Notes: The heterogeneity analysis explores the effects of owning at least a device (tablet or PC) at baseline based on treatment groups. The interaction terms, "Assigned T1 × Baseline Devices" and "Assigned T2 × Baseline Devices", show how the treatment effect varies depending on the technological endowment. The variable "Baseline Devices" takes value 1 if the respondent own at least a device (tablet or PC) at baseline. Each regression includes strata fixed effects and, where available, the lag of the dependent variable (*Openness*, *Pr. Employment*, *Pr. Training*). Standard errors are clustered at the class level. The variable *Openness* is a binary indicator equal to 1 if the participant is employed, actively seeking employment, or willing to work despite not currently looking. *Effort* is a binary indicator equal to 1 if the participant engaged in activities to improve their labor market status, including updating their CV, consulting an employment service, or enrolling in a training program. *Perceived Probability of Employment* measures participants' self-reported likelihood (0-100) of being employed in 12 months. *Perceived Probability of Training* captures participants' self-reported likelihood (0-100) of enrolling in a skills development or training program in the next 12 months. $^{+}$ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$.

D.6 2SLS regressions

D.6.1 Enrollment

Table A59: Technology Adoption & Digital Skills

	(1)	(2)	(3)	(4)	(5)
	Technology adoption				Digital skills
	Tablet [0,1]	Devices [N]	Participant [0,6]	Children [0,5]	DSI [0,6]
Treated T1	0.737**	0.765**	3.069**	2.193**	0.835**
	(0.037)	(0.079)	(0.233)	(0.184)	(0.149)
Treated T2	0.743**	0.906**	3.103**	2.142**	0.930**
	(0.034)	(0.080)	(0.232)	(0.178)	(0.134)
Strata FE	✓	✓	✓	✓	✓
Lag Dep. Var.	✓	✓			✓
N	754	754	754	754	754
adjR^2	0.536	0.320	0.365	0.301	0.177
Treated T2 -Treated T1	0.007	0.141	0.035	-0.051	0.095
p-val(Treated T2 -Treated T1)	0.798	0.098	0.882	0.736	0.568
Mean C	0.257	0.574	1.271	1.454	3.824
Sd C	0.438	0.805	2.087	1.942	1.344

Notes: Instrumental variable regression on actual take-up (Treated T1 and Treated T2, defined as participants who attended at least one lesson) of treatments T1 and T2, instrumented with treatment assignment. Each regression includes strata fixed effects and, where available, the lag of the dependent variable (*Tablet*, *Devices*, and *DSI*). Standard errors are clustered at the class level. The variable *Tablet* is a cathegorical variable . *Devices* is the total number of tablets and computers available at home. *Participant* measures the frequency of computer or tablet use by the participant, ranging from 0 (never) to 6 (several times a day). *Children* captures the average frequency with which up to two children use a computer or tablet at home, measured on a scale from 0 (never) to 5 (every day). *DSI* represents the Digital Skills Indicator, a composite index ranging from 1 (no skills) to 6 (above basic skills). $^{+}$ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$.

Table A60: Digital Parenting & Social Inclusion

	(1)	(2)	(3)	(4)	(5)
	Digital Parenting		Social Inclusion		
	Engagement [Z-score]	Self Efficacy [Z-score]	Digital Identity [0,1]	Public Tools [0,4]	New Application [0,1]
Treated T1	0.471**	0.658**	0.185**	0.760**	0.146**
	(0.135)	(0.128)	(0.058)	(0.231)	(0.043)
Treated T2	0.315**	0.736**	0.259**	0.866**	0.055
	(0.096)	(0.112)	(0.045)	(0.175)	(0.036)
Strata FE	✓	✓	✓	✓	✓
Lag Dep. Var.					✓
N	754	754	754	754	754
adjR^2	0.091	0.126	0.141	0.129	0.084
Treated T2 -Treated T1	-0.156	0.078	0.073	0.107	-0.090
p-val(Treated T2 -Treated T1)	0.264	0.571	0.201	0.670	0.066
Mean C	0.000	0.000	0.356	0.891	0.137
Sd C	1.000	1.000	0.480	1.506	0.345

Notes: Instrumental variable regression on actual take-up (Treated T1 and Treated T2, defined as participants who attended at least one lesson) of treatments T1 and T2, instrumented with treatment assignment. Each regression includes strata fixed effects and, where available, the lag of the dependent variable (*New Application*). Standard errors are clustered at the class level. The variable *Engagement* measures how frequently participants use digital tools with their children for education and entertainment and monitor their school performance via apps. It is standardized to have a mean of 0 and standard deviation of 1 in the control group. *Self-Efficacy* captures participants' confidence in guiding their children's digital behavior, including ensuring age-appropriate content, managing screen time, and finding online educational resources. This variable is standardized similarly to Engagement. *Digital Identity* is a binary indicator equal to 1 if the participant has an Italian public digital identity (SPID) and has used it autonomously in the past five months. *Public Tools* measures the number of public digital services the participant has accessed in the past five months, including social security, tax payments, health services, and child-related services. The variable ranges from 0 to 4. *New Application* is a binary indicator equal to 1 if the participant submitted at least one new application for an income support measure in the past five months. $^{+}$ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$.

Table A61: Labor Market Engagement

	(1)	(2)	(3)	(4)
	Current Behavior		Future Expectations	
	Openness [0,1]	Effort [0,1]	Pr. Employment [0,100]	Pr. Training [0,100]
Treated T1	-0.055	-0.002	7.514^{+}	25.846**
	(0.040)	(0.044)	(3.925)	(5.621)
Treated T2	-0.013	-0.076	7.528^{+}	16.608**
	(0.033)	(0.047)	(4.009)	(5.664)
Strata FE	✓	✓	✓	✓
Lag Dep. Var.	✓		✓	✓
N	754	754	754	754
adjR^2	0.192	0.029	0.085	0.050
Treated T2 -Treated T1	0.042	-0.075	0.013	-9.238
p-val(Treated T2 -Treated T1)	0.284	0.119	0.998	0.196
Mean C	0.750	0.511	50.771	31.697
Sd C	0.434	0.501	32.659	29.868

Notes: Instrumental variable regression on actual take-up (Treated T1 and Treated T2, defined as participants who attended at least one lesson) of treatments T1 and T2, instrumented with treatment assignment. Each regression includes strata fixed effects and, where available, the lag of the dependent variable (*Openness*, *Pr. Employment*, *Pr. Training*). Standard errors are clustered at the class level. The variable *Openness* is a binary indicator equal to 1 if the participant is employed, actively seeking employment, or willing to work despite not currently looking. *Effort* is a binary indicator equal to 1 if the participant engaged in activities to improve their labor market status, including updating their CV, consulting an employment service, or enrolling in a training program. *Perceived Probability of Employment* measures participants' self-reported likelihood (0-100) of being employed in 12 months. *Perceived Probability of Training* captures participants' self-reported likelihood (0-100) of enrolling in a skills development or training program in the next 12 months. $^{+}$ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$.

D.6.2 Attendance

Table A62: Technology Adoption & Digital Skills

	(1)	(2)	(3)	(4)	(5)
	Technology adoption				Digital skills
	Tablet [0,1]	Devices [N]	Participant [0,6]	Children [0,5]	DSI [0,6]
N hours completed	0.077**	0.068**	0.320**	0.236**	0.080**
	(0.005)	(0.014)	(0.039)	(0.028)	(0.027)
N hours completed^2	-0.002**	-0.001*	-0.008**	-0.006**	-0.002
	(0.000)	(0.001)	(0.002)	(0.001)	(0.001)
Strata FE	✓	✓	✓	✓	✓
Lag Dep. Var.	✓	✓			✓
N	754	754	754	754	754
adjR^2	0.528	0.310	0.359	0.290	0.172
Mean C	0.257	0.574	1.271	1.454	3.824
Sd C	0.438	0.805	2.087	1.942	1.344

Notes: Instrumental variable regression on number of hours completed and its square, both instrumented with treatment assignment (T1 and T2). Each regression includes strata fixed effects and, where available, the lag of the dependent variable (*Tablet*, *Devices*, and *DSI*). Standard errors are clustered at the class level. The variable *Tablet* is a cathegorical variable . *Devices* is the total number of tablets and computers available at home. *Participant* measures the frequency of computer or tablet use by the participant, ranging from 0 (never) to 6 (several times a day). *Children* captures the average frequency with which up to two children use a computer or tablet at home, measured on a scale from 0 (never) to 5 (every day). *DSI* represents the Digital Skills Indicator, a composite index ranging from 1 (no skills) to 6 (above basic skills). $^{+}$ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$.

Table A63: Digital Parenting & Social Inclusion

	(1)	(2)	(3)	(4)	(5)
	Digital Parenting		Social Inclusion		
	Engagement [Z-score]	Self Efficacy [Z-score]	Digital Identity [0,1]	Public Tools [0,4]	New Application [0,1]
N hours completed	0.063*	0.062**	0.013	0.071	0.023**
	(0.025)	(0.023)	(0.010)	(0.043)	(0.008)
N hours completed^2	-0.002*	-0.001	-0.000	-0.001	-0.001*
	(0.001)	(0.001)	(0.000)	(0.002)	(0.000)
Strata FE	✓	✓	✓	✓	✓
Lag Dep. Var.					✓
N	754	754	754	754	754
adjR^2	0.093	0.121	0.132	0.126	0.082
Mean C	0.000	0.000	0.356	0.891	0.137
Sd C	1.000	1.000	0.480	1.506	0.345

Notes: Instrumental variable regression on number of hours completed and its square, both instrumented with treatment assignment (T1 and T2). Each regression includes strata fixed effects and, where available, the lag of the dependent variable (*New Application*). Standard errors are clustered at the class level. The variable *Engagement* measures how frequently participants use digital tools with their children for education and entertainment and monitor their school performance via apps. It is standardized to have a mean of 0 and standard deviation of 1 in the control group. *Self-Efficacy* captures participants' confidence in guiding their children's digital behavior, including ensuring age-appropriate content, managing screen time, and finding online educational resources. This variable is standardized similarly to Engagement. *Digital Identity* is a binary indicator equal to 1 if the participant has an Italian public digital identity (SPID) and has used it autonomously in the past five months. *Public Tools* measures the number of public digital services the participant has accessed in the past five months, including social security, tax payments, health services, and child-related services. The variable ranges from 0 to 4. *New Application* is a binary indicator equal to 1 if the participant submitted at least one new application for an income support measure in the past five months. $^{+}$ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$.

Table A64: Labor Market Engagement

	(1)	(2)	(3)	(4)
	Current Behavior		Future Expectations	
	Openness [0,1]	Effort [0,1]	Pr. Employment [0,100]	Pr. Training [0,100]
N hours completed	-0.010	0.006	0.791	3.544**
	(0.007)	(0.008)	(0.713)	(1.106)
N hours completed^2	0.000	-0.000	-0.019	-0.117*
	(0.000)	(0.000)	(0.031)	(0.050)
Strata FE	✓	✓	✓	✓
Lag Dep. Var.	✓		✓	✓
N	754	754	754	754
adjR^2	0.191	0.025	0.087	0.039
Mean C	0.750	0.511	50.771	31.697
Sd C	0.434	0.501	32.659	29.868

Notes: Instrumental variable regression on number of hours completed and its square, both instrumented with treatment assignment (T1 and T2). Each regression includes strata fixed effects and, where available, the lag of the dependent variable (*Openness*, *Pr. Employment*, *Pr. Training*). Standard errors are clustered at the class level. The variable *Openness* is a binary indicator equal to 1 if the participant is employed, actively seeking employment, or willing to work despite not currently looking. *Effort* is a binary indicator equal to 1 if the participant engaged in activities to improve their labor market status, including updating their CV, consulting an employment service, or enrolling in a training program. *Perceived Probability of Employment* measures participants' self-reported likelihood (0-100) of being employed in 12 months. *Perceived Probability of Training* captures participants' self-reported likelihood (0-100) of enrolling in a skills development or training program in the next 12 months. $^{+}$ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$.

D.7 Treatment Effect Heterogeneity

D.7.1 Heterogeneity by digital literacy

Table A65: Technology Adoption & Digital Skills

	(1)	(2)	(3)	(4)	(5)
	Technology adoption				Digital skills
	Tablet [0,1]	Devices [N]	Participant [0,6]	Children [0,5]	DSI [0,6]
Assigned T1	0.701**	0.710**	2.861**	2.033**	0.754**
	(0.047)	(0.087)	(0.302)	(0.225)	(0.169)
Assigned T2	0.668**	0.798**	2.744**	1.866**	0.921**
	(0.046)	(0.090)	(0.268)	(0.226)	(0.170)
Assigned T1 × Baseline DSI	-0.144*	-0.035	-0.475	-0.317	-0.070
	(0.061)	(0.120)	(0.380)	(0.291)	(0.208)
Assigned T2 × Baseline DSI	-0.035	0.030	-0.061	0.011	-0.196
	(0.056)	(0.130)	(0.318)	(0.269)	(0.203)
Strata FE	✓	✓	✓	✓	✓
Lag Dep. Var.	✓	✓			✓
N	754	754	754	754	754
adjR^2	0.439	0.240	0.282	0.246	0.193
T2-T1	-0.034	0.088	-0.117	-0.167	0.166
p-val(T2-T1)	0.343	0.298	0.702	0.427	0.371
T1 + Interaction	0.557	0.675	2.386	1.716	0.684
p-val(T1 + Interaction)	0.000	0.000	0.000	0.000	0.000
T2 +Interaction	0.632	0.828	2.683	1.878	0.725
p-val(T2 + Interaction)	0.000	0.000	0.000	0.000	0.000
Mean C	0.257	0.574	1.271	1.454	3.824
Sd C	0.438	0.805	2.087	1.942	1.344

Notes: The heterogeneity analysis explores the effects of digital skills based on treatment groups. The interaction terms, "Assigned T1 × Baseline DSI" and "Assigned T2 × Baseline DSI", show how the treatment effect varies depending on the level of digital skills. The variable "Baseline DSI" is a dummy taking the value 1 if the index of digital skills (DSI) is greater than or equal to 4 (this is an index that indicates the respondent's level of digitalization at baseline). The coefficient of "Baseline DSI" is not displayed in the tables, as it is collinear with the strata fixed effects. Each regression includes strata fixed effects and, where available, the lag of the dependent variable (*Tablet*, *Devices*, and *DSI*). Standard errors are clustered at the class level. The variable *Tablet* is a categorical variable . *Devices* is the total number of tablets and computers available at home. *Participant* measures the frequency of computer or tablet use by the participant, ranging from 0 (never) to 6 (several times a day). *Children* captures the average frequency with which up to two children use a computer or tablet at home, measured on a scale from 0 (never) to 5 (every day). *DSI* represents the Digital Skills Indicator, a composite index ranging from 1 (no skills) to 6 (above basic skills). $^{+}$ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$.

Table A66: Digital Parenting & Social Inclusion

	(1)	(2)	(3)	(4)	(5)
	Digital Parenting		Social Inclusion		
	Engagement [Z-score]	Self Efficacy [Z-score]	Digital Identity [0,1]	Public Tools [0,4]	New Application [0,1]
Assigned T1	0.454**	0.609**	0.124*	0.480*	0.160**
	(0.160)	(0.142)	(0.057)	(0.195)	(0.058)
Assigned T2	0.350*	0.800**	0.252**	0.829**	0.072
	(0.145)	(0.147)	(0.065)	(0.204)	(0.054)
Assigned T1 × Baseline DSI	-0.055	-0.089	0.069	0.343	-0.071
	(0.161)	(0.148)	(0.064)	(0.283)	(0.084)
Assigned T2 × Baseline DSI	-0.110	-0.298+	-0.048	-0.132	-0.034
	(0.182)	(0.155)	(0.087)	(0.268)	(0.072)
Strata FE	✓	✓	✓	✓	✓
Lag Dep. Var.					✓
N	754	754	754	754	754
adjR^2	0.081	0.173	0.151	0.151	0.068
T2-T1	-0.104	0.191	0.127	0.349	-0.088
p-val(T2-T1)	0.563	0.254	0.065	0.175	0.195
T1 + Interaction	0.399	0.521	0.193	0.823	0.089
p-val(T1 + Interaction)	0.002	0.000	0.002	0.004	0.110
T2 +Interaction	0.240	0.502	0.204	0.696	0.038
p-val(T2 + Interaction)	0.029	0.000	0.000	0.001	0.400
Mean C	0.000	0.000	0.356	0.891	0.137
Sd C	1.000	1.000	0.480	1.506	0.345

Notes: The heterogeneity analysis explores the effects of digital skills based on treatment groups. The interaction terms, "Assigned T1 × Baseline DSI" and "Assigned T2 × Baseline DSI", show how the treatment effect varies depending on the level of digital skills. The variable "Baseline DSI" is a dummy taking the value 1 if the index of digital skills (DSI) is greater than or equal to 4 (this is an index that indicates the respondent's level of digitalization at baseline). The coefficient of "Baseline DSI" is not displayed in the tables, as it is collinear with the strata fixed effects. Each regression includes strata fixed effects and, where available, the lag of the dependent variable (*New Application*). Standard errors are clustered at the class level. The variable *Engagement* measures how frequently participants use digital tools with their children for education and entertainment and monitor their school performance via apps. It is standardized to have a mean of 0 and standard deviation of 1 in the control group. *Self-Efficacy* captures participants' confidence in guiding their children's digital behavior, including ensuring age-appropriate content, managing screen time, and finding online educational resources. This variable is standardized similarly to Engagement. *Digital Identity* is a binary indicator equal to 1 if the participant has an Italian public digital identity (SPID) and has used it autonomously in the past five months. *Public Tools* measures the number of public digital services the participant has accessed in the past five months, including social security, tax payments, health services, and child-related services. The variable ranges from 0 to 4. *New Application* is a binary indicator equal to 1 if the participant submitted at least one new application for an income support measure in the past five months. $^{+}$ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$.

Table A67: Labor Market Engagement

	(1)	(2)	(3)	(4)
	Current Behavior		Future Expectations	
	Openness [0,1]	Effort [0,1]	Pr. Employment [0,100]	Pr. Training [0,100]
Assigned T1	-0.018	0.008	11.614*	20.933**
	(0.063)	(0.062)	(5.348)	(4.431)
Assigned T2	0.008	-0.114+	5.408	15.034**
	(0.063)	(0.063)	(5.382)	(5.039)
Assigned T1 × Baseline DSI	-0.053	-0.020	-9.070	2.352
	(0.077)	(0.081)	(7.175)	(5.474)
Assigned T2 × Baseline DSI	-0.051	0.089	-0.162	-0.913
	(0.086)	(0.088)	(6.611)	(6.128)
Strata FE	✓	✓	✓	✓
Lag Dep. Var.	✓		✓	✓
N	754	754	754	754
adjR^2	0.022	0.030	0.035	0.085
T2-T1	0.026	-0.121	-6.205	-5.898
p-val(T2-T1)	0.685	0.041	0.312	0.316
T1 + Interaction	-0.070	-0.012	2.543	23.285
p-val(T1 + Interaction)	0.155	0.812	0.606	0.000
T2 +Interaction	-0.043	-0.024	5.246	14.121
p-val(T2 + Interaction)	0.378	0.680	0.260	0.033
Mean C	0.750	0.511	50.771	31.697
Sd C	0.434	0.501	32.659	29.868

Notes: The heterogeneity analysis explores the effects of digital skills based on treatment groups. The interaction terms, "Assigned T1 × Baseline DSI" and "Assigned T2 × Baseline DSI", show how the treatment effect varies depending on the level of digital skills. The variable "Baseline DSI" is a dummy taking the value 1 if the index of digital skills (DSI) is greater than or equal to 4 (this is an index that indicates the respondent's level of digitalization at baseline). The coefficient of "Baseline DSI" is not displayed in the tables, as it is collinear with the strata fixed effects. Each regression includes strata fixed effects and, where available, the lag of the dependent variable (*Openness*, *Pr. Employment*, *Pr. Training*). Standard errors are clustered at the class level. The variable *Openness* is a binary indicator equal to 1 if the participant is employed, actively seeking employment, or willing to work despite not currently looking. *Effort* is a binary indicator equal to 1 if the participant engaged in activities to improve their labor market status, including updating their CV, consulting an employment service, or enrolling in a training program. *Perceived Probability of Employment* measures participants' self-reported likelihood (0-100) of being employed in 12 months. *Perceived Probability of Training* captures participants' self-reported likelihood (0-100) of enrolling in a skills development or training program in the next 12 months. $^{+}$ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$.

D.7.2 Heterogeneity by Age

Table A68: Technology Adoption & Digital Skills

	(1)	(2)	(3)	(4)	(5)
	Technology adoption				Digital skills
	Tablet [0,1]	Devices [N]	Participant [0,6]	Children [0,5]	DSI [0,6]
Assigned T1	0.646**	0.851**	2.700**	2.253**	0.613**
	(0.052)	(0.087)	(0.283)	(0.213)	(0.164)
Assigned T2	0.630**	0.813**	2.999**	1.793**	0.694**
	(0.052)	(0.101)	(0.278)	(0.238)	(0.137)
Age	0.015	0.263**	0.765**	0.727**	-0.223+
	(0.053)	(0.084)	(0.289)	(0.200)	(0.129)
Assigned T1 × Age	-0.032	-0.320*	-0.221	-0.769**	0.221
	(0.064)	(0.141)	(0.376)	(0.283)	(0.196)
Assigned T2 × Age	0.044	0.008	-0.596	0.195	0.264
	(0.065)	(0.119)	(0.380)	(0.296)	(0.196)
Strata FE	✓	✓	✓	✓	✓
Lag Dep. Var.	✓	✓			✓
N	754	754	754	754	754
adjR^2	0.435	0.253	0.290	0.268	0.194
T2-T1	-0.016	-0.038	0.299	-0.460	0.081
p-val(T2-T1)	0.739	0.710	0.338	0.056	0.649
T1 + Interaction	0.614	0.532	2.479	1.484	0.834
p-val(T1 + Interaction)	0.000	0.000	0.000	0.000	0.000
T2 +Interaction	0.674	0.822	2.403	1.988	0.958
p-val(T2 + Interaction)	0.000	0.000	0.000	0.000	0.000
Mean C	0.257	0.574	1.271	1.454	3.824
Sd C	0.438	0.805	2.087	1.942	1.344

Notes: The heterogeneity analysis explores the effects of age based on treatment groups. The variable "Age" is a dummy taking the value 1 if the respondent was older than 39 at baseline. The age of 39 was chosen because it is the median of the age variable. The interaction terms, Assigned T1 × Age and Assigned T2 × Age, show how the treatment effect varies depending on the age. Each regression includes strata fixed effects and, where available, the lag of the dependent variable (*Tablet*, *Devices*, and *DSI*). Standard errors are clustered at the class level. The variable *Tablet* is a cathegorical variable . *Devices* is the total number of tablets and computers available at home. *Participant* measures the frequency of computer or tablet use by the participant, ranging from 0 (never) to 6 (several times a day). *Children* captures the average frequency with which up to two children use a computer or tablet at home, measured on a scale from 0 (never) to 5 (every day). *DSI* represents the Digital Skills Indicator, a composite index ranging from 1 (no skills) to 6 (above basic skills). $^{+}$ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$.

Table A69: Digital Parenting & Social Inclusion

	(1)	(2)	(3)	(4)	(5)
	Digital Parenting		Social Inclusion		
	Engagement [Z-score]	Self Efficacy [Z-score]	Digital Identity [0,1]	Public Tools [0,4]	New Application [0,1]
Assigned T1	0.436**	0.616**	0.190**	0.733**	0.100*
	(0.121)	(0.120)	(0.061)	(0.229)	(0.043)
Assigned T2	0.190	0.597**	0.232**	0.765**	0.019
	(0.128)	(0.111)	(0.055)	(0.191)	(0.039)
Age	-0.168	-0.107	0.025	-0.174	0.049
	(0.119)	(0.114)	(0.059)	(0.165)	(0.041)
Assigned T1 × Age	0.000	-0.087	-0.061	-0.140	0.042
	(0.155)	(0.164)	(0.087)	(0.282)	(0.061)
Assigned T2 × Age	0.218	0.098	-0.011	-0.020	0.078
	(0.167)	(0.149)	(0.083)	(0.263)	(0.068)
Strata FE	✓	✓	✓	✓	✓
Lag Dep. Var.					✓
N	754	754	754	754	754
adjR^2	0.084	0.171	0.148	0.150	0.076
T2-T1	-0.246	-0.018	0.042	0.032	-0.081
p-val(T2-T1)	0.082	0.890	0.499	0.900	0.080
T1 + Interaction	0.436	0.529	0.129	0.593	0.142
p-val(T1 + Interaction)	0.008	0.000	0.068	0.022	0.008
T2 +Interaction	0.408	0.696	0.221	0.745	0.097
p-val(T2 + Interaction)	0.001	0.000	0.000	0.001	0.087
Mean C	0.000	0.000	0.356	0.891	0.137
Sd C	1.000	1.000	0.480	1.506	0.345

Notes:The heterogeneity analysis explores the effects of age based on treatment groups. The variable "Age" is a dummy taking the value 1 if the respondent was older than 39 at baseline. The age of 39 was chosen because it is the median of the age variable. The interaction terms, Assigned T1 × Age and Assigned T2 × Age, show how the treatment effect varies depending on the age. Each regression includes strata fixed effects and, where available, the lag of the dependent variable (*New Application*). Standard errors are clustered at the class level. The variable *Engagement* measures how frequently participants use digital tools with their children for education and entertainment and monitor their school performance via apps. It is standardized to have a mean of 0 and standard deviation of 1 in the control group. *Self-Efficacy* captures participants' confidence in guiding their children's digital behavior, including ensuring age-appropriate content, managing screen time, and finding online educational resources. This variable is standardized similarly to Engagement. *Digital Identity* is a binary indicator equal to 1 if the participant has an Italian public digital identity (SPID) and has used it autonomously in the past five months. *Public Tools* measures the number of public digital services the participant has accessed in the past five months, including social security, tax payments, health services, and child-related services. The variable ranges from 0 to 4. *New Application* is a binary indicator equal to 1 if the participant submitted at least one new application for an income support measure in the past five months. $^{+}$ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$.

Table A70: Labor Market Engagement

	(1)	(2)	(3)	(4)
	Current Behavior		Future Expectations	
	Openness [0,1]	Effort [0,1]	Pr. Employment [0,100]	Pr. Training [0,100]
Assigned T1	-0.017	-0.033	10.861*	25.042**
	(0.065)	(0.062)	(5.121)	(5.769)
Assigned T2	0.043	-0.087	6.686	15.850*
	(0.060)	(0.057)	(5.073)	(6.473)
Age	0.204**	0.102	12.541**	2.828
	(0.060)	(0.072)	(4.380)	(3.680)
Assigned T1 × Age	-0.071	0.050	-8.204	-5.802
	(0.077)	(0.087)	(5.689)	(5.941)
Assigned T2 × Age	-0.128	0.046	-2.524	-2.747
	(0.082)	(0.097)	(6.202)	(6.180)
Strata FE	✓	✓	✓	✓
Lag Dep. Var.	✓		✓	✓
N	754	754	754	754
adjR^2	0.043	0.041	0.045	0.085
T2-T1	0.060	-0.054	-4.175	-9.192
p-val(T2-T1)	0.361	0.386	0.477	0.232
T1 + Interaction	-0.089	0.017	2.657	19.240
p-val(T1 + Interaction)	0.051	0.751	0.519	0.001
T2 +Interaction	-0.085	-0.041	4.162	13.103
p-val(T2 + Interaction)	0.077	0.564	0.371	0.012
Mean C	0.750	0.511	50.771	31.697
Sd C	0.434	0.501	32.659	29.868

Notes: The heterogeneity analysis explores the effects of age based on treatment groups. The variable "Age" is a dummy taking the value 1 if the respondent was older than 39 at baseline. The age of 39 was chosen because it is the median of the age variable. The interaction terms, Assigned T1 × Age and Assigned T2 × Age, show how the treatment effect varies depending on the age. Each regression includes strata fixed effects and, where available, the lag of the dependent variable (*Openness*, *Pr. Employment*, *Pr. Training*). Standard errors are clustered at the class level. The variable *Openness* is a binary indicator equal to 1 if the participant is employed, actively seeking employment, or willing to work despite not currently looking. *Effort* is a binary indicator equal to 1 if the participant engaged in activities to improve their labor market status, including updating their CV, consulting an employment service, or enrolling in a training program. *Perceived Probability of Employment* measures participants' self-reported likelihood (0-100) of being employed in 12 months. *Perceived Probability of Training* captures participants' self-reported likelihood (0-100) of enrolling in a skills development or training program in the next 12 months. $^{+}$ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$.

D.7.3 Heterogeneity by Education

Table A71: Technology Adoption & Digital Skills

	(1)	(2)	(3)	(4)	(5)
	Technology adoption				Digital skills
	Tablet [0,1]	Devices [N]	Participant [0,6]	Children [0,5]	DSI [0,6]
Assigned T1	0.601**	0.675**	2.670**	1.942**	0.749**
	(0.047)	(0.084)	(0.271)	(0.222)	(0.142)
Assigned T2	0.654**	0.794**	2.607**	1.990**	0.781**
	(0.043)	(0.098)	(0.261)	(0.215)	(0.173)
Assigned T1 × Education	0.073	0.045	-0.115	-0.177	-0.079
	(0.064)	(0.131)	(0.365)	(0.292)	(0.184)
Assigned T2 × Education	-0.009	0.052	0.266	-0.296	0.090
	(0.065)	(0.125)	(0.323)	(0.291)	(0.234)
Strata FE	✓	✓	✓	✓	✓
Lag Dep. Var.	✓	✓			✓
N	754	754	754	754	754
adjR^2	0.436	0.240	0.281	0.246	0.193
T2-T1	0.053	0.118	-0.063	0.048	0.033
p-val(T2-T1)	0.180	0.209	0.832	0.811	0.857
T1 + Interaction	0.674	0.721	2.555	1.765	0.670
p-val(T1 + Interaction)	0.000	0.000	0.000	0.000	0.000
T2 +Interaction	0.645	0.845	2.872	1.694	0.872
p-val(T2 + Interaction)	0.000	0.000	0.000	0.000	0.000
Mean C	0.257	0.574	1.271	1.454	3.824
Sd C	0.438	0.805	2.087	1.942	1.344

Notes: The heterogeneity analysis explores the effects of education based on treatment groups. The interaction terms, "Assigned T1 × Education" and "Assigned T1 × Education," show how the treatment effect varies depending on the education level. The variable "Education" takes the value 1 if the respondent has at least completed a high school diploma. The coefficient for this variable is not shown in the following tables, as it is collinear with the fixed effects (*strata*). Each regression includes strata fixed effects and, where available, the lag of the dependent variable (*Tablet*, *Devices*, and *DSI*). Standard errors are clustered at the class level. The variable *Tablet* is a cathegorical variable . *Devices* is the total number of tablets and computers available at home. *Participant* measures the frequency of computer or tablet use by the participant, ranging from 0 (never) to 6 (several times a day). *Children* captures the average frequency with which up to two children use a computer or tablet at home, measured on a scale from 0 (never) to 5 (every day). *DSI* represents the Digital Skills Indicator, a composite index ranging from 1 (no skills) to 6 (above basic skills). $^{+}$ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$.

Table A72: Digital Parenting & Social Inclusion

	(1)	(2)	(3)	(4)	(5)
	Digital Parenting		Social Inclusion		
	Engagement [Z-score]	Self Efficacy [Z-score]	Digital Identity [0,1]	Public Tools [0,4]	New Application [0,1]
Assigned T1	0.409*	0.547**	0.129*	0.524*	0.131**
	(0.160)	(0.130)	(0.061)	(0.216)	(0.049)
Assigned T2	0.332**	0.637**	0.215**	0.646**	0.078+
	(0.105)	(0.135)	(0.053)	(0.205)	(0.046)
Assigned T1 × Education	0.041	0.042	0.077	0.329	-0.018
	(0.193)	(0.142)	(0.085)	(0.292)	(0.074)
Assigned T2 × Education	-0.098	0.018	0.030	0.289	-0.059
	(0.169)	(0.147)	(0.083)	(0.274)	(0.066)
Strata FE	✓	✓	✓	✓	✓
Lag Dep. Var.					✓
N	754	754	754	754	754
adjR^2	0.081	0.169	0.149	0.149	0.067
T2-T1	-0.077	0.090	0.086	0.121	-0.053
p-val(T2-T1)	0.629	0.553	0.171	0.638	0.355
T1 + Interaction	0.451	0.589	0.206	0.853	0.113
p-val(T1 + Interaction)	0.002	0.000	0.004	0.003	0.051
T2 +Interaction	0.234	0.655	0.245	0.935	0.019
p-val(T2 + Interaction)	0.106	0.000	0.000	0.000	0.695
Mean C	0.000	0.000	0.356	0.891	0.137
Sd C	1.000	1.000	0.480	1.506	0.345

Notes: The heterogeneity analysis explores the effects of education based on treatment groups. The interaction terms, "Assigned T1 × Education" and "Assigned T1 × Education," show how the treatment effect varies depending on the education level. The variable "Education" takes the value 1 if the respondent has at least completed a high school diploma. The coefficient for this variable is not shown in the following tables, as it is collinear with the fixed effects (*strata*). Each regression includes strata fixed effects and, where available, the lag of the dependent variable (*New Application*). Standard errors are clustered at the class level. The variable *Engagement* measures how frequently participants use digital tools with their children for education and entertainment and monitor their school performance via apps. It is standardized to have a mean of 0 and standard deviation of 1 in the control group. *Self-Efficacy* captures participants' confidence in guiding their children's digital behavior, including ensuring age-appropriate content, managing screen time, and finding online educational resources. This variable is standardized similarly to Engagement. *Digital Identity* is a binary indicator equal to 1 if the participant has an Italian public digital identity (SPID) and has used it autonomously in the past five months. *Public Tools* measures the number of public digital services the participant has accessed in the past five months, including social security, tax payments, health services, and child-related services. The variable ranges from 0 to 4. *New Application* is a binary indicator equal to 1 if the participant submitted at least one new application for an income support measure in the past five months. $^{+}$ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$.

Table A73: Labor Market Engagement

	(1)	(2)	(3)	(4)
	Current Behavior		Future Expectations	
	Openness [0,1]	Effort [0,1]	Pr. Employment [0,100]	Pr. Training [0,100]
Assigned T1	-0.045	0.011	7.883^{+}	21.774**
	(0.051)	(0.056)	(4.363)	(5.039)
Assigned T2	0.009	-0.055	4.224	13.576*
	(0.042)	(0.052)	(4.370)	(5.629)
Assigned T1 $\times$ Education	0.000	-0.032	-2.004	0.865
	(0.078)	(0.097)	(6.043)	(6.252)
Assigned T2 $\times$ Education	-0.070	-0.030	2.794	2.448
	(0.077)	(0.082)	(7.290)	(6.647)
Strata FE	✓	✓	✓	✓
Lag Dep. Var.	✓		✓	✓
N	754	754	754	754
adjR^2	0.022	0.028	0.033	0.085
T2-T1	0.054	-0.066	-3.659	-8.199
p-val(T2-T1)	0.217	0.214	0.419	0.223
T1 + Interaction	-0.044	-0.021	5.879	22.639
p-val(T1 + Interaction)	0.479	0.753	0.255	0.001
T2 +Interaction	-0.061	-0.085	7.019	16.023
p-val(T2 + Interaction)	0.338	0.203	0.262	0.015
Mean C	0.750	0.511	50.771	31.697
Sd C	0.434	0.501	32.659	29.868

Notes: The heterogeneity analysis explores the effects of education based on treatment groups. The interaction terms, "Assigned T1 $\times$ Education" and "Assigned T1 $\times$ Education," show how the treatment effect varies depending on the education level. The variable "Education" takes the value 1 if the respondent has at least completed a high school diploma. The coefficient for this variable is not shown in the following tables, as it is collinear with the fixed effects (*strata*). Each regression includes strata fixed effects and, where available, the lag of the dependent variable (*Openness*, *Pr. Employment*, *Pr. Training*). Standard errors are clustered at the class level. The variable *Openness* is a binary indicator equal to 1 if the participant is employed, actively seeking employment, or willing to work despite not currently looking. *Effort* is a binary indicator equal to 1 if the participant engaged in activities to improve their labor market status, including updating their CV, consulting an employment service, or enrolling in a training program. *Perceived Probability of Employment* measures participants' self-reported likelihood (0-100) of being employed in 12 months. *Perceived Probability of Training* captures participants' self-reported likelihood (0-100) of enrolling in a skills development or training program in the next 12 months. $^{+}$ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$.

D.7.4 Heterogeneity by Foreign background

Table A74: Technology Adoption & Digital Skills

	(1)	(2)	(3)	(4)	(5)
	Technology adoption				Digital skills
	Tablet [0,1]	Devices [N]	Participant [0,6]	Children [0,5]	DSI [0,6]
Assigned T1	0.545**	0.478**	2.022**	1.499**	0.720**
	(0.063)	(0.149)	(0.428)	(0.326)	(0.150)
Assigned T2	0.642**	0.845**	2.270**	1.720**	0.711**
	(0.057)	(0.176)	(0.362)	(0.293)	(0.169)
Assigned T1 × Foreign	0.118+	0.298+	0.837+	0.523	-0.003
	(0.070)	(0.161)	(0.451)	(0.332)	(0.222)
Assigned T2 × Foreign	0.010	-0.048	0.627	0.214	0.154
	(0.071)	(0.181)	(0.393)	(0.332)	(0.231)
Strata FE	✓	✓	✓	✓	✓
Lag Dep. Var.	✓	✓			✓
N	754	754	754	754	754
adjR^2	0.437	0.246	0.285	0.247	0.193
T2-T1	0.097	0.367	0.248	0.221	-0.009
p-val(T2-T1)	0.039	0.011	0.570	0.366	0.951
T1 + Interaction	0.662	0.776	2.859	2.022	0.717
p-val(T1 + Interaction)	0.000	0.000	0.000	0.000	0.000
T2 +Interaction	0.652	0.797	2.897	1.934	0.865
p-val(T2 + Interaction)	0.000	0.000	0.000	0.000	0.000
Mean C	0.257	0.574	1.271	1.454	3.824
Sd C	0.438	0.805	2.087	1.942	1.344

Notes: The heterogeneity analysis explores the impact of being a non-Italian respondent across treatment groups. The interaction terms, "Assigned T1 × Foreign" and "Assigned T2 × Foreign", show how the treatment effect varies depending on the foreign background. The variable takes the value 1 if the respondent is not Italian. The coefficient for this variable is not shown in the following tables, as it is collinear with the fixed effects (*strata*). Each regression includes strata fixed effects and, where available, the lag of the dependent variable (*Tablet*, *Devices*, and *DSI*). Standard errors are clustered at the class level. The variable *Tablet* is a cathegorical variable . *Devices* is the total number of tablets and computers available at home. *Participant* measures the frequency of computer or tablet use by the participant, ranging from 0 (never) to 6 (several times a day). *Children* captures the average frequency with which up to two children use a computer or tablet at home, measured on a scale from 0 (never) to 5 (every day). *DSI* represents the Digital Skills Indicator, a composite index ranging from 1 (no skills) to 6 (above basic skills). $^{+}$ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$.

Table A75: Digital Parenting & Social Inclusion

	(1)	(2)	(3)	(4)	(5)
	Digital Parenting		Social Inclusion		
	Engagement [Z-score]	Self Efficacy [Z-score]	Digital Identity [0,1]	Public Tools [0,4]	New Application [0,1]
Assigned T1	0.341*	0.430**	0.189**	0.661*	0.186*
	(0.154)	(0.146)	(0.072)	(0.304)	(0.086)
Assigned T2	0.113	0.462**	0.254**	0.887**	0.034
	(0.137)	(0.146)	(0.074)	(0.300)	(0.075)
Assigned T1 × Foreign	0.118	0.186	-0.042	-0.016	-0.086
	(0.174)	(0.172)	(0.091)	(0.337)	(0.089)
Assigned T2 × Foreign	0.255	0.258	-0.039	-0.185	0.030
	(0.157)	(0.163)	(0.096)	(0.364)	(0.078)
Strata FE	✓	✓	✓	✓	✓
Lag Dep. Var.					✓
N	754	754	754	754	754
adjR^2	0.083	0.172	0.149	0.148	0.069
T2-T1	-0.227	0.033	0.065	0.226	-0.151
p-val(T2-T1)	0.183	0.836	0.402	0.505	0.103
T1 + Interaction	0.459	0.615	0.146	0.645	0.100
p-val(T1 + Interaction)	0.001	0.000	0.018	0.005	0.006
T2 +Interaction	0.369	0.721	0.215	0.702	0.064
p-val(T2 + Interaction)	0.000	0.000	0.000	0.000	0.054
Mean C	0.000	0.000	0.356	0.891	0.137
Sd C	1.000	1.000	0.480	1.506	0.345

Notes: The heterogeneity analysis explores the impact of being a non-Italian respondent across treatment groups. The interaction terms, "Assigned T1 × Foreign" and "Assigned T2 × Foreign", show how the treatment effect varies depending on the foreign background. The variable takes the value 1 if the respondent is not Italian. The coefficient for this variable is not shown in the following tables, as it is collinear with the fixed effects (*strata*). Each regression includes strata fixed effects and, where available, the lag of the dependent variable (*New Application*). Standard errors are clustered at the class level. The variable *Engagement* measures how frequently participants use digital tools with their children for education and entertainment and monitor their school performance via apps. It is standardized to have a mean of 0 and standard deviation of 1 in the control group. *Self-Efficacy* captures participants' confidence in guiding their children's digital behavior, including ensuring age-appropriate content, managing screen time, and finding online educational resources. This variable is standardized similarly to Engagement. *Digital Identity* is a binary indicator equal to 1 if the participant has an Italian public digital identity (SPID) and has used it autonomously in the past five months. *Public Tools* measures the number of public digital services the participant has accessed in the past five months, including social security, tax payments, health services, and child-related services. The variable ranges from 0 to 4. *New Application* is a binary indicator equal to 1 if the participant submitted at least one new application for an income support measure in the past five months. $^{+}$ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$.

Table A76: Labor Market Engagement

	(1)	(2)	(3)	(4)
	Current Behavior		Future Expectations	
	Openness [0,1]	Effort [0,1]	Pr. Employment [0,100]	Pr. Training [0,100]
Assigned T1	-0.125*	0.116	8.912	27.686**
	(0.062)	(0.078)	(5.509)	(5.885)
Assigned T2	0.041	0.063	13.692*	21.127**
	(0.056)	(0.077)	(6.108)	(6.414)
Assigned T1 × Foreign	0.112	-0.163	-2.544	-7.781
	(0.075)	(0.099)	(6.339)	(5.795)
Assigned T2 × Foreign	-0.087	-0.184*	-11.919+	-9.345
	(0.075)	(0.091)	(6.575)	(6.443)
Strata FE	✓	✓	✓	✓
Lag Dep. Var.	✓		✓	✓
N	754	754	754	754
adjR^2	0.028	0.034	0.036	0.088
T2-T1	0.166	-0.053	4.780	-6.559
p-val(T2-T1)	0.015	0.501	0.470	0.345
T1 + Interaction	-0.013	-0.047	6.368	19.905
p-val(T1 + Interaction)	0.793	0.338	0.137	0.000
T2 +Interaction	-0.046	-0.121	1.773	11.782
p-val(T2 + Interaction)	0.319	0.016	0.664	0.036
Mean C	0.750	0.511	50.771	31.697
Sd C	0.434	0.501	32.659	29.868

Notes: The heterogeneity analysis explores the impact of being a non-Italian respondent across treatment groups. The interaction terms, "Assigned T1 × Foreign" and "Assigned T2 × Foreign", show how the treatment effect varies depending on the foreign background. The variable takes the value 1 if the respondent is not Italian. The coefficient for this variable is not shown in the following tables, as it is collinear with the fixed effects (*strata*). Each regression includes strata fixed effects and, where available, the lag of the dependent variable (*Openness*, *Pr. Employment*, *Pr. Training*). Standard errors are clustered at the class level. The variable *Openness* is a binary indicator equal to 1 if the participant is employed, actively seeking employment, or willing to work despite not currently looking. *Effort* is a binary indicator equal to 1 if the participant engaged in activities to improve their labor market status, including updating their CV, consulting an employment service, or enrolling in a training program. *Perceived Probability of Employment* measures participants' self-reported likelihood (0-100) of being employed in 12 months. *Perceived Probability of Training* captures participants' self-reported likelihood (0-100) of enrolling in a skills development or training program in the next 12 months. $^{+}$ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$.

D.7.5 Heterogeneity by Employment

Table A77: Technology Adoption & Digital Skills

	(1)	(2)	(3)	(4)	(5)
	Technology adoption				Digital skills
	Tablet [0,1]	Devices [N]	Participant [0,6]	Children [0,5]	DSI [0,6]
Assigned T1	0.633**	0.684**	2.748**	1.962**	0.627**
	(0.040)	(0.076)	(0.226)	(0.181)	(0.146)
Assigned T2	0.650**	0.797**	2.864**	1.985**	0.845**
	(0.037)	(0.090)	(0.229)	(0.188)	(0.128)
Employed	-0.039	0.027	0.257	0.268	-0.060
	(0.059)	(0.105)	(0.362)	(0.335)	(0.160)
Assigned T1 × Employed	-0.015	-0.127	-0.575	-0.404	0.382
	(0.081)	(0.152)	(0.565)	(0.449)	(0.250)
Assigned T2 × Employed	-0.005	-0.016	-0.756	-0.549	-0.179
	(0.071)	(0.160)	(0.487)	(0.442)	(0.259)
Strata FE	✓	✓	✓	✓	✓
Lag Dep. Var.	✓	✓			✓
N	754	754	754	754	754
adjR^2	0.447	0.302	0.283	0.246	0.204
T2-T1	0.016	0.113	0.115	0.023	0.218
p-val(T2-T1)	0.607	0.231	0.634	0.896	0.168
T1 + Interaction	0.618	0.557	2.174	1.558	1.010
p-val(T1 + Interaction)	0.000	0.000	0.000	0.000	0.000
T2 +Interaction	0.645	0.781	2.107	1.435	0.667
p-val(T2 + Interaction)	0.000	0.000	0.000	0.000	0.007
Mean C	0.257	0.574	1.271	1.454	3.824
Sd C	0.438	0.805	2.087	1.942	1.344

Notes: The heterogeneity analysis explores the effects of being employed at baseline based on treatment groups. The interaction terms, "Assigned T1 × Employed" and "Assigned T2 × Employed", show how the treatment effect varies depending on employment status. The variable "Employed" takes value 1 if the respondent is employed at baseline. Each regression includes strata fixed effects and, where available, the lag of the dependent variable (*Tablet*, *Devices*, and *DSI*). Standard errors are clustered at the class level. The variable *Tablet* is a cathegorical variable . *Devices* is the total number of tablets and computers available at home. *Participant* measures the frequency of computer or tablet use by the participant, ranging from 0 (never) to 6 (several times a day). *Children* captures the average frequency with which up to two children use a computer or tablet at home, measured on a scale from 0 (never) to 5 (every day). *DSI* represents the Digital Skills Indicator, a composite index ranging from 1 (no skills) to 6 (above basic skills). $^{+}$ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$.

Table A78: Digital Parenting & Social Inclusion

	(1)	(2)	(3)	(4)	(5)
	Digital Parenting		Social Inclusion		
	Engagement [Z-score]	Self Efficacy [Z-score]	Digital Identity [0,1]	Public Tools [0,4]	New Application [0,1]
Assigned T1	0.415**	0.565**	0.182**	0.747**	0.121**
	(0.133)	(0.125)	(0.055)	(0.214)	(0.045)
Assigned T2	0.306**	0.655**	0.240**	0.743**	0.041
	(0.100)	(0.107)	(0.045)	(0.172)	(0.037)
Employed	-0.043	0.042	0.139*	0.288	-0.049
	(0.110)	(0.136)	(0.054)	(0.226)	(0.043)
Assigned T1 × Employed	-0.057	-0.012	-0.107	-0.434	0.016
	(0.185)	(0.209)	(0.117)	(0.463)	(0.104)
Assigned T2 × Employed	-0.167	-0.050	-0.048	0.124	0.035
	(0.183)	(0.163)	(0.075)	(0.389)	(0.086)
Strata FE	✓	✓	✓	✓	✓
Lag Dep. Var.					✓
N	754	754	754	754	754
adjR^2	0.093	0.168	0.154	0.151	0.074
T2-T1	-0.110	0.089	0.058	-0.003	-0.081
p-val(T2-T1)	0.426	0.494	0.291	0.988	0.129
T1 + Interaction	0.359	0.553	0.074	0.313	0.137
p-val(T1 + Interaction)	0.033	0.002	0.479	0.465	0.131
T2 +Interaction	0.138	0.605	0.191	0.867	0.076
p-val(T2 + Interaction)	0.365	0.000	0.004	0.018	0.318
Mean C	0.000	0.000	0.356	0.891	0.137
Sd C	1.000	1.000	0.480	1.506	0.345

Notes: The heterogeneity analysis explores the effects of being employed at baseline based on treatment groups. The interaction terms, "Assigned T1 × Employed" and "Assigned T2 × Employed", show how the treatment effect varies depending on employment status. The variable "Employed" takes value 1 if the respondent is employed at baseline. Each regression includes strata fixed effects and, where available, the lag of the dependent variable (*New Application*). Standard errors are clustered at the class level. The variable *Engagement* measures how frequently participants use digital tools with their children for education and entertainment and monitor their school performance via apps. It is standardized to have a mean of 0 and standard deviation of 1 in the control group. *Self-Efficacy* captures participants' confidence in guiding their children's digital behavior, including ensuring age-appropriate content, managing screen time, and finding online educational resources. This variable is standardized similarly to Engagement. *Digital Identity* is a binary indicator equal to 1 if the participant has an Italian public digital identity (SPID) and has used it autonomously in the past five months. *Public Tools* measures the number of public digital services the participant has accessed in the past five months, including social security, tax payments, health services, and child-related services. The variable ranges from 0 to 4. *New Application* is a binary indicator equal to 1 if the participant submitted at least one new application for an income support measure in the past five months. $^{+}$ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$.

Table A79: Labor Market Engagement

	(1)	(2)	(3)	(4)
	Current Behavior		Future Expectations	
	Openness [0,1]	Effort [0,1]	Pr. Employment [0,100]	Pr. Training [0,100]
Assigned T1	-0.047	-0.015	6.941^{+}	21.971**
	(0.042)	(0.049)	(3.809)	(5.811)
Assigned T2	-0.002	-0.070	7.957*	18.511**
	(0.036)	(0.048)	(3.796)	(5.080)
Employed	0.127**	-0.088	24.644**	4.844
	(0.040)	(0.061)	(4.373)	(4.702)
Assigned T1 × Employed	-0.005	0.060	-1.814	0.056
	(0.074)	(0.104)	(7.261)	(7.720)
Assigned T2 × Employed	-0.032	0.005	-5.308	-20.556*
	(0.060)	(0.101)	(6.724)	(8.099)
Strata FE	✓	✓	✓	✓
Lag Dep. Var.	✓		✓	✓
N	754	754	754	754
adjR^2	0.199	0.030	0.145	0.094
T2-T1	0.045	-0.056	1.017	-3.461
p-val(T2-T1)	0.282	0.257	0.817	0.623
T1 + Interaction	-0.051	0.046	5.127	22.027
p-val(T1 + Interaction)	0.377	0.581	0.393	0.000
T2 +Interaction	-0.034	-0.065	2.649	-2.045
p-val(T2 + Interaction)	0.447	0.481	0.653	0.806
Mean C	0.750	0.511	50.771	31.697
Sd C	0.434	0.501	32.659	29.868

Notes: The heterogeneity analysis explores the effects of being employed at baseline based on treatment groups. The interaction terms, "Assigned T1 × Employed" and "Assigned T2 × Employed", show how the treatment effect varies depending on employment status. The variable "Employed" takes value 1 if the respondent is employed at baseline. Each regression includes strata fixed effects and, where available, the lag of the dependent variable (*Openness*, *Pr. Employment*, *Pr. Training*). Standard errors are clustered at the class level. The variable *Openness* is a binary indicator equal to 1 if the participant is employed, actively seeking employment, or willing to work despite not currently looking. *Effort* is a binary indicator equal to 1 if the participant engaged in activities to improve their labor market status, including updating their CV, consulting an employment service, or enrolling in a training program. *Perceived Probability of Employment* measures participants' self-reported likelihood (0-100) of being employed in 12 months. *Perceived Probability of Training* captures participants' self-reported likelihood (0-100) of enrolling in a skills development or training program in the next 12 months. $^{+}$ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$.

D.7.6 Heterogeneity by parental involvement at baseline

Table A80: Technology Adoption & Digital Skills

	(1)	(2)	(3)	(4)	(5)
	Technology adoption				Digital skills
	Tablet [0,1]	Devices [N]	Participant [0,6]	Children [0,5]	DSI [0,6]
Assigned T1	0.680**	0.645**	2.694**	1.779**	0.752**
	(0.051)	(0.114)	(0.322)	(0.235)	(0.173)
Assigned T2	0.695**	0.906**	2.577**	1.977**	0.836**
	(0.051)	(0.114)	(0.343)	(0.274)	(0.207)
School Engagement	0.091+	0.006	0.165	-0.132	0.390*
	(0.048)	(0.103)	(0.317)	(0.254)	(0.157)
Assigned T1 × School Engagement	-0.087	0.077	-0.121	0.162	-0.073
	(0.065)	(0.147)	(0.406)	(0.318)	(0.188)
Assigned T2 × School Engagement	-0.077	-0.150	0.219	-0.164	-0.040
	(0.060)	(0.139)	(0.406)	(0.340)	(0.244)
Strata FE	✓	✓	✓	✓	✓
Lag Dep. Var.	✓	✓			✓
N	754	754	754	754	754
adjR^2	0.437	0.242	0.281	0.246	0.207
T2-T1	0.015	0.261	-0.117	0.198	0.084
p-val(T2-T1)	0.763	0.030	0.726	0.378	0.688
T1 + Interaction	0.593	0.722	2.573	1.941	0.679
p-val(T1 + Interaction)	0.000	0.000	0.000	0.000	0.000
T2 +Interaction	0.618	0.756	2.795	1.813	0.795
p-val(T2 + Interaction)	0.000	0.000	0.000	0.000	0.000
Mean C	0.257	0.574	1.271	1.454	3.824
Sd C	0.438	0.805	2.087	1.942	1.344

Notes: The heterogeneity analysis explores the effects of parental engagement with their children in school-related activities at baseline based on treatment groups. The interaction terms, "Assigned T1 × School Engagement" and "Assigned T1 × School Engagement", show how the treatment effect varies depending on the parental involvement. The variable "School Engagement" takes value 1 if the respondent engages with their children in school-related activities at baseline. Each regression includes strata fixed effects and, where available, the lag of the dependent variable (*Tablet*, *Devices*, and *DSI*). Standard errors are clustered at the class level. The variable *Tablet* is a cathegorical variable . *Devices* is the total number of tablets and computers available at home. *Participant* measures the frequency of computer or tablet use by the participant, ranging from 0 (never) to 6 (several times a day). *Children* captures the average frequency with which up to two children use a computer or tablet at home, measured on a scale from 0 (never) to 5 (every day). *DSI* represents the Digital Skills Indicator, a composite index ranging from 1 (no skills) to 6 (above basic skills). $^{+}$ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$.

Table A81: Digital Parenting & Social Inclusion

	(1)	(2)	(3)	(4)	(5)
	Digital Parenting		Social Inclusion		
	Engagement [Z-score]	Self Efficacy [Z-score]	Digital Identity [0,1]	Public Tools [0,4]	New Application [0,1]
Assigned T1	0.430*	0.529**	0.183**	0.599**	0.109*
	(0.167)	(0.142)	(0.061)	(0.228)	(0.054)
Assigned T2	0.319+	0.604**	0.228**	0.603*	0.070
	(0.165)	(0.151)	(0.065)	(0.247)	(0.055)
School Engagement	0.170	0.217+	0.157*	0.355	-0.002
	(0.125)	(0.129)	(0.064)	(0.215)	(0.039)
Assigned T1 × School Engagement	-0.015	0.045	-0.047	0.066	0.024
	(0.178)	(0.164)	(0.079)	(0.274)	(0.067)
Assigned T2 × School Engagement	-0.049	0.059	-0.008	0.241	-0.026
	(0.199)	(0.162)	(0.084)	(0.361)	(0.070)
Strata FE	✓	✓	✓	✓	✓
Lag Dep. Var.					✓
N	754	754	754	754	754
adjR^2	0.085	0.183	0.165	0.162	0.066
T2-T1	-0.111	0.074	0.045	0.004	-0.039
p-val(T2-T1)	0.587	0.606	0.504	0.989	0.556
T1 + Interaction	0.415	0.574	0.136	0.665	0.133
p-val(T1 + Interaction)	0.002	0.000	0.028	0.006	0.006
T2 +Interaction	0.270	0.663	0.220	0.844	0.044
p-val(T2 + Interaction)	0.011	0.000	0.000	0.000	0.308
Mean C	0.000	0.000	0.356	0.891	0.137
Sd C	1.000	1.000	0.480	1.506	0.345

Notes: The heterogeneity analysis explores the effects of parental engagement with their children in school-related activities at baseline based on treatment groups. The interaction terms, "Assigned T1 × School Engagement" and "Assigned T1 × School Engagement", show how the treatment effect varies depending on the parental involvement. The variable "School Engagement" takes value 1 if the respondent engages with their children in school-related activities at baseline. Each regression includes strata fixed effects and, where available, the lag of the dependent variable (*New Application*). Standard errors are clustered at the class level. The variable *Engagement* measures how frequently participants use digital tools with their children for education and entertainment and monitor their school performance via apps. It is standardized to have a mean of 0 and standard deviation of 1 in the control group. *Self-Efficacy* captures participants' confidence in guiding their children's digital behavior, including ensuring age-appropriate content, managing screen time, and finding online educational resources. This variable is standardized similarly to Engagement. *Digital Identity* is a binary indicator equal to 1 if the participant has an Italian public digital identity (SPID) and has used it autonomously in the past five months. *Public Tools* measures the number of public digital services the participant has accessed in the past five months, including social security, tax payments, health services, and child-related services. The variable ranges from 0 to 4. *New Application* is a binary indicator equal to 1 if the participant submitted at least one new application for an income support measure in the past five months. $^{+}$ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$.

Table A82: Labor Market Engagement

	(1)	(2)	(3)	(4)
	Current Behavior		Future Expectations	
	Openness [0,1]	Effort [0,1]	Pr. Employment [0,100]	Pr. Training [0,100]
Assigned T1	-0.057	-0.086	4.444	21.252**
	(0.072)	(0.071)	(4.777)	(4.684)
Assigned T2	0.049	-0.011	6.831	16.933**
	(0.060)	(0.073)	(5.496)	(6.436)
School Engagement	0.072	0.041	2.612	-0.841
	(0.054)	(0.066)	(4.320)	(3.971)
Assigned T1 × School Engagement	0.018	0.136	4.200	1.416
	(0.084)	(0.092)	(5.714)	(6.646)
Assigned T2 × School Engagement	-0.112	-0.092	-2.462	-3.861
	(0.076)	(0.102)	(7.007)	(7.854)
Strata FE	✓	✓	✓	✓
Lag Dep. Var.	✓		✓	✓
N	754	754	754	754
adjR^2	0.026	0.037	0.033	0.085
T2-T1	0.106	0.075	2.387	-4.319
p-val(T2-T1)	0.121	0.338	0.634	0.504
T1 + Interaction	-0.039	0.050	8.644	22.667
p-val(T1 + Interaction)	0.404	0.312	0.049	0.001
T2 +Interaction	-0.063	-0.103	4.369	13.072
p-val(T2 + Interaction)	0.162	0.091	0.366	0.038
Mean C	0.750	0.511	50.771	31.697
Sd C	0.434	0.501	32.659	29.868

Notes: The heterogeneity analysis explores the effects of parental engagement with their children in school-related activities at baseline based on treatment groups. The interaction terms, "Assigned T1 × School Engagement" and "Assigned T1 × School Engagement", show how the treatment effect varies depending on the parental involvement. The variable "School Engagement" takes value 1 if the respondent engages with their children in school-related activities at baseline. Each regression includes strata fixed effects and, where available, the lag of the dependent variable (*Openness*, *Pr. Employment*, *Pr. Training*). Standard errors are clustered at the class level. The variable *Openness* is a binary indicator equal to 1 if the participant is employed, actively seeking employment, or willing to work despite not currently looking. *Effort* is a binary indicator equal to 1 if the participant engaged in activities to improve their labor market status, including updating their CV, consulting an employment service, or enrolling in a training program. *Perceived Probability of Employment* measures participants' self-reported likelihood (0-100) of being employed in 12 months. *Perceived Probability of Training* captures participants' self-reported likelihood (0-100) of enrolling in a skills development or training program in the next 12 months. $^{+}$ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$.

D.7.7 Heterogeneity by young children

Table A83: Technology Adoption & Digital Skills

	(1)	(2)	(3)	(4)	(5)
	Technology adoption				Digital skills
	Tablet [0,1]	Devices [N]	Participant [0,6]	Children [0,5]	DSI [0,6]
Assigned T1	0.503**	0.517**	2.213**	1.516**	0.758**
	(0.051)	(0.120)	(0.318)	(0.267)	(0.167)
Assigned T2	0.554**	0.736**	2.144**	1.744**	0.871**
	(0.054)	(0.134)	(0.349)	(0.234)	(0.189)
Young Children	-0.167	-0.223	-1.555+	-1.512*	0.397
	(0.108)	(0.292)	(0.859)	(0.642)	(0.271)
Assigned T1 × Young Children	0.229**	0.321*	0.730*	0.653*	-0.070
	(0.065)	(0.142)	(0.363)	(0.323)	(0.240)
Assigned T2 × Young Children	0.170*	0.136	1.020**	0.217	-0.093
	(0.065)	(0.151)	(0.356)	(0.284)	(0.234)
Strata FE	✓	✓	✓	✓	✓
Lag Dep. Var.	✓	✓			✓
N	754	754	754	754	754
adjR^2	0.445	0.245	0.289	0.252	0.192
T2-T1	0.051	0.219	-0.069	0.228	0.113
p-val(T2-T1)	0.246	0.083	0.835	0.300	0.557
T1 + Interaction	0.732	0.839	2.943	2.169	0.688
p-val(T1 + Interaction)	0.000	0.000	0.000	0.000	0.000
T2 +Interaction	0.724	0.872	3.164	1.961	0.779
p-val(T2 + Interaction)	0.000	0.000	0.000	0.000	0.000
Mean C	0.257	0.574	1.271	1.454	3.824
Sd C	0.438	0.805	2.087	1.942	1.344

Notes: The heterogeneity analysis investigates the effects of having a child under the age of 6 at baseline, based on treatment groups. The interaction terms, "Assigned T1 × Young Children" and "Assigned T1 × Young Children", show how the treatment effect vary depending on the presence of a young child. The variable "Young Children" takes the value 1 if, at baseline, there is at least one child in the household younger than six years old. Each regression includes strata fixed effects and, where available, the lag of the dependent variable (*Tablet*, *Devices*, and *DSI*). Standard errors are clustered at the class level. The variable *Tablet* is a cathegorical variable . *Devices* is the total number of tablets and computers available at home. *Participant* measures the frequency of computer or tablet use by the participant, ranging from 0 (never) to 6 (several times a day). *Children* captures the average frequency with which up to two children use a computer or tablet at home, measured on a scale from 0 (never) to 5 (every day). *DSI* represents the Digital Skills Indicator, a composite index ranging from 1 (no skills) to 6 (above basic skills). $^{+}$ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$.

Table A84: Digital Parenting & Social Inclusion

	(1)	(2)	(3)	(4)	(5)
	Digital Parenting		Social Inclusion		
	Engagement [Z-score]	Self Efficacy [Z-score]	Digital Identity [0,1]	Public Tools [0,4]	New Application [0,1]
Assigned T1	0.361*	0.577**	0.098	0.442+	0.147**
	(0.168)	(0.149)	(0.066)	(0.238)	(0.051)
Assigned T2	0.176	0.689**	0.202**	0.765**	0.088
	(0.114)	(0.130)	(0.056)	(0.205)	(0.059)
Young Children	-0.255	0.516**	0.072	0.542	-0.320*
	(0.257)	(0.191)	(0.201)	(0.690)	(0.153)
Assigned T1 × Young Children	0.113	-0.021	0.111	0.390	-0.043
	(0.167)	(0.176)	(0.091)	(0.301)	(0.066)
Assigned T2 × Young Children	0.210	-0.079	0.042	-0.016	-0.063
	(0.154)	(0.157)	(0.083)	(0.281)	(0.071)
Strata FE	✓	✓	✓	✓	✓
Lag Dep. Var.					✓
N	754	754	754	754	754
adjR^2	0.081	0.170	0.150	0.150	0.074
T2-T1	-0.186	0.112	0.104	0.323	-0.059
p-val(T2-T1)	0.285	0.414	0.114	0.193	0.351
T1 + Interaction	0.474	0.556	0.209	0.832	0.104
p-val(T1 + Interaction)	0.000	0.000	0.002	0.002	0.034
T2 +Interaction	0.385	0.610	0.244	0.750	0.025
p-val(T2 + Interaction)	0.002	0.000	0.000	0.001	0.523
Mean C	0.000	0.000	0.356	0.891	0.137
Sd C	1.000	1.000	0.480	1.506	0.345

Notes: The heterogeneity analysis investigates the effects of having a child under the age of 6 at baseline, based on treatment groups. The interaction terms, "Assigned T1 × Young Children" and "Assigned T1 × Young Children", show how the treatment effect vary depending on the presence of a young child. The variable "Young Children" takes the value 1 if, at baseline, there is at least one child in the household younger than six years old. Each regression includes strata fixed effects and, where available, the lag of the dependent variable (*New Application*). Standard errors are clustered at the class level. The variable *Engagement* measures how frequently participants use digital tools with their children for education and entertainment and monitor their school performance via apps. It is standardized to have a mean of 0 and standard deviation of 1 in the control group. *Self-Efficacy* captures participants' confidence in guiding their children's digital behavior, including ensuring age-appropriate content, managing screen time, and finding online educational resources. This variable is standardized similarly to Engagement. *Digital Identity* is a binary indicator equal to 1 if the participant has an Italian public digital identity (SPID) and has used it autonomously in the past five months. *Public Tools* measures the number of public digital services the participant has accessed in the past five months, including social security, tax payments, health services, and child-related services. The variable ranges from 0 to 4. *New Application* is a binary indicator equal to 1 if the participant submitted at least one new application for an income support measure in the past five months. $^{+}$ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$.

Table A85: Labor Market Engagement

	(1)	(2)	(3)	(4)
	Current Behavior		Future Expectations	
	Openness [0,1]	Effort [0,1]	Pr. Employment [0,100]	Pr. Training [0,100]
Assigned T1	-0.085	-0.057	6.441	23.209**
	(0.057)	(0.062)	(4.648)	(5.006)
Assigned T2	-0.047	-0.117	6.660	11.620*
	(0.051)	(0.073)	(5.326)	(5.685)
Young Children	-0.151	-0.278	11.322	25.559*
	(0.191)	(0.190)	(15.184)	(10.917)
Assigned T1 × Young Children	0.074	0.099	1.349	-2.043
	(0.073)	(0.090)	(5.995)	(5.302)
Assigned T2 × Young Children	0.050	0.088	-2.314	5.524
	(0.078)	(0.093)	(6.434)	(5.467)
Strata FE	✓	✓	✓	✓
Lag Dep. Var.	✓		✓	✓
N	754	754	754	754
adjR^2	0.022	0.030	0.032	0.090
T2-T1	0.038	-0.060	0.219	-11.589
p-val(T2-T1)	0.518	0.381	0.966	0.074
T1 + Interaction	-0.011	0.042	7.790	21.166
p-val(T1 + Interaction)	0.835	0.460	0.106	0.000
T2 +Interaction	0.003	-0.028	4.346	17.143
p-val(T2 + Interaction)	0.957	0.602	0.345	0.003
Mean C	0.750	0.511	50.771	31.697
Sd C	0.434	0.501	32.659	29.868

Notes: The heterogeneity analysis investigates the effects of having a child under the age of 6 at baseline, based on treatment groups. The interaction terms, "Assigned T1 × Young Children" and "Assigned T1 × Young Children", show how the treatment effect vary depending on the presence of a young child. The variable "Young Children" takes the value 1 if, at baseline, there is at least one child in the household younger than six years old. Each regression includes strata fixed effects and, where available, the lag of the dependent variable (*Openness*, *Pr. Employment*, *Pr. Training*). Standard errors are clustered at the class level. The variable *Openness* is a binary indicator equal to 1 if the participant is employed, actively seeking employment, or willing to work despite not currently looking. *Effort* is a binary indicator equal to 1 if the participant engaged in activities to improve their labor market status, including updating their CV, consulting an employment service, or enrolling in a training program. *Perceived Probability of Employment* measures participants' self-reported likelihood (0-100) of being employed in 12 months. *Perceived Probability of Training* captures participants' self-reported likelihood (0-100) of enrolling in a skills development or training program in the next 12 months. $^{+}$ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$.

D.8 Mediation Analysis: Details

This appendix provides further detail on the mediation analysis described in the main text. Given that the effects of the short (T1) and long (T2) training arms are substantively similar across most outcomes, we simplify the analysis by pooling them into a single general treatment indicator, T_{ic}. All models include strata fixed effects and cluster standard errors at the class level.

We investigate three main pathways: (1) technology adoption as a mediator between treatment and digital literacy; (2) digital literacy as a mediator between treatment and broader welfare outcomes; and (3) sequential mediation where treatment affects welfare outcomes via technology adoption and then digital literacy. For each case, we decompose the total treatment effect into direct and indirect components, following the framework of Imai et al. (2010), Heckman and Pinto (2015) and Daniel et al. (2015).

Technology adoption as a mediator between treatment and digital literacy. We begin by examining whether the effect of the treatment on digital literacy is mediated by technology adoption. Let A_{ic} denote technology adoption, measured either by tablet ownership or the number of digital devices in the household. The outcome of interest is DSI_{ic}, a composite index of digital skills.

We first estimate the total effect of treatment on digital literacy:

$$DSI_{ic} = \alpha + \beta T_{ic} + \gamma DSI_{ic}^{0} + \delta_s + \varepsilon_{ic}$$

Next, we estimate the effect of treatment on the mediator:

$$A_{ic} = \alpha_A + \beta_A T_{ic} + \gamma_A A_{ic}^{0} + \delta_{sA} + \varepsilon_{ic}^{A}$$

Finally, we include the mediator in the outcome equation to estimate the direct effect of the treatment:

$$DSI_{ic} = \alpha_D + \beta_D T_{ic} + \theta_A A_{ic} + \theta_{TA}(T_{ic} \times A_{ic}) + \gamma_D DSI_{ic}^{0} + \delta_{sD} + \varepsilon_{ic}^{D}$$

This specification allows us to separate the effect of treatment that operates through technology adoption (the indirect effect) from the remaining direct effect. Interaction terms allow for differential returns to adoption by treatment status. Indirect effects are calculated using simulation-based techniques.

Digital literacy as a mediator between treatment and broader welfare outcomes. We next assess whether the effects of the treatment on various welfare outcomes—denoted Y_{ic}—are mediated by improvements in digital literacy. The structure of the analysis mirrors the previous case.

The total effect of treatment on a welfare outcome is estimated as:

$$Y_{ic} = \alpha + \beta T_{ic} + \gamma Y_{ic}^{0} + \delta_s + \varepsilon_{ic}$$

Then we model the effect of treatment on the mediator:

$$DSI_{ic} = \alpha_D + \beta_D T_{ic} + \gamma_D DSI^0_{ic} + \delta_{sD} + \varepsilon^D_{ic}$$

Finally, the mediator is included in the outcome equation:

$$Y_{ic} = \alpha_Y + \beta_Y T_{ic} + \theta_D DSI_{ic} + \theta_{TD}(T_{ic} \times DSI_{ic}) + \gamma_Y Y^0_{ic} + \delta_{sY} + \varepsilon^Y_{ic}$$

This model isolates the indirect effect of treatment on welfare outcomes through digital literacy, with interaction terms capturing heterogeneity in the effects of skills by treatment group.

Sequential mediation. We conclude by estimating a sequential mediation model to identify and quantify the distinct causal pathways through which the treatment (T) affects key economic outcomes (Y) via two linked mediators: technology adoption ($M1 = A_{ic}$) and digital skills ($M2 = DSI_{ic}$). This structure reflects the intuition that digital skills can only be developed once participants have access to technology. The goal is to decompose the total treatment effect into the following four components:

$$\text{Total Effect} = \text{Direct} + \text{Ind. M1 only} + \text{Ind. M2 only} + \text{Ind. M1 and M2}$$

where the direct effect captures the portion of the treatment effect that is not mediated by either $M1$ or $M2$, the indirect effect through M1 only reflects the pathway $T \to A \to Y$, bypassing digital skills, the indirect effect through M2 only reflects the pathway $T \to DSI \to Y$, bypassing technology access, and the sequential indirect effect through M1 and M2 corresponds to $T \to A \to DSI \to Y$.

We begin by estimating the total (intent-to-treat) effect of the treatment on the outcome:

$$Y_{ic} = \alpha + \beta T_{ic} + \gamma Y^0_{ic} + \delta_s + \varepsilon_{ic}$$

We then model the first-stage mediator (technology adoption):

$$A_{ic} = \alpha_A + \beta_A T_{ic} + \gamma_A A^0_{ic} + \delta_{sA} + \varepsilon^A_{ic}$$

Next, we estimate the second-stage mediator (digital skills) as a function of both treatment and technology access:

$$DSI_{ic} = \alpha_D + \beta_D T_{ic} + \theta_A A_{ic} + \theta_{TA}(T_{ic} \times A_{ic}) + \gamma_D DSI^0_{ic} + \delta_{sD} + \varepsilon^D_{ic}$$

Finally, the outcome equation includes both mediators and their interactions with treatment:

$$\begin{aligned} Y_{ic} = {} & \alpha_Y + \beta_Y T_{ic} + \theta_D DSI_{ic} + \theta_A A_{ic} + \theta_{TD}(T_{ic} \times DSI_{ic}) + \theta_{TA}(T_{ic} \times A_{ic}) \\ & + \gamma_Y Y^0_{ic} + \delta_{sY} + \varepsilon^Y_{ic} \end{aligned}$$

This specification allows us to disentangle the direct and indirect components of the total treatment effect.

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