Is training helpful in boosting the self-confidence and professional integration of young people not in employment, education, or training? Results from a randomized experiment

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Abstract

Self-confidence is rarely analyzed in randomized control trials. This paper uses this framework to evaluate the impact of a short but intense training program for building self-confidence in young people not in employment, education, or training (NEET) in a French overseas territory characterized by one of the highest NEET rates in Europe. Using an original questionnaire, the study shows that training substantially improves self-confidence. Cost-effectiveness and qualitative analysis also highlight the program's value. However, differences observed in the employment and NEET rates between treatment and control groups were not significant and could not clearly be attributed to the program.

Keywords: Self-confidence, NEET youth, training, professional integration, RCT, impact assessment

JEL codes: C93, I24, J2

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1. Introduction

Youths who are not in employment, education, or training (NEET) not only bear significant human costs but also generate considerable economic costs to society in both the short and long term. Recognizing their significance,[1] the European Commission's action plan based on the European Pillar of Social Rights set a target NEET rate of 9% in people aged 15 to 29 years by 2030, or a decrease of around 4 percentage points relative the European Union (EU) average of 27 countries observed for the period 2018-2022. Many European regions, even in the wealthiest countries, currently exceed this target rate of 9%,[2] thus forcing them to make substantial efforts. Active labor market programs (ALMPs) adapted to each territory can contribute to reaching this goal.

Standing at around 30% for the period 2018-2022, the NEET rate of La Réunion, a French island in the Indian Ocean, has been one of the highest in the EU for a number of years. In parallel, the lack of self-confidence in young adults, a well-documented problem in France (Algan et al. 2018), seems particularly marked on this island. As the 20-40 age bracket is conducive to the development of soft skills (Bent and Mroczek 2008), the French Minister of National Education decided to address the regional priority of the island and improve the self-confidence of youths (Morel et al. 2019) by funding coaching sessions for NEET young people aged 16 to 25 years. This study is a randomized control trial (RCT) aiming to evaluate this short but intense training program that took place in 2020-2021 and was attended by 157 young people among the 349 volunteers studied here.

The paper first focuses on the program's impact on self-confidence, which may be defined as people's belief in their own abilities (Bandura 1997; Bénabou and Tirole 2002; Chen et al.

[1] The literature review of Brunello and Paola (2014), the Eurofound (2012) and OCDE reports (2016), and even the paper of Mroz and Savage (2006) give an idea of their importance of NEET.

[2] According to Eurostat data for the period 2018-2022, the NEET rate was over 9% in 20 of the 27 EU countries, although the ten countries with the highest GDP and GDP per inhabitant exceeded this rate in 68% and 51% of countries, respectively.

2019).[3] As the psychology literature argues for the use of a self-confidence questionnaire adapted to the analysis context (e.g., Bandura 2006; Saks et al. 2015), our estimates of the intention-to-treat (ITT) effects are based on an original self-administered questionnaire. As is common in economics, our study uses ordinary least squares with clustering effects and robustness analysis with different covariates. Drawing from Bertrand et al. (2004) and Abadie et al. (2010, 2015), sensitivity analysis is also conducted using placebo analysis. The estimated ITT corresponds to an increase of at least one decile or quintile in the distribution of our self-confidence indicators in the population for more than 90% and 70% of youths in the treatment group, respectively. Heterogeneity analysis by sex demonstrates that these strong positive effects are only statistically significant for women, as confirmed by placebo analysis. Cost-effectiveness analysis is also very favorable with regard to other training programs proposed around the world. The effects are at least in the top 20%, while the cost per youth is slightly above the median. Qualitative analysis based on the focus groups and individual interviews with the young people in the treatment group confirms our results. The program helped them understand themselves and discover sometimes unexpected qualities. It also allowed them to better define their professional project and adapt their strategies for professional integration.

In addition, our paper endeavors to identify the effects of the training program on the young people's professional integration and to determine the extent to which their improved self-confidence helped them find a job or, more broadly, to exit the NEET status 1.5 and 18 months after the program. We estimate the causal effect of self-confidence on professional integration using instrumental variable analysis. Although the short-term employment and NEET rates of youths in the treatment group were lower than in the control group, they were better in the medium term. Nevertheless, most of our estimates and sensitivity analyses do not exclude the

[3] This notion is often called general self-efficacy (Bandura 1977) in psychology. This paper is not limited to job search self-efficacy (Kanfer and Hulin 1985, Kanfer et al. 2001), deemed to be too restrictive. Further, it does not study self-esteem.

possibility that these effects are due to coincidence, meaning that the improved self-confidence of the NEET youths did not enhance their professional integration.

Our paper is part of a growing body of literature on the effects of soft skills on the job market. Influenced by research in psychology and management studies, especially the surveys conducted with employers in numerous countries,[4] economic analysis shows that a number of soft skills can explain a significant part of people's performance in the job market (e.g., Heckman et al. 2006; Borghans et al. 2008; Lindqvist and Vestman 2011; Heckman and Kautz 2012; Crépon et al. 2021; Noray 2021). Theoretical analyses (e.g., Bénabou and Tirole 2002; Flåm and Risa 2003; Falk et al. 2006a) and laboratory experiments (e.g., Judge and Bono 2001; Falk et al. 2006b; Judge et al. 2007; Liu et al. 2014; Dargnies et al. 2019; Barron and Gravert 2022) both demonstrate that improved self-confidence can have contradictory effects on professional integration through various mechanisms. For example, better self-confidence may both increase and decrease the scope and intensity of job seeking, enhance the conversion of job interviews into job offers but reduce the acceptance rate of offers by the unemployed. By contrast, the impact of better self-confidence on real professional integration is poorly documented. Experimental field evaluations thus constitute an interesting tool to elucidate this topic. Despite not focusing exclusively on self-confidence, three economic studies used these methods to evaluate similar training programs, thus making them closely linked to our paper. The first two studies evaluated training programs with a less intense weekly schedule but over a longer period of time than our program. Schlosser and Schanan (2022) found positive effects on the job search self-efficacy indicator as well as short- and medium-term employment and activity rates, although they did not demonstrate conclusive effects on general self-efficacy. With an average age of 38 years, the Israeli population included in their study is not comparable to our own. Like our study, Algan et al. (2016) evaluate the impact of training on

[4] See, for instance, Cunningham and Villaseñor (2016) and Heckman et al. (2021) for the USA and Bergeat and Rémy (2017) for France.

French NEET youth. Their findings showed that the training program failed significantly influence the decision-making autonomy of young people (including self-confidence) and their short- and medium-term employment and NEET rates. Similarly, Groh et al.'s (2016) evaluation of a training program for young university-educated women in Jordan did not show a causal impact on self-confidence or significant effects on professional integration.

Our paper makes three main contributions to the economic literature. First, this is the first study to show that the improved self-confidence of NEET youths did not influence their inclusion in the job market. This finding suggests that the contrasting effects of better self-confidence on the process of professional integration, previously highlighted in the theoretical body of literature, offset each other among the young people included in our study. Second, we perform a cost-effectiveness analysis of the program and complete our calculations with instrumental variable analysis using two self-confidence scores based on our original questionnaire. Third, our quantitative analysis is enriched with qualitative analysis, which seems particularly relevant when studying programs targeting the development of soft skills.

Our work is in line with previous studies that analyze the effects of ALMPs. The literature on training programs designed for young people has highlighted their overall weak but heterogeneous effects. When efficacy is identified, it only appears after a long period of time (e.g., Kluve 2010; Card et al. 2018; Kluve et al. 2019) and mostly for women (e.g., Bergemann and Van den berg 2008; Card et al. 2010). Our contribution to the growing body of RCT analysis of ALMPs shows that these positive effects are not observed for a self-confidence training program.

The remainder of the paper is organized as follows. Section 2 outlines the context of the region under investigation and describes the experiment protocol. Section 3 explains the overall validity of the RCT. Section 4 presents the estimation strategy and robustness checks. Section 5 summarizes the mains results on self-confidence and professional integration. Section 6 proposes heterogeneity analysis by sex. Section 7 sheds light on the quantitative analysis with

the main insights of the qualitative analysis. Section 8 includes a discussion based on cost-effectiveness analysis and instrumental variable analysis. Finally, section 9 puts forwards some concluding remarks.

2. Context and experiment

2.1 Challenges of NEET youth in La Réunion

La Réunion is a French island in the Indian Ocean characterized by many socio-economic challenges. The situation of young people is more difficult than in metropolitan France,[5] particularly in terms of the serious challenges posed by professional integration. As shown in Table 1 to Table 3, the employment rate of youths aged 15-29 years was far lower than in France and the OECD countries in 2021. On the contrary, the rate of NEET youths is much higher in La Réunion (26%) than in France (13%) and the OECD (15%). This percentage rises sharply between the 15-19 and 20-24 age groups and is much more pronounced in La Réunion. Between 2015 and 2021, the NEET rate by sex evolved differently in La Réunion, with the rate of female NEET youth falling below that of male NEET youth (25% vs. 28%).

These poor performances in La Réunion cannot merely be attributed to young people's preference for leisure over work. According to the French Labor Force Survey (2021), 46% of NEET youth are unemployed according to the International Labor Organization's definition and 28% belong to the unemployment halo. These difficulties lead to high levels of precarity among young Réunionese. The French National Institute for Statistics and Economic Studies (INSEE)[6] indicates that the poverty rate of taxpayers younger than 30 years was 22% in metropolitan France in 2020 but reached almost 51% in La Réunion. Various measures have been implemented across France over the past 15 years to improve the professional integration

[5] The national survey of the DJEPVA barometer in 2019 (INJEP-CREDOC 2019) revealed that only 51% of young Réunionese aged 18 to 30 years were generally satisfied with their current situation, which is 8 percentage points less than the whole of France. The rate according to employment status or qualification level is not available for La Réunion. Note that the satisfaction rate stands at 30% for unemployed youths in the whole of France (CREDOC, 2019), suggesting that it is probably much lower in La Réunion.

[6] https://www.insee.fr/fr/statistiques/2012803

of young people, although they are yet to bear fruit (Cahuc et al. 2021). La Réunion, where the situation is even worse, has put in place specific measures, especially since 2019 with the launch of the PETREL plan that aims to strengthen employment support and boost professional integration, particularly among young people who have dropped out of school.

Multiple causes underlie the difficulties faced by Réunionese youths (L'Horty 2014). Aside from its geographic isolation, the island is subject to major transportation challenges due to its topographical constraints and an insufficient public transportation system. Mediocre academic performances also play an important role. Eurostat[7] reports that in 2018, 21.8% of the population aged 18-24 years in La Réunion were early leavers from education and training compared with 8.7% in France and 10.5% in the 27 countries of the European Union. Young Réunionese also lag behind in terms of basic skills. Table 4 shows, for example, that La Réunion has one of the highest numbers of young people with reading difficulties in France.

The main expectations of employers are not only of a cognitive nature. Based on the survey "Manpower requirements" conducted with the French national employment center, Lainé (2018) showed that soft skills were more important than technical skills for 60% of French employers in 2017. Autonomy, teamwork, sense of responsibility, organization, and adaptability – skills that are all strongly linked to self-confidence – were cited by at least 90% of recruiters as basic skills expected in future employees. Drawing on its lengthy experience and many exchanges with the socio-economic fabric of the island, the *Mission Locale Sud* (MLS) of La Réunion, a public job center in charge of supporting young people aged 16 to 25 years who experience difficulties in finding a job, also reports a severe lack of soft skills, particularly in terms of self-confidence.[8] To overcome this issue, the MLS set up a coaching scheme to improve the self-confidence of youths.

[7] https://ec.europa.eu/eurostat/databrowser/view/EDAT_LFSE_16/default/table?lang=en

[8] Several governmental bodies have also cited the self-confidence of young Réunionnais as one of the three main challenges for the future of the territory (Morel et al. 2019).

2.2 JEME program

The JEME (Youths Moving toward Employment) program targeted the MLS public, that is, NEET youths aged 16 to 25 years. The experiment took place between July 2020 and April 2021 in four branches of the MLS: Saint-Joseph, Saint-Louis, Saint-Pierre, and Le Tampon. The program was developed with eight clusters, as each branch included one cohort in 2020 and another in 2021.

The main objective of the program was to motivate young people to find employment through various social actions along with the certification of the skills acquired through the program. Over a period of around 4 weeks, the program consisted of 54 hours of interdisciplinary workshops organized by 12 professional instructors and proposed free of charge to youths enrolled in the MLS. These diverse workshops aimed to develop the self-confidence of the young people and improve their professional integration. Self-confidence is closely linked to feelings of personal efficacy (i.e., an individual's belief in his or her ability to instigate and persevere in an activity in order to reach one or several fixed objectives; see Bandura 1982), self-knowledge, and communication skills (i.e., the ability to communicate in an appropriate manner in a given context). Using a variety of activities and techniques, each workshop aimed to develop these aspects. Around 20 youths participated in each workshop, often working in small groups and taking emotional risks. Table 5 summarizes the name, duration, means of transmission for building self-confidence, and short descriptions of the seven workshops, which were identical for each cluster.

2.3 Protocols for quantitative assessment

2.3.1 Procedure

The program and evaluation process, notably the random allocation to the treatment and control groups, were presented to the youths at each MLS branch. The randomization of young volunteers wishing to take part in the program was performed in each of the eight clusters, leading to 157 youths in the treatment group and 192 youths in the control group. The

treatment difference between the two groups only related to the period of the program. During this period, the young people in the treatment group participated in the program workshops, while those in the control group continued with the usual support provided by their MLS advisor. At the end of the workshops, those in the treatment group continued with their usual support. This personalized accompaniment provided by the MLS begins with an in-depth assessment of the young person's skills and aspirations.[9] The advisor then regularly meets with the youth to monitor his or her progress along the proposed pathway to employment. Nevertheless, the level of support is not very intense.[10] The follow-up interviews are sporadic and quite short (between 15 and 30 minutes). The statistics provided by the MLS confirm the intermittent nature of these interviews: around 0.5% of youths have an interview at least once a month, 7.5% at least once every three months, and 54% more than once a year.

The quantitative part of the evaluation was based on the online or telephone responses of participants. To ensure a high response rate, participants received gift vouchers, with a higher monetary value for those in the control group given that they did not benefit from the program. We will now describe the objectives and indicators of the two questionnaires used for the quantitative evaluation.

2.3.2 Self-confidence questionnaire: Objective, content, and impact indicators

The first objective of the evaluation was to identify the extent to which the JEME program modified the young people's perception of themselves. Indeed, the initial goal of the program was not only the development of self-confidence. Our paper nevertheless focuses on this skill, as the objectives and activities of the workshops were almost exclusively centered on it.[11]

[9] The two first interviews conducted at enrolment and for the in-depth assessment each last for around 45 minutes and take place within a short interval.

[10] In metropolitan France and La Réunion, there are no compulsory or specific measures that require the public services to help NEET youth enter employment.

[11] The statistical evaluation of the other soft skills is described in Alivon and al. (2023).

The young people were asked to respond to a self-administered questionnaire based on several existing tests (see Table 26 in Appendix 1). Although two well-known questionnaires (i.e., Big-Five and NEO-PI-R) are frequently used in economic analyses to evaluate various soft skills in very different populations, there is currently no consensus about which questionnaire should be used for self-confidence. Bandura (2006), one of the most recognized psychologists who has conducted extensive research on self-confidence, argues that questionnaires should be adapted to the analysis context. Moreover, as indicated by Saks et al. (2015), many questionnaires in the field of job search self-efficacy seek to identify the links between self-confidence and job seeking. However, we did not want to limit ourselves to this dimension, since our analysis focuses on all stages of professional integration and not only looking for employment. We therefore developed an original questionnaire inspired by well-known questionnaires,[12] notably the general self-efficacy scale of Schwarzer and Jerusalem (1995). To avoid specific biases associated with questionnaire responses (e.g., West et al. 2016), we avoided questions in which the young people had to compare themselves with others, instead choosing questions related to their current situation or past experiences.

Our questionnaire was limited by three major constraints. The first constraint related to the time limit: the number of items had to be limited, as MLS youths are known to have difficulties concentrating on the same cognitive task for several minutes. The second constraint concerned the composition of the questionnaire. As MLS youths live in a multilingual Creole-French environment and may have reading and writing difficulties, especially in French, it was important to choose terms that could be easily and unambiguously understood, particularly with the use of a co-text that was meaningful in the Réunionese context. In addition, the main information was given at the start and end of the statement in order to be rapidly identified.

[12] Note that self-confidence differs from self-esteem, which generally refers to a judgement about ourselves (Pyszczynski et al. 2004). As this dimension of self-judgement is absent from self-confidence, the famous self-esteem tests (Barbot et al. 2019; Coopersmith 1984; Rosenberg 1979) cannot be used as such.

The third constraint related to the context of the evaluated program. This meant identifying whether the program impacted the young people's perception of themselves in anticipation of their entry into the working world.

To ensure that our novel questionnaire (see Table 26 in Appendix 1) would be correctly and easily understood, no negations were used. Statements with a positive or negative connotation were alternated to avoid stereotypical responses. Following Preston and Coleman (2000), Gosling et al. (2003), and Krosnick and Presser (2010), we used a 7-point Likert scale on a continuum from "strongly disagree" to "neither agree nor disagree" and "strongly agree." The questionnaire was also enhanced with catchlines, colors, and "gifs" to make it attractive and maximize the number of responses.

The coherence of the questionnaire was confirmed in several tests. On the one hand, we measured homogeneity by calculating the correlation coefficient between items. Based on the literature, we calculated Cronbach's $\boldsymbol{\alpha}$. The obtained value of 0.821 indicates strong coherence between questions. The use of this indicator in this framework may nevertheless be criticized given the underlying hypothesis of cardinal and continuous variables. The ordinal $\boldsymbol{\alpha}$ proposed by Zumbo et al. (2007), which results in a value of 0.849, also confirms the high level of homogeneity between questions. On the other hand, we used factorial analysis and focused on the correlation between each item with the principal axes measuring the latent variables. As shown by Table 27 of Appendix 1, a single item with a correlation coefficient of less than 0.5 for the first axis is distinguished from the other items.

The analysis of the impact on self-confidence depends on two scores that reflect positive self-perception. In line with numerous studies (e.g., Heckman et al. 2006), the first score $\boldsymbol{S_A}$ turns the Likert scale into a cardinal scale by attributing points to each type of response (with an inverted order for questions formulated in the sense of negative self-perception) and then aggregates the points for the ten items of the questionnaire. To overcome the criticism often directed against the cardinalization of responses, we also propose a second score $\boldsymbol{S_B}$. This

score reflects positive self-perception by aggregating the number of items for which the youths answered "rather agree," "agree," or "completely agree" when the questions refer to a positive vision and the number of items for which they answered "completely disagree," "disagree," or "rather disagree" when referring to a negative view. Following the example of Huillery et al. (2022) and in accordance with Anderson (2008), the aggregates of the two scores were weighted to take into account the possible correlation between items. As in the majority of studies involving randomized evaluations in the domain of education since Cohen (1969), the scores are then expressed as standard deviation units of the control group.[13]

2.3.3 Questionnaire on professional integration: Objective, content, and impact indicators

The second aim of the evaluation was to determine the transferability of the results to the professional integration of young people in the short and medium term, that is, 1.5 and 18 months[14] after the end of the program.[15] For this purpose, we designed a second questionnaire to assess the professional integration of the training participants. Three areas were evaluated: employment not covered by a government support scheme regardless of whether the contract was temporary, fixed-term, or permanent; education or professional training; and subsidized jobs or public youth employment programs. The young people were asked to clearly state any periods of employment and the characteristics of the structure where they worked or received training to avoid any risk of error in the classification.

Two types of professional integration were targeted in the program: a limited definition corresponding to "pure" employment (i.e., fixed-term or permanent contract) and an extended definition that we call "occupation in the broader sense," which regroups "pure" employment

[13] Similar to Anderson (2008), the calculated score first related to the entire population, that is, the young people in both the control and treatment groups.

[14] A period of 18 months was chosen to avoid any bias, as many youth employment support schemes in France and La Réunion last for up to 12 months.

[15] The youths were asked to indicate their occupational status in the month and 3 months preceding the questionnaires completed at 1.5 months and 18 months, respectively.

and all other types of occupation. This categorization into employment and occupation allowed us to provide a better overview of professional integration. The aggregate indicators of professional integration are thus the ratios of employment and occupation, respectively defined as the proportion of young people in pure employment and in an occupation in a broad sense.

3. Overall validity of the randomized control trial

3.1 Sociodemographic characteristics

Even though the MLS youths had more dependent children, were more likely to have their own means of transport, had a lower level of education, and were older than those enrolled in the JEME program, Table 6 indicates that the experiment was externally validated. In terms of internal validity, Table 7 confirms that the treatment and control groups are highly comparable.

3.2 Internal validity of the self-confidence questionnaire

Table 8, which compares the two groups for scores S_A and S_B, allows us to draw the following conclusions: the mean and standard deviation of the two groups are very similar. It is therefore not possible to reject the null hypothesis of no difference between groups at an acceptable significance level given the corresponding p-values.

Building on Imbens and Rubin (2015), we also investigate the proportion of young people in the treatment (or control) group with score values in the tails of the distribution of the score values of the control (or treatment) group. We compute $\pi_T^{0,05} = (1 - F_T(\mathrm{F}_C^{-1}(0{,}975))) + F_T(\mathrm{F}_C^{-1}(0{,}025))$ and $\pi_C^{0,05} = (1 - F_c(\mathrm{F}_T^{-1}(0{,}975))) + F_C(\mathrm{F}_T^{-1}(0{,}025))$, where F_T and F_c are the cumulative distribution functions of the covariate in the treatment and control groups, respectively. As can be seen from columns (5) and (6) of Table 8, the overlap measures $\pi_T^{0,05}$ and $\pi_C^{0,05}$ suggest that large parts of the treatment and control groups with score values are in the middle 0.95 of the distribution of the other group. The Kolmogorov-Smirnov tests also

show that the null hypothesis of equality cannot be rejected for the distributions of scores with acceptable significance levels (see Table 57 of Appendix 2). The empirical distribution functions of the responses of youths in the treatment and control groups shown in Figure 1 of Appendix 1 suggest that the groups are highly comparable.

It is also possible to refine the analysis by focusing on each item of the questionnaire. Table 58 and Table 59 of Appendix 2 confirm once again the similarity of the treatment and control groups. The p-values of Student's tests indicate that for most responses, the null hypothesis cannot be rejected.

3.3 Statistical power, attrition, and compliance

3.3.1 Statistical power and attrition

If the JEME program has effects, the probability of identifying them should be high. As budgetary and organizational constraints meant that we were unable to choose the size of the treatment and control groups needed to obtain a probability of at least 0.8, a value usually used in the literature, we performed power analysis with a two-tailed test at the 5% level based on the size of our treatment and control groups.

Several power calculations are thus proposed by considering the attrition percentages for the self-confidence and professional integration questionnaires. Table 28 of Appendix 2, which focuses on the different variations of the self-confidence scores expressed as standard deviation units of the control group, suggests that the probabilities of detecting an effect are very high (i.e., close to 1) when the expected effects exceed 0.38 SD, with an attrition percentage of 8%. When calculating the statistical power for professional integration, we were unable to collect sufficient reliable data regarding the rate of employment or occupation among NEET aged 18 to 25 years in La Réunion.[16] In these circumstances, we based our

[16] The number of NEET youth participating in INSEE's Employment Survey of La Réunion (*Enquête Emploi de La Réunion*), which identifies the profile of youths comparable to those supported by the MSL, is too low. Given the very different profiles of young adults in La Réunion and metropolitan France, it seems inappropriate to use nationwide data.

calculations on the initial rates of professional integration observed a posteriori for the young people in the control group. We also considered the rate of attrition and the potential effects observed a posteriori. As indicated in Table 29 of Appendix 2, the probabilities of detecting an effect are very high (close to or above 0.9) when the expected effects are greater than or equal to 0.14 percentage points, and the initial rate is less than or equal to 0.12. When the expected effects are greater than 0.14 percentage points, the probability of detecting an effect is higher than 0.7 regardless of the initial rate. By contrast, the probability is almost systematically less than 0.5 when the potential effect is less than or equal to 0.06 percentage points. The probability of identifying a weak effect is therefore low.

3.3.2 Observed attrition rates and their impact on the self-confidence questionnaire

The first self-confidence questionnaire was completed by participants during the initial presentation of the program, and by design, the response rate was 100%. Of the 349 participants, 24 did not answer the second self-confidence questionnaire distributed just after the end of the program. This non-response rate (6.9%) seems low given the public in question. Although the response rate of youths in the treatment group is slightly higher than in the control group (94.9% vs. 91.7% as shown in Table 30 of Appendix 2), Table 31 of Appendix 2[17] highlights the lack of significant difference between the two groups. The non-responses were mostly due to a temporary lack of availability rather than the specific profile of the young people.

3.3.3 Observed attrition rates and their impact on the professional integration questionnaire

Of the 349 participants, 16 did not answer the professional integration questionnaire after 1.5 months. The non-response rate (4.6%) was low. Among non-respondents, 11 did not complete the second self-confidence questionnaire. Although the response rate of the young people in

[17] This is also suggested in all the aforementioned comparisons.

the treatment group was slightly higher than in the control group (96.2% vs. 94.8% as shown in Table 32 of Appendix 2), Table 33 of Appendix 2 highlights the lack of significant difference between the two groups.

Obtaining responses at 18 months proved more challenging, which is a common feature of all evaluations of young people (Aldeghi et al. 2012), who are generally difficult to contact by email or telephone and even more so when they are living in a precarious situation. Only 176 of the 349 young people (50.43%) completed the questionnaire by telephone. For the remaining youths, 133 were identified in the MLS database known as I-MILO, which includes occupation information. Overall, we obtained data for 88.54% of participants. No notable differences were observed between the 309 young people for whom data were available and the other youths. As shown in Table 34 and Table 35 of Appendix 2, assignment to the treatment group had no significant effect on questionnaire response rates or identification in the I-MILO database.

3.3.4 Compliance

Compliance with our assignment rule was high: 90.6% of young people assigned to the treatment group completed the training. Among the 149 individuals in the treatment group, two were expelled and 12 dropped out. We nevertheless included them in the treatment group to avoid any bias. In addition, only two participants did not respond to any of the questionnaires, while none of those in the control group took part in the training. In this sense, our estimates correspond to ITT analysis with a high level of compliance.

4. Estimation strategy and robustness checks

4.1 Empirical specification

Our estimations are based on six indicators *j*: two self-confidence scores, namely $\boldsymbol{S_A}$ and $\boldsymbol{S_B}$, and the insertion dummies with respect to employment and occupation at 1.5 and 18 months. We estimate the ITT effects, meaning that data are analyzed for all young people enrolled in

the program. To test the null hypothesis that the program has no impact, we estimate the average treatment effect for each indicator *j*:

$$Y_{i,g,j} = \alpha_j + \beta_j T_{i,g} + X_i \theta_j + \lambda_{g,j} + \varepsilon_{i,g,j} \quad (1)$$

where $Y_{i,g,j}$ is the outcome *j* for the young adult *i* in cluster *g*, $T_{i,g}$ is a dummy equal to 1 if *i* belongs to the treatment group, X_i is a vector of covariates, $\lambda_{g,j}$ captures the fixed effects at the cluster level *g*, and $\varepsilon_{i,g,j}$ is the error term that takes into account the unobserved factors.[18] Our equations are estimated using ordinary least squares, and standard errors are robust to heteroscedasticity. To account for possible unobserved characteristics between young people belonging to the same cluster, standard errors are clustered at the cluster level *g*, which is the unit of randomization. As we only have eight clusters in our data – two cohorts (i.e., two waves) interacted with four geographic areas (i.e., four MLS branches) –, we apply Imbens and Kolesár's (2016) adjusted degrees-of-freedom for cluster correction to improve the finite sample inference.[19]

Covariates $\boldsymbol{X_i}$ are added to better fit the data. However, it is well known that there is no gain in precision and perhaps even a loss of precision in small samples when the covariates are irrelevant. Therefore, we estimate six different specifications of the regression model (1). Our baseline specification (specification 1) is the most parsimonious and does not include any covariates. Other specifications gradually include a growing number of covariates. More precisely, we incrementally add one dummy for sex (specification 2), one dummy for age younger than 20 years (specification 3), one dummy for having a child and one dummy for being single (specification 4), one dummy for holding a driving license (specification 5), and five dummies for education level (specification 6).

[18] We also estimated an alternative model without the interaction of cohort and geographic fixed effects. This model only contains five fixed effects: one cohort and four geographic fixed effects. The estimation results are similar.

[19] We also implemented the wild bootstrap of MacKinnon and Webb (2018) for a limited number of treated clusters and obtained similar conclusions. Results are available on request.

4.2 Robustness analysis

In addition to the different specifications, we perform two types of robustness analysis.

4.2.1 Multiple inference

Due to the large number of tests performed, it is possible that the seemingly significant differences between the treatment and control groups are no more than coincidence. If we erroneously attribute this difference to the program instead of coincidence, then we commit a so-called type I error by falsely rejecting the null hypothesis of no effect of the program. To account for this possibility, it is necessary to link the hypothesis tests belonging to the same family of tests rather than considering each one independently. Given the relatively limited number of observations, we use the false discovery rate proposed by Anderson (2008) by controlling the smallest expected proportion of falsely rejected null hypotheses within the same family of tests. We consider an expected proportion of 10% to be an acceptable type I error rate. This analysis is only performed when conducting more than two tests within the same family.

4.2.2 Placebo analysis

The limited number of observations affects the statistical power of our estimations. Thus, following Bertrand et al. (2004) and Abadie et al. (2010, 2015), we evaluate the robustness of our results using placebo analysis. This method involves comparing the value of effects estimated from the real treatment and control groups with the value of a placebo effect (or pseudo effect) based on the assumption that half of the control group participated in the program. These young people in the control group thus constitute the pseudo-treated group. We repeat the analysis for all possible pseudo-treated groups created from the initial control group in order to obtain the distribution of the pseudo-treatment effect under the null

hypothesis of no effect.[20] With the robustness analysis of our results, we situate the effect estimated from the real treatment and control groups in the distribution of the obtained pseudo-treatment effect. If the estimated effect value is extreme with regard to the distribution of the pseudo-treatment, we may conclude that it is probably due to the program instead of coincidence.

5. Main results

This section focuses on the impact of the program for the entire population.

5.1 Effects of the program on self-confidence

After validating our protocol, any differences observed between the groups in the second questionnaire on self-confidence, which was completed immediately after the experiment, should be associated with the causal effect of the program.

Table 9 presents the results for the two scores by considering the different estimation specifications.[21] The p-values indicate that the differences are always significant at the 5% level and very often at the 1% level of significance. The different possible specifications have little impact on our results, with the treatment effect being around 0.4 SD. One way of interpreting this result is to determine the extent to which the program would have allowed the young people in the control group to progress in the initial distribution of scores. As indicated in Table 60 of Appendix 2, the estimated ITT effect corresponds to an improvement of at least one decile for almost the entire population (between 89% and 94% of the population depending on the score considered) and even one quintile in the majority of cases (between 70% and 71% of the population depending on the score considered). Our robustness analysis confirms these results. Table 36 of Appendix 2 shows that the values of the two scores are

[20] Our analyses are based on an approximate distribution of the placebo effect. Given the numerous possibilities to create pseudo-treated groups of size N/2 based on an initial control group of size N, we rely on the numerical approximation of the p-value by randomly drawing 999,999 combinations from all possible combinations.

[21] Recall that the values are centred on the entire population and expressed in standard deviation units of the control group. The average negative value of two scores of the control group may be explained by the higher positive values of the treatment group.

unusual with respect to the distribution of placebo effects, thus indicating that the estimated effect is due to the program instead of coincidence. The between-group differences are confirmed by the Kolmogorov-Smirnov test for distribution equality and the McFadden test for first-order stochastic dominance (1989) (see Table 61 and Table 62 in Appendix 2). Figure 2 of Appendix 1 shows clearly that the empirical distribution functions of the treatment group are almost always below those of the control group, suggesting that the distribution the treatment group has first-order stochastic dominance over that of the control group, which may be observed for both self-confidence scores.

5.2 Program effects on professional integration

This section presents the estimations of the short- and medium-term effects of the program on employment and occupation in a broad sense.

5.2.1 Short-term effects after 1.5 months

As shown in Table 10, the consideration of the different possible specifications has little impact on our results: on average, the treatment has negative effects, being around -2 percentage points for employment and around -14 percentage points for occupation. The p-values indicate that these effects are never significant for employment but always significant for occupation at the 5% level. Nevertheless, the program has no effect according to robustness analysis. Multiple inference analysis (see Table 37 of Appendix 2) shows that for occupation, the expected proportion of false rejections is at least 10% for all associated p-values leading to the rejection of the null hypothesis. Placebo analysis also suggests that the estimated effects for occupation and employment are probably due to coincidence rather than the program (see Table 38 of Appendix 2).

The negative effects are likely associated with lock-in effects, which have already been highlighted in the literature regarding the effects of training on unemployed people. On the one hand, these effects are linked to a reduction in the time devoted to job seeking and thus to the number of employment offers received during the training period. On the other hand, the

commitment necessary to complete the training reduces their availability in the short term and thus lessens their chances of accepting an employment offer with an immediate start date. As shown in Cahuc et al. (2014) and Crépon and Van den Berg (2016), lock-in effects are less likely to occur in a challenging economic and employment climate given the fewer job opportunities available for NEET people. This is particularly the case with the population, territory, and period analyzed here, notably during the COVID-19 pandemic. The French government sought to mitigate the impact of the pandemic on young people by reinforcing certain measures to improve their professional integration, which particularly benefitted those in the control group. MLS advisors certainly played a key role in this respect. An important program known as the *Garantie Jeunes* was only accessible to youths after a selection process overseen by the local MLS branches (Filippucci 2022). Those meeting the administrative and eligibility criteria were chosen based on their motivation and ability to accept the constraints associated with this reinforced level of support. In their "portfolio of youths," the MLS advisors thus preferentially selected the young people in the control group for the *Garantie Jeunes* given that they had already shown their willingness to participate in the "demanding" JEME program.

5.2.2 Medium-term effects after 18 months

Table 11 once again shows that the consideration of the different possible specifications has little impact on our results: overall, the program has positive effects, being around 5 percentage points for both employment and occupation. The p-values nonetheless indicate that the differences are never significant at the 10% level. However, robustness analysis confirms the positive impact of the program, as the observed effects are extreme with regard to the distribution of placebo effects (see Table 39 of Appendix 2).

These results are compatible with the ex-post effects that are a priori ambiguous, as highlighted in the literature on the training of unemployed people. On the one hand, training may enhance job seeking and improve the chances of attracting the attention of employers given the better productivity and/or self-perception. On the other, training may increase the expectations of job seekers, leading to their refusal of job offers. Despite the lack of significance, the positive sign of the ex-post effects observed here is in accordance with previous findings (Cahuc et al. 2014).

6. Heterogeneous effects by sex

The self-confidence differences by sex, which are well documented in the literature, can explain the different outcomes for men and women in the job market (Niederle and Vesterlund 2007; Gneezy et al. 2009; Buser et al. 2014; Haeckl 2022). According to the literature, training aimed at the development of soft skills or job-seeking skills has a greater impact on females than on males (e.g., Falk et al. 2006; Acevedo et al. 2020; Huillery et al. 2022; see also the literature reviews of Friedlander et al. 1997 and Cahuc et al. 2014).

6.1 Overall validity of the randomized control trial

6.1.1 Sociodemographic characteristics, statistical power, and attrition rate

The internal validity of the protocol is acceptable for both men and women regarding the sociodemographic characteristics of the study population. Despite differences in the means between the treatment and control groups, they are not statistically significant (see Table 12 to Table 13).

For each population, the statistical power of our tests hinders the detection of small-scale effects (see Table 41 to Table 44 of Appendix 2). The attrition rate for women does not differ between the treatment and control groups in terms of the self-confidence and professional integration questionnaires (see Table 45 and Table 46 of Appendix 2). For men, however, a substantial but non-significant difference was observed for the self-confidence questionnaire (94.4% for the treatment group vs. 86.5% for the control group) (see Table 47 of Appendix 2). Our investigations (see Table 48 Appendix 2) nevertheless allow us to confirm that the attrition does not affect our analysis of the program's impact on men.

6.1.2 Modifying the variables of interest for self-confidence in women

Table 14 as well as Figure 3 and Figure 4 of Appendix 1 suggest that unlike men, the two self-confidence scores showed differences for women in the treatment and control groups before the start of the program. In light of this situation, the post-treatment comparison of the self-

confidence scores S_A and S_B can no longer be used to evaluate the program's impact on women. The impact analysis for women will thus be completed by studying the between-group differences ΔS_A and ΔS_B in the evolution of scores S_A and S_B between the first and second questionnaires. As indicated above, S_A and S_B depend on the aggregate of responses to the 10-item questionnaire weighted by correlation, with the correlation structure possibly evolving between the first and second questionnaires. We therefore propose two measures for each of the differences ΔS_A and ΔS_B. The first uses the initial correlation structure based on the first questionnaire and then applies it to the responses of both questionnaires. The second uses the final correlation structure based on the second questionnaire.

6.2 Self-confidence: Significant effect only for women

The impact analysis for men is based on the second questionnaire. Table 15 shows the results for the two self-confidence scores by considering different possible specifications. ITT effects vary from 0.17 SD to 0.23 SD depending on the specification, although these effects are not significant. The placebo analysis presented in Table 64 of Appendix 2 confirms that the estimated effect is probably due to coincidence. Similarly, the Kolmogorov-Smirnov test for distribution equality and the McFadden test for first-order stochastic dominance (1989) (see Table 67 and Table 68 of Appendix 2) do not indicate a clear impact on men (see also Figure 5 of Appendix 1).

Regarding women, the estimates provided in Table 16 point to positive effects but at a different scale depending on the specification, score, and correlation structure between the items retained. The effect is always above or equal to 0.3 SD, reaching a maximum of 0.46 SD. For the variation of the score S_A, only the estimation with all the covariates has an associated p-value less than 10% when considering the initial correlation structure of the questionnaire items, whereas the associated p-values are less than 10% for all the estimations based on the final correlation structure. For the variation of the score S_B, all p-values

associated with the different specifications are less than 10% when considering the initial correlation structure and are less than 5% for all estimations based on the final correlation structure. Multiple inference analysis linking the four tests performed for women casts doubt on these results for specifications 1 to 4 (see Table 65 of Appendix 2). Placebo analysis (see Table 66 of Appendix 2) suggests that the estimated effect for women derives from the program. These differences between the two groups of women are consolidated by the Kolmogorov-Smirnov test for distribution equality and the McFadden test for first-order stochastic dominance (1989) (see Table 67 and Table 68 of Appendix 2) as well as the observation of their empirical distribution functions (see Figure 6 and Figure 7 of Appendix 1).

Section 1.4 of Appendix 2 explores the different responses of men and women to the initial self-confidence questionnaire to better understand the heterogenous impact by sex. By focusing on the elements constituting score S_B, Table 69 clearly shows that women have lower self-confidence than men. On average, women provided 4.66 out of 10 responses regarding a positive sense of self-confidence compared with 5.66 for men. The detailed analysis of each response confirms this observation. Table 70 demonstrates that for the majority of questions, men's responses were more frequently in accordance with high self-confidence (5 out of 5 questions) and less often with low self-confidence (4 out of 5 questions). Regarding the statement "I am confident about my ability to succeed in whatever I undertake," 72% of men were in agreement versus 55% of women. By contrast, 72.4% of women were insecure about not being good enough compared with only 48.8% of men. These findings suggest that the lower impact of self-confidence for men could be explained by the growth margins due to their better self-perception at the start of the program compared with women.

6.3 Absence of effect on the professional integration of men and women

6.3.1 Short-term estimations after 1.5 months

As shown in Table 17 and Table 18, the consideration of the different possible specifications has a minimal impact on the results. The treatment effects after 1.5 months are negative for women, being around -5 percentage points for employment and between -8 and -9 percentage points for occupation. For men, the effects are close to zero for employment and negative for occupation. The p-values indicate that the observed impacts are never significant for employment but always significant for occupation. These findings are confirmed by placebo analysis for both employment and occupation and by multiple inference for occupation alone (see Table 71 to Table 73 in Section 1.5 of Appendix 2).

6.3.2 Medium-term estimations after 18 months

As shown in Table 19 and Table 20, the consideration of the different possible specifications has a minimal impact on the results. For employment, the treatment effects after 18 months are positive, reaching 2 to 3 percentage points for women and 4 to 6 percentage points for men. Greater effects are observed for occupation, oscillating between 3 and 5 percentage points for women and between 6 and 8 percentage points for men. However, these effects are never significant, as confirmed by placebo analysis (see Table 74 and Table 75 in Section 1.6 of Appendix 2).

7. Insights from qualitative analysis

7.1 Objectives and procedure

The qualitative analysis of young people from the treatment group was complementary to the quantitative analysis, as it considered the broader context of their professional and personal development. The methodological issues and analysis grids are provided in Appendix 3.

This part of the study was designed in three phases. Phase 1 consisted of observations made during the group review meeting of each cluster that was organized by the MLS at the end of

the different workshops. This phase aimed to analyze the reactions and views of the young people and instructors.

Phase 2 involved semi-structured group interviews that took place in the form of focus groups immediately after the group review but without the members of the MLS team. A total of 123 youths participated in the 12 focus groups.[22] The interviews had four objectives: 1) to encourage the young people to analyze the training program and determine the significance of the activities; 2) to collect their spontaneous opinions expressed in a group setting; 3) to observe the group dynamics and ascertain whether the workshops had a unifying effect; and 4) to identify and recruit youths for the individual interviews. The focus group analysis concentrated on the positive aspects of the JEME program and any areas for improvement. These evaluative comments were then linked to highlight any recurrences and differences. In terms of methodology, the participants only assessed the quality of the program after the group discussion and an explanation of the various types of personal, social, and professional success.[23]

In phase 3, individual interviews were conducted 3 months after the end of the program with 17 willing participants. These life narratives lasting for an average of 2 hours had two objectives. The youths were first asked to describe the major stages of their professional and personal lives as well as their perception of the JEME program's impact on their future career. They then had to identify any activities undertaken since the program and how they took part in them.

Through reflexivity and self-reflection, these interviews shed light on the meaning attributed to the training by some of the participants at a particular moment in their lives. The training

[22] To allow all the young people to express themselves, the focus groups were limited to 12 participants.

[23] To name just a few examples of success, being independent and finding a job to support oneself and flourish, starting a family, being respected by one's family, friends, and society at large, having personal projects and building self-confidence, respecting others, showing solidarity and discovering other cultures, and even stepping outside one's comfort zone and taking risks.

evaluations made during the focus groups and individual interviews were also compared to determine whether the perceptions of the young people had changed several months after the program. Finally, these life narratives provided the opportunity to collect further information about the professional integration and future projects of participants.

7.2 Self-confidence

The qualitative study of the young people in the treatment group confirms the positive results observed in the quantitative analysis. The focus groups clearly showed how the program contributed to improving the self-confidence of the youths. In 11 of the 12 focus groups, the discussions had a good or very good dynamic, with the vast majority of participants being at ease talking in front of the group and respecting other people's viewpoints (e.g., fluid turn-taking, very few authoritative voices, limited need to regulate the discussions). Despite the heterogeneity of ages and backgrounds, almost nine out of ten participants showed real confidence when speaking freely in front of the other members of the focus group, which may be seen as a sign of their self-confidence.

For some of the participants, the training represented a clear opportunity to build their confidence in a harsh economic climate, particularly at the local level, in which even trained and qualified youths cannot find job opportunities. After several unsuccessful attempts at the civil service entrance examination (finance, police), one man with an ISCED 5 diploma stated:

> The JEME program helped me move from 50% to 100% of my abilities, to say to myself, 'Just go for it!' as it is easy to lose confidence after failing, but you have to view your failures as experiences. If you show that you're motivated, one day it'll work – that is what the program taught me (male, 21 years).

The improved self-confidence may be closely linked to better self-knowledge and awareness and sometimes to the discovery of unexpected qualities made possible by the training, as suggested by the following participants:

> The most important part of the program was that it highlighted my qualities. For example, I'm determined but I didn't see it like that. With the training, I better understood my qualities, what I'm really worth, how I am with others and with myself. My view of myself changed ... but for the better, oh yeah, it changed for the better (male, 22 years).
>
> I think that I'm persevering, patient, punctual, sociable, active, dynamic ... All that I've told you is thanks to the program ... (male, 22 years).

One young woman indicated that:

> The training helped me have more confidence, yeah, you could say that, more confidence with questioning certain things. Before, I'd say I'm the problem but now, I'd say that it's not just me … I know I can do lots of things … When I don't succeed, I know it's not my fault, it just wasn't right for me … Now I've found something that interests me and I'm going to succeed, so I'm on the right path, that's for sure (female, 22 years).

Public speaking, another sign of better self-confidence, also seems less challenging:

> The training helped me assert myself, yeah, to assert myself, speak more, say more things, speak in public (female, 22 years).
>
> I have a bit more confidence, yeah, a bit more than before, I'm less shy (female, 21 years).
>
> The training helped me get out of my comfort zone and overcome my difficulties, speaking in public in front of people. It was really important for me, and I'm happy I did it, even though it was difficult, sometimes really difficult, but I'm happy I did it (male, 22 years).

It is also important to note that 3 months after completing the program, the benefit in relation to self-confidence was still evident among the majority of young people who participated in the individual interviews.

The analysis provides an interesting perspective on the heterogenous impacts of the program for men and women. The life narratives highlight that self-confidence contributes substantially to a sense of balance in some men, who feel under a great deal of social pressure, particularly in the Réunionese context. In the individual interview, one young man said that he was "slightly reserved" or even "too reserved," which limited him in his everyday life. He found the regard of other people to be especially unbearable in this respect:

> You know, in La Réunion, people say that a boy should do this or that, that he has to be like this, that he has to be strong and just go for it … As I said before, it's difficult for a boy to be shy because people say that boys should be like this or that, but me … People don't expect boys to be shy but to be assertive. And me, I wasn't confident in the way you'd expect (male, 19 years).

The participant also admitted that he did not always answer the first questionnaire honestly. He did not want to show his lack of confidence:

> It's not what is expected of me as a boy. Sometimes, I'd say that things weren't going too badly, that I was confident, but no. So in the last questionnaire, I tended to say what I really thought, without shame because I had real confidence, I was happier with myself, I felt more confident (male, 19 years).

This attitude, which was adopted by four of the eight men who participated in the individual interviews but none of the nine women, sheds new light on the quantitative analysis, which highlighted a real boost to self-confidence but only among women. This puts into perspective the questionnaire responses of some of the men, notably those who felt trapped by dominant gendered representations.

The development of self-confidence among some of the participants certainly contributed to their improved well-being, as they were better able to accept themselves, to be accepted by others, and to have their choices accepted. This evolution was probably the most beneficial for young men because of the high expectations placed on them. One young man said that he

is more comfortable with himself and that he better manages the expectations of his parents who want him to succeed and become a father, even though his main goal is his own personal fulfilment.

7.3 Professional integration

The different accounts provided in Appendix 3 shed light on and nuance some of the negative short-term impacts of the program observed at the quantitative level. According to a number of participants, defining a more specific professional project was one of the most valuable contributions of the program. The young people were also able to develop better strategies that were coherent with their objectives. Several participants notably indicated that they looked for jobs "in all directions" before the program but then revised their strategy after the workshops. Some decided to concentrate on jobs corresponding to their aspirations, while others embarked on a new professional path by undertaking appropriate training.

8. Discussion

8.1 Cost-effectiveness analysis

As with many evaluations of training programs, we performed a cost-effectiveness analysis of the JEME program.[24] The notion of effectiveness raises several issues. First, it refers to the aims of the program and more generally to the objectives set by the public policymaker.[25] To simplify this exercise, and in line with one of the stated goals of the MLS, we chose to focus on self-confidence. The second issue concerns the measure of effectiveness. As indicated by Dhaliwal et al. (2013), it is essential that the variables of interest are statistically significant. Our analysis is thus performed for the two self-confidence scores in relation to the entire population and women. Third, it is not easy to evaluate the effectiveness of one particular

[24] Given the lack of information to quantify all the benefits of the project in monetary terms, we cannot make a cost-benefit analysis, which would identify the return on each euro invested in the program.

[25] The objectives may be much broader depending on whether they are set by a local or national public policymaker. Improving the soft skills of young people may be valuable given the positive effects attested in terms of health, crime levels, well-being, and income, not to mention the benefits for the long-term evolution of the job market or economic growth more generally (for similar discussions, see Algan et al. 2022).

program compared with others, even when their effects are expressed in standard deviation units relative to the control group for the variable of interest. As suggested by Kraft (2020), there are multiple sources of heterogeneity between programs, as each factor can impact the value of the index. As the sample size can substantially influence the results, we follow Huillery et al. (2022) and only compare our program with those of a similar size.

In concrete terms, our analysis examines the extent to which the JEME program is more or less expensive than programs with similar effectiveness by comparing the position of the JEME program in the distribution of effects[26] conditional on the sample size with its position in the distribution of costs for comparable programs (provided in Appendix C of Kraft 2019).[27] We only took into account the monetary costs incurred by a structure seeking to implement a program similar to our own. The cost range estimated by our team is between 890€ and 1,020€ per person.[28]

Table 21 shows that the JEME program has a good performance: its effects are at least in the top 20% for the entire population and for women, while the cost per participant is slightly above the median cost.

8.2 Instrumental variable estimations

Although the random treatment assignment allows us to measure the causal effect of the program on self-confidence and professional integration, it does not allow us to determine the causal effect of self-confidence on employment. To try to estimate this effect, we regressed the professional indicators (i.e., dichotomous variables of employment and occupation) on the self-confidence scores by using the random assignment to the treatment group as the instrument. The estimated equation is thus:

[26] The position of the JEME program is taken from the column Sample Size "251-500" in Table 1 of Kraft (2020) based on his survey of 747 randomized experiments. These experiments are not strictly comparable to the public targeted by the JEME program, as the training programs are not exclusively offered to young people as in our study. To our knowledge, this is the only available analysis grid comparing a large number of studies.

[27] This distribution was performed based on 68 randomized studies on training programs.

[28] Details on the calculation of this range are provided in Section 4 of Appendix 2.

$$I_{i,g,j} = \alpha_j + \beta_j^{Self} Self_{i,g} + X_i\theta_j + \lambda_{g,\mathrm{j}} + \varepsilon_{i,g,j} \quad (2)$$

where $I_{i,g,j}$ is the outcome j for the young adult i in cluster g, $Self_{i,g}$ is one of the four self-confidence scores S_A, S_B, ΔS_A, or ΔS_B, X_i is a vector of covariates, $\lambda_{g,j}$ captures the fixed effects at the cluster level g, and $\varepsilon_{i,g,j}$ is the error term that takes into account the unobserved factors. The parameter of interest is β_j^{Self}. This IV regression was performed for the entire population and for women.[29] Standard errors are robust to heteroscedasticity and clustered at the geographic-cohort level according to MacKinnon and Webb (2018) to account for a limited number of clusters. We focus on the analysis at 18 months, the only case where some of the estimations identify the positive effect of the professional integration program.

For the entire population, the results are provided in Table 22 and Table 23. Depending on the score and specification under consideration, an increase of one standard deviation unit in the self-confidence score increases the rates of professional integration between 23.0 and 25.7 percentage points for employment and between 22.7 and 28.7 percentage points for occupation.[30] Although the results appear robust with the scores and different specifications, the p-values show that the resulting differences are not significant at the 10% level. This result was nevertheless expected given the program's lack of significant effect on professional integration as was shown in Section 5.2.

For women, depending on the specification and correlation structure considered for the differences ΔS_A and ΔS_B, an increase of one standard deviation unit in the S_A self-confidence score increases the rates of professional integration between 10.4 and 14.8 percentage points for employment and between 20.3 and 27.6 percentage points for occupation (see Table 24

[29] Instrumental variable analysis is not proposed for men. As the program did not have an effect on their self-confidence, the assignment to the treatment group is a weak instrument in this case.

[30] While these values may seem very high, the reader should be reminded that an increase of one standard deviation unit is substantial. The score increases recorded in our analysis were in the range of 0.4 SD. To put this into perspective, Table 1 of Kraft (2020) indicates that an increase of one SD unit situates a program in the 99th percentile of the most effective programs in his survey of 747 randomized experiments.

and Table 25). For the variation of the score S_B, the higher rates of professional integration are between 7.3 and 10.4 percentage points for employment and between 13.2 and 20.6 percentage points for occupation The p-values nevertheless show that the differences are not statistically different from zero.

9. Concluding remarks

This paper uses a RCT to evaluate a short but intense training program aimed at improving the self-confidence and professional development of NEET youth in La Réunion, France. Using an original questionnaire and diverse econometric methods, our study shows that their self-confidence improved. A cost-effectiveness comparison also confirms the interest of the training program compared with other programs. The qualitative analysis, which sought to determine how the training program influenced the self-confidence of young people in the treatment group, confirms and complements the results. By contrast, the differences observed in the employment and NEET rates between the treatment and control groups were not strong and could not be clearly attributed to the program. Like many other training programs targeting young people excluded from the job market, our evaluation shows that a short program that does not target professional skills has mitigated effects on professional integration.

Several factors that could not be explored in this paper may explain the disappointing effects of the program on professional integration. First, the duration of the training program was perhaps not long enough to definitively improve self-confidence, which was instead identified in the short-term quantitative and qualitative analyses. Second, the circumstances of the analysis period may have influenced our findings. As indicated by Hoiban et al. (2022), French youths' confidence about the future fell between 2020 and 2021 before rising again in 2022. Despite the lack of data for NEET youth in La Réunion, we cannot exclude the fact that the positive effects of the self-confidence program could have been negated by the deleterious

effects of the COVID-19 pandemic on the mental health of young people. A multiplication of ALMPs for NEET youth and unemployed people far from the job market during the study period,[31] notably in response to the pandemic, was also observed. The new opportunities for the professional integration of NEET youth through training courses or apprenticeships over a period of several months may have reduced the program's positive medium-term effects. Its negative short-term impact on professional integration suggests that the young people in the control group were able to benefit from these new measures more rapidly than those in the treatment group. Third, it is possible that the better self-confidence of NEET youth was insufficient to improve their performances in the job market, which may be explained by two reasons. On the one hand, the importance of self-confidence for the professional integration of NEET youth may be an erroneous assumption, especially in a context marked by a lack of job opportunities and young people with major barriers, notably in terms of cognitive skills and various soft skills. On the other hand, the variable positive and negative effects of improved self-confidence on professional integration, as previously highlighted in the theoretical literature, may have offset each other in our study. Lastly, like other ALMPs designed for young people, the effects of the program were expected to extend well beyond the study period.

[31] For an overview of these measures, see the French National Youth Strategy on the European Commission's website.

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Tables

Table 1

Situation of youths aged 15 to 29 years living in La Réunion, France, and OECD countries with regard to employment and training in 2021

	La Réunion	France	OECD
In education	46	41	35
NEET	26	13	15
Employed	27	46	50

Sources: INSEE, Enquête Emploi 2021, and OECD.Stat, Transition from School to Work.

Notes: in 2021 in La Réunion, 26% of youths aged 15 to 29 years were not in employment, education, or training (NEET). The data considers people living in ordinary housing in France (excluding Mayotte).

Table 2

Proportion (in %) of youths by sex and age not in employment, education, or training (NEET) living in La Réunion, France, and OECD countries in 2021

	La Réunion	France	OECD
Women	25	13	17
Men	28	12	13
15-19 years	10	6	8
20-24 years	34	16	17
All	26	13	15

Sources: INSEE, Enquête Emploi 2021, and OECD.Stat, Transition from School to Work.

Notes: in 2021 in La Réunion, 25% of young women aged 15 to 29 years were not in employment, education, or training (NEET). The data considers people living in ordinary housing in France (excluding Mayotte).

Table 3

Evolution of the proportion (in %) of NEET living in La Réunion, France, and OECD countries by sex between 2015 and 2021

	La Réunion		France		OECD	
	2015	2021	2015	2021	2015	2021
Women	32	25	16	13	18	17
Men	26	28	14	12	12	13

Sources: INSEE, Enquête Emploi 2021, and OECD.Stat, Transition from School to Work.

Notes: in 2021 in La Réunion, 25% of young women aged 15 to 29 years were not in employment, education, or training (NEET). The data considers people living in ordinary housing in France (excluding Mayotte).

Table 4

Proportion (in %) of youths (16 to 25 years) with reading difficulties in 2020

	Proportion of youths with reading difficulties	Proportion of youths with serious reading difficulties
La Réunion	25.4	12.8
French departments		
Mean	9.5	4.6
3rd quartile	9.9	4.9

Sources: Ministry of the Armed Forces - DSNJ, MENJ – MESRI – DEPP.

Note: in 2020, 25.4% of youths in La Réunion had reading difficulties, while the rate was 9.9% for the third quartile of all French departments. Data are drawn from the population of French youths aged 16 to 25 years who participated in the Defense and Citizenship Day (*Journée Défense et Citoyenneté*, JDC).

Table 5

Overview of the contents of the JEME program for building self-confidence

Theme	Sport	Citizenship	Culture	Image	Identity and relations with the world	Job search	Meeting with economic actors
Duration (hours)	9	9	6	6	12	9	3
Objectives	Developing emotional management skills, sense of effort and perseverance, and teamwork.	Allowing youths to understand the meaning of responsibilities as well as analysis and critical thinking. Helping youths engage in responsible and eco-responsible actions and develop their analytical skills and critical thinking.	Improving the specificities and needs of participants in terms of verbal expression and body language and developing their emotional management and self-control. Developing creativity, self-initiative, openness, adaptation, and teamwork.	Helping youths improve their personal image and become aware of their strengths and weaknesses to overcome in order meet a personal or professional challenge.	Understanding the importance of appropriate communication and developing self-knowledge by learning to realign one's values and objectives and adapt one's relationship with others.	Helping youths better master the job-seeking procedure and the different steps to follow to find a job.	Allowing youths to understand the needs of socioeconomic structures in La Réunion and to develop contacts with employers.
Short description	Hiking, orienteering, team games, games of skill and balance supervised by coaches specialized in integration through sport.	Debates on subjects proposed by the youths, participation in citizenship initiatives with partner structures (Red Cross, organizations for food aid and recycling, etc.).	Meeting with artists and visiting cultural sites (museums, etc.), then recreating emotionally stressful situations (dealing with an institution, conflict, frustration, stress, or unfounded fear) using games such as role play, audiovisual creations (videos and editing), and music.	Discussions and advice from a consultant, notably in terms of physical appearance and clothing, position to adopt, and online identity.	Work on attitudes, positive and limiting beliefs, self-identity, and personal ecology (identity and reality principle, one's place in the group, company, and world) to better target the jobs and professions adapted to the profile and aspirations of each youth.	Elaboration of an action plan to develop and succeed in one's professional project by defining objectives and identifying the resources to reach them, compiling job application forms, and simulating job interviews.	Round tables with representatives from partner companies who express their needs and expectations of young people followed by individual interviews in the form of job dating.

Table 6

Profiles of young people enrolled in the JEME program and the Mission Locale Sud (MLS)

Variable	Modality	JEME	MLS
Sex	Women	52%	51%
Family situation	At least one child	5%	12%
	Single	96%	93%
Means of transport	Driving license	29%	46%
	Public transport user	73%	65%
	Own vehicle	20%	42%
Education level (ISCED)	1 and 2	9%	29%
	3	29%	26%
	4 (Bac pro.)	48%	38%
	5 and more	15%	7%
Age	16-17	15%	10%
	18-21	64%	56%
	22-25	21%	32%
	26	0%	1%

Sources: JEME: I-MILO and authors' calculations; MLS: "Rapport d'activité 2020", Mission Locale Sud, based on I-MILO.

Notes: JEME includes all youths in the treatment and control groups in all the clusters. MLS corresponds to all youths accompanied by the Mission Locale Sud on July 1, 2020.

Table 7

Comparison of sociodemographic characteristics of participants in the treatment and control groups

	Treatment			Control			Comparisons	
	Obs.	Mean	SD	Obs.	Mean	SD	Student statistics	p-value
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Women	85	54%	0.50	96	50%	0.50	0.77	0.44
Single	152	97%	0.18	182	95%	0.22	0.95	0.34
At least one child	8	5%	0.22	12	6%	0.23	-0.26	0.79
Driving license	47	30%	0.46	54	28%	0.45	0.48	0.63
Public transport user	108	69%	0.47	146	76%	0.43	-1.5	0.13
Own vehicle	38	24%	0.43	33	17%	0.38	1.6	0.11
Education level (ISCED)								
1 and 2	11	7%	0.26	19	10%	0.30	-0.97	0.33
3	46	29%	0.46	54	28%	0.45	0.24	0.81
4 (Bac pro.)	39	25%	0.44	54	28%	0.45	-0.55	0.58
4 (Bac tech.)	16	10%	0.30	21	11%	0.31	-0.42	0.67
4 (Bac gen.)	20	13%	0.34	17	9%	0.29	1.32	0.19
5 and more	24	15%	0.36	27	14%	0.35	0.32	0.75
Number of days since leaving education	157	100.34	82.50	192	94.71	83.72	0.63	0.53
Age	157	19.71	1.99	192	19.66	2.15	0.23	0.82
16-17	19	12%	0.33	33	17%	0.38	-1.35	0.18
18-21	105	67%	0.47	119	62%	0.49	0.95	0.34
22-25	33	21%	0.41	40	21%	0.41	0.04	0.97

Source: I-MILO and authors' calculations.

Notes: Columns (1) and (4) refer to the number of young people considered. For the qualitative variables, we attribute the value of 1 if the modality is observed, otherwise 0. Bac pro. refers to the vocational baccalaureate, Bac tech. to the technological baccalaureate, and Bac gen. to the general baccalaureate. Age in years is calculated between the day of the first self-confidence test and the date of birth, with the age difference being calculated in years. For the first row, Student's test is calculated as $(\bar{x}_f - \bar{x}_m)/\sqrt{S_f^2/N_f + S_m^2/N_m}$, where $\bar{x}_f$ is the mean score for the women's group of size N_f, $\bar{x}_m$ is the mean score for the men's group of size N_m, and S_f^2 and S_m^2 are the corresponding variances. Similar calculations were made for the other lines.

X: p-value for a test that leads to reject the null hypothesis with an expected minimal proportion of incorrectly rejecting the null greater than 10%.

SD: standard deviation.

Table 8

Responses to the first self-confidence questionnaire and randomization test

	Mean		Standard deviation		Outside 95%		Student statistic	p-value
	Treatment	Control	Treatment	Control	Treatment	Control		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
All respondents								
Score S_A	0.033	-0.027	0.954	1.000	0.038	0.047	0.565	0.572
Score S_B	0.020	-0.016	1.007	1.000	0.000	0.026	0.335	0.738
Sample of respondents to the second questionnaire								
Score S_A	0.009	-0.052	0.949	1.000	0.040	0.051	0.565	0.572
Score S_B	0.004	-0.044	1.000	1.000	0.000	0.028	0.431	0.666

Notes: Score S_A takes into account the values attributed to each level of the Likert scale, with the items weighted according to their correlations. Score S_B aggregates the number of questions with positive self-perception, with the items weighted according to their correlations. The scores are centered around zero and expressed in standard deviation units of the control group. Number of observations for all respondents: 157 treated and 192 controls. Number of observations for the sample of respondents to the second questionnaire: 149 treated and 176 controls. Student's test is calculated as $(\bar{x}_T - \bar{x}_C)/\sqrt{\frac{S_T^2}{N_T} + \frac{S_C^2}{N_C}}$, where $\bar{x}_T$ is the mean score for the treatment group of size N_T, $\bar{x}_C$ is the mean score for the control group of size N_C, and S_T^2 and S_C^2 are the corresponding variances.

Table 9

Outcomes for the second questionnaire on self-confidence with six specifications

	Control group mean	Specifications 1	2	3	4	5	6
					Score S_A		
	-0.182						
Intention-to-treat effect		0.407 [P]	0.410 [P]	0.409 [P]	0.405 [P]	0.407 [P]	0.418 [P]
Standard error		0.073	0.074	0.070	0.078	0.081	0.095
Student statistic		5.560	5.584	5.836	5.204	5.035	4.421
p-value		0.001	0.001	0.001	0.001	0.002	0.003
R2		0.068	0.088	0.089	0.091	0.092	0.100
					Score S_B		
	-0.191						
Intention-to-treat effect		0.425 [P]	0.428 [P]	0.428 [P]	0.420 [P]	0.421 [P]	0.429 [P]
Standard error		0.090	0.084	0.083	0.089	0.090	0.103
Student statistic		4.742	5.093	5.133	4.736	4.677	4.170
p-value		0.002	0.001	0.001	0.002	0.002	0.004
R2		0.063	0.082	0.082	0.084	0.084	0.092

Notes: Score S_A takes into account the values attributed to each level of the Likert scale, with the items weighted according to their correlations. Score S_B aggregates the number of questions with positive self-perception, with the items weighted according to their correlations. The scores are centered around zero and expressed in standard deviation units of the control group. Number of observations: 325 (149 treatment and 176 control). Estimation of the linear probability model using the ordinary least squares method. The standard errors are robust to both heteroskedasticity of unknown form and autocorrelation of each cluster g. In addition to the constant and fixed effects, specification 1 contains the treatment variable. It is equal to 1 for youths in the treatment group, otherwise 0. Specification 2 adds sex differences (reference is male) to specification 1; specification 3 adds age differences to specification 2 (reference is 20 years or older); specification 4 adds child and single status to specification 3 (reference is with no children and married); specification 5 adds driving license to specification 4 (reference is no driving license); and specification 6 adds education level to specification 5 (reference is ISCED level 3).

[P]: the observed value is unusual with regard to the distribution of the placebo effect (see Section 2 of Appendix 2 for more details).

Table 10

Outcomes on professional integration 1.5 months after the program

	Control group mean	Specifications 1	2	3	4	5	6
				Employment			
	0.060						
Intention-to-treat effect		-0.025	-0.026	-0.027	-0.023	-0.023	-0.023
Standard error		0.030	0.031	0.031	0.030	0.031	0.030
Student statistic		-0.836	-0.828	-0.855	-0.757	-0.757	-0.781
p-value		0.431	0.435	0.421	0.474	0.474	0.461
R2		0.018	0.018	0.024	0.031	0.032	0.053
				Occupation			
	0.610						
Intention-to-treat effect		-0.146	-0.150	-0.150	-0.142	-0.143	-0.146
Standard error		0.056	0.056	0.056	0.060	0.058	0.055
Student statistic		-2.608	-2.677	-2.669	-2.379	-2.456	-2.640
p-value		0.035 [x]	0.032 [x]	0.032 [x]	0.049 [x]	0.044 [x]	0.034 [x]
R2		0.048	0.054	0.054	0.065	0.066	0.073

Notes: Estimation of the linear probability model using the ordinary least squares method. The standard errors are robust to both heteroskedasticity of unknown form and autocorrelation of each cluster g. Number of observations: 333 (151 treated and 182 controls). In addition to the constant and fixed effects, specification 1 contains the treatment variable. It is equal to 1 for the young people from the treatment group, otherwise 0. Specification 2 adds sex differences (reference is male) to specification 1; specification 3 adds age differences to specification 2 (reference is 20 years or older); specification 4 adds child and single status to specification 3 (reference is with no children and married); specification 5 adds driving license to specification 4 (reference is no driving license); and specification 6 adds education level to specification 5 (reference is ISCED level 3).

[x]: p-value for a test that leads to reject the null hypothesis with an expected minimal proportion of incorrectly rejecting the null greater than 10%.

Table 11

Outcomes on professional integration 18 months after the program

	Control group mean	Specifications 1	2	3	4	5	6
					Employment		
	0.117						
Intention-to-treat effect		0.046	0.048	0.048	0.049	0.049	0.050
Standard error		0.046	0.047	0.048	0.048	0.047	0.048
Student statistic		0.999	1.019	1.006	1.034	1.030	1.059
p-value		0.352	0.342	0.348	0.336	0.338	0.325
R2		0.034	0.038	0.038	0.043	0.046	0.052
					Occupation		
	0.538						
Intention-to-treat effect		0.051	0.052	0.051	0.049	0.047	0.052
Standard error		0.055	0.056	0.056	0.057	0.059	0.058
Student statistic		0.924	0.925	0.917	0.846	0.798	0.890
p-value		0.386	0.386	0.390	0.426	0.451	0.403
R2		0.026	0.026	0.026	0.045	0.058	0.069

Note: Estimation of the linear probability model using the ordinary least squares method. The standard errors are robust to both heteroskedasticity of unknown form and autocorrelation of each cluster *g*. Number of observations: 309 (138 treated and 171 controls). In addition to the constant and fixed effects, specification 1 contains the treatment variable. It is equal to 1 for youths in the treatment group, otherwise 0. Specification 2 adds sex differences (reference is male) to specification 1; specification 3 adds age differences to specification 2 (reference is 20 years or older); specification 4 adds child and single status to specification 3 (reference is with no children and married); specification 5 adds driving license to specification 4 (reference is no driving license); and specification 6 adds education level to specification 5 (reference is ISCED level 3).

[x]: p-value for a test that leads to reject the null hypothesis with an expected minimal proportion of incorrectly rejecting the null greater than 10%.

Table 12

Baseline characteristics and randomization test for men who participated in the JEME program

	Treatment			Control			Comparisons	
	Obs.	Mean	SD	Obs.	Mean	SD	Student statistics	p-value
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Single	71	99%	0.12	95	99%	0.10	-0.20	0.84
At least one child	2	3%	0.17	0	0%	0.00		
Driving license	26	36%	0.48	27	28%	0.45	1.09	0.28
Public transport user	48	67%	0.47	70	73%	0.45	-0.87	0.39
Own vehicle	18	25%	0.44	15	16%	0.36	1.48	0.14
Education level (ISCED)								
1 and 2	6	8%	0.28	9	9%	0.29	-0.23	0.81
3	30	42%	0.50	30	31%	0.47	1.38	0.17
4 (Bac pro.)	14	19%	0.40	28	29%	0.46	-1.47	0.14
4 (Bac tech.)	5	7%	0.26	12	13%	0.33	-1.22	0.22
4 (Bac gen.)	5	7%	0.26	5	5%	0.22	0.46	0.65
5 and more	12	17%	0.38	12	13%	0.33	0.75	0.45
Number of days since leaving education	72	105.67	88.53	96	95.70	87.15	0.73	0.47
Age	72	19.71	2.08	96	19.52	2.02	0.59	0.56
16-17	10	14%	0.35	17	18%	0.38	-0.67	0.50
18-21	45	63%	0.49	62	65%	0.48	-0.28	0.78
22-25	17	24%	0.43	17	18%	0.38	0.92	0.36

Source: I-MILO and authors' calculations.

Notes: For the qualitative variables, we attribute the value of 1 if the modality is observed, otherwise 0. Bac pro. refers to the vocational baccalaureate, Bac tech. to the technological baccalaureate, and Bac gen. to the general baccalaureate. Age in years is calculated between the day of the first self-confidence test and the date of birth, with the age difference being calculated in years. For the first row, Student's test is calculated as $(\bar{x_t} - \bar{x_c})/\sqrt{S_t^2/N_t + S_c^2/N_c}$, where $\bar{x_t}$ is the mean score for men in the treatment group of size N_t, $\bar{x_c}$ is the mean score for men in the control group of size N_c, S_t^2 and S_c^2 are the corresponding variances.

[x]: p-value for a test that leads to reject the null hypothesis with an expected minimal proportion of incorrectly rejecting the null greater than 10%.

Table 13

Baseline characteristics and randomization test for women who participated in the JEME program

	Treatment			Control			Comparisons	
	Obs.	Mean	SD	Obs.	Mean	SD	Student statistics	p-value
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Single	81	95%	0.21	87	91%	0.29	1.24	0.22
At least one child	6	7%	0.26	11	11%	0.32	-1.02	0.31
Driving license	21	25%	0.43	26	27%	0.45	-0.36	0.72
Public transport user	60	71%	0.46	76	79%	0.41	-1.32	0.19
Own vehicle	20	24%	0.43	18	19%	0.39	0.78	0.43
Education level (ISCED)								
1 and 2	5	6%	0.24	10	10%	0.31	-1.12	0.26
3	16	19%	0.39	24	25%	0.44	-1.00	0.32
4 (Bac pro.)	26	31%	0.46	26	27%	0.45	0.52	0.61
4 (Bac tech.)	10	12%	0.32	9	9%	0.29	0.52	0.60
4 (Bac gen.)	16	19%	0.39	12	13%	0.33	1.16	0.25
5 and more	12	14%	0.35	15	16%	0.36	-0.28	0.78
Number of days since leaving education	85	95.82	77.27	96	93.73	80.60	0.18	0.86
Age	85	19.72	1.93	96	19.80	2.27	-0.27	0.79
16-17	9	11%	0.31	16	17%	0.37	-1.19	0.23
18-21	60	71%	0.46	57	59%	0.49	1.58	0.11
22-25	16	19%	0.39	23	24%	0.43	-0.84	0.40

Source: I-MILO and authors' calculations.

Notes: For the qualitative variables, we attribute the value of 1 if the modality is observed, otherwise 0. Bac pro. refers to the vocational baccalaureate, Bac tech. to the technological baccalaureate, and Bac gen. to the general baccalaureate. Age in years is calculated between the day of the first self-confidence test and the date of birth, with the age difference being calculated in years. For the first row, Student's test is calculated as $(\bar{x}_t - \bar{x}_c)/\sqrt{S_t^2/N_t + S_c^2/N_c}$, where $\bar{x}_t$ is the mean score for women in the treatment group of size N_t, $\bar{x}_c$ is the mean score for women in the control group of size N_c, and S_t^2 and S_c^2 are the corresponding variances.

[x]: p-value for a test that leads to reject the null hypothesis with an expected minimal proportion of incorrectly rejecting the null greater than 10%.

Table 14

Responses to the first self-confidence questionnaire and randomization test for men and women

		Mean		Standard deviation		Outside 95%		Student statistic	p-value
		Treatment	Control	Treatment	Control	Treatment	Control		
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
All respondents									
Score S_A									
	Women	0.161	-0.143	0.873	1.000	0.024	0.188	2.183	0.029
	Men	-0.114	0.085	1.210	1.000	0.097	0.010	-1.133	0.257
Score S_B									
	Women	0.152	-0.135	0.980	1.000	0.000	0.073	1.947	0.052
	Men	-0.099	0.074	1.159	1.000	0.028	0.000	-1.015	0.310
Sample of respondents to the second questionnaire									
Score S_A									
	Women	0.173	-0.151	0.888	1.000	0.025	0.172	2.262	0.024
	Men	-0.125	0.102	1.180	1.000	0.088	0.012	-1.258	0.208
Score S_B									
	Women	0.164	-0.143	1.004	1.000	0.000	0.075	2.015	0.044
	Men	-0.103	0.084	1.134	1.000	0.029	0.000	-1.060	0.289

Note: Number of observations for all respondents: 85 women and 72 men for the treatment group and 96 women and 96 men for the control group. Number of observations for the sample of respondents to the second questionnaire: 81 women and 68 men for the treatment group and 93 women and 83 men for the control group. Student's test is calculated as $(\bar{x}_t - \bar{x}_C)/\sqrt{\frac{S_T^2}{N_t} + \frac{S_C^2}{N_C}}$, where $\bar{x}_t$ is the mean score for the treatment group of size N_t, $\bar{x}_C$ is the mean score for the control group of size N_C, and S_t^2 and S_C^2 are the corresponding variances.

[P]: the observed value is unusual with regard to the distribution of the placebo effect.

Table 15

Outcomes based on the second self-confidence questionnaire for men with various specifications

	Control group mean	Specifications			
		1	3	5	6
		Score S_A			
	-0.080				
Intention-to-treat effect		0.215	0.199	0.208	0.229
Standard error		0.130	0.128	0.133	0.139
Student statistic		1.657	1.551	1.565	1.648
p-value		0.143	0.166	0.163	0.147
R2		0.041	0.059	0.061	0.071
		Score S_B			
	-0.058				
Intention-to-treat effect		0.177	0.167	0.174	0.197
Standard error		0.103	0.108	0.111	0.103
Student statistic		1.716	1.548	1.575	1.909
p-value		0.131	0.167	0.161	0.101
R2		0.050	0.059	0.060	0.077

Note: Specification 4 was not estimated as most of the men in the sample are single and childless. Number of observations: 68 for the treatment group and 83 for the control group.

Table 16

Evolution of women's self-confidence between the first and second questionnaires

	Control group mean	Specifications				
		1	3	4	5	6
Corr. Structures		Variation ΔS_A				
Initial						
	-0.148					
Intention-to-treat effect		0.308	0.306	0.300	0.301	0.352
Standard error		0.180	0.180	0.180	0.177	0.168
Student statistic		1.709	1.701	1.669	1.699	2.096
p-value		0.132	0.134	0.140	0.134	0.075
R2		0.054	0.057	0.059	0.059	0.089
Final						
	-0.132					
Intention-to-treat effect		0.312	0.311	0.312	0.313	0.339
Standard error		0.150	0.151	0.150	0.147	0.137
Student statistic		2.076	2.060	2.077	2.122	2.476
p-value		0.077	0.079	0.077	0.072	0.043
R2		0.037	0.038	0.039	0.039	0.058
		Variation ΔS_B				
Initial						
	-0.179					
Intention-to-treat effect		0.389	0.387	0.383	0.391	0.402
Standard error		0.197	0.195	0.196	0.193	0.203
Student statistic		1.976	1.984	1.958	2.025	1.983
p-value		0.089 [X]	0.088 [X]	0.092 [X]	0.083	0.089
R2		0.057	0.063	0.063	0.073	0.081
Final						
	-0.201					
Intention-to-treat effect		0.452	0.452	0.451	0.459	0.463
Standard error		0.157	0.156	0.156	0.150	0.167
Student statistic		0.000	2.892	2.895	3.054	2.775
p-value		0.024 [X]	0.024 [X]	0.024 [X]	0.019	0.028
R2		0.051	0.052	0.053	0.064	0.078

Note: Number of observations: 81 for the treatment group and 93 for the control group.

[X]: p-value for a test that leads to reject the null hypothesis with an expected minimal proportion of incorrectly rejecting the null greater than 10%.

Table 17

Outcomes on women's professional integration 1.5 months after the program

	Control group mean	Specifications 1	3	4	5	6
				Employment		
	0.077					
Intention-to-treat effect		-0.054	-0.053	-0.048	-0.047	-0.050
Standard error		0.029	0.030	0.030	0.030	0.032
Student statistic		-1.840	-1.776	-1.600	-1.776	-1.558
p-value		0.109	0.120	0.155	0.120	0.165
R2		0.025	0.036	0.049	0.052	0.063
				Occupation		
	0.637					
Intention-to-treat effect		-0.092	-0.092	-0.084	-0.084	-0.076
Standard error		0.110	0.110	0.115	0.116	0.114
Student statistic		-0.835	-0.836	-0.731	-0.726	-0.669
p-value		0.432	0.431	0.489	0.492	0.526
R2		0.062	0.062	0.075	0.075	0.088

Note: Number of observations: 83 for the treatment group and 91 for the control group.

[x]: p-value for a test that leads to reject the null hypothesis with an expected minimal proportion of incorrectly rejecting the null greater than 10%.

Table 18

Outcomes on men's professional integration 1.5 months after the program

	Control group mean	Specifications 1	3	5	6
			Employment		
	0.044				
Intention-to-treat effect		0.005	0.004	0.005	0.014
Standard error		0.044	0.044	0.041	0.042
Student statistic		0.119	0.097	0.130	0.340
p-value		0.909	0.925	0.900	0.745
R2		0.043	0.044	0.044	0.115
			Occupation		
	0.582				
Intention-to-treat effect		-0.208	-0.208	-0.217	-0.222
Standard error		0.044	0.046	0.050	0.051
Student statistic		-4.716	-4.490	-4.316	-4.336
p-value		0.002	0.003	0.004	0.004
R2		0.089	0.089	0.095	0.103

Note: Number of observations: 68 for the treatment group and 91 for the control group.

[x]: p-value for a test that leads to reject the null hypothesis with an expected minimal proportion of incorrectly rejecting the null greater than 10%.

Table 19

Outcomes on women's professional integration 18 months after the program

	Control group mean	Specifications				
		1	3	4	5	6
				Employment		
	0.106					
Intention-to-treat effect		0.023	0.029	0.028	0.030	0.032
Standard error		0.074	0.072	0.071	0.072	0.070
Student statistic		0.313	0.401	0.395	0.401	0.450
p-value		0.764	0.701	0.705	0.701	0.667
R2		0.071	0.084	0.085	0.090	0.096
				Occupation		
	0.541					
Intention-to-treat effect		0.044	0.044	0.031	0.038	0.051
Standard error		0.083	0.082	0.080	0.092	0.097
Student statistic		0.524	0.534	0.391	0.416	0.532
p-value		0.617	0.610	0.707	0.691	0.612
R2		0.040	0.040	0.080	0.102	0.131

Note: Number of observations: 73 for the treatment group and 85 for the control group.

[X]: p-value for a test that leads to reject the null hypothesis with an expected minimal proportion of incorrectly rejecting the null greater than 10%.

Table 20

Outcomes on men's professional integration 18 months after the program

	Control group mean	Specifications			
		1	3	5	6
			Employment		
	0.128				
Intention-to-treat effect		0.042	0.041	0.040	0.055
Standard error		0.072	0.072	0.071	0.078
Student statistic		0.583	0.573	0.562	0.708
p-value		0.579	0.585	0.592	0.504
R2		0.044	0.048	0.048	0.076
			Occupation		
	0.535				
Intention-to-treat effect		0.065	0.065	0.059	0.077
Standard error		0.077	0.078	0.077	0.071
Student statistic		0.850	0.837	0.762	1.078
p-value		0.424	0.431	0.472	0.319
R2		0.047	0.047	0.051	0.088

Note: Number of observations: 65 for the treatment group and 86 for the control group.

X: p-value for a test that leads to reject the null hypothesis with an expected minimal proportion of incorrectly rejecting the null greater than 10%.

Table 21

Comparison of the effects of the JEME program on self-confidence with other education programs

	Effects of the JEME program	% of programs with a more modest effect (based on Kraft 2019 and 2020)	% of programs with a lower cost (based on Kraft 2019 and 2020)
Score S_A			Between 50% and 60%
Overall population	0.418	Between 90% and 99%	
Women	0.339-0.352	Between 80% and 90%	
Score S_B			
Overall population	0.429	Between 90% and 99%	
Women	0.402-0.463	Between 90% and 99%	

Note: The effects used for the overall population are taken from the estimations relating to specification 6 in Table 9. The effects used for women are taken from the estimations relating to specification 6 in Table 16. The values presented here are robust to placebo analysis.

Table 22

Impact of an increase of one standard deviation of the self-confidence scores on employment 18 months after the program

	Specifications					
	1	2	3	4	5	6
			Score S_A			
$\hat{\beta}_{S_A}^{Self}$	0.236	0.236	0.238	0.242	0.237	0.239
Standard error	0.236	0.234	0.238	0.234	0.232	0.221
Student statistic	0.999	1.008	1.002	1.030	1.021	1.082
p-value	0.381	0.387	0.391	0.374	0.379	0.378
			Score S_B			
$\hat{\beta}_{S_B}^{Self}$	0.230	0.230	0.232	0.237	0.234	0.239
Standard error	0.230	0.228	0.232	0.232	0.231	0.221
Student statistic	1.000	1.008	1.000	1.024	1.013	1.080
p-value	0.382	0.389	0.392	0.375	0.380	0.377

Notes: Specifications 1 to 6 refer to the specifications of ordinary least squares regression model (1). Estimation of the linear probability model using the instrumental variable. The standard errors are robust to both heteroskedasticity of unknown form and autocorrelation of the same program cohort and each MLS branch (bootstrap with 299,999 replications). Number of observations: 288 (130 in the treatment group and 158 in the control group).

Table 23

Impact of an increase of one standard deviation of the self-confidence scores on occupation 18 months after the program

	Specifications					
	1	2	3	4	5	6
			Score S_A			
$\hat{\beta}_{S_A}^{Self}$	0.285	0.282	0.283	0.242	0.229	0.246
Standard error	0.272	0.271	0.272	0.267	0.278	0.271
Student statistic	1.046	1.044	1.040	0.906	0.826	0.907
p-value	0.270	0.272	0.279	0.338	0.397	0.354
			Score S_B			
$\hat{\beta}_{S_B}^{Self}$	0.278	0.275	0.275	0.238	0.227	0.246
Standard error	0.267	0.265	0.267	0.265	0.276	0.273
Student statistic	1.038	1.037	1.029	0.899	0.822	0.899
p-value	0.267	0.270	0.274	0.332	0.393	0.349

Notes: Specifications 1 to 6 refer to the specifications of ordinary least squares regression model (1). Estimation of the linear probability model using the instrumental variable. The standard errors are robust to both heteroskedasticity of unknown form and autocorrelation of the same program cohort and each MLS branch (bootstrap with 299,999 replications). Number of observations: 288 (130 in the treatment group and 158 in the control group).

Table 24

Women's employment 18 months after the program: Impact of an increase of one standard deviation of the self-confidence evolution scores (between the first and second questionnaires)

	Specifications				
	1	3	4	5	6
Corr. Structures			Variation ΔS_A		
Initial					
$\hat{\beta}_{\Delta S_A}^{Self}$	-	-	-	-	0.104
Standard error	-	-	-	-	0.221
Student statistic	-	-	-	-	0.473
p-value	-	-	-	-	0.674
Final					
$\hat{\beta}_{\Delta S_A}^{Self}$	0.116	0.130	0.125	0.130	0.114
Standard error	0.311	0.304	0.290	0.300	0.253
Student statistic	0.373	0.427	0.432	0.433	0.449
p-value	0.550	0.514	0.530	0.527	0.644
			Variation ΔS_B		
Initial					
$\hat{\beta}_{\Delta S_B}^{Self}$	0.086	0.095	0.093	0.095	0.090
Standard error	0.227	0.218	0.213	0.213	0.202
Student statistic	0.381	0.436	0.439	0.446	0.444
p-value	0.635	0.589	0.598	0.623	0.672
Final					
$\hat{\beta}_{\Delta S_B}^{Self}$	0.073	0.081	0.079	0.081	0.077
Standard error	0.188	0.183	0.178	0.178	0.172
Student statistic	0.387	0.443	0.445	0.453	0.446
p-value	0.699	0.651	0.656	0.659	0.691

Notes: Specifications 1, and 3 to 6 refer to the specifications of ordinary least squares regression model (1). Estimation of the linear probability model using the instrumental variable. The standard errors are robust to both heteroskedasticity of unknown form and autocorrelation of the same program cohort and each MLS branch (bootstrap with 299,999 replications), Number of observations: 151 (69 in the treatment group and 82 in the control group).

Table 25

Women's occupation 18 months after the program: Impact of an increase of one standard deviation of the self-confidence evolution scores (between the first and second questionnaires)

	Specifications				
	1	3	4	5	6
Corr. Structures	Variation ΔS_A				
Initial					
$\hat{\beta}_{\Delta S_A}^{Self}$	0.268	0.261	0.203	0.216	0.237
Standard error	0.315	0.306	0.280	0.318	0.301
Student statistic	0.851	0.855	0.724	0.678	0.786
p-value	0.297	0.293	0.368	0.400	0.353
Final					
$\hat{\beta}_{\Delta S_A}^{Self}$	0.276	0.274	0.209	0.223	0.258
Standard error	0.337	0.331	0.296	0.335	0.326
Student statistic	0.819	0.828	0.705	0.666	0.791
p-value	0.289	0.287	0.360	0.394	0.345
	Variation ΔS_B				
Initial					
$\hat{\beta}_{\Delta S_B}^{Self}$	0.206	0.200	0.156	0.163	0.203
Standard error	0.246	0.240	0.221	0.237	0.263
Student statistic	0.836	0.834	0.706	0.687	0.772
p-value	0.303	0.298	0.385	0.463	0.381
Final					
$\hat{\beta}_{\Delta S_B}^{Self}$	0.173	0.171	0.132	0.139	0.174
Standard error	0.197	0.194	0.179	0.194	0.212
Student statistic	0.880	0.880	0.738	0.716	0.822
p-value	0.366	0.363	0.468	0.524	0.441

Notes: Specifications 1, and 3 to 6 refer to the specifications of ordinary least squares regression model (1). Estimation of the linear probability model using the instrumental variable. The standard errors are robust to both heteroskedasticity of unknown form and autocorrelation of the same program cohort and each MLS branch (bootstrap with 299,999 replications), Number of observations: 151 (69 in the treatment group and 82 in the control group).

Appendix 1

Table 26

Correspondence between the items of our self-confidence questionnaire and the items of existing tests

	Authors and type of tests				
	Costa and McCrae (1992) NEO-Pi-R	DeYoung et al. (2007) Big Five	Lee and Ashton (2004), Ashton and Lee (2009) HEXACO	Rosenberg (1979), Coopersmith (1984) S.E.I.	Jerusalem and Schwarzer (1995) GSE
I am confident about my ability to succeed whatever I undertake					×
I am able to adapt to changes in my life	×				×
I am at ease in new situations					×
I have difficulty taking initiatives					
I feel capable of dealing with difficult situations	×				×
I am afraid of not being good enough					×
I tend to follow the advice of others	$\times^{r}$				
I accept myself as I am				×	
I feel uncomfortable when speaking in front of people	×		×		
I have trouble expressing my disagreement with someone	$\times^{r}$			$\times^{r}$	×

Note: $\times^{r}$ signifies that the meaning of the item in our test is reversed compared with the existing test. If the formulation is positive in the existing test, it is negative in ours, and vice versa.

Table 27

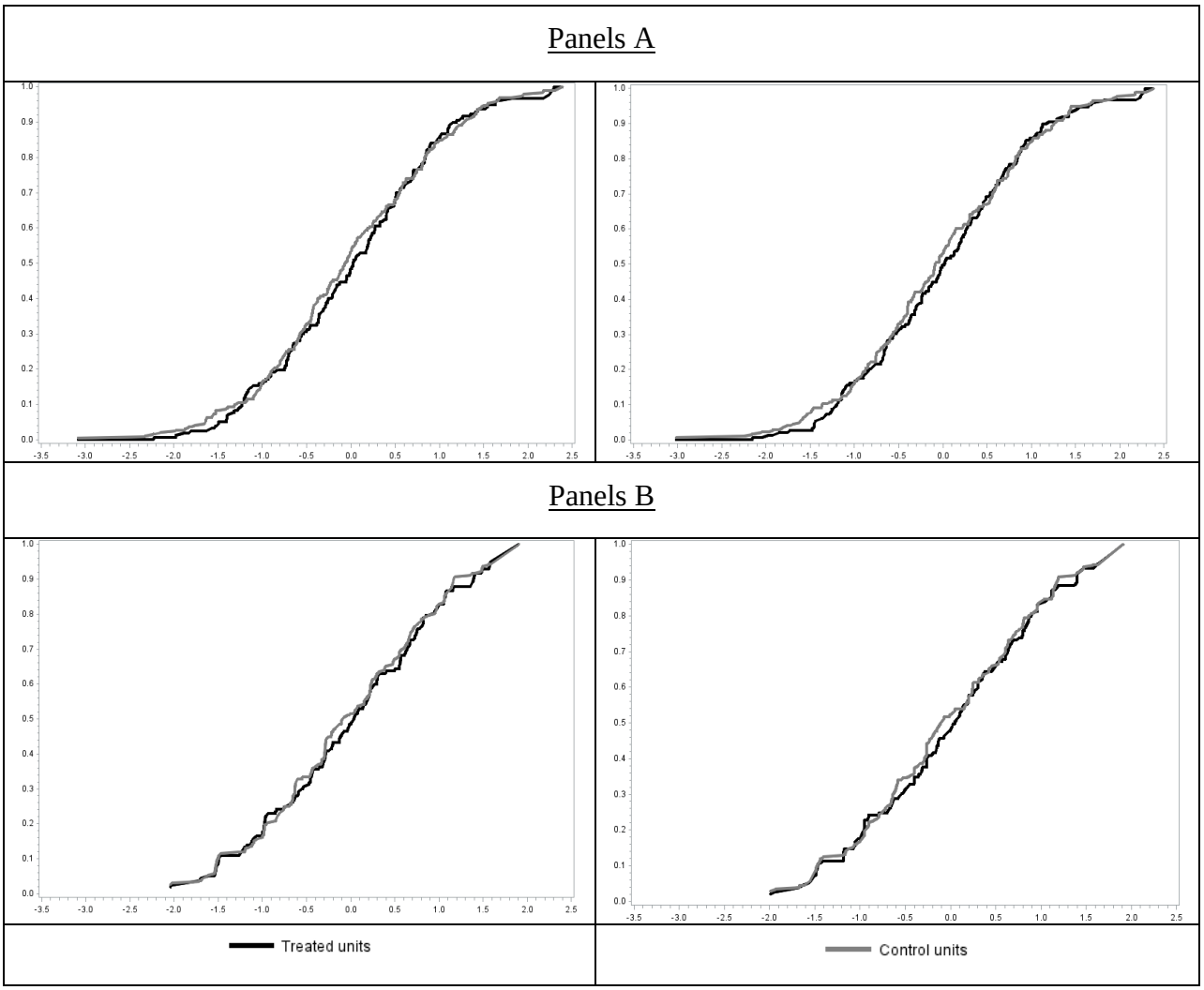
Correlation of the items from the self-confidence questionnaire with the first three axes of the principal component analysis

Items from the self-confidence questionnaire	Axis 1	Axis 2	Axis 3
I am confident about my ability to succeed whatever I undertake	0.791	-0.310	0.012
I am able to adapt to changes in my life	0.669	-0.416	-0.036
I am at ease in new situations	0.699	-0.225	-0.297
I have difficulty taking initiatives	0.566	0.277	-0.32
I feel capable of dealing with difficult situations	0.710	-0.193	-0.324
I am afraid of not being good enough	0.722	0.010	0.231
I tend to follow the advice of others	0.477	0.303	0.549
I accept myself as I am	0.659	-0.184	0.540
I feel uncomfortable when speaking in front of people	0.631	0.448	-0.168
I have trouble expressing my disagreement with someone	0.580	0.598	-0.077

Note: The correlation coefficient between the item “I have difficulty taking initiatives” and the first axis of the principal component analysis is 0.566. If the Kaiser criterion has a value greater than 1, this justifies retaining the first two axes.

Figure 1

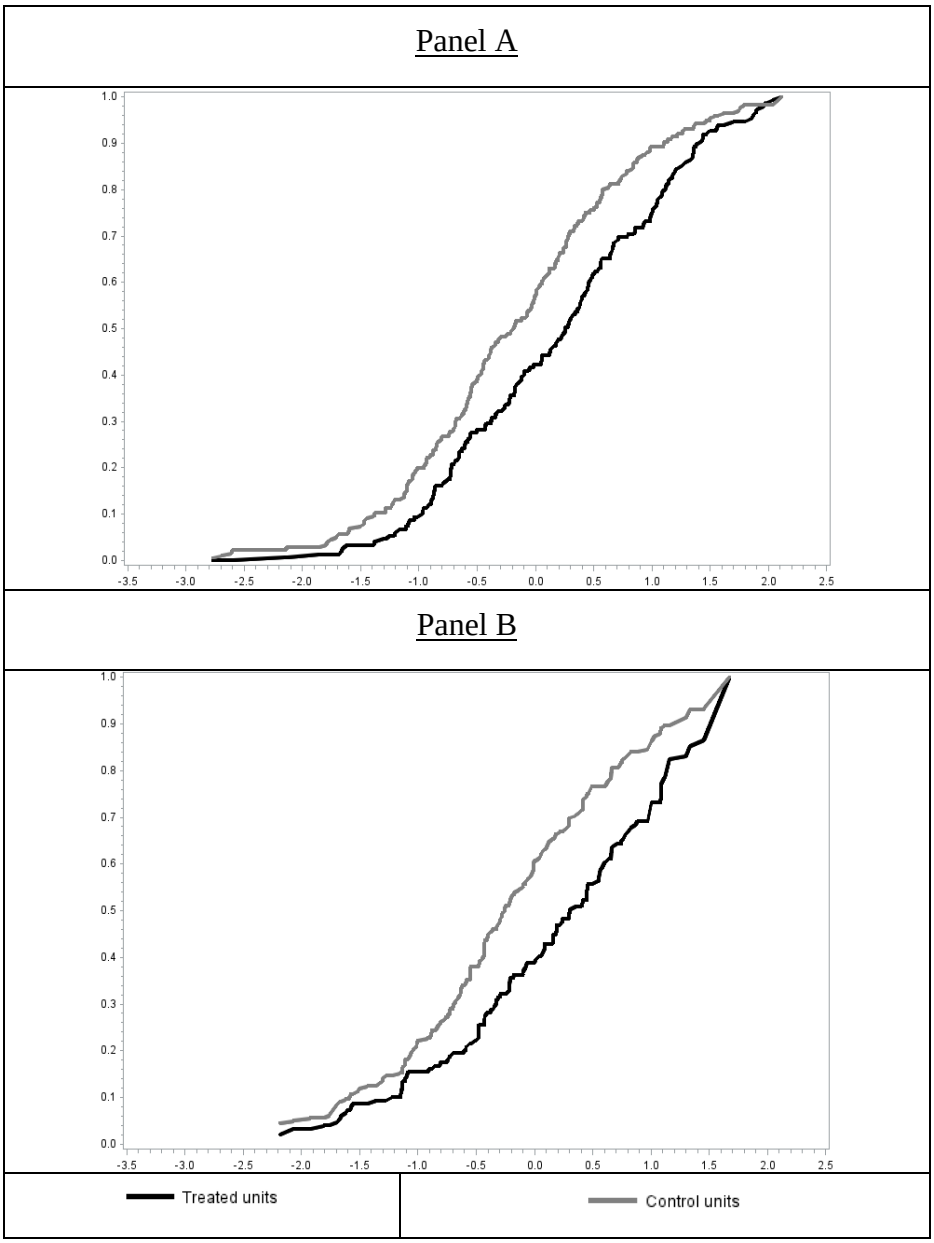
Empirical distribution functions of responses to the first self-confidence questionnaire in the treatment and control groups



Notes The distributions on the left refer to all the observations, while those on the right refer to the sample of the respondents to the second questionnaire. Panel A corresponds to score S_A and panel B to score S_B.

Figure 2

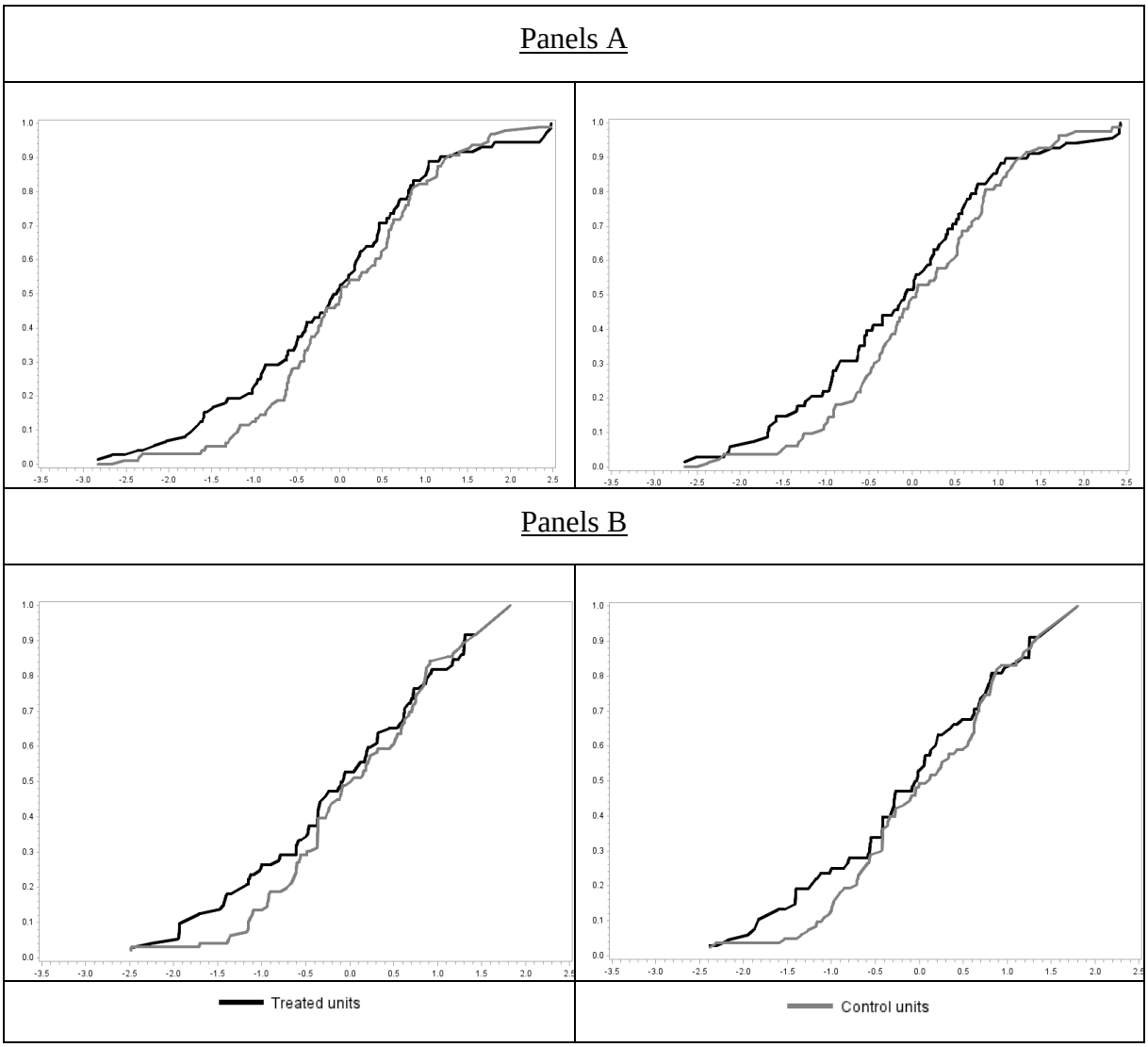
Empirical distribution functions to the second self-confidence questionnaire in the treatment and control groups



Note: Panel A corresponds to score S_A and panel B to score S_B.

Figure 3

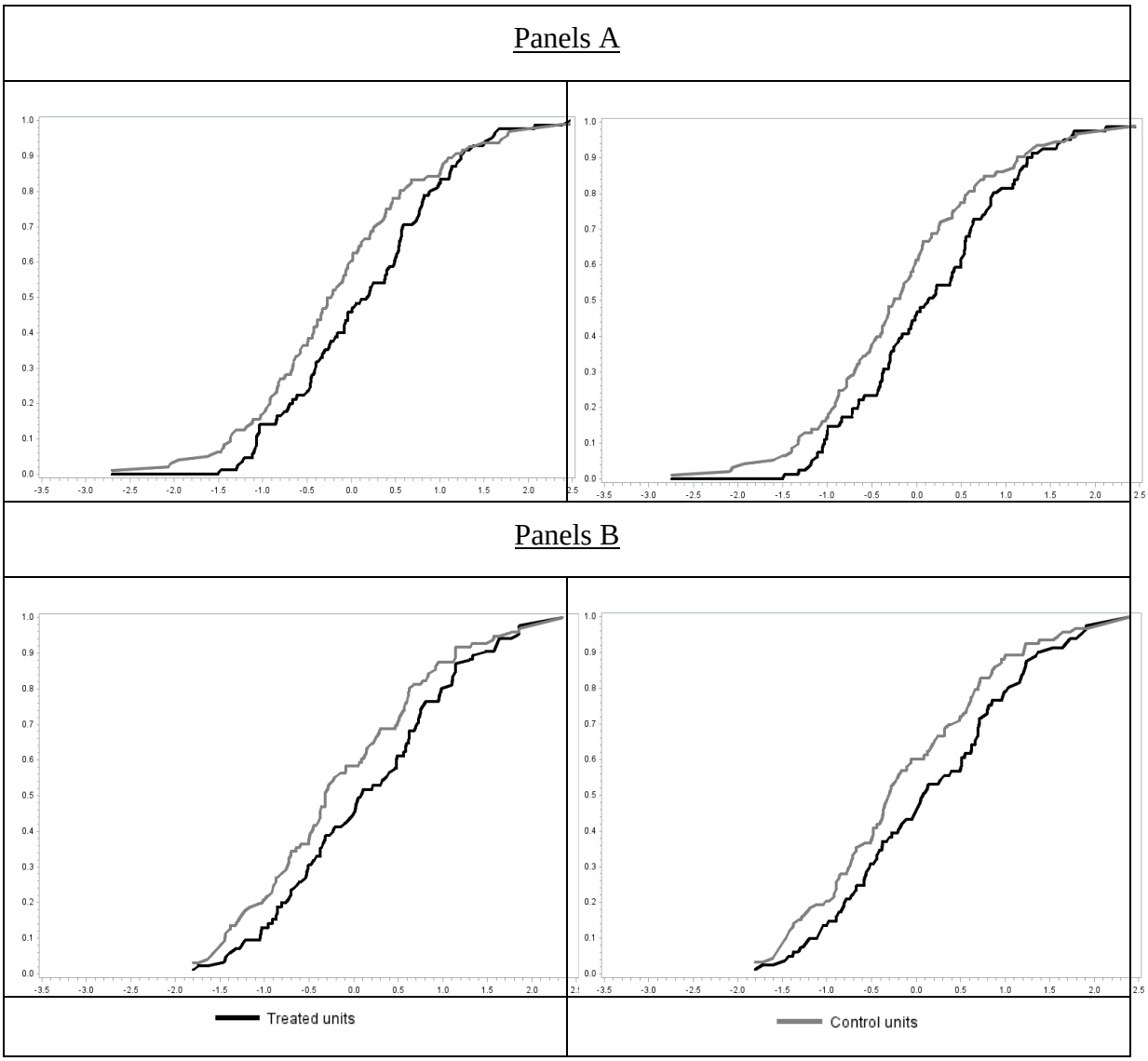
Empirical distribution functions to the first self-confidence questionnaire for men in the treatment and control groups



Notes: The distributions on the left refer to all the observations, while those on the right refer to the sample of the respondents to the second questionnaire. Panel A corresponds to score S_A and panel B to score S_B.

Figure 4

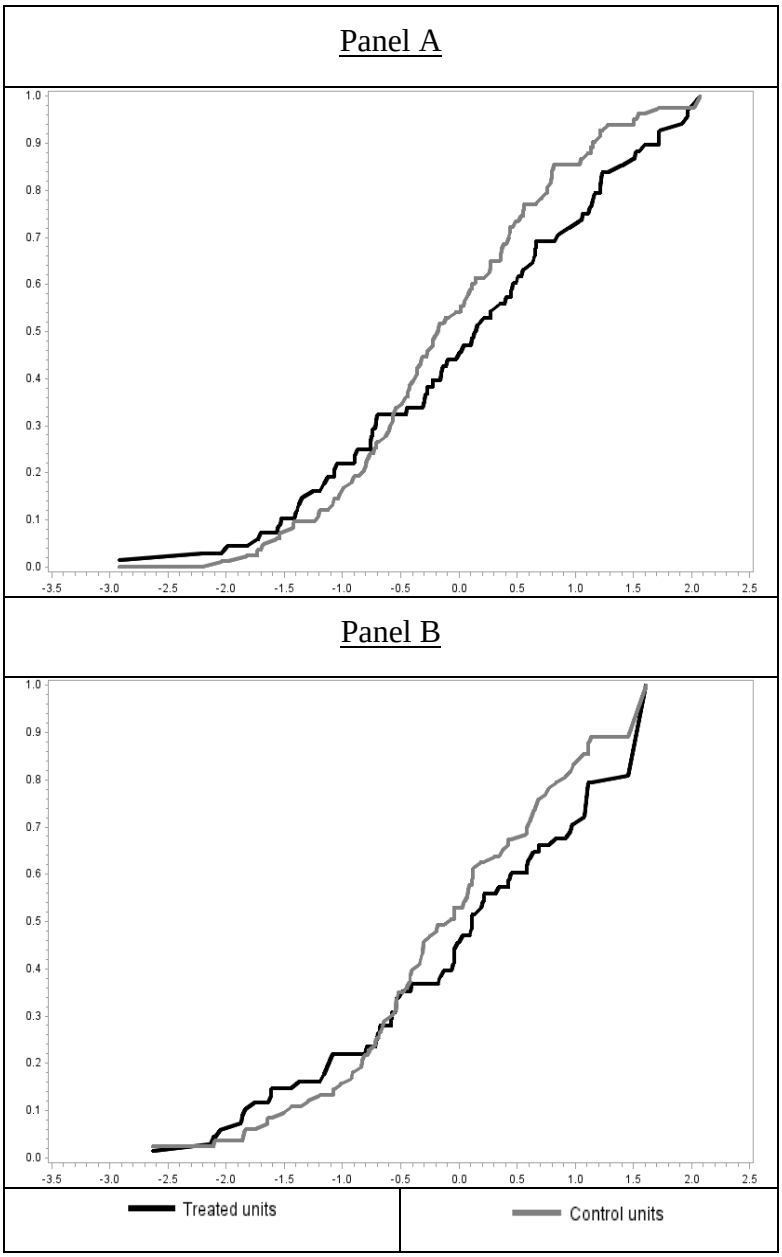
Empirical distribution functions to the first self-confidence questionnaire for women in the treatment and control groups



Notes: The distributions on the left refer to all the observations, while those on the right refer to the sample of the respondents to the second questionnaire. Panel A corresponds to score S_A and panel B to score S_B.

Figure 5

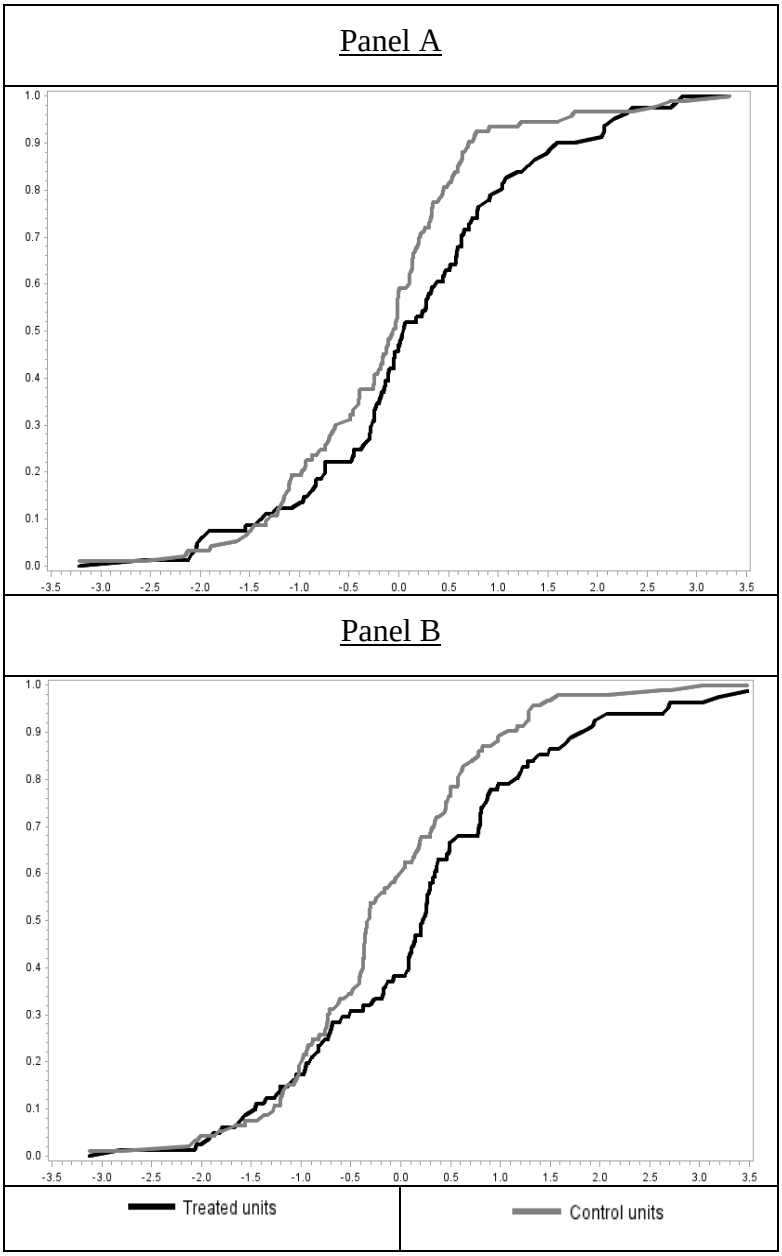
Empirical distribution functions of responses to the second self-confidence questionnaire for men in the treatment and control groups



Notes: Panel A corresponds to score S_A and panel B to score S_B.

Figure 6

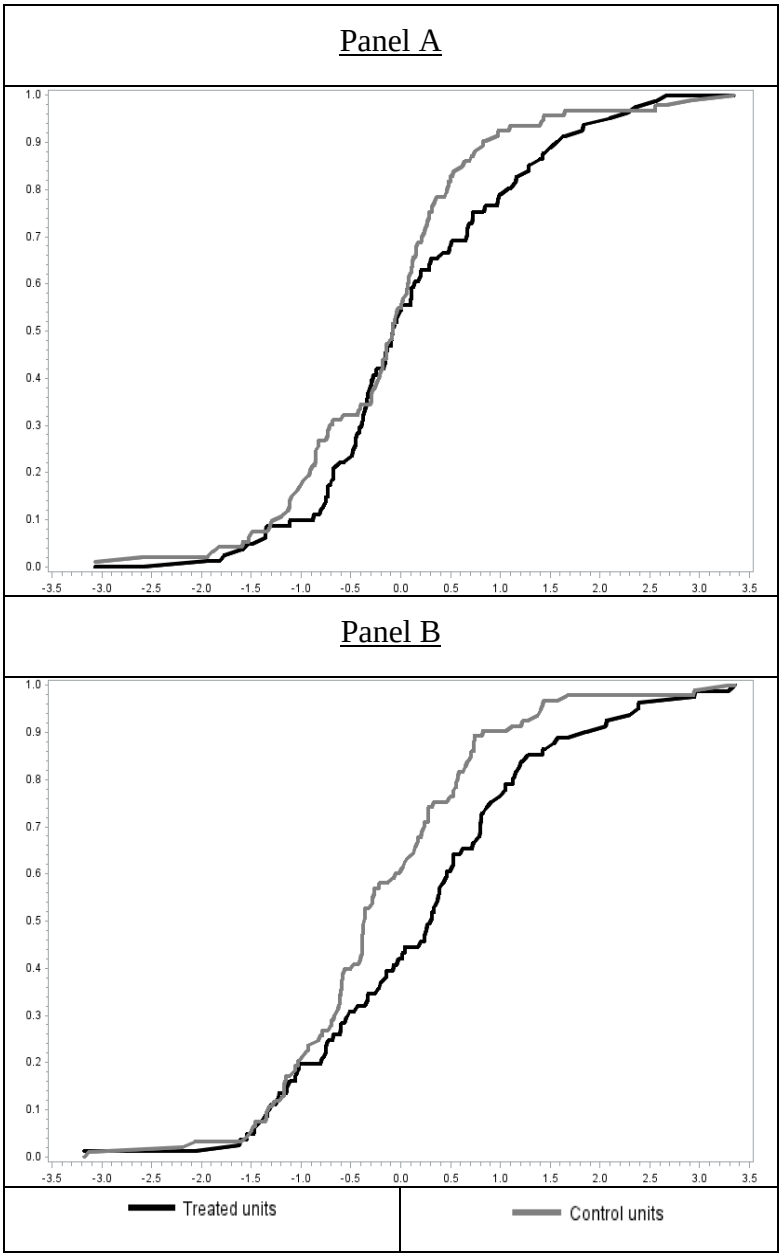
Empirical distribution functions of the evolution between the first and second questionnaires of self-confidence for women in the treatment and control groups: Initial correlation structure between items



Notes: Panel A corresponds to score ΔS_A and panel B to score ΔS_B.

Figure 7

Empirical distribution functions of the evolution between the first and second questionnaires of self-confidence for women in the treatment and control groups: Final correlation structure between items



Notes Panel A corresponds to score ΔS_A and panel B to score ΔS_B.

Appendix 2 – Supplementary Online Material

1 Attrition and statistical power for the entire population

1.1 Test power

Table 28

Statistical power: Hypothetical effects of the program on self-confidence

Attrition	Observations		Potential effects (% points)			
(%)	Treatment	Control	0.380	0.400	0.420	0.440
0%	157	192	0.941	0.960	0.973	0.983
6%	147	180	0.926	0.948	0.965	0.976
8%	144	176	0.921	0.944	0.961	0.974

Note: The potential effects are expressed in standard deviation units of the control group. When the potential effect is equal to 0.38, the statistical power, which is the probability of identifying an effect of the program when it exists, is equal to 0.941 with no attrition and 0.926 with 6% attrition. The power is calculated at the 5% level for a two-tailed test.

Table 29

Statistical power: Hypothetical effects of the program on professional integration

Attrition (%)	Initial rates	Potential effects (% points)				
		0.02	0.04	0.06	0.14	0.16
0%	0.06	0.113	0.282	0.506	0.980	0.994
	0.12	0.086	0.189	0.348	0.921	0.966
	0.54	0.066	0.116	0.203	0.764	0.869
	0.6	0.067	0.119	0.212	0.794	0.895
	0.62	0.067	0.121	0.216	0.808	0.905
4%	0.06	0.110	0.272	0.489	0.976	0.992
	0.12	0.084	0.183	0.336	0.909	0.960
	0.54	0.065	0.113	0.197	0.745	0.854
	0.6	0.066	0.116	0.204	0.777	0.881
	0.62	0.066	0.118	0.208	0.790	0.893
6%	0.06	0.109	0.267	0.481	0.973	0.991
	0.12	0.083	0.180	0.330	0.904	0.956
	0.54	0.065	0.112	0.194	0.736	0.846
	0.6	0.066	0.115	0.201	0.768	0.874
	0.62	0.066	0.116	0.205	0.782	0.886
10%	0.06	0.106	0.258	0.465	0.968	0.989
	0.12	0.082	0.174	0.318	0.891	0.948
	0.54	0.064	0.109	0.187	0.718	0.831
	0.6	0.065	0.112	0.195	0.750	0.860
	0.62	0.065	0.114	0.198	0.764	0.873
12%	0.06	0.105	0.253	0.456	0.964	0.987
	0.12	0.081	0.172	0.312	0.884	0.944
	0.54	0.064	0.108	0.184	0.708	0.822
	0.6	0.065	0.111	0.191	0.741	0.853
	0.62	0.065	0.112	0.195	0.755	0.865

Note: When the initial integration rate is equal to 0.06 and the potential effect is equal to 0.02, the statistical power, which is the probability of identifying an effect of the program when it exists, is equal to 0.113 with no attrition and 0.106 with 10% attrition. The power is calculated at the 5% level for a two-tailed test.

1.2 Attrition

Table 30

Differential attrition between the treatment and control groups for the self-confidence questionnaire

	Treatment	Control	Total
Response rate (%)	94.904	91.667	93.123
N (observations)	157	192	349

To verify that the assignment to the treatment group has no significant effect on the response rate to the personality questionnaire, we followed the strategy of Crépon et al. (2014) by regressing the dummy variable "responded to the questionnaire" on the dummy variable "being in the treatment group."

Table 31

Estimations regarding the impact of differential attrition between the treatment and control groups for the self-confidence questionnaire

	Estimated parameter	Standard error	Student's *t*	p-value
Constant	0.938	0.036	26.36	0
Treatment group	0.031	0.027	1.16	0.246
R2	0.044			
N (observations)	349			

Note: The estimated standard errors are robust to heteroskedasticity of unknown form. The estimations were performed using the fixed effects associated with eight clusters (four geographic areas and two cohorts).

Table 32

Differential attrition between the treatment and control groups for professional integration at 1.5 months

	Treatment	Control	Total
Response rate (%)	96.178	94.792	95.415
N (observations)	157	192	349

Table 33

Estimations relating to the impact of differential attrition between the treatment and control groups for the professional integration questionnaire at 1.5 months

	Estimated parameter	Standard error	Student's *t*	p-value
Constant	0.874	0.052	16.667	0
Treatment group	0.015	0.022	0.682	0.495
R2	0.031			
N (observations)	349			

Note: The estimated standard errors are robust to heteroskedasticity of unknown form. The estimations were performed using the fixed effects associated with eight clusters (four geographic areas and two cohorts).

Table 34

Differential attrition between the treatment and control groups for professional integration at 18 months

	Treatment	Control	Total
Response rate by telephone (%)	49.68	51.04	50.43
Match rate – I-MILO database (%)	38.22	38.02	38.11
Overall rate (%)	87.9	89.06	88.54
N (observations)	157	192	349

Table 35

Estimations regarding the impact of differential attrition between the treatment and control groups for the professional integration questionnaire at 18 months

	Estimated parameter	Standard error	Student's *t*	p-value
Regression 1: Questionnaire responses				
Constant	0.458	0.082	5.59	0
Treatment group	-0.011	0.054	-0.21	0.834
R2	0.018			
N (observations)	349			
Regression 2: Correspondence with I-MILO				
Constant	0.836	0.085	9.838	0
Treatment group	-0.022	0.065	-0.334	0.738
R2	0.015			
N (observations)	173			
Regression 3: Known professional situation				
Constant	0.911	0.049	18.772	0
Treatment group	-0.013	0.034	-0.365	0.715
R2	0.006			
N (observations)	349			

Note: The estimated standard errors are robust to heteroskedasticity of unknown form. The estimations were performed using the fixed effects associated with eight clusters (four geographic areas and two cohorts). Regression 1 corresponds to a regression of the dummy variable "responded to the questionnaire" on the dummy variable "being in the treatment group" using all observations. Regression 2 corresponds to a regression of the dummy variable "found in the I-MILO database" on the dummy variable "being in the treatment group" for the young people who did not complete the questionnaire. Regression 3 corresponds to a regression of the dummy variable "known professional situation at 18 months" on the dummy variable "being in the test group."

2. Robustness analysis of the mean effects of the program for the entire population

2.1 Effects on self-confidence

Table 36

Intention-to-treat effect and information on the distribution of placebo effects for self-confidence

	Specifications					
	1	2	3	4	5	6
				Score S_A		
Intention-to-treat effect	0.407	0.410	0.409	0.405	0.407	0.418
Proportion	0.5%	0.4%	0.4%	0.4%	0.4%	0.4%
				Score S_B		
Intention-to-treat effect	0.425	0.428	0.428	0.420	0.421	0.429
Proportion	0.4%	0.2%	0.3%	0.3%	0.3%	0.3%

Notes: Estimation of the linear probability model using the ordinary least squares method. The standard errors are robust to both heteroskedasticity of unknown form and autocorrelation of each cluster g. In addition to the constant and fixed effects, specification 1 contains the treatment variable. It is equal to 1 for youths in the treatment group, otherwise 0. Specification 2 adds sex differences (reference is male) to specification 1; specification 3 adds age differences to specification 2 (reference is 20 years or older); specification 4 adds child and single status to specification 3 (reference is with no children and married); specification 5 adds driving license to specification 4 (reference is no driving license); and specification 6 adds education level to specification 5 (reference is ISCED level 3).

The row "Proportion" corresponds to the proportion of placebo effects for which the value is higher (lower) than the estimated ITT when they are positive (negative). In the case of specification 1, only 0.5% of the placebo effects relating to score S_A have a value higher than ITT, which is equal to 0.407. The placebo effect is computed for a number of random draws equal to 999,999.

[x]: p-value for a test that leads to reject the null hypothesis with an expected minimal proportion of incorrectly rejecting the null greater than 10%.

2.2 Effects on professional integration at 1.5 months

Table 37

Expected minimal proportions of incorrectly rejecting the null hypothesis of the non-impact on occupation 1.5 months after the end of the program

Specifications					
1	2	3	4	5	6
16.6%	14.8%	14.9%	24.7%	21.5%	15.7%

Notes: Computations taking into account the multiple inference between the tests conducted at 1.5 and 18 months for employment and occupation. Number of observations: 333 (151 in the treatment group and 182 in the control group).

Table 38

Intention-to-treat effect and information on the distribution of placebo effects for professional integration 1.5 months after the program

	Specifications					
	1	2	3	4	5	6
			Employment			
Intention-to-treat effect	-0.025	-0.026	-0.027	-0.023	-0.023	-0.023
Proportion	25%	25%	24%	27%	27%	27%
			Occupation			
Intention-to-treat effect	-0.146	-0.150	-0.150	-0.142	-0.143	-0.146
Proportion	2%	2%	2%	3%	3%	3%

Note: The row “Proportion” corresponds to the proportion of placebo effects for which the value is higher (lower) than the estimated ITT when they are positive (negative). In the case of specification 1, 25% of the placebo effects relating to employment have a value lower than the ITT, which is equal to -0.025. The placebo effect is computed for a number of random draws equal to 999,999.

2.3 Effects on professional integration at 18 months

Table 39

Intention-to-treat effect and some information on the distribution of placebo effects for professional integration 18 months after the program

	Specifications					
	1	2	3	4	5	6
			Employment			
Intention-to-treat effect	0.046	0.048	0.048	0.049	0.049	0.050
Proportion	18%	17%	17%	17%	17%	17%
			Occupation			
Intention-to-treat effect	0.051	0.052	0.051	0.049	0.047	0.052
Proportion	25%	25%	26%	27%	28%	26%

Note: The row "Proportion" corresponds to the proportion of placebo effects for which the value is higher (lower) than the estimated ITT when they are positive (negative). In the case of specification 1, 18% of the placebo effects relating to employment have a value higher than ITT, which is equal to 0.046. The placebo effect is computed for a number of random draws equal to 999,999.

3. Analysis by sex

3.1 Internal validity of the protocol

Table 40

Kolmogorov-Smirnov test for the distribution equality of responses to the first self-confidence questionnaire for men and women in the treatment and control groups

	Women		Men	
	Statistical test	p-value	Statistical test	p-value
All respondents				
Score S_A	1.296	0.053	0.935	0.285
Score S_B	1.073	0.155	0.891	0.316
Sample of respondents to the second questionnaire				
Score S_A	1.237	0.072	0.832	0.413
Score S_B	1.119	0.126	0.874	0.337

Note: Number of observations for women among all respondents: 85 for the treatment group and 96 for the control group. Number of observations for the sample of female respondents to the second questionnaire: 81 for the treatment group and 93 for the control group. Number of observations for women among all respondents: 72 for the treatment group and 96 for the control group. Number of observations for the sample of male respondents to the second questionnaire: 68 for the treatment group and 83 for the control group.

3.2 Test power

Table 41

Statistical power for the hypothetical effects of the program on women's self-confidence

Attrition (%)	Observations		Potential effects (% points)							
	Treatment	Control	0.300	0.320	0.340	0.360	0.380	0.400	0.420	0.440
0%	85	96	0.517	0.570	0.622	0.672	0.718	0.762	0.801	0.836
4%	81	92	0.499	0.551	0.602	0.652	0.698	0.742	0.783	0.819
6%	79	90	0.490	0.541	0.592	0.641	0.688	0.732	0.773	0.810
8%	78	88	0.483	0.534	0.585	0.634	0.681	0.725	0.766	0.803

Note: The potential effects are expressed in standard deviation units of the control group. When the potential effect is equal to 0.30, the statistical power, which is the probability of identifying an effect of the program when it exists, is equal to 0.5171 with no attrition and 0.499 with 4% attrition. The power is calculated at the 5% level for a two-tailed test.

Table 42

Statistical power for the hypothetical effects of the program on men's self-confidence

Attrition (%)	Observations		Potential effects (% points)				
	Treatment	Control	0.160	0.180	0.200	0.220	0.240
0%	72	96	0.175	0.209	0.247	0.289	0.334
6%	67	90	0.167	0.198	0.234	0.273	0.315
10%	64	86	0.161	0.192	0.226	0.263	0.303
14%	61	82	0.156	0.185	0.217	0.253	0.291

Note: The potential effects are expressed in standard deviation units of the control group. When the potential effect is equal to 0.16, the statistical power, which is the probability of identifying an effect of the program when it exists, is equal to 0.175 with no attrition and 0.167 with 6% attrition. The power is calculated at the 5% level for a two-tailed test.

Table 43

Statistical power for the hypothetical effects of the program on women's professional integration

Attrition (%)	Initial rates	Potential effects (% points)					
		0.02	0.04	0.06	0.08	0.10	0.12
0%	0.08	0.076	0.147	0.255	0.388	0.529	0.661
	0.1	0.071	0.132	0.226	0.346	0.478	0.608
	0.12	0.068	0.121	0.205	0.314	0.439	0.566
	0.54	0.058	0.084	0.129	0.193	0.277	0.378
	0.64	0.059	0.088	0.138	0.211	0.307	0.423
4%	0.08	0.075	0.142	0.246	0.374	0.511	0.641
	0.1	0.070	0.128	0.218	0.333	0.461	0.589
	0.12	0.068	0.118	0.198	0.303	0.423	0.547
	0.54	0.058	0.083	0.125	0.187	0.267	0.364
	0.64	0.059	0.086	0.134	0.204	0.296	0.408
6%	0.08	0.074	0.140	0.241	0.367	0.502	0.631
	0.1	0.070	0.126	0.214	0.327	0.453	0.579
	0.12	0.067	0.116	0.195	0.297	0.415	0.537
	0.54	0.058	0.082	0.123	0.183	0.262	0.357
	0.64	0.059	0.085	0.132	0.200	0.290	0.400
12%	0.08	0.072	0.134	0.228	0.347	0.476	0.602
	0.1	0.069	0.121	0.203	0.309	0.429	0.551
	0.12	0.066	0.112	0.185	0.281	0.392	0.510
	0.54	0.057	0.080	0.118	0.175	0.248	0.338
	0.64	0.058	0.083	0.126	0.190	0.275	0.378
14%	0.08	0.072	0.132	0.225	0.341	0.469	0.594
	0.1	0.068	0.120	0.200	0.304	0.422	0.543
	0.12	0.066	0.111	0.182	0.277	0.387	0.503
	0.54	0.057	0.079	0.117	0.172	0.244	0.333
	0.64	0.058	0.082	0.125	0.187	0.271	0.373

Note: When the initial integration rate is equal to 0.08 and the potential effect equals 0.02, the statistical power, which is the probability of identifying an effect of the program when it exists, is equal to 0.076 with no attrition and 0.075 with 4% attrition. The power is calculated at the 5% level for a two-tailed test.

Table 44

Statistical power for the hypothetical effects of the program on men's professional integration

Attrition (%)	Initial rates	Potential effects (% points)			
		0.02	0.04	0.06	0.08
0%	0.04	0.091	0.195	0.339	0.498
	0.06	0.080	0.159	0.276	0.415
	0.12	0.067	0.115	0.191	0.292
	0.14	0.065	0.108	0.177	0.269
	0.54	0.058	0.081	0.122	0.180
	0.58	0.058	0.082	0.124	0.185
4%	0.04	0.089	0.189	0.327	0.482
	0.06	0.078	0.154	0.266	0.401
	0.12	0.066	0.112	0.185	0.281
	0.14	0.064	0.105	0.172	0.260
	0.54	0.057	0.080	0.119	0.175
	0.58	0.058	0.081	0.121	0.179
6%	0.04	0.088	0.185	0.320	0.472
	0.06	0.078	0.151	0.261	0.392
	0.12	0.066	0.111	0.182	0.275
	0.14	0.064	0.104	0.168	0.255
	0.54	0.057	0.079	0.117	0.171
	0.58	0.057	0.080	0.119	0.176
10%	0.04	0.086	0.179	0.308	0.455
	0.06	0.076	0.147	0.251	0.378
	0.12	0.065	0.108	0.176	0.265
	0.14	0.063	0.102	0.163	0.245
	0.54	0.057	0.078	0.114	0.166
	0.58	0.057	0.078	0.116	0.170

Note: When the initial integration rate is equal to 0.04 and the potential effect equals 0.02, the statistical power, which is the probability of identifying an effect of the program when it exists, is equal to 0.091 with no attrition and 0.089 with 4% attrition. The power is calculated at the 5% level for a two-tailed test.

3.3 Attrition

Table 45

Differential attrition between the treatment and control groups for the self-confidence questionnaire among women

	Treatment	Control	Total
Response rate (%)	95.294	96.875	96.133
N (observations)	85	96	181

Table 46

Estimations regarding the impact of differential attrition between the treatment and control groups for the self-confidence questionnaire among women

	Estimated parameter	Standard error	Student's *t*	p-value
Constant	0.967	0.036	26.662	0
Treatment group	-0.015	0.029	-0.529	0.597
R2	0.016			
N (observations)	181			

Note: The estimated standard errors are robust to heteroskedasticity of unknown form. The estimations were performed using the fixed effects associated with eight clusters (four geographic areas and two cohorts).

Table 47

Differential attrition between the treatment and control groups for the self-confidence questionnaire among men

	Treatment	Control	Total
Response rate (%)	94.444	86.458	89.881
N (observations)	72	96	168

Table 48

Estimations regarding the impact of differential attrition between the treatment and control groups for the self-confidence questionnaire among men

	Estimated parameter	Standard error	Student's *t*	p-value
Constant	0.902	0.068	13.242	0
Treatment group	0.075	0.046	1.614	0.107
R2	0.094			
N (observations)	168			

Note: The estimated standard errors are robust to heteroskedasticity of unknown form. The estimations were performed using the fixed effects associated with eight clusters (four geographic areas and two cohorts).

Table 49

Differential attrition between the treatment and control groups for the professional integration questionnaire at 1.5 months among women

	Treatment	Control	Total
Response rate (%)	97.647	94.792	96.133
N (observations)	85	96	181

Table 50

Estimations regarding the impact of differential attrition between the treatment and control groups for the professional integration questionnaire at 1.5 months among women

	Estimated parameter	Standard error	Student's *t*	p-value
Constant	0.909	0.056	16.168	0
Treatment group	0.024	0.026	0.925	0.355
R2	0.032			
N (observations)	181			

Note: The estimated standard errors are robust to heteroskedasticity of unknown form. The estimations were performed using the fixed effects associated with eight clusters (four geographic areas and two cohorts).

Table 51

Differential attrition between the treatment and control groups for the professional integration questionnaire at 1.5 months among men

	Treatment	Control	Total
Response rate (%)	94.444	94.792	94.643
N (observations)	72	96	168

Table 52

Estimations regarding the impact of differential attrition between the treatment and control groups for the professional integration questionnaire at 1.5 months among men

	Estimated parameter	Standard error	Student's *t*	p-value
Constant	0.822	0.101	8.159	0
Treatment group	0.004	0.041	0.087	0.931
R2	0.056			
N (observations)	168			

Note: The estimated standard errors are robust to heteroskedasticity of unknown form. The estimations were performed using the fixed effects associated with eight clusters (four geographic areas and two cohorts).

Table 53

Differential attrition between the treatment and control groups for women's professional integration at 18 months

	Treatment	Control	Total
Response rate by telephone (%)	57.65	55.21	56.35
Match rate – I-MILO database (%)	28.24	33.33	30.94
Overall rate (%)	85.88	88.54	87.29
N (observations)	85	96	181

Table 54

Estimations regarding the impact of differential attrition between the treatment and control groups for the professional integration questionnaire at 18 months among women

	Estimated parameter	Standard error	Student's *t*	p-value
Regression 1: Responses to the questionnaire				
Constant	0.597	0.107	5.594	0.000
Treatment group	0.007	0.075	0.094	0.925
R2	0.048			
N (observations)	181			
Regression 2: Matching with I-MILO				
Constant	0.724	0.157	4.620	0.000
Treatment group	-0.080	0.107	-0.749	0.454
R2	0.063			
N (observations)	79			
Regression 3: Known professional situation				
Constant	0.892	0.072	12.394	0.000
Treatment group	-0.028	0.051	-0.548	0.584
R2	0.033			
N (observations)	181			

Note: The estimated standard errors are robust to heteroskedasticity of unknown form. The estimations were performed using the fixed effects associated with eight clusters (four geographic areas and two cohorts).

Table 55

Differential attrition between the treatment and control groups for the professional integration questionnaire at 18 months among men

	Treatment	Control	Total
Response rate by telephone (%)	40.28	46.88	44.05
Match rate – I-MILO database (%)	50	42.71	45.83
Overall rate (%)	90.28	89.58	89.88
N (observations)	72	96	168

Table 56

Estimations regarding the impact of differential attrition between the treatment and control groups for the professional integration questionnaire at 18 months among men

	Estimated parameter	Standard error	Student's *t*	p-value
Regression 1: Responses to the questionnaire				
Constant	0.273	0.114	2.395	0.017
Treatment group	-0.072	0.078	-0.918	0.359
R2	0.057			
N (observations)	168			
Regression 2: Matching with I-MILO				
Constant	0.913	0.08	11.474	0
Treatment group	0.018	0.078	0.234	0.815
R2	0.044			
N (observations)	94			
Regression 3: Known professional situation				
Constant	0.942	0.057	16.394	0
Treatment group	-0.001	0.045	-0.022	0.982
R2	0.01			
N (observations)	168			

Note: The estimated standard errors are robust to heteroskedasticity of unknown form. The estimations were performed using the fixed effects associated with eight clusters (four geographic areas and two cohorts).

4. Calculation of the program cost for the cost-effectiveness analysis

The cost range was obtained by considering costs at a steady state based on groups of around 20 youths enrolled in the program over a training period of around 16 days. The cost range was calculated by taking into account the following:

Fixed personnel and operating costs ranging from 57,200€ to 75,500€ based on the lower and upper estimates. These charges correspond to the recruitment of a receptionist and an apprenticeship contract to manage the project on a daily basis (including the recruitment of subcontractors to run the workshops) in addition to all the diverse fixed costs. The lower estimate only takes into account the disbursements relating to the JEME experiment, notably the travel costs for personnel, team-building activities (Paintball, Escape Game, etc.), and half-day meetings with the participating companies. The upper estimate adds to the overall cost the

MLS expenses linked to the project: for example, the time spent by a manager on supervision to ensure the proper functioning of the program.

Variable operating costs ranging from 82,000€ to 84,000€. These expenses correspond to the payment of the subcontractors who ran the coaching workshops as well as the ex gratia payment of 265€ paid by the MLS to cover their travel and food expenses,[32] and even the purchase of clothes suitable for meeting with professionals.

A total of 157 young people in the treatment group divided into eight clusters.

5. Comparisons between the treatment and control groups for the first self-confidence questionnaire

Table 57

Kolmogorov-Smirnov test on the equalities of the empirical distributions of responses to the first self-confidence questionnaire in the treatment and control groups

	Statistical test	p-value
All respondents		
Score S_A	0.649	0.737
Score S_B	0.476	0.945
Sample of respondents to the second questionnaire		
Score S_A	0.600	0.814
Score S_B	0.536	0.882

Table 58

Comparison of the self-confidence items from the first questionnaire between the control and treatment groups

Variable (Question)	Modalities	Treatment group		Control group		Comparisons	
		Mean	Standard deviation	Mean	Standard deviation	Student test	p-value
	Agreement	0.63	0.48	0.64	0.48	-0.09	0.93
	Disagreement	0.22	0.42	0.19	0.39	0.81	0.42

32 The issue about whether to include the ex gratia payment in the cost-effectiveness analysis is debatable when the analysis is conducted for society as a whole. Nevertheless, deducting this ex gratia payment from the mean total cost per youth does not fundamentally affect our comparisons with other programs.

I am confident about my ability to succeed	Neutral response	0.15	0.35	0.18	0.38	-0.77	0.44
I am able to adapt to changes in my life	Agreement	0.79	0.41	0.77	0.42	0.54	0.59
	Disagreement	0.08	0.28	0.11	0.31	-0.84	0.40
	Neutral response	0.13	0.33	0.13	0.33	0.07	0.95
I am at ease in new situations	Agreement	0.48	0.50	0.53	0.50	-0.90	0.37
	Disagreement	0.31	0.46	0.26	0.44	1.04	0.30
	Neutral response	0.22	0.41	0.22	0.41	-0.05	0.96
I have difficulty taking initiatives	Agreement	0.46	0.50	0.46	0.50	0.00	1.00
	Disagreement	0.31	0.46	0.40	0.49	-1.63	0.10
	Neutral response	0.23	0.42	0.15	0.35	1.98	0.05[X]
I feel capable of dealing with difficult situations	Agreement	0.63	0.48	0.64	0.48	-0.19	0.85
	Disagreement	0.17	0.38	0.16	0.37	0.26	0.79
	Neutral response	0.20	0.40	0.20	0.40	-0.01	0.99
I am afraid of not being good enough.	Agreement	0.60	0.49	0.62	0.49	-0.40	0.69
	Disagreement	0.31	0.46	0.24	0.43	1.50	0.13
	Neutral response	0.09	0.29	0.14	0.35	-1.52	0.13
I tend to follow the advice of others	Agreement	0.24	0.43	0.29	0.46	-1.18	0.24
	Disagreement	0.54	0.50	0.51	0.50	0.46	0.65
	Neutral response	0.23	0.42	0.20	0.40	0.71	0.48
I accept myself as I am	Agreement	0.76	0.43	0.71	0.46	1.18	0.24
	Disagreement	0.15	0.36	0.20	0.40	-1.23	0.22
	Neutral response	0.08	0.28	0.09	0.28	-0.19	0.85
I feel uncomfortable speaking in front of people	Agreement	0.58	0.50	0.59	0.49	-0.17	0.87
	Disagreement	0.27	0.45	0.26	0.44	0.39	0.70
	Neutral response	0.15	0.35	0.16	0.36	-0.25	0.80
I have trouble expressing my disagreement with someone	Agreement	0.36	0.48	0.39	0.49	-0.53	0.60
	Disagreement	0.46	0.50	0.43	0.50	0.49	0.62
	Neutral response	0.18	0.38	0.18	0.38	0.03	0.98

Notes: Questions in italics use wording suggestive of a negative self-perception.

Table 59

Comparison of the self-confidence items from the first questionnaire between the control and treatment groups for participants also responding to the second questionnaire

Variable (Question)	Modalities	Treatment group		Control group		Comparisons	
		Mean	Standard deviation	Mean	Standard deviation	Student test	p-value
I am confident in my ability to succeed whatever I undertake	Agreement	0.62	0.49	0.61	0.49	0.19	0.85
	Disagreement	0.23	0.43	0.20	0.40	0.66	0.51
	Neutral response	0.14	0.35	0.18	0.39	-1.00	0.32
I am able to adapt to changes in my life	Agreement	0.79	0.41	0.76	0.43	0.63	0.53
	Disagreement	0.09	0.28	0.11	0.31	-0.63	0.53
	Neutral response	0.13	0.33	0.14	0.34	-0.23	0.82
I am at ease in new situations	Agreement	0.46	0.50	0.50	0.50	-0.66	0.51
	Disagreement	0.32	0.47	0.27	0.44	0.95	0.34
	Neutral response	0.22	0.42	0.23	0.42	-0.25	0.81
I have difficulty taking initiatives	Agreement	0.48	0.50	0.47	0.50	0.21	0.84
	Disagreement	0.30	0.46	0.39	0.49	-1.71	0.09[X]
	Neutral response	0.21	0.41	0.14	0.34	1.84	0.07[X]
I feel capable of dealing with difficult situations	Agreement	0.63	0.48	0.62	0.49	0.21	0.83
	Disagreement	0.17	0.38	0.17	0.38	0.10	0.92
	Neutral response	0.19	0.40	0.21	0.41	-0.35	0.73
I am afraid of not being good enough.	Agreement	0.61	0.49	0.63	0.49	-0.26	0.79
	Disagreement	0.30	0.46	0.24	0.43	1.28	0.20
	Neutral response	0.09	0.28	0.14	0.34	-1.41	0.16
I tend to follow the advice of others	Agreement	0.25	0.43	0.28	0.45	-0.61	0.54
	Disagreement	0.54	0.50	0.52	0.50	0.36	0.72
	Neutral response	0.21	0.41	0.20	0.40	0.23	0.82
I accept myself as I am	Agreement	0.76	0.43	0.70	0.46	1.21	0.23
	Disagreement	0.16	0.37	0.21	0.41	-1.14	0.26
	Neutral response	0.08	0.27	0.09	0.29	-0.33	0.74
I feel uncomfortable speaking in front of people	Agreement	0.60	0.49	0.59	0.49	0.22	0.83
	Disagreement	0.27	0.44	0.25	0.43	0.38	0.71
	Neutral response	0.13	0.34	0.16	0.37	-0.77	0.44
I have trouble expressing my disagreement with someone	Agreement	0.37	0.48	0.40	0.49	-0.53	0.60
	Disagreement	0.47	0.50	0.43	0.50	0.68	0.49
	Neutral response	0.16	0.37	0.17	0.38	-0.23	0.82

Note: Questions in italics use wording suggestive of a negative self-perception.

6. Effects of the program on the quantiles of the initial distribution of scores for the entire population

Table 60

Simulated quantile evolution in the score distributions of the young adults belonging to the control group if they were impacted by the average treatment effect

		Score S_A	Score S_B
Decile changes			
	0	6%	11%
	1	58%	48%
	2	41%	45%
Quintile changes			
	0	30%	28%
	1	70%	71%
Quartile changes			
	0	41%	41%
	1	59%	59%

Notes: 0 means that they stay in the same quantile, 1 means that they move up one quantile, and 2 means that they move up two quantiles. The calculations are only made for the youths belonging to the quantile groups that can move upwards (upper quantiles are thus excluded). Overall, 6% of youths who could have moved to a higher decile stayed in the same decile.

7. Comparisons with the second self-confidence questionnaire for the entire population

Table 61

Kolmogorov-Smirnov test for the distribution equality of the responses of the treatment and control groups to the second self-confidence questionnaire

	Statistical test	p-value
Score S_A	1.756	0.003
Score S_B	2.011	0.000

Table 62

First-order stochastic dominance test of Mc Fadden (1989) for the distributions of responses to the second self-confidence questionnaire in the treatment and control groups

		Statistical test	p-value
Score S_A			
	H0A1	0.093	0.964
	H0A2	1.756	0.002
Score S_B			
	H0B1	-	0.968
	H0B2	2.011	0.000

Notes: Null hypothesis H0A1 corresponds to a distribution of the control group that dominates the treatment group for score S_A. Null hypothesis H0A2 corresponds to a distribution of the treatment group that dominates the control group for score S_A. Null hypothesis H0B1 corresponds to a distribution of the control group that dominates the treatment group for score S_B. Null hypothesis H0B2 corresponds to a distribution of the control group that dominates the treatment group for score S_B.

8. Self-confidence questionnaire: Attrition for men

We first focused on the possible link between the collected covariates and the differential attrition in the responses of men in the treatment and control groups to the second self-confidence questionnaire. It appears that belonging to the first experimental cohort in the geographical area of Saint-Louis explains a large part of this difference. When this group is removed from the analysis, the differential attrition drops substantially. We do not have an explanation for this observation. Note that this cluster is controlled in all the regressions.

Next, to determine the potential bias induced by the estimation of the regression model (1) on the selected sample of men who completed both self-confidence questionnaires, we use inverse probability weighting (IPW). Under the strong assumptions that some variables at our disposal are "good" predictors of attrition and that attrition is not related to the unobserved factors affecting self-confidence, weighting each selected observation by the inverse of their probability of selection produces unbiased estimates (Wooldridge, 2007). The estimated probabilities are obtained from a logit estimation with a dummy variable for attrition as the

dependent variable and all available covariates X along with the cluster dummies $\boldsymbol{\lambda}$ as the independent variables. Comparing Table 63 below with Table 15, we may observe that the IPW intention-to-treat effect estimates are close to their unweighted counterparts.

Table 63

Effects of the program on men's self-confidence (IPW estimates)

	Specifications			
	1	3	5	6
		Score S_A		
Intention-to-treat effect	0.190	0.181	0.191	0.212
Standard error	0.119	0.122	0.128	0.124
Student statistic	1.594	1.487	1.497	1.708
p-value	0.155	0.182	0.172	0.130
		Score S_B		
Intention-to-treat effect	0.167	0.161	0.171	0.194
Standard error	0.101	0.108	0.113	0.097
Student statistic	1.643	1.493	1.518	1.518
p-value	0.140	0.173	0.167	0.105

Note: Number of observations: 68 for the treatment group and 83 for the control group.

9. Robustness analysis of the impacts for heterogeneity by sex

9.1 Self-confidence for men

Table 64

Intention-to-treat effect and distribution of the placebo effects for men's self-confidence

	Specifications			
	1	3	5	6
		Score S_A		
Intention-to-treat	0.215	0.199	0.208	0.229
Proportion	17.8%	19.7%	19.0%	18.4%
		Score S_B		
Intention-to-treat	0.177	0.167	0.174	0.197
Proportion	21.5%	22.7%	22.0%	20.8%

Notes: In the case of specification 1, 17.8% of the placebo effects relating to score S_A have a value higher than intention-to-treat, which is equal to 0.215. The placebo effect is computed for a number of random draws equal to 999,999.

9.2 Self-confidence for women

Table 65

Expected minimal proportions of incorrectly rejecting the null hypothesis of the non-impact of the program on women

	Specifications				
	1	3	4	5	6
			Variation ΔS_A		
Corr. Structures					
Initial	/	/	/	/	6.2%
Final	8.4%	8.6%	8.4%	7.9%	6.2%
			Variation ΔS_B		
Corr. Structures					
Initial	10.8%	10.5%	10.5%	9.2%	9.6%
Final	10.8%	10.5%	10.5%	8.3%	9.6%

Notes: Computations based on the evolution of women's self-confidence between the first and second questionnaires taking into account the multiple inferences between the four tests. The proportions are only indicated for the statistically significant intention-to-treat effects.

Table 66

Intention-to-treat effect and distribution of the placebo effects for the self-confidence of women

	Specifications				
	1	3	4	5	6
Corr. Structures			Variation ΔS_A		
Initial					
Intention-to-treat	0.308	0.306	0.300	0.301	0.352
Proportion	9.6%	9.7%	10.6%	10.1%	7.7%
Final					
Intention-to-treat	0.312	0.311	0.312	0.313	0.339
Proportion	9.6%	9.8%	10.1%	9.9%	9.1%
			Variation ΔS_B		
Initial					
Intention-to-treat	0.389	0.387	0.383	0.391	0.402
Proportion	5.0%	5.0%	5.5%	5.2%	5.3%
Final					
Intention-to-treat	0.452	0.452	0.451	0.459	0.463
Proportion	2.9%	3.0%	3.3%	3.2%	3.3%

Notes: In the case of specification 1, 9.6% of the placebo effects relating to score S_A have a value higher than intention-to-treat, which is equal to 0.308. The placebo effect is computed for a number of random draws equal to 999,999.

9.3 Effects of the program on the distributions of self-confidence

Table 67

Kolmogorov-Smirnov test for the distribution equality of the responses to the second self-confidence questionnaire for men and women in the treatment and control groups

	Women		Men	
	Statistical test	p-value	Statistical test	p-value
Score S_A	2.065	0.000	1.004	0.213
Score S_B	2.233	0.000	0.824	0.404

Note: Number of observations for women: 81 in the treatment group and 93 in the control group. Number of observations for men: 72 in the treatment group and 96 in the control group for all respondents and 68 in the treatment group and 83 in the control group for the sample of respondents to the second questionnaire.

Table 68

First-order stochastic dominance test of Mc Fadden (1989) for the distribution of responses to the second self-confidence questionnaire in the treatment and control groups

		Women		Men	
		Statistical test	p-value	Statistical test	p-value
Score S_A					
	H0A1	0.071	0.969	0.465	0.584
	H0A2	2.065	0.000	1.004	0.106
Score S_B					
	H0B1	-	0.969	0.538	0.473
	H0B2	2.233	0.000	0.824	0.202

Notes: Null hypothesis H0A1 corresponds to a distribution of the control group that dominates the treatment group for score S_A. Null hypothesis H0A2 corresponds to a distribution of the treatment group that dominates the control group for score S_A. Null hypothesis H0B1 corresponds to a distribution of the control group that dominates the treatment group for score S_B. Null hypothesis H0B2 corresponds to a distribution of the control group that dominates the treatment group for score S_B.

9.4 Initial differences in men and women's self-confidence

Table 69 makes a comparison based on the elements contributing to score S_B for which one of the differences between men and women is most striking. We thus classify the responses to the ten questions by identifying those associated with good self-confidence, poor self-confidence,

or a neutral response. The score of the modality called the "positive perception" of youths corresponds to the number of questions to which they responded:

- "strongly agree," "agree," or "somewhat agree" for the questions relating to good self-confidence;
- "strongly disagree," "disagree," or "somewhat disagree" for the questions relating to poor self-confidence.

The score of the modality called the "negative perception" of youths corresponds to the number of questions to which they responded:

- "strongly disagree," "disagree," or "somewhat disagree" for the questions relating to good self-confidence;
- "strongly agree," "agree," or "somewhat agree" for the questions relating to poor self-confidence.

Finally, the score of the modality termed "neutral perception" corresponds to numerous types of "neutral" responses irrespective of their meaning.

Table 69

Initial positive, negative, and neutral perceptions of men and women's self-confidence

Self-confidence perception	Women	Men	Comparisons	
	Mean (Standard deviation)		Student statistic	p-value
Positive	4.66 (2.53)	5.66 (-2.58)	-3.65	0.00
Negative	3.63 (2.28)	2.79 (2.34)	3.40	0.00
Neutral	1.71 (1.78)	1.55 (1.66)	0.83	0.40

Note: On average, 4.66 out of ten responses among women are associated with self-confidence.

Table 70 undertakes a question-by-question analysis by attributing 1 point to an individual who is agrees with the proposal, otherwise 0.

Table 70

Women and men's agreement with the self-confidence questions in the first questionnaire

Women	Men	Comparisons	
Mean		Student statistic	p-value
I am confident in my ability to succeed whatever I undertake			
0.552	0.720	-3.303	0.001
(0.499)	(0.45)		
I am able to adapt to changes in my life			
0.746	0.810	-1.432	0.152
(0.437)	(0.394)		
I am at ease in new situations			
0.470	0.542	-1.345	0.179
(0.500)	(0.500)		
I have difficulty taking initiatives			
0.486	0.429	1.078	0.281
(0.501)	(0.496)		
I feel capable of dealing with difficult situations			
0.591	0.685	-1.819	0.069
(0.493)	(0.466)		
I am afraid of not being good enough.			
0.724	0.488	4.616	0.000
(0.448)	(0.501)		
I tend to follow the advice of others			
0.249	0.286	-0.780	0.435
(0.433)	(0.453)		
I accept myself as I am			
0.652	0.821	-3.665	0.000
(0.478)	(0.384)		
I feel uncomfortable speaking in front of people			
0.669	0.494	3.340	0.001
(0.472)	(0.501)		
I have trouble expressing my disagreement with someone			
0.403	0.351	1.003	0.316
(0.492)	(0.479)		

Notes: Proposals in italics use wording suggestive of poor self-confidence. Being in agreement with a proposition means responding "rather agree," "agree", or "strongly agree." Overall, 55% of women and 72% of men agreed with the statement "I am confident about my ability to succeed in whatever I undertake." Student's test is calculated as $(\bar{x}_f - \bar{x}_m) / \sqrt{\frac{S_f^2}{N_f} + \frac{S_m^2}{N_m}}$, where $\bar{x}_f$ is the mean score for the women's group of size N_f, $\bar{x}_m$ is the mean score for the men's group of size N_m, and S_f^2 and S_m^2 are the corresponding variances.

[x]: p-value for a test that leads to rejects the null with an expected minimal proportion of incorrectly rejecting the null greater than 10%.

9.5 Professional integration at 1.5 months

Table 71

Intention-to-treat effect and information on the distribution of placebo effects for women's professional integration 1.5 months after the program

	Specifications				
	1	3	4	5	6
			Employment		
Intention-to-treat	-0.054	-0.053	-0.048	-0.047	-0.050
Proportion	21%	21%	22%	23%	22%
			Occupation		
Intention-to-treat	-0.092	-0.092	-0.084	-0.084	-0.076
Proportion	18%	18%	20%	21%	24%

Notes: Number of observations: 73 for the treatment group and 85 for the control group. The row proportions correspond to the percentage of placebo effects higher (lower) than the estimated intention-to-treat when they are positive (negative). In the case of specification 1, 21% of the placebo effects relating to employment have a value lower than the ITT, which is equal to -0.054. The placebo effect is computed for a number of random draws equal to 999,999.

Table 72

Expected minimal proportions of incorrectly rejecting the null hypothesis of the non-impact on occupation 1.5 months after the end of the program for men

Specifications			
1	3	5	6
	Occupation		
1%	1%	1%	2%

Notes: Computations taking into account the multiple inference between tests at 1.5 and 18 months for employment and occupation. The proportions are only indicated for the statistically significant intention-to-treat. Number of observations: 67 in the treatment group and 91 in the control group.

Table 73

Intention-to-treat effect and information on the distribution of placebo effects for men's professional integration 1.5 months after the program

	Specifications			
	1	3	5	6
	Employment			
Intention-to-treat	0.004	0.005	0.014	0.000
Proportion	45%	45%	38%	0%
	Occupation			
Intention-to-treat	-0.208	-0.208	-0.217	-0.222
Proportion	3%	3%	2%	3%

Notes: The row proportions correspond to the percentage of placebo effects higher (lower) than the estimated intention-to-treat when they are positive (negative). In the case of specification 1, 45% of the placebo effects relating to employment have a value higher than the intention-to-treat, which is equal to 0.004, and 3% of the placebo effects relating to employment have a value lower than the intention-to-treat, which is equal to -0.208. The placebo effect is computed for a number of random draws equal to 999,999.

9.6 For professional integration at 18 months

Table 74

Intention-to-treat effect and information on the distribution of placebo effects for women's professional integration 18 months after the program

	Specifications				
	1	3	4	5	6
			Employment		
Intention-to-treat	0.023	0.029	0.028	0.030	0.032
Proportion	36%	33%	34%	33%	33%
			Occupation		
Intention-to-treat	0.044	0.044	0.031	0.038	0.051
Proportion	35%	35%	39%	37%	33%

Notes: The row proportions correspond to the percentage of placebo effects higher (lower) than the estimated intention-to-treat when they are positive (negative). In the case of specification 1, 36% of the placebo effects relating to employment have a value higher than the intention-to-treat, which is equal to 0.023. The placebo effect is computed for a number of random draws equal to 999,999.

Table 75

Intention-to-treat effect and some information on the distribution of placebo effects for men's professional integration 18 months after the program

	Specifications			
	1	3	5	6
		Employment		
Intention-to-treat	0.042	0.041	0.040	0.055
Proportion	29%	30%	31%	25%
		Occupation		
Intention-to-treat	0.065	0.065	0.059	0.077
Proportion	29%	29%	31%	27%

Note: The row proportions correspond to the percentage of placebo effects higher (lower) than the estimated intention-to-treat when they are positive (negative). In the case of specification 1, 29% of the placebo effects relating to employment have a value higher than the intention-to-treat, which is equal to 0.042. The placebo effect is computed for a number of random draws equal to 999,999.

Appendix 3 – Supplementary Online Material: Qualitative perspective

1. Qualitative analysis: Methodological considerations

The ethical principles that govern research, which fully guarantee the anonymity of study participants and the complete neutrality and independence of all parties involved in the training, were recalled at the start of every meeting with the young people (focus groups or individual interviews).

The team decided that the individual and group interviews should be on a declarative basis. They did not draw on their observations, which would have been exceedingly difficult to identify, but rather on the youth's own representations of their background. The recurring themes identified in these discourses allowed us to find meaning and observe certain patterns ("saturation effects" of the sample as described by the sociologist Daniel Bertaux, 1980).

One important point relating to the individual interviews should be highlighted. The youths were invited to participate on a voluntary basis. Even though voluntary participation is subject to potential bias, we could not force participants to take part in the interviews. To limit this bias, we chose more reserved volunteers who had expressed themselves very little during the group interviews, as we were keen to hear their point of view.

The written transcript of the audio recordings of the interviews was likewise subject to methodological choices. Punctuation was used to indicate pauses and changes in rhythm, as these elements can convey the emotion of participants and contribute information regarding their state of mind and opinions. The specificities of oral language were also retained (hesitations, starts of words, repetitions, corrections, etc.) in order to respect the speech of the interviewees. Their attitudes and body language, despite contributing to their expression and thus to the comprehension of the message, were not indicated so as not to encumber the transcripts.

When the interviewees spoke in Creole, a phonological transcription was made in order to differentiate the French transcripts from the translations.

2. Qualitative analysis grids

2.1 During the group review meeting organized by the MLS

Criteria to be observed/reported for the participants

1. Number of oral interventions
2. Use of positive terms/elements or aspects in relation to the program
3. Statements questioning some aspects of the program
4. More critical Statements about the program
5. Attitudes and body language indicating a positive view
6. Attitudes and body language indicating a negative view
7. Attitudes and body language indicating disinterest

Data were collected through the note-taking of observers.

2.2 During the focus group at the end of the program

Group interview grid Duration: 90 min, audio recording
I. Overview of viewpoints and values (group exchange for 30 min)
Possible subjects: • What does it mean to be successful in life? Share the opinion of one of your friends or family members as well as your own opinion? Role of diplomas? Role of school? • What does good professional integration mean for you? What can facilitate or promote it? • What do you think of the professional integration of young people in La Réunion?
II. Exchanges about the program evaluation
Procedure: **1.** Individual phase: written questionnaire with five questions relating to the program (15 min.) **2.** Group phase: pooling of responses, exchanges around each participant's professional and personal projects, linking with the two previous phases (45 min).

Questions asked to the youths:	
1.	Indicate three positive/structuring aspects of the program and its impact on their career path (why was it important, what was their background, how will it be important in their future careers)
2.	Indicate three negative aspects about the program and its impact on their career path (why was it important, how will it be important in their future careers)
3.	Indicate three destabilizing aspects about the program and its impact on their career path (why was it important, how will it be important in their future careers)
4.	Identify any the elements/aspects of the program that they would like to pursue and/or deepen. Why?
5.	State if there were any aspects that should be added to the program (what was missing?). Why?

3. Qualitative perspective: Focus on the professional integration of young people in the treatment group

Many testimonies highlight how the JEME program helped the young people define their professional project. As one male commented:

> [The JEME program] gave me a better idea of what I want to do. Before, I knew that I didn't want to work in fast food or restaurants, I knew I wanted to work in sales, but now I know what type, mobile phones, it's my dream, yeah, that's my dream (male, 22 years).

> The training was good because it got me back on track, put me on the right path, taught me that I can do things, that there are lots of things to do (female, 21 years).

> One of the things that it did for me, something that I hadn't even thought of, was the goal, how to choose my goal, how to prioritize my goal. It made me realize that I should be planning for the long term. When and how long training will take (male, 18 years).

The projects defined by the youths are often ambitious, which is coherent with their improved self-confidence:

> I want to keep training with a vocational baccalaureate to improve my massage skills and open my own beauty salon, but first I'd like to work in a salon to get some experience and save money so that I can work for myself in a few years (female, 21 years).
>
> I'd like to be hired for the company where I'm an intern and then start my own company in a few years, but first I need to prove myself as a manager (female, 21 years).
>
> So not teaching for me but rather sales, because I know how to talk, people tell me that I'm good at talking, so sales, but not just a sales assistant, I want responsibilities, that's why the training is good (female, 23 years).

Several youths describe developing professional strategies in line with their goals. One young man (22 years) with a carpentry diploma who described himself as "discrete" signed up to the job center to accept "anything" but did receive any job offers. For a while, he wanted to become a bus driver but was not contacted for an interview. The JEME program allowed him to "define a project," "clarify his choices," and envisage a career in IT, namely "coding and creating games" after learning to program with his cousin. He immediately enrolled in post-secondary programming training.

One woman, who wanted to become a childcare worker but lacked the necessary diploma, undertook professional training to prepare a state diploma in educational and social support (DEAES):

> I want to help people, look after others, looking after others is my thing, so after validating the coursework, I'll be exempt from taking the written exam and only have to pass the oral exam, and that's OK for me (female, 21 years).

For one 20-year-old man who had a diploma (BEP) in cooking but abandoned his studies after failing the vocational baccalaureate and then enrolled in a web development course, “which stopped in the middle for some reason,” the JEME program helped him “get back everything (he) needed on a professional level” in order to “affirm (his) project” and understand “where I want to go, what I want to do, and what I have to prepare.” He thus hoped to work in the domain of “animal behavior, either in the wild or in a pet shop,” and he is now actively engaged in returning to university to complete a Bachelor’s degree while working as an intern in pet shops in parallel.

Another young man aged 19 years “did odd jobs” while waiting to begin training with the Regiment of Adapted Military Service (RSMA) of La Réunion.

> I know where I’m going, what I really want, and how I’m going to get there... At the moment, I’m working at the post office to earn some money, but it’s temporary, because after I’m going to enlist in the army, I know that’s what I want… The program really boosted me and made me want to get moving, in any case, I really want to get moving to do what I want (male, 19 years).

The strategies highlighted by the interviewees were made possible thanks to the tools proposed by the different workshops, which were generally well integrated by the youths:

> They gave us techniques, you should do this or that, not this or that. It was quite specific, you don’t just do what you want in an interview, otherwise you’ll give a bad impression, and you need to make a good impression on the boss if you want to be hired (female, 21 years).

> The image coaching was really good, practical. You could see the benefits straight away and how it could make you look better in terms of how you dress, stand, use make-up,

for example, I don’t dress like that but you shouldn’t wear clingy or short dresses when you go to work, as it looks bad (female, 21 years).