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Soft-skills training, locus of control, and labor market outcomes of youth: Evidence from Kenya[1]

Kibrom A. Abay,[†] Maria Laura Alzua,[‡] Laura Nelima Barasa,[⁑] Phyllis Mumia Machio,[⁑] and Martin Paul Jr. Tabe-Ojong[¥]

Abstract

We evaluate the impact of a gender-sensitive soft-skills training that aimed to address youths' labor market constraints in technical and vocational education and training (TVET) institutions in Kenya using a clustered randomized controlled trial. We also explore whether the presence (or absence) of complementary noncognitive skills, such as locus-of-control, moderates the impact of soft-skills training. Our evaluation combines baseline, midline, and endline data to understand the dynamics of labor market transitions for the youth. Although we find suggestive evidence that the soft-skills training marginally contributed to preparing the youth for the labor market by improving their willingness, expectations, and preparedness for jobs, the impact of the soft-skills training on ultimate labor market outcomes appears negligible. However, the effect of soft-skills training varies across individuals with varying personality traits. Soft-skills training improved labor market outcomes for those with internal locus of control, implying important heterogeneity across individuals with varying non-cognitive skills.

Keywords: Soft skills, locus of control, TVET, youth, labor market, Africa, Kenya.

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Keywords: Soft skills, locus of control, TVET, youth, labor market, Africa, Kenya.

1. Introduction

Amid a global economy beset by recurring crises, geopolitical tensions, social unrest, and global trade barriers, the labor market is increasingly becoming more challenging for youth and women. Africa has the world's youngest population, with a median age of about 20 years (African Development Bank, 2018; ILO, 2022). While this youthful population offers an adequately large and energetic workforce that could drive economic transformation, high rates of youth unemployment pose a major challenge in many African countries (Fox et al., 2016; Fox et al., 2020; Sumberg et al., 2020; Bhorat et al., 2025). In 2020, more than 20 percent of young men and women were not engaged in employment, education, or training (NEET) in Africa (Cieslik et al., 2022; ILO, 2022). Moreover, about 12 million youth enter the workforce each year in Africa, but only 3 million jobs are created annually in the formal sector (African Development Bank, 2018; ILO, 2022). Furthermore, evidence from several African countries indicates significant gender-based employment segregation, with women more likely than men to be engaged in low-productivity sectors, less-profitable businesses, unpaid family employment, or the informal economy (e.g., Heintz, 2018; Klasen, 2019).

Several supply- and demand-side factors are believed to contribute to existing high rates of youth unemployment and associated gender gaps in labor market participation (e.g., Fox and Kaul, 2018; Fox et al., 2020). Among the supply-side constraints, skill gaps appear to be one of the most important barriers impeding youth and women's labor market participation in various sectors and occupations (e.g., Das

and Kotikula, 2019). Addressing these gaps require integrated interventions that simultaneously tackle these gaps along with other supply- and demand-side constraints. Other important factors that contribute to disparities in labor market outcomes include cognitive and noncognitive skill gaps (e.g., Heckman et al., 2006; Heckman and Kautz, 2012; Kautz et al., 2014). Recent studies highlight the increasing role of social and soft-skills in shaping labor market outcomes (Deming et al., 2017; Algan and Huillery, 2025; World Economic Forum, 2025). Socioemotional skills such as emotional intelligence, collaboration, and resilience are becoming increasingly essential for success in the future of work, which is marked by advancing automation and rapid change. Soft skills distinguish human capabilities from artificial intelligence and are crucial for navigating complex work environments, leading teams, and adapting to emerging challenges. However, there is sparse literature examining the link between soft skills and labor market outcomes in the context of Africa, which creates a significant evidence gap since program effectiveness is highly context-dependent (Carranza and McKenzie, 2024; Quinn and Woodruff, 2019; Alcid et al., 2023).

This paper evaluates the effectiveness of a soft-skills training to improve the labor market participation of young men and women in the context of a multifaceted technical and vocational education and training (TVET) program in Kenya.[2] The intervention is a complementary course that provides soft-skills training, information, and motivation to youth about opportunities as they enter the labor market. We tested the effectiveness of the intervention to support young men and women in making the transition from school to work in Kenya. The training included significant gender-sensitive elements meant to address young people's unique interests, preferences, and constraints in Kenya. It also included lessons to help improve agency and ability to make strategic life choices and act upon those choices. The course included material that aims to address women's challenges and constraints in the Kenyan labor market and work environment. The course was delivered through a methodology called direct instruction, which uses manuals, videos, and materials for both the instructors and trainees.[3]

We used a cluster randomized controlled trial (CRCT) and assigned about half of the classes and students into a treatment group (soft-skills training) and the remaining

[2] The training was implemented in four TVET centers in Kenya: Nairobi Technical Training Institute (NTTI), Kabete National Polytechnic, Kiambu Institute of Science and Technology (KIST), and PC Kinyanjui.

[3] The implementation of training via direct instruction has proven effective in formal education in basic and high school education (e.g., Engelman, 2024).

half into the control group. We did this for each TVET center to ensure balance across the treatment and control groups. Including both young men and women, in both the soft-skills training as well as in the control group classes, allowed us to quantify the overall impact of the intervention, while also facilitating further heterogeneity analyses on potential differential impacts across genders and groups of individuals. Identifying the overall and heterogeneous impacts of these interventions is crucial to design cost-effective and scalable approaches to address youth unemployment, as well as gender gaps in labor market participation. We also explore whether the presence (or absence) of complementary noncognitive skills such as locus of control, which is defined as the perceived control that individuals have over situations and outcomes in their lives (Rotter, 1966), moderates the impact of the training. Although the implication of psychological traits such as locus of control remains understudied in Africa and among the youth, it has been shown to be instrumental for improving labor market outcomes (e.g., Cobb-Clark, 2015; Mendolia and Walker, 2015) through effects on search efforts and job market strategies (Caliendo et al., 2015; McGee and McGee, 2016), as well as ability to achieve goals (Heywood et al., 2017). We also studied whether labor market outcomes and returns to these skills, and locus of control, vary by gender.

We collected three rounds of data, including baseline data collected before the students completed the soft-skills training, midline data collected six months after the training, and endline data collected about one year after the training. Through these surveys, we collected important labor market outcomes, as well as information on young people's perceptions and expectations of labor market outcomes. We then estimated different empirical specifications exploiting temporal and cross-sectional variation in exposure to the training.

We find that although soft-skills training marginally affected willingness, expectations, and preparedness for the labor market, the impact of the soft-skills training on ultimate labor market outcomes appears negligible. However, soft-skills training improved labor market outcomes for those with internal locus of control, implying important heterogeneity in the impacts across individuals with varying personality traits.

Our study contributes to several strands of literature. First, it contributes to the literature on the African youth bulge and the transition from school to labor markets in Africa, a topic that is understudied. By explaining important factors and interventions that may shape these transitions, we provide important insights to inform targeted interventions that can support youth participation in the labor market. Second, our study

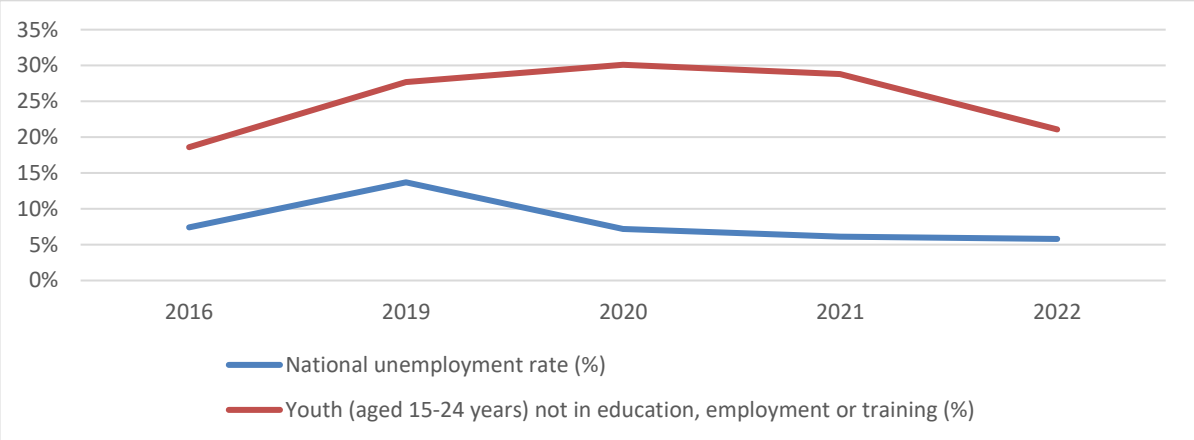
contributes to the literature on the role of soft-skills and associated trainings to improve the labor market outcomes of individuals (e.g., Deming, 2017; Acevedo et al., 2017; Ashraf et al., 2020; Campos et al., 2017; Schlosser and Shanan, 2022; Edmonds et al., 2023; Adhvaryu et al., 2023). Our paper contributes to this literature by highlighting for whom soft-skills interventions can improve labor market outcomes. Third, we contribute to studies that highlight the role of personality traits and associated noncognitive skills in shaping labor market outcomes (Cobb-Clark, 2015; Caliendo et al., 2015; McGee and McGee, 2016; Heywood et al., 2017). Finally, we contribute to the literature on the use of direct instruction methods in the context of state-funded vocational training (Dean and Kuhn, 2007; Rosenshine, 2009; Engelman, 2024). Such an approach may have advantages in reducing the cost of training for systems that are generally underfunded.

2. Context and Review of Related Literature

2.1 Context

Youth (15-24) constitute about 28 percent of Kenya's population of 47.6 million people (Kenya National Bureau of Statistics, 2023). The share of youth not engaged in education or training (NEET) in Kenya reached about 30 percent in 2020 (Figure 1), while the overall national unemployment rate remained below 10 percent (Figure 1). Recent and increasing discontent of youth in Kenya, as reflected in recent demonstrations, are manifestations of the underlying lack of economic opportunities.

Figure 1: Unemployment and the share of youth not engaged in education, employment, or training in Kenya

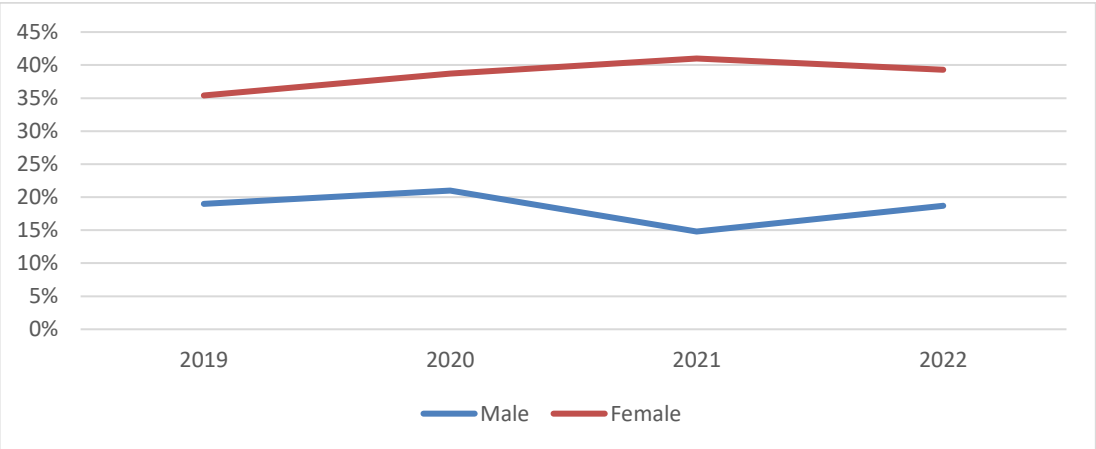


Source: Kenya National Bureau of Statistics (2023).

Narrowing the scope further, Figure 2 shows that the NEET rate among girls and

women ages 15 to 24 has been consistently higher than for their male counterparts. In addition, the gender gap in youth unemployment widened substantially after 2020. This may be attributed to adverse labor market conditions brought about by the COVID-19 pandemic and other shocks.

Figure 2: Youth not engaged in education, employment, or training in Kenya, by gender



Source: Kenya National Bureau of Statistics (2023).

Note: Youth are defined as individual ages 15–24.

Policymakers and other stakeholders in Kenya have recently introduced various initiatives and interventions to address the challenges facing youth. Some of these initiatives and programs include the Youth Employment Scheme Abroad, Youth Enterprise Development Fund, Kenya Youth Employment and Opportunities Program, Kenya Youth Empowerment Program, Kenya Youth Employment and Skills Program, and Kenya Youth Employment and Entrepreneurship Accelerator Program. However, rigorous empirical evidence on the effectiveness of these interventions remains scant. Most TVET centers in Kenya are owned by the government and offer little flexibility in their curriculums, despite changing demand in the labor market. While formal education in TVET centers concentrates

on technical skills, soft skills, including socio-emotional and noncognitive skills, have not received sufficient attention. These gaps in the TVET curriculum and limited resources to finance additional soft-skills training continue to impede the development of soft skills in Kenya (Muchira et al., 2023).

2.2 Recent evidence on the impact of related interventions

Although the literature on the impact and potential of alternative active labor market policies and interventions in Africa remains an at early stage, the pervasive youth unemployment in several African countries has triggered recent experiments. Abebe et al. (2021) compare the impact of providing a transport subsidy and signaling skills through a job application workshop on youths' labor market outcomes in Ethiopia. The authors find that both interventions have large positive effects on the likelihood of finding formal employment in the short run. However, the job application workshop shows long lasting effects as it significantly increases job satisfaction, earnings, and employment duration four years later. Relatedly, Bassi and Nansamba (2022) investigate how employers and job-seekers react to non-cognitive or soft skills certificates at recruitment in Uganda. The authors find that firms are more effective at screening productive workers, while workers effectively signal their skills using the soft skills certificates.

Closer to our study, Brudevold-Newman and Ubfal (2023) evaluate the impact of a two-week intensive soft-skills training program on youths' labor outcomes in Rwanda. The authors show that the program accelerated entry into the labor market following the COVID-19 pandemic, but the effects dissipated after a year. There were also no significant gender differences. Similarly, Alcid et al. (2023) examine the impact of a training including hard skills and soft social skills on the employability of underemployed youth in rural Rwanda. The training components included mentorship and networking and modules aimed at developing technical skills, soft social skills, and entrepreneurship. The authors find modest effects of the intervention on networking and work readiness in the short-term and no significant effects in the medium-term. Crawford et al. (2021) demonstrate that apprenticeship and vocational training including business-related soft-skills significantly improved employment outcomes for marginalized youth in Nigeria. The authors also found large increases in self-employment for women. Notwithstanding, Ibarraran et al. (2014) find mixed results on the impact of a soft-skills training program among youth in the Dominican Republic. The authors find improvements in earnings, formality of work, and non-cognitive skills, but no increase in overall labor force participation.

In their systematic review of training programs in sub-Saharan Africa, Beber et al. (2025) claim that training commonly has positive effects on employment outcomes. The authors partly attribute these effects to improvements and differences in program conception, siting, and delivery. While many programs target technical skills, some others target soft skills including but not limited to communication skills in addition to or separately from technical skills. Notwithstanding, some countries remain understudied with Uganda, Tanzania, Ethiopia, and Rwanda accounting for slightly more than half the studies include in the systematic review. This presents an evidence gap, as program effectiveness is closely linked to the specific context of the study (Carranza and McKenzie, 2024; Quinn and Woodruff, 2019).

Job training programs typically offer vocational training aimed at imparting technical skills such as carpentry, hairdressing, tailoring, plumbing, electrical work, and information technology skills such as data entry and coding among others. In addition to technical skills, some programs also include soft skills such as communication, self-efficacy, financial literacy, and teamwork. These programs are at times taught in classrooms or can be inf the form of on-the-job-training though an apprenticeship or internship. Most programs offered by governments and those in literature tend to last between three to six months. There are also shorter intensive programs lasting between three weeks to a month, and longer programs that take two years but are sometimes offered as part of the formal TVET programs (Carranza and McKenzie, 2024).

Carranza and McKenzie (2024) argue that psychological factors can limit labor market outcomes even when jobseekers know where and how to look for work and can credibly signal their skills. A relatively new area of research now includes interventions aimed at addressing psychological barriers including the "intention-behavior gap" that limit desirable labor market outcomes. In South Africa, Abel et al. (2019) find that prompting job-seekers to set job search plans and goals increased the job search intensity and resulted in more job offers and higher employment over a period of three months. In Senegal, Allemand et al. (2023) find that a soft-skills training program aimed at activating conscientiousness diminished job turnover among construction workers. Lastly, in Mexico, Abel et al. (2022) demonstrate that a temporary wage subsidy helped workers overcome behavioral biases emanating from high discount rates and impatience that led to the unwillingness to accept jobs with low starting wages but high wage growth trajectories.

Heckman and Kautz (2012) and Kautz et al. (2014) demonstrate that while cognitive skills play a key role in explaining labor market outcomes, socioemotional skills account for

a large proportion of the unexplained variation. Beaman et al. (2021) investigate the impact of a life skills program mediated through sports groups on socioemotional or psychosocial behaviors and labor market outcomes among youth in Liberia. Despite finding no effect of the program on socioemotional behaviors, the authors find an increase in labor market outcomes. Notwithstanding, Calero and Rozo (2016) find that training aimed at preventing participants from engaging in risky behaviors increased income but improved behaviors among participants with higher pre-existing levels of socioemotional skills. In line with this, Hennecke (2024) demonstrate that women with internal locus of control i.e., women that they perceived themselves as having much personal control over their behavior, were more likely to participate in the labor market than their counterparts that had external locus of control relating to the belief that external factors controlled their lives.

2.3 Locus of control and labor market outcomes: Review and concepts

Several studies have consistently highlighted that labor market programs and interventions yield varying impact depending on the context and population involved (e.g., Crepon et al., 2016; McKenzie, 2017; Vooren et al., 2019). This body of evidence points to considerable heterogeneity in how different groups respond to these policies, often influenced by a range of underlying factors and attributes. Building on these findings, we hypothesize that the impact of soft-skills training may not be uniform among all participants. Instead, its effectiveness is likely to differ depending on individual personality traits. For instance, certain traits may enhance a person's ability to benefit from the training, while others may present barriers that reduce its effectiveness. Recognizing and understanding these individual differences is crucial for designing interventions that are better tailored to meet the diverse needs of young people entering the labor market.

To structure our understanding of the implication of the soft skills training on labor market outcomes and how this might be different for individuals with internal locus of control, this section provides a simple conceptualization of some mechanisms. First, training has the potential to significantly enhance human capital by equipping individuals with a comprehensive set of new skills. These include foundational skills, which are essential for basic literacy and numeracy; technical skills, which are directly relevant to specific trades or professions; and soft skills, such as communication, teamwork, problem-solving, and adaptability. By providing instruction in these areas, training not only helps individuals become more competent and versatile but also increases their overall productivity and

employability. As trainees master foundational concepts and technical competencies, they are better prepared to take on a wide range of tasks in the workplace, while the development of soft skills further empowers them to interact effectively with colleagues, adapt to changing environments, and navigate complex challenges.

Second, training programs play a crucial role in reducing employer uncertainty about prospective workers by offering credible certifications or references. Such certification serves as a formal validation of the skills and competencies that trainees have acquired during their training. By presenting this documentation, job seekers can clearly signal their qualifications, reliability, and readiness to potential employers, thereby differentiating themselves in a competitive labor market. This signaling effect not only helps employers make more informed hiring decisions but also increases the confidence of employers in the abilities of new entrants, potentially expediting the recruitment process and improving job matches. By bridging the information gap between job seekers and employers, certification provided through these programs supports both the employability of youth and the efficiency of the labor market.

In addition to equipping participants with foundational, technical, and soft skills, training may provide jobseekers with new job search strategies and valuable professional networks (Carranza and McKenzie, 2024). These expanded strategies could include guidance on how to effectively search for job openings, tailor resumes and cover letters for specific positions and prepare for interviews. Furthermore, training programs often facilitate access to labor market information and connect participants with mentors, employers, or industry contacts, thereby increasing their exposure to employment opportunities (Brudevold-Newman and Ubfal, 2024). By building these networks, job-seekers can benefit from referrals, recommendations, and insights about the recruitment process that they might not have accessed otherwise. Such support not only enhances the practical skills needed for job searching but also helps to build confidence and motivation, ultimately improving the chances of securing suitable employment in a competitive labor market.

Besides the suggested possible implication of the soft skills training on labor market outcomes, we also highlight how this might be different for individuals with internal locus of control. Locus of control refers to the perceived control that individuals have over situations and outcomes in their lives (Rotter, 1966). Locus of control has been shown to be instrumental for decision-making and choice formation through its influence on both socioeconomic and behavioral outcomes (Ng et al., 2006). These attributes are instrumental in improving labor market outcomes (Cobb-Clark, 2015) through their effects on search

effort and job market strategies (Caliendo et al., 2015; McGee and McGee, 2016). A high level of self-efficacy and internal locus of control increases self-assignment into jobs that provide workers the ability to showcase their unique values and ability to achieve goals (Heywood et al., 2017).

There exist some pathways through which locus of control may shape labor market outcomes. For instance, locus of control can lead to investments in human capital, especially for youth. Heckman and colleagues (2006) show that locus of control explains school choice, employment, wages, and work experience. Locus of control matters for educational decisions, wherein it triggers higher expectations of the returns on investments in human capital among teenagers (Coleman and DeLeire, 2003).[4] The positive educational implication of locus of control has also been confirmed by Mendolia and Walker (2014), using an English cohort.[5]

Locus of control can enhance labor market outcomes by encouraging agricultural investments and entrepreneurial activities, as seen in Ethiopia and Kenya (Caliendo et al., 2014; Abay et al., 2017; Tabe-Ojong et al., 2023). Individuals with an internal locus of control tend to have higher expectations for returns on investments and are more proactive in adopting new technologies and managing assets (Buddelmeyer and Powdthavee, 2016). This trait also positively influences saving habits, wealth accumulation, and portfolio choices (Cobb-Clark et al., 2016; Bucciol and Trucchi, 2021; Salamanca et al., 2020).

Individuals with an internal locus of control exhibit important traits such as grit and perseverance in the face of adversity (Buddelmeyer and Powdthavee, 2016). This trait may further explain the impacts of locus of control on investments, but it could also highlight perseverance in investments or economic decisions, even when facing adversity or shocks. Additionally, this could signify psychological resilience, which is important amid uncertainties and shocks.[6] Individuals with internal locus of control are more likely to search more for jobs (Caliendo et al., 2015; McGee and McGee, 2016).

[4] Using a different dataset to test the theoretical predictions and ensuing empirical insight from Coleman and DeLeire (2003) and Cebi (2007) finds little statistical support for the role of locus of control as a determinant of educational outcome after controlling for cognitive ability.

[5] They find that teenagers with external locus of control are more likely to have low test scores in science and mathematics, and a higher likelihood of quitting school. Internal locus of control has been shown to be instrumental for educational attainment among teenagers, whereas youths with external locus of control are shown to drop out of education and employment (Mendolia and Walker, 2014).

[6] Internal locus of control has been highlighted as a psychological buffer against health shocks (Schurer, 2017), indicating that individuals with an internal locus of control suffer fewer psychological effects from adverse events. That is, internal locus of control serves as a buffer and insurance mechanism against adverse shocks (Buddelmeyer and Powdthavee, 2016).

Furthermore, locus of control can affect occupational attainment, and returns to these noncognitive skills can vary along gender lines (Cobb-Clark and Tan, 2011). Hennecke (2024) shows that women who believe that they have control over outcomes in their life are more likely to participate in the labor market than their peers who believe that outside forces control their lives. Locus of control has been demonstrated to be a significant component of wage determination models (Groves, 2005). When employed under low wage margins, individuals with internal locus of control are more likely to earn higher wages than their peers and have greater potential for upward mobility (Schnitzlein and Stephani, 2016). With this suggested mechanisms in mind, this study follows the theory of change documented by (Crawford et al., n.d.). In our study, the main activities undertaken include a soft-skills training with significant gender-sensitive elements aimed at addressing the unique interests, preferences, and constraints faced by youths in Kenya. The soft skills training also included lessons aimed at helping youth to improve their agency, ability to make strategic life choices, and to act upon those choices. Additionally, the training included components aimed at addressing women's challenges and constraints in the labor market and work environment. The training was delivered in-person by trained TVET instructors by means of course materials including one-hour-long video lessons in addition to the standard TVET curriculum. The immediate desired output or short-term outcome was to improve trainees' soft skills including labor market perceptions, attitudes, and job search efforts. The expected direct outcome of the soft skills training was an improvement in trainees' ultimate labor market outcomes following their graduation from the TVET. The hypothesis was that soft skills including socio-emotional and non-cognitive skills would equip youth with knowledge and strategies for overcoming psychological barriers that limit desirable labor outcomes including working for income and gaining employment among others.

3. Intervention, Experimental Design and Data

3.1 Intervention

We implemented a soft-skills training that aims to improve the employability of young TVET graduates. The soft-skills training was designed in a way that considers the unique interests, preferences, and constraints of young men and women in Kenya. Beyond the usual skills training that aims to support young men and women in navigating the labor market, it included specific modules meant to empower participants, with the ultimate objective of enhancing their ability to make strategic life choices and to act upon those choices within their households, communities, and, ultimately, the labor market. The course included material to address the challenges and constraints facing youth in the

Kenyan labor market and work environment. Some of the modules provided information and motivation for young men and women about opportunities for entering the labor market. The course materials were developed specifically for this intervention and divided into 10 one-hour-long video lessons. The video lessons were facilitated and delivered in person as an additional module of the standard curriculum. TVET teachers were trained to deliver the course materials and instructed to follow a detailed script. Table A1 in the Appendix shows the topics covered in the 10 video episodes, which resembled a TV series. Each episode portrayed specific skills needed to succeed in the labor market. The teachers were instructed to interrupt the videos at specific times and ask the trainees to complete assessments in their booklets.

The training was implemented across four TVET centers operating under the Kenyan Ministry of Education: Kabete National Polytechnic, PC Kinyanjui Technical training Institute, Nairobi Technical Training Institute (NTTI), and Kiambu Institute of Science and Technology (KIST), which are all located within Nairobi or on its outskirts. The training was implemented in these centers between October and November 2022. The four TVET centers have a long record of delivering training to high school graduates. They are fully accredited by the Technical Vocational Education and Training Authority and Kenyan Ministry of Education to provide TVET training at the diploma, craft, and artisan levels. The TVET centers provide courses in the applied sciences; baking; building and civil engineering; business, entrepreneurship, and social studies; electrical and electronics engineering; information and communication technology and computer studies; industrial mechatronics; hospitality; and mechanical and automotive engineering departments, among others. These courses aim to equip trainees with marketable skills that can help them navigate the labor market. The soft-skills training we implemented was designed to complement the hard skills associated with the above courses. In addition to the usual skills training delivered by the centers, students in classes assigned to the treatment group also received the soft-skills training, while students in classes assigned to the control group underwent TVET training as usual, without the addition of the gender-sensitive soft-skills lessons.

3.2 Experimental design

We designed a cluster randomized control trial (CRCT) at the class level to minimize contamination. We targeted students who were expected to complete their studies soon and enter the labor market. Eligible groups for this training were TVET classes and students expected to complete training by December 31, 2022. Each TVET center had

two groups: those assigned to receive the treatment and those assigned to the control group. For the treatment classes, a selected teacher was required to show the video to the students, explain the content, and facilitate discussion. Additionally, participants were asked to conduct several training-related activities that would reinforce the material and information captured in the videos. Our sample of treated and control group classes included both young male and female students, which allows us to compare the relative efficacy of the soft-skills training by gender.

To implement this cluster randomization, we worked closely with the TVETs. In the first stage, TVET centers submitted a list of classes and students expected to graduate before the end of 2022, which included 187 classes and 3,680 students. Based on this sample of classes and eligible students, the research team collected baseline data from 3,621 potential treatment and control group candidates. After completing the baseline survey, we randomized classes (and candidates) into treatment and control groups. We assigned 50 percent of the sample to the treatment group and the remaining 50 percent to the control group. The randomization was stratified by the four TVET institutions. We did this for each TVET center to ensure balance across treatment and control groups. Our power calculations suggest that these classes and students are sufficient to detect plausible effects of the intervention.

Following our research design, the share of students assigned to receive the soft-skills training amounted to about half of the total sample (Figure 3a). However, for various reasons, some students assigned to the treatment did not attend at least one of the 10 sessions, and hence the actual participation rates are less than 50 percent (Figure 3a). The second graph in Figure 3 (Figure 3b) shows compliance rates associated with each TVET center. We define participation (and hence compliance) as attending at least one of the 10 sessions. These rates represent the share of students who followed the assignment in both control and treatment groups. Students who followed the random assignment are represented by a value of 1 and those who did not are represented by a value of 0. Compliance rates are generally high, ranging from 72 percent for PC Kinyanjui to 87 percent for NTTI and Kabete. This is encouraging and within the range we assumed in our power calculations. Potential explanations for noncompliance are related to implementation problems and associated confusion. We characterized the distribution of observable characteristics across the compliers and noncompliers by regressing the probability of compliance as a function of the candidates' baseline characteristics. The results are reported in Table A2. Despite minor differences, we

cannot reject the null hypothesis of jointly zero coefficients associated with the comprehensive list of observable characteristics.[7]

Figure 3: Treatment assignment, actual participation, and compliance rates

Figure 3a: The share of sample assigned and followed treatment assignment

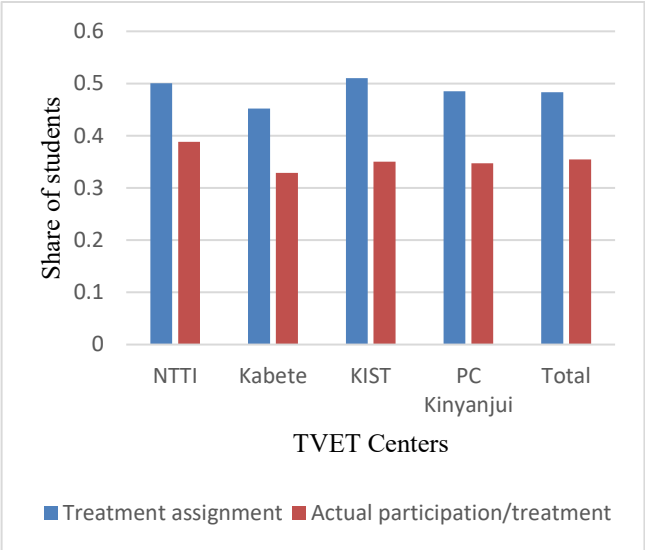
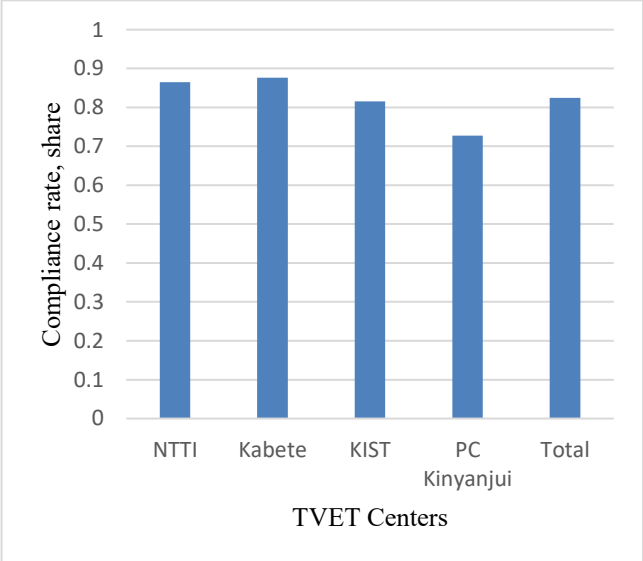


Figure 3b: Share of sample following random assignment



Source: Own computations based on random assignment and participation records.

Notes: KIST=Kiambu Institute of Science and Technology; NTTI=Nairobi Technical Training Institute; TVET=technical education and training.

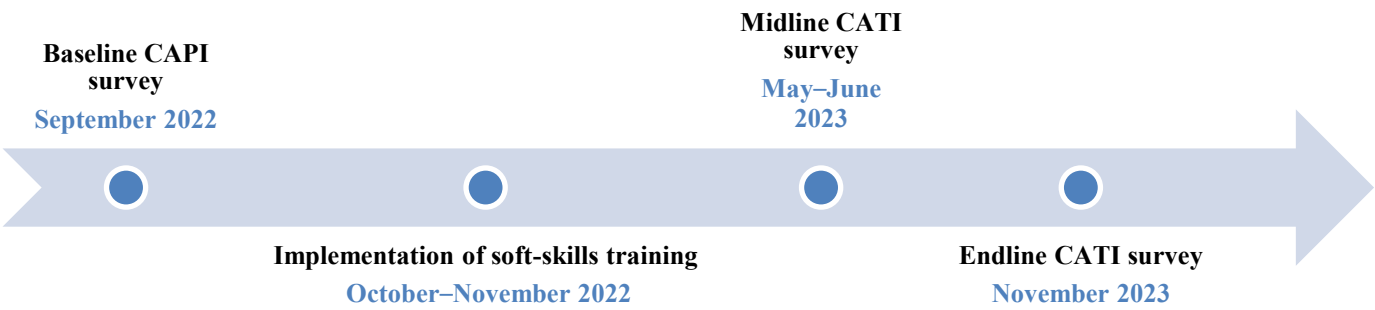
3.3 Data collection and survey

Data were collected in three rounds. Baseline data collection took place before the training started, and the midline survey was implemented about six months after completion of the intervention, and hence about five to six months after the students completed their TVET training. The baseline survey data was collected in September 2022, and the intervention was launched in October 2022. The midline survey was

[7] The F-test statistic for the regression of the compliance indicator variable on the characteristics listed in Table 1 equals 1.28, with a p-value of 0.197.

carried out about five to six months after the students completed their TVET training, in May and June 2023. The endline survey was conducted in November 2023, about 12 months after the students completed the soft-skills training and their TVET training. Figure 4 shows the timeline of the intervention and data collection. The baseline survey was done using computer-assisted personal interviews (CAPI), while the midline and endline surveys were conducted using computer-assisted telephone interviews (CATI).[8] While the baseline face-to-face survey covers several modules that capture demographic and labor market characteristics and outcomes, the midline and endline phone surveys focused on modules related to labor market participation. The baseline survey collected detailed demographic information along with the students' household characteristics, expectations, and future aspirations and perceptions.

Figure 4: Timeline of intervention and data collection



Note: CAPI=computer-assisted personal interviews; CATI=computer-assisted telephone interviews.

Our sample includes 187 classes distributed across the four TVETs. A total of 3,621 students were interviewed in the baseline survey. Approximately 30 percent of these were from NTTI, 31 percent were from Kabete, 27 percent were from KIST, and 13 percent were from PC Kinyanjui. Slightly more male students (54 percent) than female students (46 percent) were interviewed. There was not much variation by gender across the four TVET centers. As shown in Table 1, the mean age of the students was 23, and more than 60 percent of the students were between 21 and 23. We were able to reach close to 88 percent of the graduates in our phone survey in the midline and 85 percent of them in the endline surveys. These are reasonably low attrition rates and consistent with the assumptions in our power calculations. In Table A3, we show that these attrition rates are not correlated with the treatment assignment.

[8] CATI was chosen over CAPI for the midline and endline surveys mainly because of budget constraints.

To assess the integrity of the randomization, we tested the balance of the observable characteristics of treated and control group students. As shown in Table 1, the random assignment generated comparable groups of treatment and control group candidates. Table 1 compares the distribution of a long list of observable characteristics across students assigned to the control and treatment groups. The mean values of these observable characteristics are statistically comparable across treatment and control group students. This supports the validity of the random assignment and lays the foundation for a successful evaluation of the impact of soft-skills training on individuals' perceptions, attitudes, job search efforts, and ultimate labor market outcomes.

Table 1: Balance of individual and household characteristics

	(1) Control group	(2) Treatment	(3) Full sample	Pairwise t-test (p-value)
	Mean/SD	Mean/SD	Mean/SD	(1)-(2)
Female	0.49	0.42	0.46	0.20
	[1.68]	[1.57]	[1.67]	
Age	22.51	22.72	22.61	0.20
	[4.14]	[5.27]	[4.79]	
Has college education	0.08	0.07	0.08	0.41
	[0.31]	[0.37]	[0.34]	
Never married	0.91	0.89	0.90	0.62
	[0.71]	[0.72]	[0.71]	
Household size	4.55	4.49	4.52	0.33
	[1.91]	[1.79]	[1.86]	
Lives in a hostel	0.17	0.20	0.18	0.51
	[1.03]	[1.45]	[1.25]	
Lives in rented place	0.52	0.50	0.51	0.69
	[1.11]	[1.13]	[1.12]	
Lives at home	0.22	0.22	0.22	0.99
	[0.74]	[0.90]	[0.82]	
Attends diploma course	0.62	0.71	0.66	0.31
	[2.91]	[2.43]	[2.72]	
Has Facebook account	0.79	0.80	0.79	0.30
	[0.54]	[0.54]	[0.54]	
Household owns land	0.76	0.75	0.75	0.61
	[0.43]	[0.58]	[0.51]	
Household owns livestock	0.47	0.45	0.46	0.16
	[0.64]	[0.60]	[0.61]	
Household has computer	0.18	0.20	0.19	0.21
	[0.47]	[0.52]	[0.50]	
Household owns a car	0.28	0.26	0.27	0.29
	[0.59]	[0.53]	[0.56]	
Household's income category	3.85	3.85	3.85	1.00
	[2.04]	[2.66]	[2.35]	
Locus of control	0.06	0.10	0.08	0.33

	[1.11]	[1.09]	[1.10]	
Currently working	0.07	0.07	0.07	0.57
	[0.28]	[0.25]	[0.27]	
Has ever worked for income	0.55	0.56	0.55	0.69
	[0.76]	[0.84]	[0.80]	
Willing to accept job offer	0.99	0.98	0.99	0.45
	[0.10]	[0.14]	[0.12]	
Satisfied with the TVET training	1.71	1.75	1.73	0.17
	[1.00]	[1.07]	[1.05]	
Job search in the last 4 weeks	0.36	0.36	0.36	0.80
	[0.74]	[0.66]	[0.70]	
Number of classes	92	95	187	
Number of observations	1,867	1,754	3621	

In Table A4, we report transitions in labor market outcomes as well as associated changes in perceptions and expectations about the labor market. Students were asked about their satisfaction with the TVET training; the mean satisfaction score for the full sample was relatively high and stable across all rounds. Students were also asked how long they thought it would take them to find a job after completing their training. The results in Table A4 show that in the baseline (before their graduation), about 90 percent of respondents believed that they would find a job in less than a year. This declined in the midline survey and reached 81 percent in the endline survey. These findings imply that while many students are optimistic about finding employment relatively soon after completing training, the reality they face after completing their training makes them relatively less optimistic. These patterns are consistent with mismatch in expectations about the labor market (e.g., Jones et al., 2024; Jones and Santos, 2022). We also asked the respondents whether they would immediately accept a job offer and almost all in the baseline survey reported willingness to do so, although this trend declined in the midline and endline surveys. The labor market outcomes in Table A4 show transitions from TVET training to participation in labor markets. For example, the share of respondents currently working rose from 7 percent in the baseline, to 32 percent in the midline, to 49 percent in the endline survey. Similarly, the share of respondents who have worked for income increased from about 55 percent in baseline to 68 percent in endline. This indicates that some students were able to access employment after completing their training and, with the passage of time, more students became employed.

Besides ultimate labor market participation, students were asked whether they had searched for a job, believed that there were any job opportunities in their area, or were optimistic about finding a job. In the baseline survey, only about 36 percent of the

students had searched for a job in the last four weeks. This doubled to 72 percent in the midline survey and then marginally declined to 67 percent in the endline survey. The average monthly labor income in the baseline survey was very small (1,158 KES, or about $US8), because many of the students were not working. This income increased to 5,702 KES (about $US41) in the midline and 9127 KES (about $US65) in the endline survey. Most of the differences in labor market outcomes across rounds are statistically significant.

3.4 Eliciting locus of control

Locus of control is "a generalized attitude, belief, or expectancy regarding the nature of the causal relationship between one's own behavior and its consequences" (Rotter, 1966). Individuals' subjective beliefs about their life outcomes and the extent to which these events can be affected by their own actions can affect decisions to invest in human capital and labor market outcomes. Individuals who believe that their life can be sufficiently influenced by their own actions are more likely to invest in training and related types of human capital (Coleman and DeLeire, 2003; Heckman et al., 2006). To assess respondents' perceived control over their life outcomes, a module to capture individuals' locus of control was administered. To elicit respondents' locus of control, survey participants were read statements and asked to score them on a scale of 1 to 5, with 1 being "strongly disagree" and 5 being "strongly agree." This list is shown in Table A5.4.4. These 10 questions are widely used to measure individuals' internal and external locus of control. The average responses to these questions were very similar across the rounds, consistent with previous studies showing that these types of attributes are generally stable across time (e.g., Cobb-Clark and Schurer, 2013). In Table A6, we show that the distribution of responses to these questions was statistically comparable across control and treatment groups in the baseline as well as after treatment, the latter of which implies that soft-skills training has a limited role in shaping these responses and outcomes.

While the first five questions in Table A5 capture external locus of control, the remainder relate to internal locus of control. To confirm this, and in accordance with common practice, we employed factor analysis to classify the contribution of items to select latent factors, which we interpret as internal and external locus of control. Our factor analysis shows that the first five items load into a latent factor, which we interpret as "external locus of control," while the last five items load into a factor which we

interpret as "internal locus of control." Once we identified which items contribute to external and internal locus of control, we reverse coded the items associated with external locus of control and constructed a unidimensional index that measures respondents' perceived level of control over life events. This index increases with internality (internal tendencies). To ease interpretation, we standardized this index and constructed terciles of locus of control. We asked the locus of control questions in all rounds; these values are virtually comparable, as shown in Table A5. But to ensure that these values are not affected by the soft-skills training, we constructed our measure of locus of control by using baseline values. Thus, in our estimations, we used both continuous and tercile values of locus of control, which are constructed using baseline values of locus of control. While using the mean values helps us to reduce noise from one round of data, using the baseline responses precludes any effect of the soft-skills training on these outcomes.

4. Empirical Strategy

To identify the impact of access to soft-skills training, we used the random assignment into the training and hence estimate intention to treat (ITT) values. While the random assignment of classes (and hence students) into training and control groups generates unbiased average effects of access to soft-skills training using simple mean differences, the availability of pre- and post-treatment data facilitates more structured and powered differences-in-differences or fixed effect estimations, especially in the presence of temporal persistence in labor market outcomes (McKenzie, 2012). We thus start by estimating the impact of access to the soft-skills training on youth labor market outcomes using the following difference—in-differences (fixed effects) specification:

$$Y_{it} = \alpha_i + \alpha_1 Post_t + \alpha_2\, Training_i * Post_t + \epsilon_{it} \quad (1)$$

$$Y_{it} = \alpha_i + \delta_1 Round_t + \delta_2\, Training_i * Round_t + \varepsilon_{it} \quad (2)$$

Where Y_{it} stands for youth labor market outcomes as well as associated perceptions and expectations for each youth *i* and survey round *t*. α_i stands for individual fixed effects and captures all time-invariant differences across youth, while $Post_t$ represents a binary indicator, assuming a value of 1 for those observations after the intervention and 0 for the baseline observations. The baseline survey was conducted in September 2022 when the students were still attending TVET training, while the midline and endline surveys were conducted in May 2023 and November 2023 after the students had completed training. The round dummy and associated coefficients α_1 capture aggregate trends triggered by the completion of the TVET training, as well as other temporal trends and factors. $Training_i$

represents a binary indicator variable, assuming a value of 1 for those youth who were assigned to receive the soft-skills training and 0 for those assigned to the control group. α_2 captures the average impact of access to soft-skills training. ϵ_{ht} represents idiosyncratic unobservable factors that may affect labor market outcomes. In equation (2) we use indicators of survey round instead of aggregating the survey into pre-and post-treatment. Thus, δ_1 and δ_2 capture vector of disaggregated trends and effects.

Although about half of the classes and students were assigned to the treatment group and half to the control group–and hence the share of students assigned to receive the soft-skills training amounts to about half of the total sample—compliance with the treatment assignment was not perfect. Potential explanations for this noncompliance are related to implementation problems and associated confusion. Thus, α_2 and δ_2 should be interpreted as intention to treat estimates, the impact of offering access to soft-skills trainings, instead of the actual impact for those who participated in the training. However, this parameter is interesting for two reasons: it would be important to understand the potential impact of offering soft-skills training to the youth, even if some do not attend the training, and in many settings, implementors have limited control to force or monitor participation.

We anticipate that the soft-skills training could generate varying impacts across youth with different levels of personality trait, including locus of control. We employed factor analysis to generate a categorical (as well as continuous) measure of locus of control that could capture individuals' perceived control over life events. To evaluate potential heterogeneity in the impact of the training on individuals with varying levels of locus of control, we expanded the specification in equation (1) by intersecting access to the soft-skills training with binary measure of (internal) locus of control as follows:

$$Y_{it} = \alpha_i + \beta_1 Post_t + \beta_2 Training_i * Post_t + \beta_3 Post_t * LOC_i + \beta_4 Training_i * Post_t * LOC_i + +\varepsilon_{ht} \quad (3)$$

$$Y_{it} = \alpha_i + \gamma_1 Round_t + \gamma_2 Training_i * Round_t + \gamma_3 Round_t * LOC_i + \gamma_4 Training_i * Round_t * LOC_i + \varepsilon_{ht} \quad (4)$$

Where all notations except LOC_i are as described in equation (1) and (2). LOC_i stands for terciles as well as standardized continuous index measuring individuals' perceived ability and hence internal locus of control over life events. As we have two rounds of post-treatment data, we also estimate short- and medium-term impacts in some of our estimations. These estimations use round dummies instead of the post-treatment dummy, as specified in

equation (4). We note that the locus of control enters the equation as a time-invariant element, which is constructed based on baseline values. The interaction terms and associated coefficients (β_4 and γ_4) helps to uncover potential heterogeneity across individuals with varying level of personality trait. β_4 and γ_4 captures additional impacts of the training on those individuals with internal locus of control. We anticipate β_4 and γ_4 to be positive and statistically significant. Similarly, we also test whether $\beta_2 + \beta_4 = 0$ and $\gamma_2 + \gamma_4 = 0$ to identify whether the soft-skills training has triggered significant effects for those youth with internal locus of control.

The soft-skills training was offered to both young women and men, allowing us to explore heterogeneities in the impact of the training as well as returns to locus of control. The randomization was conducted at the class level, and students in the same class will likely face similar treatment as well as similar labor markets, which can generate correlation of unobserved effects (error terms) across individuals from the same class. Thus, standard errors are clustered at the class level, which is the level of treatment in our case and hence the commonly recommended level of clustering standard errors (Abadie et al., 2023).

5. Estimation Results and Discussion

5.1 Overall effects of soft-skills training

In Table 2, we present the results of the impact of soft-skills training on willingness to accept a job offer, satisfaction, expectations, and intention to migrate for job purposes. We find that the soft-skills training marginally improved the willingness of young people to accept job offers immediately, as well as satisfaction associated with the main TVET training. We also find a small but positive impact of the soft-skills training on the expectation of finding a job within a year. The results in column 3 of Table 2 show that access to soft-skills training increases the expectation of finding a job within a year by about 3 percentage points and the willingness to accept job offers by about 2 percentage points. We also examined whether youth were satisfied with the TVET training, especially in terms of its relevance and usefulness for their job search. Those who were assigned to the soft-skills training were more likely to report that the TVET training was relevant and helpful for their career (columns 4 and 5). Relatedly, soft-skills training increases the intention to migrate to find better jobs by about 3 percentage points. However, two important issues are worth noting in relation to the effects reported in Table 2. First, although the estimates in Table 2 show that access to soft-

skills training improved preparation for and expectations of the labor market, the size of the effects remains marginal and negligible. Second, these outcomes are prone to experimenter demand effect (Zizzo, 2010; de Quidt et al., 2018).

Table 2: Soft skills training, expectations, and perceptions of the labor market

	(1) Willing to accept job offers	(2) Satisfied with TVET training (1–5 scale)	(3) Expect to get a job within a year	(4) TVET training was relevant (1–4 scale)	(5) TVET training was helpful (1–4 scale)	(6) Intend to migrate to find better job
Panel A: Aggregate estimates using post-treatment dummy						
Post dummy	-0.051***	-0.125***	-0.058***			
	(0.005)	(0.025)	(0.009)			
Treatment # Post	0.019***	0.067*	0.027*			
	(0.007)	(0.035)	(0.014)			
Treatment				0.057*	0.070**	0.025**
				(0.030)	(0.031)	(0.010)
Ind. fixed effects	Yes	Yes	No	No	No	No
Mean of control[a]	0.925	4.134	0.872	3.440	3.225	0.887
No. observations	9862	9871	9870	3076	3077	3081
Panel B: Disaggregate estimates using round dummies						
Round 2	-0.062***	-0.164***	-0.027**			
	(0.006)	(0.026)	(0.011)			
Round 3	-0.040***	-0.085**	-0.091***			
	(0.007)	(0.033)	(0.012)			
Treatment # Round 2	0.028***	0.055	0.022			
	(0.009)	(0.037)	(0.016)			
Treatment # Round 3	0.010	0.079*	0.034*			
	(0.010)	(0.045)	(0.018)			
Treatment				0.057*	0.070**	0.025**
				(0.030)	(0.031)	(0.010)
Ind. fixed effects	Yes	Yes	No	No	No	No
Mean of control[b]	0.925	4.134	0.872	3.440	3.225	0.887
No. observations	9862	9871	9870	3076	3077	3081

Notes: Standard errors, clustered at class level, are given in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.
[a] The mean of the dependent variable for control group at midline is reported. The questions related to the

relevance and usefulness of the training and intention to migrate were only asked in the endline survey.

We also present results on the impact of soft-skills training on ultimate labor market outcomes, as shown in Table 3. We considered different labor market outcomes, including: (1) whether the respondent ever worked for income, (2) whether s(he) is currently working, and (3) the associated labor income received in the last month. We also constructed a fourth outcome by aggregating the above three outcomes to capture overall youth labor market performance. We constructed this composite index using factor analysis. As shown in Table 3, although the coefficients associated with the treatment indicator are positive, they are statistically insignificant. The sizes of the impacts are also very small, implying that the ultimate effect of the training on labor market outcomes was negligible. There might be several explanations for this: (1) the light nature of the training and lack of complementary skills needed to benefit from the training, and (2) the lack of corresponding change on the supply side of the labor market (Fox and Kaul, 2018; Fox et al., 2020). For example, Fox et al. (2020 argue that lack of jobs remains the main driver of youth unemployment in Africa. Furthermore, the average impacts reported in Table 3 may mask important heterogeneities across individuals with varying attributes. Thus, we estimate potential heterogeneities using equations (3) and (4), by interacting access to soft-skills training and personality traits such as locus of control.

Table 3: Soft-skills training and actual labor market outcomes

	(1) Ever worked for income	(2) Currently working	(3) Labor income last month	(4) Overall labor market performance (index)
Panel A: Aggregate estimates using post-treatment dummy				
Post dummy	0.107***	0.292***	6208.166***	0.583***
	(0.015)	(0.014)	(388.413)	(0.025)
Treatment#Post	0.001	0.012	197.445	0.011
	(0.023)	(0.021)	(633.208)	(0.039)
P-value (Romano-Wolf)[a]	0.984	0.920	0.980	0.980
Ind. fixed effects	Yes	Yes	Yes	Yes
Mean of control[b]	0.643	0.314	5696.221	0.092
No. observations	9871	9871	9871	9861
Panel B: Disaggregate estimates using round dummies				
Round 2	0.094***	0.246***	4658.176***	0.471***
	(0.016)	(0.016)	(453.130)	(0.027)
Round 3	0.121***	0.340***	7845.997***	0.701***
	(0.018)	(0.015)	(532.001)	(0.032)

Treatment # Round 2	-0.004	0.022	29.607	0.010
	(0.024)	(0.024)	(627.441)	(0.041)
Treatment # Round 3	0.006	-0.000	319.352	0.010
	(0.027)	(0.025)	(847.088)	(0.051)
Ind. fixed effects	Yes	Yes	Yes	Yes
Mean of control[b]	0.643	0.314	5696.221	0.092
No. observations	9871	9871	9871	9861

Note: LOC (locus of control) was computed using 10 ten items shown in Table A3, measured at baseline. We first construct an index based on these 10 items and then create terciles of based on the continuous index. In the estimation, LOC stands for a binary indicator for those in the third tercile of locus of control. Standard errors, clustered at class level, are given in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. [a] These are Romano-Wolf adjusted p-values computed following Clarke, Romano, and Wolf (2020) to correct for the familywise error rate (FWER). [b] The mean of the dependent variable for control group at midline is reported.

5.2 Heterogeneity by locus of control

The heterogeneity analysis reported in Table 4 uncovers some important findings. The coefficients associated with the triple interaction (between the treatment assignment indicator, time dummies and third tercile (internal) locus of control) show positive and statistically significant effects. Similarly, the p-values associated with the test of $\beta_2 + \beta_4 = 0$ reported at the bottom of Table 4 show that the soft-skills training has a positive impact on youth with an internal locus of control—those who believe they can influence outcomes in their lives. Those individuals with internal locus of control are more likely to benefit from the soft-skills training, both in terms of labor market participation and earnings. For example, the estimates in column 4 of Table 4 suggest that for those youth with locus of control in the third tercile, the soft-skills training improved labor market performance by 0.13 standard deviation. These results corroborate previous work on the role of personality traits and noncognitive skills in shaping labor market outcomes. For instance, locus of control has been shown to improve labor market outcomes (Cobb-Clark, 2015), arguably by improving job search and related job market strategies (Caliendo et al., 2015; McGee and McGee, 2016). When it comes to labor income, locus of control has been highlighted as a significant component of wage determination models (Groves, 2005), with increased possibilities for upward income mobility. As highlighted by Schnitzlein and Stephani (2016), individuals with internal locus of control are more likely to earn more than their peers and have greater potential for upward mobility.

Table 4: Soft-skills training, locus of control, and actual labor market outcomes

	(1)	(2)	(3)	(4)
	Ever worked	Currently working	Labor income last	Overall labor market

	for income		month	performance (index)
Post dummy (β_1)	0.127***	0.297***	6300.083***	0.608***
	(0.017)	(0.016)	(510.738)	(0.030)
Treatment#Post (β_2)	-0.029	-0.004	-424.585	-0.046
	(0.026)	(0.025)	(675.499)	(0.045)
Post dummy# LOC:Third tercile (β_3)	-0.064**	-0.016	-284.999	-0.077
	(0.027)	(0.019)	(608.455)	(0.046)
Treatment # Post dummy# LOC:Third tercile (β_4)	0.091**	0.047*	1833.933	0.172**
	(0.038)	(0.028)	(1180.967)	(0.068)
P-value (Romano-Wolf)[a]	0.095	0.239	0.239	0.064
P-value ($\beta_2 + \beta_4 = 0$)	0.072	0.109	0.200	0.034
Ind. fixed effects	Yes	Yes	Yes	0.013
Mean of control[b]	0.643	0.314	5696.221	0.092
No. observations	9,871	9,871	9,872	9,862

Note: LOC (locus of control) was computed using 10 ten items shown in Table A3, measured at baseline. We first construct an index based on these 10 items and then create terciles of based on the continuous index. In the estimation, "LOC: third tercile" stands for a binary indicator for those in the third tercile of locus of control. Standard errors in parentheses, clustered at class level, are given in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. [a] These are Romano-Wolf adjusted p-values computed following Clarke, Romano, and Wolf (2020) to correct for the familywise error rate (FWER). [b] The mean of the dependent variable was computed for control group and at midline.

As we have two rounds of post-treatment data, we also estimate short- and medium-term impacts. The midline survey was conducted about six months after the soft-skills intervention, while the endline survey was conducted about one year after the intervention. For this purpose, we used round dummies instead of the post-treatment dummy, as specified in equation (3)–(4). The results in Table 5 report these disaggregated results. While the triple interaction terms capture potential differential effects of the soft-skills training across individuals with varying locus of control, the P-values reported at the bottom of the table show the significance of the impact of the training for those with internal locus of control (in the third tercile in the distribution of locus of control). Although the short- and medium-term returns to the training and locus of control are not statistically different, we observe that medium-term impacts and returns are slightly higher than short-term returns. This is intuitive given that six months is a short period of time, and youth may need more time and opportunities to convert their skills into labor market outcomes. This is also consistent with previous studies showing that earnings premium for social sciences and soft skills increases with experience, while it declines rapidly for jobs involving technology-intensive tasks such as computer science and engineering (Deming and Noray, 2020).

Table 5: Short- versus medium-term impacts and returns

	(1) Ever worked for income	(2) Currently working	(3) Labor income last month	(4) Overall labor market performance (index)
Round 2 (γ_{12})	0.113***	0.250***	4965.933***	0.502***
	(0.019)	(0.018)	(639.680)	(0.032)
Round 3 (γ_{13})	0.142***	0.346***	7696.940***	0.718***
	(0.021)	(0.018)	(682.834)	(0.040)
Treatment#Round 2 (γ_{22})	-0.024	0.021	-606.545	-0.024
	(0.029)	(0.028)	(792.101)	(0.050)
Treatment#Round 3 (γ_{22})	-0.034	-0.030	-250.952	-0.069
	(0.030)	(0.028)	(882.488)	(0.057)
Round 2# LOC:Third tercile (γ_{32})	-0.061*	-0.014	-935.460	-0.094*
	(0.032)	(0.024)	(810.443)	(0.056)
Round 3# LOC:Third tercile (γ_{33})	-0.067*	-0.017	456.146	-0.055
	(0.036)	(0.026)	(846.822)	(0.059)
Treatment # Round 2# LOC:Third tercile (γ_{42})	0.060	0.003	1898.940	0.103
	(0.042)	(0.033)	(1148.999)	(0.074)
Treatment # Round 3# LOC:Third tercile (γ_{43})	0.122**	0.089**	1629.563	0.233***
	(0.049)	(0.038)	(1630.941)	(0.089)
P-value ($\gamma_{22} + \gamma_{42} = 0$)	0.309	0.415	0.148	0.198
P-value ($\gamma_{23} + \gamma_{43} = 0$)	0.049	0.107	0.367	0.043
Ind. fixed effects	Yes	Yes	Yes	0.013
Mean of control.[a]	0.643	0.314	5696.221	0.092
No. observations	9871	9871	9871	9861

Note: LOC (locus of control) was computed using 10 ten items shown in Table A3, measured at baseline. We first construct an index based on these 10 items and then create terciles of based on the continuous index. In the estimation, "LOC: third tercile" stands for a binary indicator for those in the third tercile of locus of control. Standard errors in parentheses, clustered at class level, are given in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. [a] The mean of the dependent variable was computed for control group and at midline.

5.3 Heterogeneity by gender

In this section, we explore gender differences in the impact of soft-skills training as well as associated differences in returns to personality traits such as locus of control. This is motivated by the open debate on who benefits more from soft-skills training (e.g., Mckenzie, 2017). Given that young men and women exhibit varying level of exposure to the labor markets because of lower initial human capital, besides other social and cultural norms that deter participation, the soft-skills training may generate varying effects and returns to human capital investment (Chakravorty and Bedi, 2019). Furthermore, in conservative societies, sociocultural barriers remain even after additional training, which may reduce the effectiveness of these trainings (Cho et al., 2013). Given these contrasting arguments, the

empirical literature on the gendered differences in returns to labor market trainings remains mixed, although studies continue to show that women benefit more (e.g., Psacharopoulos, G., 1985; Escudero et al., 2019; Psacharopoulos, 2018). To empirically test this in our context, we extend the empirical specification in equation (1) by interacting the treatment and gender of individuals. These results are reported in Table A7. The interaction terms capture potential differential effects of the soft-skills training across young men and women. However, these interaction terms, although positive, are statistically insignificant, implying no discernable differences in the effect of the soft-skills training among young men and women. We also test whether young women with internal locus of control are more likely to benefit from the soft-skills training and thus translate it into higher levels of participation in labor markets than men with similar characteristics. Again, although women with internal locus of control appear to benefit from the soft-skills training, these gender differences are statistically insignificant.

5.4 Robustness exercises

After establishing the positive impact of soft-skills training on labor market outcomes for youth with an internal locus of control, we conduct additional checks using different measures and constructs of locus of control. First, instead of using binary indicators and hence terciles of locus of control, we use continuous and standardized measure of (internal) locus of control. As shown in Table A8, the main insights on the positive impact of soft-skills training for those with internal locus of control remains consistent with the previous results. Finally, in Table A9, we ignore the factor analysis and simply construct the raw total sum of the responses to the 10 items in Table A3. As the responses to each question range between 1 and 5, and we have 10 items, this leads to a total sum of responses ranging from 1 to 50. One limitation with this approach is that it puts equal weight on all items, unlike the factor analysis that includes differential weight for these items. However, the results in Table A9 show consistent patterns with the previous tables and findings.

6. Conclusion

While Africa hosts the world's youngest population—and thus an adequately large and energetic workforce that could drive economic transformation—high rates of youth unemployment and low productivity employment pose a major challenge in many African countries. Despite various initiatives and interventions to address youth unemployment in

Africa, empirical evidence on the effectiveness of these interventions remains scant. As such, identifying cost-effective interventions to support the youth transition from school to the labor market can serve the ever-increasing youth bulge in Africa. With the objective of testing the effectiveness of a gender-sensitive soft-skills training, we worked with four TVET institutions in Kenya to integrate a soft-skills training into their existing TVET programs and curriculums. We implemented a cluster RCT and assigned about half of the classes to the soft-skills training, which allowed us to evaluate the impact of soft-skills training on labor market outcomes, as well as perceptions and expectations of the labor market.

Although we find some suggestive evidence that the soft-skills training marginally contributed to preparing the youth for the labor market by improving their willingness, expectations, and preparedness for better jobs, the impact of the soft-skills training on ultimate labor market outcomes remained negligible. However, we find suggestive evidence that the effect of soft-skills training vary across individuals with different personality traits, especially those with varying levels of locus of control. The training improved the labor market outcomes of those with internal locus of control but not of other individuals who lack these attributes.

Our study offers relevant insights to facilitate the transition of young people from school to labor markets in Africa. The generally negligible average impacts of the soft-skills training we document in this study adds evidence to the mixed record of short-term training and light-touch interventions in Africa (e.g., Blattman and Ralston, 2015; Alcid et al., 2023; Blattman et al., 2022). Our heterogeneity analysis and associated findings highlight the need for targeted interventions to support youths' labor market participation in Africa, including interventions that consider complementary skills available to young men and women. These findings contribute to the literature on the role of soft-skills and associated training to improve the labor market outcomes of individuals (e.g., Deming, 2017; Acevedo et al., 2017; Ashraf et al., 2020; Campos et al., 2017; Edmonds et al., 2023; Adhvaryu et al., 2023). Most importantly, our findings reinforce the role of personality traits and associated noncognitive skills in shaping labor market outcomes (Heckman and Kautz, 2012; Kautz et al., 2014; Cobb-Clark, 2015; Caliendo et al., 2015; McGee and McGee, 2016; Heywood et al., 2017).

Despite these findings on the differential effects of a soft-skills training and the role of personality traits in moderating the impact of a soft-skills training, we note that both topics remain understudied in the African context. Furthermore, it remains debatable whether personality traits, such as locus of control, are sufficiently malleable

and what type of interventions may boost these attributes (Cobb-Clark and Schurer, 2013). Thus, further research on what type of interventions can shape personality traits such as locus of control and their ultimate implications on labor market outcomes can inform the design of targeted and labor market policies in Africa.

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Appendix

Table A1: Soft-skills course content

Episode	Episode theme	Skills learned/discussed	Activity
1	**Surfacing strengths**	**Self-awareness**	Introduction
			Talents, strengths, and skills
2	**Gender in the world of work**	**Gender competency**	Gender portraits
			Job diversity
3	**Job hunting and managing my emotions**	**Three ways of finding work**	Volunteering, networking, and learnerships
		Emotional awareness and emotional regulation	Identifying and regulating emotions
4	**Building a network in order to find a job or start a business**	**Interpersonal relatedness**	Important relationships
			African truths
			Business relationships
			Building trust
5	**Skills for connecting with others in the world of work**	**Listening**	Active listening
		Empathy	Understanding/showing/listening empathy
		Expression	The role of expression
6	**Leadership in the world of work**	**Interpersonal influence**	Understanding leadership
			Barriers to leadership
			Stepping into leadership
7	**Working with others**	**Collaboration**	Collaboration in business
			My business team and how teams work
8	**Negotiating to the top**	**Negotiation**	Negotiation and negotiation steps
			Negotiation outcomes and assertive behavior
9	**Setting myself up for success**	**Personal initiative**	My best business skill and envisioning my hopes and dreams
		Perseverance	Fixed and flexible mindsets and the power of "yet"
		Self-control	Defining self-control and what do I struggle to control
			Self-control through prioritizing

10	**Looking to my future**	**Problem solving**	Honey badger skills (creative problem solving)
			Start-up challenges
		Looking forward	Closure

Table A2: Characterizing compliance rates as a function of youth baseline characteristics

	(1)
Baseline characteristics of respondents	Compliance
Female	0.051**
	(0.025)
Age	0.004
	(0.005)
Has college education	0.013
	(0.022)
Never married	-0.040
	(0.028)
Household size	0.009**
	(0.004)
Lives in a hostel	0.008
	(0.029)
Lives at home	0.030
	(0.022)
Attends diploma course	-0.006
	(0.044)
Has Facebook	-0.007
	(0.018)
Household owns land	0.005
	(0.015)
Household owns livestock	0.006
	(0.014)
Computer	-0.025
	(0.020)
Household owns a car	-0.000
	(0.018)
Income category	-0.004
	(0.003)
Locus of control	-0.003
	(0.006)

Currently working	0.006
	(0.026)
Has ever worked for income	-0.005
	(0.016)
Willing to accept job offer	-0.047
	(0.043)
Satisfied with the TVET training	0.009
	(0.012)
Job search	-0.025*
	(0.015)
Mean compliance	0.830
R-squared	0.011
Joint F-test (p-value)	0.197
Number of observations	3,621

Note: Standard errors, clustered at class level, are given in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A3: Characterizing attrition rates as a function of treatment baseline characteristics (Round 2)

	(1) Attrition	(2) Attrition
Treatment	-0.019	-0.017
	(0.013)	(0.012)
Baseline characteristics of youth	No	Yes
R-squared	0.003	0.008
Mean attrition rate	0.124	0.124
Number of observations	3,621	3,589

Note: Standard errors, clustered at class level, are given in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table A4: Transitions from school into the labor market and associated changes in perceptions and expectations

	Round 1	Round 2	Round 3
Satisfied by TVET training (1–5 Likert scale)	4.27	4.13	4.22
Expects to get a job in less than a year	0.89	0.87	0.81
Willing to accept a job	0.99	0.94	0.95
Prefers to be self-employed	0.61	0.48	0.58
Searched for a job last month	0.36	0.72	0.67
Ever worked for income	0.55	0.65	0.68
Currently working	0.07	0.32	0.41
Monthly labor income	1,158.39	5,701.56	9,126.48

Note: This table reports mean values of key labor market outcomes across rounds. Monthly labor income is reported in Kenyan Shillings (KES).

Table A5: Locus of control score

	Round 1	Round 2	Round 3
To a great extent, my life is controlled by accidental/chance happenings	2.60	2.58	2.47
I feel like what happens in my life is determined by others	1.94	2.12	2.01
When I get what I want, it is usually/mostly because I am lucky	2.63	2.72	2.60
Often, there is no chance of protecting my personal interests from bad luck	2.89	2.89	2.87
It is not always wise for me to plan too far ahead, because many things turn out to be a matter of good or bad fortune	2.75	2.74	2.67
I can mostly determine what will happen in my life	3.25	3.33	3.31
When I make plans, I am almost certain/guaranteed/sure to make them work	3.95	3.94	3.86
I am usually able to protect my personal interests	4.10	4.08	4.06
When I get what I want, it is usually because I worked hard for it	4.27	4.23	4.20
My life is determined by my own actions	4.31	4.23	4.19

Note: This table reports mean values of key labor market outcomes across rounds.

Table A6: Locus of control score at baseline and across control and treatment group

	Control	Treatment	Full sample	Pairwise t-test (p-value)
To a great extent, my life is controlled by accidental/chance happenings	2.60 [1.24]	2.60 [1.18]	2.60 [1.21]	0.87
I feel like what happens in my life is determined by others	1.95 [0.88]	1.93 [1.02]	1.94 [0.95]	0.48
When I get what I want, it is usually/mostly because I am lucky	2.66 [1.37]	2.60 [1.26]	2.63 [1.35]	0.17
Often, there is no chance of protecting my personal interest from	2.87 [1.14]	2.92 [1.15]	2.89 [1.16]	0.19
It is not always wise for me to plan too far ahead because many things	2.77 [1.18]	2.72 [1.25]	2.75 [1.23]	0.21
I can mostly determine what will happen in my life	3.22 [1.12]	3.27 [1.19]	3.25 [1.16]	0.17
When I make plans, I am almost certain/guaranteed/sure to make them	3.94 [0.91]	3.95 [0.85]	3.95 [0.88]	0.85
I am usually able to protect my personal interests	4.10 [0.76]	4.10 [0.67]	4.10 [0.72]	0.99
When I get what I want, it is usually because I worked hard for it	4.27 [0.68]	4.27 [0.63]	4.27 [0.66]	0.79
My life is determined by my own actions	4.30 [0.61]	4.33 [0.72]	4.31 [0.67]	0.13

Note: Standard deviations are given in parentheses.

Table A7: Gender differences in the impacts of soft-skills training

	(1) Ever worked for income	(2) Currently working	(3) Labor income last month	(4) Overall labor market performance (index)
Panel A: Aggregate estimates using post-treatment dummy				
Post dummy	0.062***	0.307***	7533.274***	0.604***
	(0.022)	(0.017)	(639.912)	(0.037)
Treatment#Post	0.002	0.019	-507.905	-0.002
	(0.029)	(0.026)	(804.322)	(0.051)
Female#Post	0.092***	-0.031	-2718.687***	-0.042
	(0.029)	(0.027)	(777.270)	(0.058)
Treatment#Female#Post	0.011	-0.022	1265.924	0.025
	(0.042)	(0.037)	(1187.108)	(0.081)
Ind. fixed effects	Yes	Yes	Yes	Yes
No. observations	9871	9871	9871	9861
Panel B: Disaggregate estimates using round dummies				
Round 2	0.053**	0.269***	5762.901***	0.495***
	(0.022)	(0.021)	(772.010)	(0.042)
Round 3	0.071***	0.346***	9340.874***	0.714***
	(0.026)	(0.020)	(900.008)	(0.049)
Treatment # Round 2	-0.002	0.035	-288.060	0.012
	(0.031)	(0.029)	(915.623)	(0.057)
Treatment # Round 3	0.005	0.003	-747.329	-0.017
	(0.034)	(0.032)	(1131.856)	(0.068)
Female#Round 2	0.084***	-0.046	-2250.588***	-0.049
	(0.029)	(0.031)	(859.437)	(0.063)
Female#Round 3	0.102***	-0.012	-3099.593***	-0.027

	(0.036)	(0.030)	(1050.806)	(0.069)
Treatment#Female#Round 2	0.006	-0.036	414.920	-0.012
	(0.044)	(0.041)	(1118.252)	(0.087)
Treatment#Female#Round 3	0.016	-0.011	2093.600	0.058
	(0.049)	(0.043)	(1676.025)	(0.099)
Ind. fixed effects	Yes	Yes	Yes	Yes
No. observations	9871	9871	9871	9861

Note: Female stands for a binary indicator assuming a value of 1 for young women and 0 for young men in our sample. Standard errors, clustered at class level, are given in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table A8: Soft-skills training, locus of control, and actual labor market outcomes: using continuous measure of locus of control

	(1) Ever worked for income	(2) Currently working	(3) Labor income last month	(4) Overall labor market performance (index)
Post dummy (β_1)	0.109***	0.292***	6223.405***	0.585***
	(0.015)	(0.014)	(402.569)	(0.026)
Treatment#Post (β_2)	-0.003	0.010	97.049	0.004
	(0.023)	(0.022)	(617.124)	(0.039)
Post dummy# LOC (β_3)	-0.037***	-0.000	-220.336	-0.031
	(0.013)	(0.010)	(395.369)	(0.024)
Treatment # Post dummy# LOC (β_4)	0.048***	0.020	1141.745	0.086**
	(0.018)	(0.014)	(763.404)	(0.036)
Ind. fixed effects	Yes	Yes	Yes	0.013
Mean of control[a]	0.643	0.314	5696.221	0.092
No. observations	9,871	9,871	9,871	9,861

Note: LOC (locus of control) was computed using 10 ten items shown in Table A3, measured at baseline. We construct an index increasing with internality and hence an index capturing internal locus of control based on these 10 items. Standard errors in parentheses, clustered at class level, are given in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. [a] The mean of the dependent variable was computed for control group and at midline.

Table A9: Soft-skills training, locus of control, and actual labor market outcomes: using raw responses to the 10 items measuring of locus of control

	(1)	(2)	(3)	(4)

	Ever worked for income	Currently working	Labor income last month	Overall labor market performance (index)
Post dummy (β_1)	0.326***	0.285***	6903.061	0.326***
	(0.115)	(0.098)	(4429.701)	(0.115)
Treatment#Post (β_2)	-0.450***	-0.173	-9800.935	-0.450***
	(0.172)	(0.144)	(7317.546)	(0.172)
Post dummy# LOC (β_3)	-0.006*	0.000	-18.776	-0.006*
	(0.003)	(0.003)	(114.604)	(0.003)
Treatment # Post dummy# LOC (β_4)	0.012***	0.005	269.258	0.012***
	(0.005)	(0.004)	(200.754)	(0.005)
Ind. fixed effects	Yes	Yes	Yes	0.013
Mean of control[a]	0.643	0.314	5696.221	0.092
No. observations	9,871	9,871	9,871	9,861

Note: LOC (locus of control) was computed using 10 ten items shown in Table A3, measured at baseline. We construct a total raw sum of values and responses to create a raw value of responses that are increasing in internal locus of control (by reversing the response to the items capturing internal locus of control). Theoretically, the value of this variable ranges between 0 and 50. Standard errors in parentheses, clustered at class level, are given in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. [a] The mean of the dependent variable was computed for control group and at midline.