

Digital Inclusion and Labor Market Performance: An Experimental Evaluation*

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Abstract

The digital divide limits economic opportunities, particularly for older adults with low education who face barriers to accessing and using digital technologies. We evaluate a randomized intervention targeting disadvantaged individuals aged 45–64 in the Canary Islands, Spain. Over 2,900 participants were assigned to receive either a tablet with internet access, a tablet plus digital skills training, or no intervention. The combined treatment led to significant improvements in digital skills and job search behavior, though not in employment outcomes. Tablet-only recipients showed smaller gains, concentrated among those with low initial skills. These results suggest that bridging the digital divide requires not just access to technology but also targeted support to build digital capabilities.

Keywords: digital divide, social inclusion, digital skills, employability, randomized control trial.

JEL codes: J24, O33, I38, C93.

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1 Introduction

The digital revolution has profoundly transformed economies worldwide, reshaping industries and accelerating innovation. By enabling faster and more efficient communication between economic agents, it has alleviated labor market frictions. Additionally, it has allowed public administrations to deliver better employment resources to unemployed citizens. However, these efficiency gains do not benefit everyone equally. Individuals without access to digital tools, often due to economic barriers like poverty or limited education, experience what is known as the “digital divide” (Van Dijk, 2020; Elena-Bucea et al., 2021). This inequality is further compounded by generational differences, as older individuals tend to have lower levels of digital literacy compared to younger generations, a phenomenon referred to as the *grey* digital divide (Mubarak and Suomi, 2022; He et al., 2022). These disparities highlight the need for targeted interventions to ensure that the advantages of the digital revolution are accessible to all segments of society.

This paper contributes to our understanding of how the digital divide can be narrowed by examining the role of two specific frictions: access to digital skills and access to digital equipment. For this purpose, we evaluate, through a randomized control trial (RCT), the effectiveness of an intervention designed to enhance digital skills and access among vulnerable populations. The intervention comprises two key components: the provision of digital devices (tablets) with internet access, and a digital skills course. Participants are randomly assigned to one of three experimental groups: one receiving only tablets with internet access (T1), another receiving both the tablets and digital skills training (T2), and a control group receiving neither. This design helps disentangle the impact of access to digital technology from that of digital skills training, allowing for a clearer assessment of the most effective approach to bridging the digital divide.

The intervention targets individuals aged 45 to 64 living in the Canary Islands, Spain, with up to secondary education, and who are recipients of income support programs. The final sample includes 2,968 individuals fulfilling these characteristics. The digital skills training was designed and implemented by EAPN Canarias, a non-profit organization, in collaboration with the Spanish Ministry of Social Inclusion.¹ Assignment to the three experimental arms was randomized within geographic blocks, as we explain in more detail below.

The main hypothesis is that an intensive, tailored digital training course can reshape behaviors, habits, and prejudices regarding information and communication technologies.

¹For more information on EAPN Canarias, visit <https://eapncanarias.org>. The intervention was funded by the NextGenerationEU program of the European Commission. The project implementation was supervised by the General Secretariat for Inclusion (SGI in Spanish), a branch of the Ministry of Inclusion, Social Security, and Migrations (MISSM).

The combination of this digital training with access to an internet-connected device would allow participants in the T2 treatment group to acquire greater employability through an improved ability to perform basic online activities such as preparing a CV, applying for jobs, or dealing with the public administration online. By contrast, the tablet-only treatment (T1) tests the impact of access to an internet-connected device without a supporting training program. This design allows us to examine whether access to technology alone can impact relevant outcomes such as digital skills, employability and labor market performance. We do not have a strong prior about T1's effects, and it is possible that the outcomes for T1 will be indistinguishable from those of the control group.

Our findings indicate that the main treatment group (T2), which received both tablets and digital literacy training, showed significant improvements in their self-reported digital skills and job search capabilities. These effects were sustained six months post-intervention, particularly among individuals with higher educational levels, suggesting that a basic level of education is crucial for acquiring new skills. Participants who only received the tablets (T1) also demonstrated modest improvements in digital literacy, suggesting that simply providing access to digital devices may offer some benefits. The latter effect is more pronounced for those who reported lower levels of digital skills in the baseline survey.

Although more than one-fourth of participants failed to respond to the endline survey, the results are robust to estimates that take into account sample attrition. In addition, compliance with the training treatment was relatively low: while almost nine out of ten participants in the tablet-only group collected their device, only two-thirds of those assigned to training started the course and fewer than half completed it. This reflects the substantial time commitment required—100 hours of classes and an internship—on top of caregiving and household responsibilities. Consequently, the estimated local average treatment effects on compliers (LATE) are about twice as large as the intention-to-treat (ITT) estimates.

Despite the positive impact on digital skills and job search capabilities, we do not find any significant effects on employment outcomes in either treatment group. However, we do find significant improvements in self-reported life satisfaction in T2, even six months after the end of the intervention. Taken together, these results suggest that this kind of program has limited potential to generate new employment opportunities for people in this age group, for whom barriers to employment seem more profound. However, our findings show that the program did improve subjective well-being, possibly due to the situation of social exclusion that participants were exposed to before the intervention.

Our study contributes to a growing economics literature on digital inclusion interventions that aim to close the digital divide by improving both access to technology and

the skills to use it. Early work on device provision finds that hardware alone rarely delivers downstream gains: randomized or natural experiments that supplied home computers or broadband—such as Malamud and Pop-Eleches (2011) in Romania, Fairlie and Robinson (2013) in California, and Cristia et al. (2017) with One Laptop per Child in Peru—documented some increase in cognitive skills and significantly higher computer use, but little effect on academic or labor outcomes. Broader evidence on broadband expansion (Czernich et al., 2011; Akerman et al., 2015) shows that connectivity can boost growth and wages, but these studies cannot isolate the role of individual digital skills. In contrast, research on adult digital-skills programs (Martínez-Alcalá et al., 2018) highlights that training can raise confidence and basic capabilities, though the evaluation has small sample size and is not tied to labor-market behavior. Together, these findings underscore that both access and skills matter, but rigorous evidence on how to combine them—particularly for disadvantaged adults—remains limited.

The study most closely related to ours is Barone et al. (2025). Their large-scale randomized program in Turin provided low-income families with free tablets, home internet, and digital-literacy courses. Consistent with our findings, it produced substantial improvements in digital skills, perceived future employment, and online engagement but no short-run employment gains. However, Barone et al. (2025) also enriches the literature in ways we do not, by focusing on family and parenting outcomes. Their household-oriented perspective allows them to study intergenerational effects—parents’ involvement in children’s education (digital parenting)—that lie outside the scope of our analysis.

Our paper complements and extends these findings in three key ways. First, we target a different and under-studied population: economically vulnerable adults aged 45–64 who are long-term recipients of income-support programs, a group largely absent from prior economics studies of digital inclusion yet often at the center of the grey digital divide. Second, we employ a three-arm randomized controlled trial that cleanly separates the effects of hardware access from those of intensive digital-skills training by including a tablet-only treatment group.² Third, while Barone et al. (2025) emphasize family dynamics, we focus on adult labor-market-relevant behaviors, documenting sizable improvements in job-search ability, digital proficiency, and life satisfaction even when employment levels remain unchanged.

Together, these contributions position our paper at the intersection between the education-focused device provision literature (Malamud and Pop-Eleches, 2011; Fairlie and Robinson, 2013; Cristia et al., 2017) and the emerging literature on the grey digital

²This design provides experimental evidence on whether devices alone can spark digital engagement—a question Barone et al. (2025) address only indirectly through mediation analysis. Both find similar results – hardware alone is useful, but there are large complementarities from a short course intervention.

divide (Tsai et al., 2017; Martínez-Alcalá et al., 2018). By focusing on an older, labor-market-detached population and experimentally isolating the effects of access from those of training, we offer new causal evidence to inform the design of cost-effective digital inclusion strategies in high-income countries, where the digital divide increasingly affects older adults with low levels of education.

A second key contribution of the paper is to bridge two strands of literature that are often treated separately: the impact of digital interventions on employability, and the broader implications for subjective well-being. There is some evidence of negative impacts of internet connectivity, especially through social media, as reviewed in Aridor et al. (2024). In contrast, our findings suggest that digital training to older populations can yield meaningful improvements in perceived digital agency, and life satisfaction—even when employment effects are limited. This adds a new dimension to the literature by highlighting the non-pecuniary returns to digital literacy in marginalized adult populations. Furthermore, by documenting that these improvements are concentrated among those with only basic education levels, the paper also contributes to the understanding of heterogeneous returns to digital interventions. Taken together, our results underscore that digital inclusion strategies can improve well-being and reduce social isolation in vulnerable segments of the population, even when structural labor market barriers persist.

The rest of the paper proceeds as follows. Section 2 provides an overview of the experimental intervention and describes the sample of participants sample in the RCT. Section 3 outlines the experiment’s objectives and our estimation strategy. Section 4 presents the results of the analysis, and Section 5 concludes.

2 Background, Implementation and Data

2.1 Target population

The Canary Islands is one of Spain’s economically disadvantaged regions. In 2022, its GDP per capita was €22,100—approximately 23% below the national average of €28,750. The region also exhibited significantly higher rates of unemployment (17.6% vs. 13.0%) and poverty (36.3% vs. 26.3%) compared to the rest of the country (INE, 2024b,c,d). In parallel, national survey data reveal a pronounced digital divide across age groups: 44.4% of individuals aged 55 to 64 report having “no computer skills,” compared to only 20.1% of those aged 25 to 34 (INE, 2024a).³ This digital gap is further exacerbated by differences in educational attainment, as individuals with only primary education (or none) are less likely to use the internet on a daily basis.

³Even though these figures are not available at the regional level, the Canary Islands looks similar to the rest of the country on other dimensions such as mobile phone and internet use.

These regional and demographic disparities motivated the design of the intervention, which targeted individuals aged 45 to 64 living in the Canary Islands with low income and low levels of education. The goal was to improve their digital skills and provide them with practical tools that could enhance their access to labor market opportunities and digital public services.

2.2 Implementation Timeline and Randomization

The recruitment of participants was conducted by EAPN Canarias between November and December 2022. During this period, more than 10,000 recipients of the Minimum Income Scheme (in Spanish, *Ingreso Mínimo Vital*, IMV) or the Canarian Insertion Benefit (in Spanish, *Prestación Canaria de Inserción*, PCI) were contacted by telephone by a survey company.⁴ Just under 3,000 individuals among this target population fulfilled the criteria to be included in the study stated above (i.e., being aged 45-64 and having less than complete secondary education) and also agreed to complete the baseline survey.

Randomization process. The final sample of 2,968 individuals who completed the baseline was grouped into 65 blocks of approximately 45 individuals each, based on geographic proximity. These randomization blocks were designed to facilitate potential in-person participation in the training sessions. Within each block, individuals were randomly divided into three subgroups of roughly 15 participants. Each subgroup was then randomly assigned to one of the three experimental arms: Treatment Group 1 (T1, tablet only), Treatment Group 2 (T2, tablet plus digital skills training), or the Control Group (C).

This two-stage block randomization—first by location, then within-block assignment—was implemented to ensure both logistical feasibility and internal validity. In particular, it allowed participants in T2 to access nearby training centers, while preserving random assignment across all treatment arms. It also helped isolate the causal effects of tablet provision and digital training by holding local context constant within each block.

Power Analysis We complement our main results with a basic power analysis to assess the minimum detectable effects (MDEs) for our outcomes of interest. For a comparison between treatment (T) and control (C), the MDE is given by:

⁴Since March 2023, the PCI has been replaced by a similar program called the Canarian Citizenship Income (in Spanish, *Renta Canaria de Ciudadanía*, RCC). Since the PCI was in place when the sample selection for this project was implemented, we refer to the program as PCI throughout the paper.

$$MDE = (z_{1-\alpha} + z_{1-\beta})\sigma\sqrt{\frac{1}{n_T} + \frac{1}{n_C}}$$

where z denotes the critical values of the standard normal distribution, σ is the baseline standard deviation of the outcome, and n_T and n_C are the numbers of participants in the treatment and control arms, respectively. We set the significance level to $\alpha = 0.05$ (two-sided) and target power $1 - \beta = 0.80$, which are standard choices in experimental research.⁵

Start of the Intervention. In late January 2023, the intervention began with the distribution of internet-enabled tablets to all participants assigned to groups T1 and T2, and the delivery of a comprehensive digital skills training course to those in T2. Allowing participants to retain the tablets at the end of the project and covering internet service for 12 months were strategic decisions intended to sustain technology use and gauge longer-term training outcomes.⁶ For T2, the intervention featured a comprehensive digital skills training course, totaling 100 hours (80 in-person and 20 virtual) over 10 weeks, followed by a 30-hour unpaid internship. The course was designed and delivered by EAPN Canarias.⁷

To encourage consistent participation, all study participants received a €30 supermarket voucher for completing the baseline phone survey and an additional €50 voucher after each of the two endline surveys. The first endline survey took place in May–June 2023, and the second endline survey was conducted six months later (November–December 2023) to enable the analysis of the program’s medium-term effects.

2.3 Sample Description

Table 1 presents descriptive statistics for the full baseline sample of 2,968 individuals, providing a snapshot of the key characteristics of participants before the intervention. These statistics help contextualize the challenges faced by this population and justify the design of the program.

Demographics. About two-thirds of the participants were women, and they are almost equally distributed in the 45–54 and 55–64 age brackets. This age range was deliberately

⁵This calculation provides a simple benchmark: it does not incorporate baseline covariates or clustering adjustments, both of which would typically reduce the detectable effect size.

⁶We cannot rule out that some participants may have lost or sold the tablet during the intervention period. If this were the case, our estimates should be considered a lower bound of the true effect of having the tablet.

⁷More information about the program can be found at <https://redlabcanarias.org/>.

chosen to address the gray digital divide, wherein older adults are at greater risk of digital exclusion.

In terms of education, the study specifically targeted individuals with relatively low formal education to further address the gray digital divide. Consequently, participants with completed high school education or above were excluded, focusing the intervention on those with primary or secondary schooling. Within the sample, any type of secondary education—whether incomplete, complete secondary, or incomplete high school—is grouped under the “secondary” category, while most participants report having completed only primary education.

Lastly, the geographic distribution shows that most participants reside in Gran Canaria (39.4%) and Tenerife (49.4%), the two most populous islands in the archipelago. Individuals from Fuerteventura, Lanzarote, and La Palma are grouped as “Other” due to their smaller representation in the sample. Although the program was also implemented on El Hierro and La Gomera, those two islands are excluded from the randomized evaluation because they lack sufficiently large samples to form viable experimental groups.

Income and Benefit Status. A large majority of participants (85.4%) report being unemployed, which was expected given the target population of recipients of income support transfers. This underscores the pressing need for interventions aimed at improving employability among this group.

All participants receive either the Minimum Income Scheme (IMV), the Canarian Insertion Benefit (PCI), or both—reflecting the economic vulnerability of the sample. The IMV is a national measure provided by the Spanish government to guarantee a basic income to individuals and families with insufficient financial resources. The PCI is a regional benefit specific to the Canary Islands, offering monetary assistance paired with complementary social-inclusion programs. In this study, 78.5% of participants receive IMV and 32.1% receive PCI (some individuals receive both, explaining why the percentages exceed 100%).

Digital Literacy and Well-being. To assess well-being, respondents rated both their health and life satisfaction on a scale from 1 (“not satisfied at all”) to 5 (“very satisfied”). At baseline, the averages for both measures are close to 3, indicating moderate levels of self-reported well-being.

The study also incorporates two composite indicators—digital skills and job search ability—constructed from multiple survey questions and aggregated using the method proposed by Anderson (2008). Both indicators are standardized with mean zero and a standard deviation of one. Although their raw scores have no direct interpretation, they

allow for treatment effects to be measured in standardized units. See the Appendix for details on how these variables are created.

Overall, the sample consists primarily of older working-age adults with low educational attainment and a high unemployment rate, most of whom rely on public assistance for basic income. The underlying premise is that inadequate digital skills perpetuate their unemployment trap, preventing them from accessing modern job-search resources and participating fully in today’s technology-driven economy. By targeting this demographic, the intervention aims to address the gray digital divide and equip participants with the digital competencies necessary to improve their employability and social inclusion.

2.4 Balance Between Experimental Groups

Figure 1 shows the balance tests for the control group and each treatment group, with the corresponding values provided in Table A1. All data refer to the pre-intervention (baseline) survey. For each variable, the mean values for the three groups are reported, along with the differences in means and the p-value from a difference-in-means t-test. Because the unit of randomization is a geographic block, these tests should be interpreted descriptively rather than as our primary inferential check.

As explained in Section 2.2, randomization was implemented within geographic blocks. In our outcome analyses we respect the design by clustering standard errors at that level and by controlling for a rich set of pre-treatment covariates, including the baseline value of the outcome.

Overall, the results suggest that the control and treatment groups are largely balanced across most variables, indicating that the random assignment successfully created comparable groups. However, a few variables exhibit statistically significant differences. In particular, T2 has a higher proportion of English speakers than the control group (difference of 0.027, significant at the 10% level). T2 also has a lower share of Canarian Insertion Benefit (PCI) recipients compared to the control group (difference of -0.044, significant at the 5% level), and participants in T2 are less likely than those in T1 to have secondary or higher education. Despite these imbalances, the groups are broadly comparable, and observed outcome differences can generally be attributed to the intervention. To further mitigate concerns, all outcome regressions include baseline covariates and cluster standard errors at the randomization-block level, ensuring that inference is consistent with the randomization design.

2.5 Degree of Participation in the Intervention and Sample Attrition

Figure 2 provides an overview of the sample’s participation in the intervention and attrition across the control group (C) and the two treatment groups (T1 and T2), with the corresponding values provided in Table A2. It shows how many participants were assigned to each group, how many started and completed the treatment, and how many responded to the endline surveys.

In the control group (C), all 986 participants who completed the baseline survey are considered to have “started and completed” the intervention, since there was no active treatment. In T1, 988 participants were assigned, and 89% both started and completed the treatment by collecting their tablet. In T2, 994 participants were assigned, but only 67% started the treatment and 42% completed it. We refer to this non-completion of treatment as non-compliance, which can lead to underestimation of the true average treatment effect when comparing T2 with the control group.

This relatively low compliance in T2 reflects the demanding nature of the training course, which required 100 hours of classes and a 30-hour internship. Many participants faced constraints such as caregiving responsibilities or reluctance to hire external caregivers despite being offered vouchers. As a result, while collecting a tablet required little effort in T1, the training program in T2 involved a substantial time commitment, which explains the drop in participation. This difference in compliance patterns is important for interpretation: outcomes in T2 reflect the effects for a motivated subset of participants, while T1 is closer to universal uptake.

Although treatment completion varied across groups, a large share of participants still responded to the follow-up surveys. Among control group participants, 74% completed the first endline survey and 80% the second. In T1, completion rates were 80% and 82%, respectively, while in T2 they were 74% and 78%. These figures indicate that many individuals responded to the surveys even if they did not fully engage with the assigned treatment. This is explained by the survey firm’s effort to contact all baseline respondents, regardless of their treatment compliance. Throughout the paper, we refer to non-response in either of the endline surveys as attrition.

To examine whether attrition—defined as a failure to respond to the first endline survey—is random or systematically related to treatment assignment, we regress attrition on indicators for T1 and T2, with the control group as the baseline (Table A3). The intercept of 0.261 indicates that 26.1% of control-group participants did not respond to the first endline. T1’s coefficient of -0.056 implies a significantly lower attrition rate relative to the control group, whereas T2’s coefficient of 0.001 is both small and not

statistically significant.

These findings align with the observed differences in participation and non-compliance: T1 required minimal commitment (collecting a tablet), whereas T2 involved a 10-week course and a 30-hour internship, leading to lower completion rates. Although participants were offered caregiver bonds to help with child or elder care, uptake was low, as many were reluctant to hire unknown caregivers. Overall, while T2 participants frequently did not complete the treatment, they still showed attrition rates similar to the control group, indicating that non-compliance did not necessarily translate into higher attrition.

Figure 3 and Table A4 examine whether attrition is correlated with specific baseline characteristics. For each characteristic X , we estimate a regression of the form:

$$\text{attrition}_i = \beta_0 + \beta_1 T1_i + \beta_2 T2_i + \gamma_0 X_i + \gamma_1 (X_i \times T1_i) + \gamma_2 (X_i \times T2_i) + \varepsilon_i. \quad (1)$$

Overall, most variables show no significant association with attrition, but there are several exceptions. In T1, English speakers and those caring for children or people with disabilities are more likely to drop out – likely reflecting time constraints. In T2, participants with a disability are less likely to drop out, while Spanish nationals have a higher attrition rate. Participants with secondary education in T2 also face lower attrition.

Although attrition appears largely random, these findings suggest certain subgroups are at greater risk of dropping out. To address this, we control for these characteristics in our analysis and apply the bounding method of Lee (2009) to evaluate the sensitivity of our results to selective attrition.

3 Empirical Analysis

3.1 Hypotheses

This section presents the key questions guiding our study. We investigate whether an intensive digital training program can reshape participants’ technological behaviors and improve their employability, and whether simply providing tablets yields any discernible impact in the absence of a structured training component.

With Treatment Group 2 (T2), the intervention combines digital skills training with access to an internet-connected tablet, aiming to provide both the means and the know-how needed to participate effectively in the digital economy. The training is designed to improve participants’ familiarity and confidence with digital tools, while the tablet ensures that these skills can be immediately applied outside the classroom. We hypothesize that this combination will not only enhance digital literacy but also translate into more effective behaviors, such as greater engagement in online job search, improved ability to

prepare and submit job applications, and more efficient interaction with public services. Over time, these changes may support broader employability improvements by reducing digital barriers to labor market participation and social inclusion.

By contrast, the tablet-only treatment (T1) tests the impact of providing access to technology without accompanying training or support. This design allows us to assess whether simply lowering the hardware barrier—by giving participants a tablet with internet—leads to meaningful changes in digital skills, behaviors, or labor market outcomes. The intervention relies on participants’ own initiative and ability to navigate and adopt digital tools independently. We do not have a strong prior about T1’s effects: it is possible that access alone is insufficient to drive behavioral change, especially for individuals with limited prior exposure to technology. In this case, outcomes for T1 may be indistinguishable from those of the control group.

3.2 Estimated Regressions

The regression model used to estimate causal effects in a randomized experiment is typically based on the difference in the outcome of interest between the treatment and control groups, assuming random assignment ensures statistical comparability. However, given the documented imbalances in selective attrition for certain observable characteristics, there is a concern that unobserved characteristics may also influence attrition. To address this possibility, we control for the baseline value of the dependent variable in some specifications. This approach helps account for any initial differences between treatment and control groups. In addition, to improve the precision of estimates, we also present specifications that include a set of baseline controls, namely: gender, age (a binary indicator splitting the 45–64 age range into two groups: 45–54 vs. 55–64), Canarian Insertion Benefit (PCI) receipt, Minimum Living Income (IMV) receipt, English proficiency, responsibility for caring for children or persons with disabilities, own disability status, education level, island of origin, nationality, and self-reported health status.

Formally, we measure intention-to-treat (ITT) impacts by estimating:

$$Y_{i1} = \alpha + \beta_1 T1_i + \beta_2 T2_i + \gamma Y_{i0} + X_i' \delta + \varepsilon_i \quad (2)$$

where Y_{i1} is the outcome of interest at endline, Y_{i0} is the corresponding baseline value; $T1_i$ and $T2_i$ are binary indicators for assignment to the tablet-only or tablet-plus-training groups, and X_i is the vector of control variables. Standard errors are clustered at the randomization-block level.

Several primary outcomes guide our analysis: (i) self-reported employment status (“Working”), (ii) self-reported life satisfaction (“Life Satisfaction”), (iii) a composite

indicator of digital skills (“Digital Skills”), and (iv) a composite indicator of job search capability (“Job Search”). For the medium-term analysis, we add three more outcomes: (v) self-reported participation in any job training (“Job Training”), (vi) self-reported employment status conditional on being employed at the end of the experiment (“Job Retention”), and (vii) the self-reported number of months employed during the period (“Months Worked”). Detailed variable descriptions appear in the Appendix.

The coefficients of interest, β_1 and β_2 , capture the causal effects of being assigned to receive a tablet and of being assigned to receive both a tablet and digital training, respectively, relative to the control group. These are intention-to-treat (ITT) estimates, since they reflect treatment assignment rather than actual take up of the intervention.

4 Main Results

In this section, we report the short- and medium-term effects of the intervention, using data from the first and second endline surveys (the latter conducted six months later). We then examine how the issues of attrition and non-compliance may affect our results. We also conduct heterogeneity analyses for the main results. Finally, we discuss the statistical power of the experiment to assess the minimum detectable effects.

4.1 Short-term Effects

We estimate the effects of providing a tablet (T1) and a tablet plus digital training (T2) on participants’ job search ability, life satisfaction, self-reported digital skills, and self-reported employment status. Figure 4 offers a visual summary of these outcomes, while Table A5 details the corresponding regression coefficients in three different specifications: one without controls, one with controls, and one that additionally controls for the baseline value of the outcome variable. The control variables, discussed in the previous subsection, include demographic and socio-economic characteristics. Two of the outcome measures – “Job Search” and “Digital Skills” – are standardized composite variables, facilitating interpretation of the coefficients in terms of standard deviations. “Life Satisfaction” is measured on a 1–5 scale, and “Working” is a binary variable indicating self-reported employment.

Turning first to digital skills, the results show a positive and significant effect for both T1 and T2, although it is substantially larger for T2. In T1, the impact ranges from 0.14 to 0.18 standard deviations, whereas T2 yields an effect of about 0.50 to 0.52 standard deviations, significant at the 1% level in all specifications. This notable gap between the two treatment arms supports the hypothesis that an intensive digital training course has

a more powerful effect on digital skills than simply providing tablet access. Importantly, these findings remain consistent when measured again six months after the intervention (Table A6), although T2’s effect size declines somewhat over time.

A similar pattern emerges for job search ability. Here, T2 again shows a sizeable positive effect, estimated between 0.20 and 0.25 standard deviations, while T1 exhibits no statistically significant impact. The difference between T2 and T1 in job search ability ranges from 0.18 to 0.21 standard deviations, highlighting the value of structured digital training. As with digital skills, these effects persist in the medium term.

In contrast, neither T1 nor T2 exerts a significant influence on self-reported employment in the short term: both sets of estimates are near zero and not statistically significant in all specifications. This result holds even six months after the intervention, as indicated in Table A6. One explanation for T2’s small or even negative coefficients might be that participants devoted considerable time to training—10 weeks plus an internship—which may have reduced the time available for job search or employment during the intervention period. Nonetheless, the lack of any longer-term employment effect suggests that the training did not sufficiently translate into immediate labor market outcomes.

Regarding life satisfaction, there is a small but significant positive effect for T2, estimated at about 0.12 points on the 1–5 scale—corresponding to a 4% increase over the baseline mean of 2.9 – while T1 shows no discernible impact. Interestingly, these gains in self-reported life satisfaction grow somewhat larger in the medium term for both T1 and T2, although the increase is particularly notable for T1, as shown in Table A6.

In summary, while the intervention had limited impact on short-term employment status for either T1 or T2, it yielded significant improvements in digital skills, job search ability, and life satisfaction for participants in T2. Providing a tablet alone produced smaller increases in digital skills and little observable effect on other outcomes, reinforcing the notion that structured digital training fosters more substantial gains in participants’ competencies and well-being.

4.2 Medium-term Effects

Table A6 presents results from the second endline survey, conducted six months after the intervention. This follow-up was designed to determine whether the initially observed impacts persist or diminish over time. We report the primary specification for each outcome variable, including the full set of controls and the baseline value of each outcome.

Overall, the effects captured in this second endline are qualitatively similar to those in the first. However, some of T2’s impacts decrease in magnitude over time, particularly for self-reported digital skills.

Regarding employment-related outcomes—such as the share of participants working,

the number of months worked in the prior six months, or participation in job training—no significant effects are evident six months after the intervention. Among the 231 individuals who had reported employment during the first endline, an analysis of job retention likewise shows no significant impact of any treatment. Note that the number of observations is relatively small for this test, potentially limiting the statistical power to detect meaningful effects. Finally, the positive effect on life satisfaction noted in the first endline remains for T2 and actually becomes significant for T1. That said, these self-reported measures may be influenced by factors such as social desirability bias; hence, caution is advised when interpreting these findings.

In line with our pre-analysis plan, we also investigated additional labor market outcomes using administrative records, including days worked, employment intensity, contract type, and participation in different social security regimes. The results, reported in Table A7, likewise show no significant treatment effects. These null results reinforce the evidence from self-reported outcomes that, while the intervention improved digital skills, job search ability, and subjective well-being, it did not translate into measurable improvements in formal employment or labor market attachment.

4.3 Mitigating Attrition and Non-Compliance

In our baseline specifications, we have not addressed the potential bias in the estimates due to the selective attrition documented in Table A4 and substantial withdrawal from treatment among participants. To assess the potential impact of this selective attrition on the estimated effects, we implement the bounding method proposed by Lee (2009). Table A8 presents the estimated bounds for the effects on the five outcomes discussed above. The results indicate considerable uncertainty regarding the magnitude and even the direction of T1’s (tablet-only) effects on digital skills. By contrast, T2 shows more consistently positive effects across outcomes, which may partly be explained by the minimal trimming required for T2 (0.12%) compared with T1 (7.06%).

Additionally, we estimate both short-term and medium-term effects using an instrumental variables (IV) approach, in which random assignment to each treatment arm serves as an instrument for actual treatment take up. Participants who returned their tablets are treated as non-compliers, while those in T2 who did not complete the training but kept their tablet are considered compliers with respect to T1 but not T2. Under independence of assignment, the exclusion restriction, and monotonicity (no one moves from control to treatment, nor from T1 to T2), this strategy identifies the local average treatment effect (LATE) – the causal effect for compliers (Imbens and Angrist, 1994). Formally, for each arm $j \in \{T1, T2\}$, let $Z_i^{(j)}$ denote assignment to j , $D_i^{(j)} \in \{0, 1\}$ indicate receipt of j , and $Y_i(d)$ the potential outcome under $D_i^{(j)} = d$. Then

$$\tau_{LATE} \equiv \mathbb{E}[Y_i(1) - Y_i(0) | D_i^{(j)}(1) > D_i^{(j)}(0)]$$

We implement this with 2SLS using the assignment indicators $Z_i^{(j)}$ as instruments for the endogenous treatment indicators $D_i^{(j)}$.

Figure 4 and Tables A9 and A10 present these IV results. Overall, the patterns observed in the ordinary least squares (OLS) analysis remain, but the IV effects are about twice as large, consistent with the fact that the LATE focuses on compliers whereas the ITT estimates reflect average effects across all those assigned, regardless of compliance. Specifically, T1 and T2 both increase self-reported digital skills, and T2 improves job search ability in the short term; these gains persist and even grow somewhat in the medium term. Moreover, life satisfaction rises in the medium term for both treatment arms, again consistent with the OLS findings.

4.4 Heterogeneous Treatment Effects

To gain deeper insights into the intervention’s impact across different social groups, we conducted a heterogeneity analysis. In particular, we hypothesized that participants’ education levels might influence how they benefit from the provision of tablets and digital literacy training. The direction of this effect depends on whether the training complements or substitutes for formal education: on one hand, individuals with more education might benefit more because they can better process new information; on the other, those with less education might gain disproportionately by acquiring skills they previously lacked.

To examine these hypotheses, we extended our preferred specifications from Tables A5 and A6, which include a full set of controls and the baseline outcome level, by adding dummy variables for education levels and interacting them with the treatment indicators (T1 and T2) as well as the other controls. We categorized education into three groups: incomplete primary (no formal education or partial primary completion), complete primary (completed primary but dropped out of subsequent levels), and secondary (ranging from incomplete secondary to started high school without graduating). The results, reported in Tables A11-A12 and illustrated in Figures A1-A2, do not show any significant effects on employment status or life satisfaction across the education levels. However, for digital skills, participants in T2 with complete primary education showed the largest short-term improvement, about 0.58 standard deviations, compared to 0.1 for the control mean, although the null hypothesis of homogeneous effects across subgroups cannot be rejected. For job search capabilities, the subgroup with complete primary education exhibited the most substantial gains. In the medium term, the largest improvements

in both digital skills and job search capabilities were observed among participants with secondary education. Similarly, T1 also generated gains in digital skills, with the highest short-term effect occurring among those with incomplete primary education and the highest medium-term effect among those with secondary education. One plausible explanation is that even a modest educational foundation can help individuals better absorb and retain new information over time.

We also examined heterogeneity based on participants' initial (pre-intervention) digital skills, which we divided into quartiles. We created dummy variables for each quartile and interacted them with the treatment indicators and other controls in OLS regressions using the same outcomes as before. As shown in Tables [A13-A14](#) and depicted in Figures [A3-A4](#), T1 participants with the lowest baseline digital skills registered significantly larger short-term improvements in self-reported endline digital skills compared to higher quartiles. This suggests that providing access to digital devices is especially beneficial for those with limited initial digital literacy, enabling them to acquire basic digital skills independently.

Finally, we analyzed heterogeneity based on two characteristics that either differed between treatment arms at baseline or were linked to selective attrition: enrollment in the Canarian Insertion Benefit (PCI) and having a dependent.⁸ As shown in Tables [A15-A18](#) and Figures [A5-A8](#), the short-term effect of T2 (tablet plus training) on job search capabilities was higher among participants not enrolled in PCI. In the medium term, T2's effect on job retention and months of employment was significantly lower for those enrolled in PCI, possibly reflecting reduced incentives among individuals receiving substantial unemployment benefits. Moreover, participants with a dependent—whether adult or minor—experienced larger gains in outcomes such as digital skills and job search capabilities than those without dependents, suggesting that caregiving responsibilities may heighten motivation to benefit from the intervention.

Overall, these analyses reveal that treatment effects vary considerably across different subpopulations, underscoring the need to consider individual characteristics when assessing intervention outcomes. Future research could employ more data-driven methods to explore additional sources of heterogeneity beyond the pre-specified hypotheses examined here.⁹

Finally, Table [A19](#) reports the resulting MDEs. For binary outcomes, the MDE is

⁸We combined dummies for having an adult dependent and for having a minor dependent into a single variable, which we then interacted with the treatment indicators.

⁹Heterogeneity analyses by PCI and dependent status were motivated by baseline imbalances and patterns of selective attrition. Therefore, they were not prespecified and may involve multiple-testing concerns. Nevertheless, we report them as exploratory, without formal corrections, and focus on patterns consistent across outcomes. Main intervention effects on digital skills and job search remain large and robust.

expressed both in probability units and in percentage points. The calculations indicate that the detectable effects for self-reported employment and life satisfaction are larger than the point estimates we obtain in our OLS and IV analyses. This suggests that, even if the intervention had some effect on these outcomes, its magnitude was too small to be reliably detected given our sample size. By contrast, the observed effects on digital skills and job search capabilities fall within the detectable range, consistent with the significant impacts documented in this section.

5 Conclusion

This paper has presented a comprehensive evaluation of a randomized controlled trial aimed at addressing the digital divide and enhancing digital skills among disadvantaged individuals in the Canary Islands. Participants were divided into three groups: one received tablets with internet access, another received both tablets and a digital skills training course, while a third group served as the control.

Our results indicate that the intervention successfully improved digital skills and job search capabilities, particularly for those who underwent the intensive digital training. In addition, we found that the provision of tablets proved notably effective for individuals with lower baseline digital literacy. However, no significant impact on self-reported employment was observed in either treatment group, although it did have a positive impact on life satisfaction for participants receiving digital training. Medium-term outcomes, assessed through a second survey six months post-intervention, mirrored the short-term effects and were more sustained among participants with higher educational levels.

These findings underscore the importance of tailored digital training in enhancing digital skills and employability among disadvantaged individuals. They are consistent with other studies analyzing the efficacy of digital training among disadvantaged individuals (Martínez-Alcalá et al., 2018; Tsai et al., 2017), highlighting the need to consider potential attrition factors in the design and implementation of such interventions.

Looking ahead, the results provide a mixed message regarding the desirability to scale up the intervention. On the one hand, the positive impacts on digital skills, job search ability, and life satisfaction support the case for scaling up this kind of program to reach more individuals in the Canary Islands and potentially other regions facing similar challenges. On the other hand, careful attention must be given to the program's design and implementation, particularly regarding the issue of treatment non-compliance. Our analysis suggests that providing digital devices alone can be effective for individuals with low digital literacy, although a thorough cost-benefit analysis is necessary to determine whether this is the most efficient approach.

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Tables

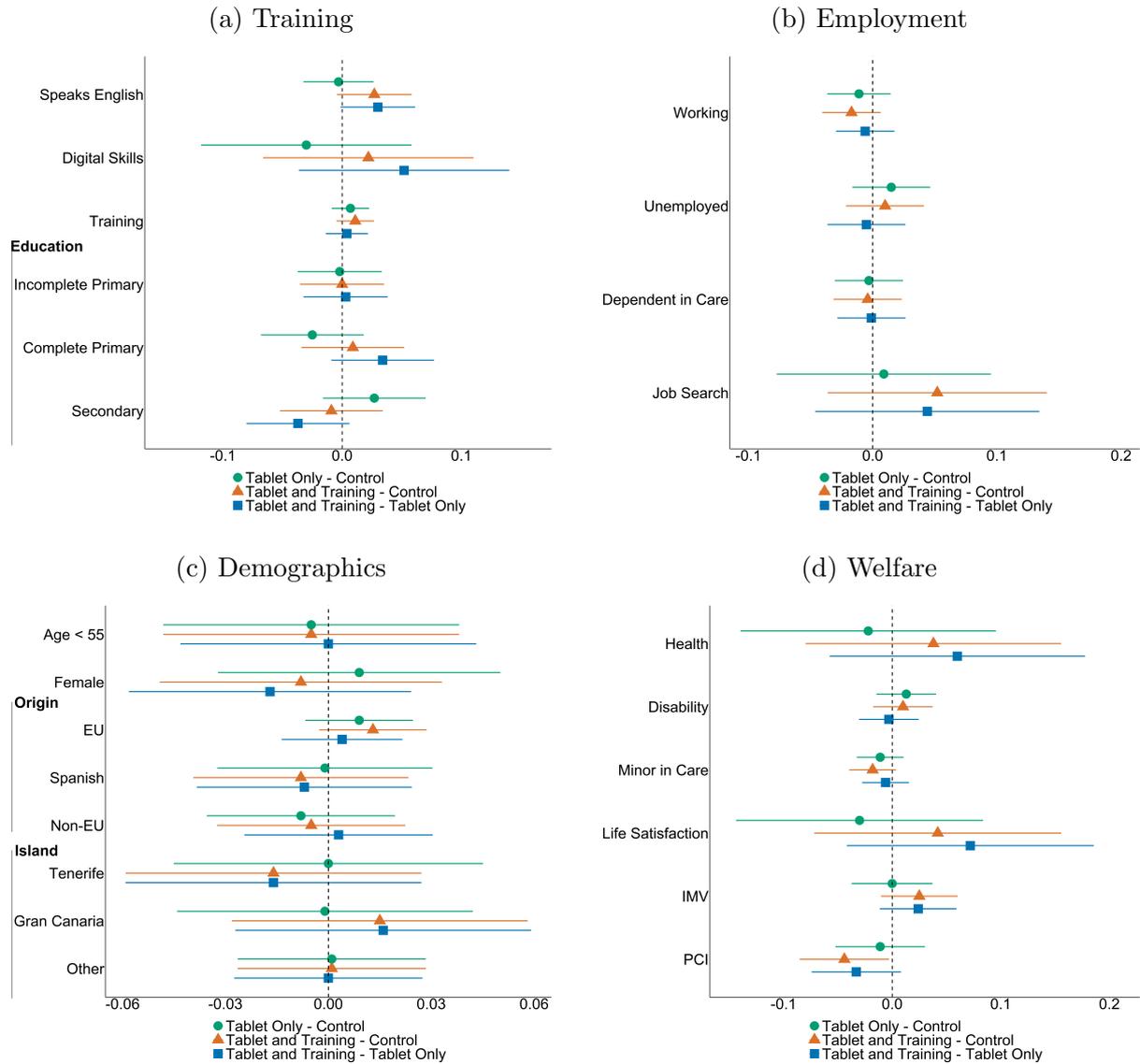
Table 1: Descriptive statistics of the sample at baseline

Variable	Mean	Std. Dev.	Min.	Max.	Obs.	
Female	0.653	0.476	0	1	2968	
Age <55	0.45	0.498	0	1	2968	
English Speaker	0.138	0.345	0	1	2968	
Working	0.083	0.276	0	1	2968	
Unemployed	0.854	0.353	0	1	2968	
Dependent in Care	0.112	0.316	0	1	2968	
Minor in Care	0.064	0.245	0	1	2968	
Disability	0.11	0.313	0	1	2968	
Training	0.035	0.185	0	1	2968	
Health	2.959	1.335	1	5	2968	
Life Satisfaction	3.038	1.291	1	5	2968	
Digital Skills	0	1	-2.156	5.092	2968	
Job Search	0	1	-1.428	5.523	2968	
PCI	0.321	0.467	0	1	2968	
IMV	0.785	0.411	0	1	2968	
Island	Other	0.112	0.316	0	1	2968
	Gran Canaria	0.394	0.489	0	1	2968
	Tenerife	0.494	0.5	0	1	2968
Nationality	Spanish	0.859	0.348	0	1	2968
	EU	0.038	0.191	0	1	2968
	Non-EU	0.103	0.304	0	1	2968
Education	Incomplete Primary	0.189	0.392	0	1	2968
	Complete Primary	0.376	0.484	0	1	2968
	Secondary	0.435	0.496	0	1	2968

Notes: “Digital Skills”, “Job Search” and “Employability” are composite indicators computed using the method developed by Anderson (2008). See the Appendix for details on the construction of these indicators. IMV and PCI refer to the Minimum Income Scheme and the Canarian Insertion Benefit, respectively.

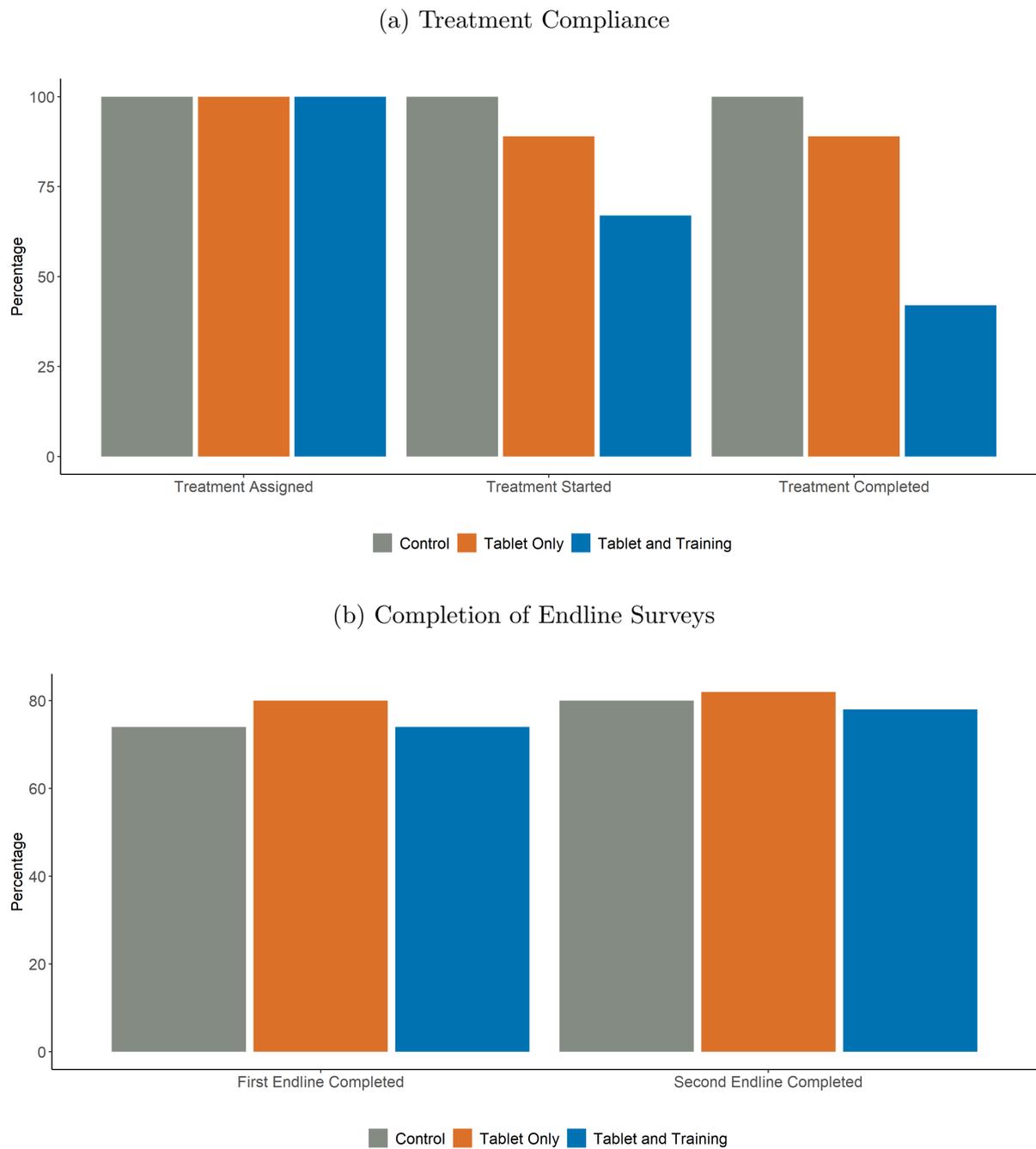
Figures

Figure 1: Balance between experimental groups at baseline



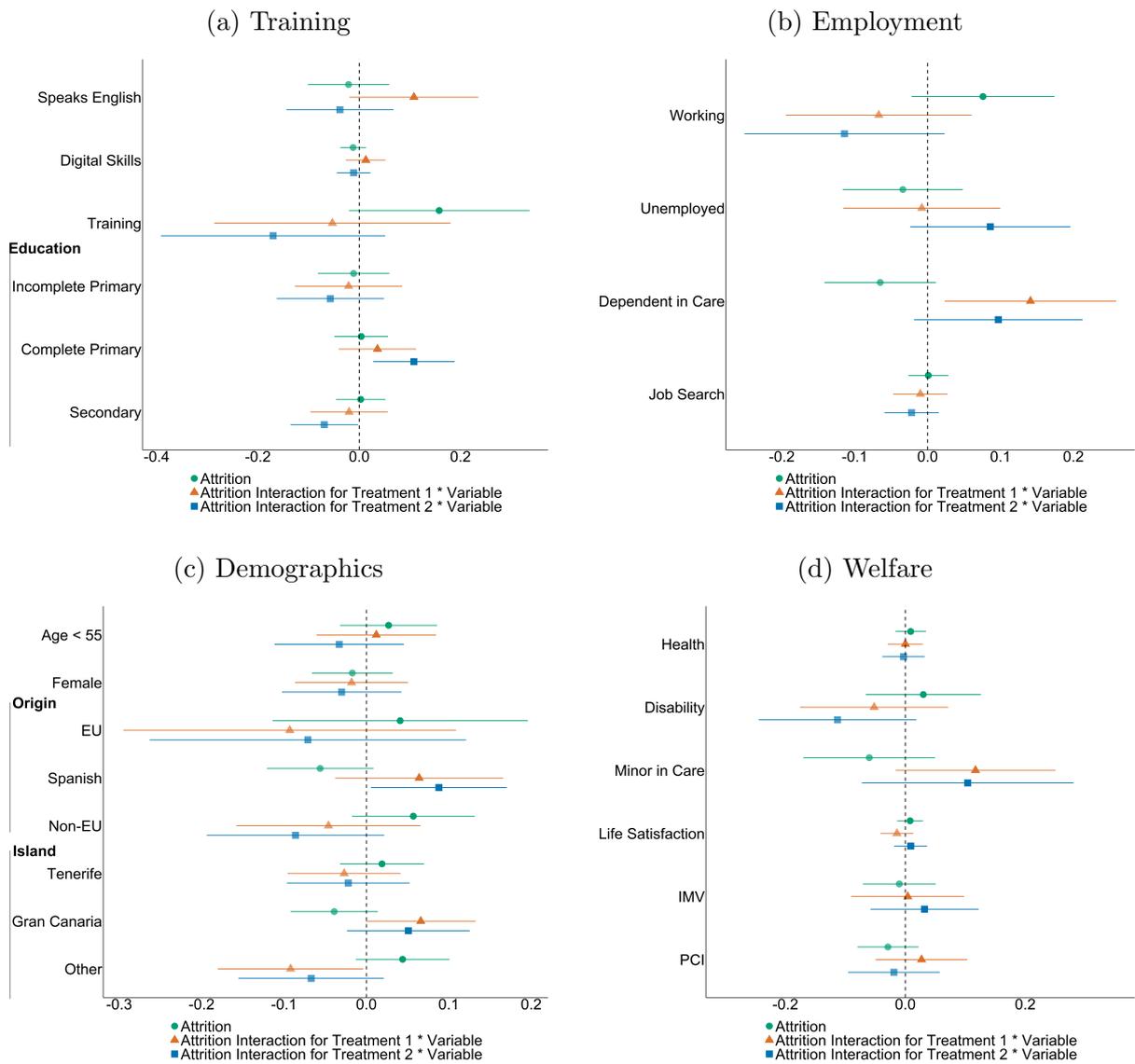
This plot displays the differences of baseline characteristics among the control group, the tablet-only group (T1), and the tablet + training group (T2). It is divided into four panels: Panel 1a presents training-related variables; Panel 1b displays work-status variables; Panel 1c shows demographic variables; and Panel 1d illustrates welfare status. This plot corresponds to columns (4), (5), and (6) in Table A1 and is intended to highlight the baseline balance among the three groups. Note that each estimator is accompanied by a 95% confidence interval. Randomization was implemented within geographic blocks; the differences shown here are unadjusted and should be interpreted descriptively. All outcome analyses in the paper include baseline covariates and cluster standard errors at the randomization block level to ensure inference consistent with the randomization design.

Figure 2: Attrition and Compliance Rates by Experimental Group



Notes: This plot shows participation across three groups – Tablet Only (T1), Tablet + Training (T2), and the Control group – over different stages. Panel (a) illustrates treatment compliance during the three stages, while Panel (b) displays the share of participants within each treatment arm who responded to surveys immediately after the treatment and six months later. Orange bars represent the Tablet Only group (T1), blue bars indicate the Tablet + Training group (T2), and gray bars correspond to the Control group.

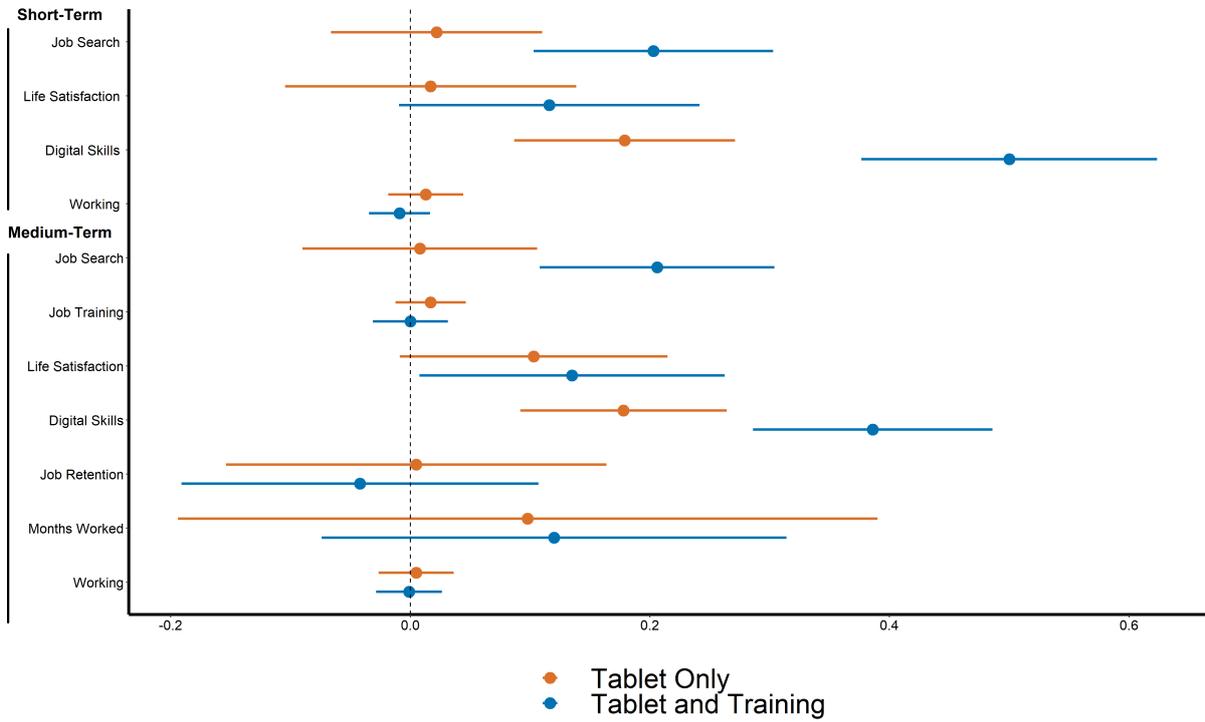
Figure 3: Selective attrition between treatment groups



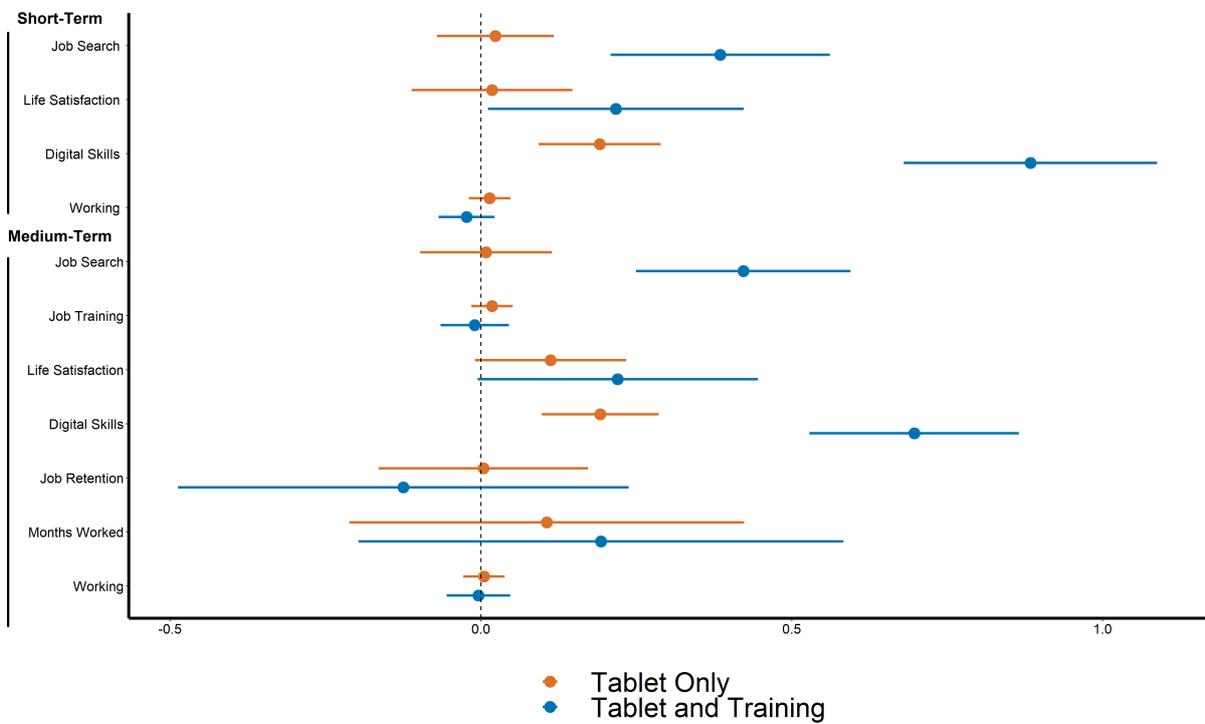
Notes: This figure displays differences in attrition by treatment arm for a range of control variables, grouped into four panels. Panel 3a covers education and training (e.g., highest academic level), Panel 3b focuses on work-related variables, Panel 3c examines demographic characteristics, and Panel 3d shows welfare characteristics (health status, life satisfaction, etc.). Each point represents the estimated coefficient with its 95% confidence interval. This figure corresponds to Table A4.

Figure 4: Main Results: Short- and Medium-Term Effects

(a) OLS Regression



(b) IV Regression



Notes: This figure shows the short-term (top) and medium-term (bottom) effects of two interventions on several self-reported outcomes. Orange lines represent T1 (tablet only), and blue lines represent T2 (tablet plus training). Dots indicate point estimates, and lines show 95% confidence intervals. Short-term estimates are presented in Tables A5 and A9; medium-term estimates appear in Tables A6 and A10.

Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Data Availability Statement

All data, both raw and processed, for this paper are kept at the Ministerio de Inclusión, Seguridad Social y Migraciones. The data used in this paper are only available to the researchers through a virtual desktop at the Ministerio's server, after being anonymized, and they cannot be downloaded. The results can be downloaded after verification by the Ministerio. The researchers can only use these data for the purpose of the evaluation implemented in this paper. The researchers have signed an agreement with the Ministry that indicates that they cannot share any of these data through any means and the Ministerio has not indicated their willingness to share the data with journal editors or referees for the purpose of refereeing the paper for its potential publication.

Online Appendix

For web publication only

A Appendix Tables

Table A1: Balance Test Between Experimental Groups

	(1)	(2)	(3)	(4)	(5)	(6)
Variable	Control: Mean	T1: Mean	T2: Mean	T1 - Control	T2 - Control	T2 - T1
Female	0.653	0.662	0.645	0.009 (0.021)	-0.008 (0.021)	-0.017 (0.021)
Age <55	0.453	0.448	0.449	-0.005 (0.022)	-0.005 (0.022)	0 (0.022)
Speaks English	0.13	0.127	0.157	-0.003 (0.015)	0.027* (0.016)	0.03* (0.016)
Working	0.092	0.081	0.075	-0.011 (0.013)	-0.017 (0.012)	-0.006 (0.012)
Unemployed	0.846	0.861	0.856	0.015 (0.016)	0.01 (0.016)	-0.005 (0.016)
Dependent in Care	0.115	0.111	0.111	-0.003 (0.014)	-0.004 (0.014)	-0.001 (0.014)
Minor in Care	0.074	0.063	0.056	-0.011 (0.011)	-0.018 (0.011)	-0.006 (0.011)
Disability	0.102	0.115	0.113	0.013 (0.014)	0.01 (0.014)	-0.003 (0.014)
Training	0.029	0.036	0.04	0.007 (0.008)	0.011 (0.008)	0.004 (0.009)
Health	2.953	2.931	2.991	-0.022 (0.06)	0.038 (0.06)	0.06 (0.06)
Life Satisfaction	3.034	3.004	3.076	-0.03 (0.058)	0.042 (0.058)	0.072 (0.058)
Digital Skills	0.003	-0.028	0.025	-0.03 (0.045)	0.022 (0.045)	0.052 (0.045)
Job Search	-0.02	-0.012	0.032	0.009 (0.044)	0.052 (0.045)	0.044 (0.046)
PCI	0.34	0.329	0.296	-0.011 (0.021)	-0.044** (0.021)	-0.033 (0.021)
IMV	0.777	0.777	0.802	0	0.025	0.024

				(0.019)	(0.018)	(0.018)
Island						
Other	0.112	0.112	0.113	0.001 (0.014)	0.001 (0.014)	0 (0.014)
Gran Canaria	0.389	0.389	0.404	-0.001 (0.022)	0.015 (0.022)	0.016 (0.022)
Tenerife	0.499	0.499	0.483	0 (0.023)	-0.016 (0.022)	-0.016 (0.022)
Nationality						
Spanish	0.862	0.861	0.854	-0.001 (0.016)	-0.008 (0.016)	-0.007 (0.016)
EU	0.03	0.039	0.043	0.009 (0.008)	0.013 (0.008)	0.004 (0.009)
Non-EU	0.108	0.099	0.103	-0.008 (0.014)	-0.005 (0.014)	0.003 (0.014)
Education						
Incomplete Primary	0.19	0.187	0.19	-0.002 (0.018)	0 (0.018)	0.003 (0.018)
Complete Primary	0.381	0.356	0.39	-0.025 (0.022)	0.009 (0.022)	0.034 (0.022)
Secondary	0.429	0.456	0.42	0.027 (0.022)	-0.009 (0.022)	-0.037* (0.022)
Observations	986	988	994			

Notes: This table displays baseline characteristics and differences between control, treatment group 1 (T1), and treatment group 2 (T2). “Digital Skills” and “Job Search” are composite indicators computed using the method developed by Anderson (2008). See the Appendix for details on the construction of these indicators. IMV and PCI refer to the Minimum Income Scheme and the Canarian Insertion Benefit, respectively. Differences between treatment groups and control are provided, with standard errors in parentheses. Randomization occurred within geographic nodes, but these balance tests are based on unadjusted differences in means and should be interpreted descriptively. In all subsequent outcome regressions, we include baseline covariates (including the baseline value of the dependent variable) and cluster standard errors at the node level. *: $p < 0.1$, **: $p < 0.05$, ***: $p < 0.01$.

Table A2: Dropout and Attrition Rates by Experimental Group

Group	Treatment assigned	Treatment started	Treatment completed	First Endline completed	Second Endline completed
C	986 (100%)	986 (100%)	986 (100%)	729 (74%)	785 (80%)
T1	988 (100%)	817 (83%)	817 (83%)	786 (80%)	811 (82%)
T2	994 (100%)	440 (44%)	413 (42%)	734 (74%)	776 (78%)
Total	2968	2532	2279	2249	2372

Notes: The table presents attrition rates by experimental group, tracking the progression of participants from treatment assignment to various study stages. It includes the control group (Control) and two treatment groups (T1 and T2). “Treatment assigned” denotes the initial number of participants assigned to each group, while “Treatment Started” represents those who began the assigned treatment. “Treatment Completed” reflects those who successfully completed the treatment. “First Endline completed” shows the number and percentage of participants completing the first endline survey, and “Second Endline completed” presents the same for the second endline survey implemented six months later.

Table A3: Attrition between treatment groups

Treatment Group	Attrition
Intercept (control group)	0.261*** (0.013)
T1	-0.056*** (0.018)
T2	0.001 (0.019)
Observations	2968

Notes: This table reports results from a regression of an attrition indicator on treatment group dummies. The dependent variable equals 1 if the individual did not participate in the follow-up survey. The intercept corresponds to the attrition rate in the control group, while the coefficients for T1 and T2 capture differences in attrition relative to the control group. Standard errors are reported in parentheses and are clustered at the node level. *: $p < 0.1$, **: $p < 0.05$, ***: $p < 0.01$.

Table A4: Selective attrition between treatment groups

Control Variable	Attrition	Attrition (T1*Var)	Attrition (T2*Var)	Obs.
Female	-0.017 (0.025)	-0.018 (0.035)	-0.03 (0.037)	2968
Age <55	0.027 (0.03)	0.012 (0.037)	-0.033 (0.04)	
Speaks English	-0.021 (0.041)	0.108* (0.065)	-0.038 (0.054)	2968
Working	0.076 (0.05)	-0.067 (0.065)	-0.114 (0.07)	2968
Unemployed	-0.034 (0.042)	-0.008 (0.055)	0.086 (0.056)	2968
Dependent in Care	-0.065* (0.039)	0.141** (0.06)	0.097 (0.059)	2968
Minor in Care	-0.06 (0.056)	0.117* (0.068)	0.104 (0.09)	2968
Disability	0.03 (0.049)	-0.052 (0.063)	-0.113* (0.067)	2968
Training	0.158* (0.091)	-0.053 (0.119)	-0.17 (0.113)	2968
Health	0.009 (0.013)	0 (0.015)	-0.003 (0.018)	2968
Life Satisfaction	0.008 (0.011)	-0.014 (0.014)	0.009 (0.014)	2968
Digital Skills	-0.012 (0.013)	0.013 (0.02)	-0.011 (0.017)	2968
Job Search	0.001 (0.014)	-0.01 (0.019)	-0.022 (0.019)	2968
PCI	-0.029 (0.026)	0.027 (0.039)	-0.019 (0.039)	2968
IMV	-0.01 (0.031)	0.004 (0.048)	0.032 (0.046)	2968
Island				
Other	0.044	-0.092**	-0.067	2968

	(0.029)	(0.045)	(0.045)	
Gran Canaria	-0.039	0.066*	0.051	2968
	(0.027)	(0.034)	(0.038)	
Tenerife	0.019	-0.027	-0.022	2968
	(0.026)	(0.035)	(0.038)	
<hr/>				
Nationality				
Spanish	-0.056*	0.064	0.088**	2968
	(0.033)	(0.052)	(0.042)	
EU	0.041	-0.093	-0.071	2968
	(0.079)	(0.103)	(0.098)	
Non-EU	0.057	-0.046	-0.086	2968
	(0.038)	(0.057)	(0.055)	
<hr/>				
Education				
Incomplete Primary	-0.011	-0.021	-0.057	2968
	(0.036)	(0.054)	(0.054)	
Complete Primary	0.004	0.036	0.108***	2968
	(0.027)	(0.039)	(0.041)	
Secondary	0.003	-0.02	-0.069**	2968
	(0.025)	(0.039)	(0.034)	

Notes: This table shows differences in attrition by treatment arm for each control variable. Three columns display the coefficients from the estimated regression equation (1). Each row corresponds to a separate regression where the dependent variable is a binary indicator of attrition, and we allow interactions between each control variable (left column) and the two treatment indicators (T1 and T2). Standard errors are reported in parentheses and are clustered at the node level. *: $p < 0.1$, **: $p < 0.05$, ***: $p < 0.01$.

Table A5: Short-Term Effects: OLS

(a) Effects on Digital Skills and Job Search

	Digital Skills			Job Search		
	(1)	(2)	(3)	(4)	(5)	(6)
T1	0.142** (0.061)	0.149*** (0.054)	0.179*** (0.5)	0.029 (0.053)	0.036 (0.047)	0.022 (0.045)
T2	0.518*** (0.067)	0.508*** (0.067)	0.5*** (0.063)	0.248*** (0.054)	0.238*** (0.053)	0.203*** (0.051)
Controls	N	Y	Y	N	Y	Y
Baseline level	N	N	Y	N	N	Y
p-value: T1 = T2	0***	0***	0***	0.001***	0.001***	0.001***
Mean (C)	0.101	0.101	0.101	0.192	0.192	0.192
Observations	2249	2249	2249	2249	2249	2249

(b) Effects on self-reported Employment and Life Satisfaction

	Working			Life Satisfaction		
	(1)	(2)	(3)	(4)	(5)	(6)
T1	0.01 (0.019)	0.011 (0.018)	0.013 (0.016)	0.009 (0.06)	0.018 (0.058)	0.017 (0.062)
T2	-0.009 (0.016)	-0.014 (0.015)	-0.009 (0.013)	0.12* (0.065)	0.114* (0.066)	0.116* (0.064)
Controls	N	Y	Y	N	Y	Y
Baseline level	N	N	Y	N	N	Y
p-value: T1 = T2	0.314	0.167	0.188	0.057*	0.088*	0.048**
Mean (C)	0.112	0.112	0.112	2.945	2.945	2.945
Observations	2249	2249	2249	2249	2249	2249

Notes: This table presents the results of the intervention on several key indicators: digital skills and job search ability for Panel A, and self-reported employment and life satisfaction for Panel B. "Digital Skills" and "Job Search" are composite indicators constructed from several variables in the original dataset, using the method from Anderson (2008). "Working" is an indicator for self-reported employment. "Life Satisfaction" is measured on a scale from 1 to 5, where 1 stands for "not satisfied at all" and 5 corresponds to "very satisfied". The table provides three specifications for each outcome variable: one without controls, one with controls, and one controlling for the baseline level of the outcome variable. The controls include variables such as gender, nationality, and educational level. Standard errors are put in parentheses, clustered at the node level. *: $p < 0.1$, **: $p < 0.05$, ***: $p < 0.01$.

Table A6: Medium-term effects: OLS

(a) Effects on Digital Skills and Job Search

Variable	Digital Skills (OLS)	Job Search (OLS)
T1	0.178*** (0.044)	0.008 (0.05)
T2	0.386*** (0.051)	0.206*** (0.05)
Controls	Y	Y
Baseline level	Y	Y
p-value: T1 = T2	0***	0***
Mean (C)	0.073	0.235
Observations	2372	2372

(b) Effects on self-reported employment and life satisfaction

Variable	Working (OLS)	Months Worked (OLS)	Job Retention (OLS)	Training (OLS)	Life Satis- faction (OLS)
T1	0.005 (0.016)	0.098 (0.149)	0.011 (0.081)	0.017 (0.015)	0.103* (0.057)
T2	-0.001 (0.014)	0.12 (0.099)	-0.042 (0.076)	0 (0.016)	0.135** (0.065)
Controls	Y	Y	Y	Y	Y
Baseline level	Y	Y	Y	Y	Y
p-value: T1 = T2	0.727	0.885	0.514	0.207	0.542
Mean (C)	0.117	1.317	0.689	0.096	2.876
Observations	2372	2372	231	2372	2372

Notes: This table presents the medium-term results of the intervention on several key variables, six months after the end of the intervention. Panel A reports the effects on digital skills and job search abilities. Each of these composite indicators is constructed from several variables in the original dataset, using the method from Anderson (2008), allowing us to interpret the regression coefficients in terms of standard deviations (see details in Appendix). Panel B reports the effects on self-reported employment and life satisfaction. "Working" is an indicator for self-reported employment. "Job Retention" is defined as keeping a job in the last six months, since the first endline survey. "Months Worked" is the number of months an individual worked in the past year. "Life Satisfaction" is measured on a scale from 1 to 5, where 1 stands for "not satisfied at all" and 5 corresponds to "very satisfied". The table provides the specifications controlling for the baseline level of the outcome variable. The controls include variables such as gender, nationality, and educational level. Standard errors are provided in parentheses, clustered at the node level. *: $p < 0.1$, **: $p < 0.05$, ***: $p < 0.01$.

Table A7: Medium-term Effects on Employment, Administrative Data

(a) Employment Outcomes: Social Security Regimes

Variable	(1) Employment	(2) Worked days	(3) Employment intensity	(4) General Regime	(5) Households Regime	(6) Autonomous Regime
T1	0 (0.021)	1.976 (2.702)	0.011 (0.015)	-0.006 (0.020)	0.003 (0.003)	0 (0.004)
T2	0.021 (0.017)	0.475 (2.179)	0.003 (0.012)	0.024 (0.015)	0.001 (0.002)	-0.003 (0.004)
Controls	Y	Y	Y	Y	Y	Y
Baseline level	Y	Y	Y	Y	Y	Y
p-value: T1 = T2	0.571	0.136	0.579	0.192	0.692	0.571
Mean (C)	0.184	23.632	0.128	0.161	0.010	0.010
Observations	2176	2176	2176	2176	2176	2176

(b) Employment Outcomes: Contract Types

Variable	Permanent contract	Discontinued perma- nent contract	Temporal contract	Full-time contract	Part-time contract
T1	-0.009 (0.011)	0.001 (0.004)	0.011 (0.017)	-0.004 (0.015)	0.006 (0.013)
T2	-0.004 (0.012)	0.009* (0.005)	0.021 (0.013)	0.013 (0.014)	0.011 (0.013)
Controls	Y	Y	Y	Y	Y
Baseline level	Y	Y	Y	Y	Y
p-value: T1 = T2	0.571	0.136	0.579	0.192	0.692
Mean (C)	0.082	0.012	0.072	0.070	0.096
Observations	2176	2176	2176	2176	2176

Notes: These tables present the medium-term effects of the intervention on employment outcomes using administrative data. Panel A reports effects on subsequent employment, number of worked days, employment intensity, and participation in different social security regimes (General, Household, and Self-employed). Panel B continues with contract characteristics, including permanent, discontinued permanent, temporary, full-time, and part-time contracts. Each column reports results from an OLS regression of the outcome on treatment assignment indicators, controlling for baseline covariates such as gender, nationality, and educational level, as well as the baseline value of the dependent variable. Standard errors are reported in parentheses and are clustered at the node level. *: $p < 0.1$, **: $p < 0.05$, ***: $p < 0.01$.

Table A8: Lee (2009) Bounding Method for the Effects on Key Outcomes

Variable	T1 - C: Raw means	T1 - C: Lower bound	T1 - C: Upper bound	T2 - C: Raw means	T2 - C: Lower bound	T2 - C: Upper bound
Digital Skills	0.142	-0.064	0.284	0.518	0.515	0.525
Job Search	0.029	-0.165	0.134	0.248	0.246	0.248
Working	0.01	-0.056	0.019	-0.009	-0.009	-0.009
Life Satisfaction	0.009	-0.145	0.156	0.12	0.12	0.12

Notes: This table presents the results of the intervention on several key indicators: digital skills and job search ability for Panel A, and self-reported employment and life satisfaction for Panel B. "Digital Skills" and "Job Search" are composite indicators constructed from several variables in the original dataset, using the method from Anderson (2008). "Working" is an indicator for self-reported employment. "Life Satisfaction" is measured on a scale from 1 to 5, where 1 stands for "not satisfied at all" and 5 corresponds to "very satisfied". The table provides three specifications for each outcome variable: one without controls, one with controls, and one controlling for the baseline level of the outcome variable. The controls include variables such as gender, nationality, and educational level. Standard errors are put in parentheses, clustered at the node level. *: $p < 0.1$, **: $p < 0.05$, ***: $p < 0.01$.

Table A9: Short-Term Effects: IV

Variable	Digital Skills (IV)	Job Search (IV)	Working (IV)	Life Satisfaction (IV)
T1	0.191*** (0.05)	0.022 (0.045)	0.014 (0.017)	0.018 (0.066)
T2	0.884*** (0.104)	0.385*** (0.09)	-0.023 (0.023)	0.217** (0.105)
Controls	Y	Y	Y	Y
Baseline level	Y	Y	Y	Y
p-value: T1 = T2	0***	0***	0.183	0.026**
Mean (C)	0.101	0.192	0.112	2.945
Observations	2249	2249	2249	2249

Notes: This table presents the results of the intervention on digital skills, job search ability, self-reported employment and life satisfaction using IV estimation. "Digital Skills" and "Job Search" are composite indicators constructed from several variables in the original dataset, using the method from Anderson (2008). "Working" is an indicator for self-reported employment. "Life Satisfaction" is measured on a scale from 1 to 5, where 1 stands for "not satisfied at all" and 5 corresponds to "very satisfied". Each column provides results of an IV regression, where treatment assignment was used as an instrument for the treatment compliance. The controls include variables such as gender, nationality, and educational level. Standard errors are put in parentheses, clustered at the node level. *: $p < 0.1$, **: $p < 0.05$, ***: $p < 0.01$.

Table A10: Medium-term effects: IV

(a) Effects on Digital Skills and Job Search

Variable	Digital Skills (IV)	Job Search (IV)
T1	0.192*** (0.048)	0.008 (0.054)
T2	0.697*** (0.086)	0.422*** (0.088)
Controls	Y	Y
Baseline level	Y	Y
p-value: T1 = T2	0***	0***
Mean (C)	0.073	0.235
Observations	2372	2372

(b) Effects on self-reported employment and life satisfaction

Variable	Working (IV)	Months Worked (IV)	Job Retention (IV)	Training (IV)	Life Satis- faction (IV)
T1	0.005 (0.017)	0.106 (0.162)	0.004 (0.086)	0.018 (0.017)	0.112* (0.062)
T2	-0.004 (0.026)	0.193 (0.199)	-0.125 (0.185)	-0.01 (0.029)	0.22* (0.115)
Controls	Y	Y	Y	Y	Y
Baseline level	Y	Y	Y	Y	Y
p-value: T1 = T2	0.745	0.751	0.452	0.276	0.287
Mean (C)	0.117	1.317	0.689	0.096	2.876
Observations	2372	2372	231	2372	2372

Notes: This table presents the medium-term results of the intervention on several key variables, six months after the end of the intervention. Panel A reports the effects on digital skills and job search abilities. Each of these composite indicators is constructed from several variables in the original dataset, using the method from Anderson (2008), allowing us to interpret the regression coefficients in terms of standard deviations (see details in Appendix). Panel B reports the effects on self-reported employment and life satisfaction. "Working" is an indicator for self-reported employment. "Job Retention" is defined as keeping a job in the last six months, since the first endline survey. "Months Worked" is the number of months an individual worked in the past year. "Life Satisfaction" is measured on a scale from 1 to 5, where 1 stands for "not satisfied at all" and 5 corresponds to "very satisfied". Each column provides results of an IV regression, where treatment assignment was used as an instrument for the treatment compliance. The controls include baseline level of the outcome and variables such as gender, nationality, and educational level. Standard errors are provided in parentheses, clustered at the node level. *: $p < 0.1$, **: $p < 0.05$, ***: $p < 0.01$.

Table A11: Heterogeneous Effects by Education (short-term effects)

Variable	Working	Digital Skills	Job Search	Life Satisfaction
T1	0.005 (0.032)	0.246** (0.095)	0.063 (0.082)	-0.038 (0.173)
Complete Primary*T1	-0.008 (0.038)	-0.054 (0.123)	0.007 (0.113)	0.096 (0.201)
Secondary*T1	0.024 (0.037)	-0.121 (0.118)	-0.13 (0.125)	0.053 (0.187)
T2	-0.008 (0.027)	0.55*** (0.118)	0.163 (0.102)	0.013 (0.158)
Complete Primary*T2	0.022 (0.035)	0.024 (0.153)	0.097 (0.139)	0.137 (0.193)
Secondary*T2	-0.019 (0.033)	-0.141 (0.134)	0.004 (0.148)	0.099 (0.188)
Mean (C)	0.112	0.101	0.192	2.945
Obs.	2249	2249	2249	2249

Notes: This table reports the intervention effects on four key outcomes, stratified by education level. We extend our preferred specifications from Table A5 (with full controls and baseline outcome values) by including a categorical education variable, where “incomplete primary” serves as the baseline category, and its interaction with the treatment dummies (T1 and T2). “Working” is an indicator for self-reported employment, and “Life Satisfaction” is on a 1–5 scale. “Digital Skills” and “Job Search” are standardized composite indicators (following Anderson 2008), with coefficients interpreted in standard deviations (see Appendix for details). Standard errors (in parentheses) are clustered at the node level. *: $p < 0.1$, **: $p < 0.05$, ***: $p < 0.01$.

Table A12: Heterogeneous Effects by Education (medium-term effects)

Variable	Working	Months Worked	Job Retention	Digital Skills	Job Search	Job Training	Life Satisfaction
T1	-0.046 (0.033)	-0.444 (0.312)	-0.44** (0.179)	0.177 (0.108)	0.125 (0.104)	-0.006 (0.028)	0.017 (0.126)
Complete Primary*T1	0.06 (0.041)	0.547 (0.369)	0.484** (0.223)	-0.02 (0.134)	-0.114 (0.124)	0.032 (0.039)	0.135 (0.16)
Secondary*T1	0.067* (0.039)	0.749** (0.343)	0.438** (0.208)	0.005 (0.131)	-0.159 (0.122)	0.026 (0.035)	0.069 (0.148)
T2	0.007 (0.03)	-0.183 (0.232)	0.27 (0.386)	0.339*** (0.118)	0.207** (0.091)	-0.042 (0.027)	-0.036 (0.138)
Complete Primary*T2	0.005 (0.036)	0.685** (0.315)	-0.275 (0.398)	0.003 (0.15)	-0.022 (0.101)	0.035 (0.037)	0.264 (0.18)
Secondary*T2	-0.023 (0.038)	0.109 (0.306)	-0.387 (0.407)	0.099 (0.149)	0.02 (0.138)	0.062 (0.04)	0.161 (0.171)
Mean (C)	0.117	1.317	0.689	0.073	0.235	0.096	2.876
Obs.	2372	2372	231	2372	2372	2372	2372

Notes: This table reports the intervention effects on four key outcomes, stratified by education level. We extend our preferred specifications from Table A6 (with full controls and baseline outcome values) by including a categorical education variable, where “incomplete primary” serves as the baseline category, and its interaction with the treatment dummies (T1 and T2). “Working” is an indicator for self-reported employment, and “Life Satisfaction” is on a 1–5 scale. “Digital Skills” and “Job Search” are standardized composite indicators (following Anderson 2008), with coefficients interpreted in standard deviations (see Appendix for details). “Job Retention” is defined as keeping a job in the last six months, since the first endline survey. “Months Worked” is the number of months an individual worked in the past year. Standard errors (in parentheses) are clustered at the node level. *: $p < 0.1$, **: $p < 0.05$, ***: $p < 0.01$.

Table A13: Heterogenous Effects by Digital Skills (short-term effects)

Variable	Working	Digital Skills	Job Search	Life Satisfaction
T1	0.014 (0.026)	0.355*** (0.065)	0.11 (0.073)	0.034 (0.136)
Digital Skills (Q2)*T1	-0.019 (0.037)	-0.164 (0.115)	-0.097 (0.123)	-0.062 (0.159)
Digital Skills (Q3)*T1	0.001 (0.035)	-0.212* (0.127)	0.048 (0.124)	0.105 (0.206)
Digital Skills (Q4)*T1	0.026 (0.045)	-0.307** (0.133)	-0.239* (0.127)	-0.04 (0.152)
T2	-0.009 (0.022)	0.494*** (0.085)	0.245*** (0.07)	0.251* (0.152)
Digital Skills (Q2)*T2	0.019 (0.036)	0.065 (0.153)	-0.123 (0.114)	-0.325* (0.193)
Digital Skills (Q3)*T2	0.04 (0.039)	0.151 (0.154)	0.132 (0.134)	-0.005 (0.194)
Digital Skills (Q4)*T2	-0.058 (0.036)	-0.243 (0.152)	-0.16 (0.14)	-0.134 (0.178)
Mean (C)	0.112	0.101	0.192	2.945
Obs.	2249	2249	2249	2249

Notes: This table reports the intervention effects on four key outcomes, stratified by the level of digital skills at baseline. We extend our preferred specifications from Table A5 (with full controls and baseline outcome values) by including a categorical variable for quartiles of digital skills at baseline, where the first quartile serves as the default category, and its interaction with the treatment dummies (T1 and T2). “Working” is an indicator for self-reported employment, and “Life Satisfaction” is on a 1–5 scale. “Digital Skills” and “Job Search” are standardized composite indicators (following Anderson 2008), with coefficients interpreted in standard deviations (see Appendix for details). Standard errors (in parentheses) are clustered at the node level. *: $p < 0.1$, **: $p < 0.05$, ***: $p < 0.01$.

Table A14: Heterogeneous effects by Digital Skills (medium-term effects)

Variable	Working	Months Worked	Job Retention	Digital Skills	Job Search	Job Training	Life Satisfaction
T1	0.006 (0.025)	0.066 (0.21)	-0.119 (0.184)	0.26*** (0.083)	0.121* (0.066)	-0.015 (0.028)	0.161 (0.098)
Digital Skills (Q2)*T1	0.021 (0.039)	0.21 (0.332)	0.333 (0.236)	-0.06 (0.113)	-0.111 (0.11)	0.07* (0.042)	0.108 (0.147)
Digital Skills (Q3)*T1	-0.023 (0.05)	-0.04 (0.352)	0.277 (0.25)	-0.204* (0.108)	-0.179 (0.126)	-0.003 (0.045)	-0.001 (0.148)
Digital Skills (Q4)*T1	-0.009 (0.042)	0.08 (0.337)	-0.042 (0.198)	-0.054 (0.131)	-0.113 (0.129)	0.062 (0.045)	-0.322** (0.145)
T2	-0.007 (0.025)	0.05 (0.182)	-0.328 (0.302)	0.356*** (0.09)	0.181** (0.084)	-0.02 (0.024)	0.12 (0.124)
Digital Skills (Q2)*T2	0.042 (0.036)	0.298 (0.282)	0.351 (0.352)	0.061 (0.132)	0 (0.119)	0.049 (0.04)	0.086 (0.182)
Digital Skills (Q3)*T2	-0.024 (0.044)	-0.044 (0.352)	0.183 (0.376)	0.021 (0.113)	-0.034 (0.127)	-0.035 (0.046)	0.12 (0.162)
Digital Skills (Q4)*T2	-0.001 (0.037)	0.011 (0.307)	0.467 (0.306)	0.067 (0.145)	0.159 (0.138)	0.063 (0.043)	-0.05 (0.162)
Mean (C)	0.117	1.317	0.689	0.073	0.235	0.096	2.876
Obs.	2372	2372	231	2372	2372	2372	2372

Notes: This table reports the intervention effects on four key outcomes, stratified by the level of digital skills at baseline. We extend our preferred specifications from Table A6 (with full controls and baseline outcome values) by including a categorical variable for quartiles of digital skills at baseline, where the first quartile serves as the default category, and its interaction with the treatment dummies (T1 and T2). “Working” is an indicator for self-reported employment, and “Life Satisfaction” is on a 1–5 scale. “Digital Skills” and “Job Search” are standardized composite indicators (following Anderson 2008), with coefficients interpreted in standard deviations (see Appendix for details). “Job Retention” is defined as keeping a job in the last six months, since the first endline survey. “Months Worked” is the number of months an individual worked in the past year. Standard errors (in parentheses) are clustered at the node level. *: $p < 0.1$, **: $p < 0.05$, ***: $p < 0.01$.

Table A15: Heterogeneous Effects by PCI enrollment (short-term effects)

Variable	Working	Digital Skills	Job Search	Life Satisfaction
T1	0.006 (0.023)	0.173*** (0.057)	0.015 (0.059)	0.049 (0.073)
PCI*T1	0.028 (0.034)	0.025 (0.103)	0.033 (0.097)	-0.091 (0.116)
T2	-0.002 (0.017)	0.512*** (0.08)	0.233*** (0.065)	0.084 (0.075)
PCI*T2	-0.014 (0.029)	-0.002 (0.115)	-0.088 (0.113)	0.113 (0.127)
Mean (C)	0.112	0.101	0.192	2.945
Obs.	2249	2249	2249	2249

Notes: This table reports the intervention effects on four key outcomes, stratified by PCI receipt. We extend our preferred specifications from Table A5 (with full controls and baseline outcome values) by including a dummy variable for being enrolled in PCI, and its interaction with the treatment dummies (T1 and T2). “Working” is an indicator for self-reported employment, and “Life Satisfaction” is on a 1–5 scale. “Digital Skills” and “Job Search” are standardized composite indicators (following Anderson 2008), with coefficients interpreted in standard deviations (see Appendix for details). Standard errors (in parentheses) are clustered at the node level. *: $p < 0.1$, **: $p < 0.05$, ***: $p < 0.01$.

Table A16: Heterogeneous Effects by PCI (medium-term effects)

Variable	Working	Months Worked	Job Retention	Digital Skills	Job Search	Job Training	Life Satisfaction
T1	0.006 (0.02)	0.097 (0.181)	0.086 (0.084)	0.192*** (0.053)	0.026 (0.055)	0.012 (0.017)	0.105 (0.07)
PCI*T1	0.008 (0.03)	0.026 (0.256)	-0.359** (0.144)	-0.036 (0.086)	-0.059 (0.103)	0.024 (0.035)	-0.015 (0.123)
T2	0.009 (0.019)	0.259** (0.128)	0.09 (0.082)	0.393*** (0.063)	0.237*** (0.063)	0.005 (0.017)	0.105 (0.077)
PCI*T2	-0.024 (0.034)	-0.414* (0.24)	-0.46*** (0.175)	0.02 (0.094)	-0.091 (0.116)	-0.011 (0.032)	0.089 (0.122)
Mean (C)	0.117	1.317	0.689	0.073	0.235	0.096	2.876
Obs.	2372	2372	231	2372	2372	2372	2372

Notes: This table reports the intervention effects on four key outcomes, stratified by PCI receipt. We extend our preferred specifications from Table A6 (with full controls and baseline outcome values) by including a dummy variable for being enrolled in PCI, and its interaction with the treatment dummies (T1 and T2). “Working” is an indicator for self-reported employment, and “Life Satisfaction” is on a 1–5 scale. “Digital Skills” and “Job Search” are standardized composite indicators (following Anderson 2008), with coefficients interpreted in standard deviations (see Appendix for details). “Job Retention” is defined as keeping a job in the last six months, since the first endline survey. “Months Worked” is the number of months an individual worked in the past year. Standard errors (in parentheses) are clustered at the node level. *: $p < 0.1$, **: $p < 0.05$, ***: $p < 0.01$.

Table A17: Heterogeneous Effects by Dependent or Minor in Care (short-term effects)

Variable	Working	Digital Skills	Job Search	Life Satisfaction
T1	0.014 (0.018)	0.14*** (0.051)	-0.001 (0.046)	0.037 (0.068)
Dependent*T1	-0.006 (0.044)	0.243 (0.148)	0.175 (0.111)	-0.087 (0.165)
T2	-0.014 (0.013)	0.45*** (0.068)	0.187*** (0.052)	0.145** (0.069)
Dependent*T2	0.043 (0.039)	0.323** (0.144)	0.12 (0.14)	-0.201 (0.158)
Mean (C)	0.112	0.101	0.192	2.945
Obs.	2249	2249	2249	2249

Notes: This table reports the intervention effects on four key outcomes, stratified by having a dependent in care. We extend our preferred specifications from Table A5 (with full controls and baseline outcome values) by including a dummy variable for having a dependent or minor in care, and its interaction with the treatment dummies (T1 and T2). “Working” is an indicator for self-reported employment, and “Life Satisfaction” is on a 1–5 scale. “Digital Skills” and “Job Search” are standardized composite indicators (following Anderson 2008), with coefficients interpreted in standard deviations (see Appendix for details). Standard errors (in parentheses) are clustered at the node level. *: $p < 0.1$, **: $p < 0.05$, ***: $p < 0.01$.

Table A18: Heterogeneous Effects by Dependent or Minor in Care (medium-term effects)

Variable	Working	Months Worked	Job Retention	Digital Skills	Job Search	Job Training	Life Satisfaction
T1	0.002 (0.017)	0.144 (0.157)	0.031 (0.097)	0.191*** (0.047)	-0.009 (0.054)	0.012 (0.016)	0.121** (0.055)
Dependent*T1	0.02 (0.038)	-0.429 (0.332)	-0.397** (0.179)	-0.082 (0.091)	0.067 (0.127)	0.026 (0.04)	-0.157 (0.135)
T2	-0.012 (0.014)	0.047 (0.113)	-0.045 (0.091)	0.374*** (0.055)	0.173*** (0.053)	0 (0.018)	0.121* (0.069)
Dependent*T2	0.083* (0.043)	0.569 (0.407)	0.031 (0.148)	0.11 (0.107)	0.187 (0.146)	0 (0.04)	0.112 (0.182)
Mean (C)	0.117	1.317	0.689	0.073	0.235	0.096	2.876
Obs.	2372	2372	231	2372	2372	2372	2372

Notes: This table reports the intervention effects on four key outcomes, stratified by having a dependent in care. We extend our preferred specifications from Table A6 (with full controls and baseline outcome values) by including a dummy variable for having a dependent or minor in care, and its interaction with the treatment dummies (T1 and T2). “Working” is an indicator for self-reported employment, and “Life Satisfaction” is on a 1–5 scale. “Digital Skills” and “Job Search” are standardized composite indicators (following Anderson 2008), with coefficients interpreted in standard deviations (see Appendix for details). “Job Retention” is defined as keeping a job in the last six months, since the first endline survey. “Months Worked” is the number of months an individual worked in the past year. Standard errors (in parentheses) are clustered at the node level. *: $p < 0.1$, **: $p < 0.05$, ***: $p < 0.01$.

Table A19: Minimal Detectable Effects (MDEs) at $\alpha = 0.05$, 80% power

Outcome	Baseline SD	MDE (T1 vs C)	MDE (T2 vs C)
Working	0.276	0.03479	0.03474
Life Satisfaction	1.291	0.16272	0.16247
Digital Skills	1.000	0.12604	0.12585
Job Search	1.000	0.12604	0.12585

Notes: MDEs are computed using $MDE = (z_{1-\alpha/2} + z_{1-\beta})\sigma\sqrt{\frac{1}{n_T} + \frac{1}{n_C}}$, with $\alpha = 0.05$ (two-sided) and $1 - \beta = 0.80$. Reported SDs come from baseline descriptive statistics. Calculations do not incorporate covariates or clustering adjustments, so reported values provide a conservative benchmark.

Table A20: Heterogeneous Effects by Gender (short-term effects)

Variable	Working	Digital Skills	Job Search	Life Satisfaction
T1	0.036 (0.025)	0.264*** (0.07)	0.011 (0.082)	0.098 (0.099)
Female*T1	-0.031 (0.028)	-0.138 (0.103)	0.009 (0.099)	-0.123 (0.114)
T2	0 (0.019)	0.476*** (0.106)	0.245*** (0.088)	0.218** (0.099)
Female*T2	-0.01 (0.026)	0.026 (0.121)	-0.072 (0.107)	-0.143 (0.113)
Mean (C)	0.112	0.101	0.192	2.945
Obs.	2249	2249	2249	2249

Notes: This table reports the intervention effects on four key outcomes, stratified by gender. We extend our preferred specifications from Table A5 (with full controls and baseline outcome values) by including a dummy variable for female participants, and its interaction with the treatment dummies (T1 and T2). “Working” is an indicator for self-reported employment, and “Life Satisfaction” is on a 1–5 scale. “Digital Skills” and “Job Search” are standardized composite indicators (following Anderson 2008), with coefficients interpreted in standard deviations (see Appendix for details). Standard errors (in parentheses) are clustered at the node level. *: $p < 0.1$, **: $p < 0.05$, ***: $p < 0.01$.

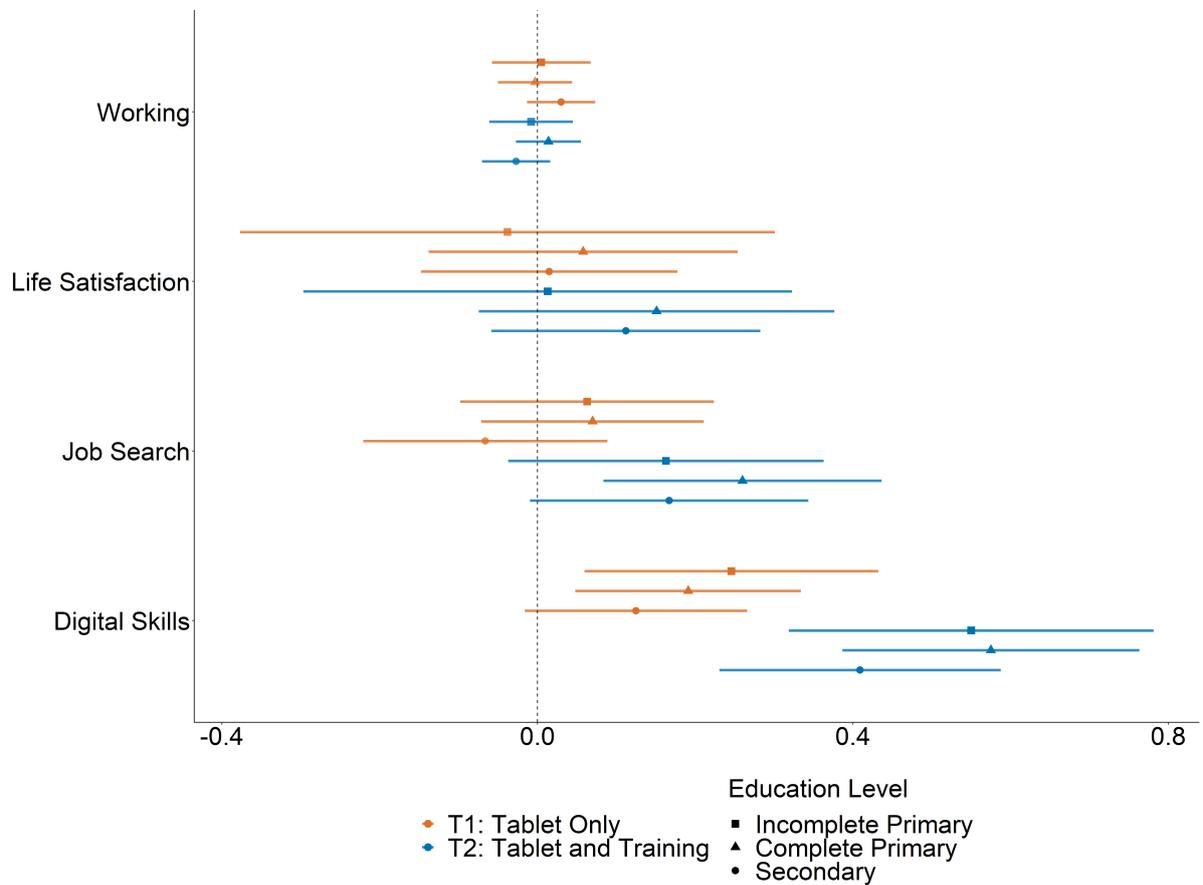
Table A21: Heterogeneous Effects by Gender (medium-term effects)

Variable	Working	Months Worked	Job Retention	Digital Skills	Job Search	Job Training	Life Satisfaction
T1	0 (0.028)	0.009 (0.238)	-0.297* (0.154)	0.166** (0.077)	-0.016 (0.081)	-0.004 (0.029)	0.223*** (0.085)
Female*T1	0.009 (0.032)	0.133 (0.255)	0.376** (0.167)	0.01 (0.102)	0.028 (0.104)	0.03 (0.032)	-0.188 (0.121)
T2	-0.023 (0.023)	0.059 (0.169)	-0.375* (0.201)	0.377*** (0.08)	0.21* (0.108)	-0.039 (0.028)	0.261*** (0.095)
Female*T2	0.033 (0.024)	0.099 (0.221)	0.42* (0.219)	0.004 (0.094)	-0.015 (0.125)	0.059* (0.035)	-0.187 (0.126)
Mean (C)	0.117	1.317	0.689	0.073	0.235	0.096	2.876
Obs.	2372	2372	231	2372	2372	2372	2372

Notes: This table reports the intervention effects on four key outcomes, stratified by gender. We extend our preferred specifications from Table A6 (with full controls and baseline outcome values) by including a dummy variable for female participants, and its interaction with the treatment dummies (T1 and T2). “Working” is an indicator for self-reported employment, and “Life Satisfaction” is on a 1–5 scale. “Digital Skills” and “Job Search” are standardized composite indicators (following Anderson 2008), with coefficients interpreted in standard deviations (see Appendix for details). “Job Retention” is defined as keeping a job in the last six months, since the first endline survey. “Months Worked” is the number of months an individual worked in the past year. Standard errors (in parentheses) are clustered at the node level. *: $p < 0.1$, **: $p < 0.05$, ***: $p < 0.01$.

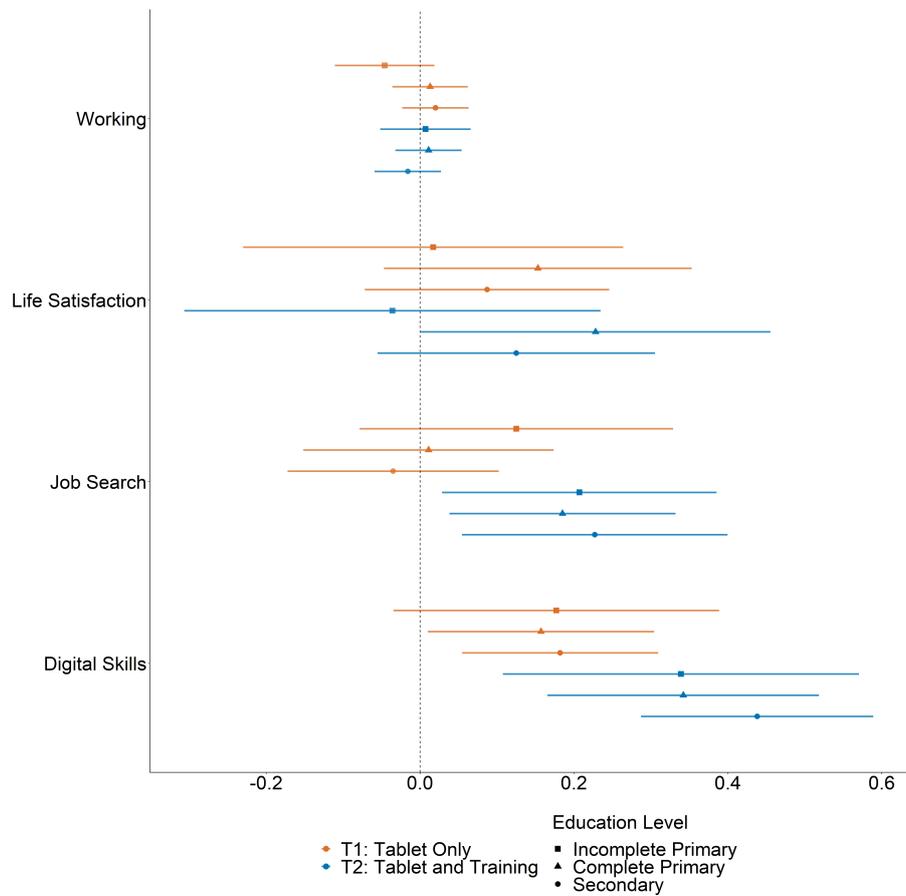
B Appendix Figures

Figure A1: Heterogeneity Plot for Short-Term Effects (Education)



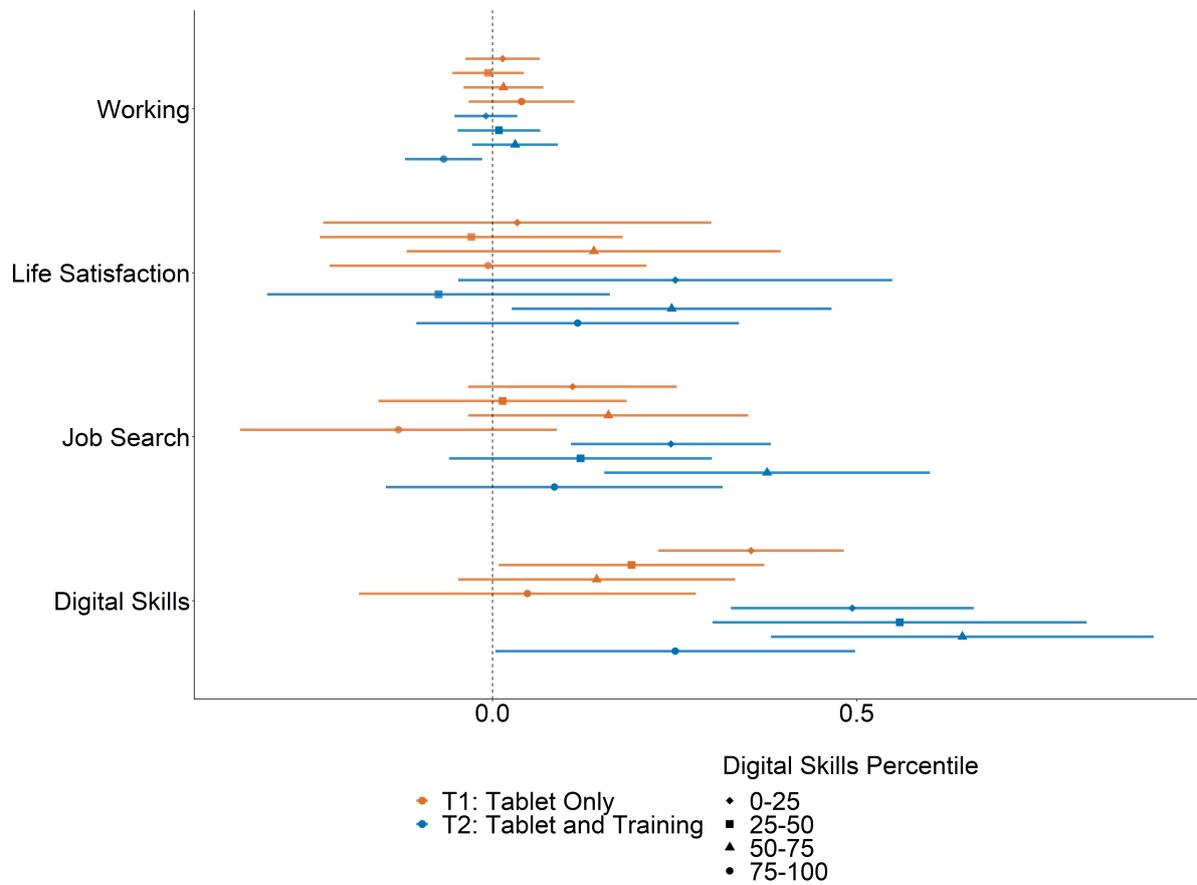
Notes: This graph shows how treatment effects vary by education level. Blue points (Treatment 2: Digital Training + Tablet) and orange points (Treatment 1: Tablet only) indicate the effect sizes. The shapes represent education levels: squares for those without complete primary education, triangles for those with complete primary education, and circles for those who started secondary education. Horizontal lines denote 95% confidence intervals.

Figure A2: Heterogeneity Plot for Medium-Term Effects (Education)



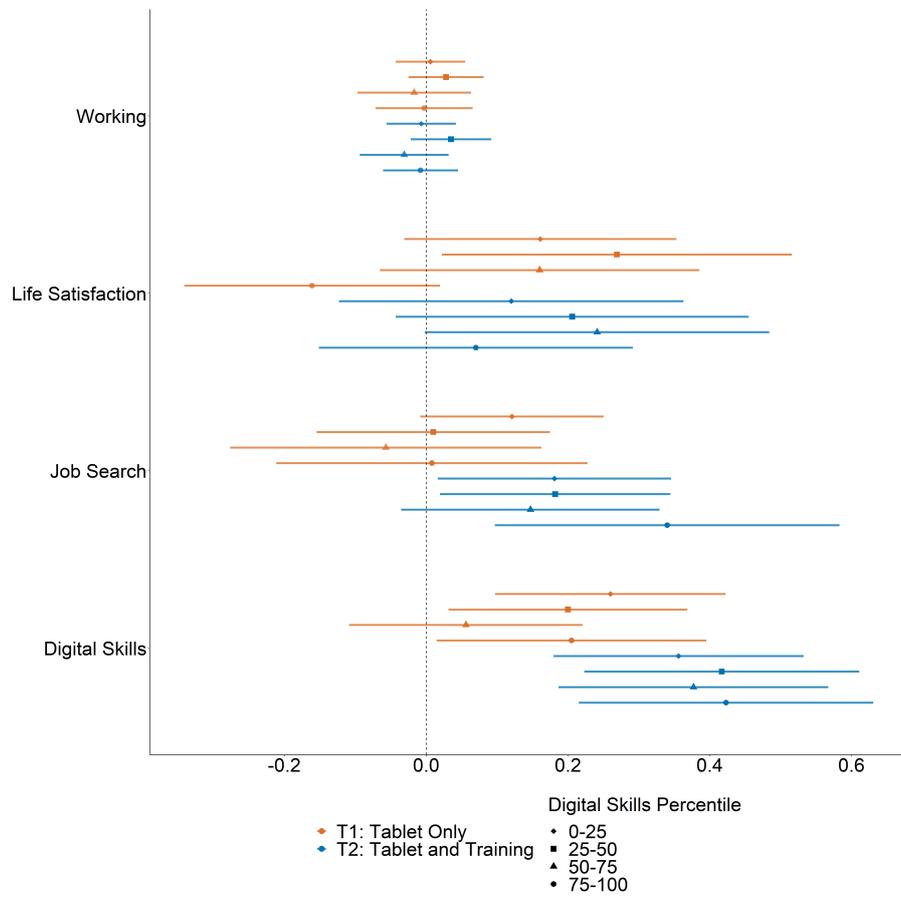
Notes: This graph shows how treatment effects vary by education level. Blue points (Treatment 2: Digital Training + Tablet) and orange points (Treatment 1: Tablet only) indicate the effect sizes. The shapes represent education levels: squares for those without complete primary education, triangles for those with complete primary education, and circles for those who started secondary education. Horizontal lines denote 95% confidence intervals.

Figure A3: Heterogeneity Plot for Short-Term Effects (Digital Skills)



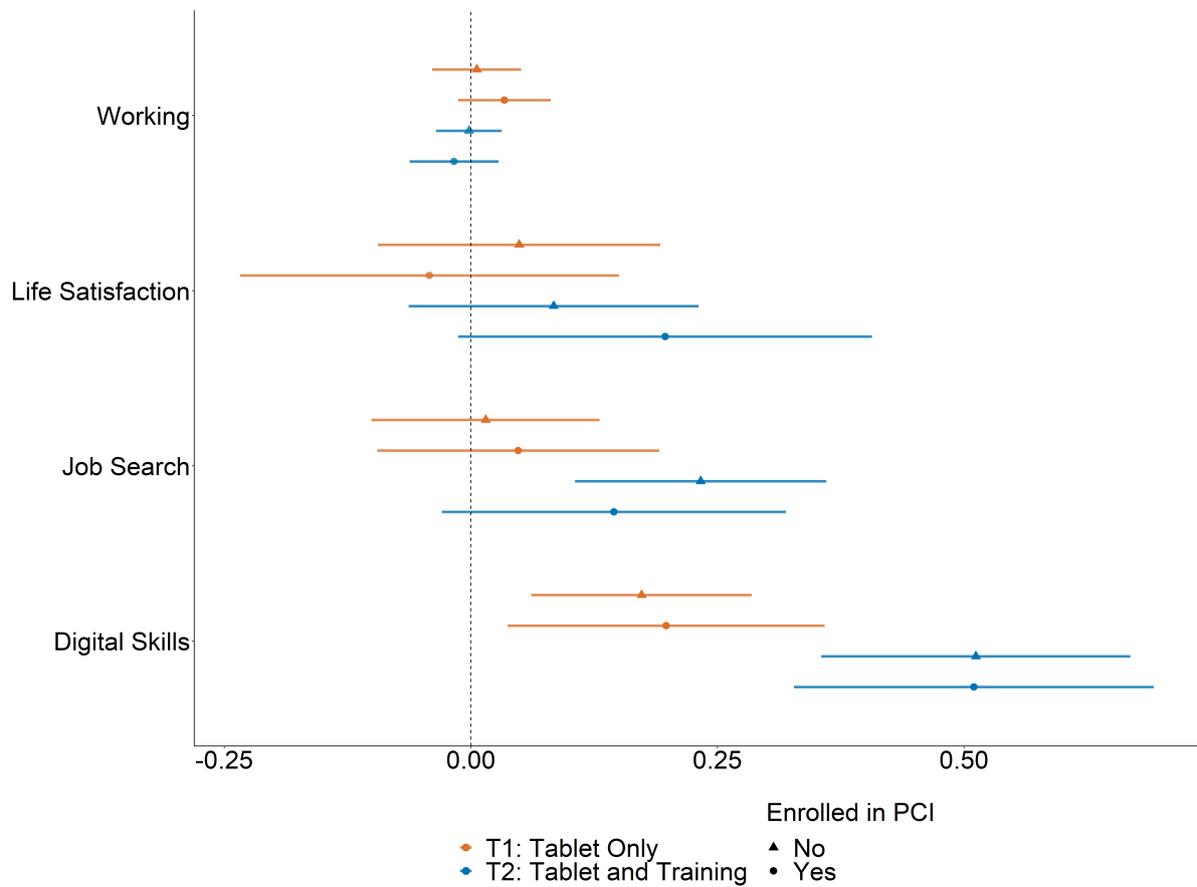
Notes: This graph shows how treatment effects vary by the baseline level of digital skills. Blue points (Treatment 2: Digital Training + Tablet) and orange points (Treatment 1: Tablet only) indicate the effect sizes. The shapes represent different quartiles: diamond for the 0-25 percentile, square for the 25-50 percentile, triangle for the 50-75 percentile, and circle for the 75-100 percentile. Horizontal lines denote 95% confidence intervals.

Figure A4: Heterogeneity Plot for Medium-Term Effects (Digital Skills)



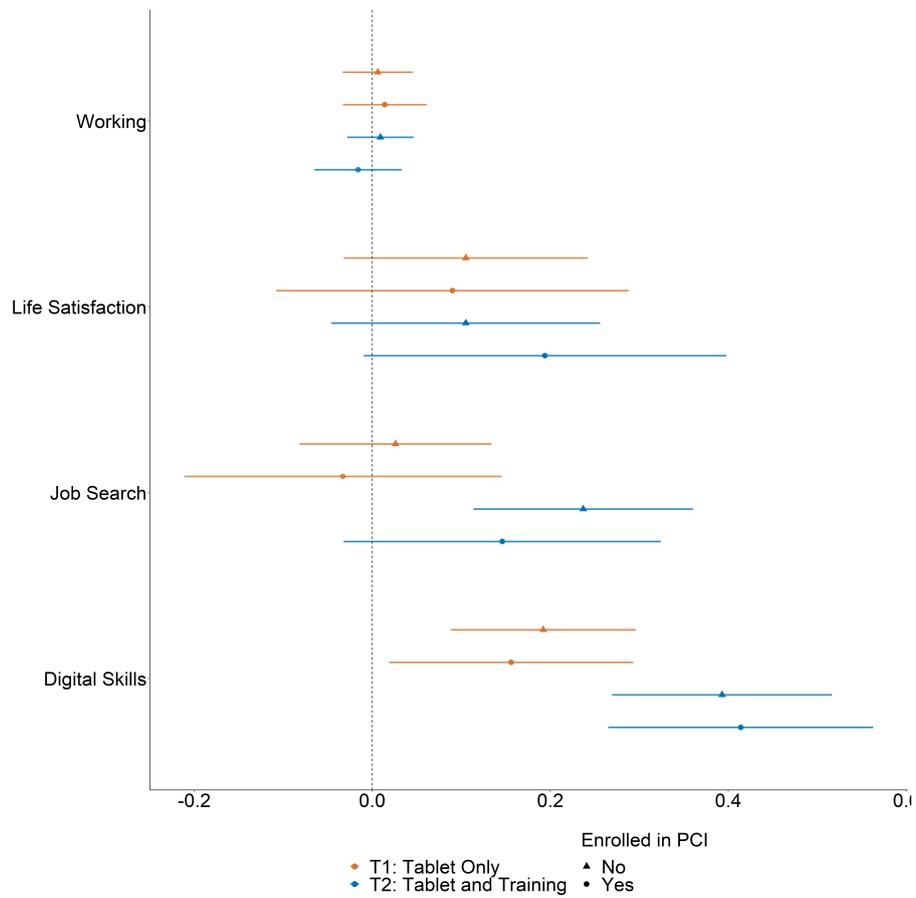
Notes: This graph shows how treatment effects vary by the baseline level of digital skills. Blue points (Treatment 2: Digital Training + Tablet) and orange points (Treatment 1: Tablet only) indicate the effect sizes. The shapes represent different quartiles: diamond for the 0-25 percentile, square for the 25-50 percentile, triangle for the 50-75 percentile, and circle for the 75-100 percentile. Horizontal lines denote 95% confidence intervals.

Figure A5: Heterogeneity Plot for Short-Term Effects (PCI)



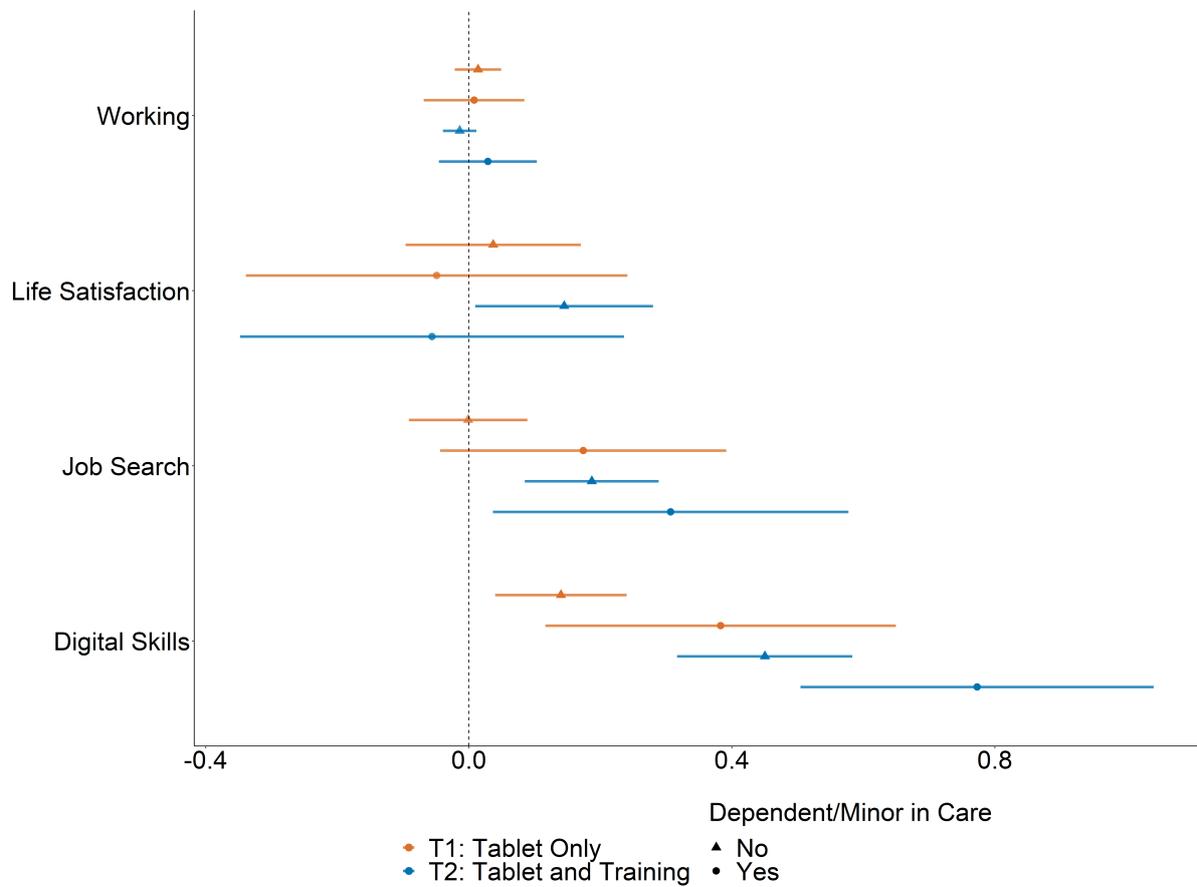
Notes: This graph shows how treatment effects vary by PCI enrollment. Blue points (Treatment 2: Digital Training + Tablet) and orange points (Treatment 1: Tablet only) indicate the effect sizes. The shapes represent the status of enrollment in PCI: triangle for not being enrolled, and circle for being enrolled. Horizontal lines denote 95% confidence intervals.

Figure A6: Heterogeneity Plot for Medium-Term Effects (PCI)



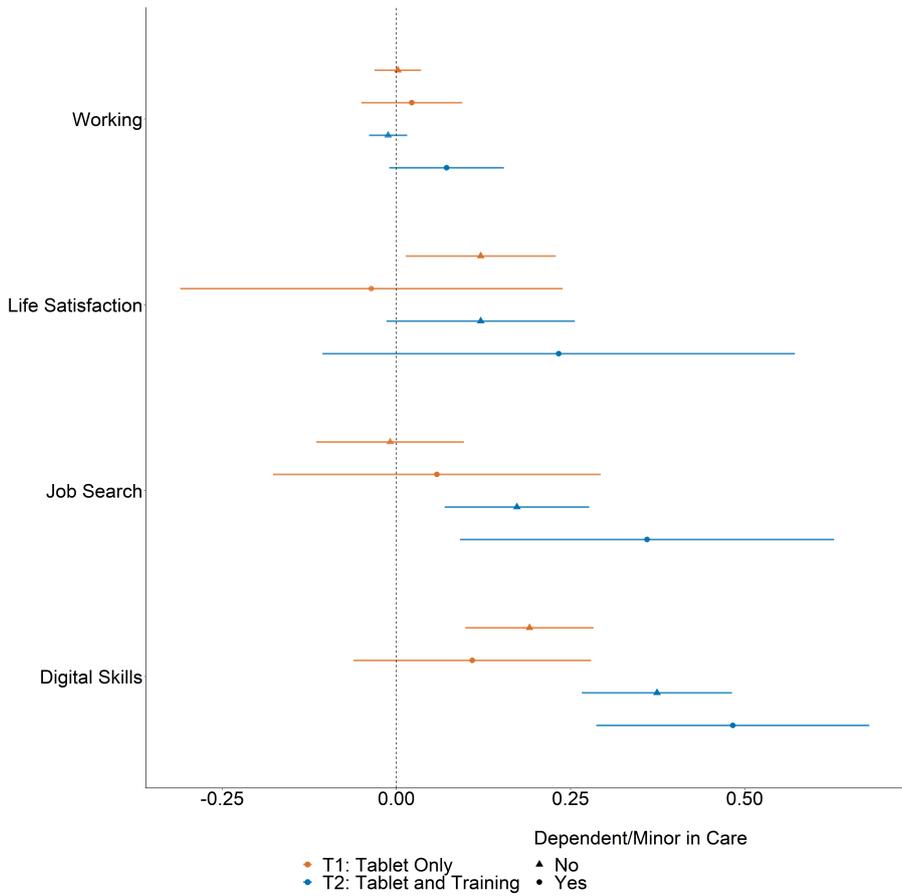
Notes: This graph shows how treatment effects vary by PCI enrollment. Blue points (Treatment 2: Digital Training + Tablet) and orange points (Treatment 1: Tablet only) indicate the effect sizes. The shapes represent the status of enrollment in PCI: triangle for not being enrolled, and circle for being enrolled. Horizontal lines denote 95% confidence intervals.

Figure A7: Heterogeneity Plot for Short-Term Effects (Dependent or Minor in Care)



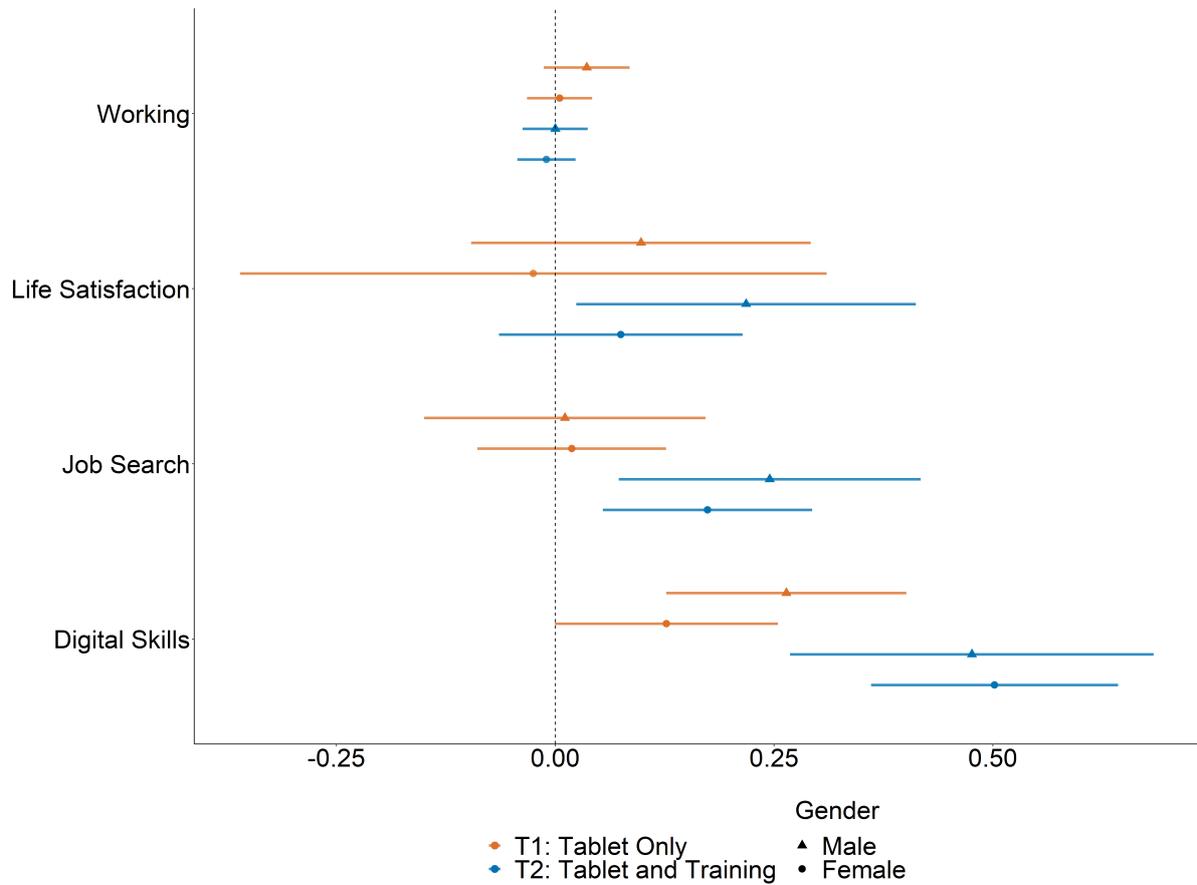
Notes: This graph shows how treatment effects vary depending on whether participants have a minor dependent in care. Blue points represent Treatment 2 (Digital Training + Tablet), while orange points represent Treatment 1 (Tablet only). Shapes indicate the dependent status: triangles for those without a dependent and circles for those with one. Horizontal lines denote 95% confidence intervals.

Figure A8: Heterogeneity Plot for Medium-Term Effects (Dependent or Minor in Care)



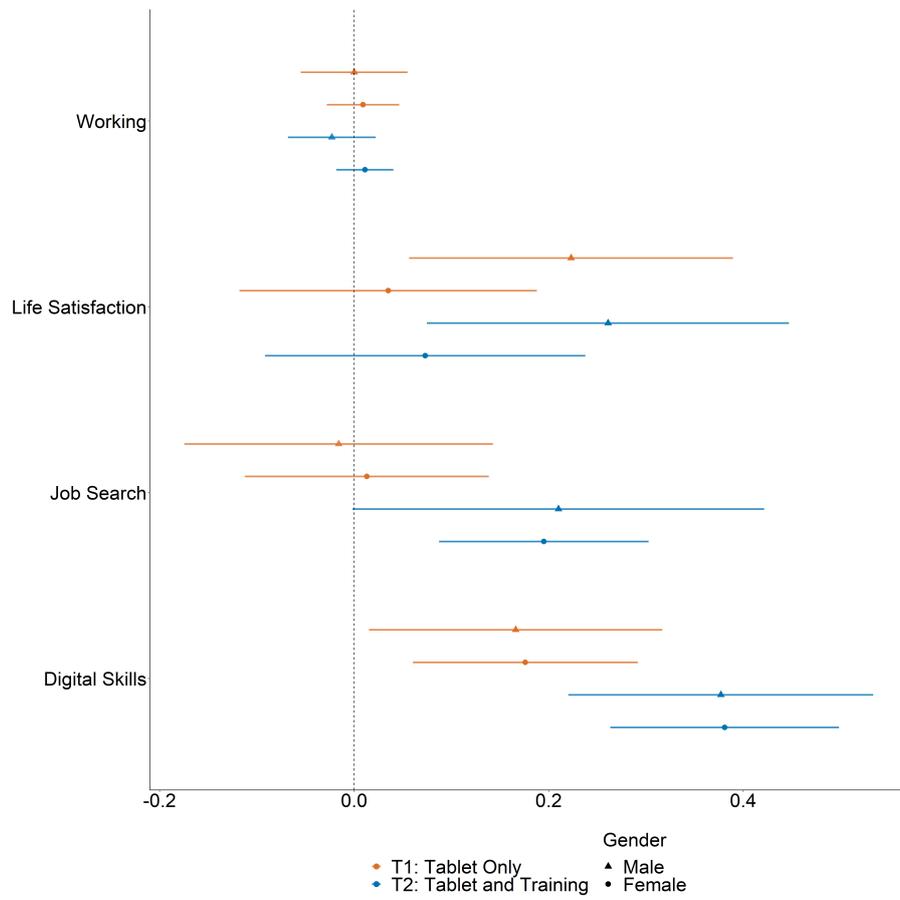
Notes: This graph shows how treatment effects vary depending on whether participants have a minor dependent in care. Blue points represent Treatment 2 (Digital Training + Tablet), while orange points represent Treatment 1 (Tablet only). Shapes indicate the dependent status: triangles for those without a dependent and circles for those with one. Horizontal lines denote 95% confidence intervals.

Figure A9: Heterogeneity Plot for Short-Term Effects (Gender)



Notes: This graph shows how treatment effects vary by gender. Blue points (Treatment 2: Digital Training + Tablet) and orange points (Treatment 1: Tablet only) indicate the effect sizes. The shapes represent gender: triangle for male, and circle for female. Horizontal lines denote 95% confidence intervals.

Figure A10: Heterogeneity Plot for Medium-Term Effects (Gender)



Notes: This graph shows how treatment effects vary by gender. Blue points (Treatment 2: Digital Training + Tablet) and orange points (Treatment 1: Tablet only) indicate the effect sizes. The shapes represent gender: triangle for male, and circle for female. Horizontal lines denote 95% confidence intervals.

C Definition of Variables

This section describes in detail all the variables used in the analysis, which appear in descriptive statistics, balance test and/or used as variables of interests or controls in the regression analysis.

Original variables:

- **Female** – a binary variable which is equal to 1 if a person responds “Woman (Mujer)” to Question 2 (“Sex (Sexo)”)
- **Age <55** – a binary variable which is equal to 1 if a person responds “From 45 to 54 years old (De 45 a 54 años)” to Question 3
- **Speaks English** – a binary variable which is equal to 1 if a person responds “English (Inglés)” to Question 8 (“Which languages do you speak, besides Spanish? (¿Qué idiomas habla, además del español?)”)
- **Working** – a binary variable which is equal to 1 if a person responds “Working (Trabajando)” to Question 9 (“What is your occupational situation? (¿Cuál es su situación ocupacional?)”)
- **Unemployed** – a binary variable which is equal to 1 if a person responds “Unemployed and actively seeking work (Parado/a en búsqueda activa de empleo)” to Question 9 (“What is your occupational situation? (¿Cuál es su situación ocupacional?)”)
- **Dependent in Care** – a binary variable which is equal to 1 if a person responds “Yes (Sí)” to Question 11 (“Are you responsible for the care of a dependent person or a minor not in school? (¿Es usted responsable del cuidado de alguna persona dependiente o de algún menor de edad no escolarizado?)”), subsection “Dependent person (Persona dependiente)”
- **Minor in Care** – a binary variable which is equal to 1 if a person responds “Yes (Sí)” to Question 11 (“Are you responsible for the care of a dependent person or a minor not in school? (¿Es usted responsable del cuidado de alguna persona dependiente o de algún menor de edad no escolarizado?)”), subsection “Minor (Menor de edad)”
- **Disability** – a binary variable which is equal to 1 if a person responds “Yes, physical disability (Sí, discapacidad física)” to Question 12 (“Do you have a disability greater than 33%? (¿Tiene alguna discapacidad superior al 33%?)”)
- **Training** – a binary variable which is equal to 1 if a person responds “Yes (Sí)” to Question 15 (“In the last 6 months, did you do any training for employment? (En los últimos 6 meses, ¿Hizo alguna formación para el empleo?)”)
- **Months Worked** – a discrete variable ranging from 0 to 12 which corresponds to the answer to Question 48 of the second endline survey (“In the last year, during how many months did you work? (¿En el último año, durante cuántos meses ha trabajado?)”)

- **Health** – a discrete variable ranging from 1 to 5 which corresponds to the answer to Question 41 (“Finally, rate from 1 to 5, where 1 is very bad and 5 is very good, your health status in the last three months (Finalmente, valore del 1 al 5 siendo el 1 muy malo y 5 muy bueno su estado de salud en los últimos tres meses)”)
- **Life Satisfaction** – a discrete variable ranging from 1 to 5 which corresponds to the answer to Question 42 (“Lastly, rate from 1 to 5, where 1 is very little and 5 is a lot, how satisfied do you feel with your life in general in the last 3 months? (Por último, valore del 1 al 5, siendo 1 muy poco y 5 mucho, ¿cómo se siente de satisfecho/a con su vida en general en los últimos 3 meses?)”)
- **PCI** – a binary variable which is equal to 1 if a person responds “PCI” or “Both (Ambas)” to Question 4 (“Do you receive the Minimum Vital Income (IMV), the Canary Insertion Benefit (PCI), or both? (¿Percibe el Ingreso Mínimo Vital (IMV), la Prestación Canaria de Inserción (PCI) o ambas?)”)
- **IMV** – a binary variable which is equal to 1 if a person responds “IMV” or “Both (Ambas)” to Question 4 (“Do you receive the Minimum Vital Income (IMV), the Canary Insertion Benefit (PCI), or both? (¿Percibe el Ingreso Mínimo Vital (IMV), la Prestación Canaria de Inserción (PCI) o ambas?)”)
- **Island** - a categorical variable with values Gran Canaria, Tenerife and Other (includes Lanzarote, Fuerteventura and La Palma). Corresponds to the answer to Question 5 (“On which island do you live? (¿En qué isla vive?)”). Observations with values La Gomera, El Hierro and La Graciosa are dropped from the original dataset.
- **Education** – a categorical variable with values Incomplete Primary, Complete Primary, and Secondary Studies. Corresponds to the answer to Question 13 (“What is your highest level of education? (¿Qué nivel de estudios tiene?)”).
- **Nationality** - a categorical variable with values Spanish, EU and Non-EU. Corresponds to the answer to Question 7 (“What is your nationality? (¿Cuál es su nacionalidad?)”).

Composite Indicators: each composite indicator is constructed from several variables in the original dataset, using the method from Anderson (2008). Specifically, we normalize to mean 0 and standard deviation 1 in the baseline dataset; then each variable is standardized by subtracting its baseline means and dividing by its baseline standard deviation, then we take their weighted sum, where weights are proportional to sums of rows in the inverse covariance matrix of standardized variables at baseline.

- **Digital Skills:** an indicator showing how confident respondents feel in their skills of using the internet and electronic devices. We used answers to the following questions in order to create this indicator:
 - **Question 28:** “Regarding the digital world, do you consider that you know more, the same, or less than most people around you? (Con respecto al mundo digital ¿considera que usted sabe más, igual o menos que la mayoría de la gente de su entorno?)” Answers “Knows more than most people (Sabe más que la mayoría de la gente)” and “Knows the same as most people (Sabe igual que la

mayoría de la gente)” are pooled together and correspond to 1 in the original variable, answer “Knows less than most people (Sabe menos que la mayoría de la gente)” corresponds to 0 in the original variable.

- **Question 29:** “Next, rate the following items from 1 to 5, where 1 is none and 5 is a lot (A continuación, valore las siguientes disposiciones del 1 al 5, siendo el 1 ninguno y el 5 mucho)”. 4 variables, corresponding to self-reported answers to the following subsections, were used: “How much digital knowledge and skills do you consider you have? (¿Cuántos conocimientos y capacidades digitales considera que tiene?)”, “How easy is it for you to browse the Internet? (¿Cuánta facilidad tiene para navegar por Internet?)”, “How much interest do you have in digital and internet topics? (¿Cuánto interés tiene acerca de temas digitales e internet?)”, and “How much confidence do you have in the internet? (¿Cuánta confianza tiene en internet?)”.
- **Question 30:** “In the last 3 months, which of the following computer-related tasks have you performed? (En los últimos 3 meses, ¿Cuáles de las siguientes tareas relacionadas con la informática ha realizado?)”. 11 binary variables, corresponding to 1 if a person responds “Yes (Sí)” to the following list of questions, were used: “Copy or move files or folders (Copiar o mover ficheros o carpetas)”, “Use Word or another word processor (Usar el Word u otro procesador de texto)”, “Use Excel or other spreadsheets (Usar el Excel u otras hojas de cálculo)”, “Use advanced Excel functions — functions, formulas, macros, Visual Basic, etc. (Usar funciones avanzadas de Excel — funciones, fórmulas, macros, Visual Basic...)”, “Create documents, images, videos, etc. that incorporate various elements, e.g., text, tables, graphics, animation (Crear documentos, imágenes, videos etc. que incorporen varios elementos — por ej. texto, tablas, gráficos, animación)”, “Use programs or software to edit photos, video or audio (Usar programas o software para editar fotos, video o audio)”, “Change the settings of the computer, mobile phone, tablet, etc., e.g., adjust language, colors, text size, toolbar/menu, or solve a basic computer problem, completely erase a hard drive, folders or files by mistake (Cambiar la configuración del ordenador, del móvil, la tablet, etc — por ej. ajustar el idioma, los colores, tamaño del texto, las barras de herramientas/menú — o resolver algún tipo de problema informático básico, borrar por completo el contenido de un disco duro equivocación carpetas o archivos)”, “Set up the internet connection or solve browsing problems (Configurar la conexión a internet o resolver problemas de navegación)”, “Program in a programming language (Programar en un lenguaje de programación)”.
- **Question 31:** “Answer the following statements with yes, no, or not sure. In the last three months... (Conteste a los siguientes enunciados con un sí, un no o no estoy seguro/a. En los últimos tres meses...)”. 7 binary variables, corresponding to 1 if a person responds “Yes (Sí)” to the following list of questions, were used: “Your digital knowledge has helped you learn new things (Los conocimientos digitales que tiene le han servido para aprender cosas nuevas)”, “You have been able to solve a technical problem that you couldn’t before (Ha podido resolver un problema técnico que antes no era capaz)”, “You have needed less help to use the internet, mobile, computer, or other electronic device (Ha necesitado menos apoyo para utilizar internet, el móvil, el ordenador u otro aparato electrónico)”, “You dare to do more things on your own without asking for help (Se atreve a

- hacer más cosas por sí mismo/a de forma autónoma sin tener que pedir ayuda)”, “You have taught another person to use the internet, mobile, computer, or another electronic device (Ha enseñado a otra persona a usar internet, el móvil, el ordenador u otro aparato electrónico)”, “You have shared what you know through forums or social networks (Ha compartido lo que sabe a través de foros o de las redes sociales)”, “You have learned something new by watching videos, reading forums, or through apps or websites (Ha aprendido algo nuevo viendo vídeos, leyendo en foros o a través de aplicaciones o webs)”.
- **Question 32:** “And now, from the following tasks related to your smartphone and/or tablet, tell me which ones you have done in the last 3 months (Y ahora, de las siguientes tareas relacionadas con el móvil smartphone y/o tablet, dígame cuáles ha realizado en los últimos 3 meses)”. 7 binary variables, corresponding to 1 if a person responds “Yes (Sí)” to the following list of questions, were used: “Receive or send emails (Recibir o enviar correos electrónicos)”, “Use Whatsapp, Telegram, etc. — instant messaging (Usar Whatsapp, Telegram, etc. — mensajería instantánea)”, “Use apps and platforms for videoconferencing — e.g., Zoom, Jitsi Meet (Usar aplicaciones y plataformas de videoconferencia, como Zoom, Jitsi Meet, etc.)”, “Take photos and/or record audios or videos (Hacer fotos y/o grabar audios o vídeos)”, “Upload photos, videos, etc. to social media (Subir fotos, vídeos, etc a las redes sociales)”, “Change the settings of the mobile or of installed apps/programs (Cambiar la configuración del móvil o de las aplicaciones y programas instalados)”, “Download or install apps or programs (Descargar o instalar aplicaciones o programas)”.
 - **Job Search:** an indicator showing how often people use the internet to search for jobs online or access electronic government services. We used answers to the following questions in order to create this indicator:
 - **Question 21A:** “Now tell me if you have done the following things I am going to read (Dígame, ahora, si lo ha hecho para las siguientes cuestiones que le voy a leer a continuación)”. 10 binary variables, corresponding to 1 if a person confirms that she has used Internet for the following actions in the last 3 months, were used: “Book an appointment with the doctor or nurse at your health center (Pedir cita con el médico o enfermera de su centro de salud)”, “Access your medical record (Acceder a su historia clínica)”, “Renew unemployment benefits (Renovar el paro)”, “Request your work history certificate (Solicitar la vida laboral)”, “Search for information on public administration websites or apps (Buscar información en las páginas web o aplicaciones de la Administración Pública)”, “Download or print official forms (Descargar o imprimir formularios oficiales)”, “Send forms online, e.g., tax return, taxes, renew ID, register address, etc. (Enviar formularios por Internet, como p.ej. la declaración de la renta, impuestos, renovar el DNI, empadronamiento, etc.)”, “Receive an SMS with a link to download documents (Recibir un SMS con un enlace para descargar documentos)”, “Chat with a support person (Chatear con una persona de ayuda)”, “Other (Otro)”
 - **Question 22:** “Now tell me if in the last 3 months you have done any of the following things related to essential services such as water, energy, transport, etc. (Dígame, ahora, si en los 3 últimos meses ha hecho algunas de las siguientes cosas

relacionadas con los servicios esenciales tales como el agua, energía, transporte, etc.)”. 6 binary variables, corresponding to 1 if a person confirms that she has used Internet for the following actions in the last 3 months, were used: “Use online banking (Utilizar la Banca online)”, “Receive digital bills (Recibir facturas digitales)”, “Manage water, electricity, internet contracts, etc. (Gestionar el contrato de agua, luz, internet, etc.)”, “Request the electricity subsidy (Solicitar el bono eléctrico)”, “Request the social water tariff (Solicitar la tarifa social del agua)”, “Request the resident subsidy (Solicitar el bono residente)”.

- **Question 35:** “In the last 3 months, have you used the internet to look for a job or send a job application? (¿En los últimos tres meses ha utilizado Internet para buscar empleo o enviar una solicitud a un puesto de trabajo?)” A binary variable, which is equal to 1 if a person responds “Yes (Sí)”, is used.
- **Question 38:** “In the last 3 months, have you searched for information on courses to improve your professional profile or taken an online course to improve your employability? (En los últimos 3 meses ¿Ha buscado información sobre cursos para mejorar su perfil profesional o ha realizado algún curso online para mejorar su empleabilidad?)”. A binary variable, which is equal to 1 if a person responds “Yes (Sí)”, is used.
- **Question 39:** “Do you use online job portals? (¿Utiliza portales de empleo online?)”. A binary variable, which is equal to 1 if a person responds “Yes (Sí)”, is used.